Honolulu 2012 On-Board Transit Survey
Honolulu Rail Transit Project

Final Draft

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Prepared for:
Honolulu Authority for Rapid Transportation

HONOLULU AUTHORITY for RAPID TRANSPORTATION

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Acronyms and Abbreviations

AMC	Ala Moana Center
APC	automatic passenger count
DTS	Department of Transportation Services for the City and County of Honolulu
FTA	Federal Transit Administration
GEC	General Engineering Consultant
HART	Honolulu Authority for Rapid Transportation
HBA	home-based airport
HBC	home-based college
HBO	home-based office
HBSC	home-based school
HBSH	home-based shopping
HBW	home-based work
NHB	non-home-based
NHBO	non-home-based other
NHBW	non-home-based work
OTS	O‘ahu Transit Services
Project	Honolulu Rail Transit Project
QA/QC	quality assurance/quality control
SRRT	Survey Records Review Team
TAZ	Traffic Analysis Zone
VSEP	Visual Survey Editor Program

1 Survey Overview

The Honolulu Rail Transit Project (Project) involves a 20-mile rail line connecting East Kapolei with Ala Moana Center. The 2012 onboard survey of bus riders in Honolulu was carried out in part to support the analysis of transit demand patterns prior to opening of the Project. After the Project is completed, similar surveys will be conducted to identify transit demand patterns in Honolulu involving both bus and rail transit services.

The onboard survey was carried out by the ETC Institute working under the direction of Parsons Brinckerhoff, the General Engineering Consultant (GEC) for the Project. The survey consisted of two major elements: (1) the On-to-Off element identified boarding and alighting patterns of bus riders while also providing a basis for expanding the results of the Main Survey and (2) the Main Survey element consisted of detailed surveys of riders that were conducted on all Honolulu bus routes.

The following sections further describe the survey process.

1.1 Survey Purpose and Objectives

The purpose of the 2012 onboard bus survey was to gather accurate, updated travel behavior data from transit users in the Honolulu area. The data is being used to gain a better understanding of how bus services are being utilized as well identifying accurate characteristics of public transit being operated in Honolulu. The collected data serves as a base of knowledge prior to the upcoming rail system implementation. This *before* phase of the survey will provide a frame of reference for a post-implementation analysis of transit ridership characteristics in Honolulu. Since full implementation of the rail service is expected in 2019, the follow-up *after* survey will be conducted by 2021.

1.2 Survey Development Process

The 2012 onboard survey development process began by having representatives from the Honolulu Authority for Rapid Transportation (HART), the GEC, and the City and County of Honolulu Department of Transportation Services (DTS) review the data requirements for the transit on-board survey. Since the primary objective for the 2012 survey was to provide a baseline for assessing the impacts that the introduction of rail service will have on O‘ahu, most questions focused on collecting data that will support current and future transportation forecasting efforts.

After six iterations of input and review, the survey instrument was shared with representatives of the Federal Transit Administration (FTA) to ensure all federal requirements and expectations for the design of the survey were met.

All of the suggestions from the FTA staff were incorporated into the final version of the survey.

Before and during the onboard survey, coordination took place between ETC Institute, the Public Transportation Division of DTS, O‘ahu Transportation Services (OTS), and the GEC. A key part of this coordination was the development and installation of information cards on buses. This coordination also included the submittal to ETC Institute staff of operations information by route as well as provision of logistical support, including uses of facilities by ETC Institute staff. For example, training of surveyors took place at the Kalihi Transit Center.

In order to be responsive to guidance from the FTA, HART elected to conduct a robust data collection and expansion process that differed from more traditional on-board survey efforts. Major differences included the following:

- The use of personal interviewers via tablet PCs as the primary data collection method instead of paper surveys. The use of tablet PCs and personal interviews enabled real-time geocoding of passenger address data, which greatly increased the percentage of surveys that contained useable address information.
- More detailed attention to the development of the sampling plan and the management of data collection activities to ensure that the survey results were representative of transit ridership by time of day and direction for specific segments/stops along each bus route. Unlike more traditional transit surveys, which typically have aggregate sampling goals for each route, the 2012 Honolulu bus survey had specific targets by route segment, time of day, and direction of travel. This level of detail regarding ridership patterns ensured that the sample for each route accurately reflected the transit patterns bus route in its entirety and for its segments by various time periods.
- Data expansion that was substantially more robust than more traditional transit surveys. In addition to expanding the sample by direction and time of day, which is typically expected by the FTA, this sample was expanded based on the *path* where riders boarded and alighted buses to more accurately represent the specific types of trips that are being completed by transit users. Since information is being obtained at the segment or stop level for each route, the path represents a more precise indication of transit ridership patterns. The number of stops per segment varies by route and is dependent on factors such as adjacent land use and the extent of ridership at stops within a segment. In some cases there is sufficient ridership at an individual bus stop to the point that it was not included in a segment.

1.3 Types of Data Collected

To ensure that the length of the survey did not negatively affect the response rate, the survey questions were divided into two categories—"required" and "desired" data. These categories are further described in the following sections.

1.3.1 Required Data

Required data involved questions for which a response from a respondent was required in order for the survey to be considered complete. The data required to fulfill the objectives of the project are listed below:

- Type of place where the trip began
- Address where the trip began
- Mode of access to the transit system
- Boarding location
- Alighting location
- Transfers used to get to and from the route/segment where the survey was administered
- Mode of egress from the transit system
- Destination address
- Type of place where the trip ended
- Home address
- Employment status
- Student status
- Driver's license status
- Age
- Annual household income
- Number of operational vehicles available in the household
- Number of occupants in the respondent's household
- Time of day the survey was completed

1.3.2 Desired Data

Desired data involved questions for which a response from a respondent was preferred but was not required in order for the survey to be considered complete. Desired questions were asked of all respondents who had time to complete the full survey. The additional time to obtain the desired items took

between two and three minutes. Although these questions could be skipped if a respondent did not have time to complete the full survey, more than 95 percent of the respondents completed all of the desired questions. The data considered desired are as follows:

- Park-and-ride location (if applicable) on either end of the trip
- How long the respondent had been using public transportation
- Fare payment method
- How the respondent would make the trip if public transit was not available
- Respondent's race/ethnicity
- Respondent's gender
- Name of the school respondent attends (if applicable)

1.3.3 Follow-up Data Analysis

Using survey results, other types of data analysis were identified. This follow-up analysis included the total number of transfers (addition of transfers prior to respondent's current route and transfers following respondent's current route). However, the most important type of follow-up analysis involved the purpose of the respondent's trip. The purpose of the trip was determined by the types of destinations that were visited by the respondent and classified as one of eight possible trip purposes that are also used by the region's travel demand forecasting model:

- **Home-Based Work (HBW)**—Trips that began at home and ended at work ***or*** began at work and ended at home.
- **Home-Based Shopping (HBSH)**—Trips that began at home and ended at a shopping area ***or*** began at a shopping area and ended at home. If the respondent worked at a shopping area, the trip was classified as an HBW trip.
- **Home-Based College (HBC)**—Trips that began at home and ended at a college/university ***or*** began at a college/university and ended at home. If the respondent worked at a college/university, the trip was classified as an HBW trip.
- **Home-Based School (HBSC)**—Trips that began at home and ended at a K-12 school ***or*** began at a K-12 school and ended at home. If the respondent worked at a K-12 school, the trip was classified as an HBW trip.
- **Home-Based Airport (HBA)**—Trips that began at home and ended at an airport ***or*** began at an airport and ended at home. If the respondent worked at an airport, the trip was classified as an HBW trip.

- **Home-Based Other (HBO)**—Trips that began at home and ended at any other location not previously listed ***or*** began at any location not previously listed and ended at home.
- **Non-Home-Based Work (NHBW)**—Trips that did not begin ***or*** end at home but ended ***or*** began at the respondent's place of employment.
- **Non-Home-Based (NHB)**—Trips that did not begin ***or*** end at home or at the respondent's place of employment.

1.4 Survey Instrument

The survey instrument was designed to be administered as a face-to-face interview using tablet PCs (Apple iPad) or printed surveys. Survey instruments were printed on heavy card stock for easy distribution and completion. Tablet PCs were the preferred method while paper surveys were only used on some express route buses. Bilingual interviewers were also hired to administer the surveys on tablet PCs in more than six different languages (English, Spanish, Tagalog, Japanese, Ilocano, Chinese, and Samoan).

For express routes, the respondent generally has a longer ride time that would allow completion of the survey; also, Express routes often serve employed travelers with higher education levels. The combination of higher education levels, longer ride time, and the ease of distributing the paper surveys to a higher number of passengers often leads to a much higher percentage of rider surveys being captured than would have been possible by using tablet PCs alone while still maintaining a high level of accuracy.

While most respondents completed the survey during their trips, postage-paid return envelopes were available for riders who did not have time to complete the survey. Riders could return the survey by mail or complete the survey on the Internet by going to a website address printed on the envelope. Each survey contained a serial number that was used by ETC Institute to track the route and sequence in which surveys were completed. Only 72 surveys were received in the mail by ETC out of a total of approximately 26,200 completed and useable surveys.

Respondents who did not have time to complete the survey during their bus trip were also given the option of providing their phone numbers. Those who provided their phone numbers were then contacted by ETC Institute's call center within three days of the original attempt to survey the rider.

Copies of the printed survey materials are provided in Appendix A of this report. Screen shots that show how the survey questions appeared on the tablet PCs are provided in Appendix B of this report.

2 Sampling Procedures

This chapter describes the procedures used for carrying out the sampling of Honolulu bus riders. Three major areas are addressed by these procedures: (1) sampling goals, (2) methods for selecting survey participants, and (3) techniques used to manage the sampling process.

2.1 Sampling Goals

In order to ensure that the distribution of completed surveys mirrored the actual distribution of riders who use the Honolulu bus system, ETC Institute developed a sampling plan that would ensure the completion of the Main Survey by at least 10 percent of the system's riders. In addition to being complete, the surveys also had to be useable. A survey was considered *complete* if all of the statistically required information was collected. A survey was considered *useable* if it met 100 percent of the quality assurance and quality control tests that were applied to each record. Overall, the total number of "complete and useable surveys" exceeded the contractual requirements by more than 3,000 surveys.

The following sections further describe the sampling procedures for the On-to-Off and Main Surveys.

2.1.1 On-to-Off Survey Sampling Goals

The results of the On-to-Off Survey, conducted in February and March of 2012, were used to guide the development of the sampling plan for the Main Survey. Based on the results of the pilot test for the On-to-Off survey, ETC Institute estimated that a minimum of 90 percent of riders would agree to participate and that useable survey data could be obtained from at least 90 percent of those who participated. Using these estimates, ETC Institute selected at least 30 percent of total bus trips operating on each route to be included in the sample. Achieving this goal ensured that useable surveys would be obtained from at least 44,700 passengers, which was 20 percent of the average weekday ridership.

The On-to-Off survey was conducted on all routes between the hours of 6 am and 7 pm (or during all hours of operation if service was offered for a shorter duration). On routes with high ridership after 7 pm, such as Routes 1 and 2, the survey was conducted until 9 pm.

The sampling goals for the On-to-Off Survey were greatly exceeded. The actual number of completed On-to-Off Surveys records was 57,957 which was 13,257 more than the original goal. The goals were exceeded for two main reasons: (1) the participation rate by riders was higher than expected (96 percent participated vs. the initial estimate of 90 percent) and (2) the

percentage of surveys that were useable was slightly higher than planned (91 percent were useable as compared to the 90 percent goal).

2.1.2 Main Survey— Route-Specific Sampling Goals

Table 2-1 shows the estimated average weekday ridership for each bus route as well as sampling goals. The table also shows the actual number of completed records for the Main Survey that were obtained from each route and the route-specific margin of error at the 90 percent confidence level. The estimated weekday ridership was provided by OTS. The sampling goals were updated later based on new ridership numbers provided by OTS.

Table 2-1. Sampling Goals and Main Surveys Completed

Route	Estimated Average Weekday Ridership Prior to Survey	Goal for Completed Surveys—Main Survey (10%)	Completed Surveys	Within 10% or 10 of the Goal	Margin of Error at the 90% Level of Confidence
1	17,826	1,783	2,033	YES	+/- 1.7%
2	16,212	1,621	1,952	YES	+/- 1.8%
3	13,115	1,311	1,511	YES	+/- 2.0%
4	8,747	875	1,116	YES	+/- 2.3%
5	1,408	141	192	YES	+/- 5.5%
6	5,899	590	643	YES	+/- 3.1%
7	3,453	345	397	YES	+/- 3.9%
8	4,709	471	485	YES	+/- 3.5%
9	7,462	746	670	YES	+/- 3%
10	575	58	103	YES	+/- 7.4%
11	1,216	122	180	YES	+/- 5.7%
13	12,000	1,200	1,152	YES	+/- 2.3%
14	1,249	125	132	YES	+/- 6.8%
15	625	63	88	YES	+/- 8.2%
16	73	7	16	YES	+/- 18.4%
17	1,406	141	228	YES	+/- 5.0%
18	862	86	93	YES	+/- 8.1%
19	4,497	450	476	YES	+/- 3.6%
20	3,248	325	409	YES	+/- 3.8%
22	1,155	115	65	YES	+/- 9.9%
23	3,169	317	347	YES	+/- 4.2%
24	715	72	81	YES	+/- 8.6%
31	744	74	141	YES	+/- 6.3%

Table 2-1. Sampling Goals and Main Surveys Completed (continued)

Route	Estimated Average Weekday Ridership Prior to Survey	Goal for Completed Surveys—Main Survey (10%)	Completed Surveys	Within 10% or 10 of the Goal	Margin of Error at the 90% Level of Confidence
32	1,458	146	158	YES	+/- 6.2%
40	11,051	1,105	1,157	YES	+/- 2.3%
41	1,614	161	236	YES	+/- 5.0%
42	9,492	949	970	YES	+/- 2.5%
43	2,571	257	355	YES	+/- 4.1%
44	733	73	111	YES	+/- 7.2%
52	4,342	434	558	YES	+/- 3.3%
53	2,735	273	344	YES	+/- 4.2%
54	3,119	312	396	YES	+/- 3.9%
55	4,021	402	392	YES	+/- 4.0%
56	3,016	302	314	YES	+/- 4.4%
57	3,209	321	331	YES	+/- 4.3%
62	6,027	603	568	YES	+/- 3.3%
65	1,789	179	184	YES	+/- 5.8%
70	240	24	49	YES	+/- 10.5%
71	81	8	10	YES	+/- 24.6%
72	552	55	58	YES	+/- 10.3%
73	483	48	37	YES	+/- 13.0%
74	60	6	16	YES	+/- 17.8%
76	377	38	43	YES	+/- 11.9%
77	410	41	71	YES	+/- 8.9%
80	345	35	76	YES	+/- 8.4%
81	1,260	126	164	YES	+/- 6.0%
82	257	26	58	YES	+/- 9.6%
83	631	63	102	YES	+/- 7.5%
84	278	28	94	YES	+/- 6.9%
85	630	63	65	YES	+/- 9.7%
88	208	21	43	YES	+/- 11.2%
89	138	14	41	YES	+/- 10.8%
90	158	16	88	YES	+/- 5.9%
91	1,020	102	110	YES	+/- 7.4%
92	223	22	84	YES	+/- 7.1%
93	1,247	125	168	YES	+/- 5.9%
94	167	17	136	YES	+/- 3.1%
96	155	16	94	YES	+/- 5.4%
97	342	34	127	YES	+/- 5.8%

Table 2-1. Sampling Goals and Main Surveys Completed (continued)

Route	Estimated Average Weekday Ridership Prior to Survey	Goal for Completed Surveys—Main Survey (10%)	Completed Surveys	Within 10% or 10 of the Goal	Margin of Error at the 90% Level of Confidence
98	215	21	92	YES	+/- 6.5%
101	488	49	111	YES	+/- 6.9%
102	212	21	75	YES	+/- 7.7%
103	126	13	80	YES	+/- 5.6%
201	544	54	77	YES	+/- 8.7%
202	256	26	31	YES	+/- 13.9%
203	190	19	60	YES	+/- 8.8%
231	167	17	20	YES	+/- 17.4%
234/235	53	5	17	YES	+/- 16.6%
401	424	42	36	YES	+/- 13.2%
402	366	37	33	YES	+/- 13.7%
403	554	55	62	YES	+/- 9.9%
411	520	52	62	YES	+/- 9.8%
412	429	43	58	YES	+/- 10.1%
413	212	21	24	YES	+/- 15.9%
414	232	23	33	YES	+/- 13.3%
415	89	9	16	YES	+/- 18.8%
432	1,503	150	145	YES	+/- 6.5%
433	1,468	147	134	YES	+/- 6.8%
434	1,200	120	124	YES	+/- 7.0%
1L	3,063	306	283	YES	+/- 4.7%
57A	1,096	110	171	YES	+/- 5.8%
80A	151	15	43	YES	+/- 10.7%
80B	19	2	9	YES	+/- 20.5%
84A	362	36	78	YES	+/- 8.3%
85A	200	20	36	YES	+/- 12.5%
88A	180	18	35	YES	+/- 12.6%
98A	213	21	66	YES	+/- 8.5%
A	14,275	1,427	1,562	YES	+/- 2.0%
B	7,409	741	777	YES	+/- 2.8%
C	6,847	685	745	YES	+/- 2.9%
E	5,044	504	523	YES	+/- 3.4%
PH1	84	8	58	YES	+/- 6.1%
PH2	57	6	27	YES	+/- 11.6%
PH3	76	8	29	YES	+/- 12.1%
PH4	31	3	28	YES	+/- 4.9%

Table 2-1. Sampling Goals and Main Surveys Completed (continued)

Route	Estimated Average Weekday Ridership Prior to Survey	Goal for Completed Surveys—Main Survey (10%)	Completed Surveys	Within 10% or 10 of the Goal	Margin of Error at the 90% Level of Confidence
PH5	60	6	36	YES	+/- 8.8%
PH6	138	14	54	YES	+/- 8.8%
501/504	259	26	38	YES	+/- 12.4%
503	237	24	45	YES	+/- 11.1%
TOTAL	**223,858**	**22,386**	**26,251**	**YES**	**+/- 0.5%**

The sampling target for each route involved completed and useable surveys that were within 10 percent of the goal or, in the case of sample goals that are less than 100, within 10 surveys of the goal. For example, 10 percent of Route 433's daily ridership is 147 surveys. To be within 10 percent of this goal, a minimum of 132 surveys had to be completed. With 134 completed surveys for Route 433 during the 2012 onboard survey, the sample target was achieved. In the case of Route 401, the goal (42) is less than 100 survey records. Since the number of completed surveys (36) for this route was within 10 of the goal, the target was achieved. In sum, the number of complete and useable surveys was within 10 percent of the goal (or 10 completed and usable surveys if the sampling goal was less than 100) on all routes that were included in the survey.

Table 2-1 shows the margin of error for each of the surveyed bus route and for the total number of surveys. Based on the approximately 26,300 completed surveys, the overall results for the estimated daily ridership of approximately 223,000 riders is at a 90 percent confidence level. The precision of this confidence level is +/- 0.5 percent.

2.1.3 Main Survey: Sampling of Ridership between Stops/Segments and Time of Day

To develop an estimated distribution of trips between stops or segments along each route, ETC Institute applied the distribution of the On-to-Off survey results to the stop or segment level data identified through APCs. Stops along each route were aggregated into segments based on surrounding land use and the ridership distribution on the route. This was also done by direction and for each of the four time periods to ensure that reasonable data expansion factors could be developed based on the path taken by riders.

A total of 576 *sub-route* sampling goals were identified to ensure that the survey sample accurately represented the more detailed ridership characteristics for each route throughout the day. Sub-route goals were set for specific times of day, directions, and/or location along a route to ensure that the overall

sample for the route would be representative of the more detailed ridership characteristics of each route in the Honolulu system.

The number of completed surveys was within 10 or 20 percent of the sub-route goal for 554 of the 576 (96.2 percent) goal areas. Most (15 of 22) of the sub-route goals that were not met were for evening routes. These shortfalls were expected because the survey was not conducted after 9 pm even though service on many routes is offered after 9 pm. Although there were some shortages, all sub-route goals were met within 50 percent of the goal, which means that resulting impact of the sampling deficiency on the expansion factors that were developed was minimal. Tables showing how the data was summarized are available for review in Appendix C. Methods for Selecting Survey Participants

In addition to setting specific goals for the number of surveys that were completed on each route/segment, ETC, in coordination with HART, DTS, and the GEC developed specific guidelines for selecting survey participants. The process ensured that the participants would be randomly selected.

A random number generator was used to determine which passengers were asked to participate in the survey after boarding a bus. For example, if four people boarded a bus, the tablet PC randomly generated a number from 1 to 4. If the answer was 2, the second person who boarded the bus was asked to participate in the survey. If the answer was 1, the first person was asked to participate in the survey, and so forth. The selection was limited to the first four people who boarded a bus at any given stop to ensure the inter-viewer could keep track of the passengers as they boarded. For example, if 20 people boarded a bus, the tablet PC program would randomly pick one of the first four people for the survey.

2.2 Other Techniques Used to Manage the Sampling Process

Some of the other techniques that were used to manage the sampling of bus riders are described below:

- **Daily Reviews of Interviewer Performance**—At the end of each day, the research team evaluated the performance of each interviewer. This review included characteristics of passengers with regard to age, gender, race, the number of reported transfers, the number of required data fields that were completed, the number of desired data fields that were completed, and the average length of each interview. These daily reviews allowed the research team to provide immediate feedback to interviewers to improve their overall performance as necessary. It also allowed the research team to quickly identify and remove interviewers who were not conducting the survey properly.

- **Oversampling of High Volume Bus Stops**—ETC Institute identified high volume boarding locations along each route (such as schools and major employment centers) prior to conducting the survey. To ensure that these locations were not under-represented during the on-board survey, ETC Institute conducted surveys at these stops while passengers were waiting to board the bus. Examples of these high volume bus stops are listed below:
  - Kona Street and Keʻeaumoku Street
  - S Hotel Street and Bishop Street
  - S Beretania Street and Pali Highway B
  - S King Street and Punchbowl Street
  - Ala Moana Boulevard and Ala Moana Center
  - S Beretania Street and Punchbowl
  - Kalihi Transit Center
  - Kūhiō Avenue and Seaside Avenue
  - Alapai Transit Center
  - S Hotel Street and Bethel Street
  - Kapiʻolani Boulevard and Keʻeaumoku Street
  - Kūhiō Avenue and Liliuokalani Avenue
  - Kūhiō Avenue and Paoakalani Avenue
  - Alapai Street and S Hotel Street
  - S Hotel Street and Alakea Street
  - Waipahu Transit Center
  - Kūhiō Avenue and Walina Street
  - Alakea Street and S Hotel Street
  - N Hotel Street and Smith Street
  - N Hotel Street and River Street
  - Sinclair Circle
  - Kūhiō Avenue and Lewers Street
  - School Street and Likelike Highway
- **Management of the Sample by Time of Day**—In addition to monitoring the total number of surveys that were completed for each route/segment, ETC Institute also reviewed the number of surveys that were completed during each of the following four time periods: AM peak (6 am to 10 am), midday (10 am to 2 pm), PM peak (2 pm to 6 pm), and all other hours (before 6 am and after 6 pm). These four time periods correspond to those used for regional travel demand forecasting. This was done to ensure that the number of completed surveys for each time period would adequately support data expansion requirements for travel demand forecasting. The data expansion process is further described in Chapter 6 of this report. Figure 2-1 shows the number of On-to-Off surveys that were collected by time period and Figure 2-2 shows the number of Main surveys that were collected by time period.

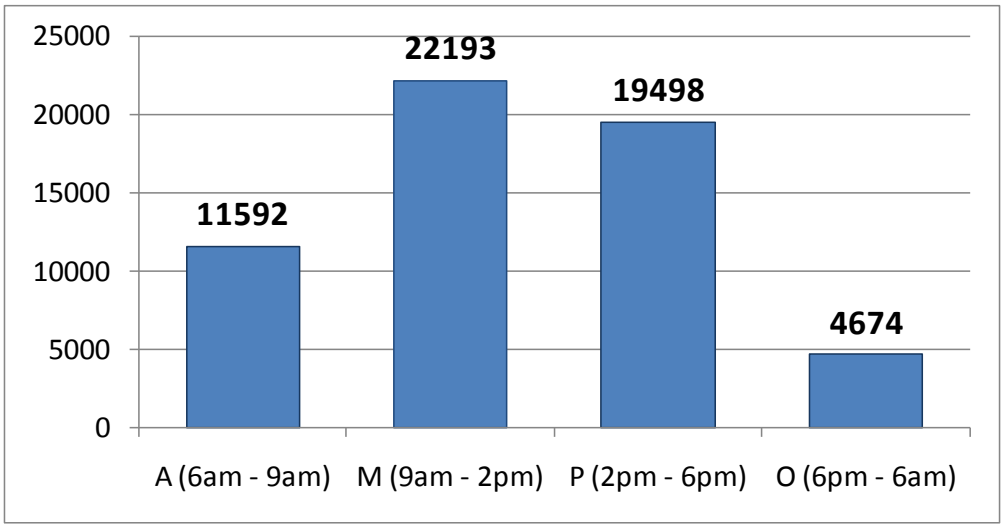


Figure 2-1. Number of On-to-Off Surveys Collected by Time Period

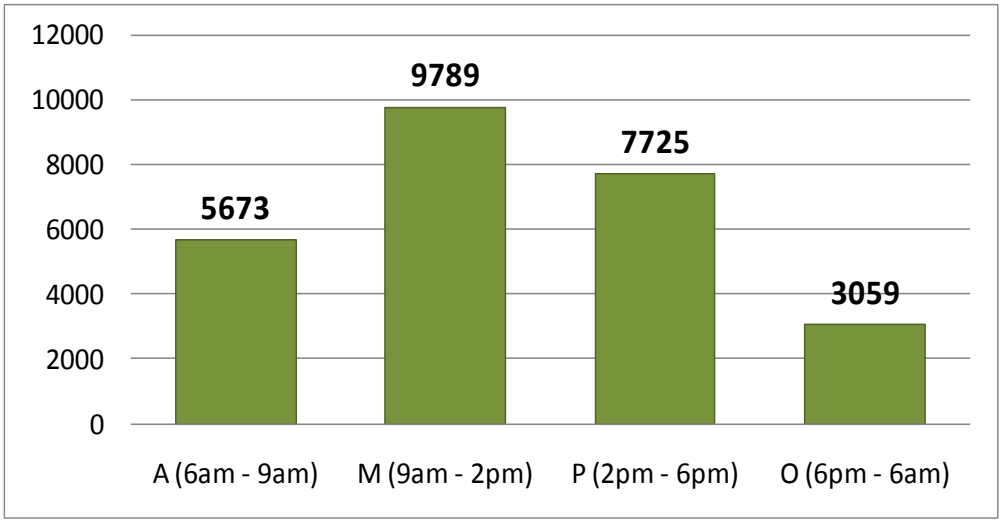


Figure 2-2. Number of Main Surveys Collected by Time Period

3 On-to-Off Administration Methodology

Before administering the Main Survey using an interviewer and a tablet PC, an On-to-Off Survey was conducted on the routes. An On-to-Off Survey is meant to identify the ridership flow of each bus route. In other words, the On-to-Off Survey captures where the individual rider boarded the bus and the corresponding location where the rider alighted. Time of day can is also included as part of the ridership patterns. This information allows for a more comprehensive understanding of the true ridership profiles of each route while also allowing the Main Survey data to be more accurately expanded.

The On-to-Off and Main surveys were conducted on TheBus routes in service as of spring 2012. Table 3-1 provides the complete list of routes as well as their operating characteristics. Also, during June and August of 2012, DTS implemented changes to service on several bus routes. Since April 2012 was selected as the baseline for this survey, the administration of the survey was completed prior to these changes.

3.1 Recruiting and Training Surveyors

Assembling a team of high-quality surveyors was one of the most important steps in the On-to-Off administration process. For this project, ETC Institute complemented its team of supervisors with temporary surveyors who were recruited by a local staffing agency in Honolulu. Surveyors recruited by the agency were required to have a familiarity with the service areas, a solid work history, ability to work with the public, a professional attitude and appearance, an ability to operate a tablet PC and proficiency with ETC Institute's On-to-Off software program.

Each surveyor was required to attend ETC Institute's training session. During this training session, surveyors were taught how to operate the tablet PCs and the On-to-Off software, execute the On-to-Off surveying procedures, and deal with various situations that could be encountered during their surveying period.

The surveyor training was conducted in a classroom style setting at the Kalihi Transit Center training room. The classroom provided ETC Institute a quiet and convenient location to train its team efficiently. The training elements provided to all personnel who participated in the administration of the On-to-Off Survey ensured are described below:

- Overview of the on-board survey objectives
- On-to-Off equipment/software overview and training
- On-to-Off barcode administrating procedures
- One-on-one tutoring/mock interview with an ETC Institute supervisor

Table 3-1. Route Operating Characteristics

TheBus Routes		Weekday Revenue Hours	Weekday Revenue Miles	Average Miles per Hour	Weekday Span of Service	Average Weekday Headways	
						AM Peak	Base
Rapid Bus Routes							
A	City Express! A	190.8	2,395.1	12.6	4:18 AM–10:49 PM	15	15
B	City Express! B	104.0	823.6	7.9	4:47 AM–10:04 PM	15	20
C	Country Express! C	144.5	2,850.8	19.7	3:52 AM–10:48 PM	30	30
E	Country Express! E	116.3	1,930.2	16.6	4:10 AM–11:25 PM	30	30
Urban Trunk Routes							
1	Kaimukī-Kalihi	208.4	1,863.3	8.9	4:03 AM–1:17 AM	10	10
1L	Downtown-Hawaii Kai Limited	65.6	749.4	11.4	6:19 AM–7:18 PM	30	30
2	Waikiki-School-Middle	181.8	1,333.1	7.3	4:37 AM–12:44 AM	12	15
3	Kaimukī-Salt Lake	188.4	1,850.5	9.8	4:15 AM–1:26 AM	12	20
4	Nu‘uanu-Punahou	135.5	1,128.1	8.3	4:59 AM–12:20 AM	12	20
6	Pauoa-Woodlawn	98.2	827.6	8.4	5:03 AM–12:00 AM	20	20
8	Waikiki-Ala Moana	81.2	528.7	6.5	7:24 AM–10:44 PM	20	10
9	Pālolo Valley-Pearl Harbor	114.2	1,168.2	10.2	5:10 AM–11:26 PM	19	45
13	Waikiki-Liliha	154.1	1,108.6	7.2	4:10 AM–1:41 AM	15	15
19	Waikiki-Airport-Hickam	110.7	1,162.1	10.5	4:04 AM–1:45 AM	25	40
20	Waikiki-Pearlridge	68.5	670.9	9.8	5:14 AM–7:35 PM	40	40
Urban Feeder Routes							
5	Ala Moana-Mānoa	23.2	203.4	8.8	5:36 AM–10:02 PM	30	50
7	Kalihi Valley	48.1	444.9	9.3	4:39 AM–11:07 PM	15	45
10	Kalihi-‘Ālewa Heights	27.7	285.4	10.3	4:53 AM–10:46 PM	40	70
14	St. Louis-Kāhala-Maunalani	44.9	624.9	13.9	5:23 AM–10:10 PM	30	60
15	Makiki-Pacific Heights	22.8	291.0	12.8	5:30 AM–10:23 PM	30	60

Table 3-1. Route Operating Characteristics (continued)

TheBus Routes		Weekday Revenue Hours	Weekday Revenue Miles	Average Miles per Hour	Weekday Span of Service	Average Weekday Headways	
						AM Peak	Base
16	Moanalua Valley	3.7	60.0	16.4	5:47 AM–7:24 AM ◆ 4:12 PM–6:12 PM	3 trips	—
17	Makiki-Ala Moana	18.4	108.6	5.9	6:00 AM–9:47 PM	30	40
18	University-Ala Moana	15.0	121.8	8.1	6:50 AM–9:46 PM	70	65
24	ʻĀina Haina-Ala Moana	18.1	203.3	11.3	5:46 AM–8:21 PM	60	65
31	Tripler-Māpunapuna	23.2	286.8	12.4	4:40 AM–10:31 PM	37	50
32	Kalihi-Pearlridge	44.3	558.5	12.6	5:05 AM–9:52 PM	30	60
Suburban Trunk Routes							
11	Makalapa-Hālawa-Aiea Heights	36.1	516.1	14.3	5:38 AM–10:21 PM	30	60
22	Beach Bus	21.0	326.7	15.6	8:00 AM–6:15 PM	60	60
23	Hawaii Kai-Sea Life Park	47.3	726.4	15.4	6:00 AM–8:25 PM	32	40
40	Honolulu-Mākaha	225.7	3,465.9	15.4	24 hours	30	30
41	Kapolei-Ewa Beach	40.2	492.6	12.3	4:45 AM–10:33 PM	30	40
42	Ewa Beach-Waikiki	172.1	1,940.0	11.3	4:07 AM–2:48 AM	30	30
43	Waipahu-Honolulu-Alapai	51.5	796.7	15.5	7:09 AM–6:07 PM	30	30
52	Wahiawa-Circle Island	122.2	2,515.1	20.6	4:30 AM–1:22 AM	30	40
53	Honolulu-Pacific Palisades	68.5	971.4	14.2	4:48 AM–11:27 PM	20	35
54	Honolulu-Pearl City	80.2	1,050.0	13.1	4:57 AM–11:10 PM	30	30
55	Kaneohe-Circle Island	115.0	2,423.0	21.1	4:05 AM–12:20 AM	35	40
56	Honolulu-Kailua-Kaneohe	75.0	1,255.6	16.7	4:46 AM–10:39 PM	30	45
57	Kailua-Waimanalo-Sea Life Park	79.9	1,468.1	18.4	5:03 AM–11:27 PM	30	40
57A	Kailua-Enchanted Lake	30.1	497.0	16.5	5:01 AM–6:33 PM	45	60
62	Honolulu-Wahiawa Heights	123.7	1,713.0	13.9	4:27 AM–1:19 AM	20	35
65	Honolulu-Kahaluʻu	50.4	850.1	16.9	4:58 AM–10:53 PM	23	70

Table 3-1. Route Operating Characteristics (continued)

TheBus Routes		Weekday Revenue Hours	Weekday Revenue Miles	Average Miles per Hour	Weekday Span of Service	Average Weekday Headways	
						AM Peak	Base
Suburban Feeder Routes							
70	Lanikai-Maunawili	13.7	197.7	14.4	6:09 AM–7:45 PM	60	90
71	Pearlridge-Newtown	5.6	89.9	16.2	5:41 AM–8:16 AM ◆ 3:12 PM–6:09 PM	4 trips	—
72	Schofield-Wahiawa-Whitmore	14.1	172.0	12.2	5:22 AM–9:34 PM	60	65
73	Leeward Community College	11.8	154.7	13.2	6:12 AM–5:47 PM	22	35
74	Aiea-Hālawa Heights	4.9	60.5	12.3	5:32 AM–7:56 AM ◆ 3:56 PM–6:23 PM	3 trips	—
76	Waialua-Haleiwa	13.0	233.2	18.0	6:00 AM–7:15 PM	40	40
77	Waimanalo-Kaneohe	12.7	223.2	17.6	5:32 AM–6:21 PM	90	90
Community Circulator Routes							
44	Waipahu-Ewa Beach	35.9	508.6	14.2	4:24 AM–12:15 AM	60	60
231	Hawaii Kai-Haha‘ione Valley	15.3	139.0	9.1	6:03 AM–9:12 PM	30	30
234	Kāhala Mall-Wai‘alae Nui	3.4	44.0	13.1	6:08 AM–7:19 AM ◆ 2:48 PM–6:44 PM	2 trips	—
235	Kāhala Mall-Wai‘alae Iki	2.0	29.8	14.9	6:35 AM–6:53 AM ◆ 3:20 PM–6:22 PM	1 trip	—
401	Waianae Valley	10.6	157.9	15.0	3:43 AM–9:37 PM	60	70
402	Lualualei Homestead	8.8	121.3	13.9	4:07 AM–10:00 PM	60	65
403	Nānākuli-Maili-Waianae	17.8	278.7	15.7	4:14 AM–10:22 PM	60	65
411	Makakilo Heights	18.7	258.9	13.9	4:30 AM–12:49 AM	30	40
412	Panana-Kapolei	14.7	134.5	9.1	4:30 AM–7:14 PM	45	45
413	Campbell Industrial Park	5.5	99.5	18.3	5:30 AM–8:28 AM ◆ 3:00 PM–5:55 PM	6 trips	—
415	Kapolei Transit Center-Kalaeloa	2.7	37.3	13.8	5:05 AM–6:25 AM ◆ 5:15 PM–6:41 PM	3 trips	—
432	East-West Waipahu	36.9	414.9	11.3	4:36 AM–1:38 AM	30	15
433	Waipahu-Waikele Shopping Center	27.3	327.7	12.0	4:55 AM–11:31 PM	40	30
434	Waipahu-Village Park	17.8	210.3	11.8	4:36 AM–12:47 AM	45	45

Table 3-1. Route Operating Characteristics (continued)

TheBus Routes		Weekday Revenue Hours	Weekday Revenue Miles	Average Miles per Hour	Weekday Span of Service	Average Weekday Headways	
						AM Peak	Base
Community Access Routes							
414	Palahi'a-Makakilo-Kapolei	14.2	109.5	7.7	4:30 AM–6:43 PM	60	60
501	Mililani Mauka	8.2	106.9	13.1	5:45 AM–9:12 PM	62	65
503	Mililani-Launani Valley	15.3	158.7	10.4	4:33 AM–7:52 PM	60	60
504	Mililani South	8.7	128.4	14.8	5:06 AM–9:38 PM	62	65
Peak Period Express Routes							
PH1	Waianae Coast-Pearl Harbor Express	2.7	72.0	26.7	4:50 AM–6:10 AM ◆ 3:10 PM–4:32 PM	1 trip	—
PH2	Mililani Town-Pearl Harbor Express	2.3	50.3	21.9	5:10 AM–6:18 AM ◆ 3:10 PM–4:18 PM	1 trip	—
PH3	Wahiawa Heights-Pearl Harbor Express	2.3	38.1	16.6	5:10 AM–6:18 AM ◆ 3:10 PM–4:20 PM	1 trip	—
PH4	Kaneohe-Kahalu'u-Pearl Harbor Express	2.4	57.6	24.5	5:07 AM–7:17 AM ◆ 3:10 PM–4:21 PM	1 trip	—
PH5	Windward-Pearl Harbor Express	2.0	50.6	25.3	5:16 AM–6:17 AM ◆ 3:10 PM–4:11 PM	1 trip	—
PH6	Hawaii Kai-Pearl Harbor Express	2.8	60.2	21.9	5:01 AM–6:16 AM ◆ 3:10 PM–4:40 PM	1 trip	—
80	Hawaii Kai Park & Ride Express	11.8	205.3	17.5	5:37 AM–8:21 AM ◆ 4:10 PM–6:43 PM	6 trips	—
80A	Hawaii Kai Park & Ride Express-UH	6.1	110.7	18.1	6:00 AM–8:44 AM ◆ 3:20 PM–6:00 PM	3 trips	—
80B	Upper 'Āina Haina Express	0.8	11.6	14.5	6:23 AM–7:10 AM	1 trip	—
81	Waipahu Express	22.6	437.1	19.4	4:28 AM–8:39 AM ◆ 3:00 PM–7:18 PM	12 trips	—
82	Hawaii Kai Park & Ride Express	5.9	111.6	19.1	5:28 AM–8:03 AM ◆ 3:50 PM–6:09 PM	4 trips	—
83	Wahiawa Town Express	18.5	430.0	23.3	4:58 AM–7:44 AM ◆ 3:40 PM–6:54 PM	7 trips	—
84	Mililani Express-North	9.5	214.6	22.6	4:55 AM–7:29 AM ◆ 3:45 PM–6:37 PM	4 trips	—
84A	Mililani Express-South	9.3	209.5	22.5	5:10 AM–7:56 AM ◆ 4:05 PM–6:49 PM	4 trips	—
85	Windward Express-Kailua	17.4	349.4	20.1	5:40 PM–7:39 AM ◆ 2:41 PM–7:01 PM	6 trips	—
85A	Windward Express-Haiku	5.9	98.5	16.8	6:05 AM–7:54 AM ◆ 4:08 PM–5:50 PM	3 trips	—
88	Kahalu'u-'Āhuimanu Express	4.8	79.5	16.7	6:05 AM–7:30 AM ◆ 4:09 PM–6:22 PM	2 trips	—
88A	North Shore Express	11.9	297.1	25.1	3:49 AM–6:44 AM ◆ 4:20 PM–8:18 PM	2 trips	—

Table 3-1. Route Operating Characteristics (continued)

TheBus Routes		Weekday Revenue Hours	Weekday Revenue Miles	Average Miles per Hour	Weekday Span of Service	Average Weekday Headways	
						AM Peak	Base
89	Waimanalo-Kailua Express	3.6	72.2	20.3	5:42 AM–7:22 AM ◆ 4:05 PM–5:37 PM	2 trips	—
90	Pearl City Express	3.8	67.3	17.7	5:57 AM–7:35 AM ◆ 4:10 PM–5:36 PM	2 trips	—
91	Ewa Beach Express	21.6	419.4	19.5	4:30 AM–8:19 AM ◆ 3:25 PM–7:20 PM	9 trips	—
92	Makakilo City Express	7.2	164.3	22.8	5:10 AM–7:02 AM ◆ 4:07 PM–6:28 PM	3 trips	—
93	Waianae Coast Express-CBD	32.0	859.7	26.9	4:16 AM–8:13 AM ◆ 3:00 PM–7:29 PM	10 trips	—
94	Villages of Kapolei-Kaupea Express	4.7	117.8	25.3	5:40 AM–6:59 AM ◆ 4:15 PM–6:27 PM	2 trips	—
96	Waipi ‘Gentry Express	3.2	70.9	22.2	5:45 AM–6:59 AM ◆ 4:30 PM–6:02 PM	2 trips	—
97	Village Park Express	7.1	163.6	23.0	5:15 AM–7:07 AM ◆ 3:35 PM–5:59 PM	4 trips	—
98	Wahiawa-Mililani Park & Ride	6.3	153.6	24.4	5:12 AM–7:13 AM ◆ 4:15 PM–6:28 PM	3 trips	—
98A	Kunia-Wahiawa-Mililani	6.5	131.7	20.3	4:55 AM–6:52 AM ◆ 4:00 PM–6:29 PM	2 trips	—
101	Ewa Gentry Express	10.2	237.0	23.3	4:57 AM–7:14 AM ◆ 4:00 PM–6:25 PM	5 trips	—
102	Villages of Kapolei Express	6.4	156.4	24.6	5:30 AM–7:10 AM ◆ 4:00 PM–6:18 PM	3 trips	—
103	Paiwa-Waikele Express	3.5	69.8	20.2	5:45 AM–6:52 AM ◆ 4:20 PM–5:44 PM	2 trips	—
201	Waipahu via Farrington Express	15.1	251.7	16.7	4:45 AM–7:26 AM ◆ 4:00 PM–6:23 PM	6 trips	—
202	Waipahu via Paiwa Express	6.7	133.2	20.0	5:00 AM–7:02 AM ◆ 4:10 PM–5:55 PM	4 trips	—
203	Kalihi via School Street Express	3.5	39.7	11.4	5:44 AM–7:02 AM ◆ 3:37 PM–5:05 PM	2 trips	—
	Totals All Routes	**4,207.6**	**54,975.3**	**13.1**			

Source: DTS/OTS Scheduled Information for 3/4/2012 and Public Timetables.
Notes: AM Peak is defined as 6:00 AM to 8:59 AM; base period is 9:00 AM to 2:59 PM.

Once the training was completed, and an ETC Institute supervisor approved of each surveyor's abilities in the classroom, the surveyors then spent several days in the field. This field work was done under the management of an ETC supervisor who assessed each surveyor's ability to properly conduct the On-to-Off procedures. Surveyors who did not demonstrate proficiency in all of the required tasks were released.

3.2 ETC Institute On-to-Off Program Procedure

The purpose of the On-to-Off software program is to identify ridership patterns based on an individual's boarding and alighting locations by time period. The resulting information provided the key basis for developing the sampling plan for the Main Survey. This was accomplished by using ETC Institute's custom On-to-Off software which records the latitude and longitude of boarding and alighting locations using a barcode system. These barcodes eliminated language barriers and increased ridership participation thereby providing more accurate boarding and alighting locations.

The survey team used the On-to-Off software with a GPS-equipped tablet PC to record the rider's boarding latitude/longitude, alighting latitude/longitude, time of usage, route used, and inbound/outbound direction. The key steps in the barcode scanning system method are described below:

- Riders were asked to participate in the On-to-Off ridership pattern survey as they entered the bus.
- Riders who agreed to participate were handed a barcode card which was scanned by a surveyor.
- Riders were told to keep the barcode card during the duration of their trips.
- Riders were reminded to hand their cards back to the surveyor as they exited the bus.
- When riders' bus stops were approached, the surveyor took their barcode cards before they exited. The surveyor scanned riders' barcode cards as they departed the bus.
- The software then paired the boarding and the alighting location of each rider based on the unique barcode card each was handed.

A screen shot of the interface of the On-to-Off boarding/alighting software that was used to record the information and a picture of a barcode card are shown in Figure 3-1.

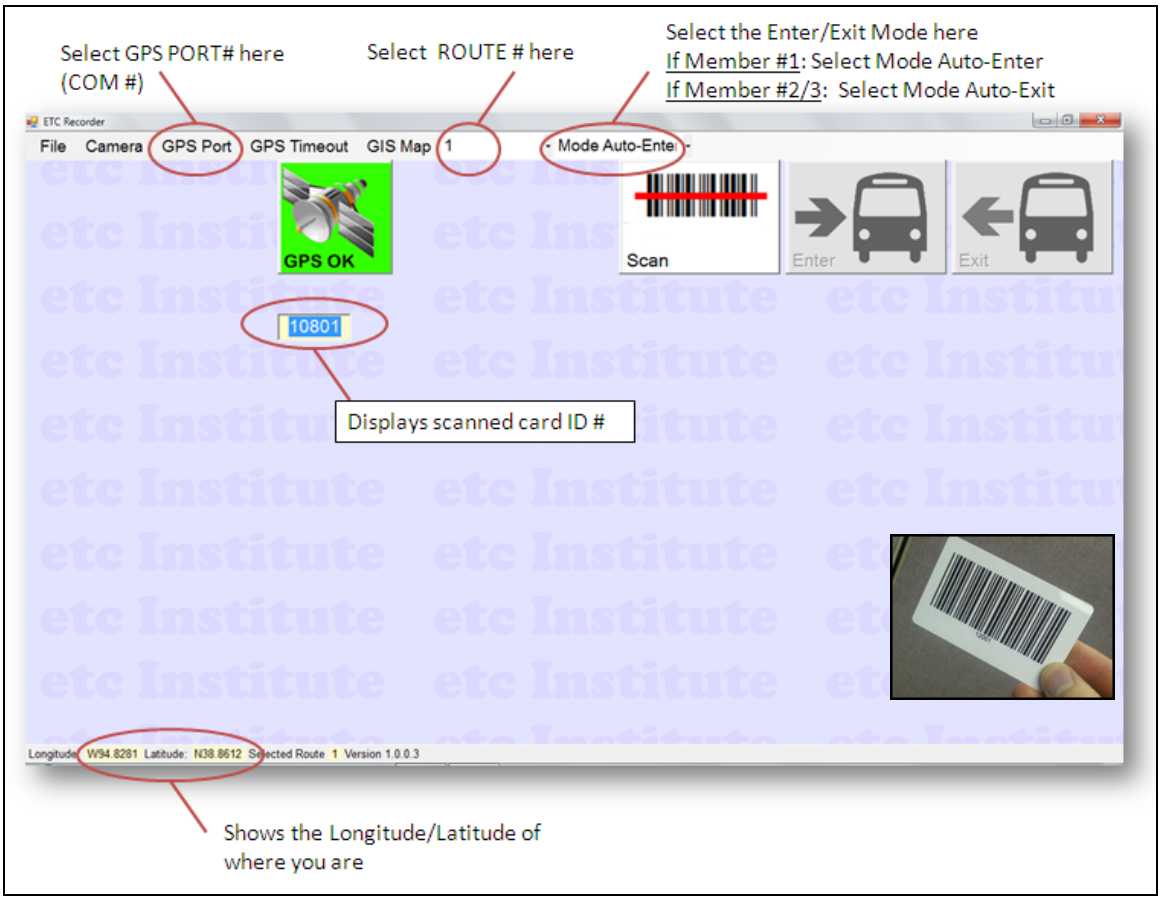


Figure 3-1. On-to-Off Survey Scan Card Screenshot

3.3 Organization of the Survey Team

The On-to-Off Survey was administered by teams that were directly supervised by an ETC Institute supervisor. The supervisors were responsible for reviewing the performance of each team and ensuring that all parts of the On-to-Off procedure were being followed and the sampling goals for each route were met. The supervisors operated from centralized locations, such as transit centers, so that the performance of all teams could be evaluated.

The On-to-Off Survey Team sizes were determined by route ridership levels and bus size (articulated [3+ doors] or standard [1-2 doors]). A typical team consisted of two members, based on a medium- to high-ridership level for a route and a standard size bus. On-to-Off teams were typically deployed on at least two buses running in opposite directions. For high-volume routes, teams may have been deployed on up to four buses on a route. On low-volume routes, teams may have been deployed on just one bus serving the route.

The responsibilities of each of the positions on the On-to-Off teams are described below:

- The **team leader** was responsible for route and direction selection for On-to-Off software, offering riders an opportunity to participate in the survey, scanning barcode cards for boarding riders, answering rider questions, and overseeing On-to-Off operations of his/her bus.
- The **support surveyor** was responsible for collecting and scanning barcode cards for alighting riders, reminding riders to keep their cards ready to hand in to a surveyor when they exited at their bus stop, and answering rider questions.

3.4 Timing of the On-to-Off Survey

The bulk of the On-to-Off survey was administered during weekdays (Monday through Thursday) from February 2012 through March 2012 with the exceptions of holidays and breaks for colleges/schools. The On-to-Off Survey was administered at the time of day that coincided with the hours that each route was operational. This was to ensure that the On-to-Off data would provide the Main Survey with an accurate sampling plan for administration and for the data expansion. Although the administration of the On-to-Off Survey began as early as 5 am and continued as late as 9 pm on some routes, most were conducted between the 6 am and 7 pm.

4 Main Survey Administration Methodology

The following sections describe the methodology used for the 2012 onboard Main Survey in Honolulu. This methodology includes recruiting and training of interviewers, procedures used for the survey, and organization of the survey teams. Prior to the survey administration, ETC met with management of OTS and DTS in order to finalize the scheduling and coordination of the survey effort. It should be noted that, prior to initiation of the survey elements, the survey methodology was reviewed by HART and the GEC.

4.1 Recruiting and Training Interviewers

Assembling a team of high quality interviewers was one of the most important steps in the Main Survey administration process. As was the case for the On-to-Off Survey, ETC Institute used temporary interviewers who were recruited by a local staffing agency to complement experienced supervisors.

Interviewers recruited by the staffing agency were required to have a familiarity with the bus service areas. They were also required to document a solid work history, show a professional attitude and appearance, prove to supervisors the ability to interact with the public, display an ability to work a tablet PC, and show proficiency with ETC Institute's surveying program.

Each interviewer was required to attend ETC Institute's training session. During this training session, interviewers were presented with the following:

- An overview of the on-board survey objectives
- How to operate the tablet PC and surveying software
- How to approach riders and sampling procedures
- Survey etiquette
- How to deal with various situations that could be encountered during a survey
- Role-playing and one-on-one tutoring with an ETC Institute supervisor

Once the training was completed, interviewers spent several days under the supervision of an ETC Institute staff person who assessed each interviewer's ability to properly conduct surveys. Those who did not demonstrate proficiency in all of the required tasks for the Main Survey were released.

4.2 Main Survey Administration Procedure

In order to encourage participation in the survey, OTS posted signs (one copy is provided in Appendix D) on buses that explained the importance of the survey. The sign also pictured an interviewer for recognition. The signs were posted on buses during the On-to-Off phase of the survey and throughout the duration of the Main Survey. The following sections further describe procedures used for the Main Survey, including those applied to Local and Express routes.

4.2.1 Direction for Main Survey

Prior to administration of the Main Survey, the results of the On-to-Off Survey were reviewed to ensure the survey team fully understood the trip patterns along each route. Information from this review was used to direct the Main Survey. Some of the specific aspects of the On-to-Off survey data that were reviewed included:

- Whether any pairs of stops along a route account for at least 10 percent of the one-way trips that were completed on the route during a particular time period. If a high percentage of trips along a given route involved the same set of boarding and alighting pairs, ETC Institute placed additional interviewers on buses to be sure these trips were captured. Without the On-to-Off data, these trips may have been underrepresented using traditional sampling techniques.
- The percentage of boarding/alighting pairs along each bus route that were "short trips", which means the distance between the boarding and alighting locations was less than one mile. If more than 10 percent of the records from the On-to-Off survey for a given route involved boarding/alighting pairs were less than one mile apart, additional interviewers were staffed on the route and were told to conduct the full interview. These interviews occurred even if the rider said that he/she did not have enough time to complete the survey. The interviewer would then get off the bus with the rider to complete the survey.

4.2.2 Survey of Local Routes

Local routes, which provide regular/continuous service throughout the day, were surveyed using tablet PCs. Since local routes have more frequent stops than express routes and shorter ride times for the passenger, interviews using tablet PCs were deemed necessary. Interviewers selected people for the survey in accordance with the sampling procedures described in Chapter 2 of this report. Once an interviewer had selected a person for the survey, he/she carried out the following steps:

- Approached the person who was selected and asked him or her to participate in the survey.

- If the person refused, the interviewer ended the survey.
- If the person agreed to participate, the interviewer asked the respondent if he/she had at least five minutes to complete the survey.
- If the person did not have at least five minutes on the bus, the interviewer asked the person to provide his/her home address, boarding location, alighting location, name, and phone number. A phone interviewer from ETC Institute's call center contacted the respondent and asked him/her to provide the information by phone. This methodology ensured that people who completed "short-trips" on public transit were properly represented.
- If the person had at least five minutes on the bus, the interviewer began administering the survey to the respondent as a face-to-face interview using a tablet PC. After all of the required questions had been answered, the interviewer asked the respondent if he or she had two to three more minutes to complete the desired questions. If the respondent agreed, the interviewer then asked the remaining questions on the survey.

Interviewers working in ETC Institute's call center contacted respondents who did not have the two to three minutes to complete the desired questions at a later date. Of those that did not have the necessary two to three minutes to complete the survey, ETC's call center was able to retrieve answers to those remaining questions from 92 percent of those individuals. Overall, 78 percent of all respondents to the survey provided their phone numbers.

4.2.3 Express Service Routes

Express routes were surveyed by interviewers using the printed forms. Interviewers distributed the printed surveys and pencils to boarding riders. Paper surveys were used on some express route buses because this type of bus service generally have longer ride times and the routes often serve employed travelers with higher education levels. The combination of higher education levels, longer ride time, and the ease of distributing the paper surveys to a higher number of passengers often leads to a much higher percentage of rider surveys being captured (than would have been possible with using a tablet PC alone) while still maintaining a high level of accuracy.

Once a rider finished a survey, an interviewer conducted a short-version interview to ensure that all questions were answered properly. The interviewer then made corrections/additions to the survey as necessary. After corrections/ additions were made, the interviewer initialed the printed survey for submittal.

4.2.4 Monitoring of Survey Activities

Surveys on Local bus routes submitted with tablet PCs were reviewed by an ETC Supervisor in real-time using ETC Institute's survey program's on-line database. This real-time review ensured that the following information had been provided:

- Type of place where the trip began
- Complete address where the trip began
- Mode of access to the transit system
- Boarding location
- Alighting location
- Mode of egress from the transit system
- Complete destination address
- Type of place where the trip ended
- Respondent's home address
- Respondent's employment status
- Respondent's student status
- Respondent's driver's license status
- Respondent's age
- Number of operating vehicles available in the household
- Number of occupants in the household
- Number of adults in the household
- Number of workers (employed persons) in the household
- Annual household income
- Time of day the survey was completed

If any item listed above was missing or incomplete, the supervisor flagged the record for reviewing. ETC Institute's Project Manager then forwarded all flagged survey records and the corresponding name and phone number to ETC Institute's call center. Interviewers working in this call center then contacted respondents who had provided their names and phone numbers to retrieve the missing information by phone.

Once survey records for Local bus routes were classified as *complete,* meaning all of the required information had been collected, the records were forwarded to ETC Institute's geocoding manager. This manager then recorded the home, origin, boarding, alighting, and destination locations. Express route surveys were physically reviewed by an ETC Supervisor to ensure that the information described above for Local routes had been provided. The printed surveys were then sent to ETC Institute's Data Entry department to be

entered. Those surveyed on Express routes were sometimes contacted by ETC Institute's Call Center to retrieve any missing information.

4.3 Organization of the Main Survey Team

The Main Survey was administered by teams who were directly supervised by an ETC Institute staff person. The supervisors were responsible for reviewing the performance of each interviewer to ensure that all parts of the surveying procedure were being followed and the sampling goals for each route were being met. The supervisors operated from centralized locations, such as transit centers (e.g., Kalihi Transit Center and Ala Moana Center), so that the performance of all interviewers could be evaluated.

The responsibilities for the two positions on the Main Survey team are described below.

- The supervisor was responsible for ensuring that interviewers were properly trained, equipping interviewers to conduct surveys, scheduling interviewers, inspecting work, and reviewing the data collected.
- The interviewer was responsible for administering surveys while following surveying procedures.

4.4 Timing of the Main Survey Administration

The Main Survey was administered at the time of day that coincided with the hours that each route was in service. This was to ensure that the administration of the survey began prior to peak ridership levels in the morning and continued after peak ridership levels in the evening. Although the administration of the Main Survey began as early as 5 am and continued to as late as 9 pm on some routes, most of it was administered between 6 am and 7 pm.

The bulk of the Main Survey was administered during weekdays (Monday through Thursday) from April 2012 through May 2012 with the exceptions of holidays and breaks for colleges/schools. Upon completion of this Main Survey, the analysis of results indicated some gaps regarding the targeted number of response per bus routes. To fill in the gaps, follow-up Main Surveys were carried out in September and October 2012.

5 Data Review Process

The items described in the first four sections of this report were essential elements of the overall quality assurance/quality control (QA/QC) process that was implemented throughout the survey administration process. The establishment of specific sampling goals and procedures for managing them ensured that a representative sample was obtained from each bus route as well as for route segments by time of day.

The following sections describe the QA/QC processes that were implemented after the data was collected. The processes used in the onboard survey resulted in a database with approximately 26,200 complete and useable surveys. This total met the contractual requirements established by HART.

5.1 Process for Identifying "Complete and Useable" Surveys

Once a survey had been classified as being *complete*, meaning all of the required data were provided, the next phase of the QA/QC process was to determine the usability of each survey record. The term *useable* was applicable to those records that passed all QA/QC tests after they were classified as being complete. (A list of *required* data that were needed to meet the contractual requirements for completeness is provided in Section 1.3.1)

5.1.1 Pre-processing Tests

The first step in this process involved the application of a series of QA/QC tests that were conducted before the address fields were processed for geocoding. Some of the specific checks that were conducted during the pre-processing phase included:

- Valid *home* street names, city names, and zip codes
- Valid *origin* street names, city names, and zip codes
- Valid *destination* street names, city names, and zip codes
- O*rigin* place names that could be matched to a pre-existing list of major origins that had been previously geocoded
- *Destination* place names that could be matched to a pre-existing list of major destinations that had been previously geocoded
- The number of household occupants was greater than or equal to the number of employed members of the household
- The number of household occupants was greater than or equal to number of adults in the household

- The number of respondents who indicated that they were employed also reported that at least one member of their household was employed
- Bus route names were consistently spelled and coded correctly
- The report dates on which the survey was administered were on a Monday, Tuesday, Wednesday, or Thursday
- Transfers to a bus route were possible
- Transfers from a bus route were possible
- The number of vehicles available to a respondent's household was consistent with the respondent's reported annual household income. Low income families who reported owning many vehicles and high income families that reported no vehicles were flagged
- The time of day a survey was completed was reasonable given the published operating schedule for the route
- The origin type of place code matched the type of place reported by the respondent
- The destination type of place code matched the type of place reported by the respondent

Records that passed all the QA/QC tests described above were forwarded to ETC Institute's geocoding team. Records that did not pass all of the tests were sent to ETC Institute's Survey Records Review Team (SRRT) for further review. The SRRT members then took one of the following actions:

- They corrected the deficiency in record.
- They directed ETC Institute's Call Center to contact the respondent by phone (if a phone number were available) to retrieve additional information or to confirm whether or not their responses were correct.
- They reclassified the record as *incomplete* by assigning a value of "3" for the record's Quality Control Flag. This assignment removed the record from further consideration for the final survey database.

5.1.2 Post-processing Tests

The next step in this process involved the application of a series of QA/QC tests that were conducted after all five addresses were successfully geocoded. Once all five addresses had been geocoded, the following QA/QC checks were performed to assess the logic and other attributes of the reported trip.

- Ensuring the origin and destination addresses were not the same
- Ensuring the boarding and alighting addresses were not the same
- Ensuring that the respondent did not list the same route as both a "transfer from" and a "transfer to" during their one-way trip

- Checking to be sure the access mode was appropriate given the distance of travel from the trip origin to the place where the respondent initially accessed transit. For example, if a rider reported that he/she accessed transit by car but the distance from his/her origin to the entry point for transit was less than 0.25 mile, the record would have been flagged for further review. Similarly, if a respondent reported that he/she walked to transit but the distance from the origin to transit was more than two miles, the record would have been flagged to check for a missing transfer. Two miles or more is well beyond typical walk distance.
- Checking to ensure that the egress mode was appropriate given the distance of travel from the place where the respondent exited the transit system to his/her destination
- Reviewing the total distance the respondent traveled on transit compared to the distance the respondent traveled from the origin to the destination for his/her trip. For example, if a respondent reported traveling 6 miles on transit in order to travel 0.5 mile from the origin to the destination for his/her trip, the record would have been flagged for further review. Similarly, if a respondent reported traveling just 1 mile on transit to complete a 10-mile trip, the records would have been flagged to check for a missing transfer.

Records that passed all the QA/QC tests described above were forwarded to ETC Institute's SRRT for a final visual review of the trip using the Visual Survey Editor Program (VSEP), which is described in the Section 5.1.3. Any records that were flagged for further review were forwarded to the appropriate section based on the nature of the flag. Issues that involved address geo-coding assignments were referred to ETC Institute's geocoding team. Any issues that needed clarification of data were directed to ETC Institute's Call Center (if a phone number was available). The Call Center then contacted the respondent to retrieve additional information as needed. All other issues were directed to ETC Institute's SRRT.

Records that were corrected were then forwarded to the SRRT for a final visual inspection using the VSEP. Any records that were complete but could still have problems with the trip logic or other attributes of the trip were reclassified as *problematic* by assigning a value of "2" as the record's Quality Control Flag. This assignment removed the record from further consideration for the final survey database.

5.1.3 Visual Inspection

The final step of the QA/QC data review process involved a visual inspection of the trip record using the VSEP. The key tasks that were conducted as part of this visual inspection included the sensibility of results for the following areas:

- Key variables of survey trips with very short distances (less than one mile for local bus trips and less than four miles for express trips)
- Trips with zero transfers given location of boarding and alighting locations relative to the origin and destination
- Trips that reported three or more transfers
- Drive access/egress trips given the distance traveled by car relative to the distance traveled by bus
- Drive access/egress trips with more than one transfer
- Looking at the origin-to-destination to ensure that it was appropriate for the survey route that was used for the trip

If a record passed all the visual checks listed above, the record was classified as *useable* and tagged for inclusion in the final survey database by assigning a value of "1" as the record's Quality Control Flag. If a record did not pass all the visual checks, it was sent back to the SRRT for further review. If the SRRT was not able to resolve the problem that was identified, the record was reclassified as *problematic* by assigning a value of "2" as the record's Quality Control Flag. This assignment removed the record from further consideration for the final survey database.

5.2 Summary of the Data Review QA/QC Process

Among the 27,844 surveys that were originally administered, 27,456 met the requirements for completeness. Of those that were classified as *complete*, 26,246 passed all the QA/QC tests and were subsequently classified as *useable* records. Only the *useable* records (those with a Quality Control Flag of "1") were included in the final survey database that was expanded and used for the analysis in this report. The results of the QA/QC review are shown in Table 5-1.

Table 5-1. Data Review QA/QC Summary

Classification	Quality Control Flag Value	Description	# of Surveys	% of All Surveys Administered
Not complete	3	Missing one or more pieces of required data	488	2%
Problematic	2	All required data was provided but there was a problem with the trip logic or other attribute of the trip	1,110	4%
Useable	1	Record passed all QA/QC tests	26,246	94%
Total			**27,844**	**100%**

Table 5-2 describes the breakdown of the *problematic* survey records. Of the five types of categories that make up the problematic records, approximately one-third involve transfer issues. This type of issue could include lack of consistency between what was identified as a transfer routes and the actual opportunities available to the rider. For example, a rider on Route A may have indicated that a transfer occurred to or from Route 41. Since, there were no transfer opportunities between Routes A and 41, the survey record would be classified as problematic.

Table 5-2. Problematic Survey Records Disqualified by QA/QC Test

Problematic Category	Number of Disqualified Records
Boarding and/or Alighting Address	132
Origin and/or Destination Address	211
Access-Related Logic	165
Egress-Related Logic	209
Transfer-Related	393
Total Problematic Record	**1,110**

6 Data Expansion Process

This section describes the process used to expand the data generated by the 2012 onboard survey. The total number of complete and useable surveys from the 2012 onboard survey represents a sample of daily bus ridership in Honolulu. Expanding the information generated by the survey so that it represents total daily ridership resulted in a comprehensive database that can be used to analyze ridership patterns. The database will also provide a basis for the follow-up onboard survey that will be carried out after implementation of the Project.

The Honolulu on-board transit survey was expanded by route, direction, time of day, and the boarding and corresponding alighting locations of the rider. In order to complete this complex expansion process, 100 Excel files (one per route) were prepared. Most of the Excel files contained 8 worksheets, so nearly 800 worksheets were prepared. Each worksheet was used to develop a set of unlinked expansion factors to translate the survey database to actual boardings using farebox and automatic passenger count (APC) data.

6.1 Ridership Data for Data Expansion

To validate the ridership levels on each route, as estimated through the data expansion process, two sets of ridership information were reviewed: (1) farebox data and (2) APC data. The validation was done by comparing farebox data for each route to APC data. The assumption was that if the total ridership from both sources were within 5 percent of each other, the ridership counts for the route could be accepted.

If there was a difference of more than 5 percent[1] between the farebox totals and the APC totals, additional APC runs were reviewed until a comparable set of data was obtained. APC data collected by OTS for April 2012 was within 5 percent of the fare box ridership data for all routes with the following exceptions: C, 41, 53, 411, 415, 432, 501, and 504. For these eight routes, APC data collected during the month of May 2012 was used instead of the April 2012 data. This was done since the May 2012 farebox data was within 5 percent of the APC data.

Since the sample size of the farebox was larger than the sample for the APC data, the farebox data was used as the source for the aggregate totals by direction and time of day on each route. Use of the farebox data also helped address lack of APC data on some routes. The distribution of the APC data was applied to the farebox totals to estimate the number of boardings and alightings at each stop along each route.

[1] Part of this difference may result from gaps that existed in the APC data.

6.2 Methodology for Calculating Expansion Factors

Although OTS collects daily boarding and alighting data by stop, data on the number of trips between stops and segments along routes was not available. A major goal of the onboard survey analysis was to obtain have expanded data that addressed ridership patterns between stops/segments, direction, and time of day for each routes. To attain this goal, over 3,000 unique unlinked expansion factors were developed for the survey. To view a list of all of the unique unlinked weighting factors by route, time of day, direction, boarding segment and alighting segment, refer to Appendix E. Most of the Excel worksheets that were prepared contained eight tables with each table documenting a different step in the data expansion process.

The following sections describe the methodology that was used to develop the unlinked expansion factors.

6.2.1 Boarding and Alighting Information from On-to-Off Survey

While the number of passengers that board and alight at each stop is important, determining where a passenger boards and then correspondingly where that same passenger alights provides a more robust picture of transit ridership patterns. In order to determine a sample of ridership between stops and segments along each route, the On-to-Off Survey was administered to approximately 20 percent of the passengers on each route. This sampling step was followed up by expanding the results from the On-to-Off survey so that total demand between bus stops and segments by time of day and direction could be determined.

Table 6-1 shows a portion of the results for the On-to-Off Survey that was administered on Route 1, Eastbound, during the AM peak. Each row in the table identifies the major stops/segments where passengers boarded the bus. The columns in the table identify the major stops or segments where people got off the bus. For illustration purposes, 7 of the 16 segments for this route (segments A through G) are shown. The segment locations along Route 1 are as follows:

- A—Kalihi Transit Center (includes 1 stop)
- B—from Kalihi Transit Center to the North King Street and ‘Umi Street stop (includes 2 stops)
- C—from North King Street and Gulick Avenue to the North King Street and Mokauea Street stop (includes 2 stops)
- D—from North King Street and Kalihi Street to the North King Street and Waiakamilo Road stop (includes 3 stops)

- E—from North King Street and Kohou Street to the North King Street and Hikina Lane stop (includes 3 stops)
- F—from North King Street opposite of Palama Street to the North King Street and Dillingham Boulevard stop (includes 2 stops)
- G—Stops from North King Street and North Beretania Street to the North Hotel Street and Smith Street stop (includes 3 stops)

Table 6-1. Data Expansion Table Results of On-to-Off Survey (Eastbound AM Peak Period)

Segment	Total Ons	Actual Ridership Counts (Alightings) from the On-to-Off Survey						
		A	B	C	D	E	F	G
A	18	0	6	1	0	2	1	0
B	20	0	1	0	1	1	1	2
C	69	0	0	0	1	6	4	19
D	39	0	0	0	0	0	4	8
E	41	0	0	0	0	0	2	5
F	27	0	0	0	0	0	1	2
G	48	0	0	0	0	0	0	0

Table 6-2 shows the distribution of the data in Table 6-1 as a percentage of all boardings for Route 1. For example, 1 percent of all eastbound trips during the AM peak on Route 1 board at Major Stop/Segment A and end at Major Stop/ Segment B.

Table 6-2. Distribution of On-to-Off Survey (Eastbound AM Peak Period)

Segment	Total (%)	Distribution of Ridership Counts (Alightings) from the On-to-Off Survey (percent)						
		A	B	C	D	E	F	G
A	3.0	0.0	1.0	0.2	0.0	0.3	0.2	0.0
B	3.4	0.0	0.2	0.0	0.2	0.2	0.2	0.3
C	11.6	0.0	0.0	0.0	0.2	1.0	0.7	3.2
D	6.6	0.0	0.0	0.0	0.0	0.0	0.7	1.3
E	6.9	0.0	0.0	0.0	0.0	0.0	0.3	0.8
F	4.5	0.0	0.0	0.0	0.0	0.0	0.2	0.3
G	8.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0

To develop an initial estimate of total ridership flow on each route based on the Stop/Segment On to the Stop/Segment Off, the total ridership for the route for this time period and direction was applied to the distribution shown in Table 6-2. Table 6-3 shows the initial estimate of total ridership from Stop/Segment On to Stop/Segment Off. Based on this estimate, 22 of the total

eastbound trips during the AM peak on Route 1 begin at Major Stop/ Segment A and end at Major Stop/Segment B.

Table 6-3. Data Expansion Results—Initial Estimate of Total Ridership Flows between Segments (Eastbound AM Peak Period)

Segment	Total	Projected Ridership (Alightings) Based on the On-to-Off Survey						
		A	B	C	D	E	F	G
A	65	0	22	4	0	7	4	0
B	72	0	4	0	4	4	4	7
C	249	0	0	0	4	22	14	69
D	141	0	0	0	0	0	14	29
E	148	0	0	0	0	0	7	18
F	98	0	0	0	0	0	4	7
G	173	0	0	0	0	0	0	0

The distribution in Table 6-3 was compared to the actual boarding and alighting data collected for each major stop/segment by APCs. The top portion of Table 6-4 shows the APC boardings and alightings for each major stop/segment on the route. The bottom portion of the table shows the difference between the projected boardings and alightings at each major stop/segment (from Table 6-3) and actual APC counts. The process shown for selected segments of eastbound Route 1 ridership in the am peak period was repeated for all route segments by time of day and direction.

Table 6-4. Data Expansion- Comparison of Actual Boardings and Alightings by Segment (Eastbound AM Peak Period)

	Total	Average Weekday Ridership (Alightings) Provided by OTS						
		A	B	C	D	E	F	G
Actual boardings	2147	137	53	245	156	131	177	192
Actual alightings	2147	0	6	20	36	31	55	193
Difference of Actual from Projected								
Boardings	1	72	-19	-4	15	-17	80	18
Alightings	1	0	-19	17	29	-2	8	62

6.2.2 Refinement of Data Expansion Results

In order to develop a more accurate estimate of the ridership flows between major stops/segments on each route, ETC Institute developed an Iterative Proportional Fitting Algorithm. This algorithm balanced the differences between the ridership projected from the On-to-Off Survey (shown in

Table 6-3) and the actual ridership observed by APCs at each stop (shown in Table 6-4).

The key steps to the iterative process are described below:

Step 1: Correction for the Boardings—The estimated ridership from the On-to-Off data for each route (such as the data shown in Table 6-3) was obtained by multiplying the ratio of the actual boardings from APCs for each stop by the estimated boardings for each stop. For example, if the actual boardings for Stop A were 120 and the estimated boardings were 100, each cell associated with Stop A would have been multiplied by 1.2 (120 / 100) to adjust the estimated boardings to actual boardings.

Step 2: Correction for the Alightings—Once the correction in Step 1 (described above) was applied, the estimated boardings would have equaled the actual boardings. However, the adjustment to the boardings total may have changed the alighting estimates. In order to correct the alighting estimate, the new values calculated in Step 1 were adjusted by multiplying the ratio of the actual alightings from APCs for each stop by the estimated alightings for each stop from Step 1. For example, if the actual alightings for Stop B were 220 and the estimated alightings from Step 1 were 200, each cell associated with Stop B would have been multiplied by 1.1 (220 / 200) to adjust the estimated alightings from Step 1 to actual alightings.

The processes described in Steps 1 and Steps 2 were repeated sequentially until the difference between the actual and estimated boardings and alightings was zero. Table 6-5 shows that after eight balancing iterations in this algorithm, there were no differences between the projected distribution and the actual boardings and alightings.

Table 6-5. Iterative Balance Process

Segment	Total	Difference from Actual Boardings	8th Step of Iterative Balancing to Correct Distribution of Ridership						
			A	B	C	D	E	F	G
A	137	0	0	6	20	0	17	13	0
B	53	0	0	0	0	16	2	2	8
C	245	0	0	0	0	20	12	12	91
D	157	0	0	0	0	0	0	15	47
E	131	0	0	0	0	0	0	6	25
F	177	0	0	0	0	0	0	7	22
G	192	0	0	0	0	0	0	0	0
Total	**2,147**	**0**	**0**	**6**	**20**	**36**	**31**	**55**	**193**

Step 3: Final Estimate of Ridership between Segments—The final estimate of ridership flows between segments as shown in Table 6-6. To calculate the expansion factors, the final estimate of ridership between major stops/segments shown in Table 6-6 was divided by the actual number of surveys that were completed for trips between major stops/segments shown in Table 6-7. When factors were high or survey data did not exist for a given cell, stops/segments were combined with adjacent stops/segments.

Table 6-6. Final Estimate of Ridership Flows between Segments

Segment	Total	Difference from Actual Boardings	1st Step of Iterative Balancing to Correct Distribution of Ridership by Alighting Location						
			A	B	C	D	E	F	G
A	137	0	0	6	20	0	17	13	0
B	53	0	0	0	0	16	2	2	8
C	245	0	0	0	0	20	12	12	91
D	156	0	0	0	0	0	0	15	47
E	131	0	0	0	0	0	0	6	25
F	177	0	0	0	0	0	0	7	22
G	192	0	0	0	0	0	0	0	0
Total	2,147	0	0	6	20	36	31	55	193
Difference from Actual Alightings			0	0	0	0	0	0	0

Table 6-7. Number of Completed Surveys

Segment	Total	A	B	C	D	E	F	G
A	39	0	0	0	0	1	1	4
B	15	0	0	0	1	0	1	1
C	35	0	0	0	1	1	1	2
D	14	0	0	0	0	0	1	1
E	13	0	0	0	0	0	0	2
F	8	0	0	0	0	0	0	1
G	18	0	1	1	0	0	0	0

The next step after creating the weighting factors was to give each record in the Main Survey database a weight factor name based on route, direction, time period, boarding segment, and alighting segment. For example, the weight factor name of “1_E_A_B_H” indicates that the record is from ROUTE 1 (1), going EASTBOUND (E), during the AM PEAK (A), the rider boarded at Major Stop/Segment B (B), the rider alighted at Major Stop/Segment H (H).

Step 4: Validating the Expansion—After all the expansion factors were added into the Main Survey database, the weighting factors were summed by route, direction, and time period. Appendix F contains the tables which include results of the data expansion effort for a representative bus route: Route 1.

The system-wide daily ridership that was projected by the survey database after the weighting factors were applied was 223,871 riders per day, which was just 14 short of the actual daily ridership of 223,885. This means that the difference between the expanded daily ridership from the survey and the actual daily ridership is just 0.006 percent. The tables show the actual ridership for an average weekday in April 2012 using fare box data as well as the difference in the expanded projections actual ridership.

Among the 780 ridership figures reported, the difference between the expanded ridership projection and actual ridership was within +/-1 percent at the 95% level of confidence of the actual value; this would occur 779 out of the 780 times. The difference was just 3 in 1 of the 780 cells in the matrix.

In addition, when the expanded daily ridership was compared to the actual daily ridership on each route by direction and time of day (for four time periods), the expanded ridership was within +/- 1 of the actual daily ridership for 779 of the 780 ridership values that were reviewed. The only exception involved the projected ridership for Route 57 in the eastbound direction during the evening. In this case, the expanded ridership for Route 57a was 3 short of the actual ridership for the evening time period.

Step 5: Assessing Expansion Factor Values—The average value of all unlinked expansion factors in the database is 8.53. Of the 26,246 records in the database, 19,153 (73 percent of the sample) have an expansion factor of 10 or less and 24,538 (93.5 percent of the sample) have a value less than 20. Only 107 records in the database have an expansion factor greater than 30. The highest value is 35.17.

The vast majority of the weight factors with values above 20 were for trips completed during “Other Hours” (before 6 am and after 6 pm). Surveys were typically only conducted until 8 pm in the evening, which is the reason the expansion factors for the “Other Hour” period are slightly higher.

7 High Level Findings from the Survey

This section highlights selected demographic and travel pattern information from the 2012 survey. The results for all questions on the survey based on the type of service (local and express) are provided in Appendix A. Three major categories are presented regarding the survey findings: (1) demographic characteristics, (2) travel characteristics, and (3) rider characteristics by bus route location. Information is also provided for responses within the Project corridor, connecting to the corridor and outside the corridor.

7.1 Demographic Characteristics

7.1.1 Vehicle Availability

Of all transit passengers, 37 percent indicated that they do not have a working vehicle available to their household. Express route passengers were significantly more likely to have at least one working vehicle available to their household than local route passengers (86 percent express vs. 61 percent local) (Table 7-1).

Table 7-1. Number of Working Vehicles in Household (by percentage of transit riders surveyed)

Working Vehicles	Peak Period Express	Local/Limited Stop Express	Overall
None	14%	39%	37%
One	31%	31%	31%
Two	33%	18%	20%
Three	13%	7%	8%
Four or more	8%	5%	5%

7.1.2 Adults in the Household

Of all transit passengers, 24 percent indicated that they live in a household that has just one adult. Local route passengers were more likely to live in a household with just one adult than were express route passengers (17 percent express vs. 25 percent local) (Table 7-2).

Table 7-2. Number of Adults in Household (by percentage of transit riders surveyed)

Adults in Household	Peak Period Express	Local/Limited Stop Express	Overall
One	17%	25%	24%
Two	36%	33%	33%
Three	20%	19%	19%
Four	15%	12%	12%
Five	6%	5%	5%
Six	3%	3%	3%
Seven	1%	1%	1%
Eight	1%	1%	1%
Nine	0	0	0
Ten or more	1%	1%	1%

7.1.3 Student Status

Of all transit passengers, 27 percent indicated that they were students. Local route passengers were more likely to be enrolled in a college or university than express route passengers (9 percent express versus 19 percent local) (Table 7-3).

Table 7-3. Student Status

Student Status	Peak Period Express	Local/Limited Stop Express	Overall
Not a student	86%	72%	73%
Full-time college/university	7%	16%	15%
Student through 12th grade	5%	8%	7%
Part-time college/university	2%	3%	3%
Other	1%	2%	2%

7.1.4 Employed Status of Transit Rider

Two-thirds of all transit passengers (67 percent) reported that they are employed on at least a part-time basis, 6 percent indicated they were not currently employed but seeking work, 16 percent were not employed and not seeking work, 9 percent were retired, and 1 percent indicated they were a homemaker (*does not equal 100 percent due to rounding)*.

Express route passengers were significantly more likely to be employed full-time as compared to local route riders (81 percent express vs. 42 percent local). In addition, express bus routes provide travel times that are more competitive with private auto travel and, therefore, attract a greater share of *choice* riders that are likely to be employed full-time (Table 7-4).

Table 7-4. Employment Status of Respondent

Employment Status	Peak Period Express	Local/Limited Stop Express	Overall
Employed full-time (at least 35 hours per week)	81%	42%	46%
Employed part-time (less than 35 hours per week)	8%	22%	21%
Not currently employed but seeking work	4%	7%	6%
Not currently employed and not seeking work	5%	18%	16%
Retired	2%	10%	9%

7.1.5 Driver's License

More than half (53 percent) of all transit passengers indicated that they have a valid driver's license. Express route passengers were significantly more likely to have a driver's license than local route passengers (70 percent express vs. 51 percent local) as shown in Table 7-5.

Table 7-5. Valid Driver's License

Driver's License	Peak Period Express	Local/Limited Stop Express	Overall
Yes	70%	51%	53%
No	30%	49%	47%

7.1.6 Age

A majority (54 percent) of all transit riders indicated that they were between the ages of 18 and 44, 8 percent were under age 18 and 38 percent were age 45 or older. Express route passengers were more likely to be over age 44 than local route passengers (55 percent express vs. 36 percent local). Part of this disparity could be due to the fact that students, who tend to be under 45, usually do not work full-time and are less likely to use express routes (Table 7-6). Express services are focused on a 9-to-5 weekday work schedule with jobs located in the Primary Urban Center of O‘ahu.

Table 7-6. Age of Transit Riders

Age	Peak Period Express	Local/Limited Stop Express	Overall
Under 18	5%	8%	8%
18-24	9%	24%	23%
25-34	13%	18%	18%
35-44	18%	14%	14%
45-54	25%	15%	16%
55-64	24%	11%	12%
65+	7%	10%	10%

7.1.7 Income

Of all transit passengers, 22 percent reported annual household incomes below $15,000. Only 5 percent reported an annual household income of $115,000 or more. Express passengers were more likely to report annual household incomes above $60,000 than local route passengers (41 percent express versus 24 percent local) as shown in Table 7-7.

Table 7-7. Total Annual Household Income

Annual Household Income	Peak Period Express	Local/Limited Stop Express	Overall
Below $12,000	7%	16%	15%
$12,000–$14,999	3%	7%	7%
$15,000–$29,999	11%	15%	14%
$30,000–$39,999	14%	13%	13%
$40,000–$49,999	11%	11%	11%
$50,000–$59,999	10%	10%	10%
$60,000–$74,999	11%	8%	9%
$75,000–$89,999	10%	7%	7%
$90,000–$114,999	12%	5%	6%
$115,000+	8%	4%	5%
Did not know	1%	2%	2%
Not asked because	3%	3%	3%

7.1.8 Gender

Of all transit passengers, 47 percent were male and 53 percent were female. Express route passengers were more likely to be female as shown in Table 7-8.

Table 7-8. Gender of Transit Riders

Gender	Peak Period Express	Local/Limited Stop Express	Overall
Male	37%	48%	47%
Female	63%	52%	53%

7.1.9 Race/Ethnicity

Of all transit riders, 24 percent identified themselves as Pacific Islander or Native Hawaiian, 23 percent identified themselves as White, and 45 percent identified themselves as Asian (Japanese, Filipino, Chinese, Korean, or other Asian). There was no significant difference for Race/Ethnicity when compared between express and local route passengers as shown in Table 7-9.

Table 7-9. Race/Ethnicity (by percentage of transit riders surveyed)

Race/Ethnicity	Peak Period Express	Local/Limited Stop Express	Overall
Asian Japanese	9%	11%	11%
Asian Filipino	20%	20%	20%
Asian Chinese	3%	5%	5%
Asian Korean	1%	2%	2%
Asian Other	27%	5%	7%
Pacific Islander or Native Hawaiian	19%	25%	24%
Black or African American	2%	4%	3%
American Indian or Alaska Native	1%	1%	1%
Hispanic or Latino	3%	4%	4%
White	16%	24%	23%

7.1.10 Necessity of Transit Service

More than one-fourth (27 percent) of all transit passengers reported that they would not have been able to make their trip if public transit were not available. Two-thirds of express route passengers reported that they would either be able to drive themselves or drive with someone else (67 percent) if transit service was not available compared to 44 percent of local route passengers. Express route passengers were three times as likely as local route passengers to report that they would have driven themselves if public transit had not been available (42 percent express vs. 14 percent local) (Table 7-10).

Table 7-10. Without Transit Service (by percentage of transit riders surveyed)

Options if No Available Transit	Peak Period Express	Local/Limited Stop Express	Overall
I could not make this trip	26%	27%	27%
Taxi	1%	7%	6%
Drive myself	42%	14%	17%
Drive with someone else	25%	30%	29%
Walk/bike	5%	21%	20%
Other	1%	1%	1%

7.2 Travel Characteristics

7.2.1 Trip Purpose

Home-based work accounted for over one-third (38 percent) of all trips completed on public transit. Of all trips, 14 percent were home-based shopping trips and 9 percent were home based-college trips. Express route passengers were significantly more likely to complete home-based work trips than local route passengers (82 percent express vs. 33 percent local). Local route passengers were significantly more likely to use public transit to complete home-based shopping trips (2 percent express vs. 16 percent local) (Table 7-11).

Table 7-11. Trip Purpose

Trip Purpose	Peak Period Express	Local/Limited Stop Express	Overall
Home-based other (HBO)	4%	22%	20%
Home-based work (HBW)	82%	33%	38%
Home-based shopping (HBSH)	2%	16%	14%
Home-based school (HBSC)	4%	5%	5%
Non-home-based other (NHBO)	0%	8%	8%
Home-based college (HBC)	5%	10%	9%
Non-home-based work (NHBW)	2%	5%	5%
Home-based airport (HBA)	0%	1%	1%

7.2.2 Trip Origins

Figure 7-1 shows the distribution of survey responses relating to trip origins. At approximately 98,900 daily trips, the dominant origin is Home followed by Workplace with approximately 46,200 trips. There is an estimated number of nearly 21,000 boardings per day that begin at a College/University or School.

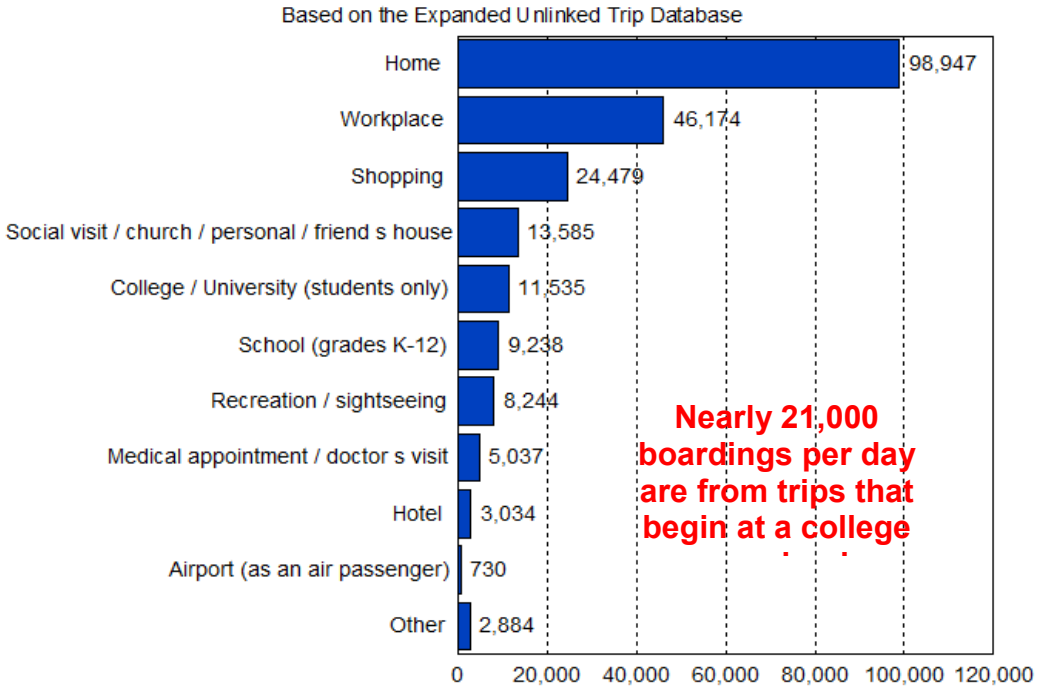


Figure 7-1. Types of Places Riders are Coming From

7.2.3 Types of Destinations Visited by Transit Users

Of all transit trips, 37 percent ended at the respondent's home. Nearly one in four trips (24 percent) ended at the respondent's workplace and 11 percent ended at a shopping location. Express route passengers were more than twice as likely as local route passengers to end their trip at their workplace (46 percent express vs. 21 percent local). Local route passengers were significantly more likely than express route passengers to end their trips at either a shopping location or at a social visit location (3 percent express vs. 22 percent local) (Table 7-12).

Table 7-12. Types of Destinations Visited by Transit Users

Major Destinations	Peak Period Express	Local/Limited Stop Express	Overall
Respondent's workplace	46%	21%	24%
Shopping	2%	12%	11%
School (grades K-12)	3%	3%	3%
Hotel	0%	2%	1%
Airport (as an air passenger)	0%	0%	0%
Recreation/sightseeing	1%	5%	5%
Medical appointment/doctor's visit	1%	3%	3%
Social visit/church/personal/friend's house	1%	10%	9%
College/university (students only)	3%	7%	6%
Respondent's home	1%	1%	1%
Other	1%	1%	1%

7.2.4 Ridership Characteristics at Ala Moana Center

Of all transit passengers, 7 percent indicated that they boarded a bus at Ala Moana Center during their one-way trip. Local route passengers were more likely to report boarding a bus at Ala Moana Center during their one-way trip than were express route passengers (2 percent express vs. 8 percent local).

Of the passengers who indicated they boarded a bus at Ala Moana Center during their one-way trip, 55 percent indicated the main reason they were at Ala Moana Center was to board a bus or transfer to another bus. The remaining share of bus riders (45 percent) indicated that were involved with some other activity at AMC with 35 percent indicating that the main reason they were at AMC was to work/shop/dine/do something other than just board a bus or transfer to another bus. Another 10 percent indicated that the main reason they were at Ala Moana Center was to board a bus or transfer to another bus but they also did other things. These activities were convenient to do before they boarded a bus; for example, shopping, eating, or using the ATM.

7.2.5 How Passengers Access Public Transit

A large majority of transit passengers (96 percent) indicated that they accessed public transit by walking. Compared to local route riders, Express route passengers were more likely to report accessing public transit by first riding in a vehicle, whether it was driving themselves, being dropped off, or riding with others and parking (9 percent express vs. 2 percent local) (Table 7-13).

Table 7-13. Mode to Access Public Transit

Access Mode	Peak Period Express	Local/Limited Stop Express	Overall
Walk	90%	97%	96%
Bike	1%	1%	1%
Was dropped off by someone going someplace else	5%	2%	2%
Drove alone and parked	3%	0%	1%
Drove or rode with others and parked	1%	0%	0%
Wheelchair/scooter	0%	0%	0%
Other	0%	0%	0%

7.2.6 How Passengers Traveled from Transit to Their Final Destination

A large majority of transit passengers (98 percent) indicated that they walk to their final destination after using public transit. As compared to those using Local routes, Express route passengers were more likely to report reaching their final destination by being picked up by someone, getting in a parked vehicle and driving alone, or getting in a parked vehicle and traveling with others to their final destination (5 percent express vs. 1 percent local) (Table 7-14).

Table 7-14. Egress Mode to Destination

Access Mode	Peak Period Express	Local/Limited Stop Express	Overall
Walk	94%	98%	98%
Bike	1%	1%	1%
Be picked up by someone	2%	1%	1%
Get in a parked vehicle and drive alone	2%	0%	0%
Get in a parked vehicle and drive/ride with others	1%	0%	0%
Wheelchair/scooter	0%	0%	0%
Other	0%	0%	0%

7.2.7 Transfers

Of all transit passengers, 28 percent made at least one transfer during their trip and 3 percent made two or more transfers. There was almost no difference between express route passengers and local route passengers with respect to transfer totals (Table 7-15).

Table 7-15. Total Number of Transfers

Transfers	Peak Period Express	Local/Limited Stop Express	Overall
None	69%	69%	69%
One	28%	28%	28%
Two	3%	3%	3%
Three	1%	0%	0%

7.2.8 Where Transit Users Live

Figure 7-2 shows a visual representation of locations in Honolulu (zip codes) where surveyed transit users live; information is from the Main Survey. This is displayed with varying shades of green as indicated in the top right corner of the figure. Each shade of green represents the number of transit riders who indicated they lived in the corresponding zip code. The red circled numbers on the figures are indications of major roads in O‘ahu.

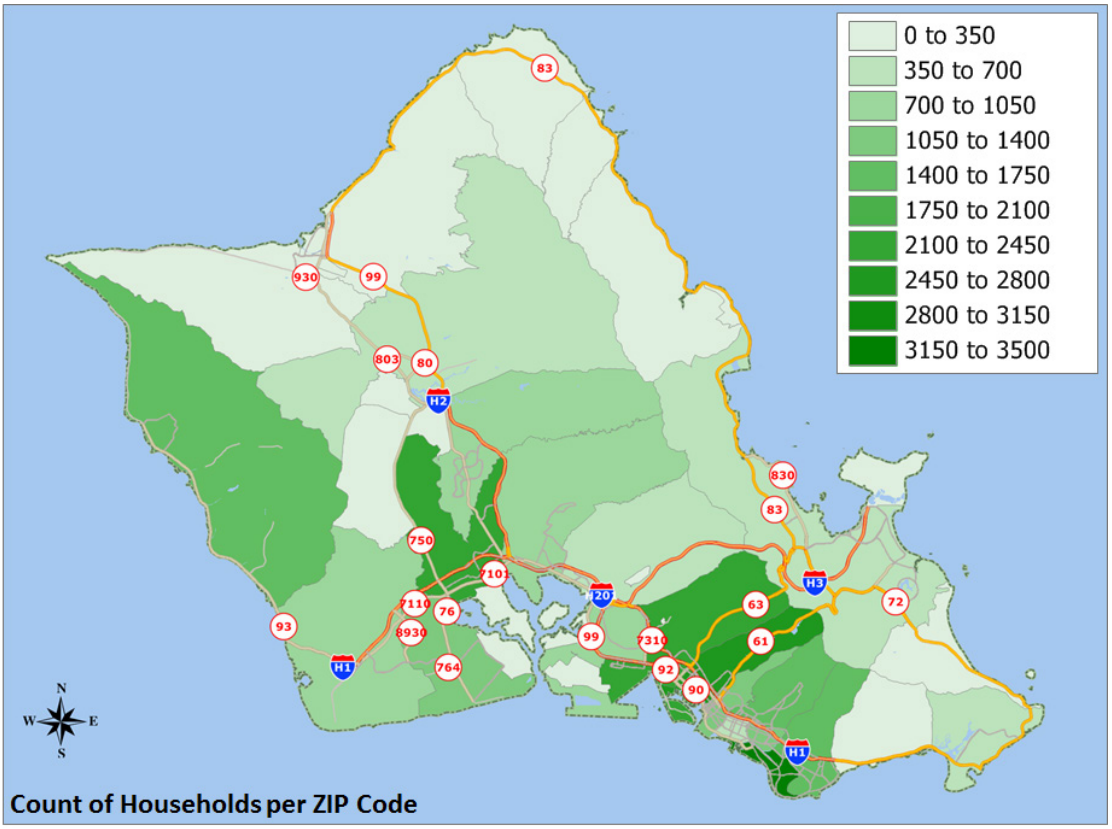


Figure 7-2. Geocoded Map of Where Transit Users Live

7.2.9 Where Transit Trips Began

Figure 7-3 shows the visual representation of areas in Honolulu where transit trips began; information is from the Main Survey. This is displayed with varying shades of brown as indicated in the top right corner of the figure. Each shade of brown represents the number of transit riders who indicated their trips began in the corresponding zip code. The red circled numbers on the figures are indications of major roads in O‘ahu.

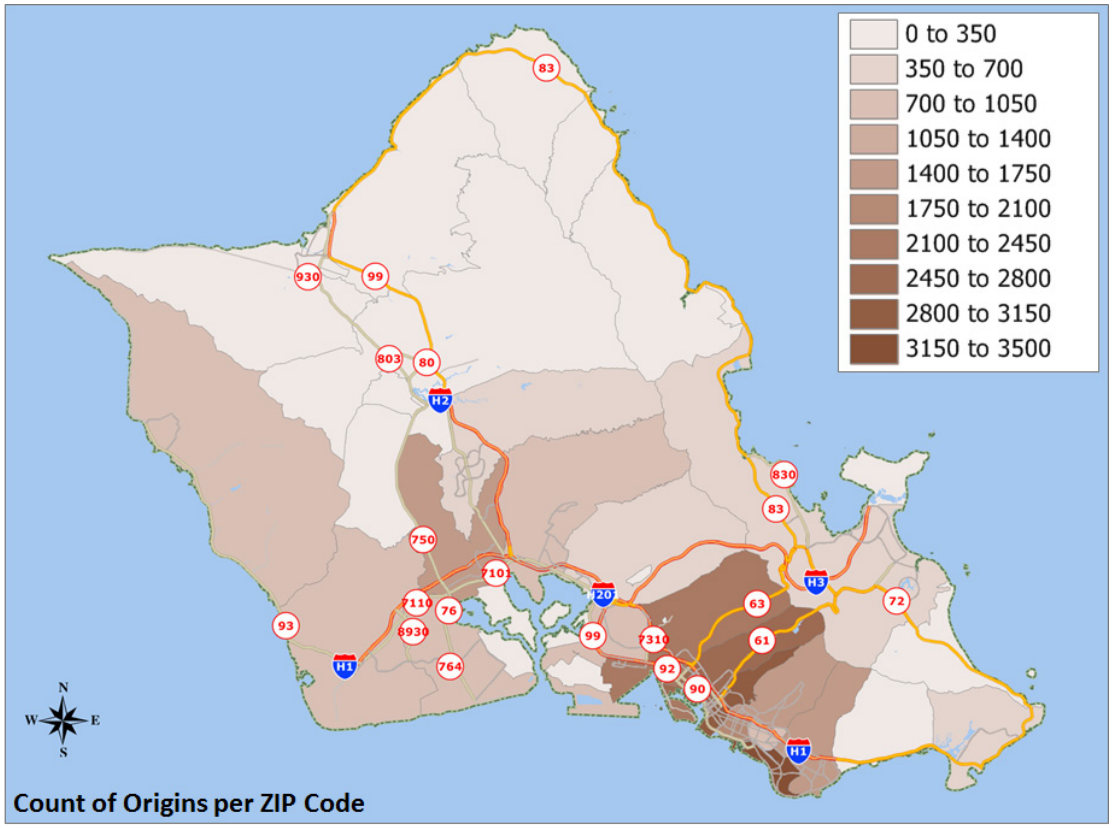


Figure 7-3. Geocoded Map Where Most Transit Trips Originated

7.2.10 Where Transit Trips Ended

Figure 7-4 shows the visual representation of the zip codes where transit trips ended. This is displayed with varying shades of blue as indicated in the top right corner of the figure. Each shade of blue represents the number of transit riders who indicated their trips ended in the corresponding zip code. The red circled numbers on the figures are indications of major roads in O‘ahu.

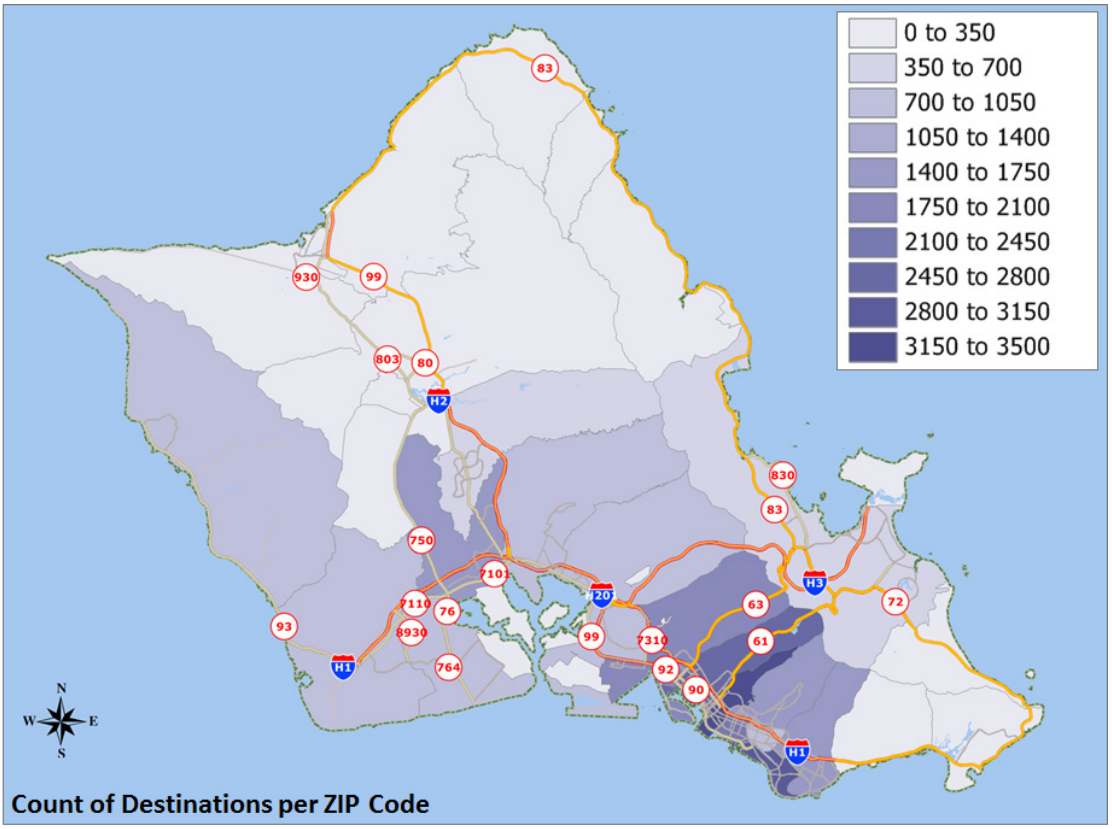


Figure 7-4. Geocoded Map of Where Most Transit Trips Ended

7.3 Visual Presentation of On-to-Off Survey Results

The on-to-off survey results provide an opportunity to see how boardings and alightings are connected. In other words, to see not just how many people board and alight at various stops, but to also determine where passengers board and then correspondingly where those same passengers alight.

This data is available for review for each route by looking under the On-to-Off portion of the tables in Appendix H; provided separately on CDs. In addition to data included in tables, visual representations of on-to-off ridership patterns can provide the reader with an effective presentation of results. Figure 7-5 below shows an example of a visual presentation of on-to-off data that was collected for Route 17 which provides Local service between Ala Moana Center and Makiki. The thicker the line in the figure below the more volume of bus ridership there is between various stops.

Figure 7-5. Visual Representation of On-to-Off Data for Route 17

Another visual representation from the On-to-Off data from Route 1 is provided in Figure 7-6. The thickness of the lines in Figure 7-6 corresponds to the number of passengers traveling between stops. The total boardings at each stop is represented by the size of the dots.

The visual information items presented in Figure 7-5 and Figure 7-6 are examples of how survey results can be graphically portrayed. For other potential data analyses, including those that can be presented in a visual manner, ETC has developed a tool to allow users to access results. Section 7.5 provides further information relating to this tool.

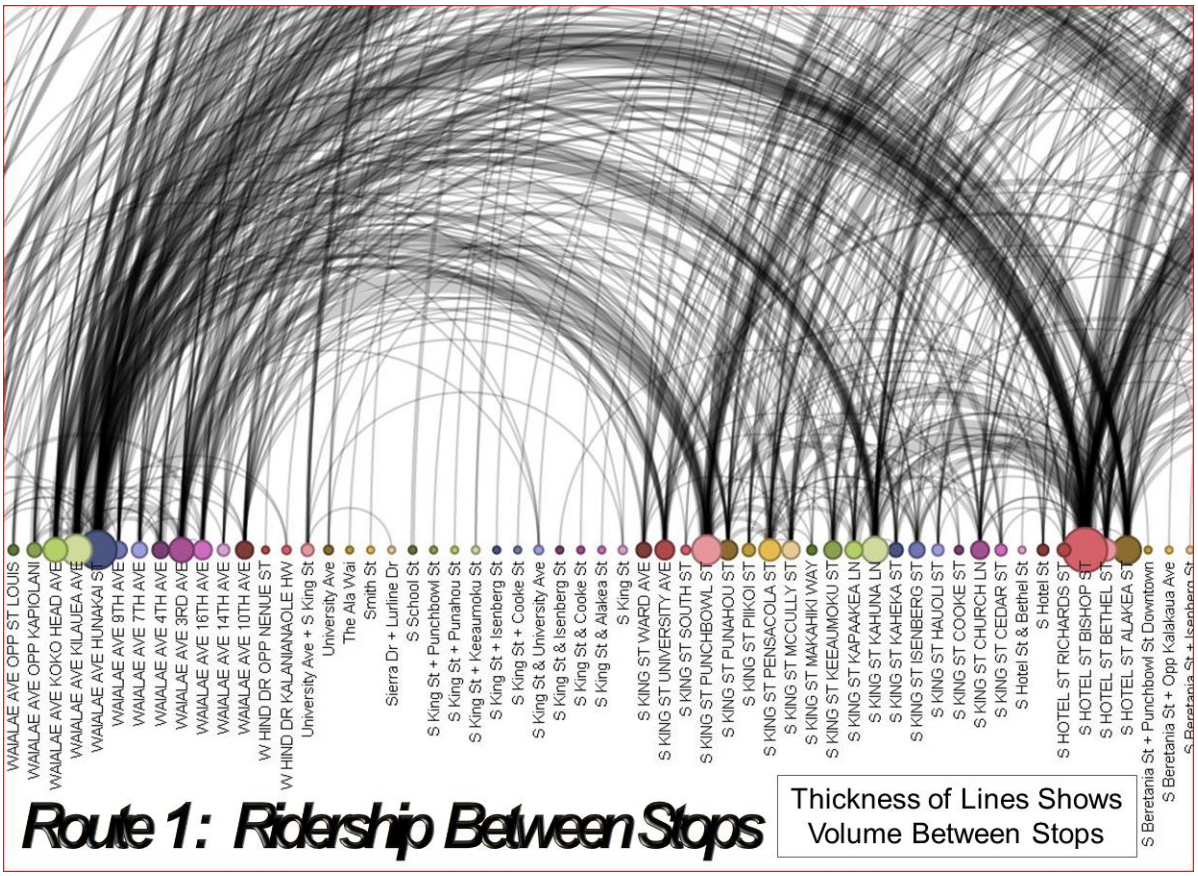


Figure 7-6. Visual Representation of On-to-Off Data for a Portion of Route 1

7.4 Passenger Characteristics—Relation to Project Corridor

The analysis of survey results includes transit rider characteristics with respect to location along the Project corridor. These characteristics were identified for passengers on bus routes operating within the Project corridor, connected to the corridor, or not operating in the corridor. Table 7-16 describes the bus routes that are associated with these major categories.

Table 7-16. Location of Bus Routes: Project Corridor

ROUTE		WITHIN PROJECT CORRIDOR	ROUTE		WITHIN PROJECT CORRIDOR
Number	Description		Number	Description	
A	*CityExpress!* Waipahu-UH Manoa	y	PH2	Pearl Harbor Express-Mililani	c
C	*CountryExpress!* Makaha-Downtown	y	PH3	Pearl Harbor Express-Wahiawa Heights	c
E	*CountryExpress!* Ewa-Waikiki	y	PH4	Pearl Harbor Express-Kaneohe-Kahaluu	n
1	Kaimuki-Kalihi	y	PH5	Pearl Harbor Express-Windward	n
1L	Hawaii Kai-Downtown	y	PH6	Pearl Harbor Express-Hawaii Kai	n
2/2L	Waikiki-School-Middle	y	80	Hawaii Kai Park & Ride Express	n
3	Kaimuki-Salt Lake	y	80A	Hawaii Kai Park & Ride Express-UH	n
4	Nuuanu-Punahou	y	80B	Upper Aina Haina Express	n
5	Ala Moana-Manoa	y	81	Waipahu Express	y
6	Pauoa-Woodlawn	y	82	Hawaii Kai Park & Ride Express	n
7	Kalihi Valley	y	83	Wahiawa Town Express	c
8	Waikiki-Ala Moana	y	84	Mililani Express-North	c
9	Kaimuki-Pearl Harbor	y	84A	Mililani Express-South	c
9S	Palolo Valley	n	85	Windward Express-Kailua	n
10	Kalihi-Alewa Heights	y	85A	Windward Express-Haiku	n
11	Makalapa-Halawa-Aiea Heights	y	88	Kahaluu-Ahuimanu Express	n
13	Waikiki-Liliha	y	88A	North Shore Express	c
14	St. Louis-Kahala-Maunalani	n	89	Waimanalo-Kailua Express	n
15	Makiki-Pacific Heights	y	90	Pearl City Express	y
16	Moanalua Valley	y	91	Ewa Beach Express	y
17	Makiki-Ala Moana	y	92	Makakilo City Express	y
18	University-Ala Moana	y	93	Waianae Coast Express-CBD	y
19	Waikiki-Airport-Hickam	y	94	Kapolei-Downtown	y
20	Waikiki-Pearlridge	y	96	Waipio Gentry Express	y
22	Beach Bus	n	97	Village Park Express	y
23	Hawaii Kai-Sea Life Park	n	98	Wahiawa-Mililani Park & Ride	c
24	Aina Haina-Kahala Mall	n	98A	Kunia Village-Mililani-Waikiki	c
31	Tripler-Mapunapuna	y	101	Ewa Gentry Express	y
32	Kalihi-Pearlridge	y	102	Villages of Kapolei Express	y
40	Honolulu-Makaha	y	103	Paiwa-Waikele Express	y
41	Kapolei-Ewa Beach	y	W1	Waipahu via Farrington Express (201)	y
42	Ewa Beach-Waikiki	y	W2	Waipahu via Paiwa Express (202)	y
43	Waipahu-Honolulu-Ala Moana	y	W3	Kalihi via School Street Express (203)	y
44	Ewa Beach - Waipahu	y	234	Kahala Mall-Waiaiae Nui	n
52	Wahiawa-Circle Island	c	235	Kahala Mall-Waialae Iki	n
53	Honolulu-Pacific Palisades	y	401	Waianae Valley	n
54	Honolulu-Pearl City	y	402	Lualualei Homestead	n
55	Kaneohe-Circle Island	c	403	Nanakuli-Maili-Waianae	n
56	Honolulu-Kailua-Kaneohe	c	411	Makakilo Heights	y
57/57A	Kailua-Waimanalo-Sea Life Park	c	412	Panana-Kapolei	y
62	Honolulu-Wahiawa Heights	y	413	Campbell Industrial Park	y
65	Honolulu-Kahaluu	c	414	Palahia-Makakilo-Kapolei	y
70	Lanikai-Maunawili	n	415	Kapolei Transit Center-Kalaeloa	y
71	Pearlridge-Newtown	y	432	East-West Waipahu	y
72	Schofield-Wahiawa-Whitmore	n	433	Waikele/Waipio	y
73	Leeward Community College	y	434	Village Park	y
74	Aiea-Halawa Heights	y	501	Mililani Mauka-Mililani Transit Center	n
76	Waialua-Haleiwa	n	503	Mililani-Launani Valley	n
77	Waimanalo-Kaneohe	n	504	Mililani South-Mililani Transit Center	n
PH1	Pearl Harbor Express-Makaha	y			

Notes: Y = operates in project corridor; C = connects to corridor; N = does not connect to corridor
Discontinued routes: B, 231
Renamed routes: 201 = W1, 202 = W2, 203 = W3

Cross tabular data from the onboard survey was processed for bus routes by their location in relation to the Project corridor (Appendix B has complete results). These three classifications were bus routes located inside the Project corridor, routes connecting to the corridor, and routes outside the corridor. Of the 26,246 surveys that were collected, 22,192 surveys were on routes inside the Project corridor, 2,302 were on routes connecting to the corridor, and 1,752 were on routes outside the corridor. Below are some of the findings from that cross tabular data.

- Surveys conducted on routes outside the Project corridor were more likely to involve visitors to Hawai‘i than were surveys conducted on routes inside or connecting to the corridor (12 percent outside corridor, 6 percent connecting to corridor, and 5 percent inside corridor).
- Surveys conducted on routes connecting to the corridor were more likely to involve boarding a bus at Ala Moana Center than were surveys conducted on routes either inside or outside of the corridor (8 percent outside corridor, 15 percent connecting to corridor, and 6 percent inside corridor).
- Of the 15 percent of those surveyed who were riding a route that connects to the project corridor that boarded a bus at Ala Moana Center at some point during the passenger’s one-way trip, 71 percent reported the main reason they were at Ala Moana Center was to board a bus or transfer to another bus.
- If transit service was not available, 21 percent of those surveyed on routes inside the corridor indicated they could walk or bike to make their trip, compared to 18 percent of those on routes outside the corridor and 8 percent of those on routes connecting to the corridor.
- Those surveyed on routes outside the project corridor or routes connecting to the corridor were more likely to have a valid driver’s license than those riding routes inside the corridor (61 percent outside corridor, 60 percent connecting to corridor, and 52 percent inside corridor).
- Of those surveyed on routes inside the corridor, 35 percent indicated that they spoke a language other than English at home compared to 26 percent of those surveyed on routes connecting to the corridor and 25 percent of those surveyed on routes outside the corridor.
- Of those surveyed on routes outside the corridor, 26 percent indicated their annual household income was below $30,000 compared to 36 percent for both those surveyed on routes inside the project corridor and connecting to the corridor.
- Of those surveyed on routes outside the corridor, 32 percent identified themselves as “White” compared to 22 percent for those surveyed on routes inside the corridor and 28 percent for those surveyed on routes connecting to the corridor. Of those surveyed on routes outside the corridor, 39 percent identified themselves as Asian (Japanese, Filipino, Chinese, Korean, or other Asian decent) compared to 46 percent for those

surveyed on routes inside the corridor and 37 percent for those surveyed on routes connecting to the corridor.

7.5 Additional Analysis of Survey Results

While Section 7 of the report provides a selection of analysis results, the database generated by the 2012 onboard survey in Honolulu can generate additional results. To facilitate follow-up analysis of survey results, ETC Institute has developed a web-based tool that can access various information items. With a user ID and password, analysts will be able to focus on database elements of the survey results and perform analysis of trip patterns and ridership characteristics as follows:

- by time of day
- by route
- by type of route
- by trip purpose
- by income and other socio-economic variables
- by location (Traffic Analysis Zone)

This tool should be available for use by January 2014.

Appendix A
Survey Instrument

Oahu On-Board Transit Survey

BUS VERSION Route Code: _____ Time: _____ am / pm Interviewer: _____ Serial #: _____

Please take a few moments to complete this important survey. Your input will be used to plan transportation improvements to transit service on the island of Oahu. *All information will be kept strictly confidential.*

HOME Address: (please be specific, ex: 123 Island Blvd): _____
(If you are just visiting Oahu. please list the address (and hotel) where you are staying)

OR Intersection if street address is not known: _____ **&** _____

City: _____ **Zip Code:** _____

COMING FROM?

1. What type of place are you COMING FROM now (the starting place for your one-way trip)?

- ○ Your WORKPLACE
- ○ School (grades K-12)
- ○ Airport (as an air passenger)
- ○ Recreation / sightseeing
- ○ Medical appointment / doctor's visit
- ○ Social visit / church / personal / friend's house
- ○ College / University (students only)
- ○ Your **HOME** → *Go to Question #4*
- ○ Other: _____
- ○ Shopping
- ○ Hotel

2. What is the NAME of the place you are coming from now?

_____

3. What is the EXACT STREET ADDRESS of this place?

_____

OR Intersection if street address is not known:

_____ **&** _____

City: _____ **Zip:** _____

4. How did you get from the place in Question #1 to the very FIRST bus you used for this one-way trip?

- ○ Walk
- ○ Bike – ***How many miles did you bike?*** _____*miles*
- ○ Was dropped off by someone going someplace else → ***answer 4a***
- ○ Drove alone and parked → ***answer 4a***
- ○ Drove or rode with others and parked → ***answer 4a***
- ○ Wheelchair/scooter
- ○ Other: _____

4a. If you DROVE ALONE, RODE WITH OTHERS, OR WERE DROPPED OFF, what is the name of the park/ride location or nearest intersection where your vehicle was parked or the location where you were dropped off?

_____

GOING TO?

5. What type of place are you GOING TO now (the ending place for your one-way trip)?

- ○ Your WORKPLACE
- ○ School (grades K-12)
- ○ Airport (as an air passenger)
- ○ Recreation / sightseeing
- ○ Medical appointment / doctor's visit
- ○ Social visit / church / personal / friend's house
- ○ College / University (students only)
- ○ Your **HOME** → *Go to Question #8*
- ○ Other: _____
- ○ Shopping
- ○ Hotel

6. What is the NAME of the place you are going to now?

_____

7. What is the EXACT STREET ADDRESS of this place?

_____

OR Intersection if street address is not known:

_____ **&** _____

City: _____ **Zip:** _____

8. How will you get to your destination (the place listed in Question #5) **once you get off the LAST bus you are using for this one-way trip?**

- ○ Walk
- ○ Bike– ***How many miles will you bike?*** _____*miles*
- ○ Be picked up by someone → ***answer 8a***
- ○ Get in a parked vehicle & drive alone → ***answer 8a***
- ○ Get in a parked vehicle & drive/ride with others → ***answer 8a***
- ○ Wheelchair/scooter
- ○ Other: _____

8a. If you will DRIVE ALONE, RIDE WITH OTHERS, OR GET PICKED UP, what is the name of the park/ride location or nearest intersection where your vehicle is currently parked or the location where you will be picked up?

_____

THIS BUS

(answer the following based on your current one-way trip between the places listed above)

9. Did you transfer FROM another bus BEFORE getting on this bus? ○ YES: **FROM which Route #?** _____ ○ NO

10. Approximately what time did you get on THIS bus? Hour/Minute: _____ am / pm

11. What is the nearest intersection (or name of the place) where you GOT ON this bus

street 1 (or name of place):_____ **&** street 2: _____

12. What is the nearest intersection (or name of the place) where you will GET OFF this bus:

street 1 (or name of place):_____ **&** street 2: _____

13. Will you transfer TO another bus AFTER getting off this bus? ○ YES: **TO which Route #?** _____ ○ NO

ALA MOANA CENTER VISITS

14. Did you board a bus at Ala Moana Center at any time during this one-way trip (from the place in #2 to the place in #6)?

○ YES→ ***answer 14a*** ○ NO

14a. [IF YES to #14] Which of the following BEST describes the main reason you were at Ala Moana Center during this trip?

- ○ The main reason I was at Ala Moana Center was to go to work, shop, dine, or something other than board a bus or transfer to another bus
- ○ The main reason I was at Ala Moana Center was to board a bus or transfer to another bus
- ○ I was at Ala Moana Center to board a bus (or transfer to another bus) but I also did a few other things that were convenient to do while I was waiting, such as shopping, eating, using an ATM, etc.

Please complete the questions on the back.

TRIP SUMMARY

Please list all of the bus routes you are using during your current ONE-WAY trip in order below.
If you are not sure which bus you will transfer to next because more than one route will get you close to your destination, please just list ONE of the routes you might use below.
ALSO, PLEASE CIRCLE THE ROUTE YOU WERE USING WHEN YOU COMPLETED THIS SURVEY.

COMING FROM → _____ → _____ → _____ → _____ → **GOING TO**
1st Bus Route # **2nd Bus Route #** **3rd Bus Route #** **4th Bus Route #**

USAGE OF PUBLIC TRANSPORTATION

15. If TRANSIT SERVICE WAS NOT AVAILABLE, how would you make THIS ONE-WAY TRIP?
○ I could not make this trip ○ Taxi ○ Drive myself
○ Drive with someone else ○ Walk/Bike ○ Other (specify): _____

16. How long have you been riding TheBus?
○ Less than 1 year ○ 1 to 2 years ○ 3 to 5 years ○ 6 to 9 years ○ 10 to 14 years ○ more than 15 years

17. How many days per week do you usually ride TheBus? _____ days

OTHER IMPORTANT ITEMS

18. How did you pay for your trip today?
○ One Way (Single Ride) Cash Fare ○ Monthly Pass ○ U Pass ○ 4-Day Pass ○ Annual Pass ○ Two Year Pass

19. Did you receive any of the following special fare discounts for your trip today? (check one)
○ None ○ Student ○ Senior ○ Disability ○ U.S. Medicare ○ TheHandi-Van

20. How many WORKING vehicles (cars, trucks, or motorcycles) are available to your household?
○ None ○ One ○ Two ○ Three ○ Four or more

21. Including YOU, how many adults (age 18 and older) live in your household? _____ adults

22. Including YOU, how many people in your household work outside the home? _____ people

23. Are you:(check the one response that BEST describes you)
○ Employed full-time (at least 35 hours per week) ○ Employed part-time (less than 35 hours per week)
○ Not currently employed but seeking work ○ Retired
○ Not currently employed and not seeking work ○ Homemaker

23a. IF YOU ARE EMPLOYED: Have you been to work today since you last left home? ○ Yes ○ No
23b. IF YOU ARE EMPLOYED: Will you be going to work (or going back to work) before going home today? ○ Yes ○ No

24. Are you a student?(check the one response that BEST describes you)
○ Not a student ○ Yes – Full Time college/university (specify institution's name): _____
○ Yes – student thru 12th grade ○ Yes – Part Time college/university (specify institution's name): _____
○ Yes – other (specify institution's name): _____

24a. IF YOU ARE A STUDENT: Have you been to school today since you last left home? ○ Yes ○ No
24b. IF YOU ARE A STUDENT: Will you be going to school (or going back to school) before going home today? ○ Yes ○ No

25. Do you have a valid driver's license? ○ Yes ○ No

26. Are you a visitor to Hawaii? ○ Yes → ***answer 26a-b*** ○ No

26a. In which U.S. state or country do you live? _____
26a. How long will you be in Hawaii during this visit? ○ less than 30 days ○ 1-2 months ○ 3-4 months ○ 5+ months

27. Do you have a certified physical disability that limits your mobility? ○ Yes ○ No

28. What is your AGE? ○ Under 18 ○ 18-24 ○ 25-34 ○ 35-44 ○ 45-54 ○ 55-64 ○ 65+

29. Are you? ○ Asian ○ Hispanic/Latino ○ American Indian or Alaska Native
○ White ○ Black/African American ○ Native Hawaiian/Pacific Islander

30. What is your gender? ○ Male ○ Female

31. Do you speak a language other than English at home? ○ Yes - **What language?** _____ ○ No

32. Which of the following categories BEST describes your TOTAL ANNUAL HOUSEHOLD INCOME?
○ Below $12,000 ○ $30,000 - $39,999 ○ $60,000 - $74,999 ○ $115,000 +
○ $12,000-$14,999 ○ $40,000 - $49,999 ○ $75,000 - $89,999
○ $15,000-$29,999 ○ $50,000 - $59,999 ○ $90,000 - $114,999

REGISTER TO WIN $100

People who submit an accurately completed survey will be entered in a random drawing for one of TWENTY $100 cash prizes.
You must provide your home address at the beginning of the survey to be eligible.

Your Name: _____ **Phone Number**: (_____) _____

Thank you for your help!

If you completed this survey before getting off the bus, please return this survey to the survey staff.
If you did not have time to complete the survey during your trip, please return it with 24 hours using the postage-paid envelope that was provided.

Appendix B
IPad Survey Tablet PC Screenshot

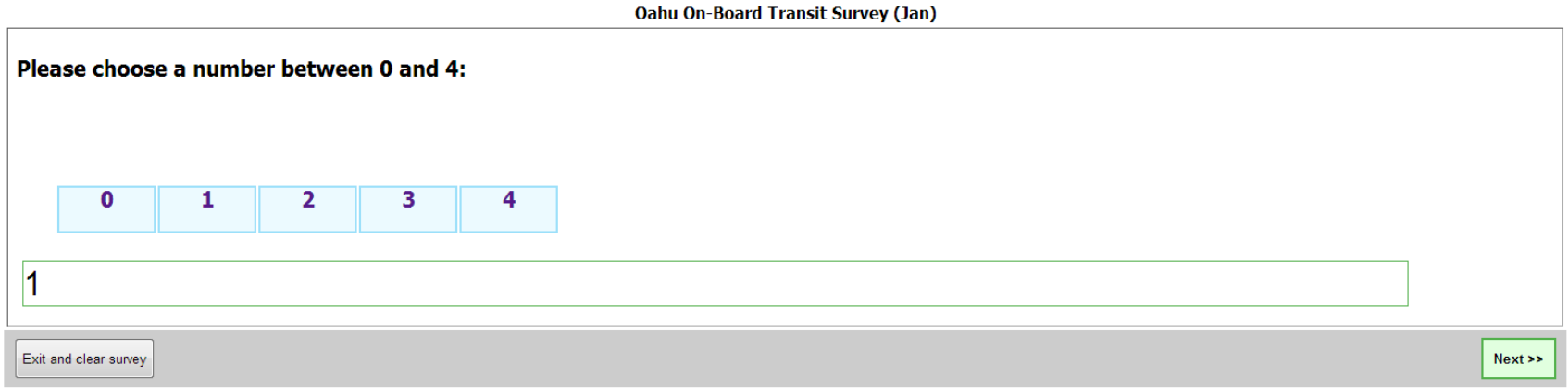
2012 Oahu On-Board Transit Survey

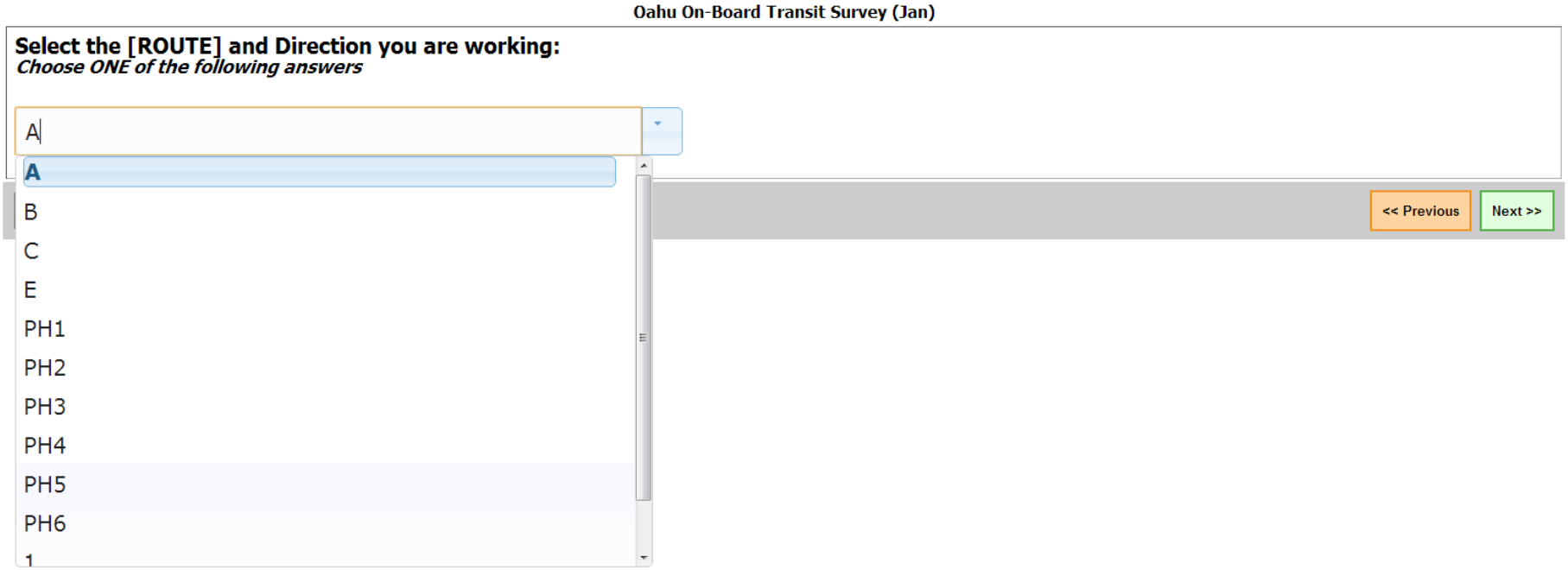
Bus Survey Screen Shots

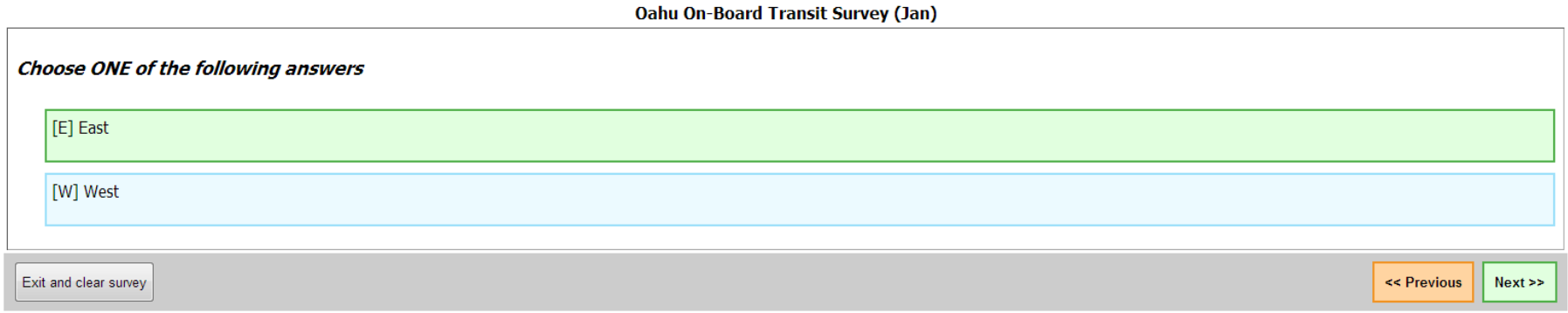
2012 Oahu On-Board Transit Survey

Click link below to start survey

Oahu On-Board Transit Survey (Jan)


Oahu On-Board Transit Survey (Jan)
Please choose a number between 0 and 4:
0
1
2
3
4
1
Exit and clear survey
Next >>


Oahu On-Board Transit Survey (Jan)
Select the [ROUTE] and Direction you are working:
Choose ONE of the following answers
A
A
B
C
E
PH1
PH2
PH3
PH4
PH5
PH6
1
<< Previous
Next >>


Oahu On-Board Transit Survey (Jan)
Choose ONE of the following answers
[E] East
[W] West
Exit and clear survey
<< Previous
Next >>

Oahu On-Board Transit Survey (Jan)

Hi. My name is _____. We are doing a short survey to improve public transportation services on the Island of Oahu.

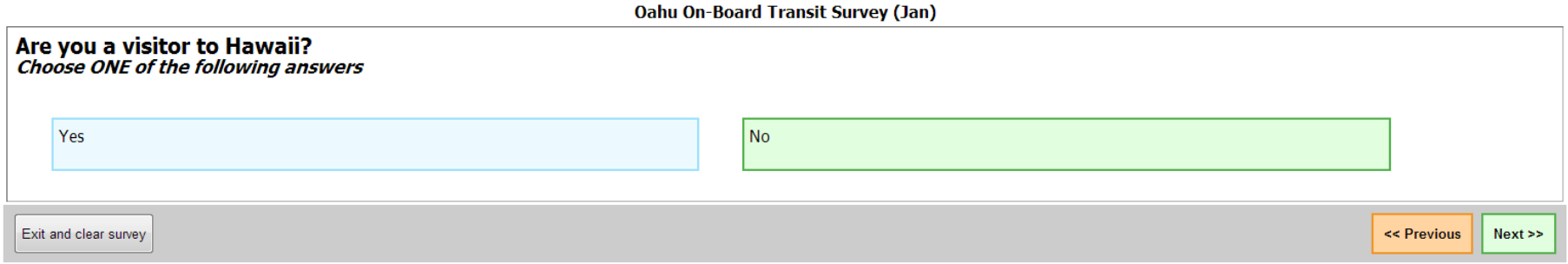
Would you be willing to answer a few questions? The survey takes about 4-5 minutes.

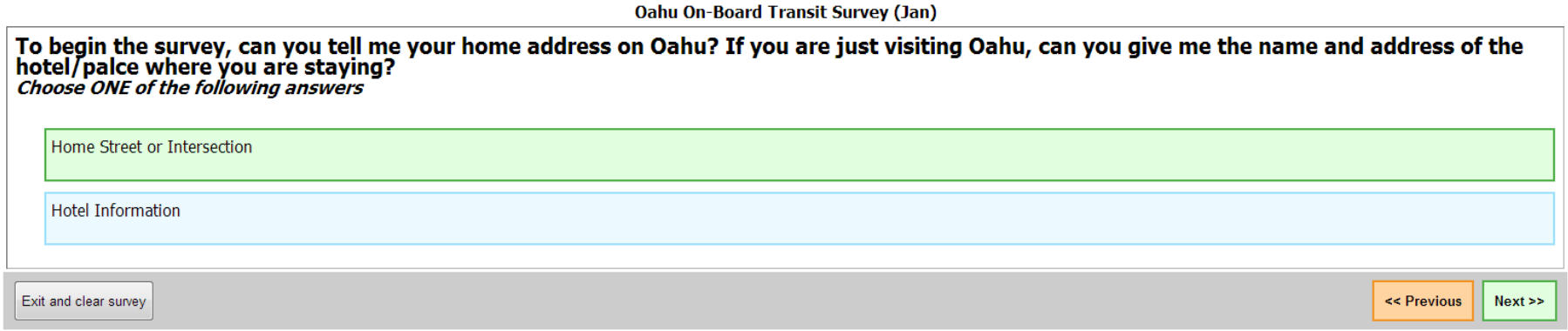
Choose ONE of the following answers

- Yes (have 5 min +)
- Yes (no time for full survey)
- No

Exit and clear survey

<< Previous | Next >>


Oahu On-Board Transit Survey (Jan)
Are you a visitor to Hawaii?
Choose ONE of the following answers
Yes
No
Exit and clear survey
<< Previous
Next >>


Oahu On-Board Transit Survey (Jan)
To begin the survey, can you tell me your home address on Oahu? If you are just visiting Oahu, can you give me the name and address of the hotel/palce where you are staying?
Choose ONE of the following answers
Home Street or Intersection
Hotel Information
Exit and clear survey
<< Previous
Next >>

Oahu On-Board Transit Survey (Jan)

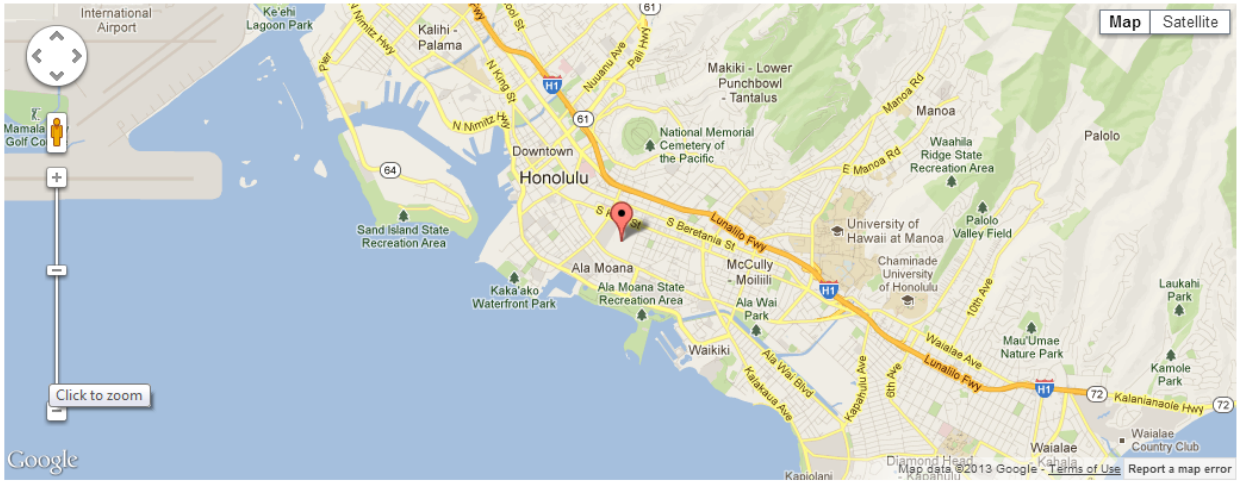
What is your home address? (e.g. 123 Island Blvd)

Street Address	1039 South King Street	Zip Code	96814
City	Honolulu	Latitude	21.298331112793385
State	Hawaii	Longitude	-157.84870862960815

Search Enter a location here

Address Place Clear

1039 South King Street, Honolulu, HI 96814, USA



Exit and clear survey

<< Previous Next >>

What type of place are you COMING FROM now (the starting place for your one-way trip)?

Choose ONE of the following answers

Your WORKPLACE	Medical appointment / doctor's visit
Shopping	Social visit / church / personal / friend's house
School (grades K-12)	College / University (students only)
Hotel	Your HOME
Airport (as an air passenger)	Other:
Recreation / sightseeing	

Exit and clear survey

<< Previous Next >>

Oahu On-Board Transit Survey (Jan)

What is the EXACT STREET ADDRESS of this place?

Hotel or Place Name	Payless Shoe Source	Zip Code	96815
Street Address	2301 Kuhio Ave	Latitude	21.278791
City	Honolulu	Longitude	-157.82605
State	HI		

Search payless sh

Address Place Clear

3130 Koapaka Street, Honolulu, HI 96819, USA

Payless Shoe Source (1042 Fort Street Mall, Ste 100, Honolulu, HI)

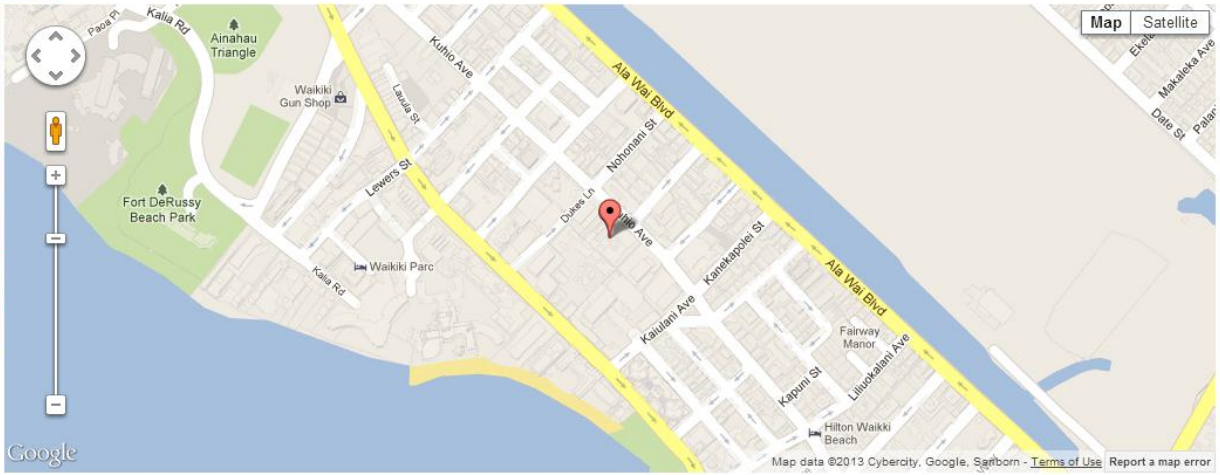
Payless Shoe Source (451 Piikoi St, Honolulu, HI)

Payless Shoesource (1620 N School St, #S-C, Honolulu, HI)

Payless Shoe Source (2301 Kuhio Ave, Honolulu, HI)

Payless Shoe Source (45-480 Kaneohe Bay Dr, #B17, Kaneohe, HI)

Next Results >



Exit and clear survey

<< Previous Next >>

Oahu On-Board Transit Survey (Jan)

How did you get from the Your WORKPLACE to the very FIRST bus you used for this one-way trip?

Place name: Payless Shoe Source

Choose ONE of the following answers

Walk	Drove or rode with others and parked
Bike	Wheelchair/scooter
Was dropped off by someone going someplace else	Other:
Drove alone and parked	

Exit and clear survey

<< Previous Next >>

What type of place are you GOING TO now (the ending place for your one-way trip)?

Choose ONE of the following answers

Your WORKPLACE	Medical appointment / doctor's visit
Shopping	Social visit / church / personal / friend's house
School (grades K-12)	College / University (students only)
Hotel	Your HOME
Airport (as an air passenger)	Other:
Recreation / sightseeing	

Exit and clear survey

<< Previous Next >>

Oahu On-Board Transit Survey (Jan)

How will you get to your destination (Your HOME) once you get off the LAST bus you are using for this one-way trip?

Place name:

Choose ONE of the following answers

Walk	Get in a parked vehicle & drive/ride with others
Bike	Wheelchair/scooter
Be picked up by someone	Other:
Get in a parked vehicle & drive alone	

Exit and clear survey

<< Previous Next >>

Oahu On-Board Transit Survey (Jan)

Approximately what time did you get on THIS bus?
Choose ONE of the following answers

Before 6 a.m.	9 - 10 a.m.	1 - 2 p.m.	5 - 6 p.m.
6 - 7 a.m.	10 - 11 a.m.	2 - 3 p.m.	6 - 7 p.m.
7 - 8 a.m.	11 - 12 a.m.	3 - 4 p.m.	7 - 8 p.m.
8 - 9 a.m.	12 - 1 p.m.	4 - 5 p.m.	After 8 p.m.

Exit and clear survey

<< Previous Next >>

Oahu On-Board Transit Survey (Jan)

Where did you GET ON this bus (A [E] East)?

Street Address: KAMEHAMEHA HWY OF

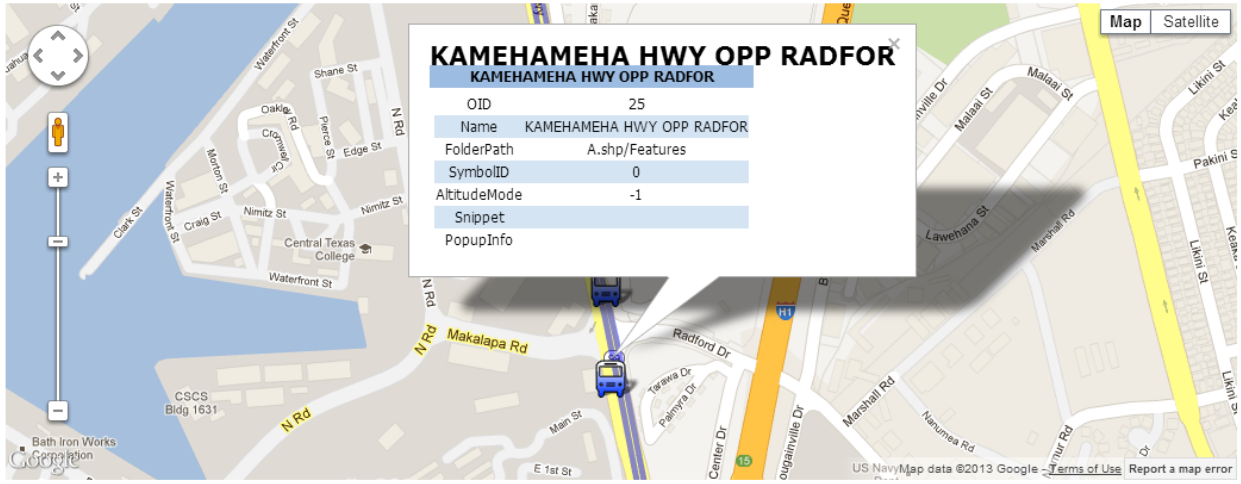
Latitude: 21.352060185659088

Longitude: -157.93548345565796

Search: Enter a location here

Address / Place — Clear

3455 Mamala Bay Drive, Honolulu, HI 96818, USA



Exit and clear survey

<< Previous | Next >>

Where will you GET OFF this bus (A [E] East)?

Street Address: KAPIOLANI BL KAMAKE

Latitude: 21.296411853679203

Longitude: -157.85001754760742

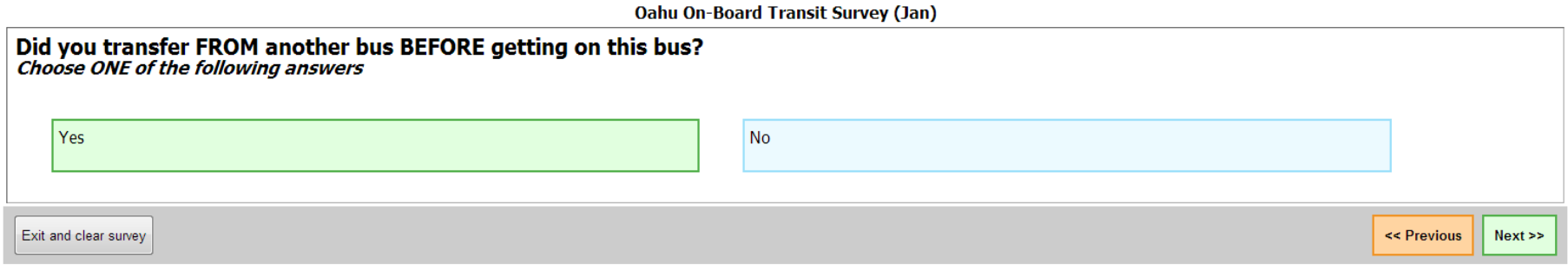
Search: Enter a location here

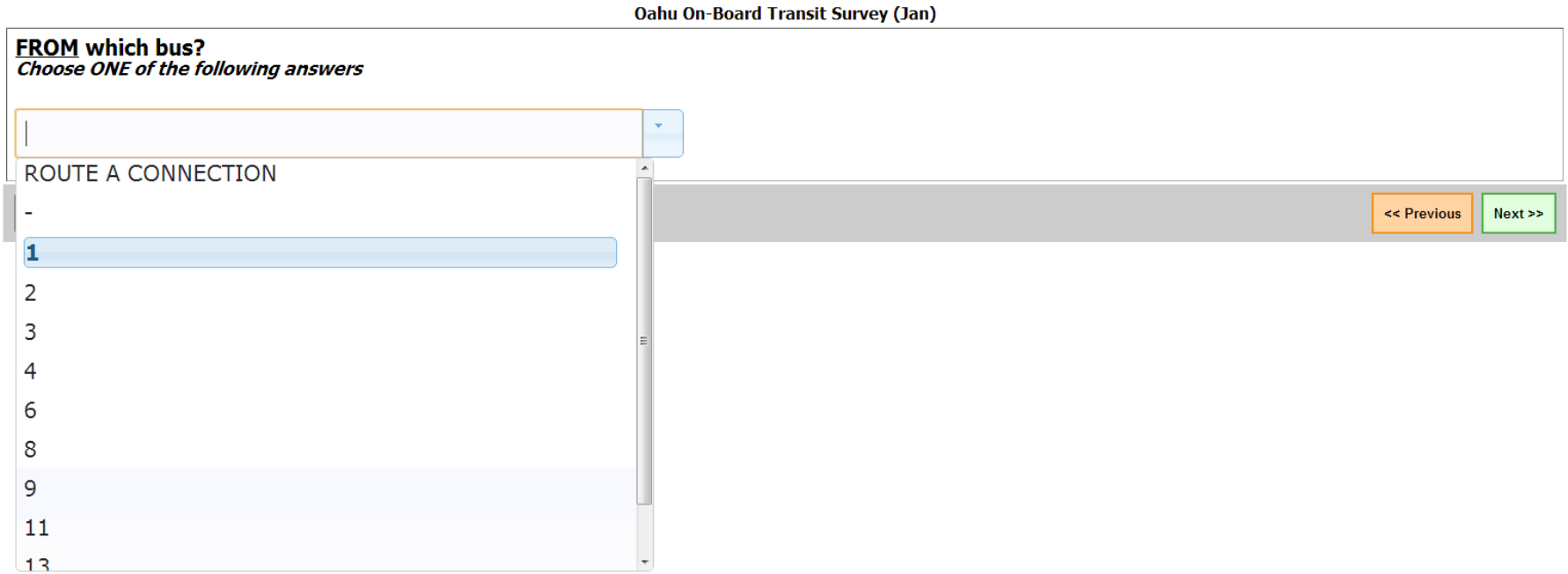
Address / Place — Clear

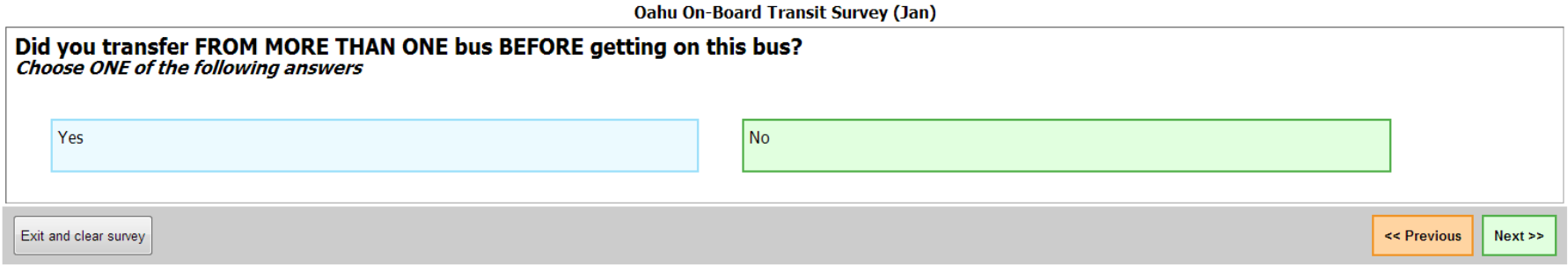
41 Ahui Street, Honolulu, HI 96813, USA

Exit and clear survey

<< Previous | Next >>


Oahu On-Board Transit Survey (Jan)
Did you transfer FROM another bus BEFORE getting on this bus?
Choose ONE of the following answers
Yes
No
Exit and clear survey
<< Previous
Next >>


Oahu On-Board Transit Survey (Jan)
FROM which bus?
Choose ONE of the following answers
ROUTE A CONNECTION
-
1
2
3
4
6
8
9
11
13
<< Previous
Next >>


Oahu On-Board Transit Survey (Jan)
Did you transfer FROM MORE THAN ONE bus BEFORE getting on this bus?
Choose ONE of the following answers
Yes
No
Exit and clear survey
<< Previous
Next >>

Oahu On-Board Transit Survey (Jan)

Will you transfer TO another bus AFTER getting off this bus?
Choose ONE of the following answers

Yes

No

Exit and clear survey

<< Previous

Next >>

Oahu On-Board Transit Survey (Jan)

HOME ADDRESS / HOTEL: 1039 South King Street Honolulu Hawaii

COMING FROM TYPE: Your WORKPLACE

COMING FROM (LISTS + OTHER):

COMING FROM (ADDRESS): Payless Shoe Source 2301 Kuhio Ave Honolulu HI

GOT ON (ADDRESS): KAMEHAMEHA HWY OPP RADFOR

GOT OFF (ADDRESS): KAPIOLANI BL KAMAKEE ST

GOING TO TYPE: Your HOME

GOING TO (LISTS + OTHER):

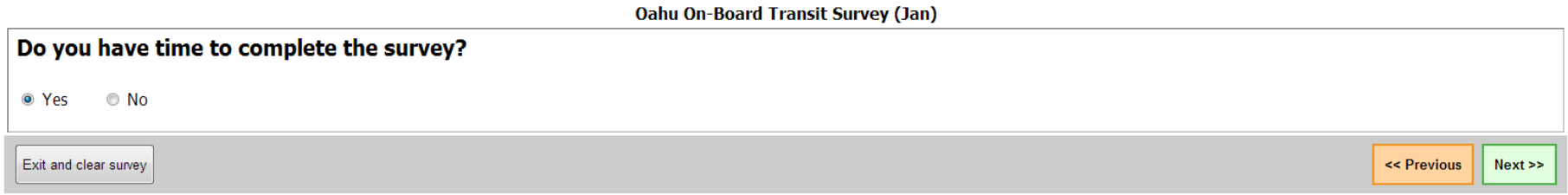
GOING TO (ADDRESS):

Transfers From Origin: -> 1 -> A

Transfers To Destination: A -> ->

Exit and clear survey

<< Previous Next >>


Oahu On-Board Transit Survey (Jan)
Do you have time to complete the survey?
Yes
No
Exit and clear survey
<< Previous
Next >>

Oahu On-Board Transit Survey (Jan)

Did you board a bus at Ala Moana Center at any time during one-way trip between the places listed in Q1:(Your WORKPLACE) Q5:(Your HOME)?

Choose ONE of the following answers

Yes

No

Exit and clear survey

<< Previous

Next >>

Oahu On-Board Transit Survey (Jan)

Which of the following BEST describes the main reason you were at Ala Moana Center during this trip?
Choose ONE of the following answers

- The main reason I was at Ala Moana Center was to go to work, shop, dine, or something other than board a bus or transfer to another bus
- The main reason I was at Ala Moana Center was to board a bus or transfer to another bus
- I was at Ala Moana Center to board a bus (or transfer to another bus) but I also did a few other things that were convenient to do while I was waiting, such as shopping, eating, using an ATM, etc.

Exit and clear survey | << Previous | Next >>

Oahu On-Board Transit Survey (Jan)

If TRANSIT SERVICE WAS NOT AVAILABLE, how would you make THIS ONE-WAY TRIP?
Choose ONE of the following answers

I could not make this trip	Drive with someone else
Taxi	Walk/Bike
Drive myself	Other:

Exit and clear survey

<< Previous Next >>

Oahu On-Board Transit Survey (Jan)

How long have you been riding the bus?
Choose ONE of the following answers

Less than 1 year	3 to 5 years	10 to 14 years
1 to 2 years	6 to 9 years	more than 15 years

Exit and clear survey

<< Previous Next >>

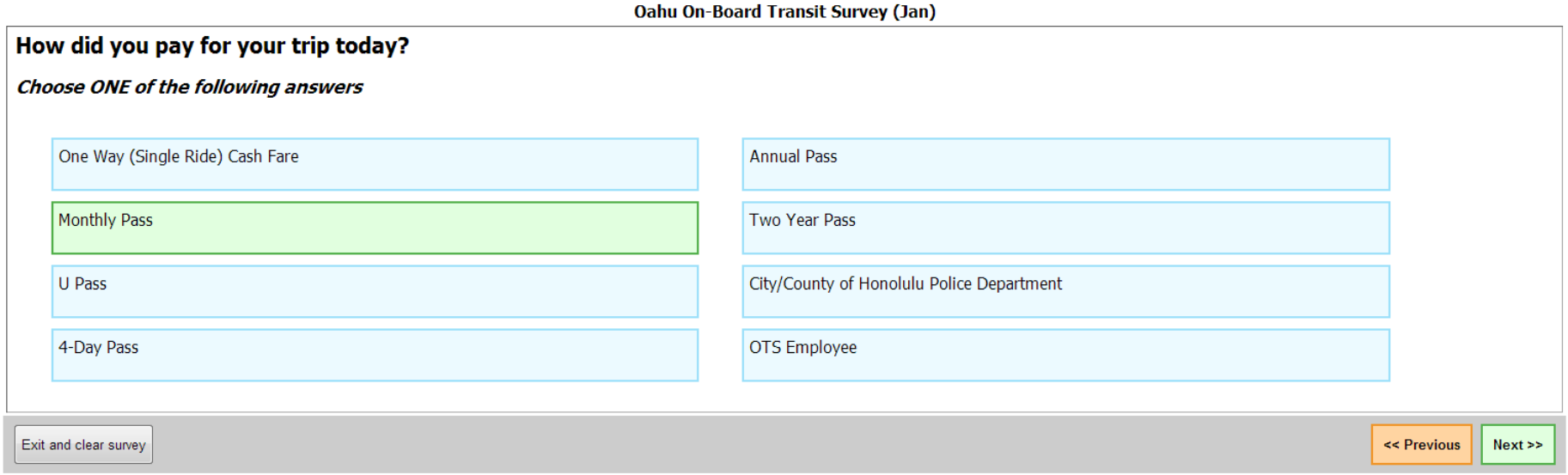
Oahu On-Board Transit Survey (Jan)

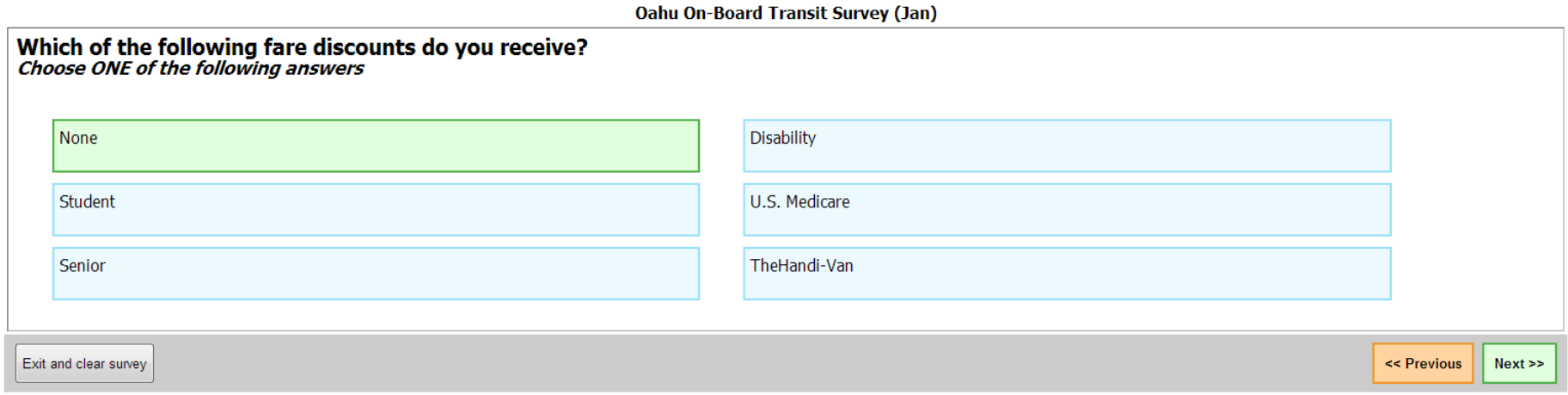
How many days per week do you usually ride the bus?
Choose ONE of the following answers

None (0)	Four (4)
One (1)	Five (5)
Two (2)	Six (6)
Three (3)	Seven (7)

Exit and clear survey

<< Previous Next >>


Oahu On-Board Transit Survey (Jan)
How did you pay for your trip today?
Choose ONE of the following answers
One Way (Single Ride) Cash Fare
Annual Pass
Monthly Pass
Two Year Pass
U Pass
City/County of Honolulu Police Department
4-Day Pass
OTS Employee
Exit and clear survey
<< Previous
Next >>


Oahu On-Board Transit Survey (Jan)
Which of the following fare discounts do you receive?
Choose ONE of the following answers
None
Disability
Student
U.S. Medicare
Senior
TheHandi-Van
Exit and clear survey
<< Previous
Next >>

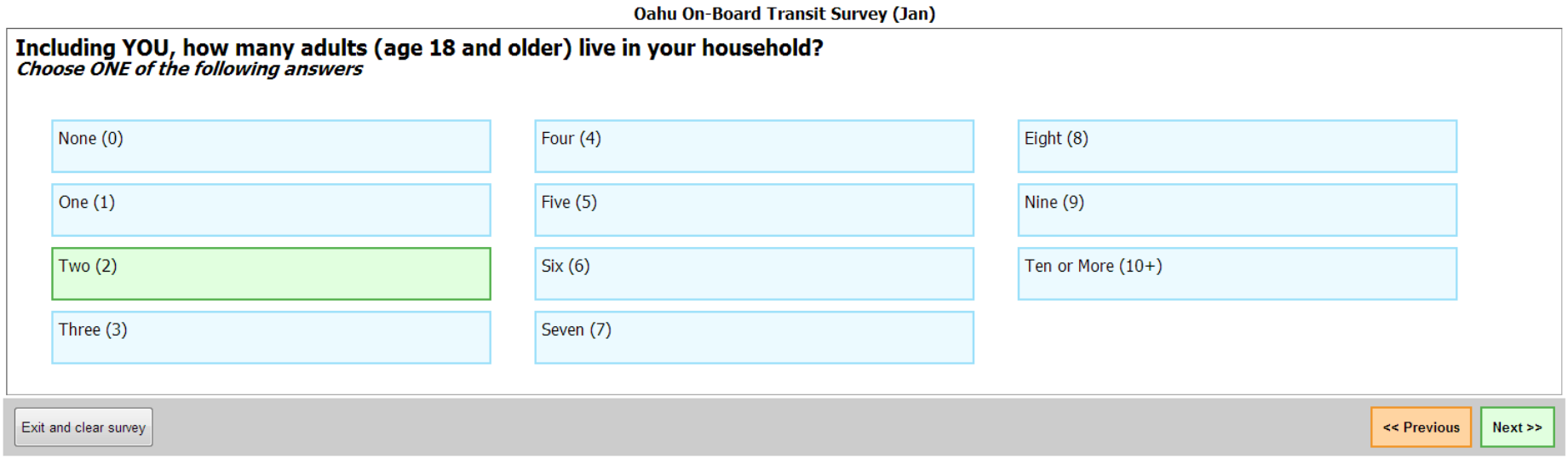
Oahu On-Board Transit Survey (Jan)

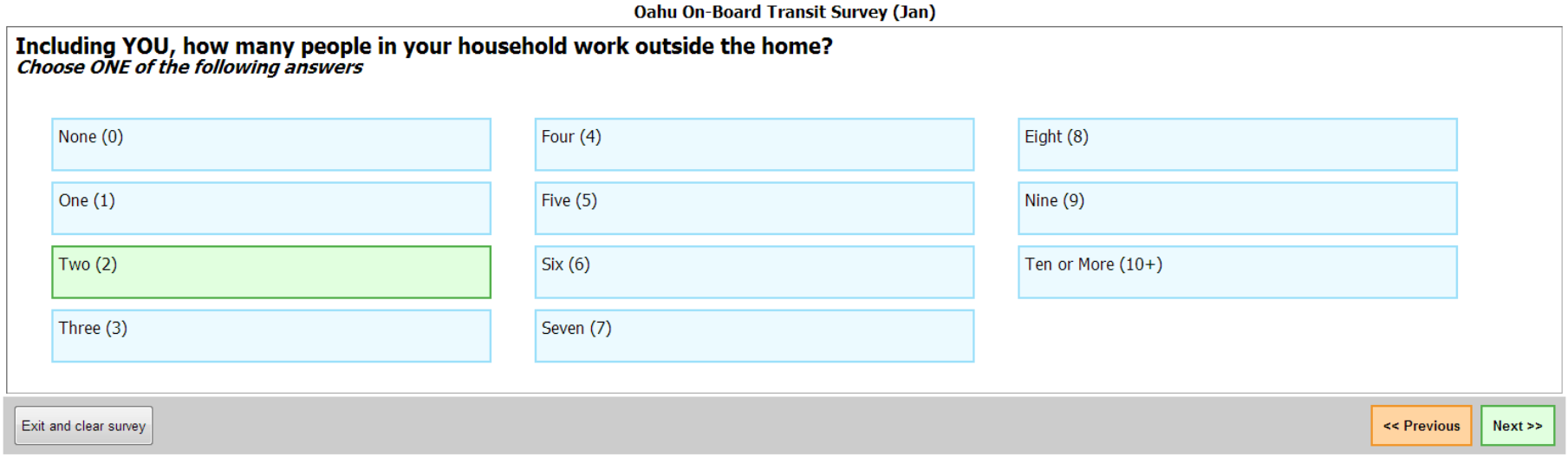
How many WORKING vehicles (cars, trucks, or motorcycles) are available to your household?
Choose ONE of the following answers

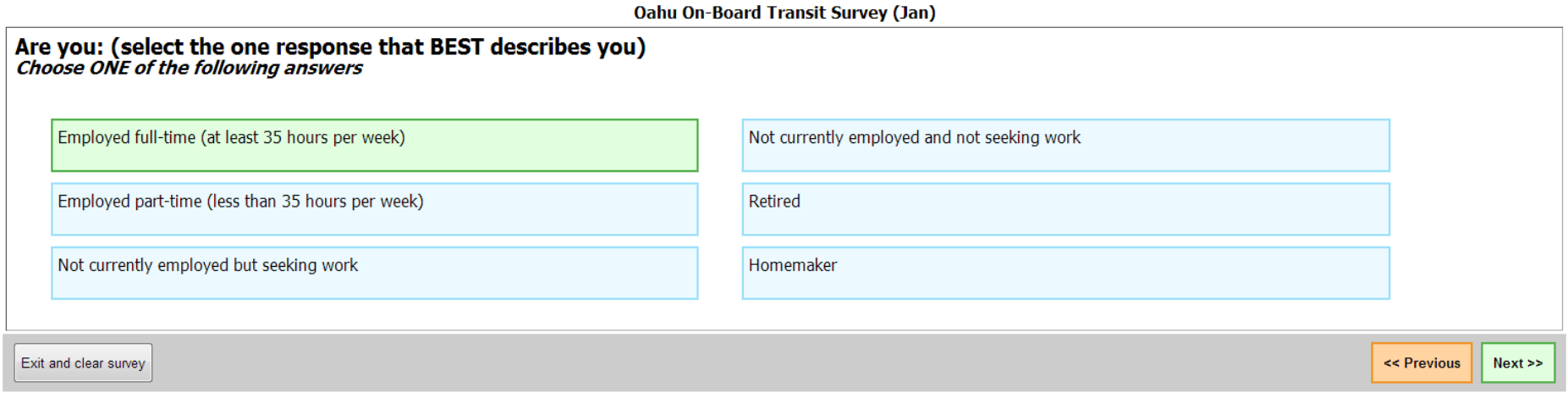
- None (0)
- One (1)
- Two (2)
- Three (3)
- Four or more (4+)

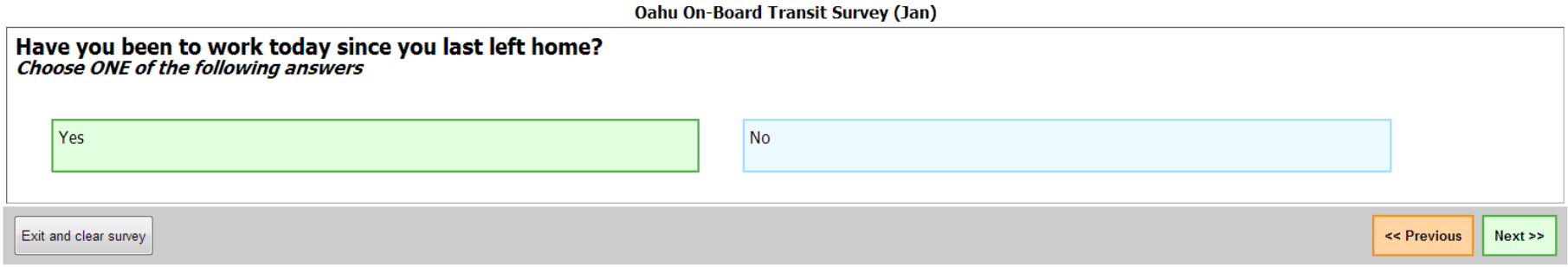
Exit and clear survey

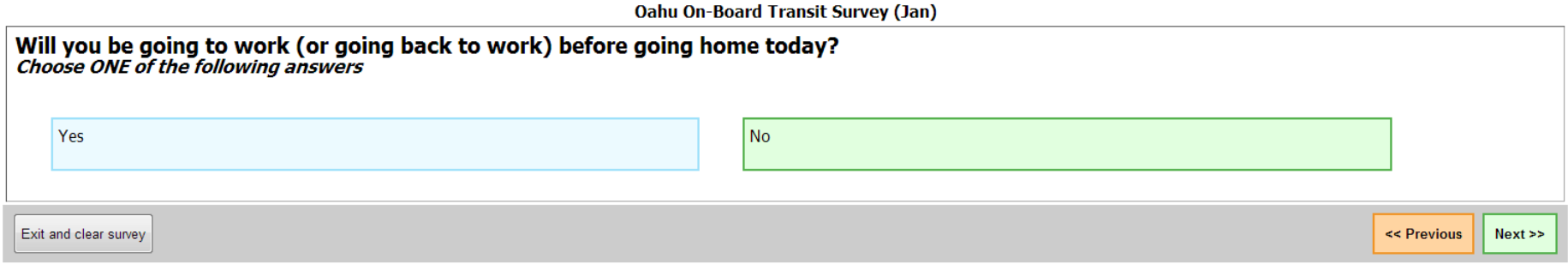
<< Previous | Next >>


Oahu On-Board Transit Survey (Jan)
Including YOU, how many adults (age 18 and older) live in your household?
Choose ONE of the following answers
None (0)
One (1)
Two (2)
Three (3)
Four (4)
Five (5)
Six (6)
Seven (7)
Eight (8)
Nine (9)
Ten or More (10+)
Exit and clear survey
<< Previous
Next >>


Oahu On-Board Transit Survey (Jan)
Including YOU, how many people in your household work outside the home?
Choose ONE of the following answers
None (0)
One (1)
Two (2)
Three (3)
Four (4)
Five (5)
Six (6)
Seven (7)
Eight (8)
Nine (9)
Ten or More (10+)
Exit and clear survey
<< Previous
Next >>


Oahu On-Board Transit Survey (Jan)
Are you: (select the one response that BEST describes you)
Choose ONE of the following answers
Employed full-time (at least 35 hours per week)
Employed part-time (less than 35 hours per week)
Not currently employed but seeking work
Not currently employed and not seeking work
Retired
Homemaker
Exit and clear survey
<< Previous
Next >>


Oahu On-Board Transit Survey (Jan)
Have you been to work today since you last left home?
Choose ONE of the following answers
Yes
No
Exit and clear survey
<< Previous
Next >>

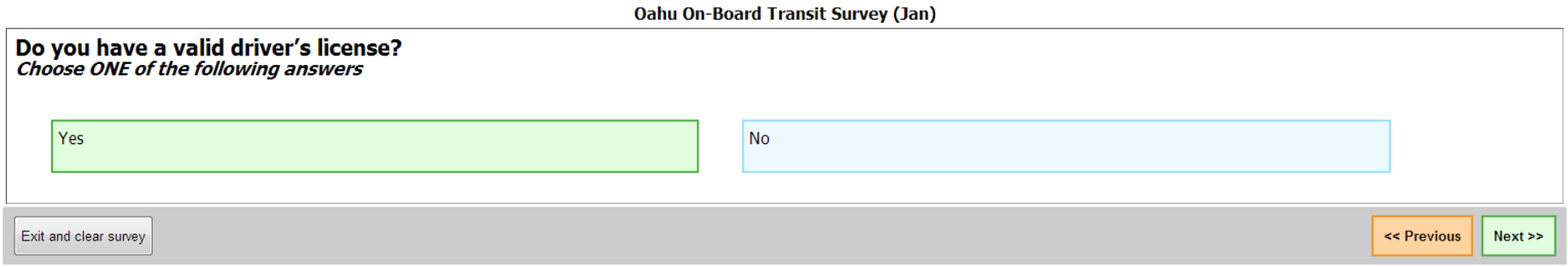

Oahu On-Board Transit Survey (Jan)
Will you be going to work (or going back to work) before going home today?
Choose ONE of the following answers
Yes
No
Exit and clear survey
<< Previous
Next >>

Are you a student? (select the one response that BEST describes you)
Choose ONE of the following answers

- Not a student
- Yes – Part Time college/university
- Yes – Full Time college/university
- Yes – Other
- Yes – student thru 12th grade

Exit and clear survey

<< Previous | Next >>


Oahu On-Board Transit Survey (Jan)
Do you have a valid driver's license?
Choose ONE of the following answers
Yes
No
Exit and clear survey
<< Previous
Next >>

Oahu On-Board Transit Survey (Jan)

Do you have a certified physical disability that limits your mobility?
Choose ONE of the following answers

Yes

No

Exit and clear survey

<< Previous

Next >>

Oahu On-Board Transit Survey (Jan)

What is your AGE?

Choose ONE of the following answers

Under 18	35-44	65+
18-24	45-54	
25-34	55-64	

Exit and clear survey

<< Previous Next >>

Oahu On-Board Transit Survey (Jan)

Do you speak a language other than English at home?
Choose ONE of the following answers

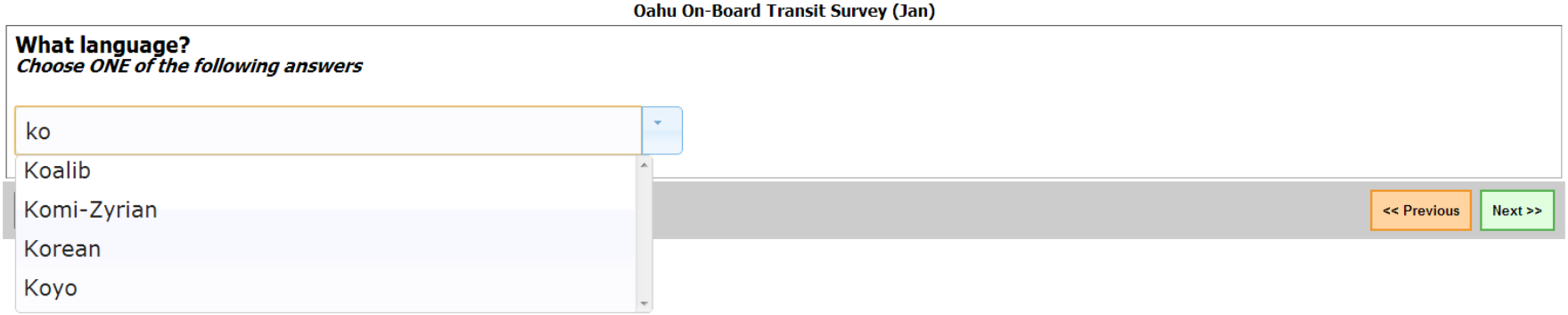
Yes

No

Exit and clear survey

<< Previous

Next >>


Oahu On-Board Transit Survey (Jan)
What language?
Choose ONE of the following answers
ko
Koalib
Komi-Zyrian
Korean
Koyo
<< Previous
Next >>

Oahu On-Board Transit Survey (Jan)

Which of the following categories BEST describes your TOTAL ANNUAL HOUSEHOLD INCOME?

Choose ONE of the following answers

Below $12,000	$40,000 - $49,999	$90,000 - $114,999
$12,000 - $14,999	$50,000 - $59,999	$115,000 +
$15,000 - $29,999	$60,000 - $74,999	Refused to Answer
$30,000 - $39,999	$75,000 - $89,999	

Exit and clear survey

<< Previous Next >>

Oahu On-Board Transit Survey (Jan)

Is this the first survey like this that you have completed for TheBus this year?

Choose ONE of the following answers

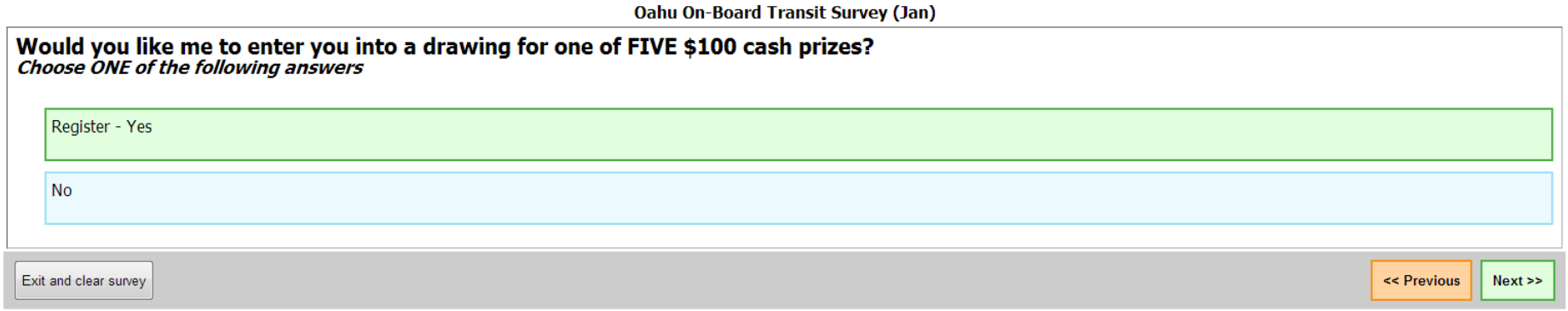
Yes

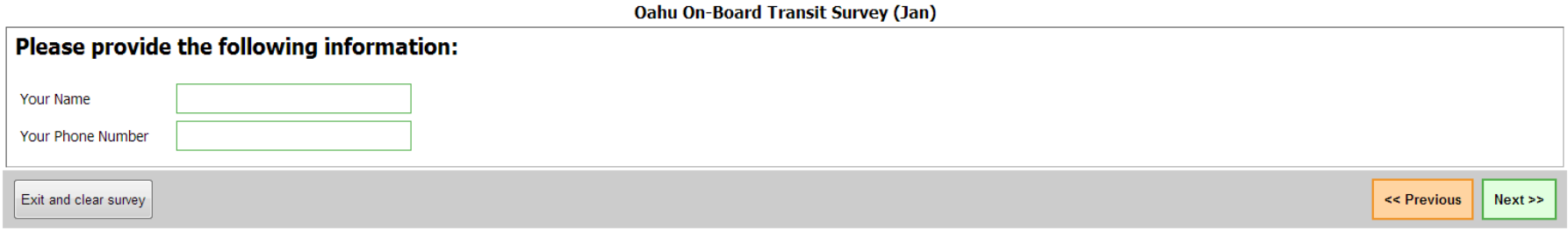
No

Exit and clear survey

<< Previous

Next >>


Oahu On-Board Transit Survey (Jan)
Would you like me to enter you into a drawing for one of FIVE $100 cash prizes?
Choose ONE of the following answers
Register - Yes
No
Exit and clear survey
<< Previous
Next >>


Oahu On-Board Transit Survey (Jan)
Please provide the following information:
Your Name
Your Phone Number
Exit and clear survey
<< Previous
Next >>

Oahu On-Board Transit Survey (Jan)

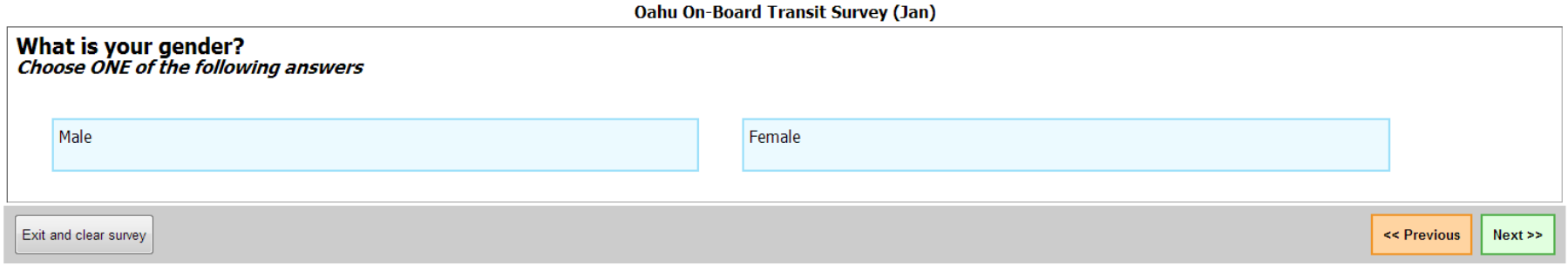
Are you?

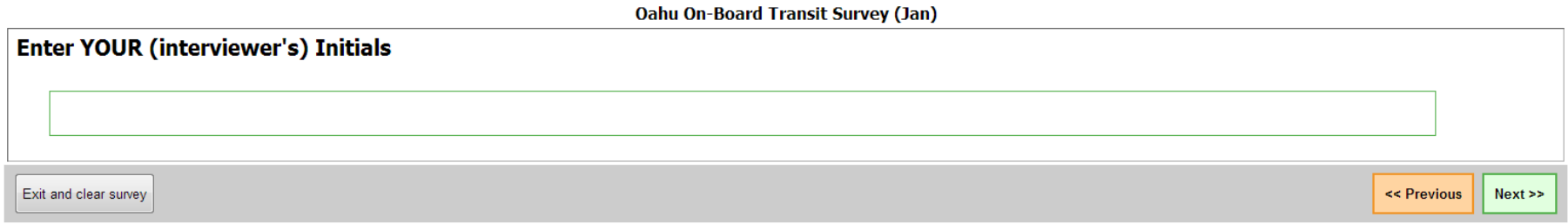
Choose ONE of the following answers

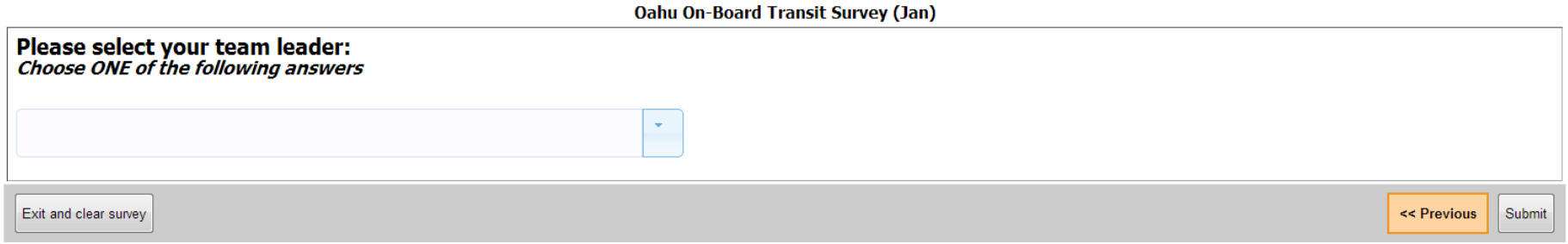
Asian Japanese	Pacific Islander or Native Hawaiian
Asian Filipino	Black or African American
Asian Chinese	American Indian or Alaska Native
Asian Korean	Hispanic or Latino
Asian-other	White

Exit and clear survey

<< Previous Next >>


Oahu On-Board Transit Survey (Jan)
What is your gender?
Choose ONE of the following answers
Male
Female
Exit and clear survey
<< Previous
Next >>


Oahu On-Board Transit Survey (Jan)
Enter YOUR (interviewer's) Initials
Exit and clear survey
<< Previous
Next >>


Oahu On-Board Transit Survey (Jan)
Please select your team leader:
Choose ONE of the following answers
Exit and clear survey
<< Previous
Submit

Thank you for your help!

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Appendix C: Data Summary Spreadsheets

Sum of Expansion Factors in Main Survey Database by Route, Direction and Time Period

Route	East 6am-9am	East 9am-2pm	East 2pm-6pm	East 6pm to 6am	West 6am-9am	West 9am-2pm	West 2pm-6pm	West 6pm to 6am
1	2148	3121	2541	1591	1597	2898	2533	1399
2	2258	2465	1871	1222	1557	2800	2477	1564
3	1846	1805	1398	992	1474	2134	2286	1179
4	1063	1625	1314	638	955	1370	1140	641
5	73	123	193	53	191	326	311	138
6	763	1151	769	257	510	1176	951	323
7	336	469	624	329	622	326	449	299
8	22	957	790	610	225	1176	602	334
9	848	797	1444	468	1113	1036	987	769
10	47	63	143	47	105	47	69	53
11	229	222	119	63	59	155	286	83
13	1412	2176	1630	1089	1040	2001	1585	1068
14	138	159	213	101	138	170	238	92
15	102	67	136	24	76	67	100	53
16	23	0	10	0	13	0	27	0
18	33	115	91	56	76	169	206	114
19	329	721	579	653	401	522	606	686
20	349	645	607	207	319	653	409	59
22	82	398	67	0	0	275	333	0
23	330	628	456	111	376	556	629	84
24	57	144	138	10	26	184	147	10
31	107	109	93	111	87	91	79	68
32	157	158	250	134	155	152	325	126
40	1044	1838	1190	1428	866	1664	1225	1795
41	67	158	242	102	308	323	344	70
42	987	1322	976	1246	646	1350	1390	1574
43	298	647	377	0	186	552	511	1
44	86	88	152	42	101	104	127	32
52	558	772	568	254	427	737	709	317
53	364	489	366	108	226	542	462	180
54	390	366	366	393	258	488	627	229
55	320	615	643	491	438	505	666	343
56	322	380	444	241	340	466	548	272
57	227	464	461	325	201	516	692	323
62	709	843	706	713	527	936	1031	564
65	103	247	334	181	352	196	137	238
70	15	36	31	4	26	70	45	13
71	9	0	17	13	23	0	15	4
72	81	74	70	32	46	99	133	17
73	124	129	93	0	41	51	46	0
74	16	0	9	5	12	0	18	1
77	67	142	47	0	36	48	65	5
80	0	0	145	0	139	0	0	61
81	367	0	0	341	0	0	519	32
82	0	0	119	0	68	0	0	69
83	118	0	0	224	0	0	289	0
84	51	0	0	128	0	0	99	0
85	94	0	0	127	0	0	409	0
88	53	0	0	0	0	0	155	0
89	34	0	0	24	0	0	80	0
90	51	0	0	56	0	0	50	0
91	293	0	0	303	0	0	389	35
92	3	0	0	128	0	0	95	0
93	135	0	0	546	0	0	565	0
94	52	0	0	36	0	0	78	0
96	49	0	0	41	0	0	65	0
97	57	0	0	119	0	0	166	0
98	60	0	0	92	0	0	64	0
101	66	0	0	214	0	0	208	0
102	37	0	0	74	0	0	101	0
103	49	0	0	47	0	0	29	0
201	0	0	0	305	0	0	239	0
202	51	0	0	123	0	0	82	0
203	74	0	0	47	0	0	69	0
231	26	34	17	8	13	28	27	14
401	6	79	63	80	8	31	82	73
402	39	41	45	23	34	52	90	43
403	78	30	50	50	56	88	128	71
411	25	36	125	112	48	46	75	53
412	40	72	83	36	69	60	38	33
413	4	0	51	1	95	0	41	20
414	36	38	27	14	7	39	57	14
415	12	0	21	16	6	0	5	29
432	193	293	264	148	158	166	164	118
433	74	281	292	106	117	249	285	64
503	26	22	20	5	26	55	60	21
1L	254	699	588	62	384	612	464	0
57a	262	185	95	0	130	217	160	44
80A	0	0	69	0	82	0	0	0
80B	0	0	0	0	19	0	0	0
84a	155	0	0	80	0	0	125	0
85a	87	0	0	0	0	0	113	0
88a	0	0	60	0	0	0	0	120
98a	20	0	0	127	0	0	86	0
A	1990	2281	1573	1353	1147	2466	2620	843
B	1152	1113	1079	494	721	1038	1264	548
C	803	1093	776	588	461	1263	1088	775
E	628	714	541	490	377	717	898	679
PH1	0	0	0	43	0	0	41	0
PH2	0	0	0	30	0	0	27	0
PH3	0	0	0	32	0	0	44	0
PH4	0	0	17	0	0	0	0	14
PH5	0	0	33	0	0	0	0	27
PH6	0	0	80	0	0	0	0	58
234/235	2	0	19	5	7	0	18	1
501/504	20	40	32	34	32	27	38	35
TOTAL	26164	33781	28856	21254	20378	34084	37357	19015

*Expansion Factors for routes that were identified as circular were created based on Route and Time Period and not Direction

Route	6am-9am	9am-2pm	2pm-6pm	6pm to 6am				
*17 (Circular)	205	457	553	191				
*76 (Circular)	82	135	139	21				
*434 (Circular)	316	266	339	279				
TOTAL	603	858	1031	491				

Estimated Ridership Based on Farebox Data by Route, Direction and Time Period

Route	East 6am-9am	East 9am-2pm	East 2pm-6pm	East 6pm to 6am	West 6am-9am	West 9am-2pm	West 2pm-6pm	West 6pm to 6am
1	2147	3121	2540	1591	1597	2898	2532	1398
2	2258	2465	1871	1221	1557	2801	2478	1563
3	1846	1805	1398	992	1474	2134	2286	1179
4	1063	1625	1314	638	955	1370	1140	641
5	73	123	193	53	191	326	311	139
6	763	1151	769	257	510	1176	951	323
7	336	469	625	329	622	326	449	299
8	22	957	790	610	225	1176	602	334
9	848	797	1444	468	1113	1036	987	769
10	47	63	143	48	105	47	69	53
11	229	222	119	63	59	155	286	83
13	1412	2176	1630	1089	1040	2001	1585	1068
14	138	159	212	101	138	170	238	92
15	102	67	136	24	76	67	100	53
16	23	0	10	0	13	0	26	0
18	33	115	91	56	76	169	206	114
19	329	721	580	653	401	521	606	686
20	349	645	607	207	319	653	409	59
22	82	398	67	0	0	275	333	0
23	330	628	456	111	376	556	629	84
24	57	144	138	10	26	184	146	10
31	107	109	93	111	87	91	79	68
32	157	158	250	134	155	152	325	126
40	1044	1838	1190	1428	866	1664	1225	1795
41	67	158	242	102	308	323	344	70
42	987	1322	976	1246	646	1350	1391	1574
43	298	647	377	0	186	552	511	1
44	86	89	152	42	101	104	127	32
52	558	772	568	253	427	737	709	317
53	363	488	366	108	226	542	462	180
54	390	367	366	393	258	488	627	229
55	320	616	643	491	438	505	666	343
56	322	381	444	240	341	467	549	272
57	228	464	461	325	201	516	692	323
62	709	843	706	713	526	936	1031	564
65	103	247	334	181	353	196	137	238
70	16	36	31	4	26	70	45	13
71	9	0	17	13	23	0	15	4
72	81	74	70	32	46	99	133	17
73	124	129	93	0	41	51	46	0
74	16	0	9	5	12	0	18	1
77	67	142	47	0	36	48	65	5
80	0	0	145	0	139	0	0	61
81	367	0	0	341	0	0	519	32
82	0	0	119	0	68	0	0	69
83	118	0	0	224	0	0	289	0
84	51	0	0	128	0	0	99	0
85	94	0	0	127	0	0	409	0
88	53	0	0	0	0	0	155	0
89	34	0	0	24	0	0	80	0
90	51	0	0	56	0	0	51	0
91	293	0	0	303	0	0	389	35
92	3	0	0	128	0	0	95	0
93	135	0	0	546	0	0	566	0
94	52	0	0	36	0	0	78	0
96	49	0	0	41	0	0	65	0
97	57	0	0	119	0	0	166	0
98	59	0	0	91	0	0	64	0
101	66	0	0	214	0	0	208	0
102	37	0	0	74	0	0	101	0
103	49	0	0	48	0	0	29	0
201	0	0	0	305	0	0	239	0
202	51	0	0	123	0	0	82	0
203	74	0	0	47	0	0	69	0
231	26	34	17	8	14	28	27	14
401	6	80	63	80	8	31	82	73
402	38	41	45	23	34	52	90	43
403	79	30	50	50	56	89	129	71
411	25	36	125	112	48	46	75	53
412	40	72	83	36	69	59	37	33
413	4	0	51	1	95	0	41	20
414	36	37	28	14	7	40	57	14
415	12	0	21	16	6	0	5	29
432	193	293	263	148	158	166	163	118
433	74	281	292	106	117	249	285	64
503	26	23	20	5	26	54	61	21
1L	254	699	588	62	384	612	465	0
57a	262	185	95	3	130	218	159	44
80A	0	0	69	0	82	0	0	0
80B	0	0	0	0	19	0	0	0
84a	155	0	0	80	0	0	126	0
85a	87	0	0	0	0	0	113	0
88a	0	0	60	0	0	0	0	120
98a	20	0	0	127	0	0	86	0
A	1990	2281	1573	1353	1147	2466	2620	844
B	1152	1113	1079	494	721	1038	1264	548
C	803	1093	776	588	461	1263	1088	775
E	628	714	541	490	377	717	898	679
PH1	0	0	0	43	0	0	41	0
PH2	0	0	0	30	0	0	27	0
PH3	0	0	0	32	0	0	44	0
PH4	0	0	17	0	0	0	0	14
PH5	0	0	33	0	0	0	0	27
PH6	0	0	80	0	0	0	0	58
234/235	2	0	19	5	7	0	18	1
501/504	20	40	32	34	32	27	38	35
TOTAL	26164	33786	28854	21254	20381	34086	37360	19016

Route	6am-9am	9am-2pm	2pm-6pm	6pm to 6am				
*17 (Circular)	205	457	553	191				
*76 (Circular)	82	135	139	21				
*434 (Circular)	316	266	339	279				
TOTAL	604	857	1031	491				

Difference between Sum of Expansion Factors in Main Survey Database and Farebox Data by Route, Direction and Time Period

Route	East 6am-9am	East 9am-2pm	East 2pm-6pm	East 6pm to 6am	West 6am-9am	West 9am-2pm	West 2pm-6pm	West 6pm to 6am	Percentage Difference for entire route
1	1	1	1	0	0	0	1	1	0.0%
2	0	0	0	0	0	0	0	1	0.0%
3	-1	0	0	0	0	-1	0	0	0.0%
4	0	0	-1	0	-1	0	0	0	0.0%
5	0	0	0	0	0	0	0	-1	0.0%
6	0	0	0	0	0	0	0	0	0.0%
7	0	0	0	0	0	0	0	0	0.0%
8	0	0	0	0	0	0	0	0	0.0%
9	1	0	0	0	0	0	0	0	0.0%
10	0	-1	0	-1	0	0	0	-1	-0.4%
11	0	0	0	0	0	0	0	0	0.1%
13	0	0	0	0	0	0	0	0	0.0%
14	0	0	1	0	-1	0	0	0	0.0%
15	0	0	0	-1	0	0	0	0	-0.3%
16	-1	0	0	0	0	0	1	0	0.4%
18	0	0	0	0	0	0	0	0	-0.1%
19	0	0	-1	0	0	0	0	0	0.0%
20	0	0	0	0	0	0	0	0	0.0%
22	0	0	0	0	0	0	0	0	0.0%
23	0	0	0	1	0	0	0	0	0.0%
24	0	0	0	1	0	0	1	0	0.1%
31	0	0	0	0	0	0	0	0	0.1%
32	0	0	0	0	0	0	0	1	0.0%
40	0	0	0	0	0	0	-1	0	0.0%
41	0	0	0	0	0	0	0	0	0.0%
42	0	0	0	0	0	0	0	0	0.0%
43	0	0	0	0	0	0	0	0	0.0%
44	0	-1	0	0	0	0	0	0	-0.1%
52	0	0	0	1	0	0	0	0	0.0%
53	1	1	0	0	0	0	0	0	0.0%
54	0	-1	0	0	0	0	0	0	0.0%
55	0	-1	0	0	0	0	0	0	0.0%
56	0	-1	0	1	-1	-1	-1	0	-0.1%
57	-1	0	0	0	0	0	0	0	0.0%
62	0	0	0	0	1	0	0	0	0.0%
65	0	0	0	0	-1	-1	0	0	-0.1%
70	0	0	0	0	0	0	0	0	0.0%
71	0	0	0	0	1	0	0	0	0.2%
72	0	1	0	0	0	0	0	0	0.0%
73	0	0	0	0	0	0	0	0	0.1%
74	0	0	0	0	0	0	0	0	1.7%
77	0	0	0	0	0	0	0	0	0.1%
80	0	0	0	0	1	0	0	0	0.3%
81	0	0	0	0	0	0	0	-1	-0.1%
82	0	0	0	0	0	0	0	0	0.0%
83	0	0	0	0	0	0	0	0	0.1%
84	0	0	0	0	0	0	0	0	-0.2%
85	0	0	0	0	0	0	0	0	0.0%
88	0	0	0	0	0	0	0	0	-0.1%
89	0	0	0	0	0	0	0	0	0.0%
90	0	0	0	0	0	0	-1	0	-0.4%
91	-1	0	0	1	0	0	0	0	0.0%
92	0	0	0	0	0	0	0	0	0.1%
93	0	0	0	0	0	0	-1	0	0.0%
94	0	0	0	-1	0	0	0	0	-0.8%
96	0	0	0	0	0	0	0	0	0.3%
97	0	0	0	0	0	0	0	0	0.0%
98	0	0	0	0	0	0	0	0	0.2%
101	1	0	0	0	0	0	0	0	0.0%
102	0	0	0	0	0	0	0	0	0.2%
103	0	0	0	-1	0	0	0	0	-0.3%
201	0	0	0	0	0	0	0	0	0.0%
202	-1	0	0	0	0	0	0	0	-0.2%
203	0	0	0	0	0	0	0	0	-0.2%
231	0	0	0	0	0	0	0	0	0.4%
401	0	-1	0	0	0	0	0	0	-0.6%
402	1	0	0	0	0	0	0	0	0.4%
403	-1	0	0	0	0	-1	-1	0	-0.5%
411	0	0	0	0	0	0	0	0	0.0%
412	0	0	0	0	0	0	1	0	0.4%
413	0	0	0	0	0	0	0	0	-0.5%
414	0	1	0	0	0	-1	0	0	0.2%
415	0	0	0	0	0	0	0	0	-0.7%
432	0	0	1	0	0	0	1	0	0.1%
433	0	0	0	0	0	0	0	0	0.0%
503	0	-1	0	0	0	1	-1	0	-0.8%
1L	0	0	1	0	0	0	-1	0	0.0%
57a	0	0	0	-3	0	-1	1	0	-0.3%
80A	0	0	0	0	0	0	0	0	0.0%
80B	0	0	0	0	0	0	0	0	0.0%
84a	0	0	0	0	0	0	-1	0	-0.3%
85a	0	0	0	0	0	0	0	0	0.1%
88a	0	0	0	0	0	0	0	0	0.2%
98a	0	0	0	0	0	0	0	0	0.0%
A	0	0	0	0	0	0	0	-1	0.0%
B	1	0	0	0	0	0	0	0	0.0%
C	0	0	0	0	0	0	0	0	0.0%
E	0	0	0	0	-1	0	0	0	0.0%
PH1	0	0	0	0	0	0	0	0	0.0%
PH2	0	0	0	0	0	0	0	0	0.0%
PH3	0	0	0	0	0	0	0	0	0.0%
PH4	0	0	0	0	0	0	0	0	0.0%
PH5	0	0	0	0	0	0	0	0	0.0%
PH6	0	0	0	0	0	0	0	0	-0.2%
234/235	0	0	0	0	0	0	0	0	0.0%
501/504	0	0	0	0	0	0	0	0	0.0%
TOTAL	-1	-4	2	-1	-3	-2	-3	-2	-0.018

Route	6am-9am	9am-2pm	2pm-6pm	6pm to 6am					
*17 (Circular)	0	1	0	0					0.0%
*76 (Circular)	0	0	0	0					0.0%
*434 (Circular)	0	0	0	0					0.0%
TOTAL	-1	1	0	0					

Main Survey Goal Based on Farebox Data by Route, Direction and Time Period

Route	East 6am-9am	East 9am-2pm	East 2pm-6pm	East 6pm to 6am	West 6am-9am	West 9am-2pm	West 2pm-6pm	West 6pm to 6am
1	215	312	254	159	160	290	253	140
2	226	246	187	122	156	280	248	156
3	185	181	140	99	147	213	229	118
4	106	162	131	64	96	137	114	64
5	7	12	19	5	19	33	31	14
6	76	115	77	26	51	118	95	32
7	34	47	62	33	62	33	45	30
8	2	96	79	61	23	118	60	33
9	85	80	144	47	111	104	99	77
10	5	6	14	5	11	5	7	5
11	23	22	12	6	6	15	29	8
13	141	218	163	109	104	200	159	107
14	14	16	21	10	14	17	24	9
15	10	7	14	2	8	7	10	5
16	2	0	1	0	1	0	3	0
18	3	12	9	6	8	17	21	11
19	33	72	58	65	40	52	61	69
20	35	65	61	21	32	65	41	6
22	8	40	7	0	0	27	33	0
23	33	63	46	11	38	56	63	8
24	6	14	14	1	3	18	15	1
31	11	11	9	11	9	9	8	7
32	16	16	25	13	16	15	33	13
40	104	184	119	143	87	166	123	180
41	7	16	24	10	31	32	34	7
42	99	132	98	125	65	135	139	157
43	30	65	38	0	19	55	51	0
44	9	9	15	4	10	10	13	3
52	56	77	57	25	43	74	71	32
53	36	49	37	11	23	54	46	18
54	39	37	37	39	26	49	63	23
55	32	62	64	49	44	50	67	34
56	32	38	44	24	34	47	55	27
57	23	46	46	32	20	52	69	32
62	71	84	71	71	53	94	103	56
65	10	25	33	18	35	20	14	24
70	2	4	3	0	3	7	4	1
71	1	0	2	1	2	0	2	0
72	8	7	7	3	5	10	13	2
73	12	13	9	0	4	5	5	0
74	2	0	1	1	1	0	2	0
77	7	14	5	0	4	5	6	0
80	0	0	15	0	14	0	0	6
81	37	0	0	34	0	0	52	3
82	0	0	12	0	7	0	0	7
83	12	0	0	22	0	0	29	0
84	5	0	0	13	0	0	10	0
85	9	0	0	13	0	0	41	0
88	5	0	0	0	0	0	15	0
89	3	0	0	2	0	0	8	0
90	5	0	0	6	0	0	5	0
91	29	0	0	30	0	0	39	3
92	0	0	0	13	0	0	9	0
93	14	0	0	55	0	0	57	0
94	5	0	0	4	0	0	8	0
96	5	0	0	4	0	0	6	0
97	6	0	0	12	0	0	17	0
98	6	0	0	9	0	0	6	0
101	7	0	0	21	0	0	21	0
102	4	0	0	7	0	0	10	0
103	5	0	0	5	0	0	3	0
201	0	0	0	30	0	0	24	0
202	5	0	0	12	0	0	8	0
203	7	0	0	5	0	0	7	0
231	3	3	2	1	1	3	3	1
401	1	8	6	8	1	3	8	7
402	4	4	5	2	3	5	9	4
403	8	3	5	5	6	9	13	7
411	3	4	13	11	5	5	8	5
412	4	7	8	4	7	6	4	3
413	0	0	5	0	10	0	4	2
414	4	4	3	1	1	4	6	1
415	1	0	2	2	1	0	0	3
432	19	29	26	15	16	17	16	12
433	7	28	29	11	12	25	28	6
503	3	2	2	1	3	5	6	2
1L	25	70	59	6	38	61	46	0
57a	26	18	9	0	13	22	16	4
80A	0	0	7	0	8	0	0	0
80B	0	0	0	0	2	0	0	0
84a	16	0	0	8	0	0	13	0
85a	9	0	0	0	0	0	11	0
88a	0	0	6	0	0	0	0	12
98a	2	0	0	13	0	0	9	0
A	199	228	157	135	115	247	262	84
B	115	111	108	49	72	104	126	55
C	80	109	78	59	46	126	109	78
E	63	71	54	49	38	72	90	68
PH1	0	0	0	4	0	0	4	0
PH2	0	0	0	3	0	0	3	0
PH3	0	0	0	3	0	0	4	0
PH4	0	0	2	0	0	0	0	1
PH5	0	0	3	0	0	0	0	3
PH6	0	0	8	0	0	0	0	6
234/235	0	0	2	0	1	0	2	0
501/504	2	4	3	3	3	3	4	4
TOTAL	2616	3379	2885	2125	2038	3409	3736	1902

Route	6am-9am	9am-2pm	2pm-6pm	6pm to 6am				
*17 (Circular)	21	46	55	19				
*76 (Circular)	8	13	14	2				
*434 (Circular)	32	27	34	28				
TOTAL	60	86	103	49				

Number of Main Surveys Collected by Route, Direction and Time Period

	East				West			
Route	6am-9am	9am-2pm	2pm-6pm	6pm to 6am	6am-9am	9am-2pm	2pm-6pm	6pm to 6am
1	244	474	288	111	158	399	276	83
2	288	440	209	131	200	326	274	84
3	183	310	185	86	174	294	229	50
4	117	245	160	33	137	234	145	45
5	25	32	24	12	38	24	31	6
6	65	131	106	40	57	123	78	43
7	36	112	39	18	34	82	55	21
8	22	108	95	39	14	90	72	45
9	76	138	100	37	84	126	77	32
10	8	29	14	10	7	19	12	4
11	12	33	21	7	22	38	36	11
13	122	237	168	32	104	250	200	39
14	18	44	15	4	9	24	14	4
15	19	26	6	3	3	23	6	2
16	4	N/A	5	N/A	2	N/A	5	N/A
18	12	19	9	7	17	17	8	4
19	43	105	75	33	60	89	49	22
20	46	93	57	14	52	85	57	5
22	8	23	6	N/A	N/A	11	17	N/A
23	66	107	49	8	17	52	22	26
24	13	18	19	1	1	13	15	1
31	11	28	20	4	15	44	16	3
32	8	25	12	15	17	43	22	16
40	39	295	149	51	173	225	160	65
41	44	26	23	11	26	52	38	16
42	46	165	152	71	142	163	174	57
43	29	82	54	N/A	32	98	59	1
44	13	18	24	6	6	20	14	10
52	20	108	95	11	89	129	95	11
53	32	76	46	21	39	77	43	10
54	52	80	55	13	39	76	66	15
55	42	117	63	17	58	59	24	12
56	35	47	30	23	44	49	76	10
57	21	65	41	20	29	101	43	11
62	39	111	50	40	110	103	96	19
65	28	47	21	8	19	32	21	8
70	10	8	10	3	5	5	7	1
71	2	N/A	4	1	1	N/A	1	1
72	3	19	4	1	2	18	10	1
73	4	13	12	N/A	2	2	4	N/A
74	2	N/A	5	1	2	N/A	5	1
77	11	16	6	N/A	13	12	12	1
80	N/A	N/A	37	N/A	34	N/A	N/A	5
81	39	N/A	N/A	62	N/A	N/A	62	1
82	N/A	N/A	22	N/A	33	N/A	N/A	3
83	44	N/A	N/A	9	N/A	N/A	49	N/A
84	3	N/A	N/A	70	N/A	N/A	21	N/A
85	31	N/A	N/A	13	N/A	N/A	21	N/A
88	26	N/A	N/A	N/A	N/A	N/A	17	N/A
89	7	N/A	N/A	18	N/A	N/A	16	N/A
90	29	N/A	N/A	31	N/A	N/A	28	N/A
91	25	N/A	N/A	21	N/A	N/A	62	2
92	3	N/A	N/A	28	N/A	N/A	53	N/A
93	65	N/A	N/A	19	N/A	N/A	84	N/A
94	45	N/A	N/A	21	N/A	N/A	70	N/A
96	40	N/A	N/A	20	N/A	N/A	34	N/A
97	41	N/A	N/A	22	N/A	N/A	64	N/A
98	36	N/A	N/A	24	N/A	N/A	32	N/A
101	32	N/A	N/A	29	N/A	N/A	50	N/A
102	7	N/A	N/A	22	N/A	N/A	46	N/A
103	2	N/A	N/A	39	N/A	N/A	39	N/A
201	N/A	N/A	N/A	28	N/A	N/A	49	N/A
202	11	N/A	N/A	8	N/A	N/A	12	N/A
203	24	N/A	N/A	6	N/A	N/A	30	N/A
231	5	4	1	1	3	3	2	1
401	2	12	5	3	3	5	3	3
402	4	9	10	1	1	2	4	2
403	8	6	14	4	2	8	17	3
411	12	11	8	5	2	11	8	5
412	20	10	3	2	3	8	8	4
413	5	N/A	5	3	3	N/A	7	1
414	13	7	1	1	1	6	3	1
415	2	N/A	9	2	1	N/A	1	1
432	11	34	23	7	6	36	22	6
433	14	35	23	4	8	27	20	3
503	2	7	4	1	13	2	7	2
1L	10	76	56	8	13	66	54	N/A
57a	28	37	7	N/A	38	44	12	5
80A	N/A	N/A	19	N/A	24	N/A	N/A	N/A
80B	N/A	N/A	N/A	N/A	9	N/A	N/A	N/A
84a	10	N/A	N/A	26	N/A	N/A	42	N/A
85a	14	N/A	N/A	N/A	N/A	N/A	22	N/A
88a	N/A	N/A	10	N/A	N/A	N/A	N/A	25
98a	20	N/A	N/A	29	N/A	N/A	17	N/A
A	171	358	206	119	134	298	179	97
B	86	157	106	51	64	163	100	50
C	62	178	88	42	112	159	76	28
E	41	81	85	51	50	107	85	23
PH1	N/A	N/A	N/A	42	N/A	N/A	16	N/A
PH2	N/A	N/A	N/A	22	N/A	N/A	5	N/A
PH3	N/A	N/A	N/A	18	N/A	N/A	11	N/A
PH4	N/A	N/A	16	N/A	N/A	N/A	N/A	12
PH5	N/A	N/A	16	N/A	N/A	N/A	N/A	20
PH6	N/A	N/A	35	N/A	N/A	N/A	N/A	19
234/235	2	N/A	5	2	3	N/A	4	1
501/504	4	3	7	9	1	1	15	5
TOTAL	2974	5095	3347	1886	2614	4573	4243	1124

*17 (Circular)	64	70	60	34				
*76 (Circular)	8	11	21	3				
*434 (Circular)	13	40	58	13				
TOTAL	85	121	139	50				

Difference Between Main Survey Goal by Route, Direction and Time Period and Number of Main Surveys Collected

	East				West			
Route	6am-9am	9am-2pm	2pm-6pm	6pm to 6am	6am-9am	9am-2pm	2pm-6pm	6pm to 6am
1	-29	-162	-34	48	2	-109	-23	57
2	-62	-194	-22	-9	-44	-46	-26	72
3	2	-129	-45	13	-27	-81	0	68
4	-11	-83	-29	31	-41	-97	-31	19
5	-18	-20	-5	-7	-19	9	0	8
6	11	-16	-29	-14	-6	-5	17	-11
7	-2	-65	23	15	28	-49	-10	9
8	-20	-12	-16	22	9	28	-12	-12
9	9	-58	44	10	27	-22	22	45
10	-3	-23	0	-5	4	-14	-5	1
11	11	-11	-9	-1	-16	-23	-7	-3
13	19	-19	-5	77	0	-50	-41	68
14	-4	-28	6	6	5	-7	10	5
15	-9	-19	8	-1	5	-16	4	3
16	-2	N/A	-4	N/A	-1	N/A	-2	N/A
18	-9	-7	0	-1	-9	0	13	7
19	-10	-33	-17	32	-20	-37	12	47
20	-11	-28	4	7	-20	-20	-16	1
22	0	17	1	N/A	N/A	16	16	N/A
23	-33	-44	-3	3	21	4	41	-18
24	-7	-4	-5	0	2	5	0	0
31	0	-17	-11	7	-6	-35	-8	4
32	8	-9	13	-2	-1	-28	11	-3
40	65	-111	-30	92	-86	-59	-37	115
41	-37	-10	1	-1	5	-20	-4	-9
42	53	-33	-54	54	-77	-28	-35	100
43	1	-17	-16	N/A	-13	-43	-8	-1
44	-4	-9	-9	-2	4	-10	-1	-7
52	36	-31	-38	14	-46	-55	-24	21
53	4	-27	-9	-10	-16	-23	3	8
54	-13	-43	-18	26	-13	-27	-3	8
55	-10	-55	1	32	-14	-9	43	22
56	-3	-9	14	1	-10	-2	-21	17
57	2	-19	5	12	-9	-49	26	21
62	32	-27	21	31	-57	-9	7	37
65	-18	-22	12	10	16	-12	-7	16
70	-8	-4	-7	-3	-2	2	-3	0
71	-1	N/A	-2	0	1	N/A	1	-1
72	5	-12	3	2	3	-8	3	1
73	8	0	-3	N/A	2	3	1	N/A
74	0	N/A	-4	0	-1	N/A	-3	-1
77	-4	-2	-1	N/A	-9	-7	-6	-1
80	N/A	N/A	-22	N/A	-20	N/A	N/A	1
81	-2	N/A	N/A	-28	N/A	N/A	-10	2
82	N/A	N/A	-10	N/A	-26	N/A	N/A	4
83	-32	N/A	N/A	13	N/A	N/A	-20	N/A
84	2	N/A	N/A	-57	N/A	N/A	-11	N/A
85	-22	N/A	N/A	0	N/A	N/A	20	N/A
88	-21	N/A	N/A	N/A	N/A	N/A	-2	N/A
89	-4	N/A	N/A	-16	N/A	N/A	-8	N/A
90	-24	N/A	N/A	-25	N/A	N/A	-23	N/A
91	4	N/A	N/A	9	N/A	N/A	-23	1
92	-3	N/A	N/A	-15	N/A	N/A	-44	N/A
93	-51	N/A	N/A	36	N/A	N/A	-27	N/A
94	-40	N/A	N/A	-17	N/A	N/A	-62	N/A
96	-35	N/A	N/A	-16	N/A	N/A	-28	N/A
97	-35	N/A	N/A	-10	N/A	N/A	-47	N/A
98	-30	N/A	N/A	-15	N/A	N/A	-26	N/A
101	-25	N/A	N/A	-8	N/A	N/A	-29	N/A
102	-3	N/A	N/A	-15	N/A	N/A	-36	N/A
103	3	N/A	N/A	-34	N/A	N/A	-36	N/A
201	N/A	N/A	N/A	2	N/A	N/A	-25	N/A
202	-6	N/A	N/A	4	N/A	N/A	-4	N/A
203	-17	N/A	N/A	-1	N/A	N/A	-23	N/A
231	-2	-1	1	0	-2	0	1	0
401	-1	-4	1	5	-2	-2	5	4
402	0	-5	-5	1	2	3	5	2
403	0	-3	-9	1	4	1	-4	4
411	-10	-7	5	6	3	-6	-1	0
412	-16	-3	5	2	4	-2	-4	-1
413	-5	N/A	0	-3	7	N/A	-3	1
414	-9	-3	2	0	0	-2	3	0
415	-1	N/A	-7	0	0	N/A	-1	2
432	8	-5	3	8	10	-19	-6	6
433	-7	-7	6	7	4	-2	8	3
503	1	-5	-2	0	-10	3	-1	0
1L	15	-6	3	-2	25	-5	-8	N/A
57a	-2	-19	2	N/A	-25	-22	4	-1
80A	N/A	N/A	-12	N/A	-16	N/A	N/A	N/A
80B	N/A	N/A	N/A	N/A	-7	N/A	N/A	N/A
84a	6	N/A	N/A	-18	N/A	N/A	-29	N/A
85a	-5	N/A	N/A	N/A	N/A	N/A	-11	N/A
88a	N/A	N/A	-4	N/A	N/A	N/A	N/A	-13
98a	-18	N/A	N/A	-16	N/A	N/A	-8	N/A
A	28	-130	-49	16	-19	-51	83	-13
B	29	-46	2	-2	8	-59	26	5
C	18	-69	-10	17	-66	-33	33	50
E	22	-10	-31	-2	-12	-35	5	45
PH1	N/A	N/A	N/A	-38	N/A	N/A	-12	N/A
PH2	N/A	N/A	N/A	-19	N/A	N/A	-2	N/A
PH3	N/A	N/A	N/A	-15	N/A	N/A	-7	N/A
PH4	N/A	N/A	-14	N/A	N/A	N/A	N/A	-11
PH5	N/A	N/A	-13	N/A	N/A	N/A	N/A	-17
PH6	N/A	N/A	-27	N/A	N/A	N/A	N/A	-13
234/235	-2	N/A	-3	-2	-2	N/A	-2	-1
501/504	-2	1	-4	-6	2	2	-11	-1
TOTAL	-358	-1716	-462	239	-576	-1164	-507	778

*17 (Circular)	-43	-24	-5	-15				
*76 (Circular)	0	2	-7	-1				
*434 (Circular)	19	-13	-24	15				
TOTAL								

Expansion Factors Based ONLY on Estimated Ridership and Total Main Surveys Collected

	East				West			
Route	6am-9am	9am-2pm	2pm-6pm	6pm to 6am	6am-9am	9am-2pm	2pm-6pm	6pm to 6am
1	8.80	6.58	8.82	14.34	10.11	7.26	9.17	16.84
2	7.84	5.60	8.95	9.32	7.78	8.59	9.04	18.60
3	10.09	5.82	7.56	11.54	8.47	7.26	9.98	23.58
4	9.09	6.63	8.21	19.34	6.97	5.85	7.86	14.24
5	2.92	3.83	8.02	4.38	5.03	13.60	10.04	23.10
6	11.73	8.79	7.26	6.42	8.94	9.56	12.20	7.51
7	9.32	4.19	16.02	18.26	18.28	3.98	8.16	14.22
8	1.00	8.86	8.32	15.65	16.08	13.07	8.37	7.42
9	11.15	5.78	14.44	12.65	13.25	8.22	12.82	24.03
10	5.83	2.19	10.21	4.80	15.02	2.46	5.75	13.32
11	19.06	6.74	5.68	8.94	2.70	4.07	7.96	7.55
13	11.57	9.18	9.70	34.03	10.00	8.00	7.93	27.38
14	7.69	3.62	14.13	25.27	15.37	7.08	16.97	23.00
15	5.35	2.58	22.69	8.12	25.42	2.90	16.67	26.41
16	5.85	N/A	2.03	N/A	6.30	N/A	5.29	N/A
18	2.75	6.07	10.12	8.04	4.48	9.96	25.78	28.59
19	7.65	6.86	7.73	19.78	6.69	5.86	12.36	31.20
20	7.58	6.94	10.65	14.81	6.14	7.68	7.17	11.74
22	10.24	17.32	11.09	N/A	N/A	24.97	19.61	N/A
23	5.00	5.87	9.31	13.86	22.10	10.69	28.57	3.25
24	4.41	8.00	7.28	9.50	25.90	14.14	9.75	9.96
31	9.69	3.88	4.66	27.76	5.81	2.06	4.96	22.61
32	19.68	6.32	20.84	8.96	9.13	3.54	14.78	7.85
40	26.77	6.23	7.99	28.01	5.00	7.40	7.66	27.62
41	1.52	6.08	10.52	9.27	11.85	6.21	9.05	4.38
42	21.45	8.01	6.42	17.55	4.55	8.29	7.99	27.62
43	10.26	7.89	6.98	N/A	5.83	5.63	8.66	1.00
44	6.62	4.94	6.33	7.00	16.83	5.20	9.07	3.20
52	27.91	7.15	5.98	23.04	4.79	5.72	7.46	28.83
53	11.34	6.42	7.96	5.14	5.79	7.04	10.74	18.00
54	7.50	4.59	6.66	30.23	6.63	6.42	9.50	15.29
55	7.61	5.27	10.20	28.85	7.55	8.55	27.74	28.61
56	9.21	8.11	14.79	10.42	7.75	9.54	7.22	27.21
57	10.85	7.14	11.25	16.24	6.93	5.11	16.08	29.34
62	18.18	7.59	14.11	17.81	4.78	9.09	10.74	29.69
65	3.68	5.26	15.91	22.61	18.57	6.13	6.52	29.75
70	1.56	4.53	3.12	1.27	5.15	13.90	6.38	13.21
71	4.32	N/A	4.32	12.96	22.68	N/A	15.12	4.32
72	26.84	3.87	17.62	32.25	23.00	5.51	13.33	16.72
73	30.89	9.92	7.75	N/A	20.33	25.61	11.41	N/A
74	7.97	N/A	1.78	5.49	5.77	N/A	3.52	0.55
77	6.12	8.86	7.87	N/A	2.77	4.02	5.39	4.76
80	N/A	N/A	3.92	N/A	4.07	N/A	N/A	12.29
81	9.41	N/A	N/A	5.50	N/A	N/A	8.38	32.42
82	N/A	N/A	5.42	N/A	2.07	N/A	N/A	23.16
83	2.67	N/A	N/A	24.88	N/A	N/A	5.91	N/A
84	17.14	N/A	N/A	1.83	N/A	N/A	4.70	N/A
85	3.03	N/A	N/A	9.74	N/A	N/A	19.49	N/A
88	2.04	N/A	N/A	N/A	N/A	N/A	9.12	N/A
89	4.81	N/A	N/A	1.35	N/A	N/A	5.00	N/A
90	1.76	N/A	N/A	1.82	N/A	N/A	1.81	N/A
91	11.74	N/A	N/A	14.41	N/A	N/A	6.28	17.35
92	1.00	N/A	N/A	4.57	N/A	N/A	1.79	N/A
93	2.08	N/A	N/A	28.73	N/A	N/A	6.74	N/A
94	1.16	N/A	N/A	1.73	N/A	N/A	1.12	N/A
96	1.23	N/A	N/A	2.04	N/A	N/A	1.91	N/A
97	1.40	N/A	N/A	5.39	N/A	N/A	2.59	N/A
98	1.65	N/A	N/A	3.81	N/A	N/A	2.01	N/A
101	2.05	N/A	N/A	7.37	N/A	N/A	4.17	N/A
102	5.29	N/A	N/A	3.36	N/A	N/A	2.20	N/A
103	24.57	N/A	N/A	1.22	N/A	N/A	0.75	N/A
201	N/A	N/A	N/A	10.89	N/A	N/A	4.88	N/A
202	4.65	N/A	N/A	15.33	N/A	N/A	6.84	N/A
203	3.06	N/A	N/A	7.90	N/A	N/A	2.30	N/A
231	5.22	8.56	16.87	7.52	4.61	9.18	13.53	13.84
401	3.15	6.65	12.59	26.59	2.80	6.30	27.29	24.49
402	9.60	4.52	4.52	22.59	33.89	25.98	22.59	21.46
403	9.82	5.04	3.60	12.59	28.20	11.08	7.58	23.50
411	2.08	3.27	15.63	22.40	24.00	4.18	9.38	10.60
412	2.01	7.16	27.51	18.16	23.01	7.40	4.67	8.17
413	0.90	N/A	10.24	0.33	31.74	N/A	5.88	19.94
414	2.78	5.31	27.54	13.67	6.88	6.59	18.92	14.40
415	6.00	N/A	2.37	8.01	5.74	N/A	4.67	29.22
432	17.54	8.62	11.45	21.12	26.31	4.61	7.43	19.73
433	5.30	8.04	12.71	26.43	14.62	9.21	14.23	21.37
503	12.97	3.28	5.07	5.27	2.02	27.17	8.64	10.73
1L	25.42	9.20	10.49	7.74	29.51	9.27	8.60	N/A
57a	9.36	4.99	13.56	N/A	3.43	4.94	13.26	8.85
80A	N/A	N/A	3.65	N/A	3.40	N/A	N/A	N/A
80B	N/A	N/A	N/A	N/A	2.11	N/A	N/A	N/A
84a	15.54	N/A	N/A	3.09	N/A	N/A	3.01	N/A
85a	6.21	N/A	N/A	N/A	N/A	N/A	5.14	N/A
88a	N/A	N/A	5.97	N/A	N/A	N/A	N/A	4.81
98a	1.00	N/A	N/A	4.37	N/A	N/A	5.08	N/A
A	11.64	6.37	7.64	11.37	8.56	8.27	14.64	8.70
B	13.39	7.09	10.18	9.69	11.27	6.37	12.64	10.97
C	12.95	6.14	8.82	14.00	4.12	7.94	14.32	27.68
E	15.31	8.81	6.37	9.61	7.55	6.70	10.57	29.51
PH1	N/A	N/A	N/A	1.01	N/A	N/A	2.59	N/A
PH2	N/A	N/A	N/A	1.38	N/A	N/A	5.32	N/A
PH3	N/A	N/A	N/A	1.77	N/A	N/A	4.01	N/A
PH4	N/A	N/A	1.06	N/A	N/A	N/A	N/A	1.17
PH5	N/A	N/A	2.06	N/A	N/A	N/A	N/A	1.35
PH6	N/A	N/A	2.28	N/A	N/A	N/A	N/A	3.07
234/235	1.20	N/A	3.86	2.40	2.41	N/A	4.46	1.43
501/504	5.06	13.50	4.58	3.75	32.06	27.00	2.53	7.00

*17 (Circular)	3.21	6.52	9.22	5.61				
*76 (Circular)	10.29	12.27	6.60	7.03				
*434 (Circular)	24.31	6.65	5.84	21.46				

Appendix D
Signs Posted in Buses

Aloha!

Over the next few weeks, a survey team wearing vests like this, will be asking riders how they use TheBus.
Please show your aloha and kokua.
Mahalo for helping us improve our services to you.

DEPARTMENT OF TRANSPORTATION SERVICES
CITY & COUNTY OF HONOLULU

CITY AND COUNTY OF HONOLULU
STATE OF HAWAII

TheBus
City and County of Honolulu

Appendix E: List of Unique Unlinked Weighting Factors by Route, Time Period, Direction, Boarding Segment and Alighting Segment

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
1	East	A	A	E	23.25
1	East	A	A	F	12.58498978
1	East	A	A	G	18.125
1	East	A	A	H	1.783193434
1	East	A	A	I	1.777777778
1	East	A	A	J	6.486400484
1	East	A	A	K	3.487934022
1	East	A	A	L	3.578359763
1	East	A	A	M	1.024347417
1	East	A	B	D	23.25
1	East	A	B	F	2.342094814
1	East	A	B	G	18.125
1	East	A	B	H	2.903742589
1	East	A	B	I	1.777777778
1	East	A	B	K	1.460502768
1	East	A	B	M	1.166666667
1	East	A	C	D	23.25
1	East	A	C	F	11.92957668
1	East	A	C	G	18.125
1	East	A	C	H	13.57142857
1	East	A	C	I	5.307720136
1	East	A	C	J	1.375
1	East	A	C	K	1.859785912
1	East	A	C	L	8.5
1	East	A	C	M	1.166666667
1	East	A	D	F	14.63698371
1	East	A	D	G	18.125
1	East	A	D	I	9.117223636
1	East	A	D	J	1.375
1	East	A	D	K	4.56372541
1	East	A	D	L	4.161814549
1	East	A	D	M	1.166666667
1	East	A	E	G	12.34815602
1	East	A	E	H	16.1
1	East	A	E	I	18.375
1	East	A	E	J	22.81818182
1	East	A	E	K	13.42105263
1	East	A	E	M	1.166666667
1	East	A	F	G	22.29083798
1	East	A	F	H	16.1
1	East	A	F	J	22.81818182
1	East	A	F	K	13.42105263
1	East	A	F	L	14.18181818
1	East	A	F	M	2.261641591
1	East	A	G	B	4.333333333
1	East	A	G	J	22.81818182
1	East	A	G	L	14.18181818
1	East	A	G	M	3.273469385
1	East	A	H	I	18.375
1	East	A	H	J	22.81818182
1	East	A	H	K	13.42105263
1	East	A	H	L	14.18181818
1	East	A	H	M	2.027637123
1	East	A	I	A	4.333333333
1	East	A	I	J	22.81818182
1	East	A	I	K	13.42105263
1	East	A	I	L	14.18181818
1	East	A	I	M	3.656273863
1	East	A	J	K	13.42105263
1	East	A	J	L	14.18181818
1	East	A	J	M	3.894905994
1	East	A	K	H	16.1
1	East	A	K	K	13.42105263
1	East	A	K	L	14.18181818
1	East	A	K	M	7.862770564
1	East	A	L	K	13.42105263
1	East	A	L	M	7.510737857
1	East	A	M	H	16.1
1	East	A	M	I	18.375
1	East	A	M	J	22.81818182
1	East	A	M	K	13.42105263
1	East	A	M	M	17.75

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
1	East	A	N	H	16.1
1	East	A	P	P	17.75
1	East	M	A	C	16.37850211
1	East	M	A	D	9.163670044
1	East	M	A	E	9.596627734
1	East	M	A	F	8.594360656
1	East	M	A	G	10.23675795
1	East	M	A	H	4.923836153
1	East	M	A	I	3.270740706
1	East	M	A	J	2.261350855
1	East	M	A	K	2.371564456
1	East	M	A	L	1.807135889
1	East	M	A	M	2.154761905
1	East	M	B	D	9.163670044
1	East	M	B	E	9.596627734
1	East	M	B	F	8.594360656
1	East	M	B	G	10.23675795
1	East	M	B	H	4.923836153
1	East	M	B	I	3.270740706
1	East	M	B	J	2.261350855
1	East	M	B	K	2.371564456
1	East	M	B	L	1.807135889
1	East	M	B	P	2.154761905
1	East	M	C	A	16.37850211
1	East	M	C	F	8.594360656
1	East	M	C	G	10.23675795
1	East	M	C	H	4.923836153
1	East	M	C	I	3.270740706
1	East	M	C	J	2.261350855
1	East	M	C	K	2.371564456
1	East	M	C	L	1.807135889
1	East	M	C	M	2.154761905
1	East	M	D	A	1.888888889
1	East	M	D	F	13.43137255
1	East	M	D	J	5.75
1	East	M	D	K	1.005555085
1	East	M	D	L	6.129876597
1	East	M	D	M	2.154761905
1	East	M	E	F	13.43137255
1	East	M	E	K	13.74985212
1	East	M	E	L	10.05831283
1	East	M	F	G	13.43137255
1	East	M	F	J	9.697730946
1	East	M	F	K	5.065325208
1	East	M	F	L	1.64684197
1	East	M	F	M	2.154761905
1	East	M	G	I	13.43137255
1	East	M	G	J	25.93844517
1	East	M	G	K	9.472344993
1	East	M	G	L	10.10511874
1	East	M	G	M	2.154761905
1	East	M	H	A	1.888888889
1	East	M	H	I	13.43137255
1	East	M	H	J	6.949335924
1	East	M	H	K	6.309546481
1	East	M	H	L	4.753249407
1	East	M	H	M	2.154761905
1	East	M	I	B	1.888888889
1	East	M	I	J	18.31894119
1	East	M	I	K	5.248929689
1	East	M	I	L	6.89177832
1	East	M	I	M	2.154761905
1	East	M	J	A	1.888888889
1	East	M	J	F	13.43137255
1	East	M	J	K	13.05555556
1	East	M	J	M	2.774050219
1	East	M	K	A	1.888888889
1	East	M	K	I	13.43137255
1	East	M	K	K	13.05555556
1	East	M	K	M	5.076315484
1	East	M	L	B	1.888888889
1	East	M	L	H	13.43137255

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
1	East	M	L	J	13.05555556
1	East	M	L	M	9.183268486
1	East	M	M	D	1.888888889
1	East	M	M	H	13.43137255
1	East	M	M	J	13.05555556
1	East	M	M	M	9.824329775
1	East	O	A	C	8.625
1	East	O	A	H	20.58333333
1	East	O	A	K	13
1	East	O	A	L	9
1	East	O	A	M	7.4
1	East	O	B	F	8.625
1	East	O	B	I	20.58333333
1	East	O	B	K	13
1	East	O	B	M	7.4
1	East	O	C	E	8.625
1	East	O	C	H	20.58333333
1	East	O	C	L	9
1	East	O	C	M	7.4
1	East	O	D	F	8.625
1	East	O	D	J	20.58333333
1	East	O	D	K	13
1	East	O	D	L	9
1	East	O	D	M	7.4
1	East	O	E	K	13
1	East	O	F	I	20.58333333
1	East	O	F	L	9
1	East	O	F	M	7.4
1	East	O	G	K	11.21052632
1	East	O	G	L	21.66666667
1	East	O	G	N	15.65625
1	East	O	H	J	15.83333333
1	East	O	H	K	11.21052632
1	East	O	H	L	21.66666667
1	East	O	H	M	15.65625
1	East	O	I	J	15.83333333
1	East	O	I	K	11.21052632
1	East	O	I	L	21.66666667
1	East	O	I	M	15.65625
1	East	O	J	K	11.21052632
1	East	O	J	L	21.66666667
1	East	O	J	M	15.65625
1	East	O	K	L	21.66666667
1	East	O	K	M	15.65625
1	East	O	M	I	15.83333333
1	East	O	M	K	11.21052632
1	East	O	M	L	21.66666667
1	East	P	A	C	14.61111111
1	East	P	A	G	6.357142857
1	East	P	A	J	1.6
1	East	P	A	K	3.3
1	East	P	A	L	3.333333333
1	East	P	A	M	2.2
1	East	P	B	C	14.61111111
1	East	P	B	G	6.357142857
1	East	P	B	J	1.6
1	East	P	B	K	3.3
1	East	P	B	M	2.2
1	East	P	C	F	14.61111111
1	East	P	C	G	6.357142857
1	East	P	C	J	1.6
1	East	P	C	K	3.3
1	East	P	C	L	3.333333333
1	East	P	C	M	2.2
1	East	P	D	C	14.61111111
1	East	P	D	G	6.357142857
1	East	P	D	J	1.6
1	East	P	D	K	3.3
1	East	P	D	L	3.333333333
1	East	P	E	H	26.13333333
1	East	P	E	J	12.15789474
1	East	P	E	M	5.985714286

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
1	East	P	F	J	12.15789474
1	East	P	F	K	9.565217391
1	East	P	F	L	10.85365854
1	East	P	F	M	5.985714286
1	East	P	G	A	1.555555556
1	East	P	G	H	26.13333333
1	East	P	G	K	9.565217391
1	East	P	G	L	10.85365854
1	East	P	G	M	5.985714286
1	East	P	H	A	1.555555556
1	East	P	H	J	12.15789474
1	East	P	H	K	9.565217391
1	East	P	H	L	10.85365854
1	East	P	H	M	5.985714286
1	East	P	I	G	26.13333333
1	East	P	I	J	12.15789474
1	East	P	I	K	9.565217391
1	East	P	I	L	10.85365854
1	East	P	I	M	5.985714286
1	East	P	J	D	1.555555556
1	East	P	J	K	9.565217391
1	East	P	J	L	10.85365854
1	East	P	J	M	5.985714286
1	East	P	K	H	26.13333333
1	East	P	K	K	9.565217391
1	East	P	K	L	10.85365854
1	East	P	K	M	5.985714286
1	East	P	L	G	26.13333333
1	East	P	L	J	12.15789474
1	East	P	L	M	5.985714286
1	East	P	M	D	1.555555556
1	East	P	M	I	26.13333333
1	East	P	M	K	9.565217391
1	East	P	M	L	10.85365854
1	East	P	M	M	5.985714286
1	West	A	A	A	4.466666667
1	West	A	B	S	3.875
1	West	A	C	I	4.466666667
1	West	A	D	L	7.346153846
1	West	A	D	O	7.363636364
1	West	A	F	H	4.466666667
1	West	A	F	L	7.346153846
1	West	A	F	P	7.363636364
1	West	A	F	Q	4.842105263
1	West	A	F	U	8
1	West	A	G	I	4.466666667
1	West	A	G	L	7.346153846
1	West	A	G	O	7.363636364
1	West	A	G	Q	4.842105263
1	West	A	G	S	3.875
1	West	A	G	U	8
1	West	A	H	A	4.466666667
1	West	A	H	L	7.346153846
1	West	A	H	O	7.363636364
1	West	A	H	Q	4.842105263
1	West	A	I	E	4.466666667
1	West	A	I	O	7.363636364
1	West	A	I	Q	4.842105263
1	West	A	I	S	3.875
1	West	A	I	U	8
1	West	A	L	N	7.346153846
1	West	A	L	O	7.363636364
1	West	A	L	R	4.842105263
1	West	A	L	S	3.875
1	West	A	L	U	8
1	West	A	M	P	18.2
1	West	A	M	Q	21.09090909
1	West	A	M	U	14.1
1	West	A	N	P	18.2
1	West	A	N	Q	21.09090909
1	West	A	N	S	24.55555556
1	West	A	N	U	14.1

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
1	West	A	O	P	18.2
1	West	A	O	Q	21.09090909
1	West	A	O	S	24.55555556
1	West	A	O	U	14.1
1	West	A	P	E	4.466666667
1	West	A	P	Q	21.09090909
1	West	A	P	S	24.55555556
1	West	A	P	U	14.1
1	West	A	Q	M	7.346153846
1	West	A	Q	O	18.2
1	West	A	Q	S	24.55555556
1	West	A	Q	U	14.1
1	West	A	R	O	18.2
1	West	A	R	T	24.55555556
1	West	A	R	U	14.1
1	West	A	T	Q	21.09090909
1	West	A	T	U	14.1
1	West	A	U	O	18.2
1	West	A	U	R	21.09090909
1	West	M	A	G	8.090909091
1	West	M	A	P	3.428571429
1	West	M	C	T	3
1	West	M	E	I	10
1	West	M	E	L	4.704545455
1	West	M	E	N	3.769230769
1	West	M	E	R	2.04
1	West	M	F	H	8.090909091
1	West	M	F	I	10
1	West	M	F	L	4.704545455
1	West	M	F	N	3.769230769
1	West	M	F	P	3.428571429
1	West	M	F	R	2.04
1	West	M	F	U	2.785714286
1	West	M	G	H	8.090909091
1	West	M	G	I	10
1	West	M	G	L	4.704545455
1	West	M	G	N	3.769230769
1	West	M	G	P	3.428571429
1	West	M	G	R	2.04
1	West	M	G	U	2.785714286
1	West	M	H	I	10
1	West	M	H	L	4.704545455
1	West	M	H	N	3.769230769
1	West	M	H	P	3.428571429
1	West	M	H	R	2.04
1	West	M	H	T	3
1	West	M	H	U	2.785714286
1	West	M	I	L	4.704545455
1	West	M	I	N	3.769230769
1	West	M	I	P	3.428571429
1	West	M	I	R	2.04
1	West	M	I	T	3
1	West	M	I	U	2.785714286
1	West	M	L	G	8.090909091
1	West	M	L	N	14.16666667
1	West	M	L	P	13.26666667
1	West	M	L	R	13.10416667
1	West	M	L	T	9.6
1	West	M	L	U	7.57
1	West	M	M	O	14.16666667
1	West	M	M	P	13.26666667
1	West	M	M	R	13.10416667
1	West	M	M	U	7.57
1	West	M	N	Q	13.26666667
1	West	M	N	R	13.10416667
1	West	M	N	T	9.6
1	West	M	N	U	7.57
1	West	M	O	P	13.26666667
1	West	M	O	R	13.10416667
1	West	M	O	T	9.6
1	West	M	O	U	7.57
1	West	M	P	R	13.10416667

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
1	West	M	P	T	9.6
1	West	M	P	U	7.57
1	West	M	Q	H	8.090909091
1	West	M	Q	N	14.16666667
1	West	M	Q	S	13.10416667
1	West	M	Q	T	9.6
1	West	M	Q	U	7.57
1	West	M	R	P	13.26666667
1	West	M	R	S	13.10416667
1	West	M	R	T	9.6
1	West	M	R	U	7.57
1	West	M	S	P	13.26666667
1	West	M	S	U	7.57
1	West	M	T	G	8.090909091
1	West	M	T	O	14.16666667
1	West	M	T	U	7.57
1	West	M	U	G	8.090909091
1	West	M	U	O	14.16666667
1	West	M	U	P	13.26666667
1	West	M	U	R	13.10416667
1	West	M	U	U	7.57
1	West	O	A	H	26.875
1	West	O	B	O	15.64285714
1	West	O	B	P	17.73684211
1	West	O	B	U	9.736842105
1	West	O	E	H	26.875
1	West	O	E	P	17.73684211
1	West	O	E	T	9.736842105
1	West	O	F	L	26.875
1	West	O	F	U	9.736842105
1	West	O	G	I	26.875
1	West	O	G	N	15.64285714
1	West	O	G	P	17.73684211
1	West	O	G	S	17.8
1	West	O	G	U	9.736842105
1	West	O	H	M	15.64285714
1	West	O	H	P	17.73684211
1	West	O	H	U	9.736842105
1	West	O	I	O	15.64285714
1	West	O	I	P	17.73684211
1	West	O	I	S	17.8
1	West	O	I	U	9.736842105
1	West	O	L	N	15.64285714
1	West	O	L	P	17.73684211
1	West	O	L	U	9.736842105
1	West	O	M	O	15.64285714
1	West	O	M	P	17.73684211
1	West	O	M	R	17.8
1	West	O	M	T	9.736842105
1	West	O	N	P	17.73684211
1	West	O	N	R	17.8
1	West	O	O	N	15.64285714
1	West	O	O	Q	17.73684211
1	West	O	O	S	17.8
1	West	O	O	U	9.736842105
1	West	O	Q	S	15.5
1	West	O	Q	U	21.27272727
1	West	O	R	S	15.5
1	West	O	R	U	21.27272727
1	West	P	A	U	3.4
1	West	P	E	L	16.6875
1	West	P	E	P	6.696969697
1	West	P	F	H	12.85714286
1	West	P	F	I	16.6875
1	West	P	F	M	11.72222222
1	West	P	F	P	6.696969697
1	West	P	F	Q	5.0625
1	West	P	F	T	4.75
1	West	P	F	U	3.4
1	West	P	G	H	12.85714286
1	West	P	G	I	16.6875
1	West	P	G	M	11.72222222

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
1	West	P	G	O	6.696969697
1	West	P	G	Q	5.0625
1	West	P	G	T	4.75
1	West	P	G	U	3.4
1	West	P	H	L	16.6875
1	West	P	H	N	11.72222222
1	West	P	H	O	6.696969697
1	West	P	H	Q	5.0625
1	West	P	H	U	3.4
1	West	P	I	C	7.75
1	West	P	I	L	16.6875
1	West	P	I	O	6.696969697
1	West	P	I	R	5.0625
1	West	P	I	T	4.75
1	West	P	I	U	3.4
1	West	P	L	F	7.75
1	West	P	L	N	11.72222222
1	West	P	L	O	6.696969697
1	West	P	L	Q	5.0625
1	West	P	L	U	3.4
1	West	P	M	N	11.72222222
1	West	P	M	O	6.696969697
1	West	P	M	Q	5.0625
1	West	P	M	U	3.4
1	West	P	N	P	6.696969697
1	West	P	N	Q	5.0625
1	West	P	N	T	4.75
1	West	P	N	U	3.4
1	West	P	O	P	25.25
1	West	P	O	S	15.875
1	West	P	O	T	11.66666667
1	West	P	O	U	10.10909091
1	West	P	P	C	7.75
1	West	P	P	L	16.6875
1	West	P	P	P	25.25
1	West	P	P	R	15.875
1	West	P	P	T	11.66666667
1	West	P	P	U	10.10909091
1	West	P	Q	G	7.75
1	West	P	Q	O	25.25
1	West	P	Q	S	15.875
1	West	P	Q	T	11.66666667
1	West	P	Q	U	10.10909091
1	West	P	R	S	15.875
1	West	P	R	T	11.66666667
1	West	P	R	U	10.10909091
1	West	P	S	T	11.66666667
1	West	P	S	U	10.10909091
1	West	P	U	C	7.75
1	West	P	U	H	12.85714286
1	West	P	U	L	16.6875
1	West	P	U	S	15.875
1	West	P	U	U	10.10909091
2	East	A	A	B	3.132211045
2	East	A	B	D	4.449006894
2	East	A	C	E	7.499065777
2	East	A	D	E	7.513510046
2	East	A	E	I	10.45357919
2	East	A	F	G	5.973618196
2	East	A	G	I	13.03503924
2	East	A	H	J	12.66600159
2	East	A	I	J	11.56713434
2	East	A	J	L	13.96049413
2	East	A	K	H	6.371206956
2	East	A	L	M	10.16359205
2	East	A	M	D	11.78121032
2	East	A	N	H	10.01801339
2	East	M	A	A	2.740939573
2	East	M	B	D	3.796462926
2	East	M	C	C	5.016496318
2	East	M	D	F	5.069329505
2	East	M	E	F	11.09227429

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
2	East	M	F	G	5.009900684
2	East	M	G	H	6.660966148
2	East	M	H	B	6.486600158
2	East	M	I	A	4.855730171
2	East	M	J	L	10.80984709
2	East	M	K	I	6.673959493
2	East	M	L	A	9.438943317
2	East	M	M	A	4.729026361
2	East	M	N	A	7.242721517
2	East	O	A	B	6.2
2	East	O	C	E	9.312955994
2	East	O	D	F	14.32971057
2	East	O	E	J	13.22098844
2	East	O	F	H	7.444166488
2	East	O	H	J	9.21610745
2	East	O	I	J	5.067115824
2	East	O	J	K	22.42547407
2	East	O	K	A	24.11528746
2	East	O	M	K	12.3656221
2	East	O	N	A	6.368760256
2	East	P	A	B	6.029676412
2	East	P	B	D	6.489627238
2	East	P	C	A	7.917521393
2	East	P	D	H	7.604343786
2	East	P	E	C	17.66517443
2	East	P	F	G	10.41315545
2	East	P	G	I	7.484455483
2	East	P	H	C	11.77058465
2	East	P	I	K	7.738143326
2	East	P	J	K	14.02226047
2	East	P	K	A	13.40900375
2	East	P	L	K	12.34237845
2	East	P	M	C	6.635005707
2	East	P	N	H	6.614478847
2	West	A	A	B	2.425
2	West	A	D	H	6.020105497
2	West	A	E	J	6.043349148
2	West	A	F	J	14.11885746
2	West	A	G	J	19.97094457
2	West	A	H	L	19.65483092
2	West	A	I	L	11.04538275
2	West	A	J	M	21.32217545
2	West	A	K	O	13.66726653
2	West	A	L	R	12.83049511
2	West	A	M	D	8.839228259
2	West	A	N	P	26.51635657
2	West	A	Q	Q	8.817091449
2	West	A	R	O	6.8
2	West	M	A	A	2.314606742
2	West	M	C	F	4.790213204
2	West	M	D	F	6.567181663
2	West	M	E	G	5.050513216
2	West	M	F	L	16.78191571
2	West	M	H	M	24.66483377
2	West	M	I	Q	19.10628077
2	West	M	J	K	11.4144204
2	West	M	K	K	13.9377381
2	West	M	L	P	8.708621079
2	West	M	M	B	15.28017376
2	West	M	O	O	15.08512922
2	West	M	P	K	16.67344534
2	West	M	Q	D	19.41619611
2	West	M	R	K	9.284178141
2	West	M	S	D	4.379103767
2	West	O	A	E	12.84705882
2	West	O	D	H	25.88074838
2	West	O	E	J	19.94305219
2	West	O	F	L	16.85164666
2	West	O	H	J	27.24155847
2	West	O	I	L	15.52675858
2	West	O	J	P	20.01278314
2	West	O	K	A	11.68690751

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
2	West	O	L	Q	15.66622048
2	West	O	M	B	28.94299369
2	West	O	Q	F	14.93791943
2	West	O	R	S	17.66666667
2	West	P	A	D	3.568493151
2	West	P	C	F	8.096538281
2	West	P	D	F	9.270467601
2	West	P	E	A	10.00297339
2	West	P	F	J	5.927130895
2	West	P	G	J	9.297460227
2	West	P	H	K	15.84700443
2	West	P	I	L	23.42959977
2	West	P	J	C	11.45579921
2	West	P	K	O	10.63738832
2	West	P	L	O	8.20965738
2	West	P	M	O	9.267575533
2	West	P	N	P	23.94096008
2	West	P	O	G	22.46886222
2	West	P	P	R	12.52832766
2	West	P	R	S	16.75
3	East	A	A	B	6.978947368
3	East	A	C	B	15.69605902
3	East	A	D	D	18.49405214
3	East	A	E	B	4.740502296
3	East	A	F	A	13.76712896
3	East	A	G	I	11.252092
3	East	A	H	J	6.743130944
3	East	A	I	J	9.765353487
3	East	A	J	F	9.383513542
3	East	M	A	B	2.325161537
3	East	M	B	C	6.766405834
3	East	M	C	D	6.832497739
3	East	M	D	A	8.555173492
3	East	M	E	A	6.346667341
3	East	M	F	C	6.417815065
3	East	M	G	B	7.695699742
3	East	M	H	J	6.060693595
3	East	M	I	D	7.428817994
3	East	M	J	D	4.200239395
3	East	O	A	B	11.20689655
3	East	O	C	D	19.49820996
3	East	O	D	A	11.49172993
3	East	O	E	H	8.96917658
3	East	O	F	A	14.40778443
3	East	O	G	D	19.83942863
3	East	O	H	F	15.30609482
3	East	O	I	E	4.625
3	East	P	A	B	4.023529412
3	East	P	C	D	9.593119299
3	East	P	D	A	12.94631146
3	East	P	E	H	14.0972058
3	East	P	F	B	14.26447992
3	East	P	G	F	9.091040393
3	East	P	H	G	20.66810255
3	East	P	I	J	5.337634976
3	East	P	J	A	2.473194
3	West	A	A	C	4.089655172
3	West	A	D	H	4.363636364
3	West	A	F	H	4.947397692
3	West	A	G	H	10.61392667
3	West	A	H	H	13.24830435
3	West	A	I	K	14.12847
3	West	A	J	J	7.380544444
3	West	A	K	M	7.983035714
3	West	A	L	I	15.464
3	West	A	M	H	5.974725
3	West	A	N	I	10.28004167
3	West	M	A	D	4.48
3	West	M	D	F	4.207038462
3	West	M	E	A	5.794599231
3	West	M	F	I	8.25532
3	West	M	G	I	10.18156

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
3	West	M	H	B	5.57234
3	West	M	I	A	10.20008077
3	West	M	J	J	9.33883
3	West	M	K	A	9.669425926
3	West	M	L	A	12.56244348
3	West	M	M	I	9.41622375
3	West	M	N	D	9.906383
3	West	O	A	B	13.77777778
3	West	O	F	H	29.05986
3	West	O	G	H	29.09333871
3	West	P	A	D	5.283384
3	West	P	B	H	4.160145
3	West	P	C	H	24.0364
3	West	P	D	A	5.946874359
3	West	P	E	H	8.0602825
3	West	P	F	H	4.506825
3	West	P	G	I	14.21383333
3	West	P	H	H	6.920242308
3	West	P	I	J	14.82051667
3	West	P	J	K	11.36039615
3	West	P	K	F	12.75175217
3	West	P	L	M	14.28316667
3	West	P	M	N	6.032211
3	West	P	N	K	14.144494
4	East	A	A	D	5.874762023
4	East	A	B	D	13.54182432
4	East	A	C	E	14.91370849
4	East	A	D	E	9.88610074
4	East	A	E	D	9.121528201
4	East	A	F	G	10.57457164
4	East	A	G	E	3.071420562
4	East	A	H	H	7.25632682
4	East	A	I	I	10.52976413
4	East	A	K	G	9.110859747
4	East	M	A	B	4.887323944
4	East	M	D	E	7.133639599
4	East	M	E	C	7.556666994
4	East	M	F	G	10.80358779
4	East	M	G	C	6.44943608
4	East	M	H	J	15.73241355
4	East	M	I	G	8.737463856
4	East	M	J	A	4.381178458
4	East	M	K	E	2.456115196
4	East	O	B	H	17.62843491
4	East	O	F	I	26.95088566
4	East	O	I	E	25.29134837
4	East	O	K	E	14.03968551
4	East	P	A	B	3.524857214
4	East	P	B	B	5.088141345
4	East	P	C	E	7.100266486
4	East	P	D	E	9.459362579
4	East	P	E	D	10.16432927
4	East	P	F	B	5.490697677
4	East	P	G	F	8.164923489
4	East	P	H	B	9.769230769
4	East	P	J	B	8.861929153
4	East	P	K	C	3.982889507
4	West	A	A	C	3.124078957
4	West	A	B	D	5.341757691
4	West	A	C	D	18.26439331
4	West	A	D	E	7.114888983
4	West	A	E	C	6.812837314
4	West	A	F	A	5.499901834
4	West	A	G	C	10.3095563
4	West	A	H	A	6.783783784
4	West	M	A	C	3.250037838
4	West	M	B	C	4.58965783
4	West	M	C	E	5.373789202
4	West	M	D	E	12.1620376
4	West	M	E	A	4.87205212
4	West	M	F	A	3.757192435
4	West	M	G	A	6.610064701

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
4	West	M	H	E	9.142722863
4	West	M	I	H	5.376900834
4	West	M	J	E	1.145080733
4	West	O	A	E	10.9197554
4	West	O	B	C	8.513426321
4	West	O	C	E	15.70752049
4	West	O	E	B	13.88580114
4	West	O	G	H	24.34541211
4	West	O	H	F	16.65829552
4	West	P	A	B	4.978611884
4	West	P	B	D	8.43300259
4	West	P	C	D	10.92150228
4	West	P	E	C	7.776591762
4	West	P	F	E	7.921524686
4	West	P	G	H	15.68262743
4	West	P	H	B	7.726805643
4	West	P	I	G	0.617347874
4	West	P	J	H	0.398288951
5	East	A	A	A	1.103933215
5	East	A	B	E	11.62054202
5	East	A	C	F	5.166666667
5	East	M	A	A	1.8287484
5	East	M	B	C	7.45703231
5	East	M	C	G	22
5	East	M	E	A	4.5
5	East	O	A	C	2.112825821
5	East	O	B	F	10.50198717
5	East	O	C	E	5.095638745
5	East	O	G	A	10
5	East	P	A	B	4.732347428
5	East	P	B	D	7.161858115
5	East	P	C	A	25.15
5	East	P	G	B	23.52565164
5	West	A	A	G	1.509161301
5	West	A	B	G	7.45703231
5	West	A	C	G	2.609961309
5	West	A	D	F	2.174967757
5	West	A	E	G	4.308507557
5	West	A	F	G	10.06699362
5	West	A	G	A	10.03148394
5	West	M	A	C	3.479948411
5	West	M	C	G	5.63420219
5	West	M	D	G	24.98105824
5	West	O	C	G	14.75
5	West	O	F	G	27.12495503
5	West	P	A	G	2.846153846
5	West	P	C	F	4.629574226
5	West	P	D	G	18.64258078
5	West	P	F	D	18.22192767
6	East	A	A	H	16.97142857
6	East	A	D	E	8.729844991
6	East	A	E	D	8.321183966
6	East	A	F	G	6.778136305
6	East	A	G	H	10.04507587
6	East	A	H	I	14.66071426
6	East	M	A	C	9.609756098
6	East	M	D	B	8.055789163
6	East	M	E	B	13.7909546
6	East	M	F	E	9.154006951
6	East	M	G	E	6.991274166
6	East	M	H	D	9.920598666
6	East	M	I	C	0.845505568
6	East	O	A	C	16.86783608
6	East	O	B	E	9.864231628
6	East	O	C	E	5.008837616
6	East	O	D	I	3.403159912
6	East	O	E	A	8.532560358
6	East	O	F	G	12.67553764
6	East	O	G	I	8.285954568
6	East	O	H	E	2.923399555
6	East	P	A	E	10.30812205
6	East	P	B	C	2.610733304

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
6	East	P	C	C	8.328229846
6	East	P	D	F	15.12515516
6	East	P	E	A	7.229443443
6	East	P	F	C	10.46841582
6	East	P	G	H	8.713404605
6	East	P	H	E	9.68886751
6	East	P	I	E	2.480149667
6	West	A	A	G	5.352941176
6	West	A	F	G	9.198395993
6	West	A	G	J	8.54242459
6	West	A	H	H	11.85351834
6	West	A	I	I	18.12552562
6	West	A	J	A	7.186797329
6	West	A	K	H	21.07657491
6	West	A	L	J	7.451978621
6	West	M	A	B	3.25
6	West	M	D	H	6.380952381
6	West	M	H	E	17.27473564
6	West	M	I	F	13.73673804
6	West	M	K	G	13.64552042
6	West	M	L	G	12.02677472
6	West	O	A	G	3.485361842
6	West	O	B	H	8
6	West	O	F	G	7.17270557
6	West	O	G	A	5.951419749
6	West	O	H	I	14.86210899
6	West	O	I	K	12.88926266
6	West	O	J	G	5.366142006
6	West	O	K	G	10.35744321
6	West	O	L	G	8.927129624
6	West	P	A	J	7
6	West	P	E	G	14.15
6	West	P	H	G	18.87356318
6	West	P	I	L	14.76675475
6	West	P	K	L	15.26983056
6	West	P	L	C	6.727272727
7	East	A	A	C	17.74
7	East	A	B	C	7.898232662
7	East	A	C	C	18.28088593
7	East	A	D	C	3.782252261
7	East	A	E	A	3.349641708
7	East	A	F	G	12.79291206
7	East	A	G	B	11.25
7	East	M	A	B	2.146984372
7	East	M	B	D	4.827933768
7	East	M	C	A	3.578307286
7	East	M	D	A	3.902765201
7	East	M	E	G	4.83905804
7	East	M	F	A	13.15842383
7	East	M	G	D	5.397496462
7	East	M	H	C	1.8
7	East	O	A	C	11.43018882
7	East	O	D	G	4.171601758
7	East	O	E	G	26.63150562
7	East	P	A	B	10.14285714
7	East	P	C	E	5.710459296
7	East	P	D	E	10.56805779
7	East	P	E	G	24.5846397
7	East	P	F	B	14.37503065
7	East	P	G	A	28.89132189
7	East	P	H	E	9.2
7	West	A	A	E	16.0004103
7	West	A	B	E	28.36689196
7	West	A	C	E	19.1019631
7	West	A	D	E	21.69232914
7	West	A	G	H	13.34912563
7	West	A	H	A	9.964168771
7	West	M	A	B	4.352371168
7	West	M	B	E	4.08564148
7	West	M	C	E	11.05752573
7	West	M	D	E	3.098315577
7	West	M	F	B	1.620965255

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
7	West	M	G	B	2.402842613
7	West	M	H	A	4.437998783
7	West	O	A	E	16.88108178
7	West	O	C	E	16.27851708
7	West	O	D	E	19.73445738
7	West	O	F	A	4.560951256
7	West	O	G	H	3.837873618
7	West	O	H	A	13.34912563
7	West	P	A	E	8.076221004
7	West	P	B	E	10.0396549
7	West	P	C	E	8.654683114
7	West	P	D	E	12.10320723
7	West	P	E	A	5.109218915
7	West	P	F	D	4.093731859
7	West	P	G	A	3.464415936
7	West	P	H	A	14.82865372
8	East	A	B	C	1
8	East	M	A	A	11.2411358
8	East	M	B	C	10.488485
8	East	M	C	B	4.345774923
8	East	M	D	F	12.36799783
8	East	M	E	A	8.13539413
8	East	M	F	A	8.06210229
8	East	M	G	A	5.377788686
8	East	O	A	D	15.86666667
8	East	O	C	E	15.72109946
8	East	O	E	G	15.50122395
8	East	O	G	A	13.41240654
8	East	P	A	A	9.76119403
8	East	P	C	E	7.17736509
8	East	P	D	G	6.25074684
8	East	P	F	A	4.974683571
8	East	P	G	A	2.231736497
8	West	A	A	G	16.07142857
8	West	M	A	B	10.20689655
8	West	M	C	G	8.762686044
8	West	M	D	F	20.2608822
8	West	M	E	G	27.15462635
8	West	M	F	G	14.79273617
8	West	M	G	A	9.048723198
8	West	O	A	C	4.177634822
8	West	O	B	C	5.567562198
8	West	O	D	E	12.36799783
8	West	O	E	G	15.28134843
8	West	O	F	G	10.92048401
8	West	O	G	B	4.507448098
8	West	P	A	D	3.89179665
8	West	P	B	D	4.807944638
8	West	P	C	E	7.134960526
8	West	P	D	G	20.79197857
8	West	P	E	G	9.266182501
8	West	P	F	G	12.48709707
9	East	A	B	J	8.5625
9	East	A	G	H	11.44444444
9	East	A	I	J	20.38594484
9	East	A	J	J	12.40883599
9	East	A	K	M	10.83311078
9	East	A	L	N	12.41587048
9	East	A	M	M	24.00518867
9	East	A	N	O	5
9	East	M	A	L	1.430345796
9	East	M	E	B	3.996130027
9	East	M	F	E	4.657416947
9	East	M	G	I	6.545004432
9	East	M	H	I	5.435494397
9	East	M	I	L	12.36311182
9	East	M	K	L	8.63776447
9	East	M	L	M	5.617408522
9	East	M	M	L	2.43129475
9	East	M	N	K	5.847417753
9	East	M	O	I	5.047244797
9	East	O	B	M	2.916666667

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
9	East	O	E	G	13.87552664
9	East	O	H	M	26.09794871
9	East	O	I	K	14.09535437
9	East	O	J	M	15.47001048
9	East	O	K	F	17.04983913
9	East	O	L	I	16.05621777
9	East	O	N	K	13.78759554
9	East	O	O	L	8.094057205
9	East	P	A	L	2.412505205
9	East	P	E	H	22.42453932
9	East	P	I	J	17.72104648
9	East	P	K	G	10.02609874
9	East	P	L	J	20.65677261
9	East	P	M	O	24.00518867
9	East	P	N	M	21.13277293
9	East	P	O	L	9.001945751
9	West	A	A	F	11.88888889
9	West	A	F	H	13.39092861
9	West	A	G	I	10.43917948
9	West	A	H	I	15.86206897
9	West	M	A	E	6.271038729
9	West	M	B	I	13.11052612
9	West	M	C	D	9.45845468
9	West	M	D	E	6.229038701
9	West	M	E	A	8.607777712
9	West	M	F	G	9.697822659
9	West	M	G	I	8.617247214
9	West	M	H	I	8.38862637
9	West	M	I	D	9.494359877
9	West	M	J	K	10.53414506
9	West	M	K	C	10.15604136
9	West	M	L	M	2.677501813
9	West	M	M	I	1.077155902
9	West	O	C	G	19.68627358
9	West	O	F	C	23.37428307
9	West	O	H	I	29.56536485
9	West	O	J	K	28.0265707
9	West	P	A	D	19.875
9	West	P	C	E	11.26086957
9	West	P	F	I	14.23897516
9	West	P	G	C	17.1113909
9	West	P	H	J	18.99415079
9	West	P	J	H	6.612418271
9	West	P	K	G	5.428571429
9	West	P	M	G	0.553965892
10	East	A	B	E	9.442335349
10	East	A	D	B	3.820598118
10	East	A	E	C	2.728998656
10	East	A	F	A	7.4
10	East	A	H	J	5.5
10	East	M	A	B	1.307692308
10	East	M	C	H	1.782945789
10	East	M	D	F	1.037019489
10	East	M	E	B	6.767916667
10	East	M	F	A	5.48
10	East	M	H	H	0.8
10	East	O	B	A	6.222116935
10	East	O	C	D	5.810678763
10	East	O	F	E	3.44
10	East	P	A	B	8.951115591
10	East	P	C	D	14.29947805
10	East	P	H	K	1.7
10	West	A	A	F	25.63811156
10	West	A	G	J	21
10	West	A	J	A	9.652903226
10	West	A	K	J	8.514475806
10	West	M	A	D	1.346306004
10	West	M	C	I	4.803037634
10	West	M	G	I	1.233333333
10	West	M	H	G	1.610109207
10	West	M	I	D	7.968676075
10	West	M	J	K	4

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
10	West	O	D	I	8.03203629
10	West	O	I	I	14.95491263
10	West	O	K	H	14.84575269
10	West	P	A	D	1.659231183
10	West	P	C	K	4.584717742
10	West	P	G	B	7.750356183
10	West	P	K	I	10.95238127
11	East	A	A	C	12.78802464
11	East	A	C	K	1.926229652
11	East	A	D	K	28.94695117
11	East	M	A	B	5.243625165
11	East	M	B	D	5
11	East	M	D	K	3.424408271
11	East	M	E	K	6.099727233
11	East	M	F	K	6.028385394
11	East	M	G	I	4.665756269
11	East	M	H	J	1.862021997
11	East	M	I	J	8.09016454
11	East	M	J	K	23.36445227
11	East	O	A	H	7.740589529
11	East	O	G	J	16
11	East	O	I	K	7.437386714
11	East	O	K	I	8.882058953
11	East	P	A	E	5.154447866
11	East	P	B	K	3.424408271
11	East	P	F	I	1.792463704
11	East	P	G	J	13.69763308
11	East	P	I	J	4.323315442
11	East	P	J	K	21.83060273
11	West	A	A	C	1.510068925
11	West	A	B	C	2.118852618
11	West	A	C	G	7.062842059
11	West	A	F	G	1.926229652
11	West	A	G	A	3.745446546
11	West	A	H	I	3.317395513
11	West	A	I	G	1.284153102
11	West	M	A	C	2.862591289
11	West	M	B	D	3.97136237
11	West	M	C	D	7.098512978
11	West	M	D	F	3.281724593
11	West	M	F	A	7.062842059
11	West	M	G	G	4.035909748
11	West	M	I	B	5.992714474
11	West	O	A	D	6.688297404
11	West	O	B	E	7.276867576
11	West	O	C	H	14.98178619
11	West	O	G	I	6.3
11	West	P	A	B	4.531990321
11	West	P	B	D	9.024742631
11	West	P	C	E	16.4799648
11	West	P	D	D	14.5
11	West	P	F	H	2.675318962
11	West	P	G	I	23.86384514
11	West	P	H	I	25.79007479
13	East	A	A	D	11.57232293
13	East	M	B	C	9.181434599
13	East	O	B	F	34.03125
13	East	P	B	C	9.702380952
13	West	A	A	B	10
13	West	M	A	A	8.004
13	West	O	A	B	27.38461538
13	West	P	A	B	7.925
14	East	A	A	C	4.404669314
14	East	A	B	C	11.35578808
14	East	A	C	C	11.56225695
14	East	A	D	G	12.14725209
14	East	A	E	F	8.878161586
14	East	A	F	H	5.471425164
14	East	A	H	F	5.090385872
14	East	M	A	C	4.451346688
14	East	M	D	A	4
14	East	M	F	C	3.8

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
14	East	M	H	E	2.697859955
14	East	O	F	F	25.25
14	East	P	A	E	5
14	East	P	C	F	22.91804502
14	East	P	D	E	13.7760621
14	East	P	H	H	18.66666667
14	West	A	E	B	18.09426688
14	West	A	G	H	6.400535097
14	West	A	H	I	27.35712582
14	West	A	I	K	10.53333333
14	West	M	A	E	4
14	West	M	D	E	2.477626489
14	West	M	E	F	11.1493192
14	West	M	F	H	15.3303139
14	West	M	G	H	6.503769534
14	West	M	H	F	5.264956289
14	West	M	I	J	9.926629403
14	West	O	B	E	8.258754964
14	West	O	E	E	28.01876644
14	West	P	A	I	23
14	West	P	E	B	15
14	West	P	F	G	12.87849602
14	West	P	H	F	20.02748079
14	West	P	I	B	18.25
15	East	A	E	H	14.46300469
15	East	A	G	H	4.001621852
15	East	A	H	E	2.752764043
15	East	M	A	H	2.820190639
15	East	M	B	H	1.08
15	East	M	E	H	7.774579599
15	East	M	F	H	4.649503486
15	East	M	H	A	2.221308457
15	East	O	C	G	11.8872898
15	East	O	H	D	5.830934699
15	East	P	B	E	7.774579599
15	East	P	D	H	16.46381562
15	East	P	G	C	27.55402475
15	East	P	H	F	29.26900555
15	West	A	D	A	25.33333333
15	West	M	A	B	3.538461538
15	West	M	C	A	0.866882914
15	West	M	F	A	2.972633376
15	West	M	G	D	4.115953905
15	West	M	H	A	2.000810926
15	West	O	B	G	26.42898848
15	West	P	A	B	20.23677337
15	West	P	B	G	8.460571916
15	West	P	C	H	20.35110542
15	West	P	G	D	10.31725139
16	East	A	A	G	5.928560215
16	East	A	B	G	8.363504589
16	East	A	C	G	4.2
16	East	P	B	G	3
16	East	P	F	A	2.223210081
16	East	P	G	B	0.529335734
16	West	A	A	A	6
16	West	A	D	A	7
16	West	P	A	B	5.4
17	East	A	A	E	3.203290216
17	East	M	A	E	6.532954156
17	East	O	A	E	5.622944083
17	East	P	A	D	9.213961393
17	West	A	A	D	3.203290216
17	West	M	A	B	6.532954156
17	West	O	A	E	5.622944083
17	West	P	A	C	9.213961393
18	East	A	A	D	1.260387525
18	East	A	B	F	1.871484507
18	East	A	C	G	9.166454728
18	East	A	D	A	2.291613682
18	East	A	G	F	7
18	East	M	A	B	4.480104748

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
18	East	M	B	B	6.454711871
18	East	M	C	F	9.166454728
18	East	M	D	A	11.68722978
18	East	M	E	A	5.385292153
18	East	M	F	G	5.958195573
18	East	M	G	A	9.739358148
18	East	O	A	D	16.47398323
18	East	O	F	A	1.031226157
18	East	O	G	G	3.666581891
18	East	P	A	C	9.051874044
18	East	P	B	A	16.84336056
18	East	P	C	B	6.072776257
18	East	P	E	G	4.583227363
18	East	P	F	G	18.33290946
18	West	A	A	C	2.673549296
18	West	A	B	C	1.776000604
18	West	A	C	F	1.489548893
18	West	A	E	C	4.525937022
18	West	A	G	C	23.83278229
18	West	M	A	C	13.74968209
18	West	M	B	E	8.135228571
18	West	M	C	E	3.285714286
18	West	M	E	B	4.841033903
18	West	M	F	G	26.18168632
18	West	O	A	D	28.58788068
18	West	P	A	E	25.78065392
19	East	A	A	C	7.228571429
19	East	A	I	I	9.5
19	East	M	A	A	5.274509804
19	East	M	E	G	10.45654925
19	East	M	H	H	8.098082084
19	East	M	I	A	7.193908437
19	East	M	J	I	8.160107836
19	East	O	A	E	23.31920144
19	East	O	B	J	24.19004299
19	East	O	C	H	23.24179331
19	East	O	F	J	21.09371749
19	East	O	G	I	17.58616125
19	East	P	A	C	14.4
19	East	P	A	G	1.428571429
19	East	P	A	H	4.428571429
19	East	P	B	C	14.4
19	East	P	B	F	3
19	East	P	B	G	1.428571429
19	East	P	B	J	3.285714286
19	East	P	C	E	3
19	East	P	C	G	1.428571429
19	East	P	C	H	4.428571429
19	East	P	C	I	6.666666667
19	East	P	C	J	3.285714286
19	East	P	D	I	6.666666667
19	East	P	E	H	19.2
19	East	P	E	I	6.529411765
19	East	P	F	H	19.2
19	East	P	F	I	6.529411765
19	East	P	G	J	10.38888889
19	East	P	H	H	19.2
19	East	P	H	I	6.529411765
19	East	P	H	J	10.38888889
19	East	P	I	A	14.4
19	East	P	I	I	6.529411765
19	East	P	I	J	10.38888889
19	East	P	J	I	6.529411765
19	East	P	J	J	10.38888889
19	West	A	A	C	3.34790195
19	West	A	B	E	3.418859409
19	West	A	C	E	3.46848001
19	West	A	D	E	14.90106648
19	West	A	E	E	5.351581819
19	West	A	F	K	28.35073039
19	West	A	G	I	8.067379338
19	West	A	H	I	15.42676777

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
19	West	A	I	K	20.08106142
19	West	M	A	C	1.820850509
19	West	M	B	C	3.521560995
19	West	M	D	E	7.984578438
19	West	M	F	I	14.07860502
19	West	M	G	I	9.894736842
19	West	O	A	B	31.18181818
19	West	P	A	C	15.8686682
19	West	P	B	E	14.56240588
19	West	P	C	E	13.7537673
19	West	P	D	E	9.567162003
19	West	P	E	A	14.46564571
19	West	P	F	M	34.25310088
19	West	P	G	H	12.48206218
19	West	P	I	J	8.541666667
20	East	A	A	C	3.30900204
20	East	A	C	E	9.507017401
20	East	A	E	B	8.805445333
20	East	A	F	J	3.118098076
20	East	A	G	J	4.804416424
20	East	A	H	I	15.51094706
20	East	A	I	J	11.59059781
20	East	A	K	L	16.32228891
20	East	A	L	I	7.87478851
20	East	M	A	C	4.8125
20	East	M	E	A	3.85898727
20	East	M	F	I	2.48175153
20	East	M	G	I	4.218977601
20	East	M	H	H	24.62661134
20	East	M	I	K	9.24691075
20	East	M	J	K	25.19932323
20	East	M	K	L	13.86440038
20	East	M	L	E	6.987085078
20	East	O	D	L	21.16647699
20	East	O	F	L	12.98146954
20	East	O	H	J	16.41774089
20	East	O	J	K	15.27231711
20	East	O	K	L	11.86786309
20	East	O	L	I	5.91802288
20	East	P	A	I	5.130544029
20	East	P	B	E	3.841942273
20	East	P	C	E	4.082407843
20	East	P	D	A	9.422474217
20	East	P	G	H	16.08365896
20	East	P	H	H	14.2700713
20	East	P	I	K	9.335203833
20	East	P	J	L	27.01291089
20	East	P	K	K	26.74246361
20	East	P	L	A	11.93149774
20	West	A	A	C	4.963503061
20	West	A	B	G	5.045319045
20	West	A	C	I	6.357101997
20	West	A	D	F	3.954439252
20	West	A	E	H	7.636158555
20	West	A	F	H	4.454425824
20	West	A	G	I	8.04978381
20	West	A	H	I	14.20325491
20	West	A	I	J	7.413437264
20	West	A	J	F	2.348071267
20	West	M	A	C	4.636239122
20	West	M	B	F	6.160324065
20	West	M	C	F	6.013474862
20	West	M	D	F	4.758963099
20	West	M	E	F	8.304322428
20	West	M	F	H	9.067938284
20	West	M	G	J	11.96331507
20	West	M	I	I	10.55178273
20	West	O	A	G	2.099943603
20	West	O	B	H	6.299830808
20	West	O	C	F	12.07467571
20	West	O	I	C	26.15384305
20	West	P	A	B	14.38938628

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
20	West	P	C	C	10.28972365
20	West	P	D	F	6.722546728
20	West	P	E	F	6.588235294
20	West	P	G	H	7.206624636
20	West	P	H	A	9.697921364
20	West	P	I	D	4.199887205
20	West	P	J	E	4.295339187
22	East	A	A	D	10.68295011
22	East	A	B	G	15.00700134
22	East	A	C	G	15.77006921
22	East	A	F	G	2.034847639
22	East	M	A	D	12.08190786
22	East	M	B	G	16.36598887
22	East	M	C	G	26.35127693
22	East	M	G	G	21.63043041
22	East	P	A	D	8.088519367
22	East	P	B	D	9.25855676
22	East	P	C	D	16.10734345
22	West	M	A	I	25.93645078
22	West	M	D	J	17.4996897
22	West	M	E	J	25.65603732
22	West	P	A	G	19.58823529
23	East	A	A	B	1.894239077
23	East	A	B	D	3.295246702
23	East	A	C	E	8.305699607
23	East	A	D	A	5.46059641
23	East	A	E	H	8.221803651
23	East	A	F	H	26.62298325
23	East	A	G	H	6.048898401
23	East	A	I	K	4.125
23	East	M	A	B	5.072812351
23	East	M	B	C	7.448562594
23	East	M	C	D	8.928704759
23	East	M	D	A	8.696516711
23	East	M	E	D	5.750368625
23	East	M	F	H	3.993447488
23	East	M	G	D	3.633333333
23	East	O	A	B	13.92626747
23	East	P	A	C	18.62140648
23	East	P	B	D	10.03255803
23	East	P	D	A	11.24385328
23	East	P	E	J	12.62634132
23	East	P	F	I	7.928167807
23	East	P	G	A	4.726138814
23	East	P	H	I	5
23	West	A	C	J	22.10329427
23	West	M	A	E	2.636363636
23	West	M	C	I	1.321361301
23	West	M	D	L	7.536653347
23	West	M	E	H	2.128859874
23	West	M	F	I	5.676959664
23	West	M	G	I	12.91997717
23	West	M	H	K	28.54792935
23	West	M	I	K	14.62306507
23	West	M	J	K	26.99818461
23	West	M	K	A	25.57894469
23	West	M	L	A	10.91346556
23	West	O	A	L	6.6
23	West	O	D	I	1.32
23	West	O	F	J	5.18756659
23	West	O	G	K	3.333333333
23	West	O	I	J	2.006511605
23	West	O	J	K	1.761815068
23	West	O	K	L	7.008108827
23	West	P	A	D	28.57165749
24	East	A	A	B	3.293413672
24	East	A	B	E	3.321089418
24	East	A	C	E	3.273765163
24	East	A	D	G	4.870931146
24	East	A	F	G	9.8
24	East	M	A	B	9.586878119
24	East	M	B	C	13.09062745

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
24	East	M	E	A	9.4
24	East	M	G	A	4.239597894
24	East	O	A	A	10
24	East	P	A	A	5.252241412
24	East	P	B	E	7.682457351
24	East	P	E	F	11.18698562
24	West	A	B	H	25.90449746
24	West	M	A	C	7.749208641
24	West	M	B	G	5.977960952
24	West	M	D	I	10.8488921
24	West	M	F	G	28.45066601
24	West	M	G	I	11.29170402
24	West	M	I	I	23.52438337
24	West	O	D	I	9.963268253
24	West	P	A	H	10.71428571
24	West	P	H	I	9
31	East	A	A	C	22.50840038
31	East	A	D	C	2.428571429
31	East	M	A	C	1.008376337
31	East	M	C	A	14.52542105
31	East	M	E	C	4.081523269
31	East	M	F	C	3.421276858
31	East	M	G	C	1.512564506
31	East	O	A	C	27.70408819
31	East	P	A	B	2.000746701
31	East	P	B	G	14.16528664
31	East	P	C	D	8.483166011
31	East	P	F	C	2.520940843
31	East	P	G	C	5.241956356
31	West	A	B	E	35.173127
31	West	A	D	A	11.9444578
31	West	A	E	A	1.987408389
31	West	A	F	E	3.401269391
31	West	M	A	E	9.123404955
31	West	M	C	B	3.481299259
31	West	M	D	A	2.520940843
31	West	M	E	A	0.758992942
31	West	M	F	A	0.930347216
31	West	O	A	G	22.63314803
31	West	P	A	E	14.64518584
31	West	P	E	A	1.74064963
32	East	A	A	D	27.03655073
32	East	A	F	L	16.59024029
32	East	A	H	L	25.71650214
32	East	A	L	A	13.93384622
32	East	M	A	C	3.336789488
32	East	M	B	G	27.67212968
32	East	M	D	L	15.693911
32	East	M	E	L	4.009036455
32	East	M	F	C	3.177894751
32	East	M	G	L	17.60064785
32	East	M	I	L	11.4404211
32	East	M	J	B	9.387012187
32	East	M	K	L	3.129004062
32	East	M	L	A	2.868253724
32	East	O	A	D	3.019000013
32	East	O	B	J	28.35659932
32	East	O	C	L	10.02259114
32	East	O	D	L	8.4
32	East	O	F	L	17.66666667
32	East	P	A	C	21.0342097
32	East	P	I	A	20.18569507
32	West	A	A	D	5.675
32	West	A	D	I	16.81839684
32	West	A	H	D	7.969182221
32	West	A	I	E	4.693506094
32	West	M	A	B	1.760064785
32	West	M	B	I	4.204599209
32	West	M	D	A	3.471238882
32	West	M	E	I	15.693911
32	West	M	G	D	7.496572233
32	West	M	H	I	6.518758463

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
32	West	M	I	D	3.063816478
32	West	O	A	C	7.566611946
32	West	O	D	E	5.866882617
32	West	O	E	E	11.33333333
32	West	O	H	A	7.985479118
32	West	O	I	A	4.791287471
32	West	P	A	B	8.861437286
32	West	P	C	B	30.57297719
40	East	A	A	C	26.7710725
40	East	M	A	F	4.023809524
40	East	M	D	K	12.11111111
40	East	M	G	G	4.266053202
40	East	M	H	J	5.397124005
40	East	M	I	H	2.739045759
40	East	M	J	K	4.238010124
40	East	M	K	K	5.394536696
40	East	M	L	J	9.517021277
40	East	O	A	G	28.00623684
40	East	P	A	G	11.25
40	East	P	G	H	13.17043146
40	East	P	H	I	8.007916567
40	East	P	I	J	4.976945223
40	East	P	J	K	5.617244189
40	East	P	K	K	7.301204819
40	West	A	A	B	3.513563949
40	West	A	B	B	4.742535139
40	West	A	C	E	3.288604347
40	West	A	D	F	6.063614486
40	West	A	E	F	1.754194667
40	West	A	F	F	3.33903828
40	West	A	G	G	2.340866703
40	West	A	H	J	8.222464088
40	West	A	I	G	5.397124004
40	West	A	J	J	6.358767879
40	West	A	K	L	6.867749739
40	West	A	L	K	28.50695699
40	West	A	M	M	24.12405763
40	West	M	A	B	6.357015188
40	West	M	B	D	8.756743142
40	West	M	C	D	14.37508196
40	West	M	D	I	21.65188506
40	West	M	E	F	4.253533971
40	West	M	F	A	5.759347092
40	West	M	G	G	6.4
40	West	M	J	J	7.719298246
40	West	M	L	I	4.908910278
40	West	M	M	B	11.68587407
40	West	O	A	B	27.61978906
40	West	P	A	B	7.633707865
40	West	P	H	J	6.82428297
40	West	P	I	J	6.725910805
40	West	P	J	J	11.53608089
40	West	P	K	K	3.57048472
40	West	P	L	M	7.258950675
40	West	P	M	L	3.368674715
41	East	A	A	A	1.525054297
41	East	M	A	A	4.173130624
41	East	M	C	A	3.672354949
41	East	M	F	A	29.37030717
41	East	O	A	A	13.11555339
41	East	O	D	A	2.5
41	East	P	A	A	11.01706485
41	East	P	C	G	14.6894198
41	East	P	G	A	6.42662116
41	West	A	A	D	9.26249526
41	West	A	B	A	5.5
41	West	A	D	G	21.72138794
41	West	M	A	A	2.259910738
41	West	M	B	G	1.224118316
41	West	M	D	G	28.00170648
41	West	M	E	G	4.590443686
41	West	M	G	A	1.669252249

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
41	West	O	A	C	2.670803599
41	West	O	B	G	3.672354949
41	West	O	D	G	18.36177474
41	West	O	G	A	6.120591581
41	West	P	A	A	5.595969446
41	West	P	D	G	13.30688617
42	East	A	A	C	23.14282171
42	East	A	D	G	10.88912256
42	East	A	E	I	13.25
42	East	A	H	J	29.35714286
42	East	M	A	B	5.686619176
42	East	M	B	D	4.614990551
42	East	M	C	D	9.634475135
42	East	M	D	A	12.74156204
42	East	M	E	G	9.220068382
42	East	M	G	H	2.942962561
42	East	M	H	I	3.749176442
42	East	M	I	K	10.09176817
42	East	M	J	L	12.20596541
42	East	M	K	K	12.49725481
42	East	M	L	K	11
42	East	O	A	H	29.95789474
42	East	O	H	C	8.251775901
42	East	O	I	J	10.13875033
42	East	O	J	K	22.81795423
42	East	O	L	L	11.84576884
42	East	P	A	B	5.100920329
42	East	P	C	D	5.422595592
42	East	P	D	F	10.06760591
42	East	P	E	G	8.454545455
42	East	P	G	J	7.047324139
42	East	P	H	I	5.22783318
42	East	P	I	K	4.68851655
42	East	P	J	G	8.68230334
42	East	P	K	K	11.65909306
42	East	P	L	L	8.285714286
42	West	A	A	B	4.839162576
42	West	A	B	C	4.862653656
42	West	A	C	E	9.527982236
42	West	A	D	E	6.201645243
42	West	A	E	G	3.977253478
42	West	A	F	G	5.750616498
42	West	A	G	J	3.495472773
42	West	A	H	H	2.698118385
42	West	A	I	I	3.269958401
42	West	A	J	I	9.020574899
42	West	A	K	C	1.172674737
42	West	M	A	B	4.373791908
42	West	M	B	B	7.351768542
42	West	M	C	E	11.69855807
42	West	M	D	E	14.7148128
42	West	M	E	G	11.34820539
42	West	M	G	H	4.784126329
42	West	M	H	B	7.193908482
42	West	M	I	H	8.447392535
42	West	M	J	I	10.56695917
42	West	M	K	E	9.315478309
42	West	O	A	B	20.00312484
42	West	O	B	B	28.34925334
42	West	P	A	B	7.105263158
42	West	P	C	C	8.710492635
42	West	P	D	E	9.321260728
42	West	P	E	H	6.712368968
42	West	P	F	G	9.252353559
42	West	P	G	H	5.220657722
42	West	P	H	C	6.777300351
42	West	P	I	C	7.530219046
42	West	P	J	I	19.50699322
42	West	P	K	I	12.99526571
43	East	A	A	A	10.43529412
43	East	A	G	J	21.93092094
43	East	A	H	B	8.945454545

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
43	East	M	A	A	8.410057822
43	East	M	B	B	6.673609123
43	East	M	C	H	4.330521952
43	East	M	E	B	6.772238699
43	East	M	F	H	5.427067999
43	East	M	G	H	6.256435313
43	East	M	H	B	4.222378179
43	East	M	I	K	18.28504449
43	East	M	J	K	17.6263747
43	East	P	A	A	9.369809707
43	East	P	B	C	15.64108828
43	East	P	C	G	4.230329927
43	East	P	E	J	11.02112271
43	East	P	F	H	2.226489435
43	East	P	G	J	13.13628767
43	East	P	H	B	3.261807023
43	East	P	I	K	5.529115431
43	East	P	J	K	3.961295787
43	East	P	K	K	24.60270826
43	West	A	A	F	14.52784365
43	West	A	C	C	9.982094302
43	West	A	D	F	5.95
43	West	A	F	A	2.926243258
43	West	A	G	A	3
43	West	M	A	C	5.405096053
43	West	M	C	A	3.927279976
43	West	M	D	B	4.65336292
43	West	M	E	F	19.06431579
43	West	M	F	A	5.59803058
43	West	M	G	B	5.357142857
43	West	O	G	H	1
43	West	P	A	C	7.159921455
43	West	P	B	C	4.502456414
43	West	P	C	A	11.02112271
43	West	P	D	F	7.928571429
43	West	P	F	H	15.5
44	East	A	A	A	5.5
44	East	A	F	A	7.585105179
44	East	M	A	A	3.035714286
44	East	M	E	A	11
44	East	M	F	A	7.493818355
44	East	M	G	E	19.63496592
44	East	O	A	A	2.666666667
44	East	O	E	G	2.207481376
44	East	O	F	G	29.74290696
44	East	P	A	C	5.790816795
44	East	P	E	G	4
44	East	P	G	D	9.5
44	West	A	C	B	18.415042
44	West	A	E	A	25.03748613
44	West	A	G	A	6.970993818
44	West	M	A	C	4.502100174
44	West	M	B	A	1.510381994
44	West	M	C	A	4.112886353
44	West	M	E	A	1.045649073
44	West	M	F	C	21.02916469
44	West	O	A	C	2.323664606
44	West	O	E	F	4.647329212
44	West	O	F	H	4.414962752
44	West	O	G	C	6.506260897
44	West	P	A	C	5.659783076
44	West	P	D	C	25.99038411
44	West	P	G	A	5.809161515
44	West	P	H	C	1.045649073
52	East	A	A	I	27.896314
52	East	M	A	C	8.893462061
52	East	M	B	E	1.192419494
52	East	M	C	I	5.090909091
52	East	M	H	M	8.041666667
52	East	M	K	I	3.545641299
52	East	M	L	G	8.865071121
52	East	O	A	C	28.77283652

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
52	East	O	I	M	16.29639975
52	East	O	J	J	22.42411104
52	East	O	L	M	24.22102098
52	East	P	A	B	4.769677977
52	East	P	C	I	1.050464793
52	East	P	E	J	6.285714286
52	East	P	G	I	11.92419494
52	East	P	I	A	7.062792389
52	East	P	J	K	14.40840222
52	East	P	K	K	4.552874432
52	East	P	L	A	5.06255294
52	East	P	M	J	6.147584948
52	West	A	A	B	2.956758709
52	West	A	D	E	10.00307465
52	West	A	E	I	1.518915308
52	West	A	F	I	6.83985071
52	West	A	I	I	8.134004407
52	West	A	J	A	5.857142857
52	West	M	A	A	4.323624759
52	West	M	B	I	4.835923504
52	West	M	C	H	7.878485944
52	West	M	D	H	4.670309686
52	West	M	E	A	2.356448048
52	West	M	F	A	5.639150525
52	West	M	H	I	8.53125
52	West	M	J	I	4
52	West	O	A	I	28.82366127
52	West	P	A	B	9.439987662
52	West	P	B	H	15.0708575
52	West	P	C	H	9.820899445
52	West	P	D	E	16.26327699
52	West	P	E	I	12.86453406
52	West	P	I	A	4.562660703
52	West	P	J	A	2.321604621
53	East	A	A	F	8
53	East	A	H	H	19.96293592
53	East	M	A	H	4.96969697
53	East	M	F	H	6.872098998
53	East	M	G	H	3.715499114
53	East	M	H	H	7.952506314
53	East	M	I	G	12.13834668
53	East	O	A	G	7.793101956
53	East	O	B	H	11.33542103
53	East	O	E	H	6.021942421
53	East	O	F	G	3.306164466
53	East	O	G	H	8.50156577
53	East	O	H	H	2.59297756
53	East	O	I	I	16.0112822
53	East	P	A	E	8
53	East	P	G	H	8.104826034
53	East	P	H	B	5.596864132
53	East	P	I	A	23.14315126
53	West	A	A	B	3.896550978
53	West	A	B	E	3.471472689
53	West	A	C	E	6.305327946
53	West	A	D	F	14.59435457
53	West	A	E	G	16.71974601
53	West	A	F	C	5.171785844
53	West	A	G	C	6
53	West	M	A	B	5.781132075
53	West	M	D	C	15.05485605
53	West	M	E	E	8.926644059
53	West	M	F	G	11.73688385
53	West	M	G	G	7.25
53	West	O	A	C	12.75
53	West	O	C	F	25.77155098
53	West	P	A	C	10.77419355
53	West	P	D	F	14.16927628
53	West	P	E	F	6.234481565
53	West	P	F	G	10.513603
53	West	P	G	G	11.66666667
54	East	A	A	D	7.496594649

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
54	East	M	A	D	4.575
54	East	O	B	D	30.23076923
54	East	P	A	F	6.655913604
54	West	A	A	A	6.626843673
54	West	M	A	B	6.417499959
54	West	O	A	C	15.28553958
54	West	P	A	B	9.50454026
55	East	A	A	B	10
55	East	A	B	D	13.4
55	East	A	C	C	9.666666667
55	East	A	D	D	5.208333333
55	East	M	A	C	1.129032258
55	East	M	A	E	6.517241379
55	East	M	A	G	12
55	East	M	A	K	14.2
55	East	M	B	A	1.129032258
55	East	M	B	E	6.517241379
55	East	M	B	G	12
55	East	M	C	A	1.129032258
55	East	M	C	E	6.517241379
55	East	M	D	A	1.129032258
55	East	M	G	D	6.517241379
55	East	M	G	K	14.2
55	East	M	H	C	1.129032258
55	East	M	H	H	12
55	East	M	I	A	1.129032258
55	East	M	I	E	6.517241379
55	East	M	I	H	12
55	East	M	I	L	14.2
55	East	M	J	A	1.129032258
55	East	M	J	E	6.517241379
55	East	M	J	L	14.2
55	East	M	K	A	1.129032258
55	East	M	K	D	6.517241379
55	East	M	K	J	14.2
55	East	M	L	A	1.129032258
55	East	M	L	E	6.517241379
55	East	M	L	H	12
55	East	M	L	J	14.2
55	East	O	A	G	28.88235294
55	East	P	A	E	22.25
55	East	P	A	K	10.14285714
55	East	P	A	L	18
55	East	P	B	A	4.285714286
55	East	P	B	F	17.57142857
55	East	P	C	A	4.285714286
55	East	P	C	E	22.25
55	East	P	D	A	4.285714286
55	East	P	D	I	3.2
55	East	P	E	A	4.285714286
55	East	P	E	E	22.25
55	East	P	E	G	17.57142857
55	East	P	E	I	3.2
55	East	P	E	J	15
55	East	P	E	L	18
55	East	P	F	B	4.285714286
55	East	P	F	J	15
55	East	P	G	C	4.285714286
55	East	P	G	E	22.25
55	East	P	G	K	10.14285714
55	East	P	H	A	4.285714286
55	East	P	K	E	22.25
55	East	P	K	K	10.14285714
55	East	P	K	L	18
55	East	P	L	A	4.285714286
55	East	P	L	E	22.25
55	East	P	L	F	17.57142857
55	East	P	L	I	3.2
55	East	P	L	J	15
55	East	P	L	K	10.14285714
55	East	P	L	L	18
55	West	A	B	I	8.5

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
55	West	A	F	A	1.357142857
55	West	A	F	D	8.5
55	West	A	G	A	1.357142857
55	West	A	G	D	8.5
55	West	A	H	B	1.357142857
55	West	A	H	D	8.5
55	West	A	H	N	16
55	West	A	I	B	1.357142857
55	West	A	K	D	8.5
55	West	A	L	A	1.357142857
55	West	A	L	D	8.5
55	West	A	M	A	1.357142857
55	West	A	M	G	8.5
55	West	A	N	A	1.357142857
55	West	A	N	D	8.5
55	West	A	N	N	16
55	West	M	A	J	24.37969548
55	West	M	E	M	27.19594191
55	West	M	G	A	7.04894818
55	West	M	H	D	16.89747862
55	West	M	L	F	13.76044671
55	West	M	N	A	2.423880741
55	West	O	I	B	28.58333333
55	West	P	B	A	27.75
56	East	A	A	A	4.833333333
56	East	A	A	J	12
56	East	A	A	K	9.769230769
56	East	A	H	A	4.833333333
56	East	A	H	L	9.769230769
56	East	A	I	B	4.833333333
56	East	A	I	M	9.769230769
56	East	A	K	A	4.833333333
56	East	A	K	L	9.769230769
56	East	A	L	G	15
56	East	A	L	M	9.769230769
56	East	A	N	J	12
56	East	A	N	K	9.769230769
56	East	M	A	A	6.8
56	East	M	A	G	6.5
56	East	M	A	J	7.666666667
56	East	M	A	M	8.607142857
56	East	M	K	A	6.8
56	East	M	K	L	7.666666667
56	East	M	K	M	8.607142857
56	East	M	M	A	6.8
56	East	M	M	N	8.607142857
56	East	M	N	A	6.8
56	East	M	N	K	7.666666667
56	East	M	N	M	8.607142857
56	East	O	A	J	11
56	East	O	A	L	4
56	East	O	C	K	12.33333333
56	East	O	C	N	9.4
56	East	O	D	M	19
56	East	O	D	N	9.4
56	East	O	H	K	12.33333333
56	East	O	I	L	4
56	East	O	I	M	19
56	East	O	J	C	5.333333333
56	East	O	J	N	9.4
56	East	O	K	A	2
56	East	O	K	C	5.333333333
56	East	O	K	M	19
56	East	O	L	N	9.4
56	East	O	M	L	4
56	East	O	M	N	9.4
56	East	O	N	A	2
56	East	O	N	C	5.333333333
56	East	P	A	J	14.8
56	West	A	A	D	11.59745351
56	West	A	D	D	6.413872076
56	West	A	F	D	7.992671356

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
56	West	A	I	K	2.072174055
56	West	A	J	A	2.683958776
56	West	A	K	G	12.97575658
56	West	A	L	F	15.32750968
56	West	M	A	D	9
56	West	M	A	G	10.57142857
56	West	M	A	H	9.25
56	West	M	A	I	8.5
56	West	M	A	J	4.5
56	West	M	A	K	13.4
56	West	M	A	L	9.588235294
56	West	M	D	F	9
56	West	M	D	G	10.57142857
56	West	M	D	H	9.25
56	West	M	D	J	4.5
56	West	M	D	K	13.4
56	West	M	D	L	9.588235294
56	West	M	F	K	13.4
56	West	M	F	L	9.588235294
56	West	M	G	A	9
56	West	M	G	K	13.4
56	West	M	G	L	9.588235294
56	West	M	I	A	9
56	West	M	I	K	13.4
56	West	M	I	L	9.588235294
56	West	M	J	A	9
56	West	M	K	L	9.588235294
56	West	M	L	A	9
56	West	M	L	G	10.57142857
56	West	M	L	J	4.5
56	West	M	L	L	9.588235294
56	West	O	A	D	27.2
56	West	P	A	B	7.666666667
56	West	P	A	D	6.857142857
56	West	P	A	E	10.5
56	West	P	A	F	4.166666667
56	West	P	A	G	9.769230769
56	West	P	A	H	7.6
56	West	P	A	J	15.5
56	West	P	A	K	5.153846154
56	West	P	A	L	6.133333333
56	West	P	B	H	7.6
56	West	P	B	K	5.153846154
56	West	P	C	D	6.857142857
56	West	P	D	G	9.769230769
56	West	P	D	H	7.6
56	West	P	D	K	5.153846154
56	West	P	D	L	6.133333333
56	West	P	F	G	9.769230769
56	West	P	F	K	5.153846154
56	West	P	G	A	7.666666667
56	West	P	G	D	6.857142857
56	West	P	G	H	7.6
56	West	P	G	K	5.153846154
56	West	P	G	L	6.133333333
56	West	P	H	D	6.857142857
56	West	P	H	I	7.6
56	West	P	H	K	5.153846154
56	West	P	H	L	6.133333333
56	West	P	I	K	5.153846154
56	West	P	I	L	6.133333333
56	West	P	K	F	4.166666667
56	West	P	K	L	6.133333333
56	West	P	L	E	10.5
56	West	P	L	H	7.6
57	East	A	A	J	6.285714286
57	East	A	C	I	18
57	East	A	C	K	6.285714286
57	East	A	G	C	2.166666667
57	East	A	G	J	21.71428571
57	East	A	J	C	2.166666667
57	East	A	J	J	21.71428571

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
57	East	A	K	B	2.166666667
57	East	A	K	J	21.71428571
57	East	M	A	D	6.8
57	East	M	C	I	6.333333333
57	East	M	D	A	4
57	East	M	E	C	10.4
57	East	M	G	A	5.166666667
57	East	M	H	A	7.625
57	East	M	I	A	8.777777778
57	East	M	J	E	6.666666667
57	East	O	F	J	19.14285714
57	East	O	I	E	14
57	East	O	I	I	11.66666667
57	East	O	I	J	19.14285714
57	East	O	J	G	3
57	East	O	J	H	5
57	East	O	J	I	11.66666667
57	East	O	J	J	19.14285714
57	East	O	K	I	11.66666667
57	East	P	A	H	3
57	East	P	A	I	13.9
57	East	P	I	E	2
57	East	P	I	G	3
57	East	P	I	J	13.9
57	East	P	J	A	9.5
57	East	P	J	I	13.9
57	East	P	K	C	9.5
57	East	P	K	G	3
57	East	P	K	I	13.9
57	West	A	A	B	4.625
57	West	A	A	E	12.6
57	West	A	A	F	5.666666667
57	West	A	A	H	6.461538462
57	West	A	B	E	12.6
57	West	A	B	H	6.461538462
57	West	A	C	E	12.6
57	West	A	C	F	5.666666667
57	West	A	C	H	6.461538462
57	West	A	H	A	4.625
57	West	A	H	I	6.461538462
57	West	M	A	B	15.5
57	West	M	A	E	8.71142797
57	West	M	A	F	2.281701101
57	West	M	B	C	15.5
57	West	M	B	E	8.71142797
57	West	M	B	H	2.281701101
57	West	M	C	A	1.108108108
57	West	M	C	E	7.692307692
57	West	M	E	A	1.108108108
57	West	M	E	E	7.692307692
57	West	M	F	A	1.108108108
57	West	M	F	E	7.692307692
57	West	M	G	C	1.108108108
57	West	M	H	E	7.692307692
57	West	M	I	A	1.108108108
57	West	M	I	H	7.692307692
57	West	M	J	C	1.108108108
57	West	M	J	E	7.692307692
57	West	O	A	B	29.36363636
57	West	P	A	E	20.07692308
57	West	P	C	E	29.46718365
57	West	P	D	G	9.954062038
57	West	P	E	C	20.85612999
57	West	P	F	A	9.666666667
57	West	P	H	C	1.909090909
62	East	A	B	E	28
62	East	A	C	E	14.42493386
62	East	A	C	G	9.292863441
62	East	A	E	F	14.42493386
62	East	A	E	I	9.292863441
62	East	A	G	H	30.46666667
62	East	M	B	E	10

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
62	East	M	C	G	4.010016588
62	East	M	D	F	3.845221386
62	East	M	E	F	2.780390848
62	East	M	F	G	8.406615462
62	East	M	G	G	5.168160648
62	East	M	H	K	11.9394124
62	East	M	I	G	9.869401557
62	East	M	J	K	8.171095445
62	East	M	K	B	9.867112734
62	East	M	L	L	13.66014897
62	East	O	B	J	25.53333333
62	East	O	H	L	20.47580388
62	East	O	I	L	17.52780082
62	East	O	J	L	13.8812492
62	East	O	K	L	9.692307692
62	East	P	A	F	14.5
62	East	P	E	H	10.64645671
62	East	P	F	G	12.93325424
62	East	P	G	G	14.07110701
62	East	P	H	I	7.161724831
62	East	P	I	J	7.57508613
62	East	P	J	K	17.39962677
62	East	P	K	K	31.53081536
62	East	P	L	E	19.05787849
62	West	A	A	B	1.684976592
62	West	A	A	C	2.329370269
62	West	A	A	E	1.146221578
62	West	A	A	G	3
62	West	A	B	B	7.363779639
62	West	A	B	C	3.848019283
62	West	A	B	E	1.127088477
62	West	A	B	G	2.550738076
62	West	A	B	H	2.816936666
62	West	A	C	D	21.91904806
62	West	A	C	E	4.021016168
62	West	A	C	I	4.053677256
62	West	A	D	E	4.021016168
62	West	A	D	G	3.613254283
62	West	A	D	H	4.053677256
62	West	A	E	E	9.167276878
62	West	A	E	G	3.889998876
62	West	A	E	H	4.582362235
62	West	A	F	F	9.167276878
62	West	A	F	G	3.889998876
62	West	A	F	H	4.582362235
62	West	A	G	G	17.32131777
62	West	A	G	H	5.395357479
62	West	A	H	D	9.888888889
62	West	M	A	B	8.733568323
62	West	M	A	C	14.99390811
62	West	M	A	E	1.271716464
62	West	M	B	B	12.7151429
62	West	M	B	C	7.517822536
62	West	M	B	F	4.590923067
62	West	M	C	D	18.33381525
62	West	M	C	F	8.98440113
62	West	M	D	D	18.33381525
62	West	M	D	F	8.98440113
62	West	M	E	G	10.86911723
62	West	O	A	C	29.68421053
62	West	P	A	B	10.76661988
62	West	P	B	C	11.67985996
62	West	P	C	D	9.196487814
62	West	P	D	F	7.701123942
62	West	P	E	F	12.24555118
62	West	P	F	G	12.28208949
62	West	P	G	G	14.61184127
62	West	P	H	F	6.880199694
62	West	P	I	D	4.806526732
65	East	A	A	B	3.678571429
65	East	M	B	H	1.537333597
65	East	M	F	B	11.31123369

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
65	East	M	G	C	16.125
65	East	M	I	B	2.270735469
65	East	M	J	C	2.016073547
65	East	O	A	C	22.625
65	East	P	A	F	24.2
65	East	P	A	G	13.14175507
65	East	P	A	I	11.42062581
65	East	P	A	J	11.82953438
65	East	P	B	G	13.14175507
65	East	P	C	F	24.2
65	East	P	C	G	13.14175507
65	East	P	C	H	27
65	East	P	C	J	11.82953438
65	East	P	D	C	12
65	East	P	G	F	24.2
65	East	P	G	G	13.14175507
65	East	P	G	I	11.42062581
65	East	P	I	J	11.82953438
65	East	P	J	G	13.14175507
65	East	P	J	I	11.42062581
65	West	A	A	A	24.5
65	West	A	A	F	18
65	West	A	B	I	28.2
65	West	A	F	A	24.5
65	West	A	F	F	18
65	West	A	F	I	28.2
65	West	A	G	A	3
65	West	A	G	I	13.33333333
65	West	A	I	F	11.75
65	West	A	J	I	13.33333333
65	West	M	A	F	4.293338808
65	West	M	B	J	30.5594306
65	West	M	F	A	16.25591912
65	West	M	G	A	3.254013444
65	West	M	I	A	1.827651246
65	West	O	A	A	29.780108
65	West	P	A	F	6.030765972
65	West	P	E	A	9.019276394
65	West	P	F	A	6.375390471
70	East	A	A	D	1.549795395
70	East	M	E	D	10.53206003
70	East	M	F	G	2.492041837
70	East	O	D	G	1.333333333
70	East	P	A	G	4
70	East	P	C	D	4.5
70	East	P	E	B	2.571428571
70	West	A	F	G	5.2
70	West	M	B	F	14
70	West	O	F	G	13
70	West	P	B	E	16
70	West	P	F	B	4.761482492
71	East	A	A	D	4.32
71	East	O	G	D	13
71	East	P	B	G	4.25
71	West	A	B	D	23.28
71	West	O	B	D	4
71	West	P	D	A	15.24
72	East	A	B	D	26.83748106
72	East	M	A	E	3.166666667
72	East	M	D	B	4.666666667
72	East	M	E	A	3.543821684
72	East	M	G	D	4.987232201
72	East	O	A	D	31.76455313
72	East	P	A	G	14.45401428
72	East	P	B	D	12.04782551
72	East	P	E	A	21.80047609
72	West	A	D	E	23.10592945
72	West	M	A	E	6.629733824
72	West	M	B	E	10
72	West	M	E	A	4.666666667
72	West	M	G	E	4.027328655
72	West	O	B	E	17

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
72	West	P	B	D	7.985212436
72	West	P	E	B	21.23306644
73	East	A	B	E	31
73	East	M	B	C	7.5
73	East	M	B	E	4
73	East	M	E	B	7.5
73	East	M	G	F	24.83937672
73	East	P	A	B	7.75
73	West	A	A	A	20.5
73	West	M	A	A	25.50188103
73	West	P	A	A	11.5
74	East	A	A	E	8
74	East	O	C	E	5
74	East	P	D	A	1.8
74	West	A	B	A	6
74	West	O	G	B	1
74	West	P	A	B	3.6
76	East	A	E	D	10.25
76	East	M	A	F	12.27272727
76	East	P	F	D	6.619047619
76	West	A	A	D	10.25
76	West	M	A	D	12.27272727
76	West	O	D	A	7
76	West	P	A	D	6.619047619
77	East	A	C	G	10.517909
77	East	A	F	J	17.95982575
77	East	A	H	F	4.828977089
77	East	A	I	E	3.869796709
77	East	A	J	E	2.017586318
77	East	M	A	G	14.84656341
77	East	M	E	G	7.045014521
77	East	M	F	H	7.011939335
77	East	M	G	B	8.483785092
77	East	M	H	C	5.556631171
77	East	M	I	G	10.61713456
77	East	M	J	A	11.51016435
77	East	P	G	G	12.2124879
77	East	P	I	G	5.75
77	West	A	B	E	5.482575024
77	West	A	E	C	1.555555556
77	West	M	A	B	6.548886738
77	West	M	B	F	15.87608906
77	West	M	C	E	2.105087663
77	West	O	G	B	4.762826718
77	West	P	A	B	6.317360439
77	West	P	B	B	7.706518232
77	West	P	D	A	2.976766699
77	West	P	G	B	5.5
80	East	P	A	E	3.518683579
80	East	P	A	F	4.928728419
80	East	P	A	G	6.482798801
80	East	P	B	E	3.518683579
80	East	P	B	F	4.928728419
80	East	P	B	G	6.482798801
80	East	P	C	E	3.518683579
80	East	P	C	F	7.87134344
80	East	P	C	G	3.230769231
80	East	P	C	J	3.2
80	East	P	D	E	3.518683579
80	East	P	D	G	3.230769231
80	East	P	D	I	3.2
80	West	A	A	F	5
80	West	A	C	F	2.035311218
80	West	A	D	F	3
80	West	A	F	F	4.409090909
80	West	O	F	F	12.29445964
81	East	A	A	J	9.414478884
81	East	O	A	J	3.58974359
81	East	O	B	I	3.998889197
81	East	O	C	J	2.542627048
81	East	O	E	J	3.456615587
81	East	O	F	J	5.936684254

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
81	East	O	G	J	21.51902249
81	East	O	H	K	20.58594835
81	East	O	I	J	10.16666667
81	West	O	A	I	31.56206609
81	West	P	A	F	1
81	West	P	A	H	8.380304781
81	West	P	A	I	14.54972821
81	West	P	B	F	3.147746184
81	West	P	B	H	8.10130107
81	West	P	B	I	5.358219883
81	West	P	C	F	2.391716982
81	West	P	C	H	7.630281874
81	West	P	C	I	5.343550583
81	West	P	D	F	1.5
81	West	P	D	H	26
81	West	P	E	G	1.5
81	West	P	E	H	26
81	West	P	F	F	1.146399913
81	West	P	F	H	26
81	West	P	H	B	5
82	East	P	A	E	5.442649039
82	East	P	B	E	4.324374854
82	East	P	C	E	8.395994002
82	West	A	A	G	3.578620394
82	West	A	B	G	1.181818182
82	West	A	E	G	1.835189946
82	West	A	F	H	8
82	West	O	A	G	23.16009712
83	East	A	B	H	2.681818182
83	East	O	A	E	24.88359101
83	West	P	A	A	5.905993715
84	East	A	C	H	17
84	East	O	A	C	1.825518619
84	West	P	A	C	4.703819427
85	East	A	A	F	3.033988507
85	East	O	D	G	9.650641026
85	East	O	G	H	11
85	West	P	A	D	19.49392713
88	East	A	A	F	1.707666354
88	East	A	E	G	10
88	West	P	A	A	16.22222222
88	West	P	A	E	1.125
89	East	A	B	G	4.814137024
89	East	O	A	H	1.350413664
89	West	P	A	D	4.99959968
90	East	A	A	I	1.758261714
90	East	O	A	H	1.819607688
90	West	P	A	C	1.785714286
91	East	A	A	H	15.76831908
91	East	A	B	H	29.74956199
91	East	A	C	H	6.648974544
91	East	A	D	B	8.5
91	East	A	D	H	7.708955992
91	East	A	E	H	16.33333333
91	East	A	G	H	8.5
91	East	O	A	F	16.59286647
91	East	O	A	H	9.163145418
91	East	O	B	G	16.36401113
91	East	O	C	H	16.59286647
91	West	O	A	D	17.34515098
91	West	P	A	C	5.472066384
91	West	P	A	D	5.359557579
91	West	P	A	E	3.267956618
91	West	P	B	C	15.98529321
92	East	A	C	H	1
92	East	O	A	H	14.43526786
92	East	O	B	H	5.309523809
92	East	O	C	H	5.909090909
92	East	O	F	H	2.538461538
92	West	P	A	D	1.791964286
93	East	A	A	M	1.090909091
93	East	A	D	M	3.812042612

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
93	East	A	F	M	6.526679018
93	East	A	G	L	2.108175081
93	East	A	H	M	3.095840667
93	East	A	I	J	2.227817111
93	East	A	J	M	1.912438886
93	East	A	K	M	2.454724409
93	East	A	L	M	1.23217539
93	East	A	M	F	1.072652683
93	East	O	I	M	28.73684211
93	West	P	A	D	21.0504694
93	West	P	A	F	6.666666667
93	West	P	A	G	7
93	West	P	A	H	8.988113055
93	West	P	A	I	3.433998572
93	West	P	A	J	8.135137544
93	West	P	A	K	10.08128108
93	West	P	A	L	4.171169788
93	West	P	B	F	6.666666667
93	West	P	B	G	7
93	West	P	B	H	8.988113055
93	West	P	B	I	3.433998572
93	West	P	B	J	8.135137544
93	West	P	B	K	10.08128108
93	West	P	B	L	4.171169788
94	East	A	A	G	1.157534067
94	East	O	A	G	2.297562893
94	East	O	B	G	1.378537736
94	East	O	C	G	3.938679245
94	East	O	D	G	1.969339623
94	East	O	E	G	1.111111111
94	West	P	A	A	1.114285714
96	East	A	A	C	1.232142857
96	East	O	A	B	2.044642857
96	West	P	A	E	1.133928572
96	West	P	B	G	3.511904763
96	West	P	C	E	2.909090909
97	East	A	A	B	1.401050907
97	East	O	A	B	5.3947302
97	West	P	A	A	2.21729758
97	West	P	B	D	3.589006108
97	West	P	C	D	5.666666667
98	East	A	A	E	1.658815374
98	East	O	A	E	1.066321954
98	East	O	C	F	3.119558909
98	East	O	D	F	11
98	West	P	A	D	1.142857143
98	West	P	A	G	12.5
98	West	P	B	D	1.142857143
98	West	P	B	G	3.5
101	East	A	A	G	0.935596754
101	East	A	B	F	3.73027573
101	East	A	C	G	1.898443899
101	East	A	D	G	2.073300573
101	East	A	E	G	6.5
101	East	O	A	G	5.35116935
101	East	O	B	G	11.49058149
101	East	O	C	G	10.69123669
101	East	O	D	G	15.32077532
101	East	O	E	G	3.15990991
101	East	O	F	G	9.466666667
101	West	P	A	D	6.258064516
101	West	P	A	G	0.736842105
101	West	P	B	E	6.258064516
101	West	P	C	G	0.736842105
102	East	A	A	G	5.6
102	East	A	D	F	3
102	East	A	E	F	6
102	East	O	A	E	5.083333333
102	East	O	C	F	1.3
102	West	P	A	C	2.074922955
102	West	P	B	C	2.466666667
103	East	A	B	D	24.64800759

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
103	East	O	A	A	1
103	East	O	D	A	1.5
103	East	O	D	G	1.4
103	West	P	A	D	0.750985258
201	East	O	E	K	10.28571429
201	East	O	G	J	11
201	East	O	G	K	11.10526316
201	West	P	A	E	3.631578947
201	West	P	A	F	4.75
201	West	P	A	G	5.995507224
201	West	P	B	E	3.631578947
201	West	P	B	G	5.995507224
201	West	P	C	E	3.631578947
201	West	P	C	F	4.75
201	West	P	C	G	5.995507224
202	East	A	A	E	7.136062378
202	East	A	B	E	3.742690058
202	East	A	C	F	4.541130605
202	East	A	D	E	2.644834308
202	East	A	E	G	7
202	East	O	A	F	26.5
202	East	O	E	E	4.25
202	West	P	A	E	4.833333333
202	West	P	B	D	8.833333333
203	East	A	A	C	5.65227993
203	East	A	B	C	1.845322731
203	East	A	B	G	3.214494203
203	East	A	C	C	4.6
203	East	O	A	E	6.620181427
203	East	O	A	F	12
203	East	O	B	C	6
203	East	O	B	E	10.10161345
203	East	O	C	E	6.212544724
203	West	P	A	C	2.30260912
231	East	A	A	D	5
231	East	A	B	F	2.5
231	East	A	D	G	11
231	East	M	A	F	8.60675872
231	East	O	C	F	8
231	East	P	D	A	17.12136628
231	West	A	C	F	4.45125969
231	West	M	B	G	11
231	West	M	F	B	8.5
231	West	O	B	F	13.8
231	West	P	E	G	8
231	West	P	G	G	19
234	West	P	D	H	4.456384892
235	East	A	D	B	1.2
235	East	O	B	D	4.8
235	East	P	A	D	19.3
235	West	A	E	G	2.414868106
235	West	O	E	G	1.429856115
235	West	P	F	G	4.456384892
401	East	A	E	H	3
401	East	M	A	H	15.5
401	East	M	C	H	4
401	East	M	E	H	5
401	East	O	E	H	26.53267327
401	East	P	C	F	3
401	East	P	G	H	22
401	East	P	H	A	12
401	East	P	H	D	4
401	East	P	H	H	22
401	West	A	C	E	2.666666667
401	West	M	A	B	5.666666667
401	West	M	B	G	3.111111112
401	West	M	D	A	5.666666667
401	West	M	G	F	11
401	West	O	A	F	24.33333333
401	West	P	A	B	27.25874587
402	East	A	A	G	16
402	East	A	E	G	7.666666667

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
402	East	M	D	G	4.555555556
402	East	O	C	G	23
402	East	P	C	G	4.5
402	West	A	B	A	34
402	West	M	F	A	26.20370371
402	West	O	A	F	21.5
402	West	P	A	G	22.53888889
403	East	A	A	F	2
403	East	A	A	J	20
403	East	A	G	A	6
403	East	A	J	J	20
403	East	M	A	J	11
403	East	M	F	A	2
403	East	O	A	F	21
403	East	O	A	J	9.666666667
403	East	P	A	E	4.222222222
403	East	P	H	J	1.333333333
403	East	P	I	A	4
403	East	P	J	J	1.333333333
403	West	A	F	J	28.20363636
403	West	M	C	E	20
403	West	M	E	J	10
403	West	M	F	J	2.014545455
403	West	M	H	J	3
403	West	O	C	J	23.66666667
403	West	P	A	J	3.636363636
403	West	P	C	I	16
403	West	P	D	J	10
403	West	P	F	J	15.33333333
411	East	A	A	A	2.083333333
411	East	M	A	C	1.666666667
411	East	M	A	D	3
411	East	M	A	G	4.166666667
411	East	M	E	A	1.666666667
411	East	O	A	F	22.4
411	East	P	A	D	27.75
411	East	P	F	A	3.5
411	West	A	B	G	24
411	West	M	A	G	10.5
411	West	M	C	G	3.164849471
411	West	M	D	G	3.469487388
411	West	M	F	G	1.523189585
411	West	M	G	B	2
411	West	O	A	G	22
411	West	O	G	B	3
411	West	O	G	G	22
411	West	P	B	G	29.5
411	West	P	G	B	11
411	West	P	G	C	1
412	East	A	A	F	2.058823529
412	East	A	G	A	1.666666667
412	East	M	A	G	7.197483668
412	East	O	C	F	18
412	East	P	G	C	27.66666667
412	West	A	F	A	23.00871038
412	West	M	A	D	2.75
412	West	M	D	A	19
412	West	M	E	C	3.63295427
412	West	M	F	A	8.303895476
412	West	M	G	A	17.64577789
412	West	O	A	D	8.25
412	West	P	A	E	3.8
412	West	P	D	B	7
412	West	P	G	B	6
413	East	A	G	C	0.8
413	East	O	G	A	0.333333333
413	East	P	A	G	12.5
413	East	P	F	D	1
413	West	A	A	D	31.66666667
413	West	O	A	G	20
413	West	P	A	F	9
413	West	P	B	G	5.333333333

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
414	East	A	A	B	3.3
414	East	A	F	C	1
414	East	M	A	C	6.5
414	East	M	G	A	4
414	East	O	A	G	14
414	East	P	F	A	27.49640288
414	West	A	A	E	7.007194246
414	West	M	A	E	11.66666667
414	West	M	B	B	1
414	West	M	E	A	2
414	West	M	E	B	1
414	West	M	G	E	11.66666667
414	West	O	A	E	14.26618705
414	West	P	A	G	18.86235012
415	East	A	A	F	6
415	East	O	A	F	8
415	East	P	A	A	2.333333333
415	West	A	A	D	5.737631184
415	West	O	A	D	29
415	West	P	A	D	4.670164918
432	East	A	A	E	11
432	East	A	B	E	13
432	East	A	D	E	20.71428571
432	East	M	A	E	10.55555556
432	East	M	B	D	10
432	East	M	D	E	6
432	East	M	F	A	7.6
432	East	O	E	C	21.14285714
432	East	P	A	C	10.66666667
432	East	P	A	G	19.33333333
432	East	P	B	E	6.333333333
432	East	P	C	G	19.33333333
432	East	P	D	B	10
432	East	P	D	F	9.666666667
432	East	P	E	A	10
432	East	P	E	C	10.66666667
432	East	P	E	F	9.666666667
432	East	P	E	G	19.33333333
432	East	P	F	E	6.333333333
432	East	P	G	G	19.33333333
432	West	A	B	E	26.33333333
432	West	M	A	E	10.33333333
432	West	M	B	E	11.5
432	West	M	E	A	3.055555556
432	West	M	F	A	3.090909091
432	West	O	E	A	19.66666667
432	West	P	A	E	3.857142857
432	West	P	A	G	10
432	West	P	B	E	3.857142857
432	West	P	B	G	10
432	West	P	E	B	3.6
432	West	P	E	E	3.857142857
432	West	P	E	F	14.75
432	West	P	E	G	10
432	West	P	F	E	3.857142857
432	West	P	F	F	14.75
432	West	P	F	G	10
432	West	P	G	A	3.6
432	West	P	G	E	3.857142857
433	East	A	A	B	5.285714286
433	East	M	A	B	10
433	East	M	A	C	16
433	East	M	A	E	6.571428571
433	East	M	A	G	3.777777778
433	East	M	B	C	16
433	East	M	B	E	6.571428571
433	East	M	C	A	10
433	East	M	C	D	16
433	East	M	C	E	6.571428571
433	East	M	C	G	3.777777778
433	East	M	D	A	1.8
433	East	M	D	G	3.777777778

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
433	East	M	E	A	1.8
433	East	M	G	C	2
433	East	M	G	G	3.777777778
433	East	O	A	C	26.41285064
433	East	P	A	B	7
433	East	P	A	C	17.55555556
433	East	P	A	E	11.5
433	East	P	A	F	11
433	East	P	A	G	21
433	East	P	B	E	11.5
433	East	P	C	A	7
433	East	P	C	E	11.5
433	East	P	E	A	7
433	East	P	E	C	17.55555556
433	West	A	B	G	14.625
433	West	M	A	G	7.944444444
433	West	M	B	F	13
433	West	M	B	G	7.944444444
433	West	M	C	E	9.25
433	West	M	C	G	7.944444444
433	West	M	E	B	14.33333333
433	West	M	E	G	7.944444444
433	West	M	G	D	14.33333333
433	West	M	G	E	9.25
433	West	M	G	F	13
433	West	O	E	G	21.33333333
433	West	P	A	F	14.28571429
433	West	P	E	F	19.42857143
433	West	P	F	G	10
433	West	P	G	B	7.262092495
434	East	A	E	B	24.30769231
434	East	M	B	E	6.65
434	East	O	E	G	21.46153846
434	East	P	E	A	5.844827586
434	West	A	A	B	24.30769231
434	West	M	A	B	6.65
434	West	O	A	C	21.46153846
434	West	P	A	B	5.844827586
501	East	A	G	A	5.061889251
501	East	M	A	G	13.49837134
501	West	A	G	A	32.05863192
501	West	O	G	A	7.00228013
501	West	P	A	G	2.530944625
503	East	A	F	F	13
503	East	M	A	E	3.142857143
503	East	O	G	F	5
503	West	A	A	C	2
503	West	M	A	B	27.5
503	West	O	E	A	10.5
503	West	P	A	D	9
503	West	P	A	E	14
503	West	P	A	G	9
503	West	P	C	A	5
504	East	A	A	H	5.061889251
504	East	M	A	H	13.49837134
504	East	O	C	H	3.749547593
504	East	P	C	H	4.57980456
504	West	M	A	H	26.99674267
504	West	P	A	G	2.530944625
1L	East	A	B	N	29.65102325
1L	East	A	H	J	5.993416145
1L	East	A	L	M	11
1L	East	M	A	G	18.01063471
1L	East	M	C	E	7.733362606
1L	East	M	D	E	6.296730027
1L	East	M	E	G	16.76886453
1L	East	M	F	G	5.33961178
1L	East	M	G	H	7.985537474
1L	East	M	I	M	14.10650926
1L	East	M	J	E	8.344695618
1L	East	M	K	L	7.666666667
1L	East	O	A	E	4.122677002

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
1L	East	O	C	G	17.00358382
1L	East	O	F	L	4.895866442
1L	East	P	A	E	11.96666667
1L	East	P	D	G	20.86173905
1L	East	P	E	F	8.394366426
1L	East	P	F	G	8.183265495
1L	East	P	G	J	13.0599977
1L	East	P	L	D	4
1L	West	A	A	L	29.53846154
1L	West	M	A	F	4.5625
1L	West	M	D	H	7
1L	West	M	G	L	8.593049655
1L	West	M	H	D	4.172347809
1L	West	M	I	M	9.529919242
1L	West	M	J	L	30.44462102
1L	West	M	K	L	12.21216744
1L	West	P	B	M	12
1L	West	P	E	J	7.337087814
1L	West	P	F	L	3.4272857
1L	West	P	G	K	10.82823598
1L	West	P	H	L	8.518543444
1L	West	P	J	L	8.851448732
57a	East	A	A	D	2.923076923
57a	East	A	C	D	17.75
57a	East	A	G	A	11.71428571
57a	East	M	A	B	3.571428571
57a	East	M	A	G	4.956521739
57a	East	M	B	F	6.571428571
57a	East	M	B	G	4.956521739
57a	East	M	C	A	3.571428571
57a	East	M	C	D	6.571428571
57a	East	M	C	G	4.956521739
57a	East	M	D	F	6.571428571
57a	East	M	D	G	4.956521739
57a	East	M	E	F	6.571428571
57a	East	M	E	G	4.956521739
57a	East	M	F	C	3.571428571
57a	East	M	G	G	4.956521739
57a	East	P	C	G	13.57142857
57a	West	A	A	B	1.4
57a	West	A	A	C	2.2
57a	West	A	A	E	6.714285714
57a	West	A	A	G	4.111111111
57a	West	A	B	B	1.4
57a	West	A	B	C	2.2
57a	West	A	B	D	6
57a	West	A	B	F	1.6
57a	West	A	B	G	4.111111111
57a	West	A	C	D	6
57a	West	A	C	E	6.714285714
57a	West	A	C	F	1.6
57a	West	A	C	G	4.111111111
57a	West	A	D	E	6.714285714
57a	West	A	D	F	1.6
57a	West	A	E	G	4.111111111
57a	West	A	F	A	1.4
57a	West	A	G	C	2.2
57a	West	A	G	E	6.714285714
57a	West	A	G	F	1.6
57a	West	M	A	B	13.75
57a	West	M	A	E	4.083333333
57a	West	M	B	D	13.75
57a	West	M	B	E	4.083333333
57a	West	M	C	E	7.066666667
57a	West	M	D	B	0.538461538
57a	West	M	D	E	7.066666667
57a	West	M	E	B	0.538461538
57a	West	M	E	G	7.066666667
57a	West	M	F	A	0.538461538
57a	West	M	F	E	7.066666667
57a	West	M	G	A	0.538461538
57a	West	O	C	E	3.666666667

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
57a	West	O	D	G	16.5
57a	West	P	D	F	14.66666667
57a	West	P	G	A	5.666666667
80a	East	P	A	C	3.649060038
80a	West	A	A	K	3.40282747
80b	West	A	A	G	1.766025642
80b	West	A	C	A	3.207264957
80b	West	A	E	G	1.461538462
84a	East	A	B	E	15.54013525
84a	East	O	B	A	2.702632218
84a	East	O	C	D	6
84a	West	P	A	C	2.56518671
84a	West	P	B	C	3.938253455
84a	West	P	C	C	4.333333333
85a	East	A	A	E	1.849489796
85a	East	A	B	E	7
85a	East	A	D	E	17.34693878
85a	East	A	E	G	27
85a	West	P	A	B	5.139146568
88a	East	P	A	B	6
88a	West	O	C	H	4.812435233
98a	East	A	A	F	1
98a	East	O	A	E	1.954374057
98a	East	O	C	D	5.285714286
98a	West	P	E	H	5.07727797
A	East	A	A	C	10.71575042
A	East	A	B	E	15.07346996
A	East	A	C	E	7.60338522
A	East	A	D	G	13.6934543
A	East	A	E	G	12.61931841
A	East	A	F	N	23.3286667
A	East	A	G	M	5.228409825
A	East	A	H	I	9.247527582
A	East	A	I	K	6.779696257
A	East	A	J	G	16.78070582
A	East	A	K	C	12.75731997
A	East	A	L	P	18.73691358
A	East	A	M	R	18.74260436
A	East	A	N	D	11.8127589
A	East	A	O	R	17.17906085
A	East	A	P	R	16.43214517
A	East	A	Q	R	15.50739241
A	East	A	R	L	11.75147351
A	East	M	A	B	7.945760238
A	East	M	B	D	3.410914981
A	East	M	C	E	4.885539956
A	East	M	D	G	4.195176455
A	East	M	E	E	6.379538711
A	East	M	F	H	3.703935752
A	East	M	G	G	4.145382076
A	East	M	H	I	5.431417679
A	East	M	I	F	4.561165143
A	East	M	J	L	7.334712069
A	East	M	K	M	5.496351009
A	East	M	L	N	13.26341194
A	East	M	M	O	14.64950639
A	East	M	N	B	10.99097754
A	East	M	O	I	19.27042478
A	East	M	P	Q	14.08185046
A	East	M	Q	Q	7.123915863
A	East	M	R	G	3.125554885
A	East	O	A	F	12.26048272
A	East	O	B	A	6.719312123
A	East	O	C	E	6.511207882
A	East	O	D	I	14.89847828
A	East	O	E	G	4.753099841
A	East	O	F	J	6.841747714
A	East	O	G	I	17.15772041
A	East	O	H	N	21.11281682
A	East	O	I	C	23.8017133
A	East	O	K	L	28.28320744
A	East	O	L	P	29.42847816

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
A	East	O	M	R	28.25001118
A	East	O	O	C	22.40747068
A	East	O	P	G	8.925642487
A	East	O	Q	K	6.430588411
A	East	O	R	B	5.145419193
A	East	P	A	F	11.87595946
A	East	P	B	D	6.359453583
A	East	P	C	G	7.217255916
A	East	P	D	D	6.493187059
A	East	P	E	C	8.196920898
A	East	P	F	K	12.05023979
A	East	P	G	H	5.309891537
A	East	P	H	I	4.971777255
A	East	P	I	C	8.332259468
A	East	P	J	N	5.869878594
A	East	P	K	D	6.64180413
A	East	P	L	P	16.60642549
A	East	P	M	P	10.02526836
A	East	P	N	P	9.99207211
A	East	P	O	C	18.35752783
A	East	P	P	F	9.442825018
A	East	P	Q	N	9.290208479
A	East	P	R	H	1.50710988
A	West	A	A	E	5.882376007
A	West	A	B	E	17.19565898
A	West	A	C	E	9.543922697
A	West	A	D	E	14.71700543
A	West	A	E	F	13.9851071
A	West	A	F	G	7.890493949
A	West	A	G	H	20.39909738
A	West	A	H	I	5.895654508
A	West	A	I	H	4.425204838
A	West	A	J	J	5.157649392
A	West	A	K	L	10.85517468
A	West	M	A	B	7.55015575
A	West	M	B	D	12.80168224
A	West	M	C	D	9.391986001
A	West	M	D	E	9.43028937
A	West	M	E	C	7.964479929
A	West	M	F	H	7.070801859
A	West	M	G	G	9.071630554
A	West	M	H	G	6.449836658
A	West	M	I	I	5.50299026
A	West	M	J	G	7.89973182
A	West	M	K	J	26.78937606
A	West	M	L	A	13.67685618
A	West	O	A	D	13.5
A	West	O	A	H	5.923076923
A	West	O	A	I	7.8
A	West	O	A	J	6.454545455
A	West	O	A	L	4.923076923
A	West	O	B	I	7.8
A	West	O	B	J	6.454545455
A	West	O	B	L	4.923076923
A	West	O	C	G	13.5
A	West	O	C	I	7.8
A	West	O	C	J	6.454545455
A	West	O	D	F	13.5
A	West	O	D	J	6.454545455
A	West	O	D	K	5.6
A	West	O	D	L	4.923076923
A	West	O	E	H	5.923076923
A	West	O	E	I	7.8
A	West	O	E	J	6.454545455
A	West	O	E	K	5.6
A	West	O	E	L	4.923076923
A	West	O	F	H	5.923076923
A	West	O	F	I	7.8
A	West	O	F	K	5.6
A	West	O	F	L	4.923076923
A	West	O	G	I	14
A	West	O	G	J	22.5

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
A	West	O	G	K	13
A	West	O	G	L	7.285714286
A	West	O	I	K	13
A	West	O	I	L	7.285714286
A	West	O	J	B	15.5
A	West	O	J	H	12.5
A	West	O	J	J	22.5
A	West	O	J	K	13
A	West	O	J	L	7.285714286
A	West	O	K	G	15.5
A	West	O	L	H	12.5
A	West	O	L	I	14
A	West	O	L	L	7.285714286
A	West	P	A	A	12.38653226
A	West	P	D	B	29.6442538
A	West	P	E	F	16.67927283
A	West	P	F	G	12.85690873
A	West	P	G	I	17.71573361
A	West	P	H	I	18.06291109
A	West	P	I	A	9.100515605
A	West	P	J	J	22.85562009
A	West	P	K	H	19.97750497
B	East	A	A	C	7.341747262
B	East	A	B	E	12.01644154
B	East	A	C	E	8.13571459
B	East	A	D	I	16.50947935
B	East	A	E	I	15.51667011
B	East	A	F	N	23.96605081
B	East	A	I	J	21.46652404
B	East	A	J	M	29.16114567
B	East	A	L	N	12.4521899
B	East	M	A	B	5.675396081
B	East	M	B	E	9.951430582
B	East	M	C	E	5.105242589
B	East	M	D	H	8.45918276
B	East	M	E	H	7.536058801
B	East	M	F	F	14.5315625
B	East	M	H	J	2.689441796
B	East	M	I	J	10.28325809
B	East	M	J	L	8.662575625
B	East	M	K	M	7.351549328
B	East	M	L	M	8.449380694
B	East	M	M	A	1.377777778
B	East	O	A	B	5.630742226
B	East	O	B	E	8.910968882
B	East	O	C	J	8.478786892
B	East	O	D	I	14.83379287
B	East	O	E	F	19.01600759
B	East	O	F	J	8.344008487
B	East	O	I	L	8.163720492
B	East	O	J	L	16.95757378
B	East	O	M	E	18.06847457
B	East	P	A	B	6.273322093
B	East	P	B	C	5.229189
B	East	P	C	F	9.322853666
B	East	P	D	E	8.513794269
B	East	P	E	H	18.83957041
B	East	P	F	H	7.92878209
B	East	P	H	L	14.56832025
B	East	P	I	J	17.09235219
B	East	P	J	L	17.80055144
B	East	P	L	M	29.30817665
B	East	P	M	E	7.8
B	West	A	A	C	4.895266964
B	West	A	B	C	7.656502485
B	West	A	C	E	10.6107362
B	West	A	D	F	13.95160695
B	West	A	E	H	25.55071811
B	West	A	F	H	22.61009838
B	West	A	H	J	25.28932969
B	West	A	J	A	14.53973089
B	West	M	A	B	2.101051489

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
B	West	M	B	C	4.136045578
B	West	M	C	E	10.27038669
B	West	M	D	F	11.12157462
B	West	M	E	F	7.626007169
B	West	M	F	H	7.700747921
B	West	M	G	G	14.62958316
B	West	M	H	I	21.53187114
B	West	M	I	G	17.74173904
B	West	M	J	F	10.29216906
B	West	O	A	E	4.433549749
B	West	O	B	D	11.85233119
B	West	O	C	E	9.262952153
B	West	O	D	H	11.88010371
B	West	O	E	B	9.29235835
B	West	O	F	H	14.36002635
B	West	O	G	I	23.89743635
B	West	P	A	D	5.426423611
B	West	P	B	C	9.348266429
B	West	P	C	F	7.851454682
B	West	P	D	F	20.02071934
B	West	P	E	I	21.39300854
B	West	P	G	D	27.86237195
B	West	P	H	C	28.62203205
B	West	P	I	G	12.97793508
B	West	P	J	F	16.61450148
C	East	A	A	C	16.9
C	East	A	A	H	8.417566541
C	East	A	B	G	16.9
C	East	A	B	H	8.417566541
C	East	A	C	C	16.9
C	East	A	C	H	8.417566541
C	East	A	E	I	12.57252054
C	East	A	F	J	9.142857143
C	East	A	H	I	22.975
C	East	M	A	B	2.964244165
C	East	M	B	C	9.238781086
C	East	M	C	B	5.596584194
C	East	M	D	E	6.081591329
C	East	M	E	C	3.949085279
C	East	M	F	I	4.979391502
C	East	M	G	I	4.099285531
C	East	M	H	J	3.967471708
C	East	M	I	J	7.959616115
C	East	M	K	C	24.52483217
C	East	O	A	K	25.62348794
C	East	O	E	H	10.49925076
C	East	O	F	H	15.02677578
C	East	O	G	H	4.651566795
C	East	O	H	I	11.32733189
C	East	O	J	J	14.03444153
C	East	O	K	J	4.997111756
C	East	P	A	F	7.850072724
C	East	P	B	C	12.58581073
C	East	P	C	C	7.752611324
C	East	P	D	I	3.870103573
C	East	P	E	K	8.266498703
C	East	P	F	H	4.738902334
C	East	P	G	H	13.96356051
C	East	P	H	I	7.278191784
C	East	P	I	F	5.931222313
C	East	P	J	K	25.32224362
C	West	A	A	C	2.648792818
C	West	A	B	C	3.933896489
C	West	A	C	D	2.743913248
C	West	A	D	E	3.065604021
C	West	A	E	G	2.153010916
C	West	A	F	F	2.638706982
C	West	A	G	H	2.858867719
C	West	A	H	A	7.203283436
C	West	A	I	A	14.69363499
C	West	A	J	C	16.43730803
C	West	M	A	B	5.393159443

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
C	West	M	B	F	5.156594046
C	West	M	C	F	4.399053169
C	West	M	D	G	11.45909788
C	West	M	E	C	9.852461477
C	West	M	F	G	10.50456684
C	West	M	G	F	7.76965003
C	West	M	H	I	8.811396528
C	West	M	I	A	20.05223994
C	West	M	J	G	27.75
C	West	O	A	C	27.67857143
C	West	P	A	C	16.08999105
C	West	P	B	F	8.657610034
C	West	P	C	E	11.31097473
C	West	P	D	G	25.19820184
C	West	P	E	F	18.35109551
C	West	P	F	G	8.931008245
C	West	P	G	H	12.4307585
C	West	P	J	J	24.32458682
E	East	A	A	D	9.88474982
E	East	A	A	G	12.62614317
E	East	A	B	C	9.88474982
E	East	A	B	G	12.62614317
E	East	A	C	F	19.13636364
E	East	M	A	D	9.211051912
E	East	M	B	D	4.517350745
E	East	M	C	D	8.65
E	East	M	E	F	14.20286927
E	East	M	F	F	9.865416229
E	East	M	G	A	14.96879188
E	East	M	H	G	3.096991424
E	East	O	A	B	9.657285085
E	East	O	B	D	5.67781761
E	East	O	C	E	17.05010332
E	East	O	D	E	13.44408259
E	East	O	E	E	7.330378894
E	East	O	F	E	12.68767454
E	East	O	G	G	19
E	East	P	A	C	8.072158292
E	East	P	B	C	9.335375582
E	East	P	C	B	3.865475648
E	East	P	D	E	15.14528709
E	East	P	E	F	4.789464915
E	East	P	F	F	3.685893019
E	East	P	G	F	8.346437298
E	East	P	H	G	7.392818238
E	West	A	A	D	7.867357246
E	West	A	B	D	6.492074181
E	West	A	C	F	12.08825685
E	West	A	D	G	7.078754839
E	West	A	E	F	4.840751991
E	West	A	F	G	9.191071322
E	West	A	G	I	10.98932441
E	West	A	H	D	8.711537167
E	West	M	A	C	2.291523896
E	West	M	B	D	9.419420921
E	West	M	C	E	7.732488265
E	West	M	D	D	9.908021899
E	West	M	E	E	5.095050407
E	West	M	F	F	7.211176512
E	West	M	G	E	8.077867032
E	West	M	H	F	10.9625
E	West	O	A	H	29.51480607
E	West	P	A	D	6.055655687
E	West	P	B	D	12.70016241
E	West	P	C	D	12.69766484
E	West	P	D	F	9.346919923
E	West	P	E	F	6.819690792
E	West	P	F	B	25.77496088
E	West	P	H	F	15.66666667
PH1	East	O	B	J	1.014354067
PH1	West	P	B	F	2.587320574
PH2	East	O	A	H	1.381146091

Unique Weighting Factors by Route, Time Period, Direction, and Boarding/Alighting Segment

ROUTE	DIRECTION OF BUS	TIME PERIOD	BOARDING SEGMENT	ALIGHTING SEGMENT	UNLINKED_WGT_Factor
PH2	West	P	A	H	5.322957198
PH3	East	O	C	K	1.769312169
PH3	West	P	A	H	4.013852814
PH4	East	P	A	H	1.05982906
PH4	West	O	H	L	1.17022792
PH5	East	P	C	E	2.06215971
PH5	West	O	B	J	1.350272232
PH6	East	P	C	F	2.278745645
PH6	West	O	G	O	3.052631579

Appendix F
Results of Data Expansion Process for Sample Route

Table H-1. Sum of Expansion Factors in Main Survey Database

Sum of Expansion Factors in Main Survey Database by Route, Direction and Time Period								
	East				West			
Route	6am-9am	9am-2pm	2pm-6pm	6pm to 6am	6am-9am	9am-2pm	2pm-6pm	6pm to 6am
1	2148	3121	2541	1591	1597	2898	2533	1399
2	2258	2465	1871	1222	1557	2800	2477	1564
3	1846	1805	1398	992	1474	2134	2286	1179
4	1063	1625	1314	638	955	1370	1140	641
5	73	123	193	53	191	326	311	138
6	763	1151	769	257	510	1176	951	323
7	336	469	624	329	622	326	449	299
8	22	957	790	610	225	1176	602	334
9	848	797	1444	468	1113	1036	987	769
10	47	63	143	47	105	47	69	53
11	229	222	119	63	59	155	286	83
13	1412	2176	1630	1089	1040	2001	1585	1068
14	138	159	213	101	138	170	238	92
15	102	67	136	24	76	67	100	53
16	23	0	10	0	13	0	27	0
18	33	115	91	56	76	169	206	114
19	329	721	579	653	401	522	606	686
20	349	645	607	207	319	653	409	59
22	82	398	67	0	0	275	333	0
23	330	628	456	111	376	556	629	84
24	57	144	138	10	26	184	147	10
31	107	109	93	111	87	91	79	68
32	157	158	250	134	155	152	325	126
40	1044	1838	1190	1428	866	1664	1225	1795
41	67	158	242	102	308	323	344	70
42	987	1322	976	1246	646	1350	1390	1574
43	298	647	377	0	186	552	511	1
44	86	88	152	42	101	104	127	32
52	558	772	568	254	427	737	709	317
53	364	489	366	108	226	542	462	180
54	390	366	366	393	258	488	627	229
55	320	615	643	491	438	505	666	343
56	322	380	444	241	340	466	548	272
57	227	464	461	325	201	516	692	323
62	709	843	706	713	527	936	1031	564
65	103	247	334	181	352	196	137	238
70	15	36	31	4	26	70	45	13
71	9	0	17	13	23	0	15	4
72	81	74	70	32	46	99	133	17
73	124	129	93	0	41	51	46	0
74	16	0	9	5	12	0	18	1
77	67	142	47	0	36	48	65	5
80	0	0	145	0	139	0	0	61
81	367	0	0	341	0	0	519	32
82	0	0	119	0	68	0	0	69
83	118	0	0	224	0	0	289	0
84	51	0	0	128	0	0	99	0
85	94	0	0	127	0	0	409	0
88	53	0	0	0	0	0	155	0
89	34	0	0	24	0	0	80	0
90	51	0	0	56	0	0	50	0
91	293	0	0	303	0	0	389	35
92	3	0	0	128	0	0	95	0
93	135	0	0	546	0	0	565	0
94	52	0	0	36	0	0	78	0
96	49	0	0	41	0	0	65	0
97	57	0	0	119	0	0	166	0
98	60	0	0	92	0	0	64	0
101	66	0	0	214	0	0	208	0
102	37	0	0	74	0	0	101	0
103	49	0	0	47	0	0	29	0
201	0	0	0	305	0	0	239	0
202	51	0	0	123	0	0	82	0
203	74	0	0	47	0	0	69	0
231	26	34	17	8	13	28	27	14
401	6	79	63	80	8	31	82	73
402	39	41	45	23	34	52	90	43
403	78	30	50	50	56	88	128	71
411	25	36	125	112	48	46	75	53
412	40	72	83	36	69	60	38	33
413	4	0	51	1	95	0	41	20
414	36	38	27	14	7	39	57	14
415	12	0	21	16	6	0	5	29
432	193	293	264	148	158	166	164	118
433	74	281	292	106	117	249	285	64
503	26	22	20	5	26	55	60	21
1L	254	699	588	62	384	612	464	0
57a	262	185	95	0	130	217	160	44
80A	0	0	69	0	82	0	0	0
80B	0	0	0	0	19	0	0	0
84a	155	0	0	80	0	0	125	0
85a	87	0	0	0	0	0	113	0
88a	0	0	60	0	0	0	0	120
98a	20	0	0	127	0	0	86	0
A	1990	2281	1573	1353	1147	2466	2620	843
B	1152	1113	1079	494	721	1038	1264	548
C	803	1093	776	588	461	1263	1088	775
E	628	714	541	490	377	717	898	679
PH1	0	0	0	43	0	0	41	0
PH2	0	0	0	30	0	0	27	0
PH3	0	0	0	32	0	0	44	0
PH4	0	0	17	0	0	0	0	14
PH5	0	0	33	0	0	0	0	27
PH6	0	0	80	0	0	0	0	58
234/235	2	0	19	5	7	0	18	1
501/504	20	40	32	34	32	27	38	35
TOTAL	26164	33781	28856	21254	20378	34084	37357	19015

Table H-2. Estimated Ridership Based on Farebox Data

Estimated Ridership Based on Farebox Data by Route, Direction and Time Period								
	East				West			
Route	6am-9am	9am-2pm	2pm-6pm	6pm to 6am	6am-9am	9am-2pm	2pm-6pm	6pm to 6am
1	2147	3121	2540	1591	1597	2898	2532	1398
2	2258	2465	1871	1221	1557	2801	2478	1563
3	1846	1805	1398	992	1474	2134	2286	1179
4	1063	1625	1314	638	955	1370	1140	641
5	73	123	193	53	191	326	311	139
6	763	1151	769	257	510	1176	951	323
7	336	469	625	329	622	326	449	299
8	22	957	790	610	225	1176	602	334
9	848	797	1444	468	1113	1036	987	769
10	47	63	143	48	105	47	69	53
11	229	222	119	63	59	155	286	83
13	1412	2176	1630	1089	1040	2001	1585	1068
14	138	159	212	101	138	170	238	92
15	102	67	136	24	76	67	100	53
16	23	0	10	0	13	0	26	0
18	33	115	91	56	76	169	206	114
19	329	721	580	653	401	521	606	686
20	349	645	607	207	319	653	409	59
22	82	398	67	0	0	275	333	0
23	330	628	456	111	376	556	629	84
24	57	144	138	10	26	184	146	10
31	107	109	93	111	87	91	79	68
32	157	158	250	134	155	152	325	126
40	1044	1838	1190	1428	866	1664	1225	1795
41	67	158	242	102	308	323	344	70
42	987	1322	976	1246	646	1350	1391	1574
43	298	647	377	0	186	552	511	1
44	86	89	152	42	101	104	127	32
52	558	772	568	253	427	737	709	317
53	363	488	366	108	226	542	462	180
54	390	367	366	393	258	488	627	229
55	320	616	643	491	438	505	666	343
56	322	381	444	240	341	467	549	272
57	228	464	461	325	201	516	692	323
62	709	843	706	713	526	936	1031	564
65	103	247	334	181	353	196	137	238
70	16	36	31	4	26	70	45	13
71	9	0	17	13	23	0	15	4
72	81	74	70	32	46	99	133	17
73	124	129	93	0	41	51	46	0
74	16	0	9	5	12	0	18	1
77	67	142	47	0	36	48	65	5
80	0	0	145	0	139	0	0	61
81	367	0	0	341	0	0	519	32
82	0	0	119	0	68	0	0	69
83	118	0	0	224	0	0	289	0
84	51	0	0	128	0	0	99	0
85	94	0	0	127	0	0	409	0
88	53	0	0	0	0	0	155	0
89	34	0	0	24	0	0	80	0
90	51	0	0	56	0	0	51	0
91	293	0	0	303	0	0	389	35
92	3	0	0	128	0	0	95	0
93	135	0	0	546	0	0	566	0
94	52	0	0	36	0	0	78	0
96	49	0	0	41	0	0	65	0
97	57	0	0	119	0	0	166	0
98	59	0	0	91	0	0	64	0
101	66	0	0	214	0	0	208	0
102	37	0	0	74	0	0	101	0
103	49	0	0	48	0	0	29	0
201	0	0	0	305	0	0	239	0
202	51	0	0	123	0	0	82	0
203	74	0	0	47	0	0	69	0
231	26	34	17	8	14	28	27	14
401	6	80	63	80	8	31	82	73
402	38	41	45	23	34	52	90	43
403	79	30	50	50	56	89	129	71
411	25	36	125	112	48	46	75	53
412	40	72	83	36	69	59	37	33
413	4	0	51	1	95	0	41	20
414	36	37	28	14	7	40	57	14
415	12	0	21	16	6	0	5	29
432	193	293	263	148	158	166	163	118
433	74	281	292	106	117	249	285	64
503	26	23	20	5	26	54	61	21
1L	254	699	588	62	384	612	465	0
57a	262	185	95	3	130	218	159	44
80A	0	0	69	0	82	0	0	0
80B	0	0	0	0	19	0	0	0
84a	155	0	0	80	0	0	126	0
85a	87	0	0	0	0	0	113	0
88a	0	0	60	0	0	0	0	120
98a	20	0	0	127	0	0	86	0
A	1990	2281	1573	1353	1147	2466	2620	844
B	1152	1113	1079	494	721	1038	1264	548
C	803	1093	776	588	461	1263	1088	775
E	628	714	541	490	377	717	898	679
PH1	0	0	0	43	0	0	41	0
PH2	0	0	0	30	0	0	27	0
PH3	0	0	0	32	0	0	44	0
PH4	0	0	17	0	0	0	0	14
PH5	0	0	33	0	0	0	0	27
PH6	0	0	80	0	0	0	0	58
234/235	2	0	19	5	7	0	18	1
501/504	20	40	32	34	32	27	38	35
TOTAL	26164	33786	28854	21254	20381	34086	37360	19016

Table H-3. Difference between Sum of Expansion Factors in Main Survey Database and Farebox

Difference between Sum of Expansion Factors in Main Survey Database and Farebox Data by Route, Direction and Time Period									
	East				West				Percentage Difference for entire route
Route	6am-9am	9am-2pm	2pm-6pm	6pm to 6am	6am-9am	9am-2pm	2pm-6pm	6pm to 6am	
1	1	1	1	0	0	0	1	1	0.0%
2	0	0	0	0	0	0	0	1	0.0%
3	-1	0	0	0	0	-1	0	0	0.0%
4	0	0	-1	0	-1	0	0	0	0.0%
5	0	0	0	0	0	0	0	-1	0.0%
6	0	0	0	0	0	0	0	0	0.0%
7	0	0	0	0	0	0	0	0	0.0%
8	0	0	0	0	0	0	0	0	0.0%
9	1	0	0	0	0	0	0	0	0.0%
10	0	-1	0	-1	0	0	0	-1	-0.4%
11	0	0	0	0	0	0	0	0	0.1%
13	0	0	0	0	0	0	0	0	0.0%
14	0	0	1	0	-1	0	0	0	0.0%
15	0	0	0	-1	0	0	0	0	-0.3%
16	-1	0	0	0	0	0	1	0	0.4%
18	0	0	0	0	0	0	0	0	-0.1%
19	0	0	-1	0	0	0	0	0	0.0%
20	0	0	0	0	0	0	0	0	0.0%
22	0	0	0	0	0	0	0	0	0.0%
23	0	0	0	1	0	0	0	0	0.0%
24	0	0	0	1	0	0	1	0	0.1%
31	0	0	0	0	0	0	0	0	0.1%
32	0	0	0	0	0	0	0	1	0.0%
40	0	0	0	0	0	0	-1	0	0.0%
41	0	0	0	0	0	0	0	0	0.0%
42	0	0	0	0	0	0	0	0	0.0%
43	0	0	0	0	0	0	0	0	0.0%
44	0	-1	0	0	0	0	0	0	-0.1%
52	0	0	0	1	0	0	0	0	0.0%
53	1	1	0	0	0	0	0	0	0.0%
54	0	-1	0	0	0	0	0	0	0.0%
55	0	-1	0	0	0	0	0	0	0.0%
56	0	-1	0	1	-1	-1	-1	0	-0.1%
57	-1	0	0	0	0	0	0	0	0.0%
62	0	0	0	0	1	0	0	0	0.0%
65	0	0	0	0	-1	-1	0	0	-0.1%
70	0	0	0	0	0	0	0	0	0.0%
71	0	0	0	0	1	0	0	0	0.2%
72	0	1	0	0	0	0	0	0	0.0%
73	0	0	0	0	0	0	0	0	0.1%
74	0	0	0	0	0	0	0	0	1.7%
77	0	0	0	0	0	0	0	0	0.1%
80	0	0	0	0	1	0	0	0	0.3%
81	0	0	0	0	0	0	0	-1	-0.1%
82	0	0	0	0	0	0	0	0	0.0%
83	0	0	0	0	0	0	0	0	0.1%
84	0	0	0	0	0	0	0	0	-0.2%
85	0	0	0	0	0	0	0	0	0.0%
88	0	0	0	0	0	0	0	0	-0.1%
89	0	0	0	0	0	0	0	0	0.0%
90	0	0	0	0	0	0	-1	0	-0.4%
91	-1	0	0	1	0	0	0	0	0.0%
92	0	0	0	0	0	0	0	0	0.1%
93	0	0	0	0	0	0	-1	0	0.0%
94	0	0	0	-1	0	0	0	0	-0.8%
96	0	0	0	0	0	0	0	0	0.3%
97	0	0	0	0	0	0	0	0	0.0%
98	0	0	0	0	0	0	0	0	0.2%
101	1	0	0	0	0	0	0	0	0.0%
102	0	0	0	0	0	0	0	0	0.2%
103	0	0	0	-1	0	0	0	0	-0.3%
201	0	0	0	0	0	0	0	0	0.0%
202	-1	0	0	0	0	0	0	0	-0.2%
203	0	0	0	0	0	0	0	0	-0.2%
231	0	0	0	0	0	0	0	0	0.4%
401	0	-1	0	0	0	0	0	0	-0.6%
402	1	0	0	0	0	0	0	0	0.4%
403	-1	0	0	0	0	-1	-1	0	-0.5%
411	0	0	0	0	0	0	0	0	0.0%
412	0	0	0	0	0	0	1	0	0.4%
413	0	0	0	0	0	0	0	0	-0.5%
414	0	1	0	0	0	-1	0	0	0.2%
415	0	0	0	0	0	0	0	0	-0.7%
432	0	0	1	0	0	0	1	0	0.1%
433	0	0	0	0	0	0	0	0	0.0%
503	0	-1	0	0	0	1	-1	0	-0.8%
1L	0	0	1	0	0	0	-1	0	0.0%
57a	0	0	0	-3	0	-1	1	0	-0.3%
80A	0	0	0	0	0	0	0	0	0.0%
80B	0	0	0	0	0	0	0	0	0.0%
84a	0	0	0	0	0	0	-1	0	-0.3%
85a	0	0	0	0	0	0	0	0	0.1%
88a	0	0	0	0	0	0	0	0	0.2%
98a	0	0	0	0	0	0	0	0	0.0%
A	0	0	0	0	0	0	0	-1	0.0%
B	1	0	0	0	0	0	0	0	0.0%
C	0	0	0	0	0	0	0	0	0.0%
E	0	0	0	0	-1	0	0	0	0.0%
PH1	0	0	0	0	0	0	0	0	0.0%
PH2	0	0	0	0	0	0	0	0	0.0%
PH3	0	0	0	0	0	0	0	0	0.0%
PH4	0	0	0	0	0	0	0	0	0.0%
PH5	0	0	0	0	0	0	0	0	0.0%
PH6	0	0	0	0	0	0	0	0	-0.2%
234/235	0	0	0	0	0	0	0	0	0.0%
501/504	0	0	0	0	0	0	0	0	0.0%
TOTAL	-1	-4	2	-1	-3	-2	-3	-2	-0.018

Table H-4. Number of Main Surveys Collected

Number of Main Surveys Collected by Route, Direction and Time Period								
	East				West			
Route	6am-9am	9am-2pm	2pm-6pm	6pm to 6am	6am-9am	9am-2pm	2pm-6pm	6pm to 6am
1	244	474	288	111	158	399	276	83
2	288	440	209	131	200	326	274	84
3	183	310	185	86	174	294	229	50
4	117	245	160	33	137	234	145	45
5	25	32	24	12	38	24	31	6
6	65	131	106	40	57	123	78	43
7	36	112	39	18	34	82	55	21
8	22	108	95	39	14	90	72	45
9	76	138	100	37	84	126	77	32
10	8	29	14	10	7	19	12	4
11	12	33	21	7	22	38	36	11
13	122	237	168	32	104	250	200	39
14	18	44	15	4	9	24	14	4
15	19	26	6	3	3	23	6	2
16	4	N/A	5	N/A	2	N/A	5	N/A
18	12	19	9	7	17	17	8	4
19	43	105	75	33	60	89	49	22
20	46	93	57	14	52	85	57	5
22	8	23	6	N/A	N/A	11	17	N/A
23	66	107	49	8	17	52	22	26
24	13	18	19	1	1	13	15	1
31	11	28	20	4	15	44	16	3
32	8	25	12	15	17	43	22	16
40	39	295	149	51	173	225	160	65
41	44	26	23	11	26	52	38	16
42	46	165	152	71	142	163	174	57
43	29	82	54	N/A	32	98	59	1
44	13	18	24	6	6	20	14	10
52	20	108	95	11	89	129	95	11
53	32	76	46	21	39	77	43	10
54	52	80	55	13	39	76	66	15
55	42	117	63	17	58	59	24	12
56	35	47	30	23	44	49	76	10
57	21	65	41	20	29	101	43	11
62	39	111	50	40	110	103	96	19
65	28	47	21	8	19	32	21	8
70	10	8	10	3	5	5	7	1
71	2	N/A	4	1	1	N/A	1	1
72	3	19	4	1	2	18	10	1
73	4	13	12	N/A	2	2	4	N/A
74	2	N/A	5	1	2	N/A	5	1
77	11	16	6	N/A	13	12	12	1
80	N/A	N/A	37	N/A	34	N/A	N/A	5
81	39	N/A	N/A	62	N/A	N/A	62	1
82	N/A	N/A	22	N/A	33	N/A	N/A	3
83	44	N/A	N/A	9	N/A	N/A	49	N/A
84	3	N/A	N/A	70	N/A	N/A	21	N/A
85	31	N/A	N/A	13	N/A	N/A	21	N/A
88	26	N/A	N/A	N/A	N/A	N/A	17	N/A
89	7	N/A	N/A	18	N/A	N/A	16	N/A
90	29	N/A	N/A	31	N/A	N/A	28	N/A
91	25	N/A	N/A	21	N/A	N/A	62	2
92	3	N/A	N/A	28	N/A	N/A	53	N/A
93	65	N/A	N/A	19	N/A	N/A	84	N/A
94	45	N/A	N/A	21	N/A	N/A	70	N/A
96	40	N/A	N/A	20	N/A	N/A	34	N/A
97	41	N/A	N/A	22	N/A	N/A	64	N/A
98	36	N/A	N/A	24	N/A	N/A	32	N/A
101	32	N/A	N/A	29	N/A	N/A	50	N/A
102	7	N/A	N/A	22	N/A	N/A	46	N/A
103	2	N/A	N/A	39	N/A	N/A	39	N/A
201	N/A	N/A	N/A	28	N/A	N/A	49	N/A
202	11	N/A	N/A	8	N/A	N/A	12	N/A
203	24	N/A	N/A	6	N/A	N/A	30	N/A
231	5	4	1	1	3	3	2	1
401	2	12	5	3	3	5	3	3
402	4	9	10	1	1	2	4	2
403	8	6	14	4	2	8	17	3
411	12	11	8	5	2	11	8	5
412	20	10	3	2	3	8	8	4
413	5	N/A	5	3	3	N/A	7	1
414	13	7	1	1	1	6	3	1
415	2	N/A	9	2	1	N/A	1	1
432	11	34	23	7	6	36	22	6
433	14	35	23	4	8	27	20	3
503	2	7	4	1	13	2	7	2
1L	10	76	56	8	13	66	54	N/A
57a	28	37	7	N/A	38	44	12	5
80A	N/A	N/A	19	N/A	24	N/A	N/A	N/A
80B	N/A	N/A	N/A	N/A	9	N/A	N/A	N/A
84a	10	N/A	N/A	26	N/A	N/A	42	N/A
85a	14	N/A	N/A	N/A	N/A	N/A	22	N/A
88a	N/A	N/A	10	N/A	N/A	N/A	N/A	25
98a	20	N/A	N/A	29	N/A	N/A	17	N/A
A	171	358	206	119	134	298	179	97
B	86	157	106	51	64	163	100	50
C	62	178	88	42	112	159	76	28
E	41	81	85	51	50	107	85	23
PH1	N/A	N/A	N/A	42	N/A	N/A	16	N/A
PH2	N/A	N/A	N/A	22	N/A	N/A	5	N/A
PH3	N/A	N/A	N/A	18	N/A	N/A	11	N/A
PH4	N/A	N/A	16	N/A	N/A	N/A	N/A	12
PH5	N/A	N/A	16	N/A	N/A	N/A	N/A	20
PH6	N/A	N/A	35	N/A	N/A	N/A	N/A	19
234/235	2	N/A	5	2	3	N/A	4	1
501/504	4	3	7	9	1	1	15	5
TOTAL	2974	5095	3347	1886	2614	4573	4243	1124

Table H-5. Expansion Factors Based ONLY on Estimated Ridership and Total Main Surveys Collected

Expansion Factors Based ONLY on Estimated Ridership and Total Main Surveys Collected								
	East				West			
Route	6am-9am	9am-2pm	2pm-6pm	6pm to 6am	6am-9am	9am-2pm	2pm-6pm	6pm to 6am
1	8.80	6.58	8.82	14.34	10.11	7.26	9.17	16.84
2	7.84	5.60	8.95	9.32	7.78	8.59	9.04	18.60
3	10.09	5.82	7.56	11.54	8.47	7.26	9.98	23.58
4	9.09	6.63	8.21	19.34	6.97	5.85	7.86	14.24
5	2.92	3.83	8.02	4.38	5.03	13.60	10.04	23.10
6	11.73	8.79	7.26	6.42	8.94	9.56	12.20	7.51
7	9.32	4.19	16.02	18.26	18.28	3.98	8.16	14.22
8	1.00	8.86	8.32	15.65	16.08	13.07	8.37	7.42
9	11.15	5.78	14.44	12.65	13.25	8.22	12.82	24.03
10	5.83	2.19	10.21	4.80	15.02	2.46	5.75	13.32
11	19.06	6.74	5.68	8.94	2.70	4.07	7.96	7.55
13	11.57	9.18	9.70	34.03	10.00	8.00	7.93	27.38
14	7.69	3.62	14.13	25.27	15.37	7.08	16.97	23.00
15	5.35	2.58	22.69	8.12	25.42	2.90	16.67	26.41
16	5.85	N/A	2.03	N/A	6.30	N/A	5.29	N/A
18	2.75	6.07	10.12	8.04	4.48	9.96	25.78	28.59
19	7.65	6.86	7.73	19.78	6.69	5.86	12.36	31.20
20	7.58	6.94	10.65	14.81	6.14	7.68	7.17	11.74
22	10.24	17.32	11.09	N/A	N/A	24.97	19.61	N/A
23	5.00	5.87	9.31	13.86	22.10	10.69	28.57	3.25
24	4.41	8.00	7.28	9.50	25.90	14.14	9.75	9.96
31	9.69	3.88	4.66	27.76	5.81	2.06	4.96	22.61
32	19.68	6.32	20.84	8.96	9.13	3.54	14.78	7.85
40	26.77	6.23	7.99	28.01	5.00	7.40	7.66	27.62
41	1.52	6.08	10.52	9.27	11.85	6.21	9.05	4.38
42	21.45	8.01	6.42	17.55	4.55	8.29	7.99	27.62
43	10.26	7.89	6.98	N/A	5.83	5.63	8.66	1.00
44	6.62	4.94	6.33	7.00	16.83	5.20	9.07	3.20
52	27.91	7.15	5.98	23.04	4.79	5.72	7.46	28.83
53	11.34	6.42	7.96	5.14	5.79	7.04	10.74	18.00
54	7.50	4.59	6.66	30.23	6.63	6.42	9.50	15.29
55	7.61	5.27	10.20	28.85	7.55	8.55	27.74	28.61
56	9.21	8.11	14.79	10.42	7.75	9.54	7.22	27.21
57	10.85	7.14	11.25	16.24	6.93	5.11	16.08	29.34
62	18.18	7.59	14.11	17.81	4.78	9.09	10.74	29.69
65	3.68	5.26	15.91	22.61	18.57	6.13	6.52	29.75
70	1.56	4.53	3.12	1.27	5.15	13.90	6.38	13.21
71	4.32	N/A	4.32	12.96	22.68	N/A	15.12	4.32
72	26.84	3.87	17.62	32.25	23.00	5.51	13.33	16.72
73	30.89	9.92	7.75	N/A	20.33	25.61	11.41	N/A
74	7.97	N/A	1.78	5.49	5.77	N/A	3.52	0.55
77	6.12	8.86	7.87	N/A	2.77	4.02	5.39	4.76
80	N/A	N/A	3.92	N/A	4.07	N/A	N/A	12.29
81	9.41	N/A	N/A	5.50	N/A	N/A	8.38	32.42
82	N/A	N/A	5.42	N/A	2.07	N/A	N/A	23.16
83	2.67	N/A	N/A	24.88	N/A	N/A	5.91	N/A
84	17.14	N/A	N/A	1.83	N/A	N/A	4.70	N/A
85	3.03	N/A	N/A	9.74	N/A	N/A	19.49	N/A
88	2.04	N/A	N/A	N/A	N/A	N/A	9.12	N/A
89	4.81	N/A	N/A	1.35	N/A	N/A	5.00	N/A
90	1.76	N/A	N/A	1.82	N/A	N/A	1.81	N/A
91	11.74	N/A	N/A	14.41	N/A	N/A	6.28	17.35
92	1.00	N/A	N/A	4.57	N/A	N/A	1.79	N/A
93	2.08	N/A	N/A	28.73	N/A	N/A	6.74	N/A
94	1.16	N/A	N/A	1.73	N/A	N/A	1.12	N/A
96	1.23	N/A	N/A	2.04	N/A	N/A	1.91	N/A
97	1.40	N/A	N/A	5.39	N/A	N/A	2.59	N/A
98	1.65	N/A	N/A	3.81	N/A	N/A	2.01	N/A
101	2.05	N/A	N/A	7.37	N/A	N/A	4.17	N/A
102	5.29	N/A	N/A	3.36	N/A	N/A	2.20	N/A
103	24.57	N/A	N/A	1.22	N/A	N/A	0.75	N/A
201	N/A	N/A	N/A	10.89	N/A	N/A	4.88	N/A
202	4.65	N/A	N/A	15.33	N/A	N/A	6.84	N/A
203	3.06	N/A	N/A	7.90	N/A	N/A	2.30	N/A
231	5.22	8.56	16.87	7.52	4.61	9.18	13.53	13.84
401	3.15	6.65	12.59	26.59	2.80	6.30	27.29	24.49
402	9.60	4.52	4.52	22.59	33.89	25.98	22.59	21.46
403	9.82	5.04	3.60	12.59	28.20	11.08	7.58	23.50
411	2.08	3.27	15.63	22.40	24.00	4.18	9.38	10.60
412	2.01	7.16	27.51	18.16	23.01	7.40	4.67	8.17
413	0.90	N/A	10.24	0.33	31.74	N/A	5.88	19.94
414	2.78	5.31	27.54	13.67	6.88	6.59	18.92	14.40
415	6.00	N/A	2.37	8.01	5.74	N/A	4.67	29.22
432	17.54	8.62	11.45	21.12	26.31	4.61	7.43	19.73
433	5.30	8.04	12.71	26.43	14.62	9.21	14.23	21.37
503	12.97	3.28	5.07	5.27	2.02	27.17	8.64	10.73
1L	25.42	9.20	10.49	7.74	29.51	9.27	8.60	N/A
57a	9.36	4.99	13.56	N/A	3.43	4.94	13.26	8.85
80A	N/A	N/A	3.65	N/A	3.40	N/A	N/A	N/A
80B	N/A	N/A	N/A	N/A	2.11	N/A	N/A	N/A
84a	15.54	N/A	N/A	3.09	N/A	N/A	3.01	N/A
85a	6.21	N/A	N/A	N/A	N/A	N/A	5.14	N/A
88a	N/A	N/A	5.97	N/A	N/A	N/A	N/A	4.81
98a	1.00	N/A	N/A	4.37	N/A	N/A	5.08	N/A
A	11.64	6.37	7.64	11.37	8.56	8.27	14.64	8.70
B	13.39	7.09	10.18	9.69	11.27	6.37	12.64	10.97
C	12.95	6.14	8.82	14.00	4.12	7.94	14.32	27.68
E	15.31	8.81	6.37	9.61	7.55	6.70	10.57	29.51
PH1	N/A	N/A	N/A	1.01	N/A	N/A	2.59	N/A
PH2	N/A	N/A	N/A	1.38	N/A	N/A	5.32	N/A
PH3	N/A	N/A	N/A	1.77	N/A	N/A	4.01	N/A
PH4	N/A	N/A	1.06	N/A	N/A	N/A	N/A	1.17
PH5	N/A	N/A	2.06	N/A	N/A	N/A	N/A	1.35
PH6	N/A	N/A	2.28	N/A	N/A	N/A	N/A	3.07
234/235	1.20	N/A	3.86	2.40	2.41	N/A	4.46	1.43
501/504	5.06	13.50	4.58	3.75	32.06	27.00	2.53	7.00

Appendix G: Results by Location of Route: Within Project Corridor, Connecting to Project Corridor, and Outside Project Corridor

Are you a visitor to Hawaii?

N=26246	Corridor Code			Total
	Routes Inside Corridor	Routes Connecting to Corridor	Routes Outside Corridor	
VISITOR 2 HAWAII				
Yes	5.4%	6.2%	11.9%	5.9%
No	94.6%	93.8%	88.1%	94.1%

What type of place are you COMING FROM now? What was the starting place for your one-way trip?

N=26246	Corridor Code			Total
	Routes Inside Corridor	Routes Connecting to Corridor	Routes Outside Corridor	
ORIGIN_TYPE				
Respondent's Workplace	19.6%	19.1%	19.2%	19.5%
Shopping	9.7%	8.2%	8.7%	9.5%
School (grades K-12)	3.5%	3.5%	4.9%	3.6%
Hotel	1.4%	1.3%	3.8%	1.5%
Airport (as an air passenger)	0.4%	0.1%	0.1%	0.4%
Recreation/sightseeing	3.0%	4.6%	4.8%	3.3%
Medical appointment/ doctor’s visit	2.4%	1.8%	1.1%	2.3%
Social visit/church/ personal/friend’s house	5.8%	5.2%	3.3%	5.6%
College/University (students only)	5.5%	4.0%	2.4%	5.2%
Respondent's Home	47.4%	50.5%	50.9%	47.9%
Other	1.3%	1.7%	0.9%	1.3%

How did you get from the place where you started this one-way trip to the very FIRST bus you used for this one-way trip?

N=26246	Corridor Code			Total
	Routes Inside Corridor	Routes Connecting to Corridor	Routes Outside Corridor	
MODE FROM ORIGIN TO BUS				
Walk	96.8%	91.6%	94.1%	96.2%
Bike	0.6%	1.2%	1.2%	0.7%
Was dropped off by someone going someplace else	1.8%	3.7%	3.2%	2.1%
Drove alone and parked	0.3%	2.7%	1.0%	0.6%
Drove or rode with others and parked	0.2%	0.5%	0.2%	0.2%
Wheelchair/scooter	0.2%	0.2%	0.2%	0.2%
Other	0.1%	0.1%	0.1%	0.1%

What type of place are you GOING TO now? What is the ending place for your one-way trip?

N=26246	Corridor Code			Total
	Routes Inside Corridor	Routes Connecting to Corridor	Routes Outside Corridor	
DESTIN_TYPE				
Respondent's Workplace	23.3%	27.5%	26.3%	23.9%
Shopping	11.2%	10.3%	8.6%	10.9%
School (grades K-12)	2.4%	2.1%	4.4%	2.5%
Hotel	1.3%	1.0%	2.2%	1.3%
Airport (as an air passenger)	0.3%	0.0%	0.2%	0.3%
Recreation/sightseeing	4.2%	6.4%	9.9%	4.8%
Medical appointment/ doctor's visit	2.8%	2.5%	1.4%	2.7%
Social visit/church/ personal/friend's house	9.3%	8.7%	7.1%	9.1%
College/University (students only)	6.4%	4.9%	3.1%	6.1%
Respondent's Home	37.6%	35.7%	35.8%	37.3%
Other	1.1%	0.9%	1.0%	1.1%

How will you get to your destination once you get off the LAST bus you are using for this one-way trip?

N=26246	Corridor Code			Total
	Routes Inside Corridor	Routes Connecting to Corridor	Routes Outside Corridor	
MODE FROM BUS TO DESTINATION				
Walk	97.9%	95.4%	95.9%	97.6%
Bike	0.6%	1.2%	1.1%	0.7%
Be picked up by someone	0.9%	1.6%	1.4%	1.0%
Get in a parked vehicle & drive alone	0.2%	1.4%	0.6%	0.3%
Get in a parked vehicle & drive/ride with others	0.1%	0.2%	0.8%	0.2%
Wheelchair/scooter	0.2%	0.1%	0.2%	0.2%
Other	0.1%	0.1%	0.0%	0.1%

What time did you get on THIS bus?

N=26246	Corridor Code			Total
	Routes Inside Corridor	Routes Connecting to Corridor	Routes Outside Corridor	
TIME BOARDED BUS				
Before 6 a.m.	2.0%	10.0%	6.3%	3.0%
6 - 7 a.m.	5.3%	8.5%	12.6%	6.1%
7 - 8 a.m.	7.7%	6.5%	7.0%	7.5%
8 - 9 a.m.	8.1%	6.6%	7.9%	8.0%
9 - 10 a.m.	8.2%	7.5%	6.1%	8.0%
10 - 11 a.m.	8.7%	6.3%	6.8%	8.4%
11 - 12 a.m.	8.0%	6.3%	5.9%	7.7%
12 - 1 p.m.	7.0%	6.5%	6.3%	6.9%
1 - 2 p.m.	6.5%	6.1%	4.7%	6.3%
2 - 3 p.m.	7.2%	4.6%	5.0%	6.8%
3 - 4 p.m.	7.4%	6.6%	9.1%	7.5%
4 - 5 p.m.	8.3%	11.6%	11.0%	8.8%
5 - 6 p.m.	6.2%	7.4%	7.0%	6.3%
6 - 7 p.m.	5.6%	3.6%	3.0%	5.2%
7 - 8 p.m.	3.2%	1.7%	1.4%	3.0%
After 8 p.m.	0.6%	0.1%	0.0%	0.5%

Did you transfer FROM another bus BEFORE getting on this bus?

N=26246	Corridor Code			Total
	Routes Inside Corridor	Routes Connecting to Corridor	Routes Outside Corridor	
TRANSFER FROM ANOTHER BUS BEFORE BOARDING THIS BUS				
Yes	16.5%	17.9%	14.0%	16.4%
No	83.5%	82.1%	86.0%	83.6%

Will you transfer TO another bus AFTER getting off this bus?

N=26246	Corridor Code			Total
	Routes Inside Corridor	Routes Connecting to Corridor	Routes Outside Corridor	
TRANSFER TO ANOTHER BUS AFTER THIS BUS				
Yes	15.8%	16.4%	15.6%	15.8%
No	84.2%	83.6%	84.4%	84.2%

Did you board a bus at Ala Moana Center at any time during this one-way trip?

N=26246	Corridor Code			Total
	Routes Inside Corridor	Routes Connecting to Corridor	Routes Outside Corridor	
BOARDED AT ALA MOANA CENTER				
Yes	6.0%	15.2%	7.5%	6.9%
No	94.0%	84.8%	92.5%	93.1%

If you did board a bus at Ala Moana Center during this one-way trip, Which of the following BEST describes the main reason you were at Ala Moana Center during this trip?

N=26246	Corridor Code			Total
	Routes Inside Corridor	Routes Connecting to Corridor	Routes Outside Corridor	
REASON VISITED ALA MOANA CENTER				
The main reason I was at Ala Moana Center was to go to work, shop, dine, or something other than board a bus or transfer to another bus	39.0%	20.6%	26.0%	34.5%
The main reason I was at Ala Moana Center was to board a bus or transfer to another bus	49.8%	70.8%	61.1%	54.7%
I was at Ala Moana Center to board a bus (or transfer to another bus) but I also did a few other things that were convenient to do while I was waiting, such as shopping, eating, using an ATM, etc.	11.2%	8.6%	13.0%	10.8%

If TRANSIT SERVICE WAS NOT AVAILABLE, how would you make THIS ONE-WAY TRIP?

N=26246	Corridor Code			Total
	Routes Inside Corridor	Routes Connecting to Corridor	Routes Outside Corridor	
IF NO TRANSIT AVAILABLE_HOW MAKE TRIP				
I could not make this trip	26.2%	30.2%	26.7%	26.6%
Taxi	6.7%	3.2%	5.5%	6.3%
Drive myself	15.7%	27.6%	23.2%	17.3%
Drive with someone else	29.3%	29.9%	25.1%	29.1%
Walk/Bike	20.9%	8.1%	18.2%	19.6%
Other	1.1%	1.0%	1.5%	1.1%

How long have you been riding the bus?

N=26246	Corridor Code			Total
	Routes Inside Corridor	Routes Connecting to Corridor	Routes Outside Corridor	
HOW LONG RIDING THE BUS				
Less than 1 year	12.0%	13.1%	11.5%	12.1%
1 to 2 years	13.8%	14.5%	11.8%	13.7%
3 to 5 years	20.5%	19.7%	20.4%	20.4%
6 to 9 years	12.3%	11.9%	10.2%	12.1%
10 to 14 years	10.7%	9.3%	9.1%	10.5%
more than 15 years	25.3%	25.4%	25.2%	25.3%
Did Not Have Time	1.3%	0.7%	2.3%	1.3%
Did Not Remember	4.1%	5.4%	9.6%	4.6%

How many days per week do you usually ride the bus?

N=26246	Corridor Code			Total
	Routes Inside Corridor	Routes Connecting to Corridor	Routes Outside Corridor	
DAYS PER WEEK RIDE THE BUS				
One	2.8%	4.1%	3.3%	2.9%
Two	4.8%	4.7%	3.6%	4.7%
Three	7.6%	8.1%	5.0%	7.5%
Four	9.5%	9.2%	7.6%	9.4%
Five	34.6%	40.4%	41.9%	35.6%
Six	10.2%	8.6%	7.8%	9.9%
Seven	26.2%	19.3%	20.9%	25.2%
Did Not Know - Varies	4.2%	5.6%	10.0%	4.7%

How did you pay for your trip today?

N=26246	Corridor Code			Total
	Routes Inside Corridor	Routes Connecting to Corridor	Routes Outside Corridor	
HOW PAID FOR TRIP				
One Way (Single Ride) Cash Fare	22.3%	27.0%	26.9%	23.0%
Monthly Pass	47.8%	47.1%	50.3%	47.9%
U Pass	13.0%	7.5%	6.7%	12.1%
4-Day Pass	0.4%	0.9%	0.9%	0.5%
Annual Pass	14.7%	15.1%	13.2%	14.6%
Two Year Pass	1.5%	2.1%	1.7%	1.5%
City/County of Honolulu Police	0.1%	0.1%	0.2%	0.1%
OTS Employee	0.2%	0.2%	0.2%	0.2%

Which of the following fare discounts do you receive?

N=26246	Corridor Code			Total
	Routes Inside Corridor	Routes Connecting to Corridor	Routes Outside Corridor	
FARE DISCOUNTS				
None	66.4%	69.2%	70.3%	66.9%
Student	16.3%	12.8%	14.4%	15.8%
Senior	8.7%	7.4%	7.9%	8.5%
Disability	8.1%	9.8%	7.0%	8.2%
U.S. Medicare	0.2%	0.4%	0.2%	0.3%
TheHandi-Van	0.2%	0.3%	0.2%	0.2%

How many WORKING vehicles (cars, trucks, or motorcycles) are available to your household?

N=26246	Corridor Code			Total
	Routes Inside Corridor	Routes Connecting to Corridor	Routes Outside Corridor	
VEHICLES IN HH				
None	37.3%	31.6%	33.0%	36.5%
One	31.3%	29.8%	30.8%	31.1%
Two	19.4%	22.2%	21.7%	19.8%
Three	7.4%	9.7%	8.3%	7.7%
Four or More	4.6%	6.7%	6.1%	4.9%

Including YOU, how many adults (age 18 and older) live in your household?

N=26246	Corridor Code			Total
	Routes Inside Corridor	Routes Connecting to Corridor	Routes Outside Corridor	
HOUSEHOLD ADULTS				
One	24.2%	22.9%	26.4%	24.2%
Two	32.5%	35.2%	37.6%	33.1%
Three	19.3%	18.6%	18.0%	19.1%
Four	12.5%	10.7%	9.4%	12.1%
Five	5.5%	5.3%	4.7%	5.4%
Six	2.5%	3.1%	1.9%	2.5%
Seven	1.3%	1.4%	0.7%	1.3%
Eight	0.8%	0.7%	0.6%	0.8%
Nine	0.3%	0.4%	0.2%	0.3%
Ten or more	1.2%	1.7%	0.7%	1.2%

Including YOU, how many people in your household work outside the home?

N=26246	Corridor Code			Total
	Routes Inside Corridor	Routes Connecting to Corridor	Routes Outside Corridor	
WORKOUTSIDEHOME_IN HH				
One	32.6%	33.6%	33.3%	32.8%
Two	31.2%	32.0%	35.6%	31.6%
Three	17.8%	16.4%	16.2%	17.6%
Four	9.7%	9.1%	7.8%	9.5%
Five	4.2%	4.2%	4.5%	4.2%
Six	1.9%	2.0%	1.1%	1.8%
Seven	1.0%	1.0%	0.6%	0.9%
Eight	0.6%	0.3%	0.2%	0.5%
Nine	0.3%	0.3%	0.2%	0.3%
Ten or more	0.9%	1.2%	0.6%	0.9%

Employment Status of Respondent

N=26246	Corridor Code			Total
	Routes Inside Corridor	Routes Connecting to Corridor	Routes Outside Corridor	
EMPLOYMENT STATUS				
Employed full-time (at least 35 hours per week)	45.5%	50.8%	51.7%	46.4%
Employed part-time (less than 35 hours per week)	21.0%	20.5%	13.6%	20.5%
Not currently employed but seeking work	6.5%	7.0%	5.5%	6.4%
Not currently employed and not seeking work	16.4%	12.7%	18.2%	16.2%
Retired	9.4%	8.0%	9.5%	9.3%
Homemaker	1.2%	0.9%	1.4%	1.2%

Are you a student?

N=26246	Corridor Code			Total
	Routes Inside Corridor	Routes Connecting to Corridor	Routes Outside Corridor	
STUDENT STATUS				
Not a student	72.8%	76.2%	76.0%	73.3%
Yes – Full Time college/ university	15.4%	11.8%	8.9%	14.6%
Yes – student thru 12th grade	7.3%	6.6%	10.8%	7.4%
Yes – Part Time college/ university	3.2%	3.6%	2.3%	3.1%
Yes – Other	1.4%	1.8%	1.9%	1.5%

Do you have a valid driver's license?

N=26246	Corridor Code			Total
	Routes Inside Corridor	Routes Connecting to Corridor	Routes Outside Corridor	
DRIVER LICENSE				
Yes	51.7%	59.7%	61.2%	53.1%
No	48.3%	40.3%	38.8%	46.9%

Do you have a certified physical disability that limits your mobility?

N=26246	Corridor Code			Total
	Routes Inside Corridor	Routes Connecting to Corridor	Routes Outside Corridor	
DISABILITY				
Yes	5.4%	6.6%	4.3%	5.4%
No	94.6%	93.4%	95.7%	94.6%

What is your AGE?

N=26246	Corridor Code			Total
	Routes Inside Corridor	Routes Connecting to Corridor	Routes Outside Corridor	
AGE				
Under 18	7.6%	7.5%	12.3%	7.9%
18-24	23.3%	18.5%	16.6%	22.5%
25-34	17.7%	17.5%	14.5%	17.5%
35-44	14.3%	15.3%	12.8%	14.3%
45-54	15.5%	18.4%	16.9%	15.8%
55-64	11.5%	13.8%	17.0%	12.0%
65+	10.1%	9.0%	9.8%	10.0%

Do you speak a language other than English at home?

N=26246	Corridor Code			Total
	Routes Inside Corridor	Routes Connecting to Corridor	Routes Outside Corridor	
SPEAK NON-ENGLISH AT HOME				
Yes	35.3%	25.8%	24.5%	33.7%
No	64.7%	74.2%	75.5%	66.3%

Which of the following categories BEST describes your TOTAL ANNUAL HOUSEHOLD INCOME?

N=26246	Corridor Code			Total
	Routes Inside Corridor	Routes Connecting to Corridor	Routes Outside Corridor	
INCOME				
Below $12,000	14.7%	16.1%	11.0%	14.6%
$12,000 - $14,999	7.1%	7.6%	4.8%	7.0%
$15,000 - $29,999	14.6%	12.5%	10.3%	14.1%
$30,000 - $39,999	13.5%	11.3%	12.3%	13.2%
$40,000 - $49,999	10.9%	8.9%	9.2%	10.6%
$50,000 - $59,999	10.3%	9.7%	9.7%	10.2%
$60,000 - $74,999	8.3%	9.3%	9.7%	8.5%
$75,000 - $89,999	6.7%	8.2%	7.8%	6.9%
$90,000 - $114,999	5.2%	8.3%	9.5%	5.8%
$115,000 +	4.2%	5.9%	7.5%	4.6%
Did Not Know	4.5%	2.3%	8.3%	4.5%

Which of the following categories BEST describes you?

N=26246	Corridor Code			Total
	Routes Inside Corridor	Routes Connecting to Corridor	Routes Outside Corridor	
ETHNICITY				
Asian Japanese	10.8%	9.1%	13.9%	10.9%
Asian Filipino	21.4%	11.7%	7.2%	19.6%
Asian Chinese	5.1%	3.0%	5.0%	4.9%
Asian Korean	1.8%	1.5%	1.6%	1.8%
Asian-other	6.4%	11.5%	11.3%	7.2%
Pacific Islander or Native Hawaiian	24.0%	27.1%	21.4%	24.1%
Black or African American	3.6%	2.7%	2.7%	3.4%
American Indian or Alaska Native	0.6%	1.0%	0.5%	0.6%
Hispanic or Latino	4.1%	4.2%	4.1%	4.1%
White	22.2%	28.1%	32.4%	23.4%

Respondent Gender

N=26246	Corridor Code			Total
	Routes Inside Corridor	Routes Connecting to Corridor	Routes Outside Corridor	
GENDER				
Male	46.7%	47.0%	47.4%	46.8%
Female	53.3%	53.0%	52.6%	53.2%

Total Number of Transfers

N=26246	Corridor Code			Total
	Routes Inside Corridor	Routes Connecting to Corridor	Routes Outside Corridor	
Total Transfers				
None	69.1%	67.3%	71.2%	69.0%
One	27.9%	29.8%	25.1%	27.9%
Two	2.8%	2.5%	3.6%	2.9%
Three	0.2%	0.3%	0.2%	0.2%

Trip Purpose

N=26246	Corridor Code			Total
	Routes Inside Corridor	Routes Connecting to Corridor	Routes Outside Corridor	
PURPOSE Code				
Home-Based Other	20.2%	21.6%	22.3%	20.4%
Home-Based Work	37.4%	42.5%	43.3%	38.3%
Home-Based Shopping	14.6%	12.3%	13.6%	14.3%
Home-Based School	4.9%	4.7%	8.3%	5.1%
Non Home-Based Other	7.6%	7.9%	5.1%	7.5%
Home-Based College	9.9%	7.1%	5.1%	9.4%
Non Home-Based Work	4.8%	3.6%	2.1%	4.5%
Home-Based Airport	0.5%	0.1%	0.2%	0.5%