On Board Survey

2013-14 Report

UTA

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Executive Summary

In order to meet federal requirements and to better understand the UTA ridership, an on-board survey was conducted on the UTA system during the months of September 2013 through February 2014. This document provides an in depth report on the findings of that effort. Sample size of the survey was approximately 10% of average daily ridership and was conducted with sensitivity to individual route ridership including direction and peak use of the system. Over 13,000 valid surveys were completed in the effort; the largest on-board survey conducted by the agency to date.

Results of the survey were compared whenever possible with the findings of the 2011 On-Board survey. While the primary cause of many of the differences between these data sets is major changes in the rail infrastructure network, it is important to note that accuracy of sample collection and sample weighting methods are continuously improving and should be considered in the comparisons.

Among the findings on Rider Profile:

- Increase of surveyed riders in the 18-24 age category (24% in 2011 versus 31% in 2013-14)
- Increase of surveyed riders with household incomes less than $25,000 (34% in 2011 versus 40% in 2013-14)
- Increase in surveyed riders living in zero car households (16% in 2011 versus 23% in 2013-14)
- Increase in surveyed riders reporting lack of driver's license (15% in 2011 versus 25% in 2013-14)
- Increase of surveyed riders using the system 5 or more days per week (60% in 2011 versus 66% in 2013-14)
- Increase in surveyed riders categorized as 'captive' (40% in 2011 versus 51% in 2013-14)

Among the findings on Trip Profile:

- Home-based work trips remain the largest portion of trip purpose (44% in 2011 versus 42% in 2013-14)
- Home-based work trips remain the predominant trip purpose for all modes
- Walking continues to be the most prevalent method of accessing the transit net work (67% of all trips in 2013-14)
- Electronic Fare Payment remains the most popular form of payment for transit journeys (48%)
- Decline in rate of transfer among surveyed riders (1.44 in 2011 versus 1.29 in 2013-14)

Among the findings on the Origin and Destination Analysis:

- Areas including University of Utah, Westminster College, Salt Lake City's CBD, West Valley City and Salt Lake Community College, and State Street/Intermoun tain Healthcare in Murray remain the highest proportion of areas of trip origin and destination.
- Increased proportion of trips originating in West Jordan City and South Jordan City.
- Increased proportion of trips attracted to State Street/Intermountain Healthcare in Murray, the Airport and Rose Park area, and Ogden City CBD.

The results of the report provide a valuable understanding of UTA riders and their use of the transit network. UTA staff is looking at ways to feasibly collect valid on-board survey data at a regular annual interval.

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Background

UTA is obligated to gather data through on-board surveys for several purposes. For instance, in the case of meeting federal Title VI regulations, UTA must conduct surveys at least once every five years. To meet federal grant requirements for major capital investments (i.e. Mid-Jordan TRAX, FrontRunner extension), UTA must conduct surveys prior to and following the construction of new lines to establish validity of the ridership projections.

Finally, on-board surveys are also used in the validation and calibration of the regional travel demand model. UTA conducted a system-wide on-board origin-destination (OD) study from September 2013 through February 2014. In order to meet FTA requirements, a post-construction “after” study on the mid-Jordan LRT extension was completed. Additionally, an analysis of the “before” travel patterns of the Draper TRAX LRT was performed to support the New Starts funding request.

These surveys were conducted by third party consultants and represent statistically valid snapshots of the entire transit system for the given survey period. The consultant retained to conduct the 2013 On-Board Survey was RSG Inc. (RSG), based out of White River Junction, Vermont. Where possible, this report seeks to identify significant differences between the data results from the 2013 and 2011 surveys.

Survey Methodology

Sampling

According to UTA's ridership data, in 2013 there were approximately 152,000 unlinked passenger trips (excluding Vanpool and Paratransit) on the UTA system during average weekdays. It was assumed that approximately fifty-five percent (55%) of those trips (83,600) were "unique" riders, assuming that most people typically make round trips using transit. This assumption was conservative relative to what has been observed around the US and specifically ignored transfers. Consistent with FTA Guidelines, roughly 10% of unique daily riders were to be surveyed, thus the goal of 8,400 completed surveys was set.

Based on the consultant's experience, it was assumed that it would be necessary to distribute approximately 28,000 surveys to obtain the goal of 8,400 (30%) completed surveys. A sampling plan was developed in order to cover all TRAX lines, FrontRunner, MAX, and most bus routes. The surveys were distributed on weekday trips originating between 6:30 am and 9:00 pm. In total, the consultant team gathered over 13,000 valid survey responses; 352 (3%) were collected electronically and 12,930 (97%) via paper survey. The types of surveys will be described in greater detail below.

Survey Distribution

UTA staff distributed paper form surveys to each person boarding a sampled trip. The survey was a brief, paper-based self-completion survey with an option for the person to take them with them and complete the survey online using a link and unique printed password. Respondents also had the option to complete the paper survey and return it to the on-board surveyor, or return it via a pre-paid business reply mail option.

All surveys were provided in English and Spanish. The following is a summary of how many surveys were collected from passengers by mode.

- 5,866 surveys received were from bus passengers.
- 5,606 surveys received were from TRAX passengers.
- 1,810 surveys received were from FrontRunner passengers

The high share of responses to the 2013-14 On-Board survey collected in paper format (97%) is a significant change from the 2011 responses, of which approximately half were collected in paper format.

UTAH TRANSIT AUTHORITY STUDY

Dear UTA Customer,

The Utah Transit Authority (UTA) is conducting a survey to understand how you travel in and around the Salt Lake City region. Please help us by taking a few minutes to complete this survey so we may better understand your needs and improve our services.

*Register to win one of 5 iPads!**

WE ASK THAT YOU COMPLETE THE SURVEY TODAY AND RETURN IT IN ONE OF THE FOLLOWING WAYS:

- Complete it while riding UTA and return it to survey personnel on board
- Drop it in any U.S. postal mailbox – postage free – upon completing the survey
- Take the survey online by visiting this URL and entering your password (printed in the box below):

http://legacy.rsgsurvey.com/UTASurvey

Password:

Thank you in advance for your participation!

UTA

*Note: Anyone can be entered to win without filling out the survey by emailing your contact information to UTASurvey@rsgsurvey.com.

Survey Instrument

The survey instrument was a standard origin-destination survey based on numerous previous surveys conducted by RSG and UTA. Respondents were asked to indicate their boarding/alighting locations on the surveyed transit line.

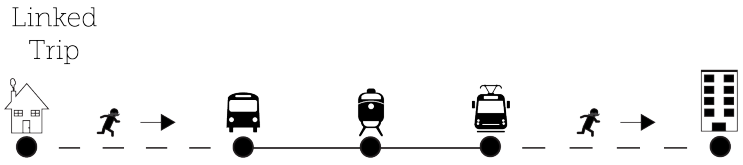
Weighting

Once the usable records were cleaned, validated, and geocoded (geographically plotted), the results were expanded (weighted) to represent system-wide ridership during a typical weekday using the on-board survey, APC, and NTD data. The data was weighted by linked and unlinked (see figure A for an explanation of this distinction) daily passenger trips at the route/line level, by the time of day, and the boarding/alighting trip segment.

Reporting Geography

For planning studies, the tool most commonly used to generate ridership projections is the regional travel demand model. The model is a zone-based forecasting tool that models travel between Transportation Analysis Zones (TAZ). TAZs are mutually exclusive (i.e. they do not overlap) and cover the entire Wasatch Front. There are 2,230 internal and 20 external TAZs in the model. These zones extend from Weber County in the north to Utah County in the south. The model uses “external zones” to cover access to the Wasatch Front from places such as Tooele, Park City, Brigham City, etc. TAZs are often aggregated into medium and large districts for the purpose of simplified reporting. Figure B shows the medium and large aggregation of these districts. These large and medium district aggregations also work as representative geographies for various trip generators and attractors. For instance, in the large district map, zones 2, 7, and 13 represent Ogden, Salt Lake City Central Business District (CDB) and the Provo-Orem areas respectively.

Figure A - What is a Linked Trip



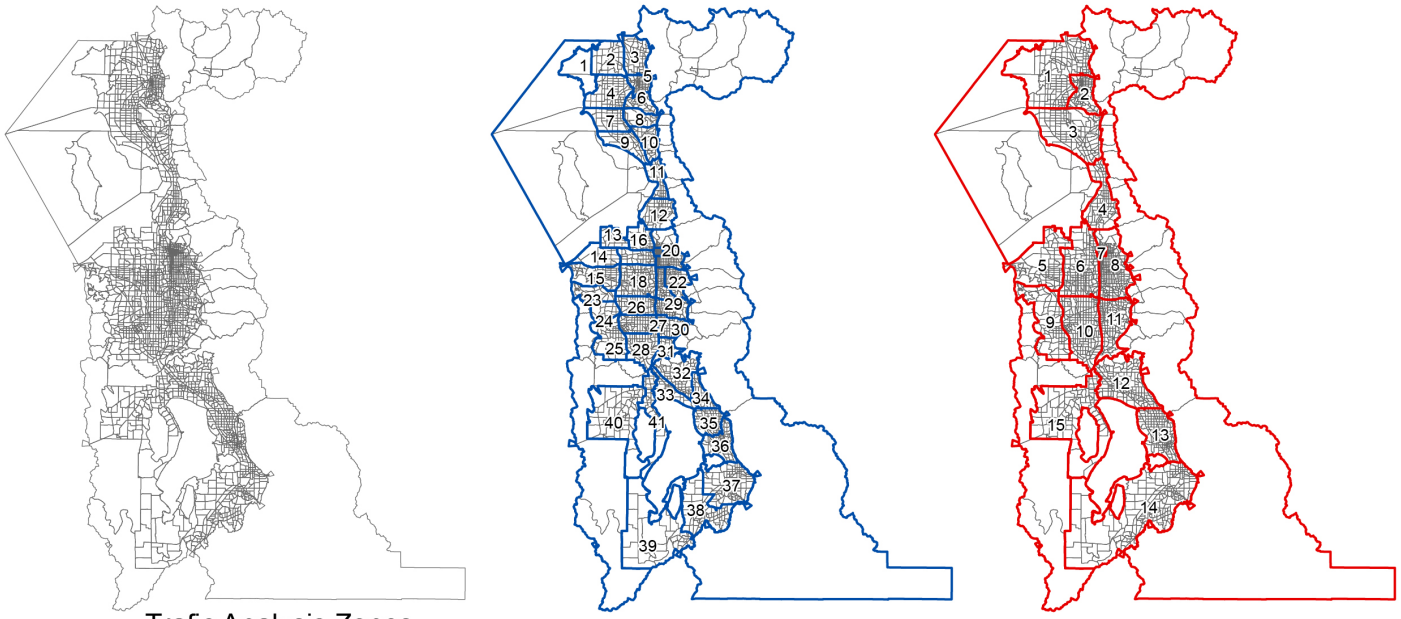
The medium district map breaks the larger zones down into zones that represent smaller geographies. For instance, in the medium district map, zone 6 represents Weber State University in Ogden, while zone 20 represents the University of Utah and Westminster College in Salt Lake County. Similarly, zone 36 represents BYU, as well

as downtown Provo in Utah County. The summary statistics that are presented in this report will refer to these districts. These districts and zones are also the units by which all forecasted travel demand is presented in any planning document.
The geographic data collected in the on-board surveys (i.e. origin and destination) is typically aggregated into this TAZ structure for purposes of consistent reporting. Maps and all geographic summary data in this paper will be reported using this TAZ structure.

Survey Responses

As stated previously in this report, surveys were distributed and collected in paper form or via web entry. Overall, RSG received 13,282 valid survey responses; eighty-six percent (86%) were from bus and TRAX passengers.

Figure B - Traffic Analysis Zone Districts

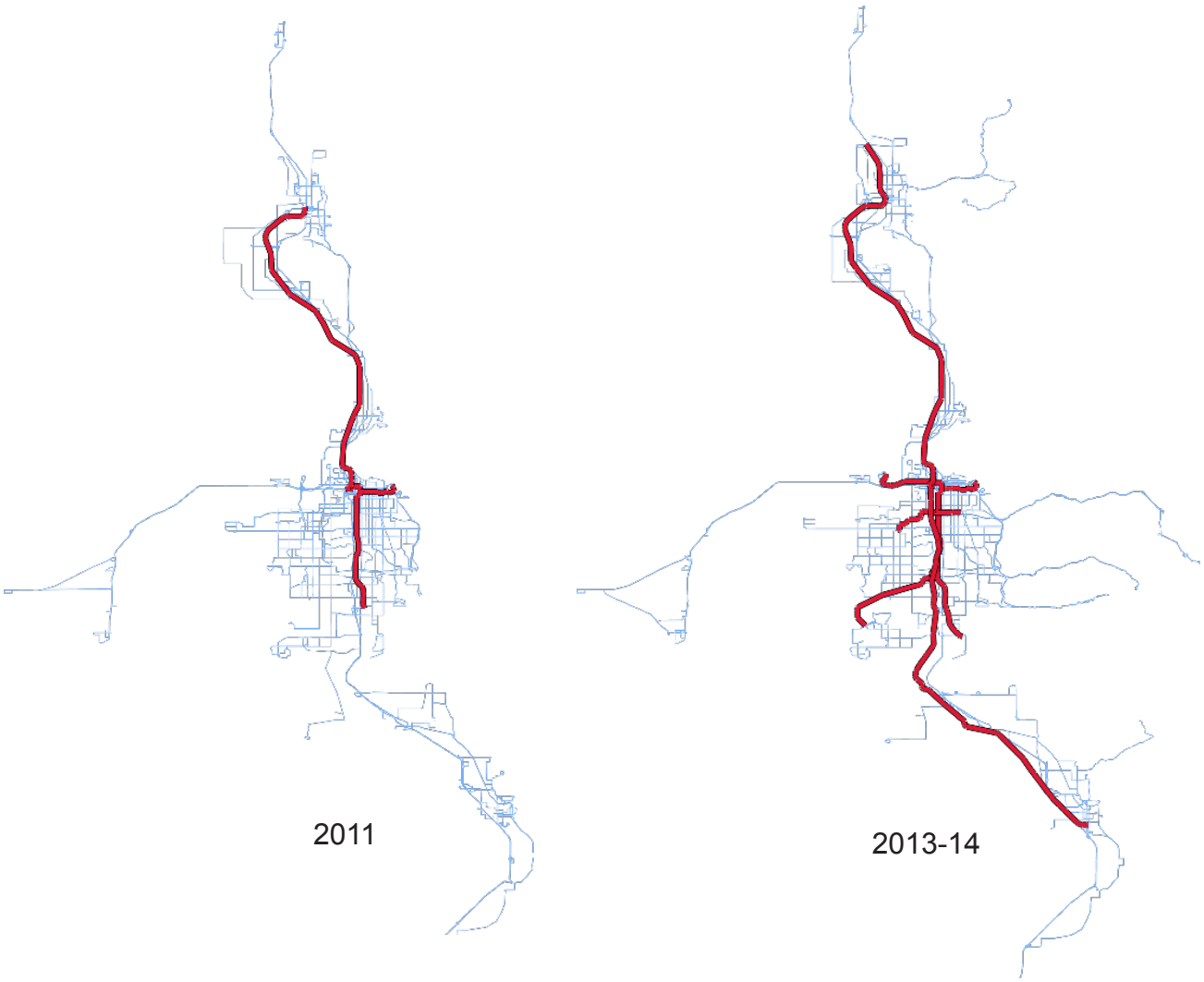


Summary Statistics

The following sections present a basic data summary of rider and trip profiles, with comparisons between the 2011 on board survey and the 2013 survey, where relevant. The results section also reveals some of the more interesting data obtained related to travel patterns, modes, and means of access.

As can be seen in the system maps and table below, the transit network noticeably expanded in fixed guideway rail facilities between the two years of data collection. Total revenue hours and miles of service on rail doubled on an average weekday. Meanwhile, bus service reduced slightly in response to the rail infrastructure changes.

Figure C - System Comparison 2011 vs. 2013-14



	2011		2013-14		% Change	
	Avg Daily Revenue Hours	*Ave Daily Revenue Miles*	*Avg Daily Revenue Hours*	*Ave Daily Revenue Miles*	*Revenue Hours*	*Revenue Miles*
Bus	3,188	57,083	3,017	51,080	-5%	-11%
Rail	248	5,788	496	12,677	100%	119%

Rider Profile

Typical Rider profiles can be derived for both those completing trips to work and those completing trips to college, university, or technical colleges. The median age of a typical rider reporting on a trip to work was 35 years old and lived in a household with a median income of $45,500. Of those surveyed riders completing a trip to a college, the median age was 23 and the median household income was $26,000.

Demographics

Figure D depicts the breakdown of surveyed riders by age category. The largest portion of transit riders surveyed were between the ages of 25 and 44 (42%). Ninety-three percent (93%) of the surveyed riders were between the ages of 18 and 64, or working age. In comparison to 2011, the proportion of riders that were age 18-24 increased from twenty-four percent (24%) to thirty-one percent (31%) in 2013-14, while the proportion of riders age 45-64 declined in proportion from twenty-eight percent (28%) in 2011 to twenty-percent (20%) in 2013-14.

In 2013-14, fifty-nine percent (59%) of those surveyed were male and forty-one percent (41%) were female. This gender split, as depicted in Figure E, is not significantly different from 2011.

Figure D - Reported Rider Age

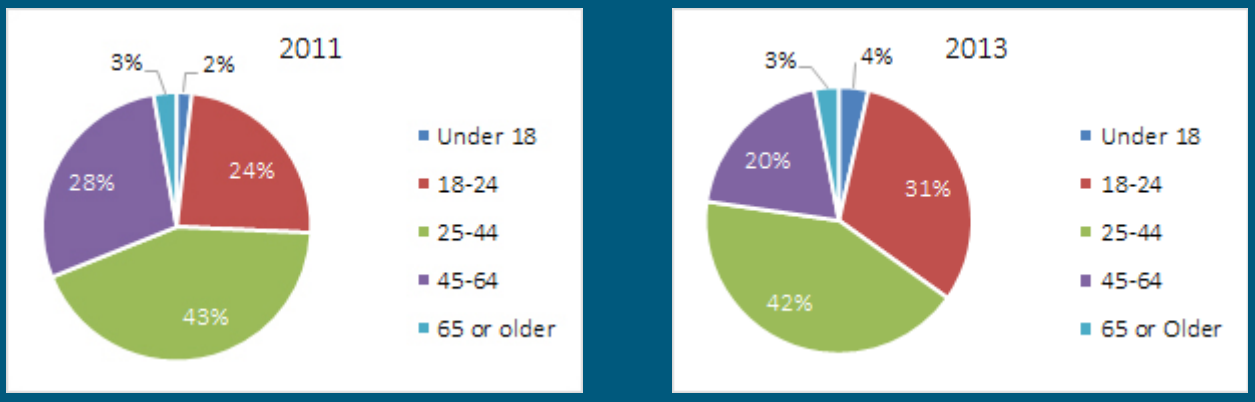
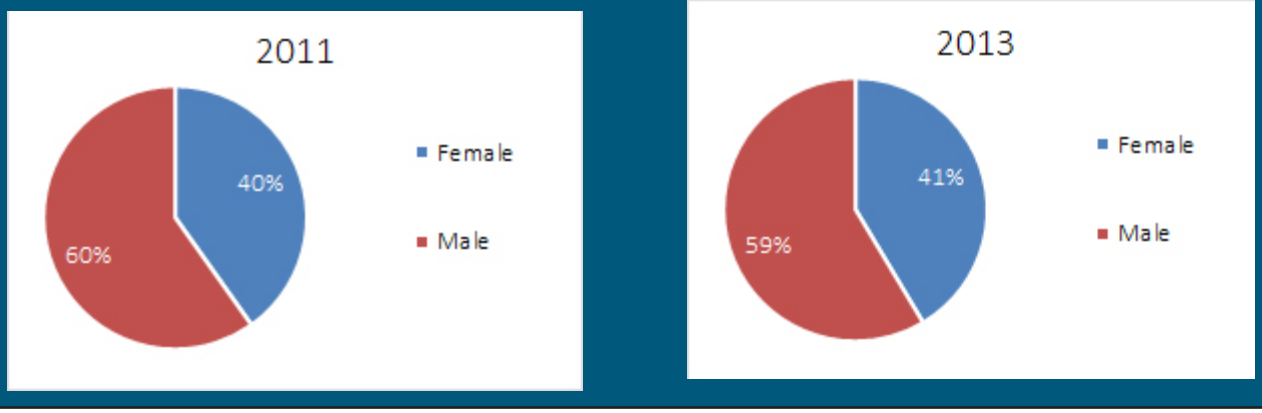


Figure E - Reported Rider Gender



In 2013-14, the portion of the surveyed population with household incomes of less than $35,000 was fifty-two percent (52%), versus forty-five percent (45%) in 2011. This growth in lower income riders may be the result of the Great Recession, which had a large economic impact on the community. It also could be the result of the increased fixed rail service in the later data set, which provided more service to low income areas in the region as well as to larger student populations. Figure F shows the complete breakdown of this statistical categories.

Reported household vehicle ownership changed significantly between the two data sets. The proportion of surveyed riders living in zero car households was twenty-three percent (23%), up from sixteen percent (16%) in the 2011 survey. The proportion of 2-car households showed the most significant decrease between the two surveys, from thirty-three percent (33%) in 2011 to twenty-seven percent (27%) in the 2013-2014 data set.

The average number of cars per household generally declined, from 1.75 in 2011 to 1.58 in the 2013-14 survey.

Figure F - Reported Rider Income

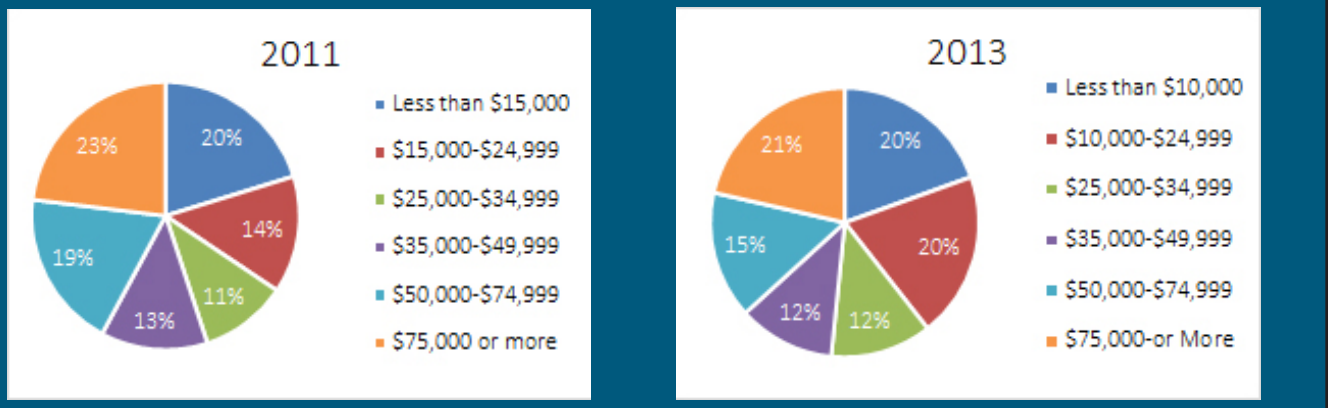


Figure G - Reported Vehicles per Household

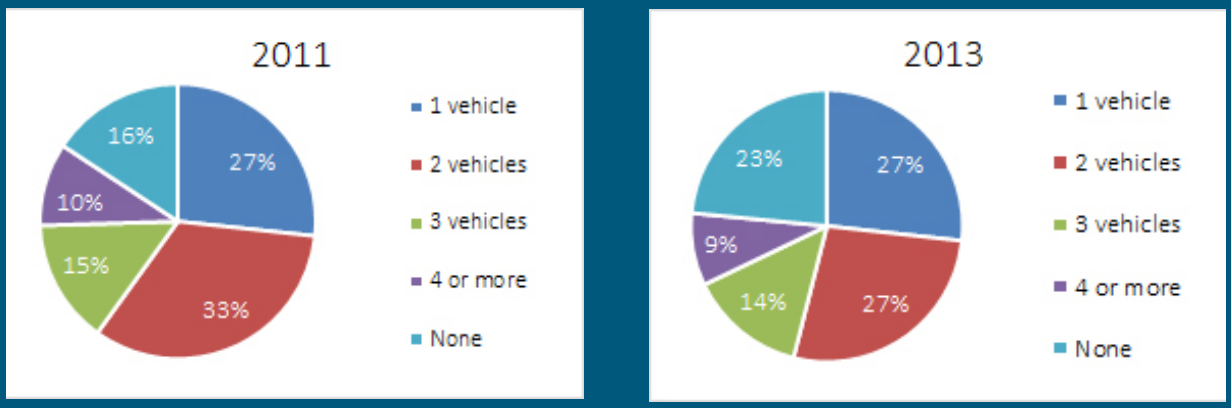
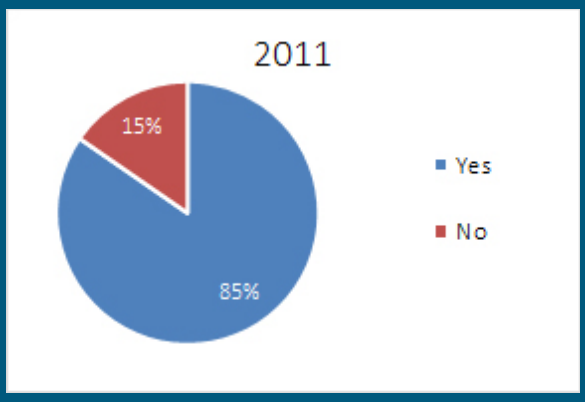


Figure H - Reported Valid Driver's License



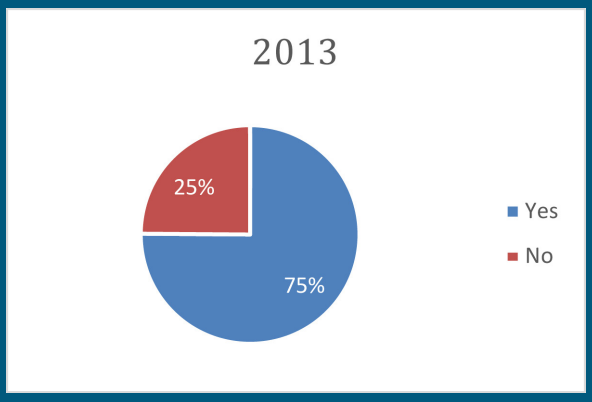
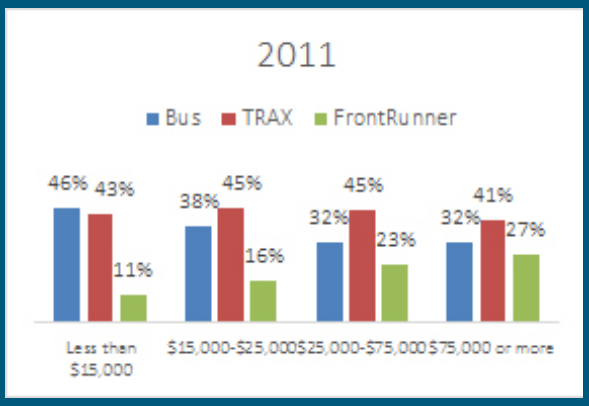
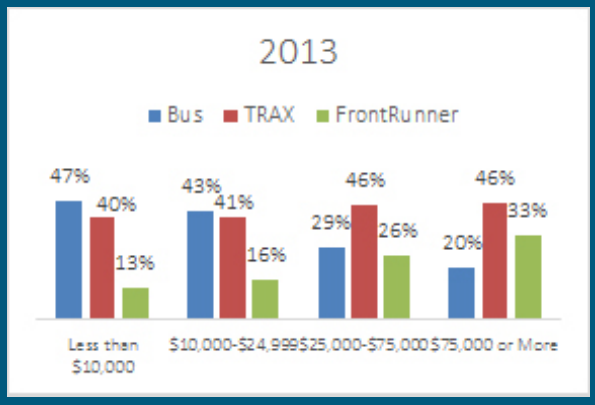


Figure I - Primary Mode by Income





Seventy-five percent (75%) of those surveyed indicated they possessed a valid driver's license. As shown in Figure H, this represents a decline from the 2011 on board survey results, for which the percent of surveyed riders with valid driver's licenses was eighty-five percent (85%). The majority of the surveyed rider's without a driver's license were under age 35 (65%).

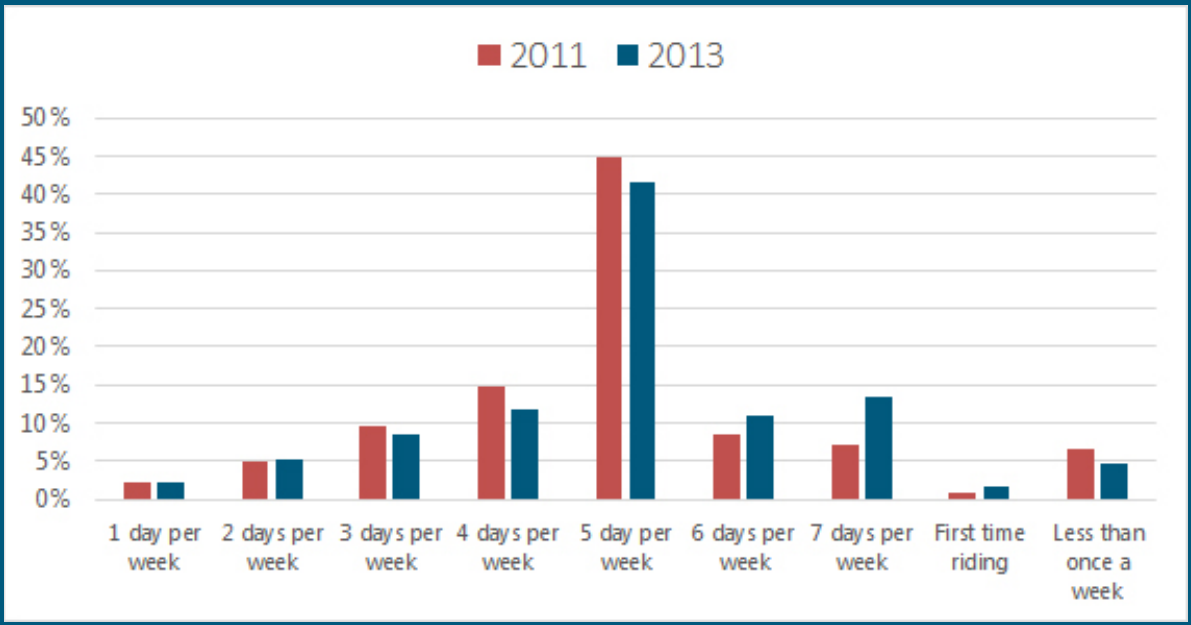
The primary mode choice[1] by riders, when broken down by income levels, offers an interesting understanding of the use of the system, though there was little change between the two surveys.

Of those riders making less than $25,000, bus remains the dominant primary mode choice.

Among those making $25,000 or more, the dominant primary mode choice is TRAX. Few riders making less than $25,000 utilize the FrontRunner system as the primary mode choice (13%).

1 *Primary mode" refers to the highest transit mode used in a trip. For instance, if a traveler used a bus to get to FrontRunner to travel to their final destination, their "primary mode" would be FrontRunner.*

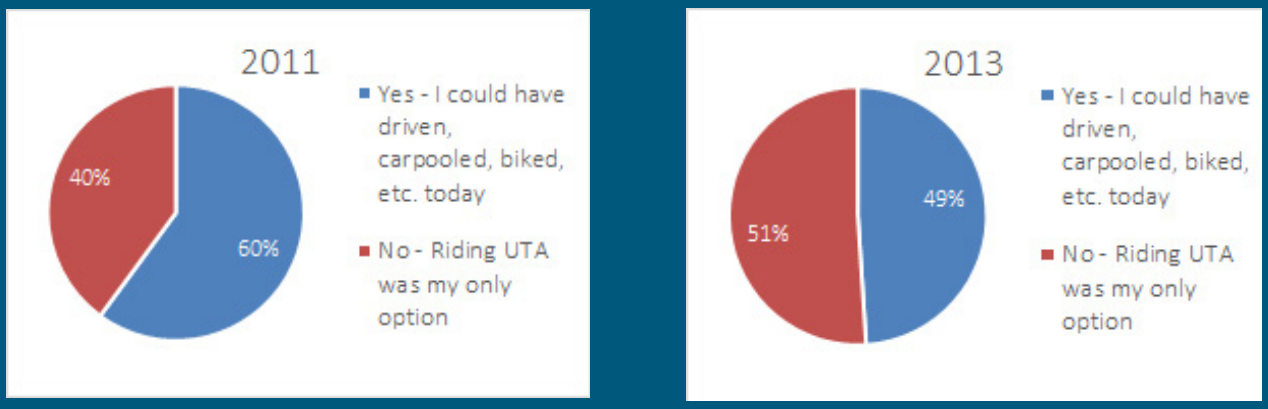
Figure J - Frequency of Transit Use



Transit Frequency

Of the riders surveyed, sixty-six percent (66%) indicated they utilized the UTA system 5 or more days per week compared with sixty percent (60%) in 2011. Forty-two percent (42%) of the riders indicated using the UTA system five days per week, with the majority of those trips purposes indicated as either trips to work or to school. Nearly a quarter (24%) of the surveyed population reports riding the system 6 days per week or more vs. 15% in 2011. Figure J shows the distribution of frequency of use of the system among those riders surveyed.

Figure K - Reported Having a Choice



Choice vs. Captive Riders

The On-Board Survey asked if respondents had an alternate option to make that trip besides taking transit. As seen in figure K, forty-nine percent (49%) of surveyed riders reported that they could have used an alternative mode to complete their trip, for example driving, carpooling, or riding a bike.

The majority of respondents, fifty-one percent (51%), indicated that they did not have an alternate option for their trip. Riders with no other alternative are called “captive” riders. This represents a shift from the 2011 survey data, for which a majority of surveyed riders had an alternative option (60%).

Figure L - Choice Rider Vehicle Ownership

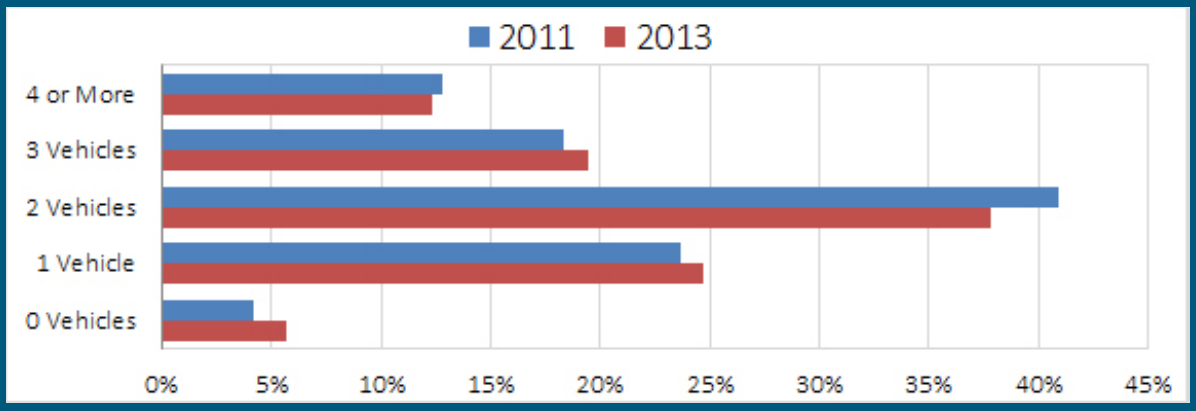
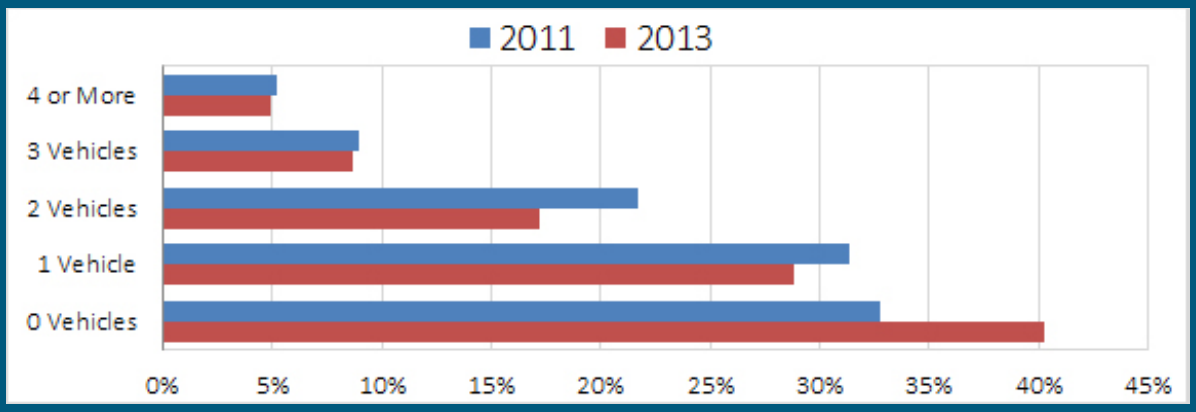


Figure M - Captive Rider Vehicle Ownership



'Captive' riders have no alternative to transit for various reasons including: not possessing a valid driver's license, not owning a vehicle, or having a disability which prevents utilizing another mode of travel. Not surprisingly income, car ownership, and primary mode vary between choice and captive riders. Figures L, M, N, O, P and Q show the comparison between vehicle ownership, income, primary mode, and trip purpose among 'choice' and 'captive' riders.

The most common primary mode for 'choice' riders was TRAX at forty-six percent (46%), while the most common primary mode choice for captive riders is reported as bus at fifty-two percent (52%).
Sixty-nine percent (69%) of 'captive' riders from the 2013-14 On-Board Survey indicated owning one car or none at all, compared to thirty-one percent (31%) of 'choice' riders. Interestingly, the proportion of 'choice' riders living in zero- and one-car households increased, potentially indicating trends toward reduced auto dependency. Meanwhile, of 'captive' riders, auto ownership rates declined in all categories, resulting in a thirteen percent (13%) increase in reporting of zero car households.

Similarly, fifty-nine percent (59%) of 'captive' riders reported having an annual household income of less than $25,000, compared to twenty-four percent (24%) of 'choice' riders. Charts N and O begin to identify that income is not the only indicator of whether one qualifies as 'captive' or 'choice.' A better understanding of those with high income whom qualify as 'captive' and those with lower income whom qualify as 'choice' could help the agency better understand markets within the service area.

When the percent of 'captive' versus 'choice' riders of the UTA system is compared with sister transit

Figure N - Choice Rider Income

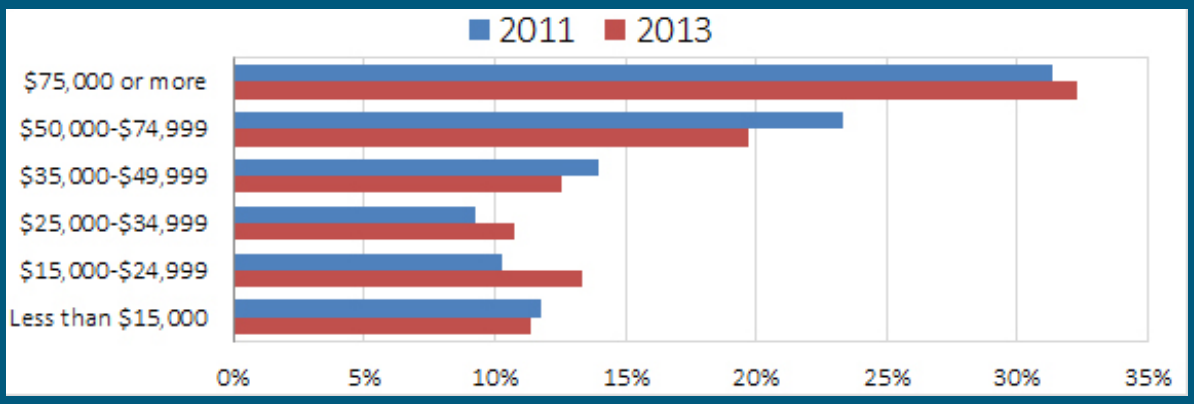


Figure O - Captive Rider Income

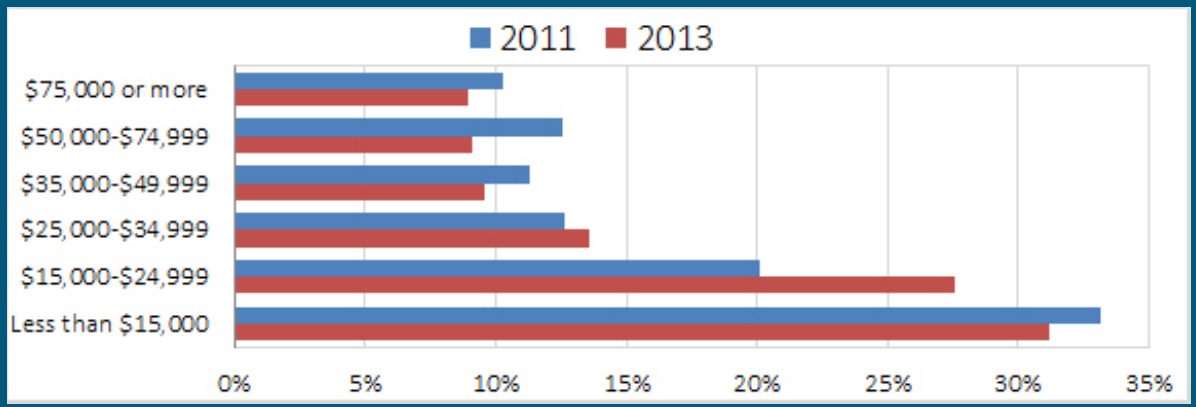
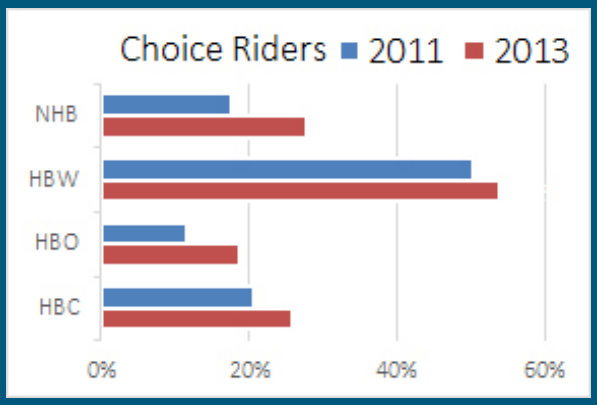


Figure P - Choice/Captive Trip Purpose



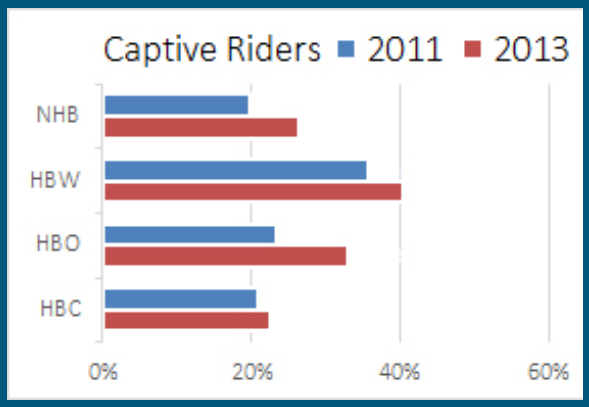
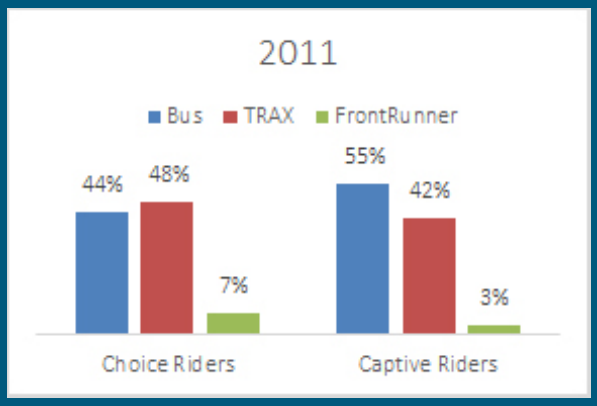
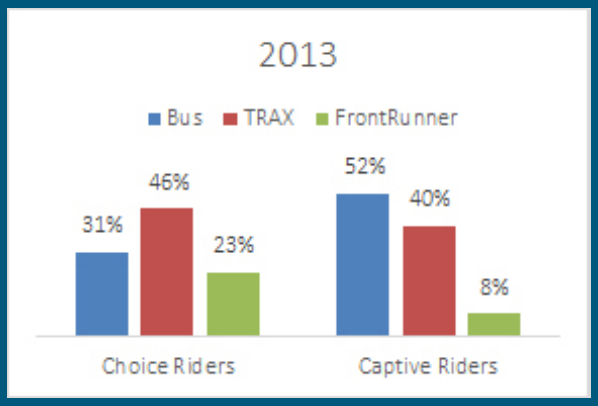


Figure Q - Primary Mode Choice vs. Captive





agencies, the results vary significantly. Beyond the unique features which contribute to the composition of each agencies' transit ridership, the structure of the question(s) used to determine whether a rider is dependent on transit or not also differs significantly. Please see Appendix B for a synopsis of the differing methods used to determine transit dependence and how UTA plans to better understand the 'choice' and 'captive' ridership in future survey efforts.

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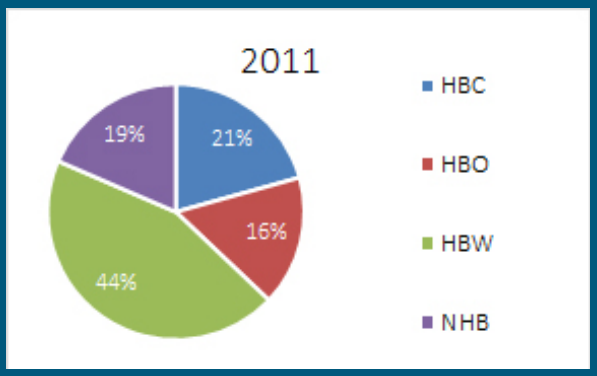
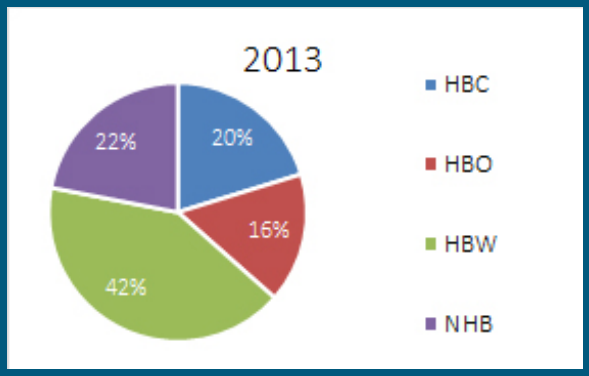
Trip Profile

Figure R - Transit Trip Purpose





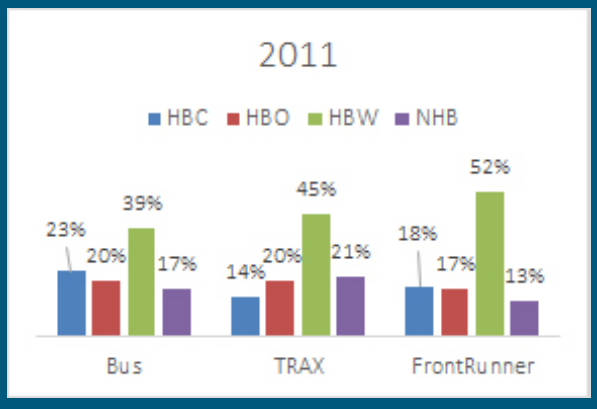
Trip Purpose

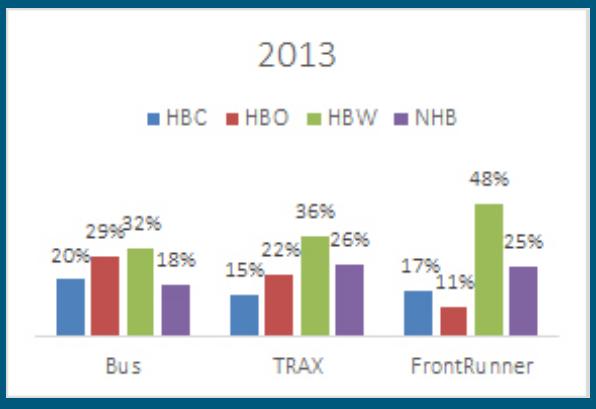
The 2013-14 On-Board Survey asked riders where their linked trip started and ended (i.e. home, work, shopping, etc). After RSG received the data, trip purposes were separated into four categories: home-based-work (HBW) trips, defined as trips that start at home and end at a place of employment; home-based-college (HBC) trips, defined as trips that start at home and end at a higher educational facility; home-based-other (HBO) trips, defined as trips that start at home and are for a purpose other than work or higher educational institution; and non-home-based (NHB) trips, defined as trips that do not start at home.

As mentioned in the previous section, the majority of transit trips (62%) were for the purpose of getting to work (HBW) or school (HBC), resulting in HBW daily trips as the larger share (42%).

The predominant trip purpose for riders age 18-24 was for HBC. This cohort of riders represents sixty-three percent (63%) of all HBC trips. The primary trip purpose for riders ages 25-64 remains for HBW. Examining the trip purpose by primary mode shows that nearly half (48%) of daily FrontRunner trips were HBW trips. Home-based work trips remained the majority of trip purposes for all modes.

Figure S - Trip Purpose by Mode





Mode of Access and Egress

The rider's mode of access to and egress from the transit system is a critical component to the success of each mode. For example, if a rail station and/or bus stop has poor or limited access, potential walkers or bicycle riders are more likely to drive to their destination, rather than use public transit. The use of walking is the predominant method for both access and egress mode at sixty-seven percent (67%).

Access and egress data supports the UTA effort to make station areas and the areas immediately surrounding UTA rail and bus stations more pedestrian friendly. Improvements could include but are not limited to: safer street crossings, way-finding signs, and additional lighting around the perimeter of parking lots and sidewalks.

The composition of the way riders access the transit network provides an interesting story, particularly when one compares the access to and egress from the different transit modes. It is traditionally expected that the means of accessing the bus system is walking; bus stops are ubiquitous and usually located within a comfortable walking distance from a rider's home. The rail system conversely has traditionally been designed to accommodate for a large number of people driving to access the system. The rail stations have anywhere from100 to 1,000 parking stalls available, depending on the location of the station and the availability of land around the station.

The predominant form of accessing the bus and TRAX system is walking at eighty-six percent (86%) and sixty-two percent (62%), respectively. The primary form of accessing the FrontRunner service is accessing the system via automobile

Figure T - Mode of Access to the Transit System

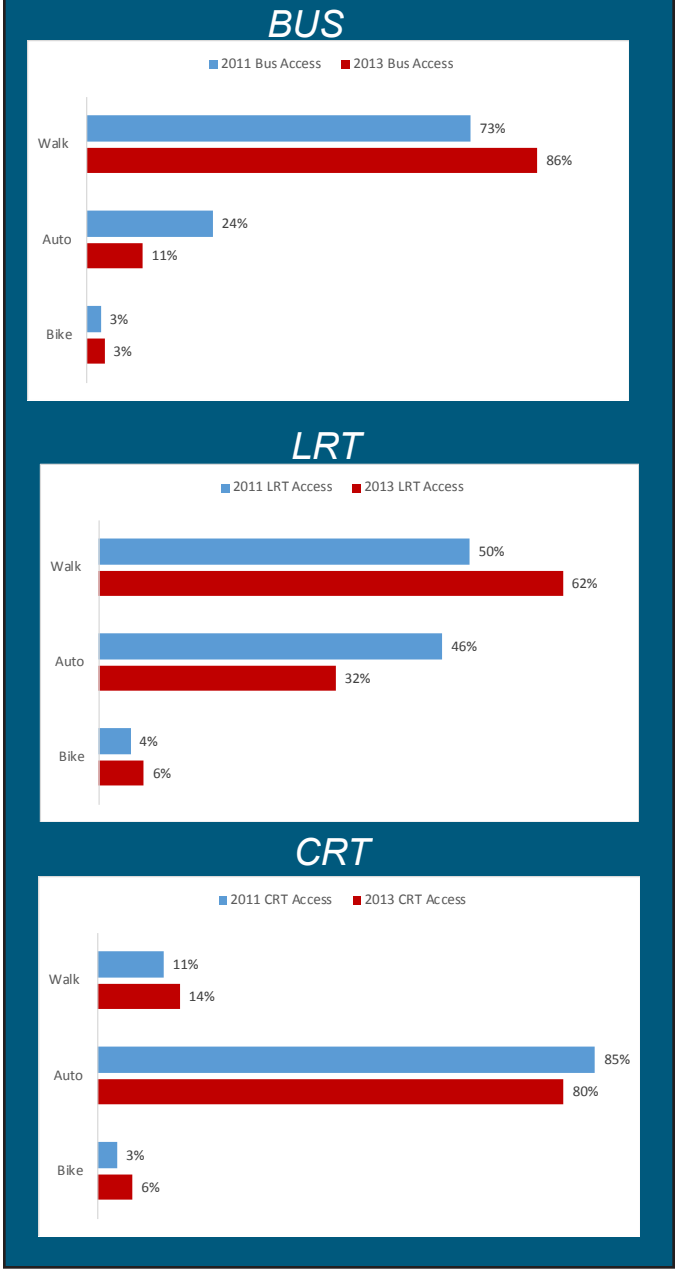
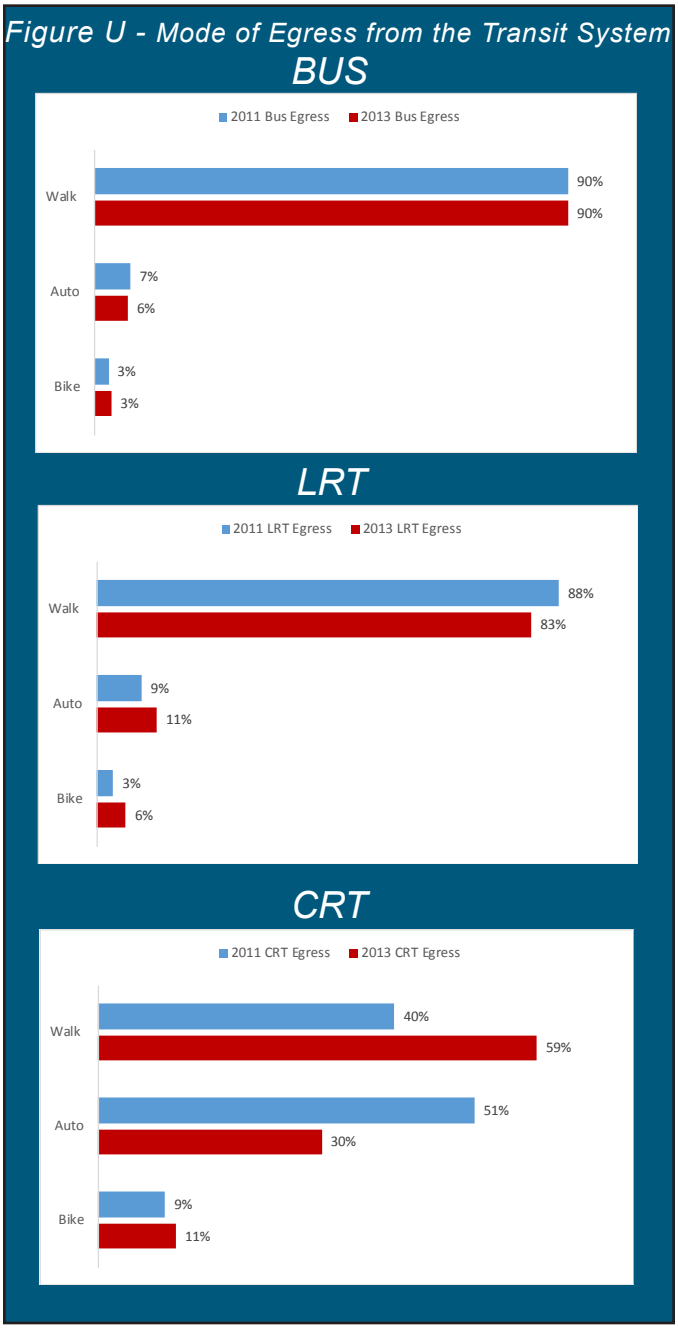


Figure U - Mode of Egress from the Transit System



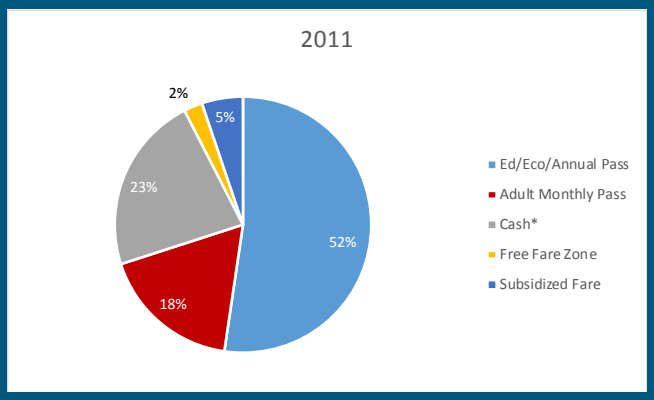
vehicle at eighty percent (80%).

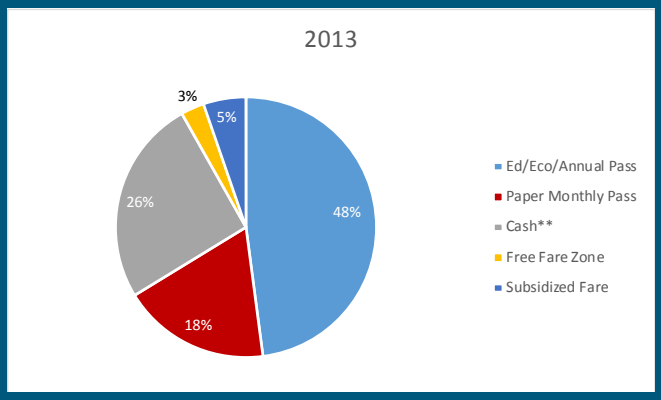
When compared with the 2011 survey, walk and bike access to the transit network increased for all modes, while auto access decreased for all modes.

The predominant mode of egress when leaving the transit network is walk for all modes in the 2013-14 survey. In comparing the egress from the transit network between the two data sets, there was little change in distribution among egress from bus. Changes in LRT egress were modest, with increase in egress via bike and auto and slight decrease in walk. Egress from CRT changed significantly in increased egress via walking (up 19%) and decreased auto egress (down 21%). This is likely due to both the small sample size of riders using FrontRunner as the final transit leg of their trip as well as the addition of FrontRunner South, which represented substantially growth in the CRT network.

UTA has seen increased use of parking facilities as places where people leave their automotive vehicle overnight during weekdays, in order to use them for the final leg of their commute trips (primarily to work).

Figure V - Fare Payment Method





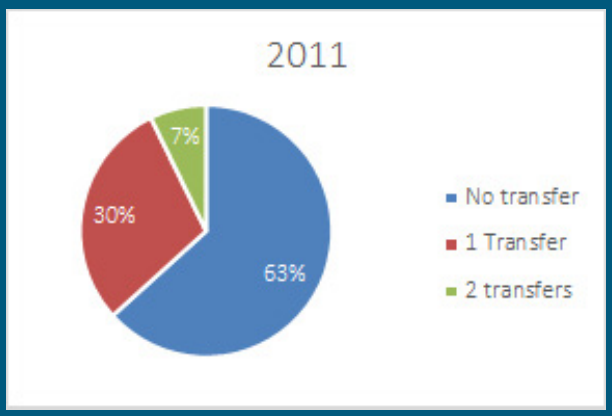
** Includes Day/Group Pass and One-Way Fare/Round Trip Ticket*
***Includes Day/Group Pass, One-Way/Round Trip Ticket, Paper Bus Transfer*

Fares

The majority of the system riders (48%) used some form of electronic pass as their form of payment, and the next largest group of riders (18%) with a paper monthly pass. Figure V below shows the breakdown of the types of fare payment used by the riders surveyed.

Comparison of the 2011 and 2013-14 data sets is difficult, as the fare products and response options changed between the two years. Also, a new fare product, FAREPAY was introduced during the 2013-14 survey, and the fare product was not included as a response, so the data can be considered limited in terms of usefulness.

Figure W - Transfer Frequency



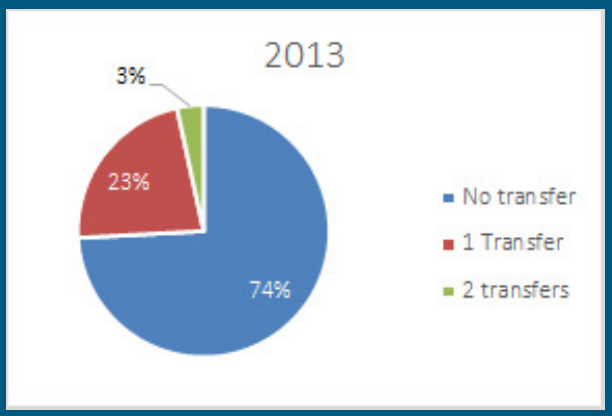
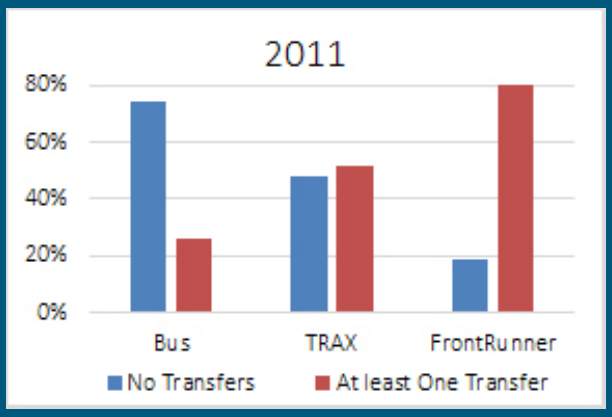
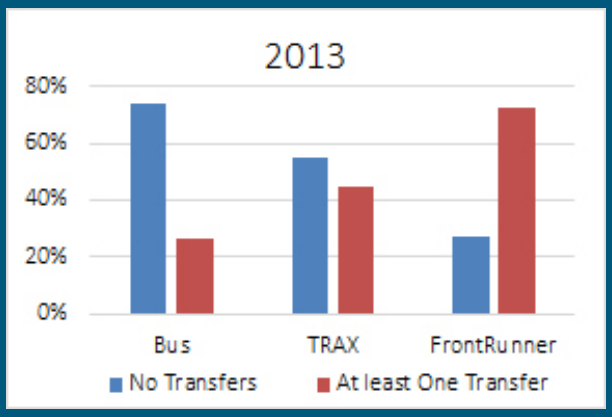


Figure X - Transfer by Primary Mode





Transfers

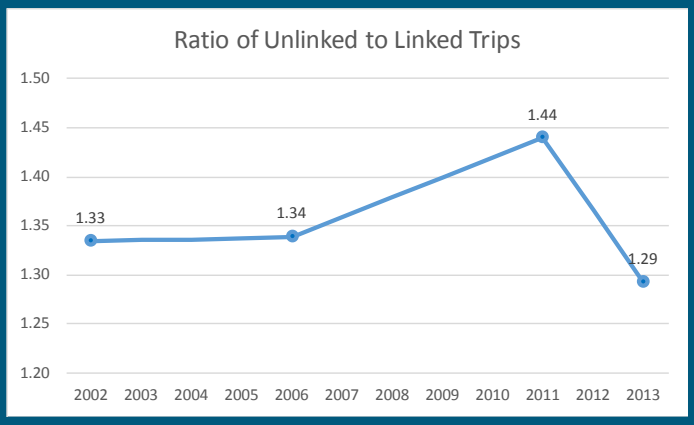
The number of transfers a rider makes is a large contributor to the appeal of transit. Most riders (74%) made their trip with no transfers, while twenty-three percent (23%) transferred once. Compared with 2011, the proportion of single-seat rides rose by eleven percent (11%).

Transfer rates varied by primary mode, as shown in Figure X. Seventy-five percent (75%) of daily bus riders arrived at their destination without transferring, compared to twenty-five (25%) of FrontRunner riders.

The transfer rate for 2013-14 On-Board and previous surveys is depicted in Figure Y. The rate identified through the on-board shows fewer transfers than any previous survey year.

Much of this is due to the LRT service provided by the Red Line, which connects the southwest area of Salt Lake County and the original LRT north/south line, with a direct trip to the University of Utah campus.

Figure Y - HistoricTransfer Ratio



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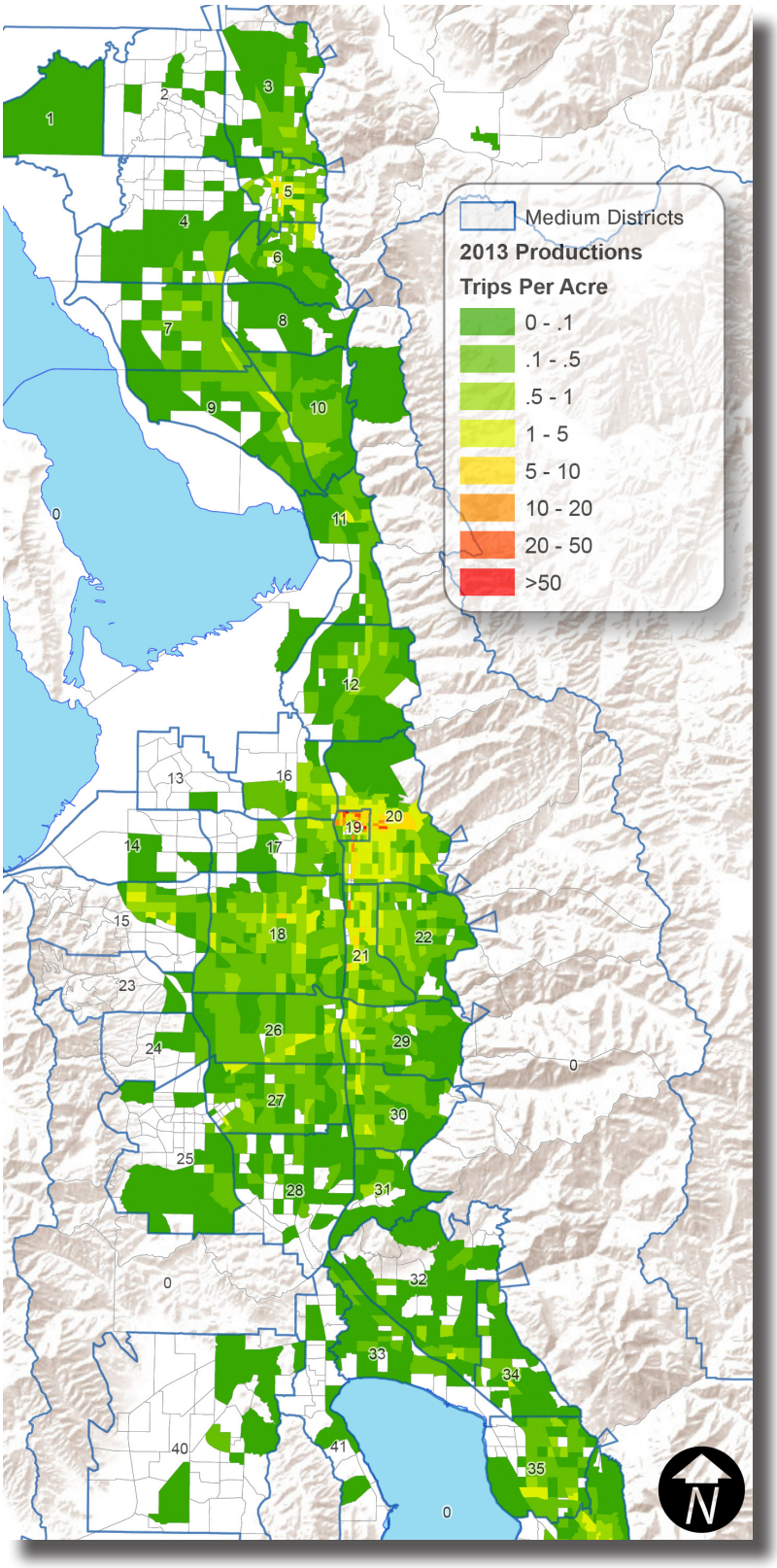
Origin-Destination Analysis

Trip Locations

Figure Z depicts at the TAZ level where surveyed riders indicated they began their trip before accessing the transit system. The largest share of survey respondents reported that their original trip began at home (77%), followed by place of employment (7%), and higher education institutions (5%). Figure AA identifies the locations at the TAZ level where surveyed riders ended their trip. The most common trip destinations were place of employment (43%), higher education institutions (22%), shopping (5%), social/recreation/sightseeing (4%), K-12 School (4%), and Other (10%).

As discussed in the methodology section of this report, TAZs are aggregated into medium and large districts for the purpose of data management and simplified reporting. Medium TAZ level data is communicated in terms of the top 10 areas of origins and destinations.

Figure Z - 2013-2014 Trip Origins



Trip Origins

Transit trip productions are associated with residential land, and the amount of transit service available within a TAZ or transit district. Transit producing districts are shown in Figures Z at a TAZ level. From the 2013-14 On-board Survey, we found that the top five daily transit trip producing districts account for fifty-nine percent (52%) of total trips. The Top 10 medium TAZ trip origins are as follows:

1. District 20, encompassing the University of Utah and Westminster College, accounted for 19% of the total daily trips.
2. District 19, encompassing Salt Lake City's CBD, accounted for 11% of the total daily trips.
3. District 18, encompassing West Valley City and Salt Lake Community College, accounted for 10% of the total daily trips.
4. District 21, encompassing State Street Corridor and Intermountain Health Center (Murray), accounted for 8% of the total daily trips.
5. District 29, which encompasses the Midvale area accounted for 4% of total trip productions.
6. District 36, which represents Provo City CBD comprised 4% of total daily trips.
7. West Jordan City, represented by District 26 accounted for 4% or daily trips.
8. District 5 encompasses Ogden City CBD and encompasses 3% of total trip origins.
9. The area of Holladay, District 22, produces 3% of daily trips.
10. South Jordan City in District 27 accounted for 3% of total daily trips.

The top 4 are consistent with previous years of surveying, the areas of West Jordan City and South Jordan City were not previously represented in the Top 10 trip producing medium TAZ. The addition of the TRAX Red Line service is likely the cause of these changes in top trip origins.

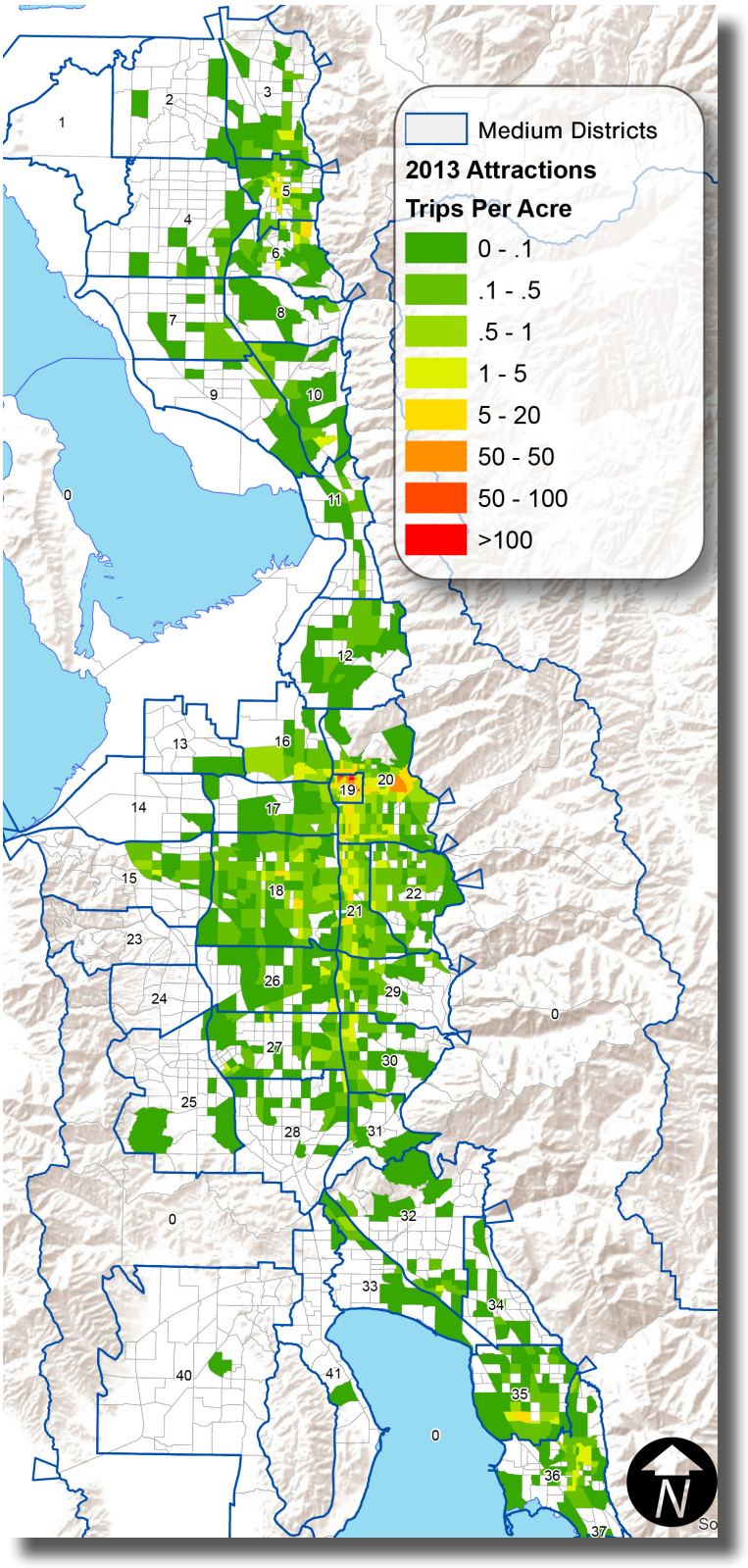
Trip Destinations

Figure AA - 2013-14 Trip Destinations

Transit trip destinations are associated with residential and non-residential land use, as well as the amount of transit service provided by UTA within a given TAZ or district. Figure AA shows the attraction density or the number of transit trips attracted by that district in the 2013-14 survey. From the 2013-14 On-board Survey, the top five daily transit trip attracting districts, which accounted for sixty percent (71%) of total trips, were as follows:

1. District 20, encompassing the University of Utah and Westminster College, accounted for 28% of the total daily trips.
2. District 19, encompassing Salt Lake City's Central Business District, accounted for 23% of the total daily trips.
3. District 18, encompassing West Valley City and Salt Lake Community College, accounted for 8% of the total daily trips.
4. District 21, encompassing State Street Corridor and Intermountain Health Center (Murray), accounted for 7% of the total daily trips.
5. District 35, encompassing Orem and Utah Valley University, accounted for 5% of the total daily trips.
6. The Airport and Rose Park Area encompassed by District 16 represented 3% of all trip attractions.
7. Ogden City CBD in District 5 accounted for 3% of trip destinations.
8. District 6 of South Ogden and Weber State University attracted 3% of daily trips.
9. Provo City CBD, encompassed by District 36, accounted for 2% of trip attractions.
10. District 22, which encompasses Holladay, attracted 2% of daily trips.

The top 3 medium TAZ trip attractors were consistent between the two survey data sets. There were no new additions to the top 10 trip attractors, though State Street/IHC in Murray, the Airport/Rose Park, and Ogden City CBD rose in their share of rankings.



A more in-depth look at the top five transit trip producing districts reveals that primary mode and trip purpose varies between each of the five districts. Again, variation in primary mode is due in-part to the transit service available for these districts. For example, transit riders in districts outside of Salt Lake County do not have access to TRAX. Figures AD, AE, AF, AG, and AH show the distribution of the primary mode for the top five attracting districts. The primary mode for the daily attraction trips in District 20 is TRAX (51%); District 19 is TRAX (63%); District 18 is Bus (61%); District 21 is TRAX (52%), and District 35 is bus (70%).

For District 19 in Figure AE, one can observe the growth in attracted trips using FrontRunner in response to the southward expansion of the CRT. This is also quite noticeable in Figure AH, the district encompassing Orem and Utah Valley University.

Figure AB- Top Five Trip Producing Districts (As a % of All Trips)

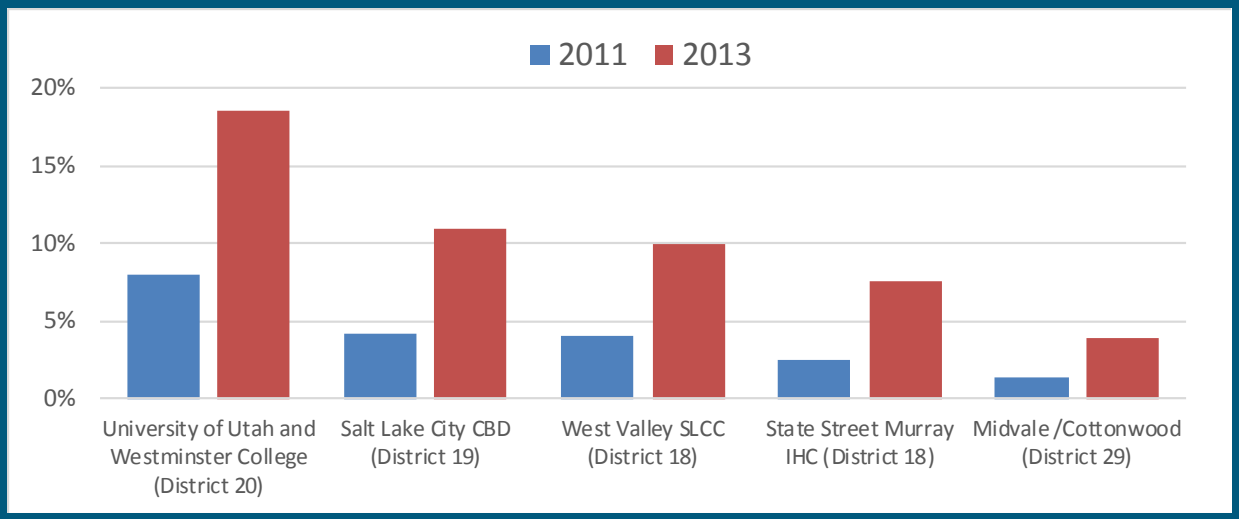


Figure AC - Top Five Trip Attracting Districts (As a % of All Trips)

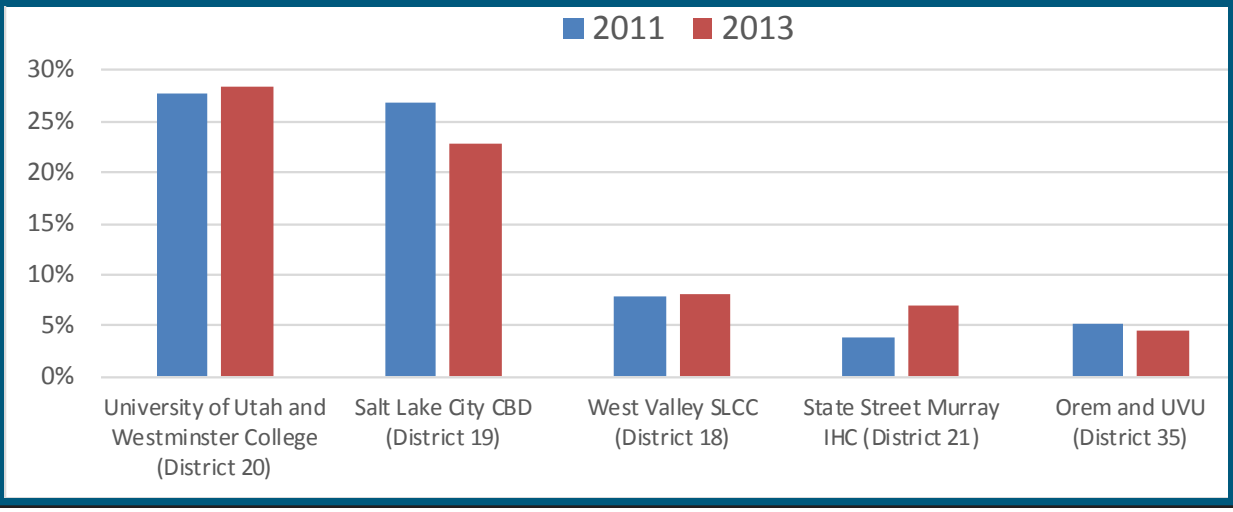
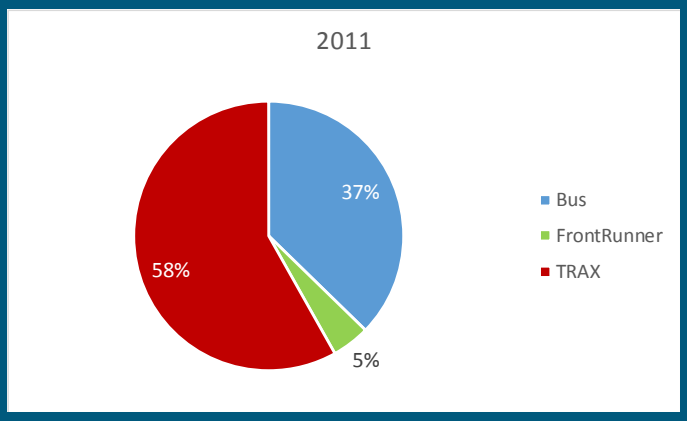


Figure AD- Trip Ends by Primary Mode - U of U/Westminster (District 20)



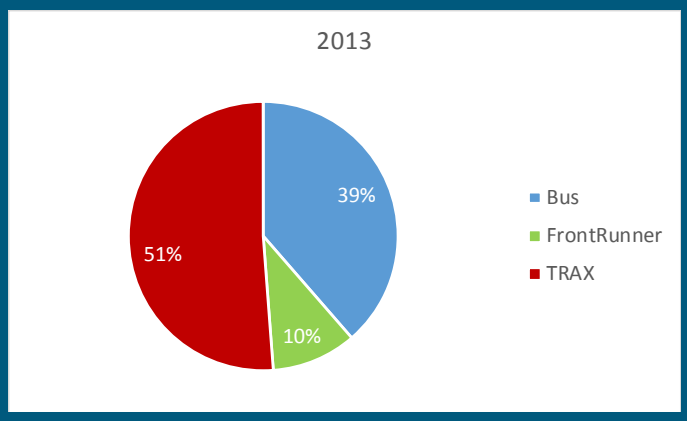
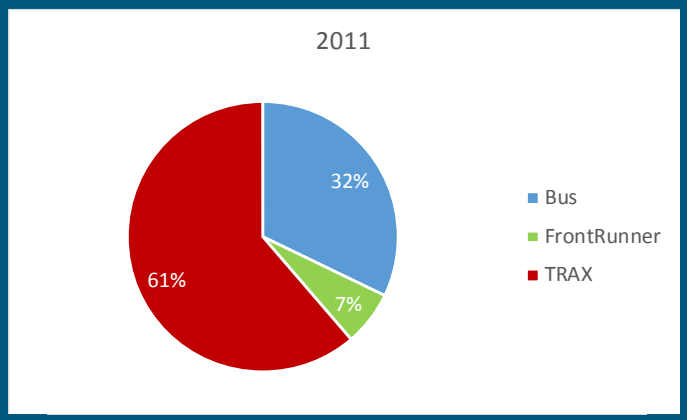


Figure AFE- Trip Ends by Primary Mode Salt Lake City/CBD (District 19)



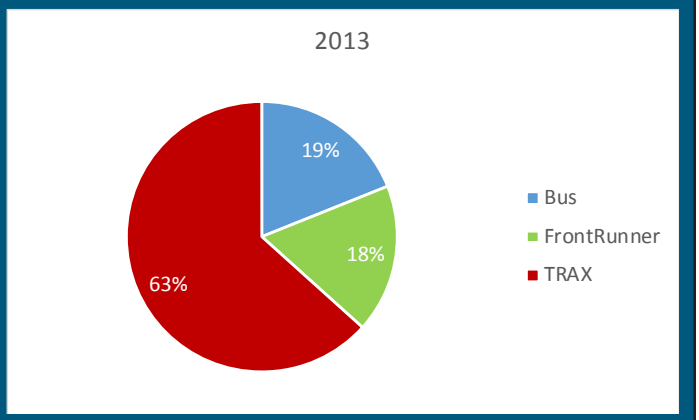
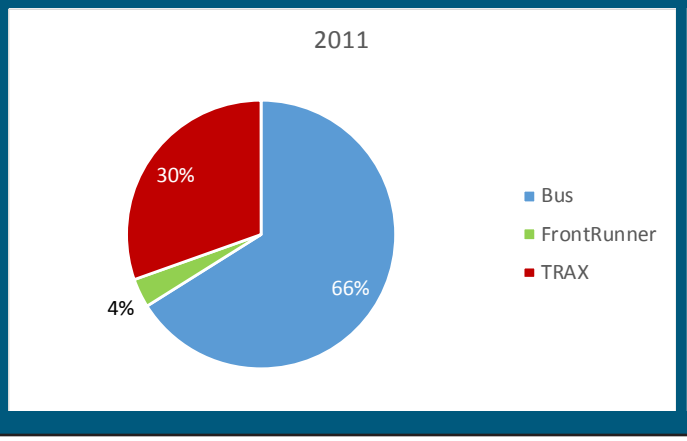


Figure AF -- Trip Ends by Primary Mode - West Valley/SLCC (District 18)



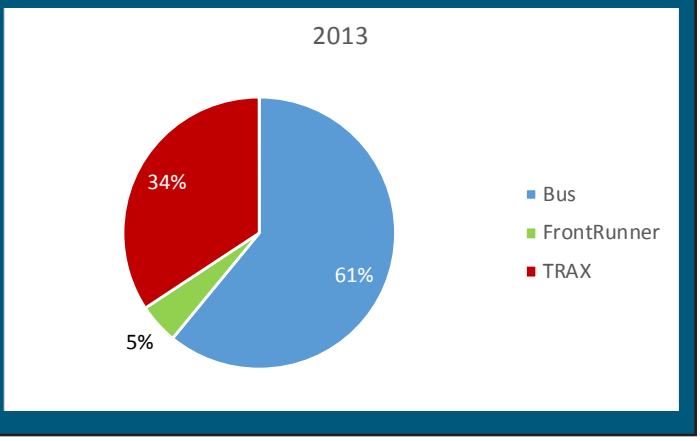
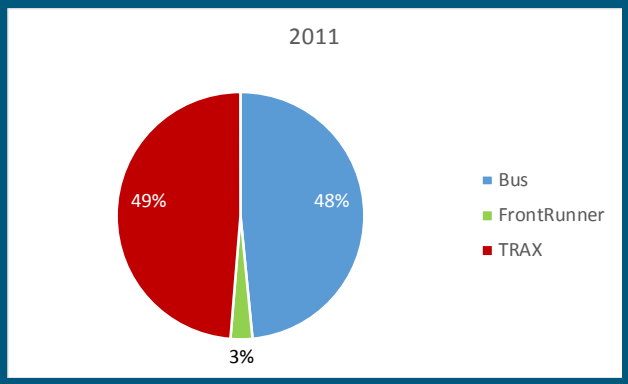


Figure AG - Trip Ends by Primary Mode - State Street/IHC (District 21)



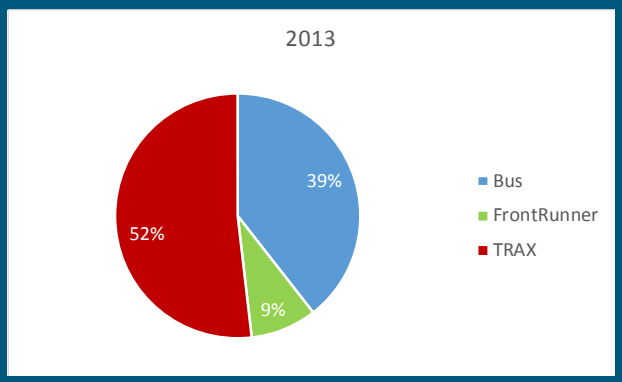
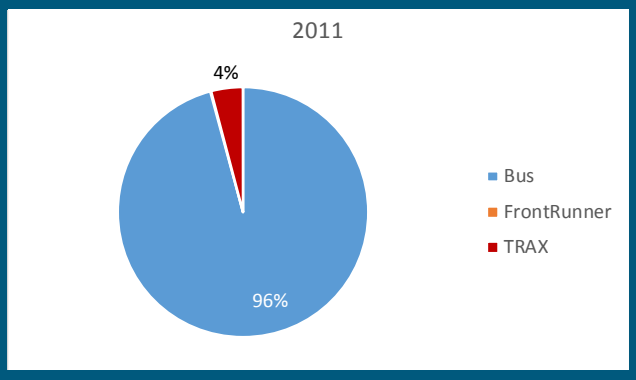
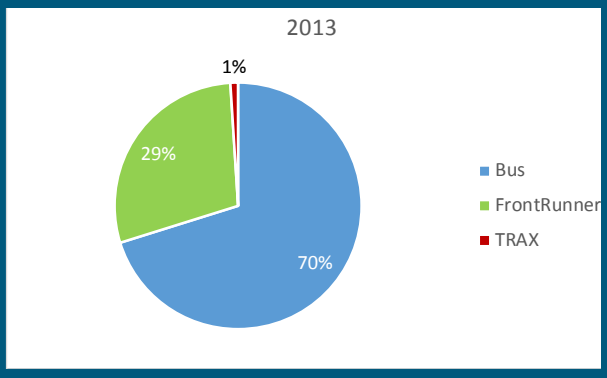


Figure AH- Trip Ends by Primary Mode Orem and UVU (District 35)





Appendix A

2013-14 On Board Survey

2013-14 On Board Survey Questions

TRIP QUESTIONS

Please tell us about the trip you were making today when you received this survey.

Please only tell us about the ONE-WAY portion of your trip (e.g., if this was one-half a round-trip only describe the half of the trip you were making when you received this survey).

PLEASE ANSWER ALL APPLICABLE QUESTIONS.

Where did you START your trip?

- ☐ Work
- ☐ College/University/Tech School as a student
- ☐ School (K-12) as student
- ☐ Home/Hotel
- ☐ Shopping
- ☐ Social Visit/Church/Personal
- ☐ Recreation/Sightseeing/Restaurant
- ☐ Airport as an airline passenger
- ☐ Medical Appointment/Hospital Visit
- ☐ Other

What is the location of the STARTING place listed above?
Business name (if applicable):_____
Address/nearest cross streets:_ _____
City/town: _____
ZIP Code (if known): _____

How did you get from your STARTING place to the very FIRST bus or train you used for this trip?

- ☐ Walk/wheelchair (How many blocks to the station/stop? _____)
- ☐ Bike (How many blocks to the station/stop? _____)
- ☐ Drove or rode with someone else (How many miles to the station/stop? _____)

If you took a bus or 35M MAX as the FIRST type of transit on this trip, where did you board the first bus?
(Please provide this address even if it is very close to the starting place you wrote in earlier.)
Address/nearest cross streets:_____
City/town: _____
ZIP Code (if known): _____

If you took TRAX or FrontRunner as the FIRST type of transit on this trip, at what station did you board the FIRST train?
Station name:_____

How will you get from the very LAST bus or train you're using for this trip to your ENDING place?

- ☐ Walk/wheelchair (How many blocks from the station/stop? _____)
- ☐ Bike (How many miles from the station/stop? _____)
- ☐ Drive or ride with someone else (How many miles from the station/stop did you travel?_____)

How did you pay your fare on this trip?

- ☐ Paper Monthly Pass
- ☐ One-Way/Round Trip Ticket
- ☐ U of U Electronic Pass (Tap On)
- ☐ Other Electronic Fare Payment (Tap On)
- ☐ Cash on Bus/Bus Token
- ☐ Senior/Disabled Reduced Fare Product
- ☐ Paper Bus Transfer
- ☐ Day/Group Pass
- ☐ Medicaid Punch Card
- ☐ Free Fare Zone

Is your fare paid for or subsidized by someone else (for instance a University Ed pass or employer ECO pass)?

- ☐ Part of my fare/pass was paid for by someone else
- ☐ All of my fare/pass was paid for by someone else
- ☐ I paid for my own fare/pass

Did you have another option to make this trip today?

- ☐ Yes - I could have driven, carpooled, biked, etc. today
- ☐ No - Riding UTA was my only option

How many children (age 5 and under) are riding with you today? _____

Thinking about your trip today, were you making this same trip via transit 2 years ago?

- ☐ Yes
- ☐ No

How often do you ride UTA?

- ☐ 7 days per week
- ☐ 6 days per week
- ☐ 5 day per week
- ☐ 3 days per week
- ☐ 2 days per week
- ☐ 1 day per week
- ☐ First time riding

DEMOGRAPHICS

What is your home zip code?_____

How many cars, trucks, motorcycles does your household have

- ☐ None
- ☐ 1 vehicle
- ☐ 2 vehicles
- ☐ 3 vehicles
- ☐ 4 vehicles or more

Do you have a current driver's license?

- ☐ Yes
- ☐ No

How many licensed drivers are there in your household?

- ☐ None
- ☐ 1 licensed drivers
- ☐ 2 licensed drivers
- ☐ 3 licensed drivers
- ☐ 4 licensed drivers or more

How old are you?_____

What is your gender?

- ☐ Male
- ☐ Female

Do you have access to the internet?

- ☐ Yes
- ☐ No

What is your annual household income?
NOTE: This information is only used to make sure that we have received a representative sample of the Wasatch Front region.

- ☐ Less than $15,000
- ☐ $15,000 - $29,999
- ☐ $30,000 - $39,999
- ☐ $40,000 - $49,999
- ☐ $50,000 - $74,999
- ☐ $75,000 or more
- ☐ Prefer not to answer

What is your race or ethnicity?
NOTE: This information is only used to make sure that we have received a representative sample of the Wasatch Front region.

- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Black or African American
- ☐ Hispanic
- ☐ Native Hawaiian or Other Pacific Islander
- ☐ White or Caucasian
- ☐ Two or more races

How likely would you be to recommend the following UTA services?
Please circle a response. If you don't use of don't know a service, please circle 'N/A', Not Applicable).

	Extremely Unlikely				Neutral					Extremely Likely
FrontRunner	1	2	3	4	5	6	7	8	9	10
TRAX	1	2	3	4	5	6	7	8	9	10
Regular Bus	1	2	3	4	5	6	7	8	9	10
Express Bus	1	2	3	4	5	6	7	8	9	10
35 M (MAX)	1	2	3	4	5	6	7	8	9	10
Flex Route	1	2	3	4	5	6	7	8	9	10

Appendix B

Defining Captive and Choice Riders

During the process of comparing different 'captive' versus 'choice' ridership splits among sister transit agencies, it was discovered that question structure for obtaining the split differed substantially.

The AASHTO definition of 'captive riders' is as follows:
"Persons who do not have immediate access to private transportation or who otherwise must use public transportation in order to travel. Also, persons limited by circumstance to use one mode of transportation. Or, having to rely on public transportation to meet one's travel needs."

On-Board surveys are the primary tool used by transit agencies to gather this data. As mentioned above, the questions used in On-Board surveys in order to track captive versus choice ridership differ widely.

Currently, UTA uses a 'Yes or No' question type. Specifically, the question reads "Did you have another option to make this trip today?" to which the response options are either "Yes – I could have driven, carpooled, biked, etc. today" or "No- Riding UTA was my only option." The strength of the question is that it allows the rider to directly answer the question, versus making assumptions based on other question responses. One weakness of the question structure, however, is that there is not a good understanding of the sub-markets within each response option. For example, those persons for whom transit is sufficient that they must not own an automobile, though they would be able to if transit were not available is a very different market than those whom are dependent on transit due to financial, physical, or other limitations; although both of these customers would be depicted as 'captive riders.'

To date, UTA staff has found three additional question structures used by transit agencies to measure the split. Following is a brief description of each:

The 'Assumptive' approach uses the responses on auto ownership or access in addition to whether an individual has a driver's license. A 'No' response to either question will result in the surveyed person being assigned a 'captive rider' status.

The 'Range of Options' approach is phrased as follows: "If transit service were not available, how would you have made this trip?" The response options provide numerous question responses which include: "Walked," "Biked," "carpooled," "taken a taxi," and also the 'captive' response of "I would not have been able to make this trip." This question allows the surveyed rider to speculate or plan for a circumstance without transit. This type of question could be considered to result in a lower rate of 'captive' ridership than the 'Yes or No' question structure, though could be more accurate of capturing persons truly dependent on transit.

The final question type, the 'Market-Based' question, begins to better identify those sub-markets among transit riders. The structure of the question is as follows: "What is the major reason you are using transit for this trip?" to which the range of responses are: "'I don't have a car because I prefer to use transit," "I don't have a car available for me to use," "I don't drive or don't know how to drive", and "I do have a car but prefer to use transit." This range of question responses allows the transit agency to truly understand the differing markets among riders and to potentially track changes in each with data collected over time.

The table below depicts the reported 'captive rider' rates of UTA and sister transit agencies, as well as the respective question type used to determine captive versus choice ridership split.

Agency	Primary Service Area	Captive	Question Type	Year
Metro Transit	Minneapolis	46%	Assumptive	2010
Regional Transit	Sacramento	62%	Assumptive	2011
Regional Transportation District	Denver	22%	Range of Options	2008
Valley Transportation Authority	San Jose, California	3%	Range of Options	2013
TriMet	Portland	57%	Market-Based	2000
UTA	Salt Lake	51%	Yes or No	2013

In light of this recent analysis and the growing trend of automobile independence, UTA staff plans on evaluating the question structure related to identification of 'choice' and 'captive' ridership in the next on-board survey, to be initiated in Fall 2015.