



Capital Metro

Origin and Destination Study

Summary of Findings

Prepared by:
Creative Consumer Research
3945 Greenbriar
Stafford, Texas 77477
281.240.9646
www.ccrsurveys.com



Background

“Capital Metropolitan Transportation Authority (“Capital Metro”) is a public agency responsible for providing mass transit service within the City of Austin and the surrounding communities.” Capital Metro is interested in understanding the demographic profile and travel patterns on its various bus routes and for its overall system in order to assist them in planning its routes for the future.

Creative Consumer Research was hired to conduct intercept interviews with riders on the Capital Metro bus system in order to determine riders’ origins, destinations, and other pertinent demographic information to help Capital Metro in this endeavor.

Methodology

Questionnaire Design

CCR, in collaboration with Capital Metro, designed the survey instrument to be used. Once approved, CCR then translated the survey into Spanish in order to give respondents the option to complete the survey in one of these two languages (*see Appendix A for copies of the survey in both English and Spanish*).

Sampling Plan

CCR developed a Sampling Plan based on the requested 90% confidence level with a 5% margin of error for each Major route in the system. As defined by Capital Metro, a Major route is one that “in sum comprise 90 percent of Weekday, Saturday, and Sunday ridership.” Also, Capital Metro requested that the remaining routes be grouped for statistical analysis in achieving a good sample size (*see Appendix B for Final and Approved Sampling Plan*).

In addition to these parameters, Capital Metro also required that:

- The total number of surveys completed for this project be approximately 19,000
- The number of surveys on each route be proportionate to the ridership for the days on which the route ran (i.e. Weekday, Saturday, Sunday)
- The number of surveys on each route be proportionate to the ridership for the time periods when the route ran (i.e. AM Peak, Midday, PM Peak, Evening, Late Night)

Survey Collection

CCR collected 20,449 surveys from October 5, 2005 through November 20, 2005 and November 29, 2005 through December 10, 2005 (*See Appendix C for the Surveys Completed by Route and Time Strata*)

- A pilot test of 101 surveys was conducted on September 20-21, 2005.
- Although bus driver strikes delayed the rollout of the project interviewing (from September 29, 2005 to October 5, 2005), Capital Metro extended the surveying deadline to December 10, 2005 to compensate for this delay.
- *Interviewing Methodology (see Appendix D for Reasons for New Interviewing Methodology)*
 - Using hand-held computing devices and paper surveys, interviewers approached riders on Capital Metro buses to complete a rider survey.
 - CCR interviewers collected a random sampling of the riders on the routes. On routes with heavy boardings, one of every four riders was chosen to conduct the survey to ensure randomness.

- *Interviewers Used for Project*
 - In addition to CCR interviewers, CCR also used Austin Market Research (AMR) as a sub-contractor to provide additional interviewers. AMR interviewers worked on the project from October 5, 2005 to October 30, 2005.
 - All interviewers were required to have background checks. On the recommendation of Capital Metro, CCR used Liberty Screening to process the background checks and all interviewers used on this project passed their background checks.
- *Interviewer Training*
 - All interviewers were required to be trained (*see Appendix E for Interviewer Training Manual and Materials*) on a variety of issues, including:
 - The proper administration of the survey
 - Dress code
 - Expectations of conduct
 - Confidentiality
 - Communication with project supervisor
 - The following dates indicate when training sessions were conducted by the CCR Project Manager, Kevin Hagelstein:
 - September 19, 2005 – Initial training for interviewers used for the pre-test
 - September 25, 2005 – The main training was held for all interviewers at the CCR office in San Antonio, TX
 - October 5, 2005 – Retraining session held to review production, quality control, and policies
- *Supervision of Project*
 - CCR had a project manager located in Austin during the entire survey collection phase of the project (*see Appendix F for Supervisor Procedures for Route Assignments and Quota Management*).
 - The supervisors communicated daily quota and on-board assignment information by using the Daily Route Allocation Form (*see Appendix G for an example of the Interviewing Daily Route Allocation Form*)

Data Review and Editing

The data from the collected surveys was entered daily. Once data from the surveys was entered, the completed surveys were checked against the quotas for each route and also for the time period quotas for each route. CCR's data processing manager communicated at least twice per week with the CCR project supervisors in Austin in order to discuss any quota variances and needs for additional surveys on particular routes. This allowed for problems with the data collection to be addressed early or within a reasonable timeframe once the data was collected. This is an improvement to the traditional mail survey methodology that Capital Metro had used in the past as CCR's process allowed for continuous monitoring and data entry and editing issues were addressed quickly when necessary.

Database

At the conclusion of the survey collection phase, CCR verified, processed, and coded the surveys into an MS Access database. Responses making up less than 2% of the overall responses on a question were categorized as 'Other' responses. If possible, 'Other responses' were coded if the response matched pre-determined answer categories. Where applicable, CCR also Geocoded (using ArcGis) the locations given during the survey (*see Appendix H for Geocoding Methodology*). In addition, CCR also performed analysis to weight and expand surveys to represent overall boardings. The complete MS Access database as well as additional data documents and descriptions were provided to Capital Metro on CD.

Key Findings

From the 20,449 sample of surveys collected by CCR, weightings were used to project findings from these surveys onto the 228,925 boardings during the survey collection period. Each survey was weighted and expanded according to route, day (Weekday, Saturday, or Sunday), and time of day (Morning Peak, Midday, Evening Peak, Evening, and Late Night) of its collection.

Although passengers use the Capital Metro system to transport them to and from a variety of locations, the most common origin and destination is the passenger's home.

Figure 1
Origin Location

"Where did you come from?"

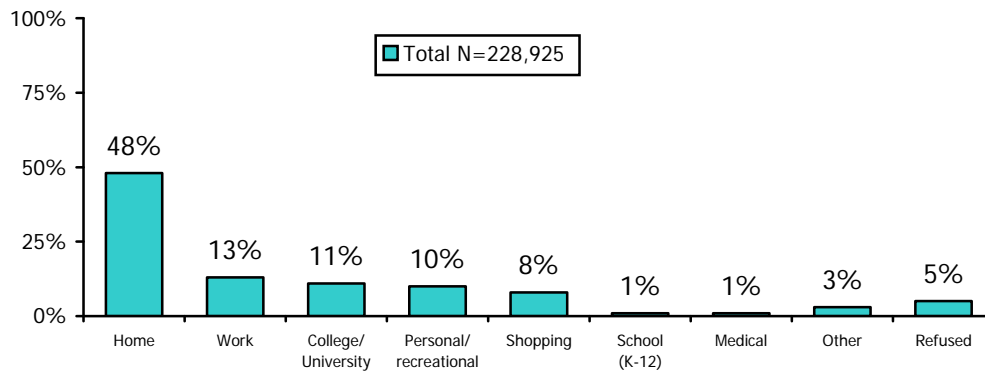
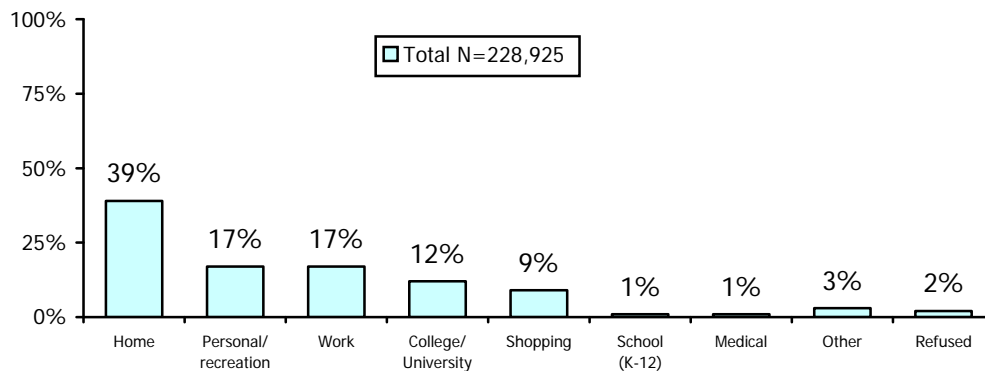


Figure 2
Destination Location

"Where are you going?"



Although small, 'Other' responses included church/worship, home of friend/family, volunteering, visiting friend/family, bank, airport, eating/at a restaurant, transit center, library, hotel, and downtown.

The majority of passengers use Walking as their main mode of transportation to and from Capital Metro bus stops. 'Other' responses included wheelchair, skateboard, cab, and airplane.

Figure 3
Method of Transportation to Bus Stop

"How did you get to the bus stop?"

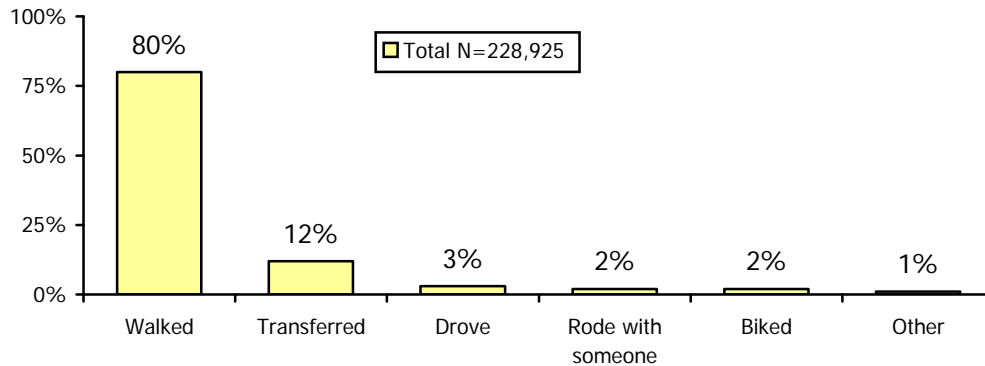
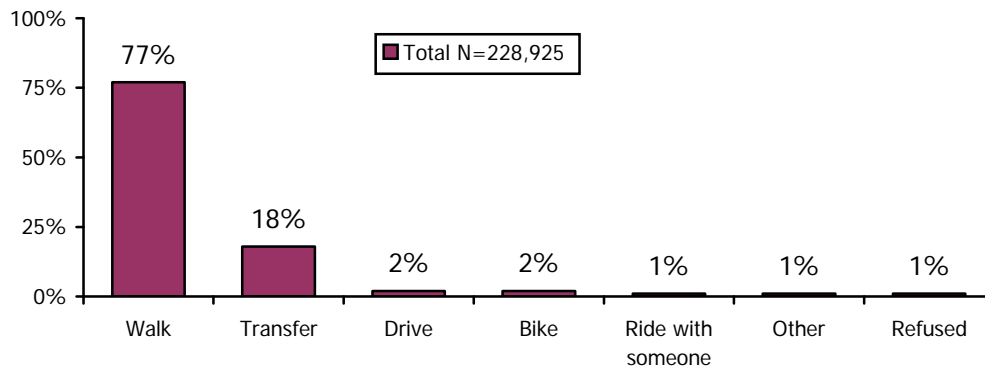


Figure 4
Method of Transportation to Final Destination from Bus

"How will you get from this bus to your final destination?"



For those that walked to the bus or were planning to walk from the bus to their destination, the average distance a passenger would walk is two blocks.

Table 1
Blocks Walked To and From Bus

	Walked TO Bus Stop	Walked FROM Bus
Less than one	11%	13%
One	39%	38%
Two	21%	21%
Three	10%	9%
Four	6%	5%
Five+	7%	6%
Refused	7%	7%
<i>Average:</i>	2.0 blocks	1.9 blocks
Base:	182,559	173,404

For those that drive or ride to and from the bus, the average miles personally driven are more than the miles driven when riding with someone else.

Table 2
Miles Driven To Bus from Origin and From Bus to Destination

	TO BUS FROM ORIGIN		FROM BUS TO DESTINATION	
	Drove to Bus Stop	Rode with Someone	Drive from Bus	Ride with Someone
0-2 miles	29%	30%	27%	31%
3-5 miles	25%	25%	30%	28%
6-10 miles	19%	11%	20%	19%
11-20 miles	13%	7%	14%	5%
21-30 miles	4%	3%	3%	2%
31+ miles	1%	2%	0%	1%
Refused	8%	21%	5%	14%
<i>Average:</i>	7.2 miles	6.3 miles	6.8 miles	5.4 miles
Base:	7,317	4,915	4,619	2,257

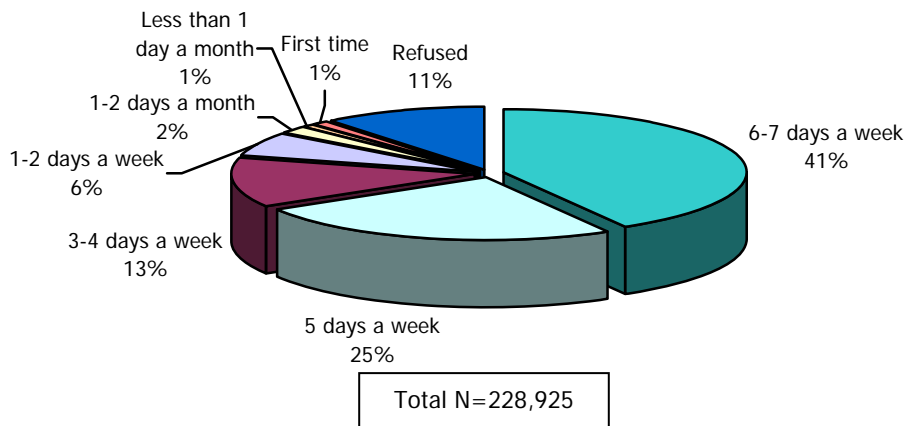
In Table 3, it is seen that the average distance bike riders will ride their bikes before boarding or after alighting the bus is approximately two miles.

Table 3
Miles Ridden on Bike To Bus from Origin and From Bus to Destination

	Biked TO Bus Stop	Biked FROM Bus
Less than one mile	16%	15%
One mile	40%	48%
Two miles	16%	13%
Three miles	6%	6%
Four miles	3%	4%
Five+ miles	8%	4%
Refused	9%	9%
<i>Average:</i>	1.9 miles	1.5 miles
Base:	3,687	3,537

Figure 5
Usage Frequency

"How often do you use Capital Metro?"



The majority of passengers (66%) ride the Capital Metro system at least five days a week. An additional 13% ride three to four days a week (Figure 5). This makes sense as 47% of passengers do not have a vehicle for their use and 71% of passengers say that using a household vehicle was not an option for their trip.

Figure 6
Household Vehicles

"How many working cars, trucks, or vans are available for use by your household?"

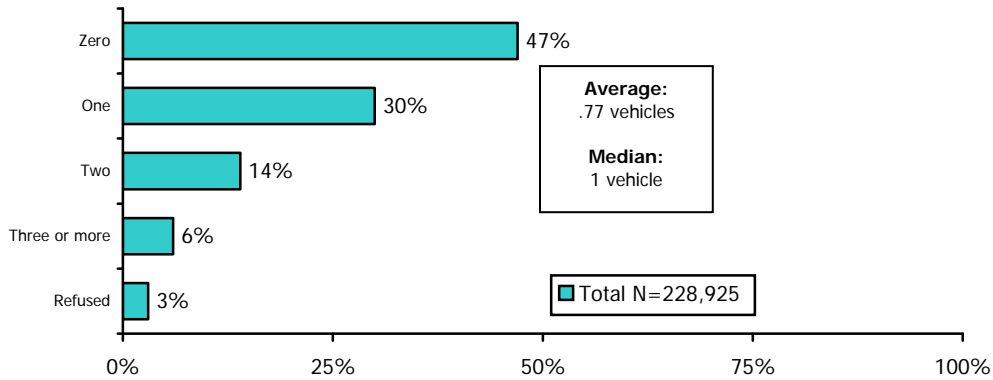
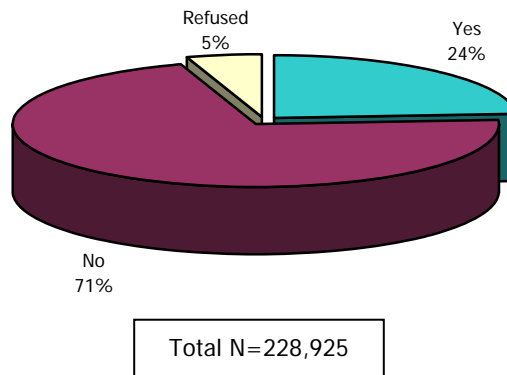


Figure 7

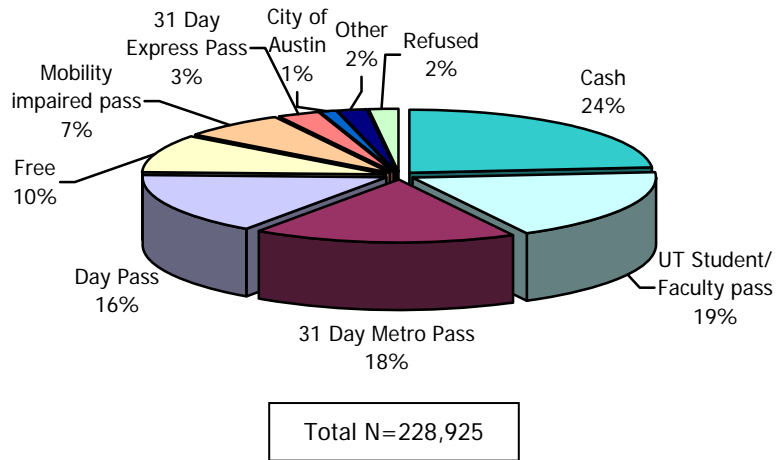
Option to Use Household Vehicle

"Could you have used one of these vehicles to make this trip instead of riding the bus?"



63% of passengers pay using some type of pre-paid pass; this includes 21% that have a 31-day pass. On the other hand, passengers without a pass either pay with Cash or the trip is Free. 'Other' responses included yearly pass, student pass, senior pass, half-price pass, family pass, and 20-ride pass.

Figure 8
Fare Payment Method
"How did you pay to get on this bus?"



Nearly two-thirds of passengers are paying an Adult fare (65%) whereas less than 10% are paying special Senior or Disabled fares.

Figure 9
Fare Category
"Which fare category do you pay?"

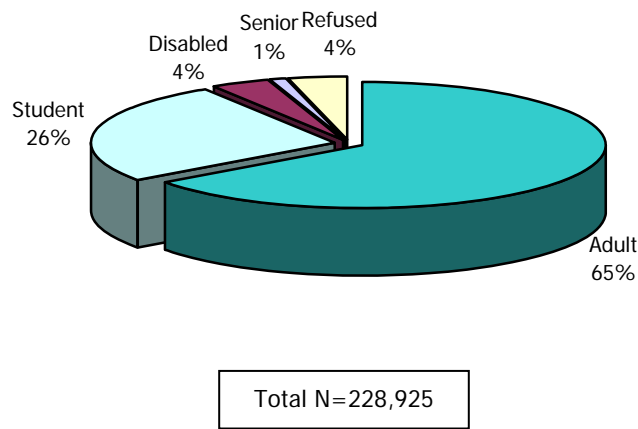
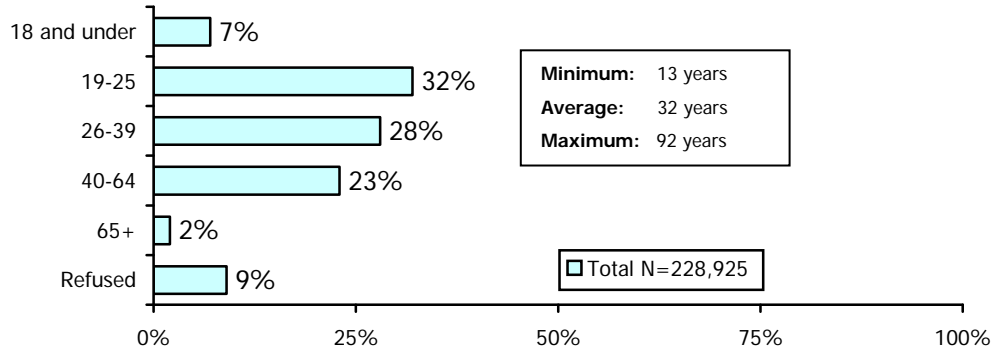


Figure 10
Age

"What is your age?"

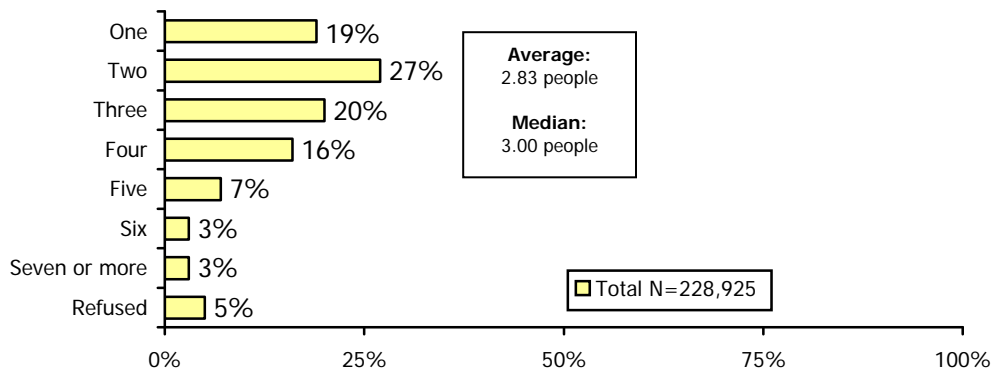


The average passenger is 32 years old and has three people living in their household. The majority of passengers are between 19 and 64 years old and only 19% live alone.

Figure 11

People Residing in Household

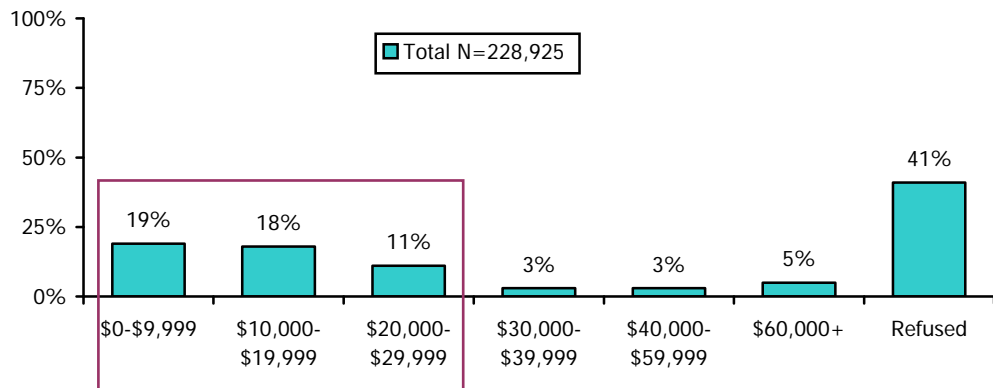
"How many people reside in your household?"



Nearly half (48%) of passengers report their annual household incomes as less than \$30,000 whereas only 5% have household incomes \$60,000 and up.

Figure 12

Annual Household Income



Passengers have a wider variety of ethnic backgrounds than the City of Austin has overall. 35% of passengers are White/Anglo where as the 2000 Census reports the Austin area to be 74% White. Despite passenger ethnic differences, the majority (78%) of riders prefer to speak English at home. 'Other' ethnicity responses included a mixed ethnicity, Pacific Islander, and Indian.

Figure 13
Ethnicity

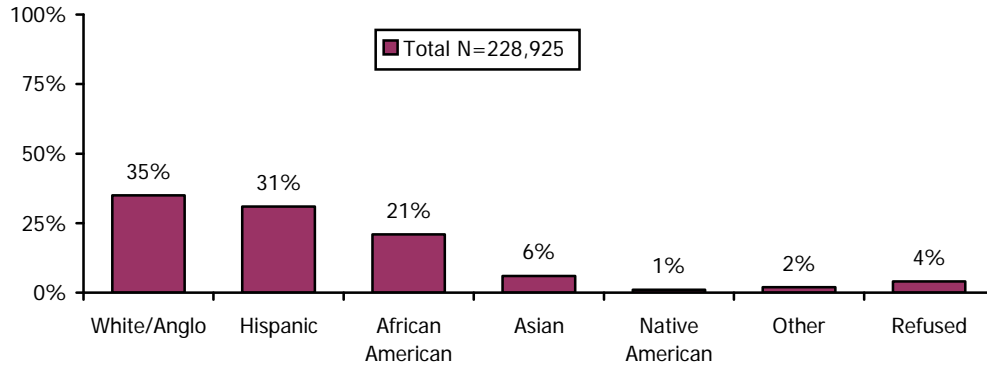
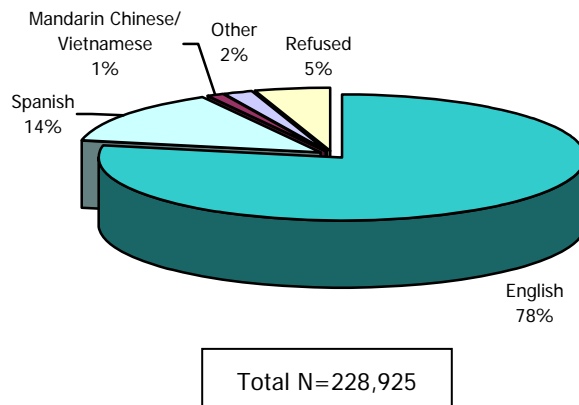


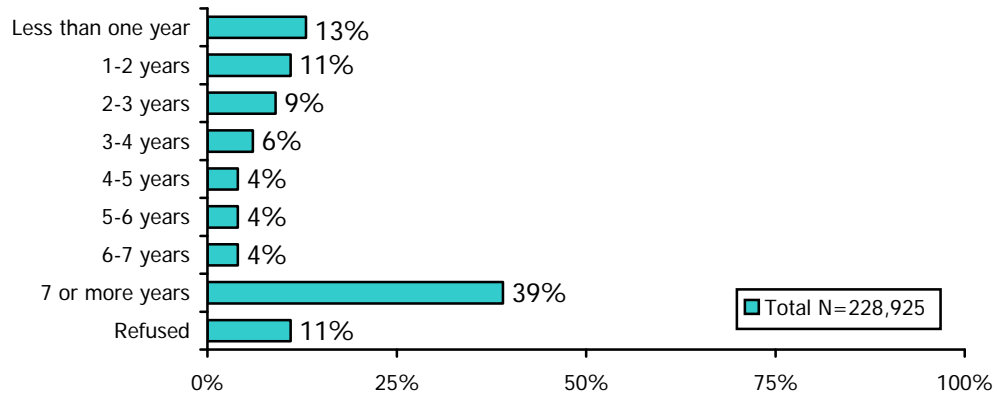
Figure 14
Preferred Spoken Language at Home
"What is your preferred spoken language at home?"



'Other' preferred languages spoken in the home included a combination of languages, Portuguese, Korean, Arabic, Cantonese, Japanese, Hindi, and French.

Although 39% have lived in Austin at least seven years, just as many (39%) have been in Austin four years or less.

Figure 15
Length of Time in Austin
"How long have you lived in the Austin area?"



Key Findings by UT Routes vs. Regular Fixed Routes

University of Texas at Austin is one of the largest universities in the nation and heavily influences the character of the City of Austin, particularly with transit services. In addition to Capital Metro's regular routes, a separate shuttle system exists with Capital Metro that directly serves the University. The following findings show the differences between the demographics on UT shuttle ridership (UT) versus Capital Metro's ridership on its regular routes (Regular).

Regular Route riders use the Capital Metro system to travel to and from a variety of locations whereas UT Route riders mostly use Capital Metro to travel between their homes and UT.

Figure 16
Origin Location
"Where did you come from?"

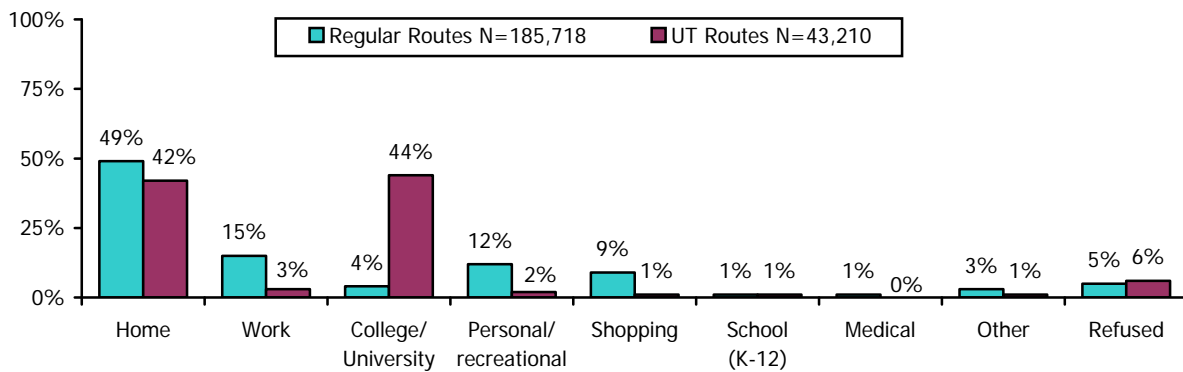
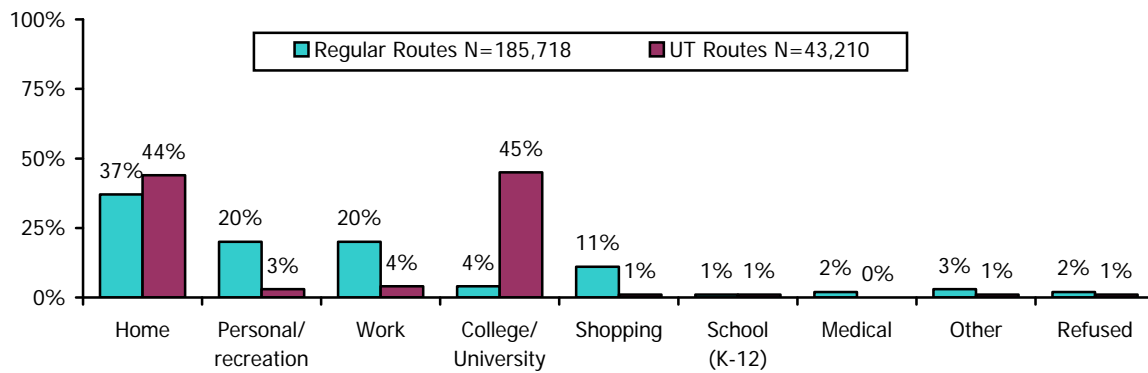


Figure 17
Destination Location
"Where are you going?"



While the primary mode of transportation for all riders to and from Capital Metro bus stops is walking, Regular Route riders transfer to and from other routes more and UT Route riders drive to and from routes more.

Figure 18
Method of Transportation to Bus Stop
"How did you get to the bus stop?"

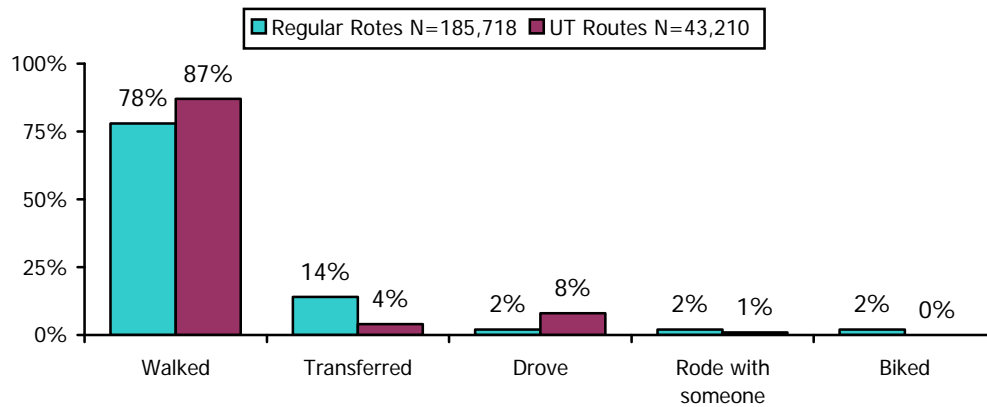
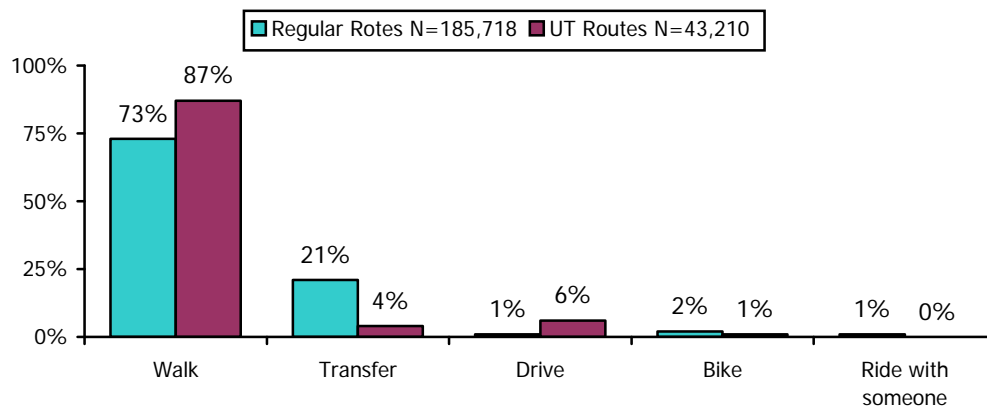


Figure 19
Method of Transportation to Final Destination from Bus
"How will you get from this bus to your final destination?"



For those that walked to the bus or were planning to walk from the bus to their destination, Regular Route riders walk further than UT Route riders do, on average.

Table 4
Blocks Walked To and From Bus

	WALKED TO BUS STOP		WALKED FROM BUS	
	Regular Routes	UT Routes	Regular Routes	UT Routes
Less than one	9%	19%	12%	16%
One	38%	40%	37%	40%
Two	22%	17%	21%	20%
Three	10%	9%	10%	8%
Four	6%	4%	5%	4%
Five+	8%	4%	7%	5%
Refused	7%	8%	7%	8%
<i>Average:</i>	2.1 blocks	1.6 blocks	1.9 blocks	1.6 blocks
Base:	185,718	43,210	185,718	43,210

For those that drive to and from the bus, they all travel an average of seven miles in their car when driving. Of those that ride with someone else to and from the bus, Regular Route riders are car passengers with someone else longer than UT Route riders are.

Table 5
Miles Driven To Bus from Origin and From Bus to Destination

	MILES DRIVE TO BUS FROM ORIGIN		MILES DRIVEN FROM BUS TO DESTINATION	
	Regular Routes	UT Routes	Regular Routes	UT Routes
0-2 miles	30%	27%	27%	28%
3-5 miles	26%	25%	31%	30%
6-10 miles	18%	21%	18%	22%
11-20 miles	12%	15%	14%	14%
21-30 miles	5%	3%	4%	2%
31+ miles	2%	1%	0%	0%
Refused	8%	8%	6%	5%
<i>Average:</i>	7.2 miles	7.3 miles	7.0 miles	6.6 miles
Base:	3,916	3,401	2,238	2,381

Table 6
Miles Ridden To Bus from Origin and From Bus to Destination

	MILES RIDDEN TO BUS FROM ORIGIN		MILES RIDDEN FROM BUS TO DESTINATION	
	Regular Routes	UT Routes	Regular Routes	UT Routes
0-2 miles	30%	38%	30%	42%
3-5 miles	25%	33%	28%	30%
6-10 miles	11%	11%	19%	13%
11-20 miles	8%	5%	5%	13%
21-30 miles	3%	0%	2%	0%
31+ miles	2%	0%	1%	0%
Refused	22%	14%	16%	1%
<i>Average:</i>	6.5 miles	3.6 miles	5.4 miles	4.7 miles
Base:	4,571	344	2,056	201

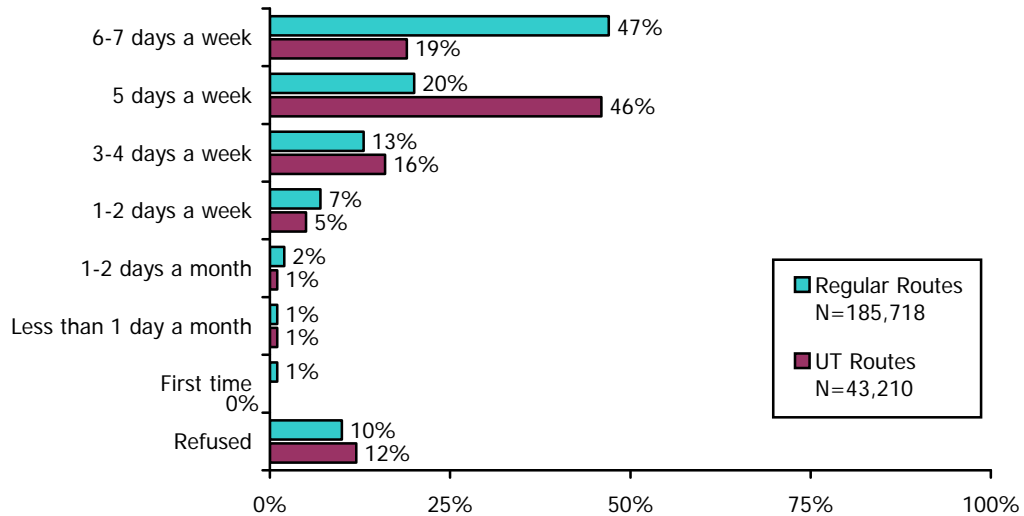
When using a bike, Regular Route riders bike a further distance to the bus stop whereas UT Route riders bike further distance from the shuttle to their destination.

Table 7
Miles Ridden on Bike To Bus from Origin and From Bus to Destination

	BIKED TO BUS STOP		BIKED FROM BUS	
	Regular Routes	UT Routes	Regular Routes	UT Routes
Less than one mile	16%	28%	16%	11%
One mile	39%	45%	48%	43%
Two miles	17%	11%	12%	26%
Three miles	6%	9%	6%	0%
Four miles	3%	8%	5%	2%
Five+ miles	9%	0%	4%	10%
Refused	10%	0%	9%	8%
<i>Average:</i>	1.9 miles	1.2 miles	1.5 miles	2.2 miles
Base:	3,493	193	3,307	230

Figure 20
Usage Frequency

"How often do you use Capital Metro?"



Riders on Regular Routes take the bus more often than riders on the UT Routes. Regular Route riders also do not have as many cars in their households to use for transportation as UT Route riders.

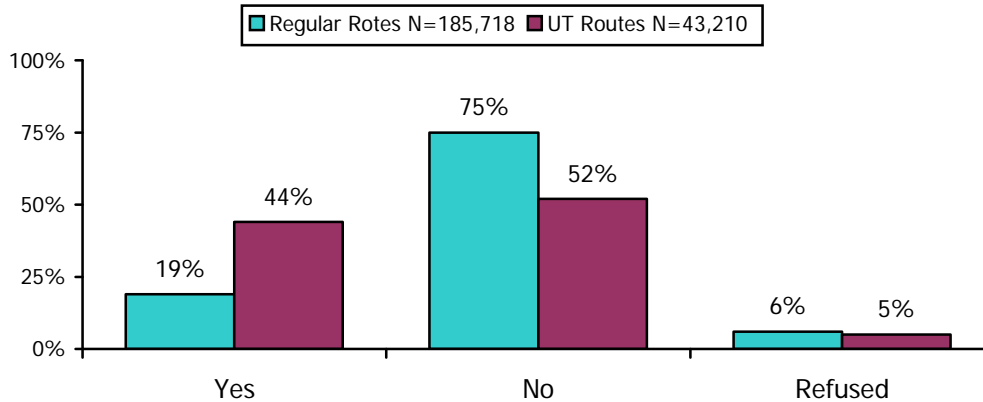
Figure 21
Household Vehicles

"How many working cars, trucks, or vans are available for use by your household?"



Figure 22
Option to Use Household Vehicle

"Could you have used one of these vehicles to make this trip instead of riding the bus?"



More riders on Regular Routes than UT Routes did not have a household vehicle available for their trip.

Table 8
Fare Payment Method

"How did you pay to get on this bus?"

	Regular Routes	UT Routes
Cash	30%	0%
UT Student/Faculty Pass	9%	65%
31 Day Metro Pass	22%	0%
Day Pass	20%	0%
Free	5%	32%
Mobility-Impaired Pass	8%	0%
31 Day Express Pass	3%	0%
City of Austin	1%	0%
Other	2%	0%
Refused	2%	2%
Base:	185,718	43,210

Regular Route riders use a variety of fare payment methods and the majority pay an adult fare. On the other hand, nearly all UT Route riders use their pass or ride for 'free' and the majority pay a student fare.

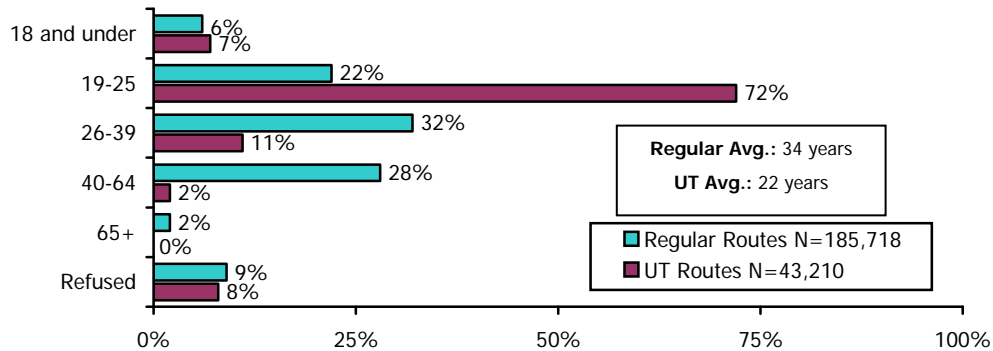
Table 9
Fare Category

"Which fare category do you pay?"

	Regular Routes	UT Routes
Adult	78%	7%
Student	12%	88%
Disabled	5%	0%
Senior	2%	0%
Refused	4%	5%
Base:	185,718	43,210

Figure 23
Age

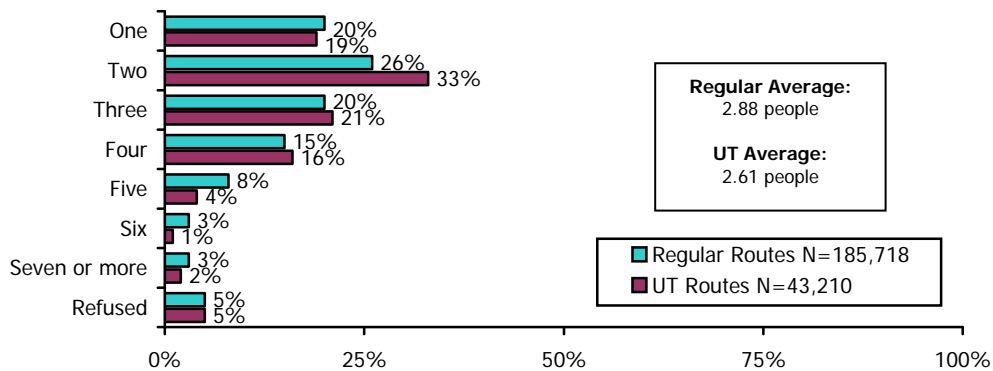
"What is your age?"



On average Regular Route riders are older than UT Route riders are. Regardless of routes traveled, an average rider has nearly three people residing in the household.

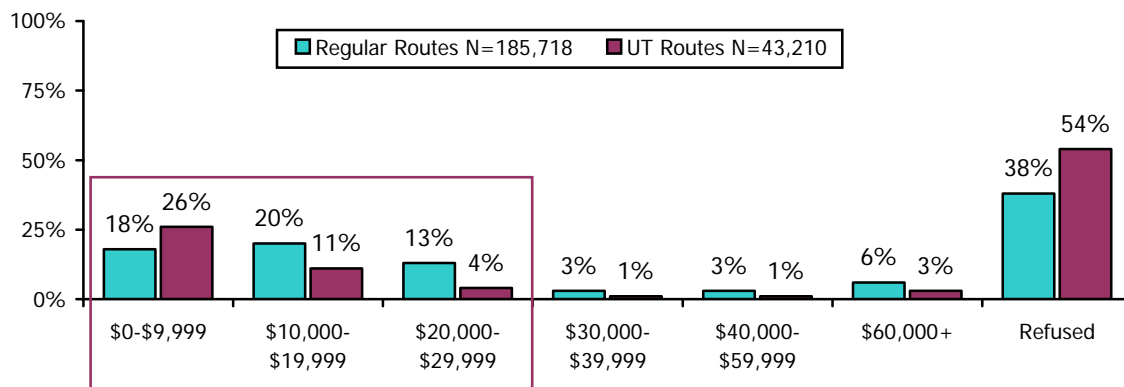
Figure 24
People Residing in Household

"How many people reside in your household?"



UT Route riders have a lower household income than Regular Route riders.

Figure 25
Annual Household Income



Regular Route riders are mainly White/Anglo, Hispanic, and African American whereas UT Routes have more riders that are White/Anglo and Asian. The majority of riders prefer to speak English at home, regardless of ethnicity.

Figure 26
Ethnicity

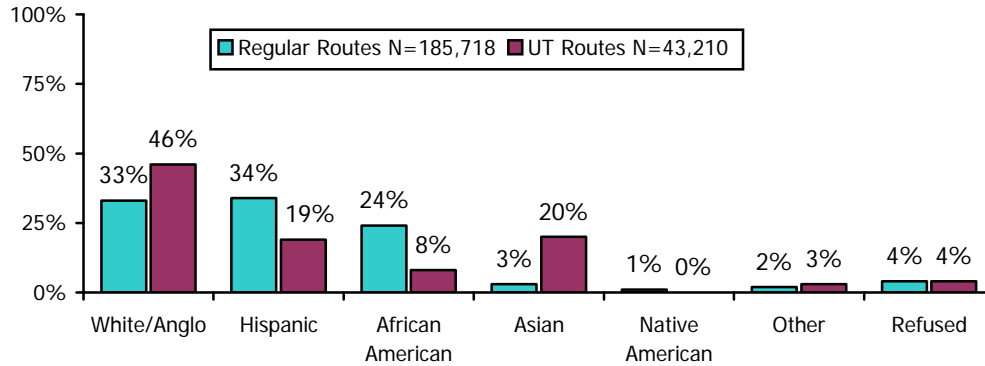
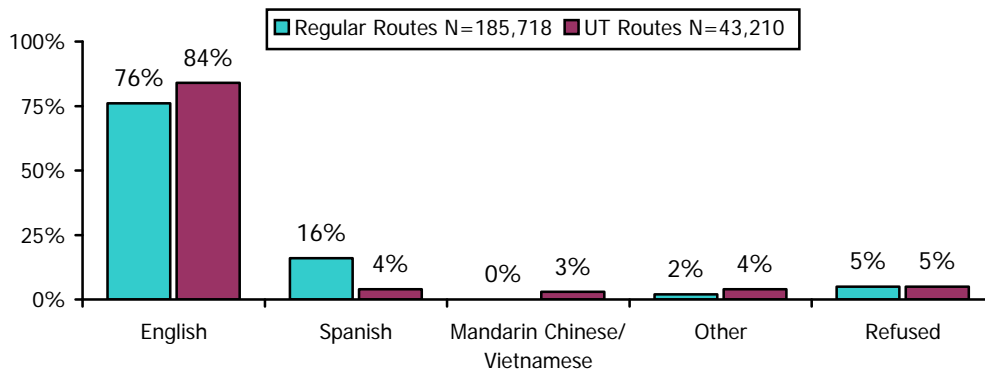


Figure 27
Preferred Spoken Language at Home
"What is your preferred spoken language at home?"



Regular Route riders have lived in the Austin area longer than UT Route riders.

Table 10
Length of Time in Austin
"How long have you lived in the Austin area?"

	Regular Routes	UT Routes
Less than one year	12%	16%
1-2 years	8%	23%
2-3 years	7%	18%
3-4 years	5%	10%
4-5 years	3%	5%
5-6 years	4%	3%
6-7 years	5%	2%
7 or more years	46%	10%
Refused	11%	12%
Base:	185,718	43,210

Project Issues That May Arise on Future On-Board Projects:

Re-routing of buses to accommodate special events on weekends (i.e. downtown parades or celebrations, UT football games, political rallies, etc.). During weekly status calls, updates of upcoming or potential events need to be discussed, especially for weekend events as surveying opportunities for weekend routes are less than weekday routes.

Delay of surveying due to unforeseen consequences (i.e. strikes by Capital Metro bus drivers or employees). If necessary, extend deadline for contractor's surveying period.

Bus routes with heavy school children populations. Once contractor identifies these routes and blocks, it may be necessary to discuss adjusting time period quotas for survey collection.

Due to the time of year the survey was conducted (October-December); some routes had higher ridership of individuals without a final destination (i.e. homeless individuals trying to stay warm). Once contractor identifies these routes and blocks, it may be necessary to discuss adjusting time period quotas for survey collection.