



2014 TRI DELTA ON-BOARD TRANSIT SURVEY

FINAL REPORT

Developed by:



November, 2014

TABLE OF CONTENTS

Survey Overview	1
Data Requirements	1
Survey Instrument	2
Sampling Plan: Goal vs. Actual Completes	3
Sampling Methods	4
On-to-Off Administration Methodology	6
Main Survey Administration Methodology	9
Data Review Process	13
Data Expansion.....	17
Findings from the Survey.....	19
Charts and Graphs.....	27
The Database Description.....	43
Weighted Tabular Data.....	48
Survey Instrument.....	63

The primary objective for conducting the On-Board Transit Survey was to gather accurate travel data from transit riders to update the regional travel demand model. The universe for the survey consisted of 17 bus routes operated by the Tri Delta transit agency. The survey consisted of two major elements. The On-to-Off element is intended to identify boarding and alighting patterns of transit riders as well as provide a basis for expanding the results of the Main Survey. The Main Survey element consisted of detailed surveys of riders conducted on-board bus routes. Overall, the contracted goals were to complete 100% On-to-Off surveys and 1,097 main surveys. Ultimately almost 1,300 main surveys were completed. The following pages further describe the survey process.

Survey Development Process

Required data involved questions for which a response from a respondent was required in order for the survey to be considered complete. Some of 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 where the survey was administered
- Mode of egress from the transit system
- 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 operational vehicles available in the household

Survey Instrument

The survey instrument was designed to be administered as a face-to-face interview using tablet PCs and printed surveys. Tablet PCs were the preferred method and paper surveys (printed on heavy card stock for easy distribution and completion) were only used on some express type service.

The tablet PCs were the preferred method as the tablet PC's have an on-screen mapping features that allows for real-time geocoding of addresses and places based off of either address, intersection or place searches based on feedback from respondents. The respondents can then confirm the geocoded location based on the on-screen map that shows the searched address/location via a Google Map indicator icon. In addition to using the mapping feature to collect the major survey locations geo coordinates (home address, origin address, destination address, boarding location, alighting location), the tablet PC also allows the surveyor to walk through each question with the respondent to answer any questions as well as to ensure the quality of the data collected. The respondent can also press the answers to the questions during the demographic section in order to allow for more privacy.

For express type service, the respondent generally has a longer ride time 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 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 while onboard the express type services. Each survey contained a serial number that was used by ETC Institute to track the route and sequence in which surveys were completed.

Respondents who did not have time to complete the survey during their bus trip were also given the option of providing their phone numbers for follow-up. 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 to gather the remaining information needed to create a complete survey record.

Bilingual interviewers were also hired to administer the surveys on tablet PCs in Spanish. Paper surveys were also available in Spanish.

Sampling Procedures

The following pages describe the procedures used for carrying out the sampling of bus riders. Three major areas are addressed by these procedures: (1) sampling goals, (2) methods for selecting survey participants, and (3) other techniques used to manage the sampling process.

In order to ensure that the distribution of completed surveys mirrored the actual distribution of riders, ETC Institute developed a sampling plan that would ensure the completion of the On-to-Off survey with nearly 100% of the system's riders, and at least 1,097 surveys of the full Origin-and-Destination.

Sampling Goals for the Main Survey

The table below shows the original main survey goals and the actual number of completed surveys that were obtained by Route, Time Period, and Direction (RTD). In addition to the goal of 1,097 completed surveys there was also a goal of being within 10 surveys or within 10% of the established goal based on the overall estimated ridership, with additional goals of being within 10 surveys or within 10% of the established goal based on the estimated ridership by time period and direction for each route. The time periods for this project were as follows: "Early AM" time period (4am-6am), "AM Peak" time period (6am-10am), "MID" time period (10am-3pm), "PM Peak" time period (3pm-7pm), and "Evening" time period (After 7pm). The total estimated weekday ridership by route, time and direction was provided by Tri Delta.

WEEKDAY ROUTES		MAIN SURVEY GOALS by RTD						COMPLETED MAIN SURVEYS by RTD					
		Early AM Peak (4:00-5:59am)	AM Peak (6:00-9:59am)	Midday (10:00am-2:59pm)	PM Peak (3:00-6:59pm)	Evening (7:00-11:59pm)	Total	Early AM Peak (4:00-5:59am)	AM Peak (6:00-9:59am)	Midday (10:00am-2:59pm)	PM Peak (3:00-6:59pm)	Evening (7:00-11:59pm)	Total
Route	Direction												
200	E	0	2	4	4	0	9	0	4	7	6	0	17
200	W	0	3	5	2	0	11	0	5	6	4	0	15
201	E	0	4	7	10	1	22	0	4	11	10	1	26
201	W	0	12	6	6	0	23	0	12	6	6	0	24
300	E	0	6	10	27	8	50	0	12	16	30	8	66
300	W	13	19	11	6	1	50	13	24	14	7	1	59
379	E	0	1	0	0	0	1	0	2	0	0	0	2
379	W	0	0	0	1	0	1	0	0	0	1	0	1
380	E	8	28	41	35	8	120	8	34	42	36	8	128
380	W	12	32	44	28	7	122	12	32	44	29	7	124
383	CW	0	3	0	0	0	3	0	5	0	0	0	5
383	CCW	0	1	7	1	0	9	0	1	9	1	0	11
385	E	0	2	8	4	0	14	0	4	8	4	0	16
385	W	0	4	4	3	0	11	0	4	4	3	0	11
386	LOOP	0	0	0	1	0	1	0	1	0	2	0	3
387	E	0	15	19	11	2	47	0	15	19	12	4	50
387	W	5	12	21	7	1	46	5	12	21	10	3	51
388	E	3	18	26	15	6	69	6	33	26	16	6	87
388	W	4	25	28	13	2	72	6	27	30	13	2	78
389	LOOP	2	3	8	5	2	19	3	4	11	6	4	28
390	E	0	1	0	10	3	14	0	3	0	10	3	16
390	W	6	5	0	0	0	11	6	5	0	0	0	11
391	E	1	17	17	18	10	64	7	19	21	19	10	76
391	W	8	19	22	16	6	70	8	20	25	17	6	76

WEEKEND ROUTES		Before 10am	10am to 3pm	After 3pm	Total	Before 10am	10am to 3pm	After 3pm	Total
		392	E	8		17	24	48	
392	W	13	19	16	47	14	23	16	53
393	E	8	16	24	49	12	17	28	57
393	W	14	17	16	46	16	20	16	52
394	E	4	9	8	22	8	12	9	29
394	W	4	9	6	19	4	9	8	21
395	LOOP	1	3	3	7	2	3	5	10

The sampling target for each route involved completed surveys that were within 10% of the goal or within 10 surveys of the goal. Overall, when including the overall goals plus the goals by time and direction, there were 141 total goals. All 141 goals were achieved (100%).

A survey was considered “complete” if all of the contractually required information was collected, as described in this summary report. 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 150 surveys.

Methods for Selecting On-to-Off Survey Participants

On bus routes, the scanning technology described in this summary allows for essentially everyone who boards the bus to be surveyed. The surveyor at the front will scan a unique bar code that records the current GPS location in real-time, then they hand the card to the boarding passenger. When the passenger alights, another surveyor can take the card from the passenger and scan the barcode again, which will again record the current GPS location of the alighting location. The technology works so quickly that everyone boarding the bus can be surveyed.

Methods for Selecting Main Survey Participants

On bus routes, a random number generator was used to determine which passengers were asked to participate in the survey after boarding a bus at a particular stop. If four people boarded the 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 interviewer could keep track of the passengers as they boarded. For example, if twenty people boarded a bus, the tablet PC program would randomly select one of the first four people for participation in the onboard transit survey.

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**—During each day, the research team evaluated the performance of each interviewer. This included a review of the characteristics of the passengers who were interviewed 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 reviews are completed while the surveyor is on the bus and the findings are discussed with that surveyor when they check in. This allowed the research team to provide immediate feedback to interviewers to improve their overall performance. It also allowed the research team to quickly identify and remove interviewers who were not conducting the survey properly.

- Management of the Sample by Time of Day**—In addition to managing the total number of surveys that were completed for each route, ETC Institute also managed the number of surveys that were completed during each of the following five time periods: “Early AM” time period (4am-6am), “AM Peak” time period (6am-10am), “MID” time period (10am-3pm), “PM Peak” time period (3pm-7pm), and “Evening” time period (After 7pm). These five time periods correspond to time periods that are used for the 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 this summary report.

Surveys Completed by Time Period		
	Count	Percent
EARLY AM (4am-6am)	74	5.88%
AM PEAK (6am-10am)	353	28.04%
MIDDAY (10am-3pm)	421	33.44%
PM PEAK (3pm-7pm)	343	27.24%
LATE PM (7pm-12am)	68	5.40%
Total	1259	100.00%

On-to-Off Administration Methodology

An On-to-Off Survey is meant to capture the ridership flow of the 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. This allows for a more comprehensive understanding of the true ridership flow of the route, which then allows the Main Survey data to be more accurately expanded.

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 local to the area. Surveyors recruited by the staffing 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, and an ability to operate a tablet PC and become proficient 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 local hotel meeting room. The classroom provided ETC Institute a quiet and convenient location to train its team efficiently. The training provided to all personnel who participated in the administration of the On-to-Off Survey to ensure that they were fully prepared for the project is 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
- Overview of rules and procedures and a code of conduct to be followed while representing Tri Delta and ETC in the field.

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 under the supervision of an ETC field 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.

ETC Institute On-to-Off Program Procedure

The purpose of the On-to-Off software program used on buses is to identify ridership patterns based on an individual's boarding and alighting locations which are used to help develop the sampling plan for the Main Survey. This was accomplished on buses by using ETC Institute's custom Android®-based On-to-Off software which records the latitude and longitude of an individual's boarding and alighting location using a barcode system. ETC Institute barcodes increased ridership participation, and provided more accurate boarding and alighting locations.

The On-to-Off bus surveying 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 On-to-Off software was complemented with a barcode scanning system method as 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 for the duration of their trip.
- 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.

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 for buses were determined by route ridership levels and bus size. A typical team consisted of two members, based on a medium to high-ridership level 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.

Timing of the On-to-Off Survey

The On-to-Off survey was administered during weekdays (Monday through Thursday). On-to-Off surveys were also captured during weekend service to better understand weekend ridership and patterns.

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 10 pm on some routes, most of the On-to-Off Surveys were administered between the hours of 6 am and 9 pm.

Main Survey Administration Methodology

The following pages describe the methodology used for the Main Survey. This methodology includes recruiting and training of interviewers, procedures used for the survey, and organization of the survey teams.

Recruiting and Training Interviewers

Assembling a team of high quality interviewers was one of the most important steps in the Main Survey administration process. For this project, ETC Institute also used local temporary interviewers who were recruited by a staffing agency to complement ETC Institute's experienced supervisors.

Interviewers recruited by the 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
- Overview of rules and procedures and a code of conduct to be followed while representing Tri Delta and ETC in the field.

Once all training was completed, and each interviewer was approved by an ETC Institute supervisor, interviewers spent several days under the supervision of a supervisor, 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.

Prior to the Administration of the Survey

In order to encourage participation in the survey, signs were posted 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.

Main Survey Administration Procedure

Local Routes

Routes that were classified as *local* routes were surveyed using the tablet PCs, as described in this summary report. Since local routes have more frequent stops than express routes and shorter ride times for the passenger, an interviewer conducting the survey via tablet PC was deemed necessary in order to achieve the desired response rates. Local routes are routes that provide regular/continuous service throughout the day. Interviewers selected people for the survey in accordance with the sampling procedures described in this summary report.

Once an interviewer had selected a person for the survey, the interviewer:

- 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 5 minutes to complete the survey.
- If the person did not have at least 5 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 well represented.
- If the person had at least 5 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 2 to 3 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 then called respondents who did not have the 2 to 3 minutes to complete the desired questions at a later date. Of those that did not have the necessary 2 to 3 minutes to complete the survey, ETC's call center was able to retrieve answers to those remaining questions from 89% of those individuals.

Express Type Service

Routes that were classified as *express* routes were done by interviewers using the printed surveys, as described in this summary report. Interviewers distributed the printed surveys and pencils to boarding riders. Paper surveys were used on some express route buses because those respondents generally had 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 with the rider to ensure that all questions were answered properly and then made corrections/additions to the survey as necessary. After corrections/additions were made, the interviewer initialed the printed survey for submittal.

After the Administration of the Survey

Surveys submitted with tablet PCs were reviewed by an ETC Supervisor in real-time using ETC Institute's survey program's on-line database to ensure 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 respondent's household
- Number of workers (employed persons) in the respondent's 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 ETC Institute's call center then called respondents who had provided their names and phone numbers to retrieve the missing information by phone.

Once survey records were classified as *complete*, meaning all of the required information had been collected, the records were forwarded to ETC Institute's geocoding manager, who then geocoded the home, origin, boarding, alighting, and destination locations.

Express type service surveys were physically reviewed by an ETC Supervisor to ensure that the same information had been provided. The printed surveys were then sent to ETC Institute's Data Entry department to be entered. Those surveyed on express type service were sometimes called by ETC Institute's Call Center to retrieve any missing information by phone.

Organization of the Main Survey Team

The Main Survey was administered by teams who were directly supervised by an ETC Institute supervisor. The supervisors were responsible for reviewing the performance of each interviewer ensuring that all parts of the surveying 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 interviewers could be evaluated.

Interviewers were typically deployed on at least two buses running in opposite directions. On high-volume routes, interviewers may have been deployed on up to six buses on a route. On low-volume routes, interviewers may have been deployed on just one bus serving the route.

The responsibilities for each of the 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.

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 operational. 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 10 pm on some routes, most of the surveys were administered between the hours of 6 am and 9 pm.

The bulk of the Main Survey was administered during weekdays (Monday through Thursday). Main surveys were also captured during weekend service to better understand weekend ridership and patterns.

Data Review Process

Many of the processes described above 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 the goals ensured that a representative sample was obtained from each bus route. Training of interviewers and the high levels of oversight provided by team leaders and the project manager ensured that the survey was administered properly. Also, the use of the latest geocoding tools contributed to the high quality of geocoding accuracy that was achieved.

The following pages describe the QA/QC processes that were implemented after the data was collected.

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 used to identify records that passed all of the QA/QC tests that were applied to a record after it was classified as being complete.

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:

- Checking for valid *home* street names, city names, and zip codes
- Checking for valid *origin* street names, city names, and zip codes
- Checking for valid *destination* street names, city names, and zip codes
- Checking for *origin* place names that could be matched to a pre-existing list of major destinations that had been previously geocoded
- Checking for *destination* place names that could be matched to a pre-existing list of major destinations that had been previously geocoded
- Ensuring the number of household occupants was greater than or equal to the number of employed members of the household
- Ensuring the number of household occupants was greater than or equal to number of adults in the household
- Ensuring the respondents who indicated that they were employed also reported that at least one member of their household was employed

- Ensuring that bus route names were consistently spelled and coded correctly
- Ensuring that transfers to a bus route were possible
- Ensuring that transfers from a bus route were possible
- Ensuring that the number of vehicles available to a respondent's household were 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
- Ensuring the time of day a survey was completed was reasonable given the published operating schedule for the route
- Ensuring the origin type of place code matched the type of place reported by the respondent
- Ensuring 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.

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 2 miles, the record would have been flagged to check for a missing transfer since 2 miles or more is well beyond typical walk distance.)

- Checking to ensure that the egress mode was appropriate given the distance of travel from 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 following pages.

Records that were flagged for further review were forwarded to the appropriate section based on the nature of the flag.

- Issues that involved address geocoding assignments were referred to ETC Institute's geocoding team.
- 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. Records that were complete but could 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.

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 1 mile for local bus trips and less than 4 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, the record 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.

Data Expansion Process

Development of Weighting Factors to Expand the Sample

The following pages describe the process for developing the weighting factors that were used to expand the survey database to the total transit ridership in the region. **Unlinked trip weighting factors** were developed to expand the total number of completed surveys to the actual number of transit boardings in the region by direction and time period.

Unlinked Trip Weighting Factors for Bus Routes

A total of 1,259 (860 weekday and 237 weekend surveys) surveys were completed with bus passengers. The number of completed bus surveys represented approximately 10% of the average weekday boardings on the region's bus system during the month in calendar year 2014. In order to ensure that the survey data accurately represented the travel patterns of the passengers who use bus service in the region on a typical weekday and Saturday, unlinked trip weighting factors were prepared for each survey record. The 1,259 passenger surveys were expanded by direction and time of day. The process for calculating unlinked trip weighting factors for bus routes simply involved dividing the number of boardings in each direction by time of day on each route by the number of surveys that were completed. For most local weekday routes, expansion factors were developed for the following 15 types of trips:

- Eastbound Trips during the Early AM (4am-6am)
- Eastbound Trips during the AM Peak (6am-10am)
- Eastbound Trips during the Midday (10am-3pm)
- Eastbound Trips during the PM Peak (3-7pm)
- Eastbound Trips during the Evening (after 7pm)
- Westbound Trips during the Early AM (4am-6am)
- Westbound Trips during the AM Peak (6am-10am)
- Westbound Trips during the Midday (10am-3pm)
- Westbound Trips during the PM Peak (3-7pm)
- Westbound Trips during the Evening (after 7pm)
- Circular Trips during the Early AM (4am-6am)
- Circular Trips during the AM Peak (6am-10am)
- Circular Trips during the Midday (10am-3pm)
- Circular Trips during the PM Peak (3-7pm)
- Circular Trips during the Evening (after 7pm)

Expansion factors for weekend service were developed for the following 9 types of trips:

- Eastbound Trips before 10am

- Eastbound Trips between 10am and 3pm
- Eastbound Trips after 3pm
- Westbound Trips before 10am
- Westbound Trips between 10am and 3pm
- Westbound Trips after 3pm
- Circular Trips before 10am
- Circular Trips between 10am and 3pm
- Circular Trips after 3pm

Weighting is used to adjust a dataset so that it better represents a known population. When done correctly, weighting a dataset can make the overall results more accurate and representative of what is really occurring on your transit system. The weighting factors used for data expansion are shown in the table below.

WEEKDAY ROUTES		Weighting Factors by Route, Time and Direction				
Route	Direction	Early AM Peak (4:00-5:59am)	AM Peak (6:00-9:59am)	Midday (10:00am-2:59pm)	PM Peak (3:00-6:59pm)	Evening (7:00-11:59pm)
200	E	N/A	5.25	6.43	7.00	N/A
200	W	N/A	7.80	9.00	7.00	N/A
201	E	N/A	12.00	7.45	11.40	11.00
201	W	N/A	11.58	11.00	10.50	N/A
300	E	N/A	5.25	6.94	10.30	11.25
300	W	11.62	8.96	8.93	10.14	8.00
379	E	N/A	5.50	N/A	N/A	N/A
379	W	N/A	N/A	N/A	14.00	N/A
380	E	11.75	9.29	11.07	11.28	11.63
380	W	11.25	11.34	11.45	10.90	11.00
383	CW	N/A	6.00	N/A	N/A	N/A
383	CCW	N/A	14.00	8.56	14.00	N/A
385	E	N/A	6.75	11.13	12.25	N/A
385	W	N/A	12.25	12.25	9.67	N/A
386	LOOP	N/A	4.00	N/A	3.00	N/A
387	E	N/A	11.13	11.74	10.50	6.00
387	W	10.60	11.33	11.38	8.10	5.33
388	E	5.83	6.39	11.58	11.00	11.17
388	W	7.67	10.44	10.60	11.85	12.00
389	LOOP	6.33	8.75	8.36	9.83	4.50
390	E	N/A	4.00	N/A	11.80	10.33
390	W	11.50	11.00	N/A	N/A	N/A
391	E	2.14	10.16	9.38	10.95	11.80
391	W	11.38	10.70	10.04	10.65	11.33
WEEKEND ROUTES		Before 10am	10am to 3pm	After 3pm		
392	E	12.53	24.41	24.54		
392	W	22.64	20.70	25.31		
393	E	17.67	23.82	21.64		
393	W	21.25	21.80	25.06		
394	E	13.63	18.67	22.89		
394	W	26.25	25.44	18.50		
395	LOOP	7.50	27.33	13.60		

Findings from the Survey

CHARACTERISTICS OF TRANSIT RIDERS AND SELECTED FINDINGS

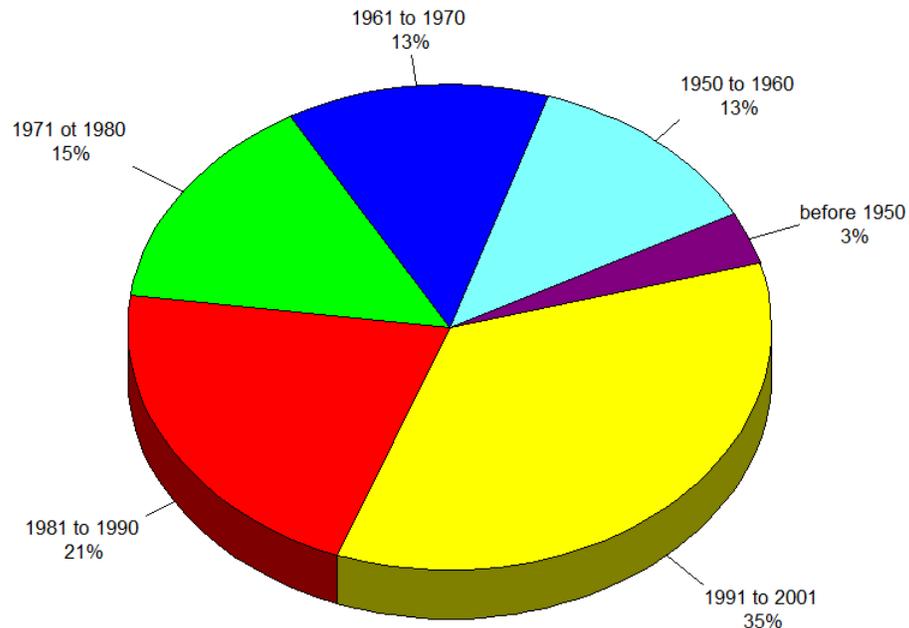
Estimated Age of Transit Riders

The chart below shows the estimated age distribution of transit ridership in the region. Based on the expanded survey results, more than half (56%) of the riders were born after 1981. Fifteen percent (15%) of the riders were born between 1971 and 1980, 26% born between 1950 and 1970, and 3% before 1950.

WEIGHTED DATA- UNLINKED

Estimated Age Distribution of Transit Users - Year Born

Based on the EXPANDED Survey Results



Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

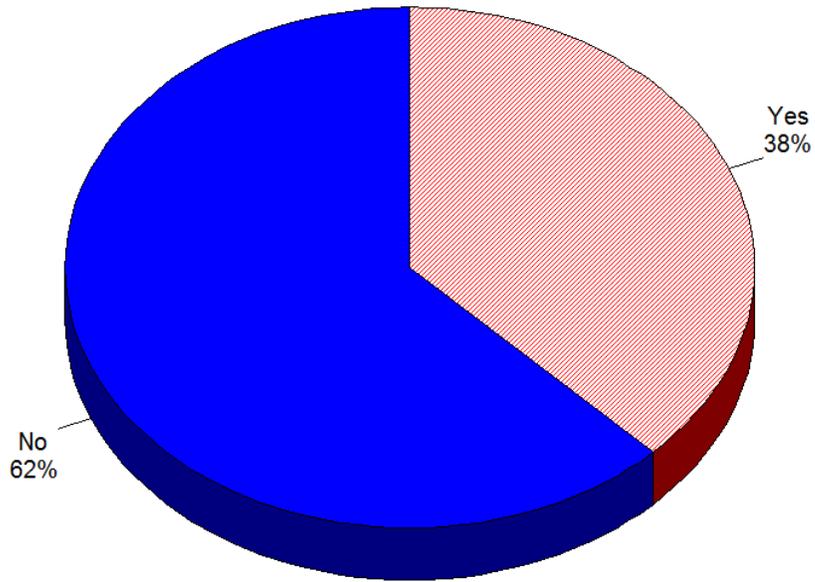
Weekday/Weekend Results

Estimated Percentage of Transit Users with a Valid Driver’s License
 Based on the expanded survey results from the survey, thirty-eight percent (38%) of the transit users DID have a valid driver’s license; 72% DID NOT have a valid driver’s license.

WEIGHTED DATA- UNLINKED

Do respondents have a valid driver's license?

Based on the EXPANDED Survey Results



Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

Driver License Status		
	Count	Percent
No	9879	62.42%
Yes	5946	37.58%
Total	15825	100.00%

*percentages based on unlinked weighted data results

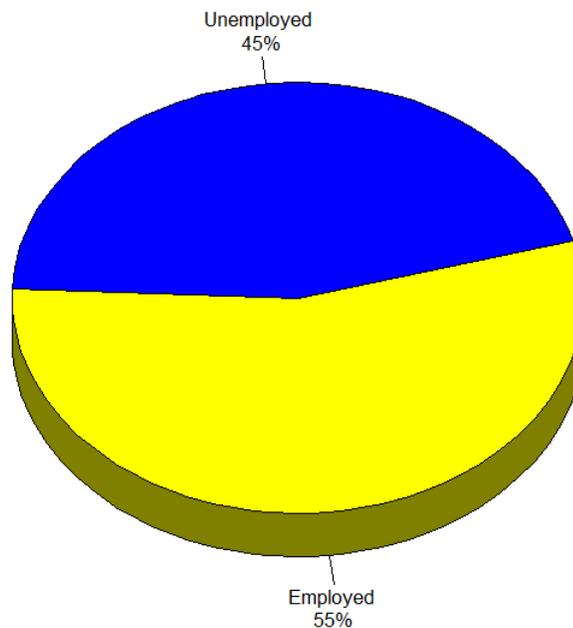
Employment Status of Transit Users

Based on the expanded survey results from the survey, fifty-five percent (55%) of the transit users were employed. Forty-five percent (45%) of transit users were unemployed.

WEIGHTED DATA - UNLINKED

Estimated Employment Status of Riders

Based on the EXPANDED Survey Results



Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

Employment Status		
	Count	Percent
unemployed	7155	45.21%
employed	8670	54.79%
Total	15825	100.00%

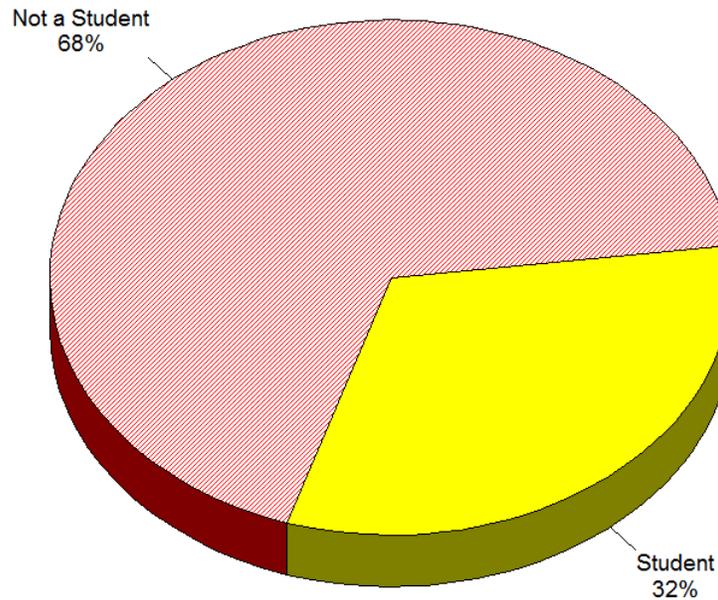
*percentages based on unlinked weighted data results

Estimated Percentage of Students Using Public Transportation
 Based on the expanded survey results from the survey, sixty-eight percent (68%) of the transit riders were NOT students; 32% of the transit riders surveyed were either college/university students or students through the 12th grade.

WEIGHTED DATA - UNLINKED

Estimated Student Status of Riders

Based on the EXPANDED Survey Results



Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

Student Status		
	Count	Percent
not a student	10796	68.22%
student	5029	31.78%
Total	15825	100.00%

*percentages based on unlinked weighted data results

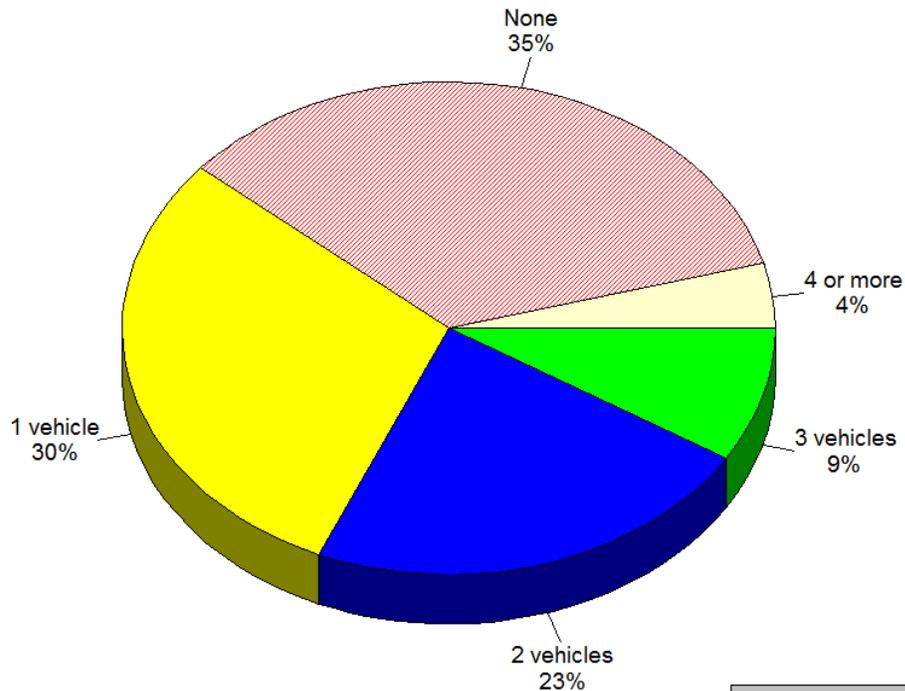
Estimated Distribution of Vehicle Availability

Based on the expanded survey results from the survey, thirty-five percent (35%) of the transit riders did not have a vehicle in the household. Thirty percent (30%) of the riders indicated they had at least one vehicle in the household; 23% had two vehicles in the household, 13% had three or more vehicles in the household.

WEIGHTED DATA - UNLINKED

Estimated Distribution of Vehicle Availability

Based on the EXPANDED Survey Results



Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

Working Vehicles Available in Household		
	Count	Percent
None	5473	34.59%
1 vehicle	4719	29.82%
2 vehicles	3588	22.67%
3 vehicles	1386	8.76%
4 or more	659	4.16%
Total	15825	100.00%

*percentages based on unlinked weighted data results

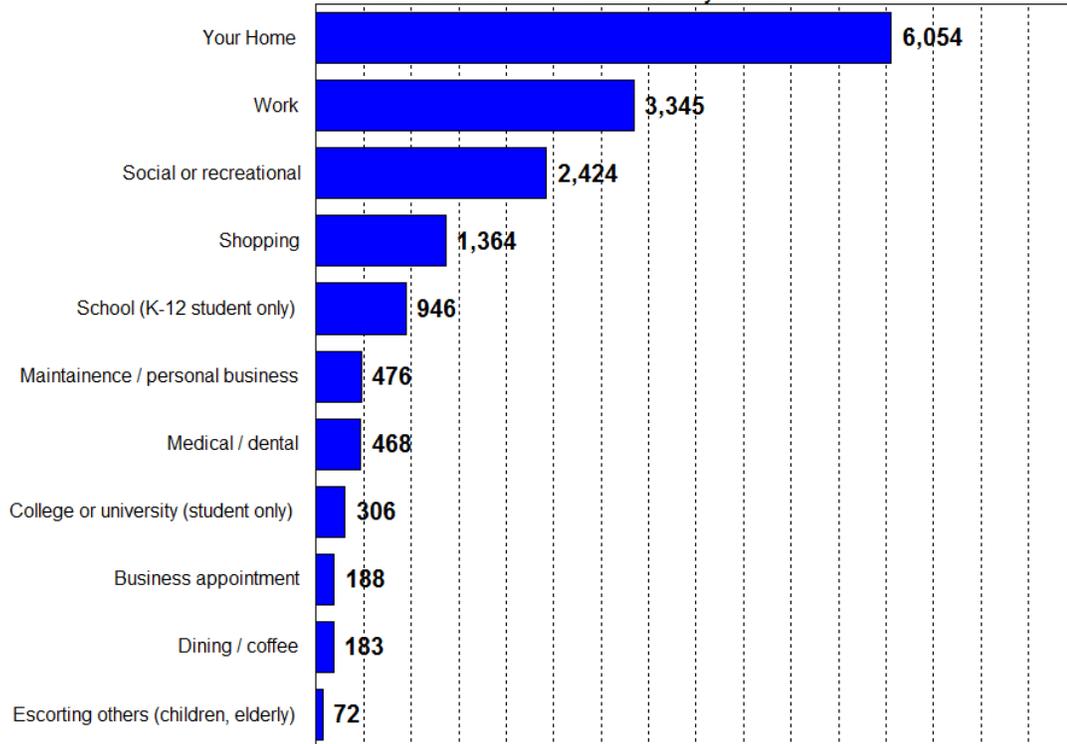
Where Transit Riders Were Going

Based on the expanded survey results from the survey, thirty-eight percent (38%) of the trips completed by transit riders in the region involved a return trip to the rider's home. Twenty-one percent (21%) involved a trip to work and 9% involved a shopping trip. The chart below, which is based on weighed data from the survey, shows these estimates and provides a complete listing of destinations for transit riders.

WEIGHTED DATA- UNLINKED

What type of place are you GOING TO now?

Based on the EXPANDED Survey Results



Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

Trip Destination		
Trip Destination	Count	Percent
Business appointment	188	1.19%
College or university (student only)	306	1.93%
Dining / coffee	183	1.16%
Escorting others (children, elderly)	72	0.46%
Maintainence / personal business	476	3.00%
Medical / dental	468	2.96%
School (K-12 student only)	946	5.98%
Shopping	1364	8.62%
Social or recreational	2424	15.32%
Work	3345	21.14%
Your Home	6054	38.25%
Total	15825	100.00%

*percentages based on unlinked weighted data results

How Transit Riders Got to Their Destination

Based on the expanded survey results from the survey, ninety-three percent (93%) of the riders indicated they would walk to their final destination.

Egress Mode		
	Count	Percent
Bicycle	269	1.70%
Drive alone	157	0.99%
Drive or ride with others / carpool	52	0.33%
Get picked up by someone	557	3.52%
Motorcycled /motorized scooter / moped	20	0.12%
Walk all the way (includes skateboard / non-motor	14771	93.34%
Total	15825	100.00%

*percentages based on unlinked weighted data results

How Transit Riders Got to the Bus

Based on the expanded survey results from the survey, ninety percent (90%) of riders indicated that they got to their bus by walking; 10% used some other mode.

Access Mode		
	Count	Percent
Bicycled	297	1.88%
Drove alone and parked	147	0.93%
Drove or rode with others and parked / carpooled	63	0.40%
Motorcycled /motorized scooter / moped	30	0.19%
Walked all the way (includes skateboard / non-motor	14184	89.63%
Was dropped off by someone	1102	6.97%
Total	15825	100.00%

*percentages based on unlinked weighted data results

Top 5 Cities Riders Would Like to Go To Using Transit but Currently Find it too Difficult

Based on the expanded survey results from the survey, the top five cities riders would like to access using transit but find it too difficult are; 1) Brentwood, 2) Antioch, 3) Pittsburg, 4) Concord, and 5) San Jose.

City that Respondents Would Like to Travel to but Have Difficulty		
	Count	Percent
Brentwood	482	20.50%
Antioch	457	19.45%
Pittsburg	300	12.78%
Concord	222	9.47%
San Jose	129	5.50%
Discovery Bay	113	4.81%
San Francisco	109	4.66%
Oakley	93	3.98%
Martinez	73	3.12%
Walnut Creek	49	2.07%
Other	321	13.66%

*percentages based on unlinked weighted data results

Number of Transfers Riders Made On Their One-Way Trip

Based on the expanded survey results from the survey, forty-nine percent (49%) of the transit riders made zero transfers on the way to their final destination; 33% made 1 transfer and 14% two transfers. A table detailing this data is provided below.

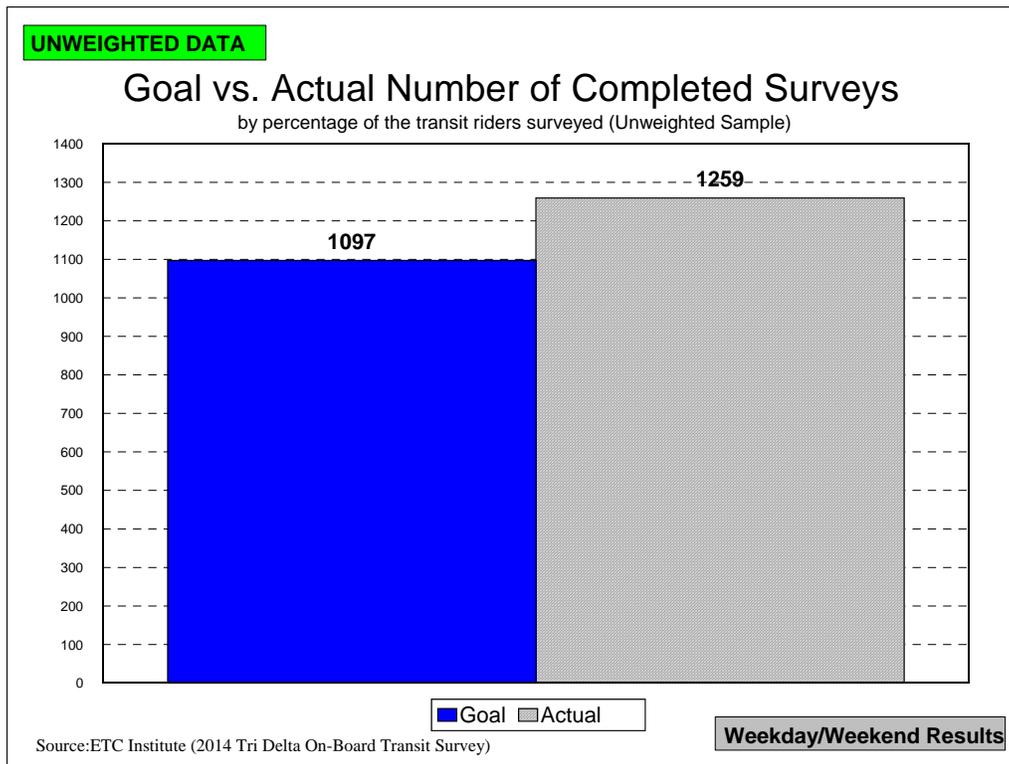
Total Transfers		
	Count	Percent
No transfers	7732	48.86%
1 transfer	5300	33.49%
2 transfers	2129	13.46%
3 transfers	621	3.92%
4 transfers	43	0.27%
Total	15825	100.00%

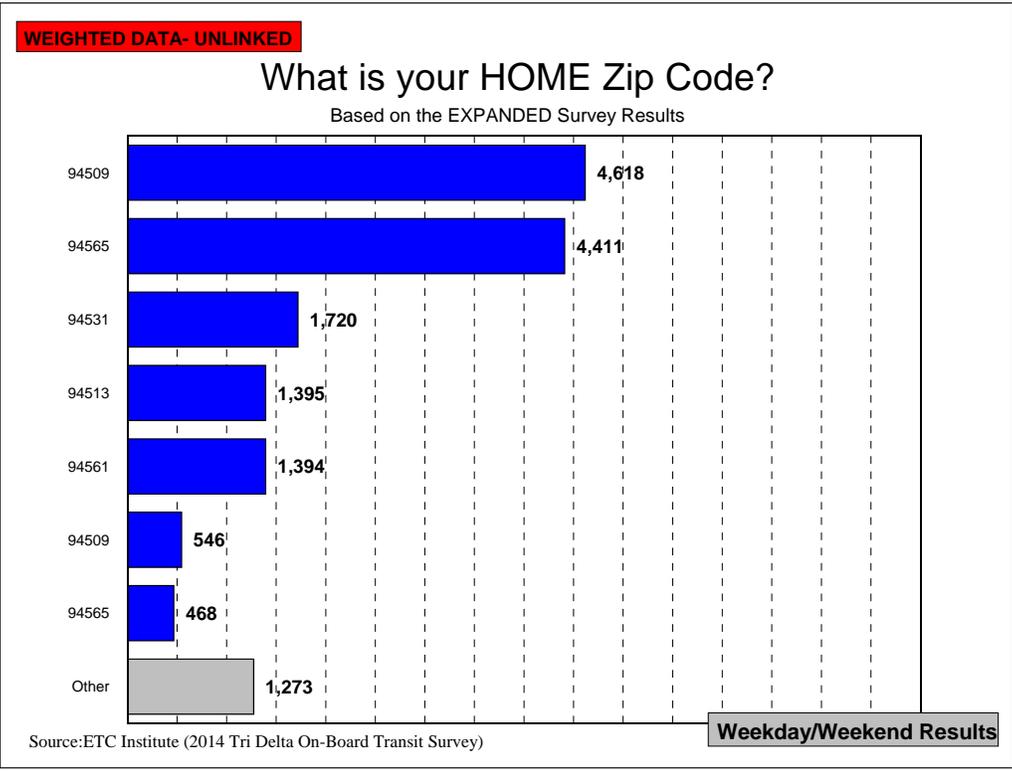
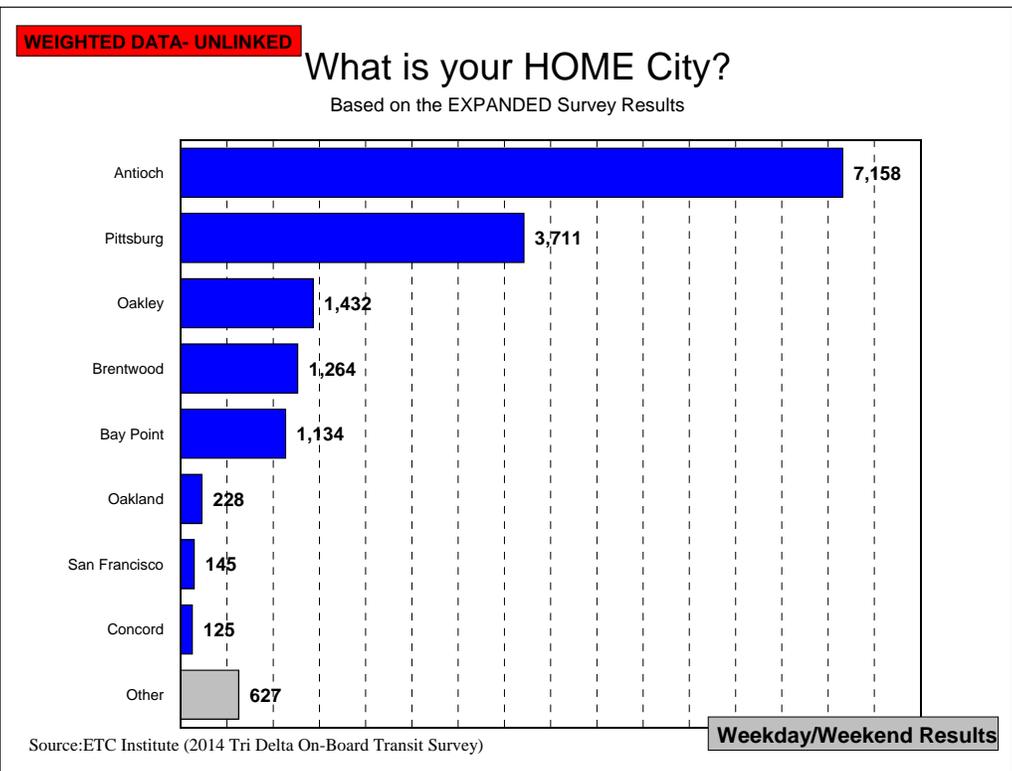
*percentages based on unlinked weighted data results

CHARTS AND GRAPHS

Charts and graphs displaying the results of selected questions on the survey are provided on following pages.

2014 Tri Delta On-Board Transit Survey

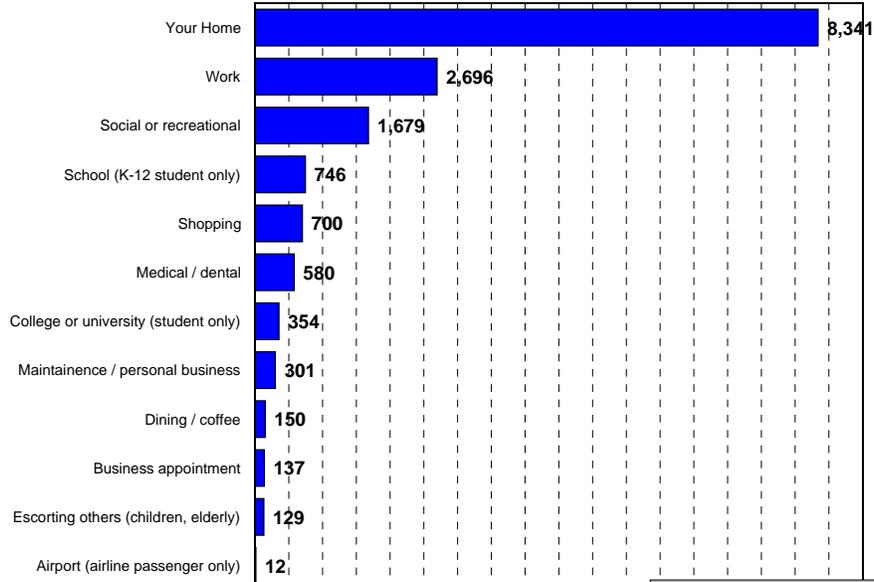




WEIGHTED DATA- UNLINKED

What type of place are you COMING FROM now?

Based on the EXPANDED Survey Results



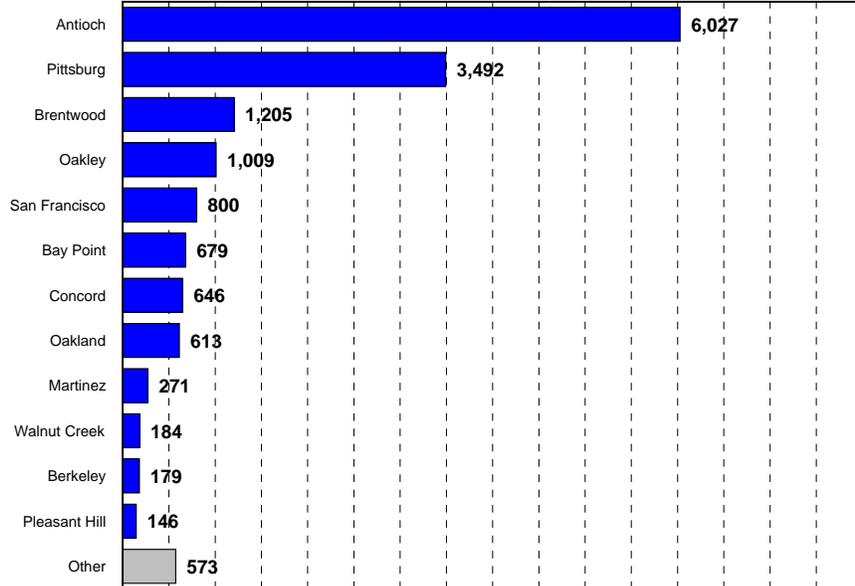
Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

WEIGHTED DATA- UNLINKED

What is the City of the place you are coming from?

Based on the EXPANDED Survey Results

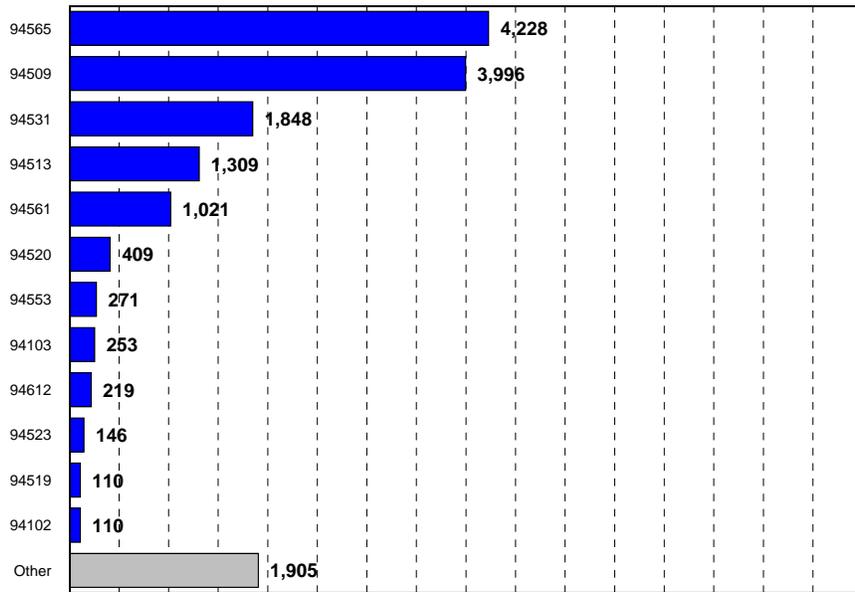


Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

WEIGHTED DATA- UNLINKED

What is the Zip Code of the place you are coming from?



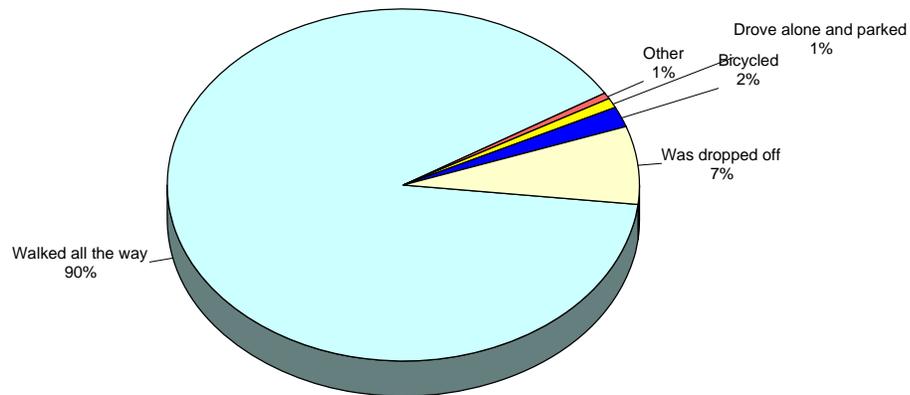
Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

WEIGHTED DATA- UNLINKED

How Transit Riders Got to the First Bus Used

Based on the EXPANDED Survey Results



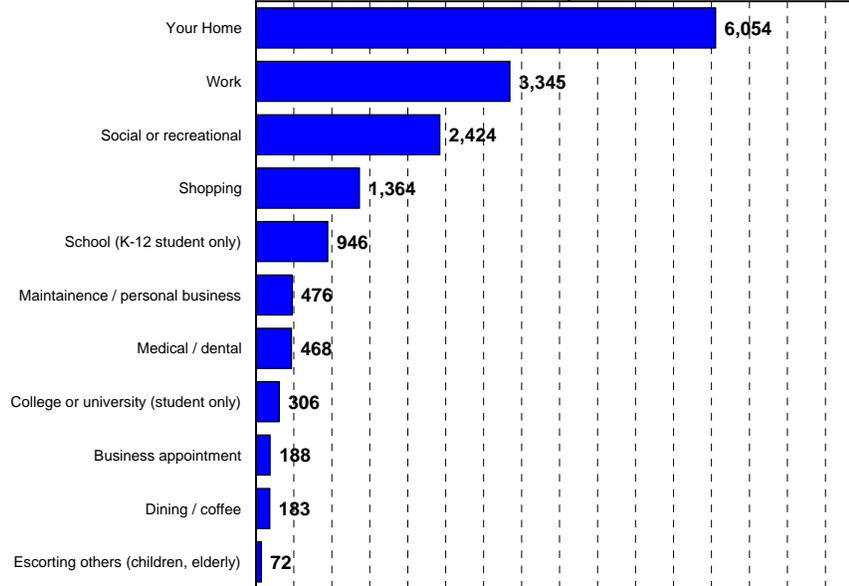
Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

WEIGHTED DATA- UNLINKED

What type of place are you GOING TO now?

Based on the EXPANDED Survey Results



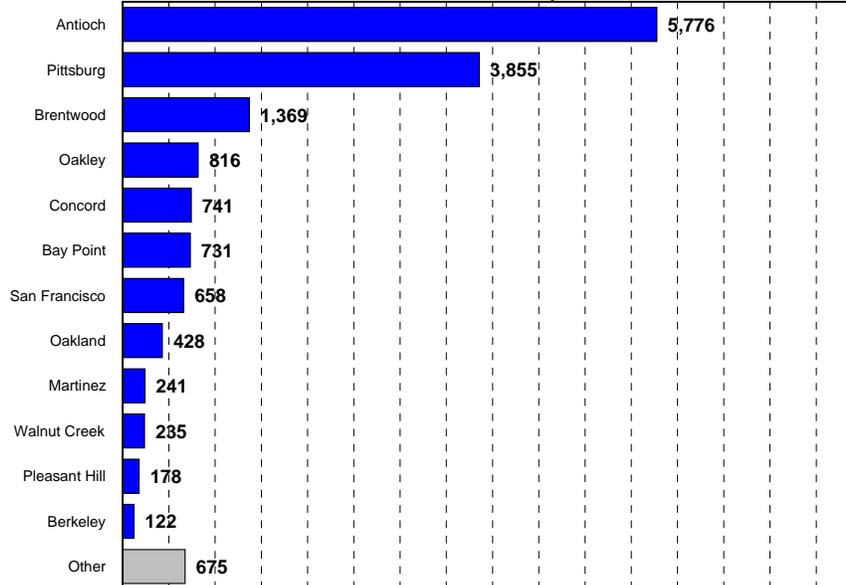
Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

WEIGHTED DATA- UNLINKED

What is the City of the place you are going to?

Based on the EXPANDED Survey Results



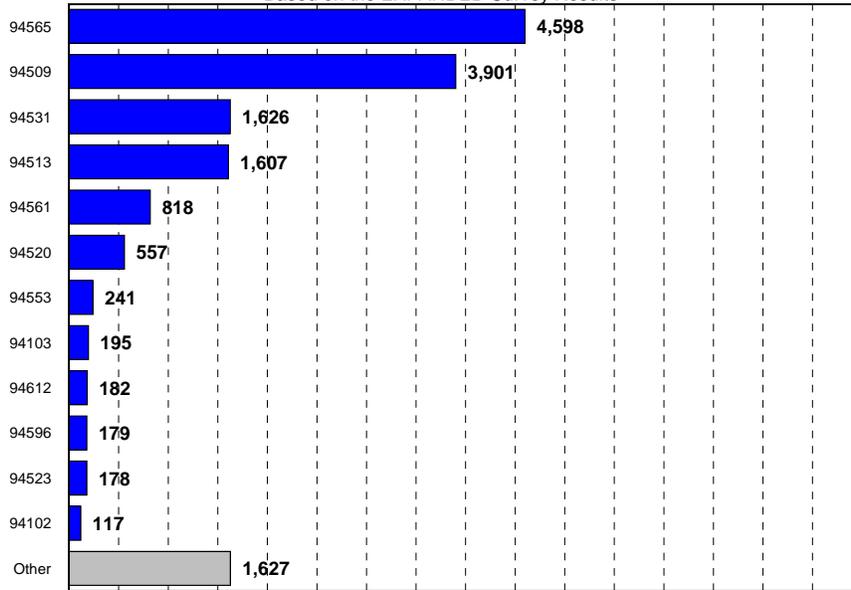
Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

WEIGHTED DATA- UNLINKED

What is the Zip Code of the place you are going to?

Based on the EXPANDED Survey Results



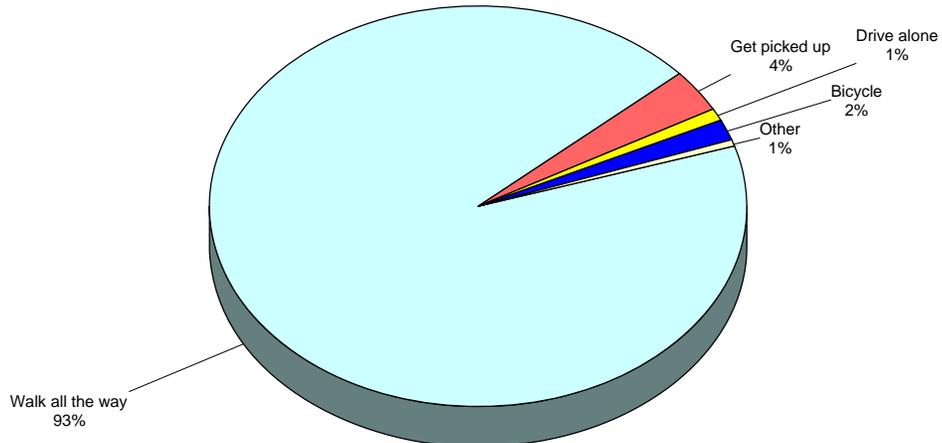
Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

WEIGHTED DATA- UNLINKED

How Transit Riders Will Get to Their Destination

Based on the EXPANDED Survey Results



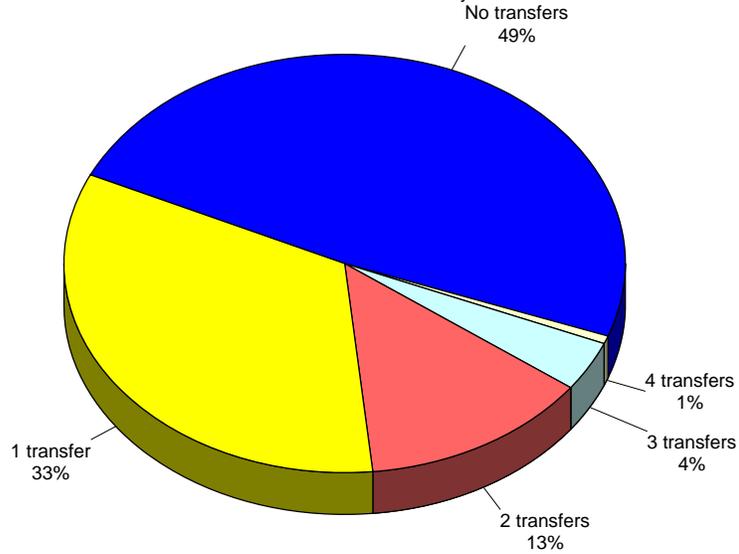
Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

WEIGHTED DATA- UNLINKED

Number of Transfers Riders Made On Their One-Way Trip

Based on the EXPANDED Survey Results

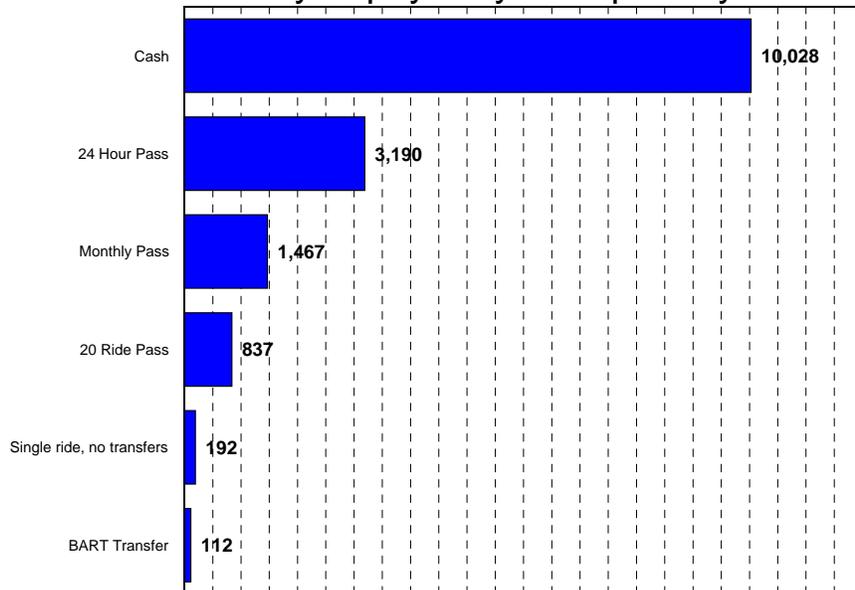


Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

WEIGHTED DATA- UNLINKED

How did you pay for your trip today?



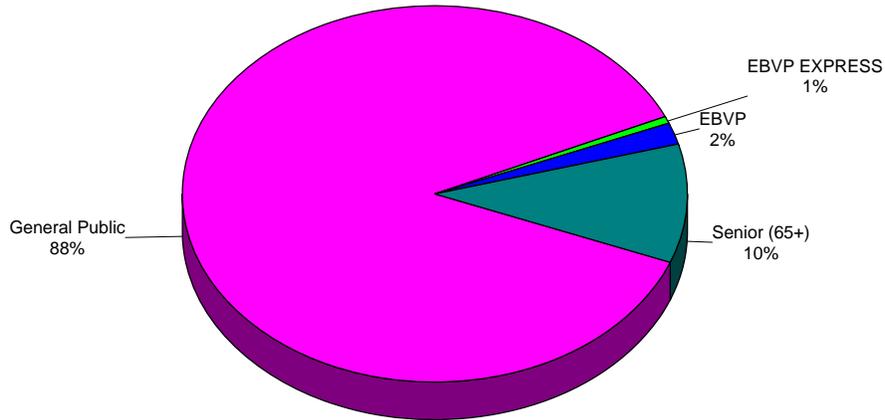
Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

WEIGHTED DATA- UNLINKED

Did you receive any of the following special fare discounts for your trip today?

Based on the EXPANDED Survey Results



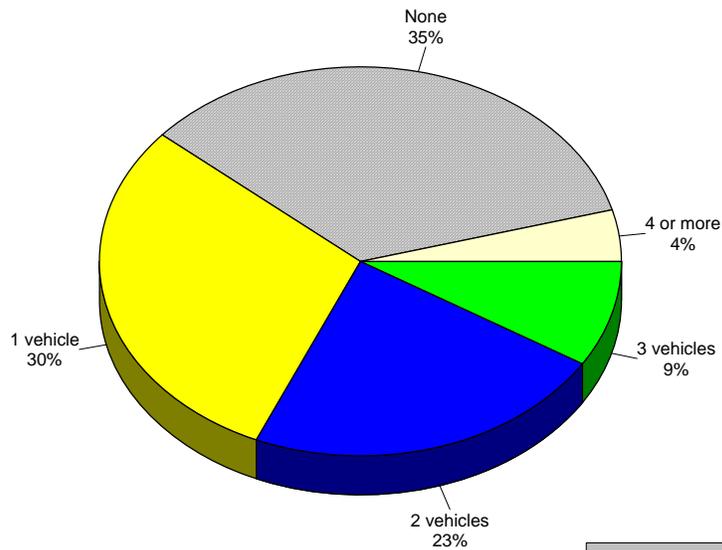
Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

WEIGHTED DATA- UNLINKED

Estimated Distribution of Vehicle Availability

Based on the EXPANDED Survey Results



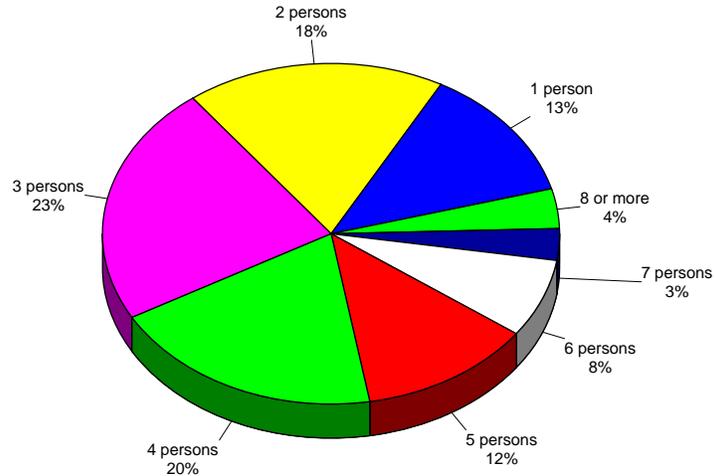
Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

WEIGHTED DATA- UNLINKED

Estimated Number of People Living in Transit Rider's Household

Based on the EXPANDED Survey Results



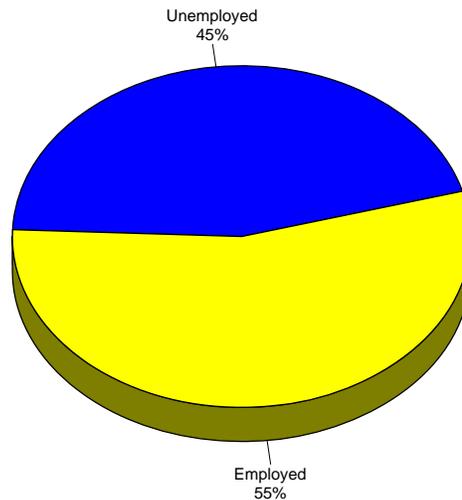
Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

WEIGHTED DATA- UNLINKED

Estimated Employment Status of Riders

Based on the EXPANDED Survey Results



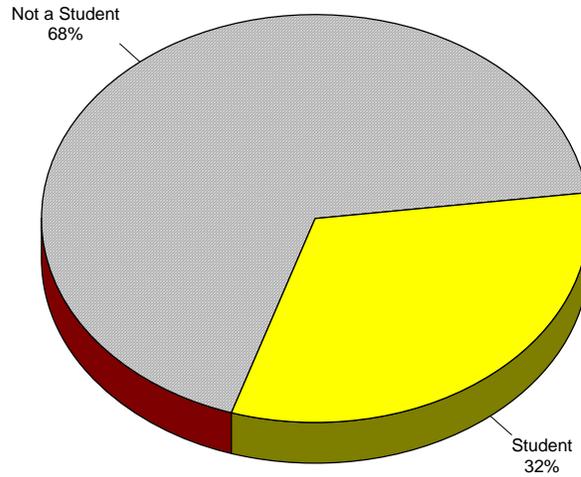
Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

WEIGHTED DATA- UNLINKED

Estimated Student Status of Riders

Based on the EXPANDED Survey Results



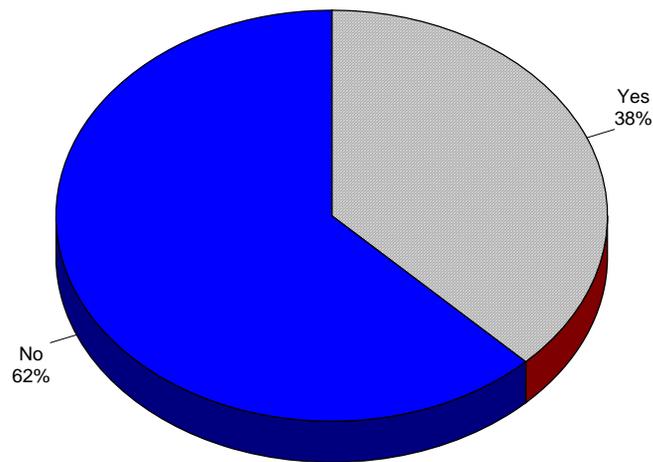
Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

WEIGHTED DATA- UNLINKED

Do respondents have a valid driver's license?

Based on the EXPANDED Survey Results



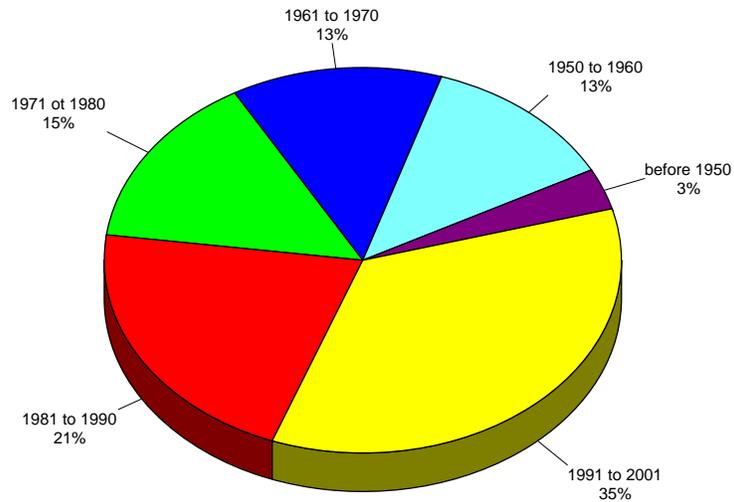
Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

WEIGHTED DATA- UNLINKED

Estimated Age Distribution of Transit Users - Year Born

Based on the EXPANDED Survey Results



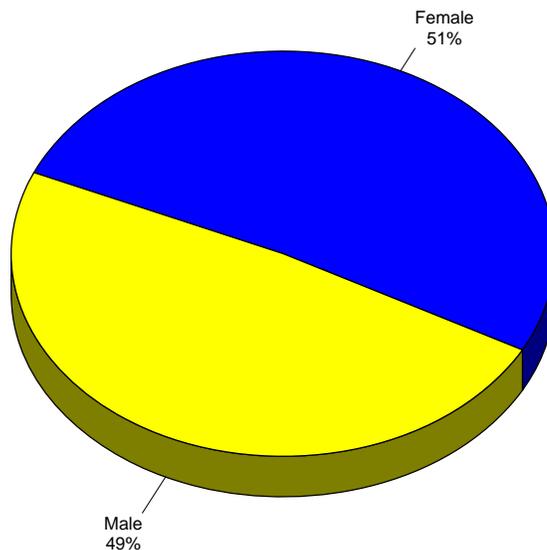
Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

WEIGHTED DATA- UNLINKED

Estimated Gender of Transit Users

Based on the EXPANDED Survey Results



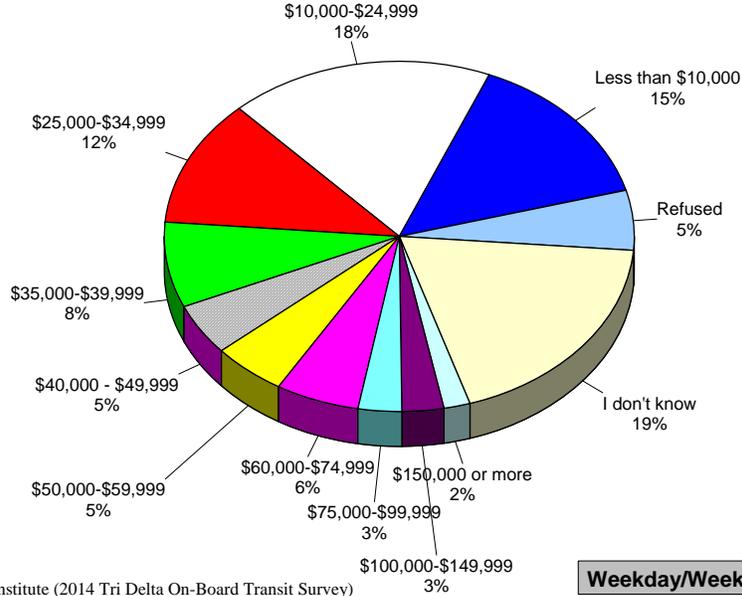
Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

WEIGHTED DATA- UNLINKED

Estimated Distribution of Annual Household Income Among Transit Users

Based on the EXPANDED Survey Results



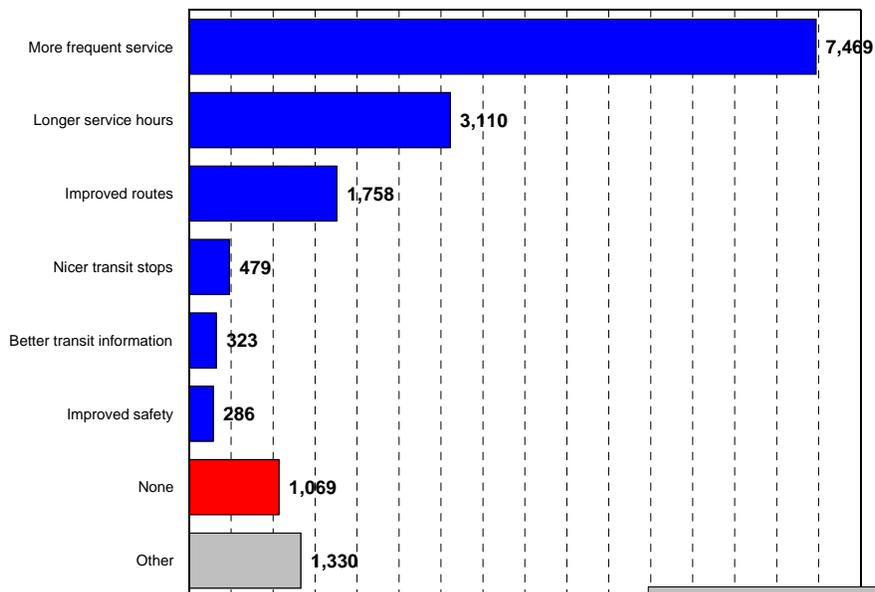
Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

WEIGHTED DATA- UNLINKED

What Types of Improvements Would You Like to See?

Based on the EXPANDED Survey Results



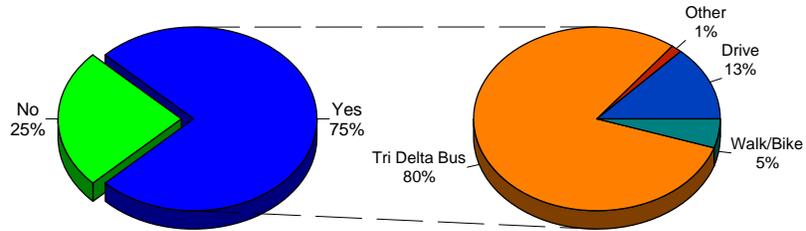
Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

WEIGHTED DATA- UNLINKED

Do You Plan on Using eBart When it Opens in 2018?

Based on the EXPANDED Survey Results



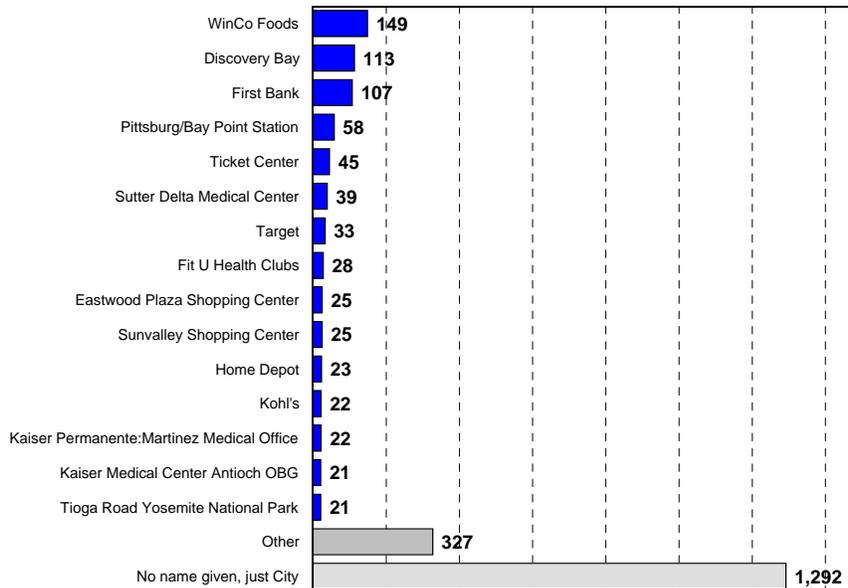
Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

WEIGHTED DATA- UNLINKED

Name of the Place Respondents Would Like to Travel to but Have Difficulty

Based on the EXPANDED Survey Results and the 2350 respondent who indicated place of difficulty



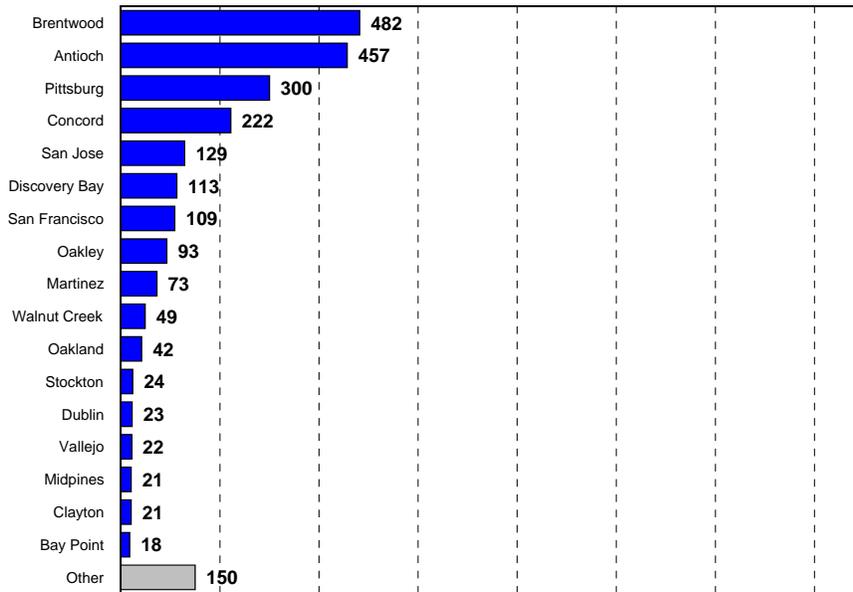
Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

WEIGHTED DATA- UNLINKED

City Respondents Would Like to Travel to but Have Difficulty

Based on the EXPANDED Survey Results and the 2350 respondent who indicated place of difficulty



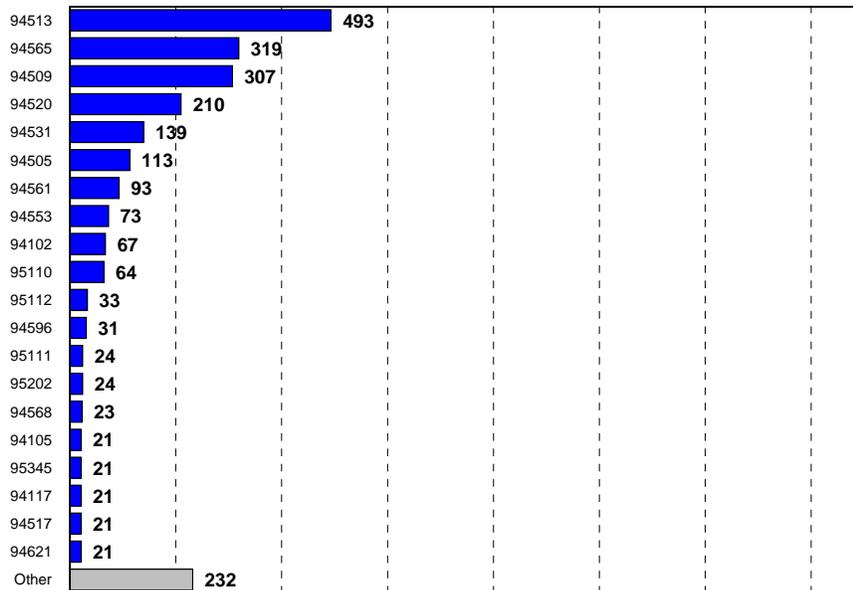
Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

WEIGHTED DATA- UNLINKED

Zipcode Respondents Would Like to Travel to but Have Difficulty

Based on the EXPANDED Survey Results and the 2350 respondent who indicated place of difficulty



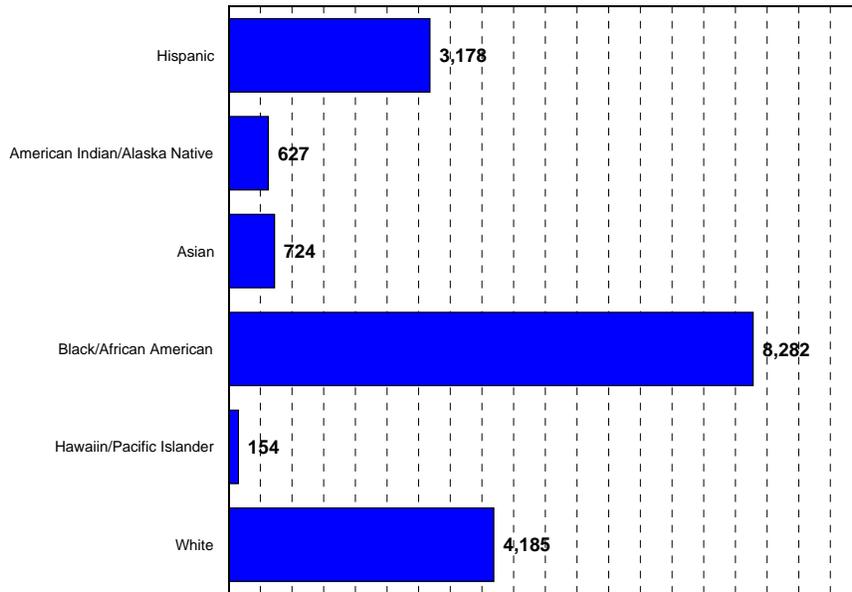
Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

WEIGHTED DATA- UNLINKED

Race/Ethnicity

Based on the EXPANDED Survey Results-Multiple Choices Allowed



Source:ETC Institute (2014 Tri Delta On-Board Transit Survey)

Weekday/Weekend Results

DATABASE DESCRIPTION

A copy of the database description is provided below and on the following pages.

Tri Delta On-Board Transit Survey Data Dictionary

FIELD NAME	FIELD DESCRIPTION	FIELD VALUES
ID	Unique ID for each record	Actual Value
DATE	Date Survey was administered	Actual Value
WEEKDAY_OR_WEEKEND_RECORD	Whether survey day was administered on a weekday or weekend	Actual Value
ROUTE_CODE	Route Number/Direction of Travel Code	E=East W=West CC=Counterclockwise CL=Clockwise LP=Loop
ROUTE_SURVEYED	Route Name/Number	Actual Value
DIRECTION	Direction of Travel	E=East W=West CC=Counterclockwise CL=Clockwise LP=Loop
ORIGIN_PLACE_TYPE_CODE	Type of place respondent is coming from now code	1=Your Home 2=Work 3=Business appointment 4=College or university (student only) 5=School (K-12 student only) 6=Shopping 7=Maintenance / personal business 8=Dining / coffee 10=Social or recreational 11=Medical / dental 13=Airport (airline passenger only) 15=Escorting others (children, elderly)
ORIGIN_PLACE_TYPE	Type of place respondent is coming from now	Actual Value
ORIGIN_NAME	Name of place where the trip began	Actual Value
ORIGIN_ADDRESS	Street address where the trip began	Actual Value
ORIGIN_ADDRESS_CITY	City where the trip began	Actual Value
ORIGIN_ADDRESS_STATE	State where the trip began	Actual Value
ORIGIN_ADDRESS_ZIP	Zip code where the trip began	Actual Value
ORIGIN_ADDRESS_LAT	Latitude coordinates where the trip began	Actual Value
ORIGIN_ADDRESS_LON	Longitude coordinates where the trip began	Actual Value
ACCESS_MODE_CODE	Mode of access to transit Code	1=Walked all the way (includes skateboard / non-motorized scooter) 2=Bicycled 4=Motorcycled /motorized scooter / moped 5=Drove alone and parked 6=Drove or rode with others and parked / carpoled 7=Was dropped off by someone
ACCESS_MODE	Mode of access to transit	Actual Value
DESTINATION_PLACE_TYPE_CODE	Type of place respondent is going to now Code	1=Your Home 2=Work 3=Business appointment 4=College or university (student only) 5=School (K-12 student only) 6=Shopping 7=Maintenance / personal business 8=Dining / coffee 10=Social or recreational 11=Medical / dental 15=Escorting others (children, elderly)
DESTINATION_PLACE_TYPE	Type of place respondent is going to now	Actual Value
DESTINATION_NAME	Name of place where the trip ended	Actual Value
DESTINATION_ADDRESS	Street address where the trip ended	Actual Value
DESTINATION_ADDRESS_CITY	City where the trip ended	Actual Value
DESTINATION_ADDRESS_STATE	State where the trip ended	Actual Value
DESTINATION_ADDRESS_ZIP	Zip code where the trip ended	Actual Value
DESTINATION_ADDRESS_LAT	Latitude coordinates where the trip ended	Actual Value
DESTINATION_ADDRESS_LON	Longitude coordinates where the trip ended	Actual Value
EGRESS_MODE_CODE	Mode of egress from transit Code	1=Walk all the way (includes skateboard / non-motorized scooter) 2=Bicycle 4=Motorcycled /motorized scooter / moped 5=Drive alone 6=Drive or ride with others / carpool 7=Get picked up by someone
EGRESS_MODE	Mode of egress from transit	Actual Value
BOARDING_LOCATION	Name/Description/Intersection where the respondent boarded the bus	Actual Value
BOARDING_LOCATION_LAT	Latitude coordinates of the boarding location	Actual Value
BOARDING_LOCATION_LON	Longitude coordinates of the boarding location	Actual Value
BOARDING_LOCATION_STOPID	Stop ID where the respondent boarded the bus	Actual Value
ALIGHTING_LOCATION	Name/Description/Intersection where the respondent alighted the bus	Actual Value
ALIGHTING_LOCATION_LAT	Latitude coordinates of the alighting location	Actual Value
ALIGHTING_LOCATION_LON	Longitude coordinates of the alighting location	Actual Value
ALIGHTING_LOCATION_STOPID	Stop ID where the respondent got off the bus	Actual Value
TRANSFERS_FROM_CODE	Number of transfers a respondent took before surveyed route from Origin Code	0=None 1=One 2=Two 3p=Three or more
TRANSFERS_FROM	Number of transfers a respondent took before surveyed route from Origin	Actual Value
TRANSFER_FROM_1ST	Name of first route (if taken)	Actual Value
TRANSFER_FROM_1ST_OTHER_AGENCY	Name of first route (if route belonged to an agency other than Tri Delta)	Actual Value
TRANSFER_FROM_2ND	Name of second route (if taken)	Actual Value
TRANSFER_FROM_2ND_OTHER_AGENCY	Name of second route (if route belonged to an agency other than Tri Delta)	Actual Value
TRANSFER_FROM_3RD	Name of third route (if taken)	Actual Value
TRANSFER_FROM_3RD_OTHER_AGENCY	Name of third route (if route belonged to an agency other than Tri Delta)	Actual Value

Tri Delta On-Board Transit Survey Data Dictionary

FIELD NAME	FIELD DESCRIPTION	FIELD VALUES
TRANSFERS_TO_CODE	Number of transfers a respondent took after surveyed route to Destination Code	0=None 1=One 2=Two 3p=Three or more
TRANSFERS_TO	Number of transfers a respondent took after surveyed route to Destination	Actual Value
TRANSFER_TO_1ST	Name of first route (if taken)	Actual Value
TRANSFER_TO_1ST_OTHER_AGENCY	Name of first route (if route belonged to an agency other than Tri Delta)	Actual Value
TRANSFER_TO_2ND	Name of second route (if taken)	Actual Value
TRANSFER_TO_2ND_OTHER_AGENCY	Name of second route (if route belonged to an agency other than Tri Delta)	Actual Value
TRANSFER_TO_3RD	Name of third route (if taken)	Actual Value
TRANSFER_TO_3RD_OTHER_AGENCY	Name of third route (if route belonged to an agency other than Tri Delta)	Actual Value
LAST_LEFT_HOME_CODE	The approximate time the respondent last left their home code	1=Before 5 a.m. 2=5 - 6 a.m. 3=6 - 7 a.m. 4=7 - 8 a.m. 5=8 - 9 a.m. 6=9 - 10 a.m. 7=10 - 11 a.m. 8=11 a.m. - 12 p.m. 9=12 - 1 p.m. 10=1 - 2 p.m. 11=2 - 3 p.m. 12=3 - 4 p.m. 13=4 - 5 p.m. 14=5 - 6 p.m. 15=6 - 7 p.m. 16=7 - 8 p.m. 18=9 - 10 p.m. 19=10 - 11 p.m. 99=Have not yet been home today
LAST_LEFT_HOME	The approximate time the respondent last left their home	Actual Value
RETURN_HOME_TIME_CODE	The approximate time the respondent will return to their home code	2=5 - 6 a.m. 3=6 - 7 a.m. 4=7 - 8 a.m. 5=8 - 9 a.m. 6=9 - 10 a.m. 7=10 - 11 a.m. 8=11 a.m. - 12 p.m. 9=12 - 1 p.m. 10=1 - 2 p.m. 11=2 - 3 p.m. 12=3 - 4 p.m. 13=4 - 5 p.m. 14=5 - 6 p.m. 15=6 - 7 p.m. 16=7 - 8 p.m. 17=8 - 9 p.m. 18=9 - 10 p.m. 19=10 - 11 p.m. 20=After 11 p.m. 88=I don't know / I am not certain 99=Will not go home today
RETURN_HOME_TIME	The approximate time the respondent will return to their home	Actual Value
PAY_MODE_CODE	Payment method of respondent code	1=Cash 2=Single ride, no transfers 3=BART Transfer 5=24 Hour Pass 6=Monthly Pass 7=20 Ride Pass
PAY_MODE	Payment method of respondent	Actual Value
FARE_TYPE_CODE	Type of fare code	1=General Public (6-64 years old) 2=Senior (65+) / Disabled 3=East Bay Value Pass 4=East Bay Value Pass EXPRESS
FARE_TYPE	Type of fare	Actual Value
EMPLOYMENT_STATUS_CODE	Whether respondent is employed or not code	Y=Yes N=No
EMPLOYMENT_STATUS	Whether respondent is employed or not	Actual Value
WORKP_NAME	Name of place where respondent works (if applicable)	Actual Value
WORKP_ADDRESS	Street address where respondent works (if applicable)	Actual Value
WORKP_ADDRESS_CITY	City where respondent works (if applicable)	Actual Value
WORKP_ADDRESS_STATE	State where respondent works (if applicable)	Actual Value
WORKP_ADDRESS_ZIP	Zip code where respondent works (if applicable)	Actual Value
WORKP_ADDRESS_LAT	Latitude coordinates where respondent works (if applicable)	Actual Value
WORKP_ADDRESS_LON	Longitude coordinates where respondent works (if applicable)	Actual Value
BEEN_TO_WORK_CODE	Whether or not respondent had been to work code	Y=Yes N=No
BEEN_TO_WORK	Whether or not respondent had been to work	Actual Value
GOING_TO_WORK_CODE	Whether or not respondent would be going to work later code	Y=Yes N=No
GOING_TO_WORK	Whether or not respondent would be going to work later	Actual Value
STUDENT_STATUS_CODE	Respondent student status code	Y=Yes N=No
STUDENT_STATUS	Respondent student status	Actual Value
SCHOOL_NAME	Name of place where respondent goes to school (if applicable)	Actual Value
SCHOOL_ADDRESS	Street address where respondent goes to school (if applicable)	Actual Value
SCHOOL_ADDRESS_CITY	City where respondent goes to school (if applicable)	Actual Value
SCHOOL_ADDRESS_STATE	State where respondent goes to school (if applicable)	Actual Value
SCHOOL_ADDRESS_ZIP	Zip code where respondent goes to school (if applicable)	Actual Value

Tri Delta On-Board Transit Survey Data Dictionary

FIELD NAME	FIELD DESCRIPTION	FIELD VALUES
SCHOOL_ADDRESS_LAT	Latitude coordinates where respondent goes to school (if applicable)	Actual Value
SCHOOL_ADDRESS_LON	Longitude coordinates where respondent goes to school (if applicable)	Actual Value
BEEN_2SCHOOL_TODAY_CODE	Whether or not respondent had been to school code	Y=Yes N=No
BEEN_2SCHOOL_TODAY	Whether or not respondent had been to school	Actual Value
WILL_GO2SCHOOL_TODAY_CODE	Whether or not respondent would be going to school later code	Y=Yes N=No
WILL_GO2SCHOOL_TODAY	Whether or not respondent would be going to school later	Actual Value
PPL_IN_HH_CODE	Number of household members code	A1=1 A2=2 A3=3 A4=4 A5=5 A6=6 A7=7 A8=8 A9=9 A10PL=10+
PEOPLE_IN_HH	Number of household members	Actual Value
EMPLYD_IN_HH_CODE	Number of employed household members code	0=0 1=1 2=2 3=3 4=4 5=5 6=6 or more
EMPLYD_IN_HH	Number of employed household members	Actual Value
VEH_IN_HH_CODE	Number of Working vehicles available to respondent household code	0=None 1=1 2=2 3=3 4plus=4 or more
VEH_IN_HH	Number of Working vehicles available to respondent household	Actual Value
HAVE_DRIVERS_LIC_CODE	Does respondent have a valid drivers license code	Y=Yes N=No
HAVE_DRIVERS_LIC	Does respondent have a valid drivers license	Actual Value
YEAR_BORN	The year respondent was born	Actual Value
HISP_LATINO_SPANISH_CODE	Whether respondent identified themselves as Hispanic, Latino, or Spanish origin code	Y=Yes N=No
HISP_LATINO_SPANISH	Whether respondent identified themselves as Hispanic, Latino, or Spanish origin	Actual Value
RACE_AMERICANINDIAN_ALASKANNATIVE	Whether respondent identified themselves as American Indian/Alaska Native	Actual Value
RACE_ASIAN	Whether respondent identified themselves as Asian	Actual Value
RACE_BLACK_AFRICANAM	Whether respondent identified themselves as Black/African American	Actual Value
RACE_NATHAWAIIAN_PACISLAND	Whether respondent identified themselves as Native Hawaiian/Pacific Islander	Actual Value
RACE_WHITE	Whether respondent identified themselves as White	Actual Value
RACE_OR_ETHNICITY_OTHER	Whether respondent identified themselves as a Race/Ethnicity not previously listed	Actual Value
LANG_OTHER_THAN_ENG_CODE	Whether or not respondent speaks a language other than English at home code	Y=Yes N=No
LANG_OTHER_THAN_ENG	Whether or not respondent speaks a language other than English at home	Actual Value
OTHER_LANG_CODE	If respondents speaks a language other than English at home, this is the language code	3=Afrikaans 11=Amharic 13=Arabic, Standard 18=Armenian, Eastern 84=Dutch 102=Farsi, Eastern 111=French 129=German 143=Spanish 146=Hindi 156=Italian 159=Japanese 208=Korean 220=Latin 325=Old Spanish 351=Pidgin, Nigerian 356=Polish 358=Portuguese 378=Romanian 385=Russian 408=Sea Island Creole English 426=Spanish 443=Thai 446=Tongan 489=Filipino 490=AMERICAN SIGN LANGUAGE (ASL) 501=Samoa 503=TAGALOG 504=Chinese
OTHER_LANG	If respondents speaks a language other than English at home, this is the language	Actual Value
ENGLISH_FLUENCY_CODE	If respondents speaks a language other than English at home, this is how well they indicated they speak English code	1=Very well 2=Well

Tri Delta On-Board Transit Survey Data Dictionary

FIELD NAME	FIELD DESCRIPTION	FIELD VALUES
		3=Not well 4=Not at all
ENGLISH_FLUENCY	If respondents speaks a language other than English at home, this is how well they indicated they speak English	Actual Value
HH_INCOME_CODE	Total annual household income before taxes code	1=Less than \$10,000 2=\$10,000-\$24,999 3=\$25,000-\$34,999 4=\$35,000-\$39,999 5=\$40,000 - \$49,999 6=\$50,000-\$59,999 7=\$60,000-\$74,999 8=\$75,000-\$99,999 9=\$100,000-\$149,999 10=\$150,000 or more 88=I don't know 99=Refused
HH_INCOME	Total annual household income before taxes	Actual Value
HOME_ADDRESS	Street address where respondent lives	Actual Value
HOME_ADDRESS_CITY	City where respondent lives	Actual Value
HOME_ADDRESS_STATE	State where respondent lives	Actual Value
HOME_ADDRESS_ZIP	Zip code where respondent lives	Actual Value
HOME_ADDRESS_LAT	Latitude coordinates where respondent lives	Actual Value
HOME_ADDRESS_LON	Longitude coordinates where respondent lives	Actual Value
IMPROVEMENT_EXPECTED_CODE	Types of improvements respondents would like to see code	1=More frequent service 2=Longer service hours 3=Improved routes 4=Better transit information 5=Nicer transit stops 6=Improved safety 7=None 9=Other
IMPROVEMENT_EXPECTED	Types of improvements respondents would like to see	Actual Value
IMPROVEMENT_EXPECTED_OTHER	Other responses to the types of improvements respondents would like to see	Actual Value
USE_EBART_CODE	Whether respondent plans to use eBART when it opens code	Y=Yes N=No
USE_EBART	Whether respondent plans to use eBART when it opens	Actual Value
ACCESS_EBART_CODE	If respondent plans on using eBART, how they will access it code	1=Drive 2=Tri Delta Bus 3=Walk/Bike 9=Other
ACCESS_EBART	If respondent plans on using eBART, how they will access it	Actual Value
ACCESS_EBART_OTHER	Other ways respondent plans to access eBART	Actual Value
IS_PLACE_DIFFICULT_TRAVEL_CODE	If respondent thinks there is a place that is too difficult to travel to on transit now code	Y=Yes N=No
IS_PLACE_DIFFICULT_TRAVEL	If respondent thinks there is a place that is too difficult to travel to on transit now	Actual Value
DIFFICULT_TRAVEL_PLACE_NAME	Name of place that respondent thinks is too difficult to travel to	Actual Value
DIFFICULT_TRAVEL_ADDRESS	Street address that respondent thinks is too difficult to travel to	Actual Value
DIFFICULT_TRAVEL_CITY	City related to difficult travel address	Actual Value
DIFFICULT_TRAVEL_STATE	State related to difficult travel address	Actual Value
DIFFICULT_TRAVEL_ZIP	Zip code related to difficult travel address	Actual Value
DIFFICULT_TRAVEL_LAT	Latitude coordinates related to difficult travel address	Actual Value
DIFFICULT_TRAVEL_LON	Longitude coordinates related to difficult travel address	Actual Value
TIME_BOARDED_CODE	At what time did respondent board this bus Code	1=Before 6 a.m. 2=6 - 6:59 a.m. 3=7 - 7:59 a.m. 4=8 - 8:59 a.m. 5=9 - 9:59 a.m. 6=10 - 10:59 a.m. 7=11 a.m. - 11:59 a.m. 8=12 - 12:59 p.m. 9=1 - 1:59 p.m. 10=2 - 2:59 p.m. 11=3 - 3:59 p.m. 12=4 - 4:59 p.m. 13=5 - 5:59 p.m. 14=6 - 6:59 p.m. 15=7 - 7:59 p.m. 16=After 8 p.m.
TIME_BOARDED	At what time did respondent board surveyed bus?	Actual Value
TIME_PERIOD_CODE	Period of Day Survey was Administered code	AM1=EARLY AM AM2=AM PEAK MID=MIDDAY PM1=PM PEAK PM2=LATE PM
TIME_PERIOD	Period of Day Survey was Administered	Actual Value
GENDER_CODE	Gender of respondent Code	1= Male 2= Female
GENDER	Gender of respondent	Actual Value
UNLINKED_WGHT_FCTR_NAME	Unlinked Weight Factor Code created for data expansion (adjusts to boardings)	Actual Value
UNLINKED_WGHT_FCTR	Unlinked trip weight factor used to expand the database to total boardings	Actual Value
Total Transfers	Total number of transfers from plus total transfer to	Actual Value
LinkedTrip_Factor	Factor used to convert unlinked trips to linked trips (1/1+# transfers)	Actual Value

WEIGHTED TABULAR DATA

The weighted survey results are provided on the following pages.

Surveys Completed by Time Period

	Count	Percent
EARLY AM (4am-6am)	708	4.47%
AM PEAK (6am-10am)	3930	24.83%
MIDDAY (10am-3pm)	5555	35.10%
PM PEAK (3pm-7pm)	4870	30.78%
LATE PM (7pm-12am)	762	4.81%
Total	15825	100.00%

*percentages based on unlinked weighted data results

Respondent's Home City

	Count	Percent
Antioch	7158	45.23%
Bay Point	1134	7.17%
Berkeley	75	0.47%
Bethel Island	10	0.07%
Brentwood	1264	7.99%
Byron	21	0.13%
Clayton	11	0.07%
Concord	125	0.79%
Daly City	22	0.14%
Danville	11	0.07%
Davis	25	0.16%
Discovery Bay	10	0.06%
Dublin	11	0.07%
El Cerrito	11	0.07%
Fairfield	24	0.15%
Hayward	8	0.05%
Hercules	10	0.06%
Martinez	60	0.38%
Oakland	228	1.44%
Oakley	1432	9.05%
Pittsburg	3711	23.45%
Pleasant Hill	56	0.35%
Pleasanton	14	0.09%
Richmond	25	0.16%
Rodeo	10	0.07%
Sacramento	29	0.18%
San Francisco	145	0.92%
San Jose	11	0.07%
San Pablo	14	0.09%
Stockton	71	0.45%
Union City	33	0.21%
Vacaville	9	0.06%
Vallejo	26	0.17%
Walnut Creek	11	0.07%
Walnut Grove	10	0.06%
Total	15825	100.00%

*percentages based on unlinked weighted data results

Respondent's Home Zip Code

	Count	Percent
94107	23	0.14%
94109	25	0.16%
94110	9	0.06%
94117	23	0.14%
94509	546	3.45%
94513	32	0.20%
94517	11	0.07%
94523	20	0.13%
94531	66	0.42%
94553	30	0.19%
94561	50	0.31%
94565	468	2.96%
94587	21	0.13%
94610	10	0.06%
94612	11	0.07%
94704	24	0.15%
95206	25	0.16%
95207	25	0.16%
95822	22	0.14%
94014	22	0.14%
94115	19	0.12%
94117	35	0.22%
94124	12	0.07%
94505	10	0.06%
94509	4618	29.18%
94511	10	0.07%
94513	1395	8.82%
94514	21	0.13%
94518	11	0.07%
94519	6	0.04%
94520	85	0.54%
94521	23	0.14%
94523	36	0.22%
94526	11	0.07%
94530	11	0.07%
94531	1720	10.87%
94534	24	0.15%
94544	8	0.05%
94547	10	0.06%
94553	30	0.19%
94561	1394	8.81%
94565	4411	27.87%
94566	14	0.09%
94568	11	0.07%
94572	10	0.07%
94587	11	0.07%
94589	5	0.03%
94590	11	0.07%
94591	10	0.06%
94598	11	0.07%
94601	31	0.20%
94603	22	0.14%
94605	34	0.21%
94607	20	0.13%
94608	31	0.20%
94610	2	0.01%
94612	50	0.31%
94619	5	0.03%
94621	12	0.07%
94702	11	0.07%
94704	11	0.07%
94705	5	0.03%

Respondent's Home Zip Code

	Count	Percent
94707	24	0.15%
94804	25	0.16%
94806	14	0.09%
95116	11	0.07%
95206	21	0.13%
95616	18	0.11%
95687	9	0.06%
95690	10	0.06%
95776	7	0.04%
95814	7	0.04%
Total	15825	100.00%

*percentages based on unlinked weighted data results

Trip Origin

	Count	Percent
Airport (airline passenger only)	12	0.07%
Business appointment	137	0.87%
College or university (student only)	354	2.23%
Dining / coffee	150	0.95%
Escorting others (children, elderly)	129	0.81%
Maintenance / personal business	301	1.90%
Medical / dental	580	3.67%
School (K-12 student only)	746	4.71%
Shopping	700	4.43%
Social or recreational	1679	10.61%
Work	2696	17.04%
Your Home	8341	52.71%
Total	15825	100.00%

*percentages based on unlinked weighted data results

Origin City

	Count	Percent
Alameda	10	0.07%
Antioch	6027	38.09%
Bay Point	679	4.29%
Berkeley	179	1.13%
Brentwood	1205	7.61%
Burlingame	14	0.09%
Byron	21	0.13%
Concord	646	4.08%
Daly City	11	0.07%
Danville	12	0.08%
Davis	11	0.07%
Discovery Bay	25	0.16%
El Cerrito	23	0.14%
Emeryville	24	0.15%
Fairfield	49	0.31%
Fremont	24	0.15%
Hayward	19	0.12%
Hercules	7	0.04%
Lafayette	33	0.21%
Martinez	271	1.71%
Oakland	613	3.87%
Oakley	1009	6.38%
Pittsburg	3492	22.07%
Pleasant Hill	146	0.92%
Richmond	84	0.53%
Sacramento	7	0.04%
San Francisco	800	5.05%
San Jose	11	0.07%
San Leandro	12	0.07%
San Lorenzo	9	0.06%

Origin City

	Count	Percent
San Pablo	38	0.24%
South San Francisco	22	0.14%
Stockton	21	0.13%
Union City	11	0.07%
Vallejo	65	0.41%
Walnut Creek	184	1.16%
Walnut Grove	10	0.06%
Total	15825	100.00%

*percentages based on unlinked weighted data results

Origin Zip Code

	Count	Percent
94531	10	0.06%
94010	14	0.09%
94014	11	0.07%
94080	22	0.14%
94102	110	0.69%
94103	253	1.60%
94104	10	0.07%
94105	55	0.35%
94107	70	0.44%
94108	12	0.07%
94109	31	0.20%
94110	64	0.40%
94111	18	0.12%
94112	11	0.07%
94115	39	0.25%
94117	25	0.16%
94118	2	0.01%
94124	12	0.07%
94128	25	0.16%
94130	36	0.23%
94133	28	0.18%
94501	10	0.07%
94505	25	0.16%
94509	3996	25.25%
94513	1309	8.27%
94514	21	0.13%
94518	29	0.18%
94519	110	0.70%
94520	409	2.58%
94521	99	0.62%
94523	146	0.92%
94526	12	0.08%
94530	23	0.14%
94531	1848	11.68%
94534	49	0.31%
94538	24	0.15%
94544	19	0.12%
94547	7	0.04%
94549	44	0.28%
94553	271	1.71%
94561	1021	6.45%
94565	4228	26.72%
94577	33	0.21%
94578	12	0.07%
94580	9	0.06%
94587	11	0.07%
94589	5	0.03%
94590	24	0.15%
94591	35	0.22%
94595	18	0.11%

Origin Zip Code

	Count	Percent
94596	65	0.41%
94597	22	0.14%
94598	67	0.43%
94601	41	0.26%
94603	31	0.20%
94605	22	0.14%
94607	81	0.51%
94608	76	0.48%
94609	16	0.10%
94610	27	0.17%
94612	219	1.38%
94613	22	0.14%
94618	10	0.07%
94619	16	0.10%
94621	44	0.28%
94702	20	0.13%
94703	18	0.11%
94704	71	0.45%
94705	12	0.08%
94707	24	0.15%
94710	23	0.14%
94720	11	0.07%
94801	53	0.34%
94804	7	0.04%
94805	24	0.15%
94806	38	0.24%
95116	11	0.07%
95206	21	0.13%
95616	11	0.07%
95690	10	0.06%
95814	7	0.04%
Total	15825	100.00%

*percentages based on unlinked weighted data results

Access Mode

	Count	Percent
Bicycled	297	1.88%
Drove alone and parked	147	0.93%
Drove or rode with others and parked / carpooled	63	0.40%
Motorcycled /motorized scooter / moped	30	0.19%
Walked all the way (includes skateboard / non-motori:	14184	89.63%
Was dropped off by someone	1102	6.97%
Total	15825	100.00%

*percentages based on unlinked weighted data results

Trip Destination

	Count	Percent
Business appointment	188	1.19%
College or university (student only)	306	1.93%
Dining / coffee	183	1.16%
Escorting others (children, elderly)	72	0.46%
Maintenance / personal business	476	3.00%
Medical / dental	468	2.96%
School (K-12 student only)	946	5.98%
Shopping	1364	8.62%
Social or recreational	2424	15.32%
Work	3345	21.14%
Your Home	6054	38.25%
Total	15825	100.00%

*percentages based on unlinked weighted data results

Destination City

	Count	Percent
Alameda	21	0.13%
Antioch	5776	36.50%
Bay Point	731	4.62%
Berkeley	122	0.77%
Bethel Island	12	0.08%
Brentwood	1369	8.65%
Burlingame	7	0.05%
Clayton	31	0.20%
Colma	9	0.06%
Concord	741	4.68%
Daly City	31	0.20%
Danville	11	0.07%
Davis	14	0.09%
Discovery Bay	10	0.06%
Dublin	11	0.07%
Emeryville	22	0.14%
Hayward	58	0.37%
Hercules	10	0.06%
Lafayette	22	0.14%
Martinez	241	1.52%
Oakland	428	2.70%
Oakley	816	5.15%
Orinda	11	0.07%
Pinole	50	0.32%
Pittsburg	3855	24.36%
Pleasant Hill	178	1.12%
Pleasanton	36	0.23%
Richmond	68	0.43%
Rodeo	10	0.07%
San Bruno	25	0.16%
San Francisco	658	4.16%
San Leandro	58	0.37%
San Pablo	11	0.07%
San Rafael	11	0.07%
San Ramon	22	0.14%
Santa Clara	21	0.13%
South San Francisco	27	0.17%
Union City	25	0.16%
Vacaville	9	0.06%
Vallejo	21	0.13%
Walnut Creek	235	1.49%
Total	15825	100.00%

*percentages based on unlinked weighted data results

Destination Zip Code

	Count	Percent
94010	7	0.05%
94014	40	0.25%
94066	25	0.16%
94080	27	0.17%
94102	117	0.74%
94103	195	1.23%
94104	29	0.18%
94105	81	0.51%
94107	12	0.07%
94108	19	0.12%
94109	25	0.16%
94110	32	0.20%
94111	21	0.13%
94112	11	0.07%
94114	8	0.05%
94117	21	0.13%

Destination Zip Code

	Count	Percent
94118	10	0.07%
94123	12	0.07%
94128	10	0.06%
94131	9	0.06%
94132	11	0.07%
94133	35	0.22%
94501	21	0.13%
94505	10	0.06%
94509	3901	24.65%
94511	10	0.07%
94513	1607	10.16%
94517	21	0.13%
94518	44	0.28%
94519	72	0.46%
94520	557	3.52%
94521	79	0.50%
94523	178	1.12%
94526	11	0.07%
94531	1626	10.27%
94541	47	0.30%
94545	12	0.07%
94547	10	0.06%
94549	22	0.14%
94553	241	1.52%
94561	818	5.17%
94563	11	0.07%
94564	25	0.16%
94565	4598	29.05%
94566	14	0.09%
94568	11	0.07%
94572	10	0.07%
94578	58	0.37%
94583	22	0.14%
94587	25	0.16%
94588	22	0.14%
94590	11	0.07%
94591	10	0.06%
94596	179	1.13%
94598	57	0.36%
94601	22	0.14%
94605	53	0.33%
94606	9	0.06%
94607	85	0.54%
94608	22	0.14%
94612	182	1.15%
94618	19	0.12%
94619	25	0.16%
94621	33	0.21%
94703	37	0.23%
94704	33	0.21%
94707	21	0.13%
94710	10	0.07%
94720	21	0.13%
94801	31	0.20%
94803	25	0.16%
94804	37	0.23%
94806	11	0.07%
94901	11	0.07%
95054	21	0.13%
95616	7	0.04%
95687	9	0.06%
95776	7	0.04%
Total	15825	100.00%

*percentages based on unlinked weighted data results

Egress Mode

	Count	Percent
Bicycle	269	1.70%
Drive alone	157	0.99%
Drive or ride with others / carpool	52	0.33%
Get picked up by someone	557	3.52%
Motorcycled /motorized scooter / moped	20	0.12%
Walk all the way (includes skateboard / non-motorize	14771	93.34%
Total	15825	100.00%

*percentages based on unlinked weighted data results

Total Transfers

	Count	Percent
No transfers	7732	48.86%
1 transfer	5300	33.49%
2 transfers	2129	13.46%
3 transfers	621	3.92%
4 transfers	43	0.27%
Total	15825	100.00%

*percentages based on unlinked weighted data results

How Riders Paid For Trip

	Count	Percent
20 Ride Pass	837	5.29%
24 Hour Pass	3190	20.15%
BART Transfer	112	0.71%
Cash	10028	63.37%
Monthly Pass	1467	9.27%
Single ride, no transfers	192	1.21%
Total	15825	100.00%

*percentages based on unlinked weighted data results

Type of Fare Discount Riders Received for Trip

	Count	Percent
East Bay Value Pass	297	1.88%
East Bay Value Pass EXPRESS	19	0.12%
General Public (6-64 years old)	13924	87.99%
Senior (65+) / Disabled	1585	10.02%
Total	15825	100.00%

*percentages based on unlinked weighted data results

Working Vehicles Available in Household

	Count	Percent
None	5473	34.59%
1 vehicle	4719	29.82%
2 vehicles	3588	22.67%
3 vehicles	1386	8.76%
4 or more	659	4.16%
Total	15825	100.00%

*percentages based on unlinked weighted data results

Total Number of Persons in Household

	Count	Percent
1	2048	12.94%
2	2881	18.21%
3	3605	22.78%
4	3092	19.54%
5	1975	12.48%
6	1187	7.50%
7	455	2.88%
8	298	1.88%
9	109	0.69%
10+	174	1.10%
Total	15825	100.00%

*percentages based on unlinked weighted data results

Employment Status

	Count	Percent
No	7155	45.21%
Yes	8670	54.79%
Total	15825	100.00%

*percentages based on unlinked weighted data results

Student Status

	Count	Percent
No	10796	68.22%
Yes	5029	31.78%
Total	15825	100.00%

*percentages based on unlinked weighted data results

Driver License Status

	Count	Percent
No	9879	62.42%
Yes	5946	37.58%
Total	15825	100.00%

*percentages based on unlinked weighted data results

Year Respondent Born

	Count	Percent
1931	11	0.07%
1933	25	0.16%
1937	11	0.07%
1938	16	0.10%
1940	44	0.28%
1941	11	0.07%
1942	56	0.35%
1943	6	0.04%
1945	11	0.07%
1946	46	0.29%
1947	51	0.33%
1948	163	1.03%
1949	83	0.53%
1950	233	1.47%
1951	121	0.77%
1952	164	1.04%
1953	138	0.87%
1954	142	0.90%
1955	176	1.11%
1956	238	1.50%
1957	193	1.22%
1958	175	1.10%
1959	243	1.54%
1960	159	1.01%
1961	140	0.88%

Year Respondent Born

	Count	Percent
1962	233	1.47%
1963	143	0.90%
1964	229	1.45%
1965	168	1.06%
1966	215	1.36%
1967	291	1.84%
1968	235	1.49%
1969	201	1.27%
1970	203	1.28%
1971	125	0.79%
1972	230	1.45%
1973	148	0.93%
1974	139	0.88%
1975	211	1.34%
1976	228	1.44%
1977	282	1.78%
1978	278	1.76%
1979	401	2.54%
1980	300	1.90%
1981	236	1.49%
1982	285	1.80%
1983	243	1.53%
1984	234	1.48%
1985	179	1.13%
1986	273	1.72%
1987	499	3.15%
1988	480	3.03%
1989	471	2.98%
1990	496	3.13%
1991	521	3.29%
1992	624	3.94%
1993	758	4.79%
1994	739	4.67%
1995	640	4.04%
1996	721	4.56%
1997	406	2.57%
1998	560	3.54%
1999	401	2.53%
2000	127	0.80%
2001	14	0.09%
Total	15825	100.00%

*percentages based on unlinked weighted data results

Gender

	Count	Percent
Female	8122	51.33%
Male	7703	48.67%
Total	15825	100.00%

*percentages based on unlinked weighted data results

Household Income

	Count	Percent
Less than \$10,000	2325	14.69%
\$10,000-\$24,999	2862	18.08%
\$25,000-\$34,999	1868	11.80%
\$35,000-\$39,999	1222	7.72%
\$40,000 - \$49,999	767	4.85%
\$50,000-\$59,999	823	5.20%
\$60,000-\$74,999	915	5.78%
\$75,000-\$99,999	458	2.89%
\$100,000-\$149,999	440	2.78%
\$150,000 or more	286	1.81%
I don't know	3011	19.02%
Refused	849	5.36%
Total	15825	100.00%

*percentages based on unlinked weighted data results

SERVICE ISSUES

What Types of Improvements Would You Like to See

	Count	Percent
Better transit information	323	2.04%
Improved routes	1758	11.11%
Improved safety	286	1.81%
Longer service hours	3110	19.65%
More frequent service	7469	47.20%
Nicer transit stops	479	3.03%
None	1069	6.76%
Other	1330	8.41%
Total	15825	100.00%

*percentages based on unlinked weighted data results

Do You Plan on Using eBart When it Opens in 2018

	Count	Percent
No	3882	24.53%
Yes	11943	75.47%
Total	15825	100.00%

*percentages based on unlinked weighted data results

How Do You Plan on Getting to eBart Hillcrest Station

	Count	Percent
Drive	1570	13.14%
Other	171	1.43%
Tri Delta Bus	9608	80.44%
Walk/Bike	595	4.98%
Total	11943	100.00%

*percentages based on unlinked weighted data results

Name of the Place Respondents Would Like to Travel but Have Difficulty

	Count	Percent
Amtrak Station	11	0.45%
Antioch Library	11	0.49%
Antioch WaterPark	11	0.45%
Apple Store, Walnut Creek	9	0.40%
Baart Antioch: Quismorio William L MD	11	0.45%
Bethel Family Christian Center	9	0.40%
Black Diamond Mines Regional Preserve	11	0.49%
Cellairis (Sommersville Towne Center)	11	0.47%
Contra Loma Regional Park	7	0.30%
Deer Valley High	11	0.49%

Name of the Place Respondents Would Like to Travel but Have Difficulty

	Count	Percent
Diablo Valley College	7	0.30%
Discovery Bay	113	4.81%
Eastwood Plaza Shopping Center	25	1.07%
Fire Interpretive Trail Walnut Creek	7	0.30%
First Bank	107	4.56%
Fit U Health Clubs	28	1.18%
Frank Hengel Way	9	0.40%
Golden Gate Fields	6	0.27%
Golden Hills Community Church	9	0.38%
Great America-Santa Clara	10	0.44%
Hillcrest Park and Ride	7	0.30%
Home Depot	23	0.96%
Kaiser Medical Center Antioch OBG	21	0.90%
Kaiser Permanente Deer Valley: Pachtman Cori MD	11	0.46%
Kaiser Permanente: Martinez Medical Office	22	0.92%
Kohl's	22	0.93%
MacArthur Bart Station	10	0.44%
Not Applicable	1292	54.98%
O.co Coliseum	21	0.88%
Old Navy	9	0.38%
Pittsburg/Bay Point Station	58	2.47%
Quality Care Homes	11	0.46%
Safeway	12	0.50%
San Marco Gate	9	0.40%
Sand Creek Plaza	9	0.38%
Six Flags Discovery Kingdom	11	0.49%
Somersville Towne Center	11	0.47%
Styles For Less	11	0.49%
Sunvalley Shopping Center	25	1.05%
Sutter Delta Medical Center	39	1.67%
Target	33	1.39%
The Streets of Brentwood	10	0.43%
Ticket Center	45	1.93%
Tioga Road Yosemite National Park	21	0.90%
Trader Joe's	11	0.47%
Va Medical Center (weekends)	11	0.47%
WinCo Foods	149	6.35%
Ygnacio Ct	11	0.45%
Total	2350	100.00%

*percentages based on unlinked weighted data results

City that Respondents Would Like to Travel but Have Difficulty

	Count	Percent
Antioch	457	19.45%
Bay Point	18	0.78%
Benicia	11	0.45%
Berkeley	14	0.59%
Bethel Island	2	0.09%
Brentwood	482	20.50%
Chico	7	0.30%
Clayton	21	0.88%
Concord	222	9.47%
Discovery Bay	113	4.81%
Dublin	23	0.97%
Empire	10	0.44%
Fairfield	9	0.38%
Lafayette	12	0.49%
Livermore	9	0.40%
Lodi	12	0.50%
Los Angeles	9	0.40%
Martinez	73	3.12%
Midpines	21	0.90%

City that Respondents Would Like to Travel but Have Difficulty

	Count	Percent
Oakland	42	1.80%
Oakley	93	3.98%
Pittsburg	300	12.78%
Pleasant Hill	13	0.57%
Pleasanton	11	0.48%
Richmond	9	0.38%
Sacramento	11	0.47%
San Francisco	109	4.66%
San Jose	129	5.50%
Santa Clara	10	0.44%
Stockton	24	1.01%
Vallejo	22	0.93%
Walnut Creek	49	2.07%
Total	2350	100.00%

*percentages based on unlinked weighted data results

Zipcode that Respondents Would Like to Travel but Have Difficulty

	Count	Percent
90038	9	0.40%
94102	67	2.86%
94105	21	0.90%
94117	21	0.89%
94505	113	4.81%
94509	307	13.09%
94510	11	0.45%
94511	2	0.09%
94513	493	20.99%
94517	21	0.88%
94519	12	0.52%
94520	210	8.95%
94523	13	0.57%
94531	139	5.90%
94533	9	0.38%
94549	12	0.49%
94551	9	0.40%
94553	73	3.12%
94561	93	3.98%
94565	319	13.56%
94566	11	0.48%
94568	23	0.97%
94589	11	0.49%
94590	11	0.45%
94596	31	1.32%
94598	18	0.75%
94609	10	0.44%
94612	11	0.48%
94621	21	0.88%
94710	14	0.59%
94801	9	0.38%
95054	10	0.44%
95110	64	2.70%
95111	24	1.01%
95112	33	1.40%
95113	9	0.38%
95202	24	1.01%
95240	12	0.50%
95319	10	0.44%
95345	21	0.90%
95814	11	0.47%
95928	7	0.30%
Total	2350	100.00%

*percentages based on unlinked weighted data results

Race/Ethnicity

	Count	Percentage
Hispanic	3178	18.53%
American Indian/Alaska Native	627	3.66%
Asian	724	4.22%
Black/African American	8282	48.29%
Hawaiin/Pacific Islander	154	0.90%
White	4185	24.40%
Total	17150	100.00%

*percentages based on unlinked weighted data results

*multiple choices allowed

SURVEY INSTRUMENT

The survey instrument is provided on the following pages.



Tri Delta On-Board Transit Survey

Please take a few moments to complete this important survey. Your input will be used to plan transportation improvements to serve Tri Delta customers better. **All information will be kept strictly confidential.**

COMING FROM?

1. What type of place did you just COME FROM?

- Work
- Business appointment
- Your Home
- Social or recreational
- Shopping
- School (K-12) (student only)
- College or University (student only)
- Airport (airline passenger only)
- Medical / dental
- Dining / coffee
- Escorting others (children, elderly)
- Maintenance / personal business
- Other: _____

2. If you are NOT coming from HOME or WORK, what is the NAME of the place you are coming from?

3. What is the address of this place (or nearby intersection if you do not know the address)?

City: _____ Zip: _____

4. How did you get to the very first bus or train you used for this trip?

- Walked all the way (includes skateboard / non-motorized scooter)
- Bicycled
- Drove alone and parked
- Drove or rode with others and parked / carpoled
- Was dropped off by someone
- Taxi
- Motorcycle / motorized scooter / moped
- Other: _____

GOING TO?

5. What type of place are you GOING TO now?

- Work
- Business appointment
- Your Home
- Social or recreational
- Shopping
- School (K-12) (student only)
- College or University (student only)
- Airport (airline passenger only)
- Medical / dental
- Dining / coffee
- Escorting others (children, elderly)
- Maintenance / personal business
- Other: _____

6. If you are NOT going HOME or to WORK, what is the NAME of the place you are going to?

7. What is the address of this place (or nearby intersection if you do not know the address)?

City: _____ Zip: _____

8. How will you get from the very last bus or train you Will using for this trip to get to the place listed above?

- Walk all the way (includes skateboard / non-motorized scooter)
- Bicycle
- Drive alone
- Drive or ride with others / carpool
- Get picked up by someone
- Taxi
- Motorcycle / motorized scooter / moped
- Other: _____

THIS BUS

9. Where did you get ON this bus?

Please provide the nearest intersection/station name/park-and-ride: _____

10. Where will you get OFF this bus?

Please provide the nearest intersection/station name/park-and-ride: _____

TRANSFERS

11. INCLUDING THIS BUS, how many TOTAL BUSES/TRAINS will you use to make THIS ONE-WAY TRIP?

- One, only this bus/train Two Three Four or more

11a. Please list the BUS ROUTES and/or RAIL Lines in the exact order you use them for this one-way trip.

START	→	<input style="width: 80%;" type="text"/>	END						
		1 st Route/RAIL Line		2 nd Route/RAIL Line		3 rd Route/RAIL Line		4 th Route/RAIL Line	

OTHER TRIP INFORMATION

12. Approximately what time did you last leave home today? Hour/Minute: _____ am / pm **OR** Have not been yet home today

13. Approximately what time will you return home today? Hour/Minute: _____ am / pm **OR** Will not go home today

14. How did you pay your fare for the trip you were surveyed? Cash Single ride, no transfers BART Transfer Children 5 and under
 24 Hour Pass Monthly Pass 20 Ride Pass

15. What best describes the fare category of your payment? General Public (6-64 years old) Senior (65+) / Disabled
 East Bay Value Pass East Bay Value Pass EXPRESS

ABOUT YOU

16. Are you currently employed either full- or part-time? Yes – answer 16a-c No

16a. IF YOU ARE EMPLOYED: Have you been to work today since you last left home? Yes No

16b. IF YOU ARE EMPLOYED: Will you be going to work (or going back to work) before going home today? Yes No

16c. What is your WORK address? This information will help us plan routes that will better serve people where they work. If you do not want to provide this information, please provide the name of an intersection that is near your work (e.g., W. Main St. & N. Oak).

Work Address (or intersection): _____

Work City: _____

Work Zip Code: _____

17. Are you a student? (check the one response that BEST describes you)

- Not a student (go to 18)
- Yes – College/university (specify institution's name): _____
- Yes – student thru 12th grade (specify institution's name): _____
- Yes – other (specify institution's name): _____

17a. **IF YOU ARE A STUDENT:** Have you been to school today since you last left home? Yes No

17b. **IF YOU ARE A STUDENT:** Will you be going to school (or going back to school) before going home today? Yes No

17c. **IF YOU ARE A STUDENT:** What is your SCHOOL address? This information will help us plan routes that will better serve people where they go to school. If you do not want to provide this information, please provide the name of an intersection that is near your school (e.g., W. Main St. & N. Oak).

School Address (or intersection): _____

School City: _____ School Zip Code: _____

18. Including YOU, how many people live in your household? _____ people

19. Including YOU, how many people age 16 and older in your household are employed full-time or part-time? _____ people

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

- None
- One
- Two
- Three
- Four or more

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

22. In what year were you born? _____

23. Are you Hispanic, Latino or Spanish origin? Yes No

24. Are you? (check all that apply)

- American India/Alaska Native
- Asian
- Black/African American
- Native Hawaiian/Pacific Islander
- White
- Other: _____

25. Do you speak a language other than English at home? No Yes

IF YES: 25a. What language do you speak? _____

25b. How well do you speak English? Very Well Well Not well Not well at all

26. What is your home address? This information will help use plan routes that will better serve people where they live. If you do not want to provide this information, please provide the name of an intersection that is near your home (e.g., W. Main St. & N. Oak). If you are not from the Tri Delta area, please enter the location where you are staying (friend's home, hotel, etc.)

Home Address (or intersection): _____

Home City: _____ Home Zip Code: _____

27. What is your gender? Male Female

28. Which of the following categories BEST describes your TOTAL ANNUAL HOUSEHOLD INCOME before taxes?

- Less than \$10,000
- \$10,000-\$24,999
- \$25,000 - \$34,999
- \$35,000 - \$39,999
- \$40,000 - \$49,999
- \$50,000-\$59,999
- \$60,000-\$74,999
- \$75,000 - \$99,999
- \$100,000-\$149,999
- \$150,000 or more

SERVICE ISSUES

29. What types of improvements would you like to see? (Select one only)

- More frequent service
- Longer service hours
- Improved routes
- Better transit information
- Nicer transit stops
- Improved safety
- Other: _____

30. Do you plan on using eBART when it opens in 2018? Yes – answer 30a No

30a. If "Yes", how do you plan to get to the eBART station Hillcrest Station?

- Drive
- Tri Delta Bus
- Walk/Bike
- Other: _____

31. Is there a place that you would like to travel to on transit, but find it too difficult right now - What is the NAME of this place or the nearest intersection?

Name of Location or Intersection _____

City: _____ Zip: _____

REGISTER TO WIN a \$100 Visa card

People who submit a completed survey will be entered in a random drawing for a Visa gift. You must provide your name, phone number and/or e-mail address below to be eligible.

Your Name: _____ Phone Number: (____) _____

e-mail address: _____

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 within 24 hours using the postage-paid envelope that was provided.

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