

# Kaua'i

## Multimodal Land Transportation Plan

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### APPENDIX F THE KAUA'I BUS ONBOARD SURVEY SUMMARY OF RESULTS



# The Kauai Bus Onboard Survey: Summary of Results

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Kauai Multimodal Land Transportation Plan

**February, 2012**

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**In Association with:**

The County of Kauai Transportation Agency

*A special thanks to the volunteers that conducted the onboard bus surveys and aided in data collection; this report would not have been possible without their help:*

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## Executive Summary

This report summarizes the findings from The Kauai Bus Onboard Survey conducted in late November and early December, 2011 as part of the *Kauai Multimodal Land Transportation Plan*. The data presented in this report relates to demographics, travel behavior and service preferences of those using The Kauai Bus. A total of 168 surveys were collected. Key findings from this survey are highlighted here:

### Survey Sample

#### *Surveys by Bus Route*

- The survey sample closely matched the actual distribution of ridership by route

#### *Time of Day of Surveying*

- Responses from midday riders were somewhat overrepresented
- Surveys were collected from 6AM-7PM (no surveys were administered during evening operation hours, 7-10PM)

#### *Gender*

- About half were male and half were female

#### *Age*

- 25% of The Kauai Bus riders surveyed were between the ages of 16 and 24
- Those less than 16 or over 65 accounted for only 15% of riders
- The large number of teenagers and young adults observed using the bus can be attributed (in part) to the recent pass program that allows Kauai Community College (KCC) students to use their student ID's as transit passes

### Travel Patterns of Bus Riders

#### *Where to?*

- Between 52%-64% of all bus trips from each district other than Lihue were to/from the Lihue district
- Most riders were using The Kauai Bus for longer trips; only 25% of trips stayed within the district that the trip originated
- Less than 5% of riders surveyed traveled through Lihue from an origin outside Lihue to a destination outside Lihue

#### *Transferring?*

- 18% of riders needed to transfer to another bus as part of their trip
- 50% of those transferring were connecting to/from the Lihue Shuttle
- A much higher percentage of riders on the shuttle bus routes transferred during their trip as compared to the those riding the mainline bus routes

#### *Getting to the bus*

- 72% of riders walked to the bus
  - 21% were dropped off in a private vehicle
  - Only 4% drove, parked and then boarded the bus
  - 3% biked to the bus
  - 47% of bus riders surveyed traveled less than ¼ mile to get to the bus
-

- 24% traveled a mile or more
- Of those walking, 27% walked ½ mile or more and 11% walked at least a mile

#### *Purpose of trip*

- 21% of those surveyed were using the bus to commute to/from work
- 19% were going to/from school

#### *How did you pay?*

- 48% of riders paid by cash and the rest used a pass or a KCC student ID
- Of those using a pass, 85% had a one month pass
- 10% of riders used a KCC student ID to board

## **Preferences of Bus Riders**

#### *Most important service characteristic*

- 36% - frequency of service (headways)
- 24% - low fares
- 15% - stop location
- 14% - service hours
- Less than 5% ranked travel time or need to transfer as being the most important

#### *Future improvements most desired (ranked 4+ on a scale of 1-5, 5 being very important)*

- More shelters/benches
- Increased weekend frequency
- Safer pedestrian facilities around bus stops

#### *Mid priority improvements desired (ranked 3-3.9 on a scale of 1-5)*

- More weekday frequency
- Expanded hours of service
- Stops nearer people's home/destination
- Expanded route coverage
- Increased express service

#### *Lower priority improvements desired (ranked <3 on a scale of 1-5)*

- More park-n-rides
- Additional onboard bicycle storage
- Onboard luggage/surf board storage
- Wi-Fi on buses or at stops

#### *Improvements desired by riders 24 years or younger*

- Wi-Fi on buses and at stops was ranked significantly higher than for riders 25+
- Other preferences were similar to older age groups

#### *Where should new service go?*

- 24% of 168 respondents ranked "bus routes to more places" of high (5) importance
- 22% said new service should go to Wailua Homesteads
- 20% said new service should go to Haena
- Multiple destinations accounted for the remaining 58%

## Goals & Methodology

The Kauai Bus Onboard Survey was conducted over a four week period during the end of November and beginning of December, 2011. This survey was done in conjunction with the *Kauai Multimodal Land Transportation Plan* for the County of Kauai. The primary purpose of this survey was to gather data on transit trip patterns and preferences of transit riders to inform the transit section of the plan and provide feedback to the County of Kauai Transportation Agency that operates The Kauai Bus.

A total of 168 onboard bus surveys were conducted on all eight of The Kauai Bus's routes and at three stops with high ridership (Kukui Grove, Lihue Big Save, and Kapaa Skate Park). Surveys were conducted by volunteers and consisted of short in-person interviews. Surveys were only conducted on weekdays and due to logistical limitations were only conducted during daylight hours. During the daylight service hours, the surveys were distributed as evenly as possible in an effort to avoid over representing one type of rider group. The number of surveys collected on each bus route was determined by ridership trends on that route.

Surveyors typically boarded buses at one end of the route, conducted interviews while en route, and alighted at the other end of the route. Surveys were collected from as many bus riders as possible while onboard. To counter any potential biasness when selecting a person to interview, surveyors were instructed to use a random number generator when buses were so crowded that surveying everyone onboard was not feasible. Participation in the survey was completely voluntary. After volunteers completed their surveys, the responses were entered into a database for analysis.

## Survey Results

The results of this survey are divided into three general categories: 1) attributes of the survey sample (such as demographics); 2) travel patterns (where and how people were traveling); and, 3) rider preferences (what service attributes riders considered most important). The results are outlined in these three categories and sub-categories below.

1. Survey Sample Attributes
  - a. Distribution of surveys by bus route
  - b. Distribution of surveys by time of day
  - c. Gender and age
2. Travel Patterns
  - a. Where bus riders are traveling
  - b. Transfer characteristics
  - c. Distance and mode to bus
  - d. Trip purpose
  - e. Fare type
  - f. Ridership frequency
3. Rider Preferences

- a. Current important characteristics
- b. Changes desired for future

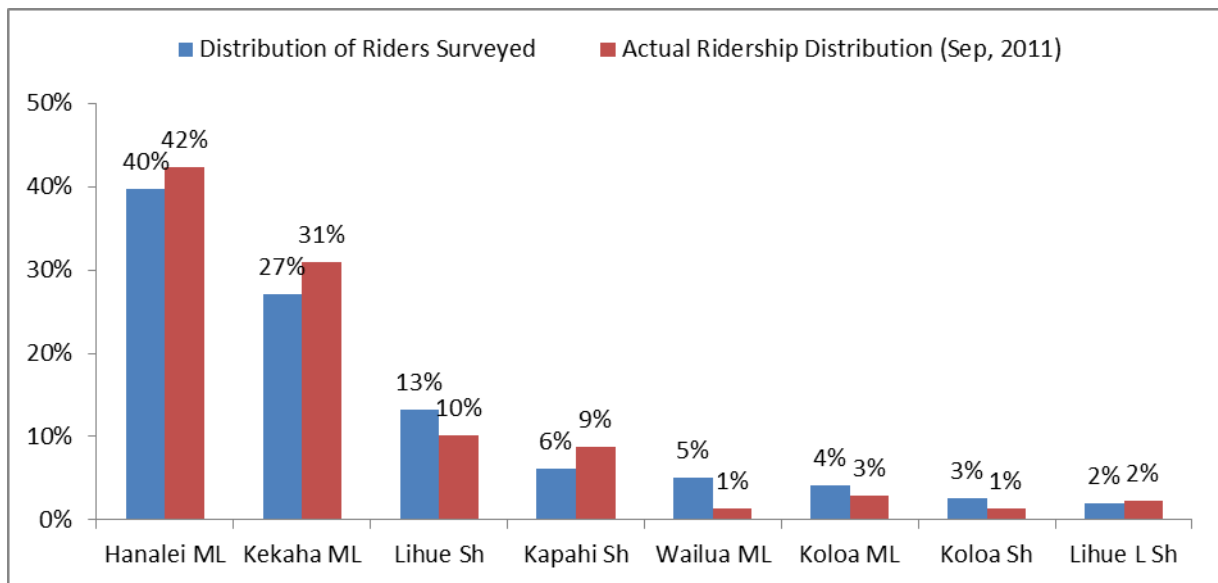
## Attributes of the Survey Sample

This section includes data on the bus routes that were surveyed, when surveys were conducted, and the age and gender of survey respondents. Data from this section can be used to determine how well the survey sample represents all users of The Kauai Bus. It is important to understand the attributes of the survey sample because the results of the survey rely heavily on who was surveyed. For example, older riders may have different opinions than younger riders about what service characteristics are more important. Similarly, people who use the bus during the middle of the day may have different travel patterns and preferences compared to commuters who primarily use the bus in the morning and late afternoon. Understanding the age, gender, time of day and location of those surveyed will help make sense of other results found in the survey.

## Distribution of Riders Surveyed by Route

Figure 1 compares the distribution of bus riders surveyed by route with the actual average ridership distribution by route (in September, 2011). Results show that the survey sample closely matches the ridership distribution by route indicating that this survey accurately represents the population of bus riders by route frequented.

Figure 1. Distribution of bus riders by route.



\*Actual ridership figures from County of Kauai Transportation Agency, Sep 2011.

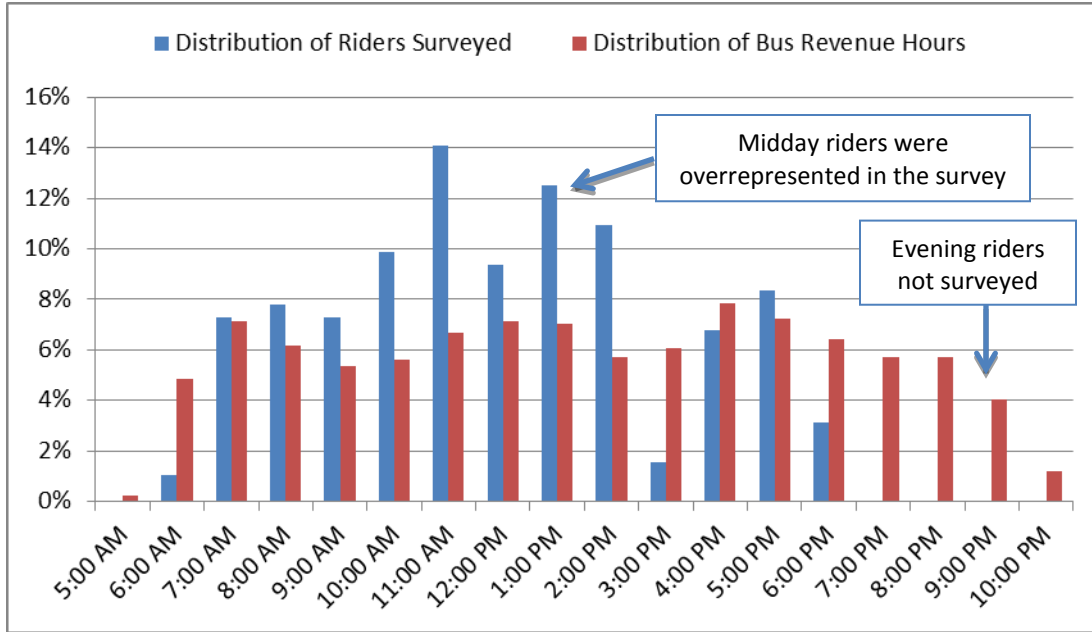
## Distribution of Surveys Collected by Time of Day

Figure 2 compares the time of day when surveys were conducted to the actual distribution of bus revenue hours by time of day (as of December, 2011). While this is not an exact correlation because bus revenue hours do not necessarily equate to ridership, the comparison roughly gives a sense of how well the survey captured actual ridership levels from different times of the day. Results show that riders who use the bus between 7am-6pm are well represented in this survey.



Additionally, those who use the bus in the middle of the day (10am-3pm) are overrepresented, while those who use the bus before 7am and after 6pm are underrepresented. Due to the difficulties inherent to taking surveys at night, evening riders (after 7pm) were not surveyed.

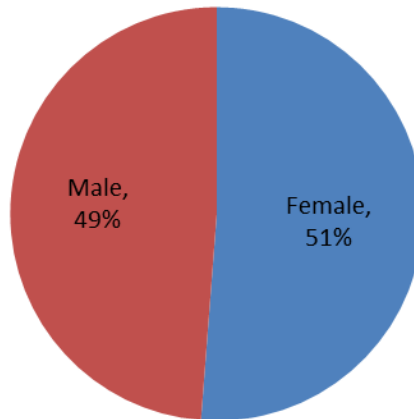
Figure 2. Distribution of bus riders surveyed and bus service levels by time of day.



## Gender of Respondents

Figure 3 shows that the ratio of male to female riders surveyed was nearly equal.

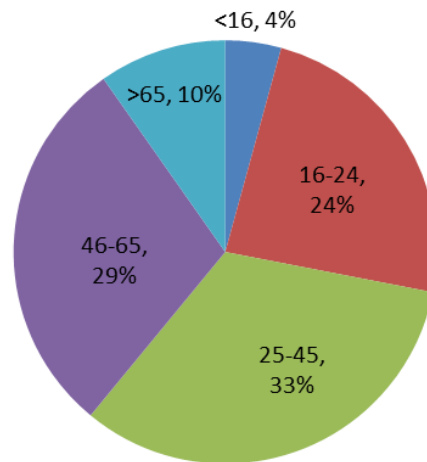
Figure 3. Gender of respondents.



## Age Distribution of Respondents

Figure 4 illustrates the age distribution of riders surveyed using The Kauai Bus. Results show that nearly 86% of riders surveyed were 16-65 years in age. While there were very few riders surveyed who were younger than 16, those who were 16-24 represent nearly a quarter of the population using The Kauai Bus.

Figure 4. Age distribution of riders surveyed on The Kauai Bus.



## Travel Patterns

This section summarizes the travel patterns reported by riders of The Kauai Bus. These include: where people are traveling, whether a transfer was needed for their trip, the distance traveled to access the bus, the mode used to access the bus, the trip purpose, the fare type used and ridership frequency. Results from this section of the survey provide insight into how transit riders are using the bus system in Kauai.

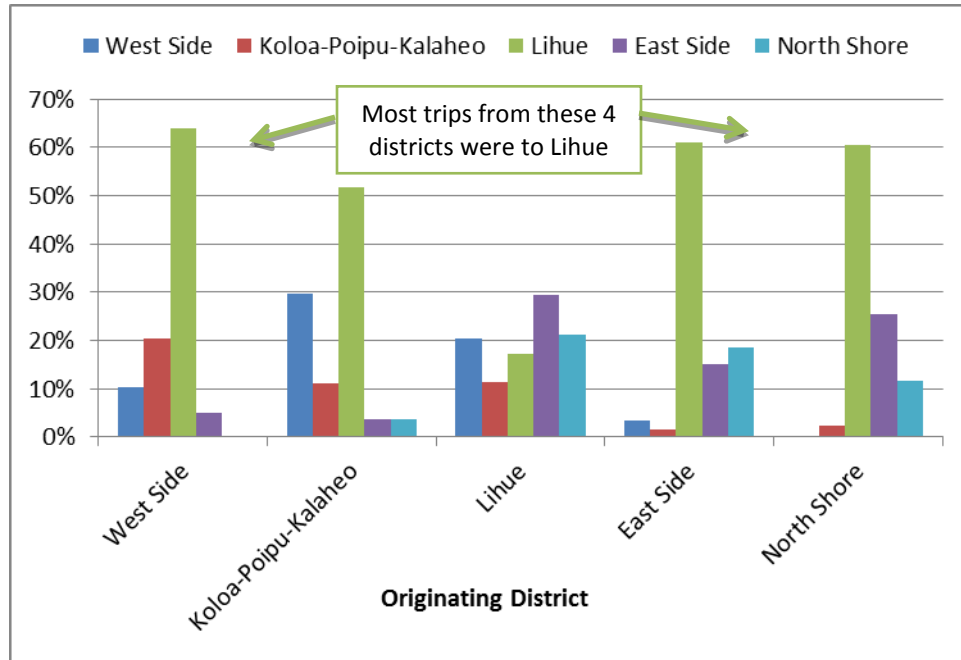
### Trip Profile by District

Figure 5 illustrates the trip profile of each district in Kauai. For districts other than Lihue, the trip profile was roughly the same:

- 52-64% of transit trips began or ended in Lihue.
- 19-30% of transit trips were to the adjacent district other than Lihue (e.g. between the West Side and Koloa-Poipu-Kalaheo or between the North Shore and East Side).
- Only 10-20% of trips began and ended in the same district.
- Only 2-8% of transit trips were to a district across Lihue (e.g. from the North Shore/East Side to Koloa-Poipu-Kalaheo/West Side).

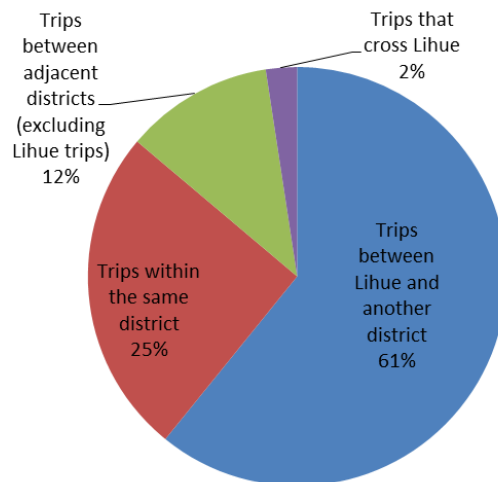
Given that Lihue is the commercial and job center for Kauai and the route structure of the bus system is centered on Lihue, the transit trip profile of Lihue is different than the other four districts. The bus trips that began or ended in Lihue were distributed relatively equally between the other four districts in Kauai. The district with the highest percentage of trips to or from Lihue was the East Side (30%) and the lowest was Koloa-Poipu-Kalaheo (20%).

Figure 5. Transit trip profile by district.



The pie chart in Figure 6 divides all transit trips surveyed into four types: 1) trips between Lihue and one of the four other districts; 2) trips that begin and end in the same district; 3) trips between adjacent districts (excluding Lihue trips); and, 4) trips that cross Lihue from one side of the island to the other. As expected, the majority (61%) of all trips on The Kauai Bus are between Lihue and another district. Additionally, 75% of transit trips are between two different districts in Kauai, meaning most people are using The Kauai Bus for longer trips. Very few riders (only about 2%) are using the bus to travel from one side of Kauai to the other, crossing Lihue during their trip.

Figure 6. Transit trip profile of all trips surveyed.

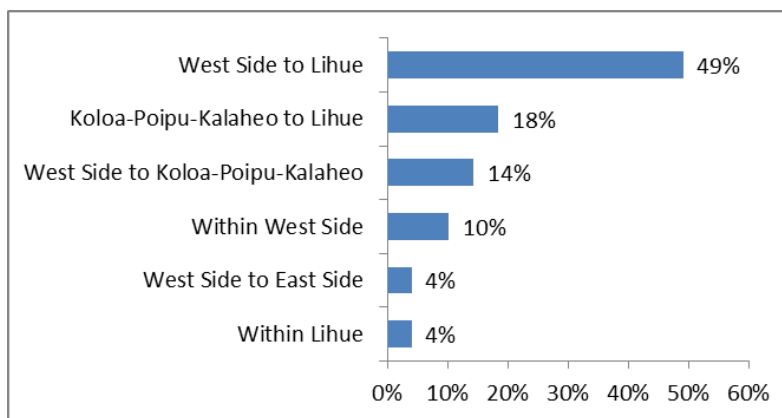


## Trip Profile by Bus Route

Figures 7 and 8 show the trip profile of the two major transit bus routes in Kauai, the Kekaha-Lihue mainline and the Hanalei-Lihue mainline.

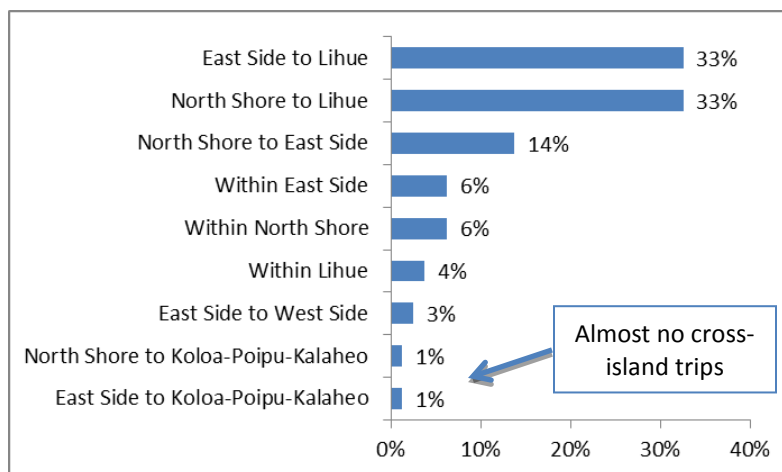
Nearly half of all riders aboard the Kekaha-Lihue mainline were traveling between the West Side and Lihue. A much smaller percent of riders surveyed (18%) were traveling between Koloa-Poipu-Kalaheo and Lihue. A similar percent of riders (14%) were traveling between the West Side and Koloa-Poipu-Kalaheo and only 10% were traveling within the West Side. None of the 49 transit riders surveyed on the Kekaha-Lihue mainline were traveling to/from the North Shore or East Side.

Figure 7. Trip profile of Kekaha-Lihue mainline route.



The majority of those surveyed who were using the Hanalei-Lihue mainline route as part of their trip were traveling between either the East Side or North Shore and Lihue. About 14% were traveling between the North Shore and East Side and even fewer were traveling within a district. Only 2% of all riders surveyed who were using the Hanalei-Lihue mainline as part of their trip crossed Lihue to the other side of the island.

Figure 8. Trip profile of Hanalei-Lihue mainline route.



## Transfers

Figure 9. Do you need to transfer as part of your trip?

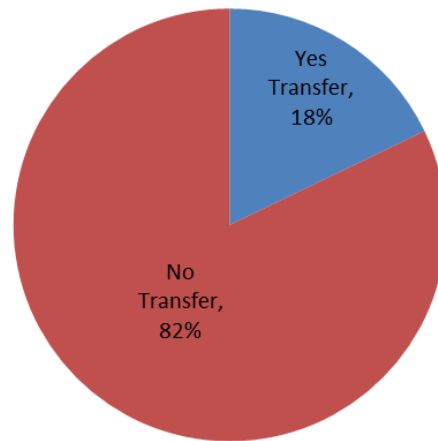


Figure 9 shows that only 18% of those surveyed used a transfer as part of their trip. Since all transfers must involve one of the mainline routes as part of the trip, Figure 10 shows the breakdown of the other routes riders transferred to/from. Half of all transfers were to/from the Lihue shuttle. Most of the rest were to/from the Koloa or Kapahi shuttle and only 13% of transfers were from one mainline to another. It should also be noted that all the transfers from the Koloa shuttle were to the Westside.

Figure 10. Route transferred to (from one of the mainline routes).

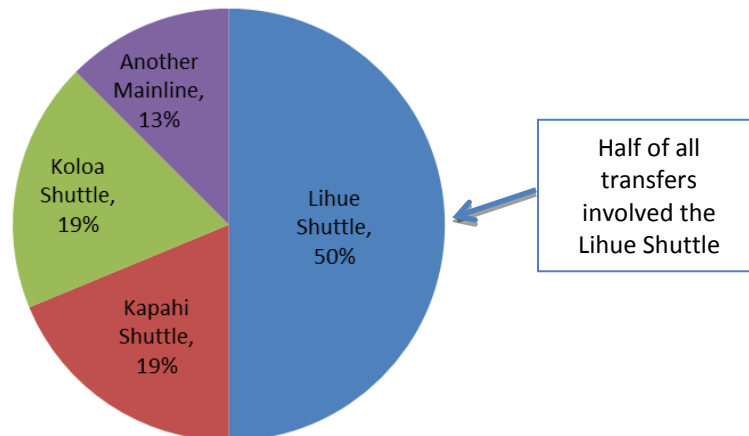
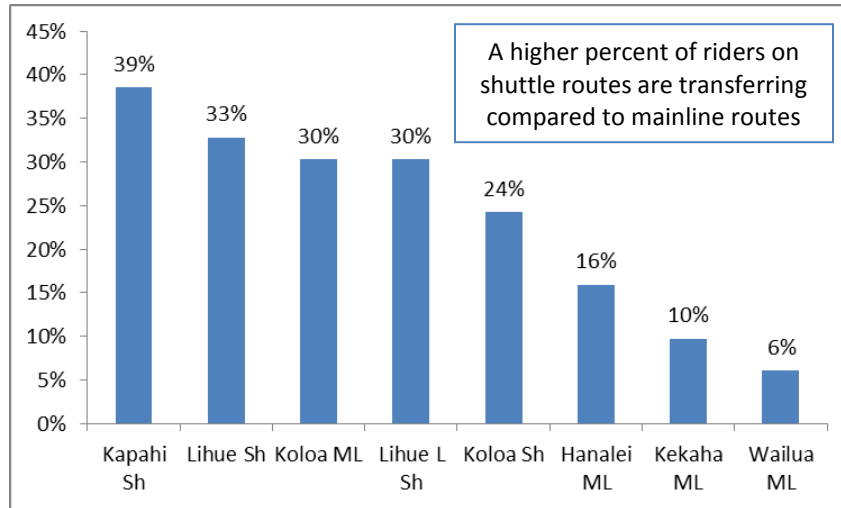


Figure 11 shows the estimated percent of riders for each of the eight bus routes operated by The Kauai Bus that needed to make a transfer as part of their trip. The majority of riders on every bus route were not transferring. The Kapahi shuttle has the highest percentage of riders that were transferring as part of their trip (39%), while the Wailua mainline had the lowest (6%). As is apparent from this graphic, a higher percentage of those on shuttle routes were transferring as part of their trip compared to those on mainline routes.

Figure 11. Estimated percent of bus riders transferring by route.



### Accessing the Bus

Figure 12 shows the mode of transportation used by riders to access the bus. The vast majority of riders surveyed walked to the bus (72%), and a significant number of people were dropped off (21%). Only a small percentage of riders surveyed had driven and parked or biked to the bus.

Figure 12. How did you get to the bus today?

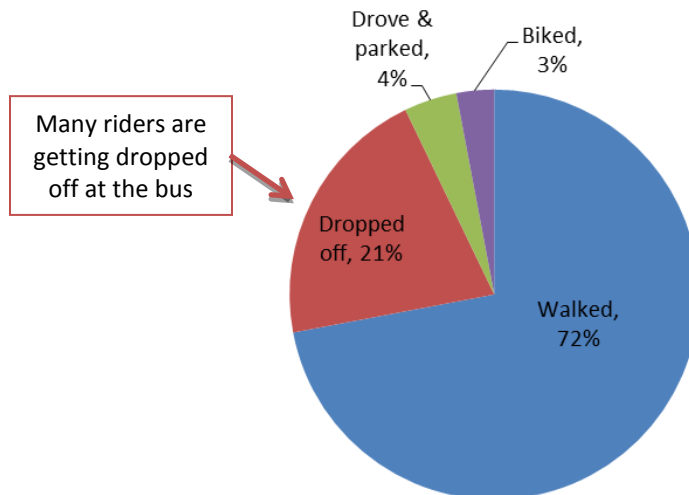


Figure 13 shows how far riders reported traveling to get to the bus on the day surveyed. Close to 50% reported traveling less than a quarter mile, or less than a five minute walk. It is generally understood that most people will chose another mode if they have to walk more than a quarter mile to access bus transit, and even fewer will travel more than a half mile. Results show that 40% of people reported traveling more than a quarter to get to the bus, and 24% reported traveling a mile or more. The average distance traveled to get to the bus was 0.6 miles and the median distance was a quarter mile.

Figure 13. How far did you travel to get to the bus? Average: 0.6 miles, median: 0.25 miles.

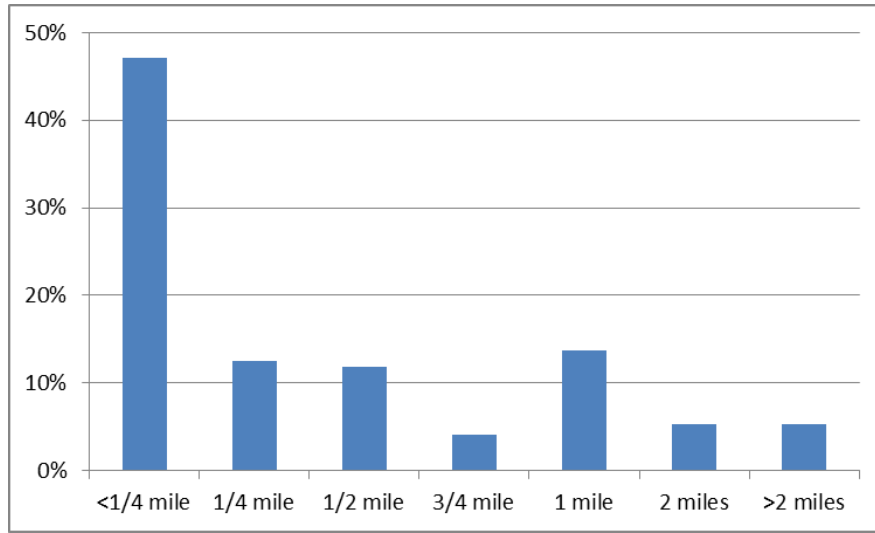
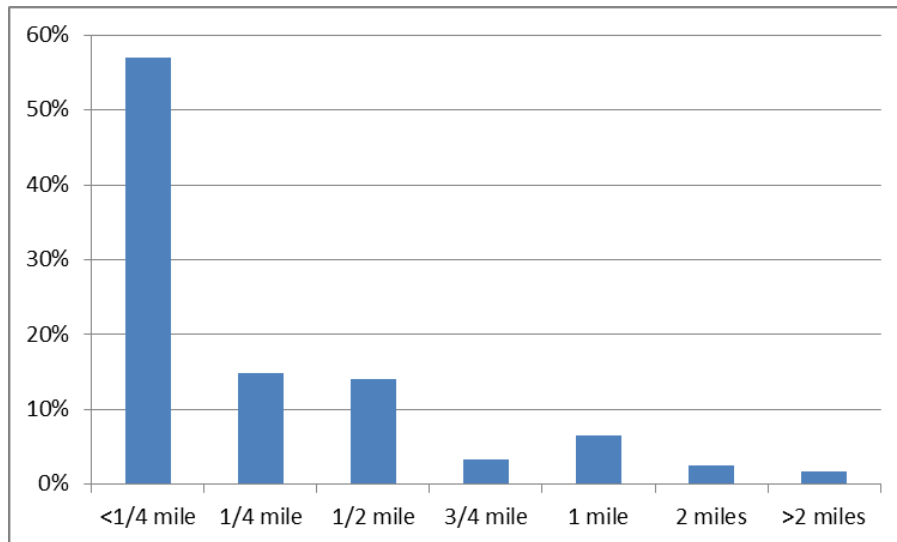


Figure 14 shows the distance respondents reported walking to the bus. In general, people who walked to the bus traveled a shorter distance than those who used other modes. However, 27% of those surveyed reported walking over a quarter mile to get to the bus and 11% reported walking a mile or more to get to the bus.

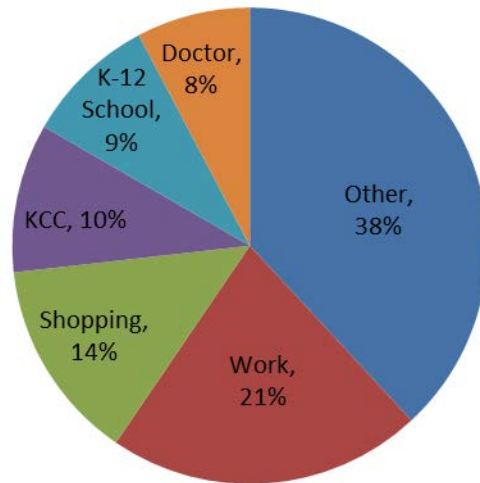
Figure 14. Distance respondents reported walking to the bus. Average: 0.37 miles, median: 0.13 miles.



### Primary Trip Purpose

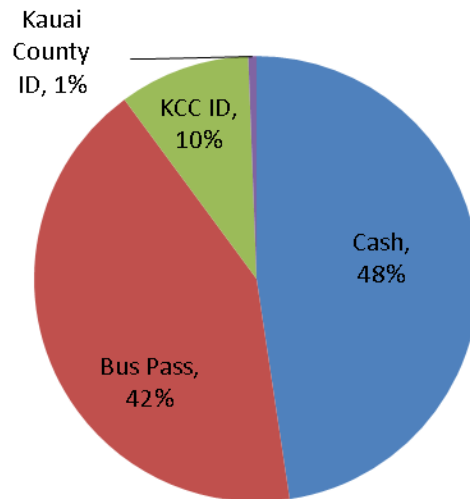
Figure 15 shows that the primary trip purpose of those using The Kauai Bus varies. About 21% of respondents reported using the bus to get to work and 19% reported using it to get to school (grade school or college). Part of the reason work trips were reported as being such a small percentage of trips may have to do with the fact that midday trips were overrepresented in the survey.

Figure 15. Primary trip purpose.



## Fare Payment Method

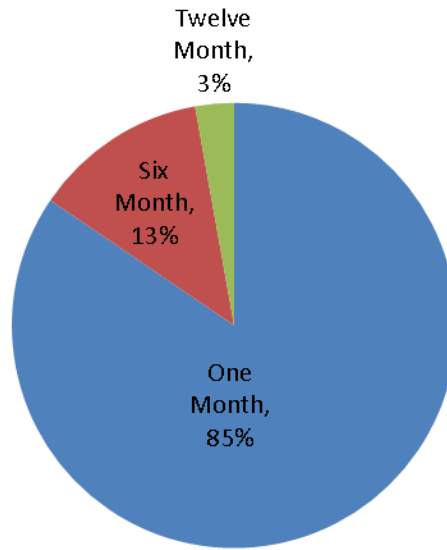
Figure 16. Fare payment used.



Roughly half of all transit users surveyed reported using cash to pay their fare and 42 percent used a transit pass. Despite the fact that the pilot program whereby KCC students can use their ID as a bus pass only started four months before this survey was conducted, about 10% of total riders used a KCC ID. Only about one percent of riders surveyed used a Kauai County ID, as seen in Figure 16. According to ridership reports from The Kauai Bus, County IDs are actually used much more frequently than reported in this survey. Part of this discrepancy is likely a result of midday riders having been overrepresented in this survey. Of pass holders, the majority used a one month pass, and only a small percentage used six or twelve month passes (see Figure 17).



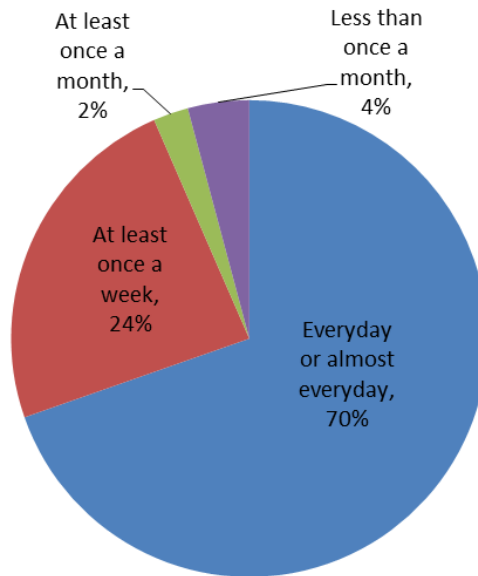
Figure 17. Type of bus pass used.



## Frequency Riding the Bus

The majority of The Kauai Bus users surveyed reported riding the bus everyday or almost everyday, and most of the rest reported riding the bus at least once a week.

Figure 18. How often do you ride the bus?



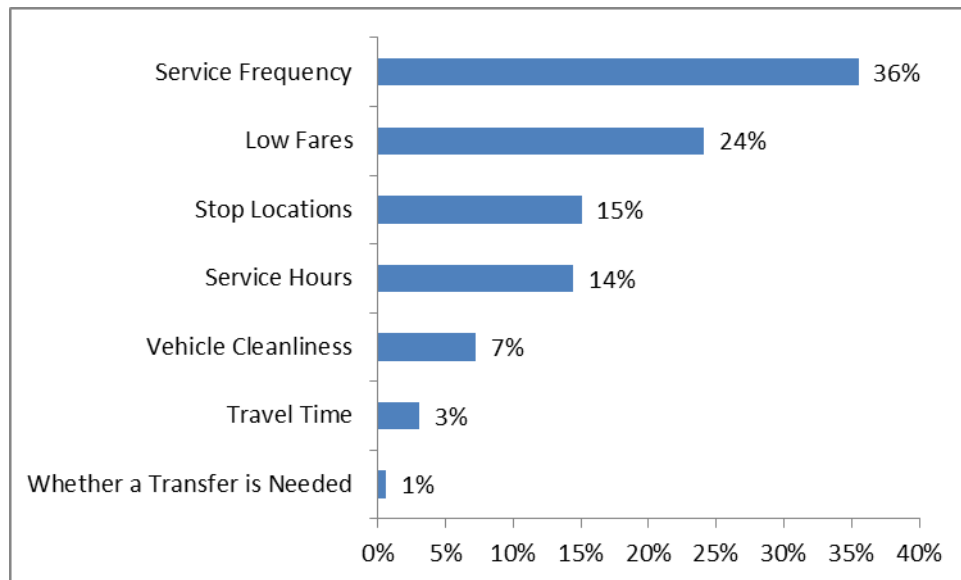
## Preferences of Bus Riders

As part of this survey, bus riders were asked two questions related to service characteristics. The results are summarized here and provide insight into the improvements to bus service most desired by riders of The Kauai Bus.

## Service Characteristic Most Important in Riding the Bus

Figure 19 summarizes the responses given when riders were asked what service characteristic is most important to them when riding The Kauai Bus. Of the choices provided 36% of riders cited service frequency as the most important characteristic. Nearly a quarter of respondents reported low fares as the most important service characteristic, and a smaller percentage of people said stop location and service hours (how early or late service operates) were most important when riding The Kauai Bus. Vehicle cleanliness, travel time and whether a transfer was needed were not cited by many as being as important as other service characteristics.

Figure 19. Service characteristic most important in riding The Kauai Bus.

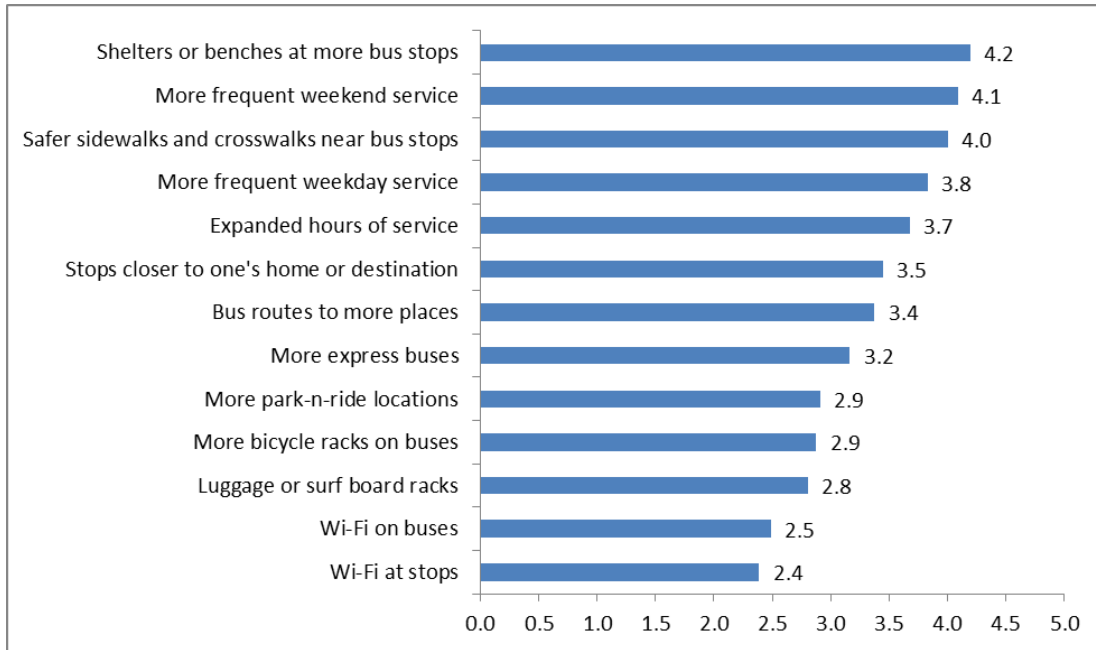


## Service Improvements Most Desired

Question ten of the survey asked bus riders to rate how important certain service improvements would be for encouraging them to ride the bus more frequently. They were asked to rate 13 choices on a scale of 1-5, with 5 being very important and 1 being not important. The average rating for each proposed service improvement is summarized in Figure 20.

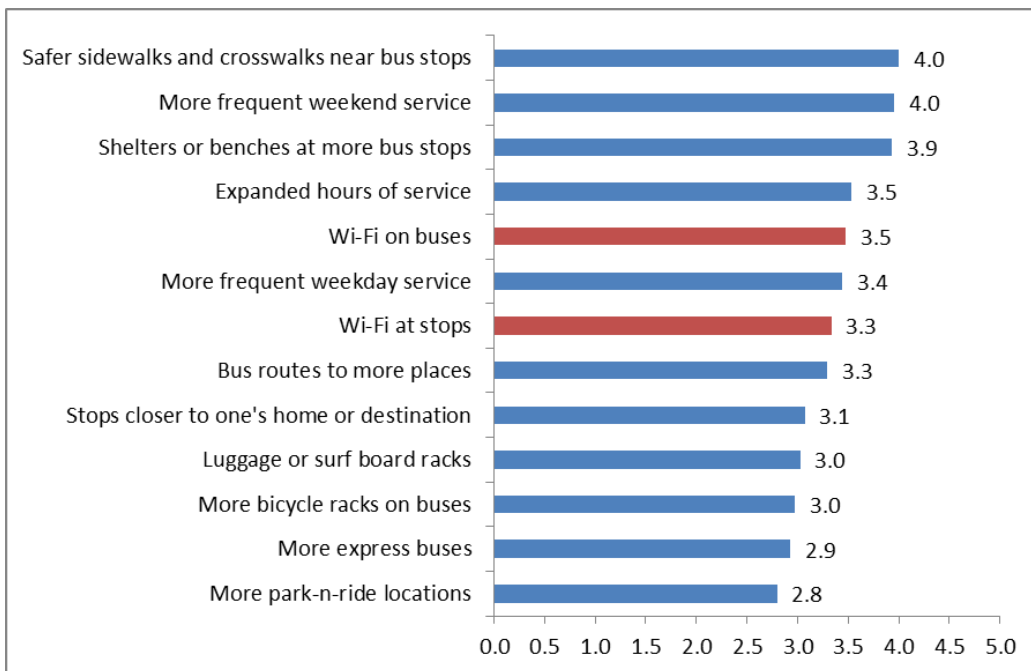
The service improvements that bus riders most desired for The Kauai Bus (rated 4+) are: to add shelters or benches to more stops, more frequent weekend service, and safer sidewalks and crosswalks near bus stops. Service improvements that riders said were of moderate importance (rated 3-3.9) include: more frequent weekday service, stops closer to people's home or destination, bus routes to more places and more express bus service. The proposed service improvements that were given the lowest average rating (<3) by bus riders include: more park-n-ride locations, more bicycle racks on buses, luggage or surfboard racks on buses, Wi-Fi on buses and Wi-Fi at bus stops.

**Figure 20. Bus service improvements most desired (on a scale 1-5, where 5 = very important and 1 = not important). The averages of all responses for each proposed service improvement are shown.**



When only the responses of bus riders under 25 years of age are averaged, the results are fairly similar, with one primary difference (see Figure 21). Bus riders under 25 years of age ranked Wi-Fi, both on buses and at stops, at a much higher importance level than bus riders 25 and older.

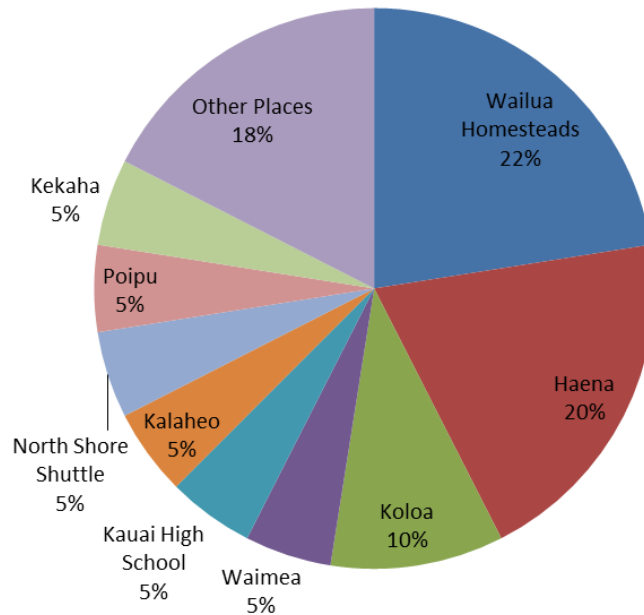
**Figure 21. Bus service improvements most desired by riders <25 years old (on a scale 1-5, where 5 = very important and 1 = not important). The averages of responses for each proposed service improvement are shown.**



## Where New Service is Desired

In question ten on the survey, if respondents ranked “bus routes to more places” as very important, they were asked where they would like to see new bus service. Figure 22 shows the distribution of answers based on a total of 40 responses. Nearly half of all respondents who answered this question wanted more service to either Wailua Homesteads or Haena, both of which are lacking good service today.

Figure 22. Where should new bus service go?



## Additional Comments

Respondents were given the opportunity at the end of the survey to add any additional service improvements they did not get to mention in the survey or to share other comments. In addition the volunteers who conducted the survey were also asked about comments or trends from respondents that the survey results may not have revealed. Here is a summary of the most common or notable additional comments regarding this survey:

- There were lots of comments praising the bus drivers
- Bus riders appeared to be more enthusiastic about GPS tracking than Wi-Fi, perhaps because so many people are now using smartphones
- Better bus service to the airport was desired
- More frequent and expanded Holiday/Weekend service was strongly desired
- Some people mentioned they wanted more convenient ways to purchase bus passes

## Appendix (Survey Form)

See next page . . .

# The Kaua'i Bus On Board Survey

Random Number: 1

Route #: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Initials: \_\_\_\_\_

Introduce yourself and tell respondent: "Aloha/Hi, my name is \_\_\_\_\_, I am with the Kauai Bus and we are conducting a brief survey of bus riders to help improve bus operations. The survey will only take a few minutes and bus drivers know we are conducting the survey so we will make sure you do not miss your stop/bus. Do you have a moment?"

## Directions for surveyors asking questions:

Questions that are black - Read *both* question and answers

Questions that are gray - Read *only* question *not* answers

1. At what bus stop did you board the bus today? \_\_\_\_\_

2. What bus stop is your final destination (including transfers)? \_\_\_\_\_

3. Do you need to transfer as part of your trip?

\_\_\_\_\_ Yes → What other bus route? Route # \_\_\_\_\_

\_\_\_\_\_ No

4. How did you get to the bus today? Did you . . .

\_\_\_\_\_ Walk?

\_\_\_\_\_ Bike?

\_\_\_\_\_ Drive alone and park?

\_\_\_\_\_ Get dropped off by someone else?

\_\_\_\_\_ Carpool and park?

5. Approximately how far did you travel to get to your bus stop (in miles)?

\_\_\_\_\_ <0.25 miles

\_\_\_\_\_ 0.25 miles

\_\_\_\_\_ 0.5 miles

\_\_\_\_\_ 0.75 miles

\_\_\_\_\_ 1 mile

\_\_\_\_\_ 1.5 miles

\_\_\_\_\_ 2 miles

\_\_\_\_\_ >2 miles

6. What is the primary purpose of your bus trip today?

\_\_\_\_\_ Work

\_\_\_\_\_ School/college

\_\_\_\_\_ Shopping

\_\_\_\_\_ Doctor

\_\_\_\_\_ Other

