



**General Onboard Riders
Ridership and Impact Analysis**

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Material Accuracy

The intent of this study and this subsequent report is to provide accurate and authoritative information about the general ridership of TARC. IQS Research makes reasonable effort to ensure that data are collected, analyzed, and portrayed in an accurate and factual manner. However, there is no guarantee that these data are without flaws or that the use of these data will prevent differences of opinion or disputes and IQS Research bears no responsibility for their use or consequences.

Executive Summary

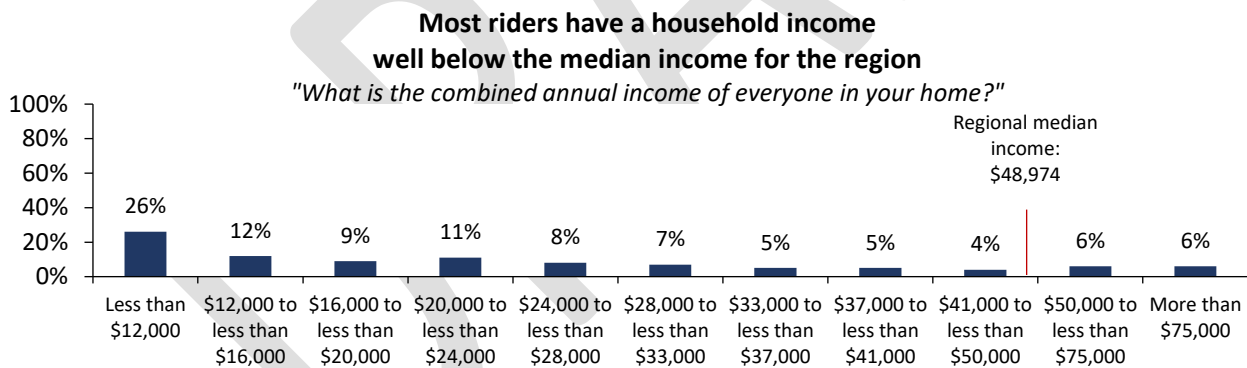
Purpose and Methodology

As part of TARC’s efforts to better understand its ridership, IQS Research conducted a survey of TARC’s riders, asking them questions about their demographic backgrounds, service utilization, and attitudes. Based on this survey, our study paints a broad but detailed picture of riders and identifies key areas of improvement that are likeliest to have the greatest impact on riders’ overall satisfaction with TARC.

In total, we surveyed 1,584 riders from all 46 different routes, with the number of riders surveyed in a given route set to match the route’s estimated share of the total TARC ridership on an average weekday in fiscal year 2016. Thus, for inferences about the overall population of TARC riders based on this sample, the sample yields a margin of error of $\pm 2.4\%$ at the 95% confidence level.

Demographic Profile

The typical TARC rider is a 36-year-old African-American woman who was born in the United States and does not speak another language at home. She lives alone or with one or two other people and has a household income below \$25,000. Compared to the broader population of Jefferson County residents, she and other TARC riders are disproportionately African-American, are especially likely to speak languages other than English at home, and are disproportionately likely to live with an income below the federal poverty threshold. As can be seen in the chart below, which displays the distribution of household incomes among TARC riders, most TARC riders have a household income well below that of the region in which they live.

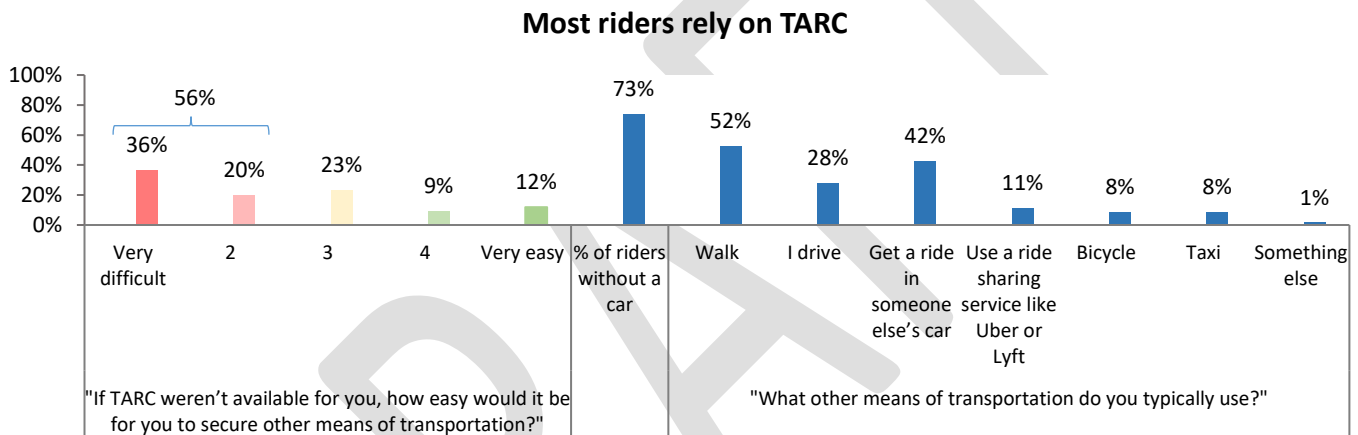


Most TARC riders are digitally connected: overall, at least three out of every four riders either has a smartphone or other mobile device with internet or has access to a desktop or laptop computer with internet. In addition, many of them send and receive text messages, and many of them also have a social media account on Facebook or Twitter. Since 2013, digital connectedness has increased rapidly among the ridership in terms of smartphone or computer ownership, social media participation, and usage of tools such as Google’s trip planner or ride-sharing apps. Approximately two out of three riders have a bank account, three out of four riders have a debit card, and only about two out of five riders have a credit card. Since 2013, the only significant change in riders’ usage of banking services has been an increase in debit card ownership from 68% of riders in 2013 to 76% of riders in 2016.

Service Usage and Reliance

In general, most TARC riders are weekly riders (89%) of a local route (91%) traveling to work (63%). Most riders are less than 10 minutes from the bus stop and, on average, riders spend 32 minutes on the bus in a typical trip. One out of every two riders would say that they sometimes or always changes buses to reach their destination.

Most riders are reliant on TARC. Asked how easy it would be to secure means of transportation other than TARC, 56% of riders would consider this prospect difficult. This is likely related to the fact that 73% of riders do not own a car, but 50% of riders' typical bus trips involve at least 30 minutes spent on the road. Minority riders (compared to white riders) are especially reliant on TARC, being more likely to say that it would be difficult to secure alternate transportation (60% vs 52%), and about half as likely to own a car (19% v. 39%).



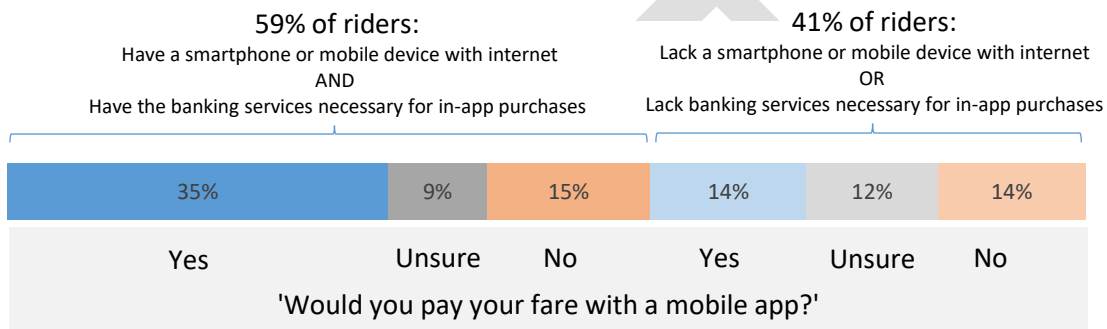
For two services currently utilized by some riders—onboard Wi-Fi- and text message notifications for delays—a majority of riders (65% and 64%, respectively) indicated that these services are important to them.

Paying for TARC – Now and in the Future

In paying for fare, the usage of cash (which continues to be the most popular payment method) has increased since 2013, with adult cash fare being used regularly by 59% of riders. Monthly passes, the next-most popular method of paying, have declined in popularity, with 27% of riders in 2013 regularly using monthly passes but only 20% of riders in 2016 regularly utilizing them. Just 12% of riders have employers who help pay their fare; these riders tend to have significantly higher incomes compared to riders whose employers do not help pay their fare.

When we examined riders' ability and interest in paying for their fare in a new way, we found that 53% of riders would express a definite inclination to pay using a smart card, and 49% of riders would express a definite inclination to pay using a mobile app. However, we also found that the lack of a smartphone or mobile device with internet and (more commonly) the lack of banking services necessary for in-app purchases are widespread limitations to riders' ability to pay with a mobile app. As can be seen in the chart below, only 35% of riders are definitely inclined to use a mobile payment app and have the necessary banking services as well as a smartphone or mobile device with internet access.

The trifecta of riders who have a smartphone or other device with internet, banking services required for in-app purchases, and a definite interest in paying with a mobile app account for 35% of the ridership

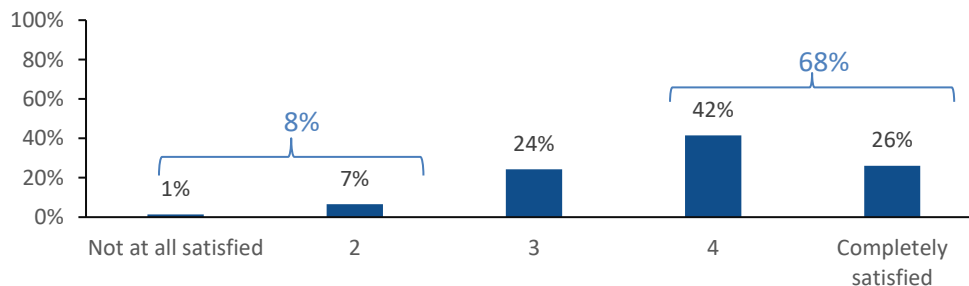


Satisfaction with TARC

Overall, 68% of riders are satisfied with TARC's ability to meet their transportation needs. The most satisfied riders tend to be higher-income riders, who differ from the typical TARC rider in that, among other differences, they are especially likely to be white, especially likely to ride express routes, and especially likely to own a car. In terms of their satisfaction with specific service elements, riders tend to be most satisfied with route coverage ("routes going where you want to go") and safety ("how safe you feel on the bus and at your stops") and least satisfied with the level of crowding on the buses and the presence of lighting and benches/shelters at bus stops. Satisfaction with specific service elements has changed in certain areas since 2013, but there has been no significant change in riders' overall satisfaction with TARC since 2013.

Most riders are satisfied with TARC overall

"All things considered, how satisfied are you with TARC's overall ability to meet your transportation needs?"



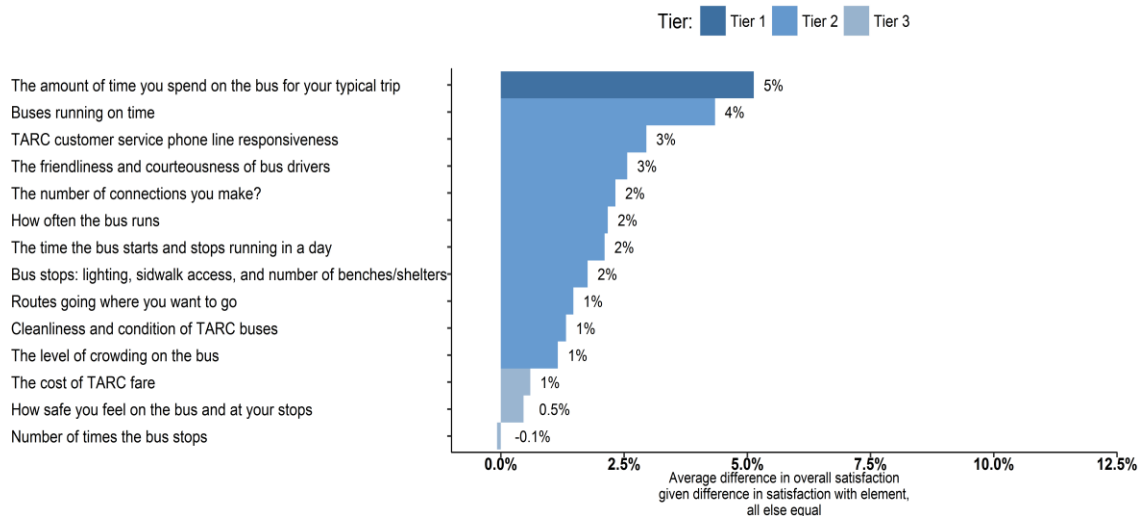
Prioritizing Efforts to Improve Satisfaction

In order to develop an understanding of which TARC services matter most to riders, we developed statistical models of the relationship between riders' overall satisfaction with TARC and their satisfaction with specific aspects of their experiences with TARC, such as how often the bus runs or how much the fare costs. In doing so, we have identified groups of specific service elements where (everything else being equal) increases in satisfaction are associated with relatively large increases in riders' overall satisfaction with TARC; these areas seem to be the most likely to produce large changes in overall satisfaction were riders' satisfaction in these areas improved. Specifically, for both high-volume and normal-volume routes, we have grouped service elements into three tiers, with elements in Tier 1 representing those service elements where increased satisfaction with them seems likeliest to produce the largest increases in overall satisfaction.

The chart below displays the ranking of specific service elements for riders of normal volume routes in terms of how large a difference in overall satisfaction we would expect to see between two riders who are similar to one another and differ only in terms of their satisfaction with a given service element.

For the typical rider of a normal-volume route, satisfaction with trip duration is key

Estimated (average) contributions to overall satisfaction for specific service elements

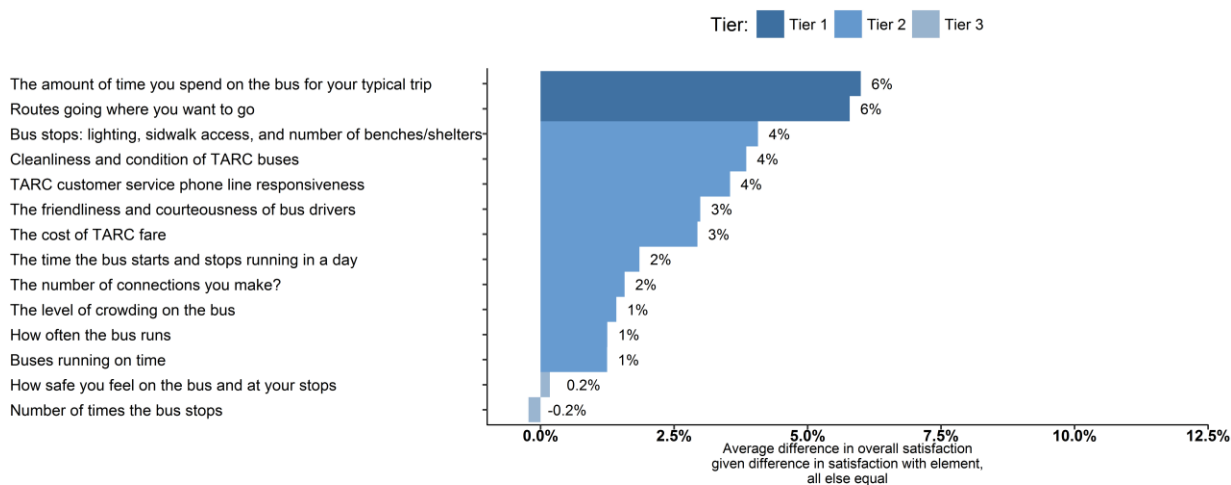


We can see that an improvement in riders' satisfaction with trip duration would seem to make the largest difference in overall satisfaction, as when we compare two similar riders who differ only in that the first rider is slightly more satisfied with their trip duration than the second rider, we find the first rider to be more likely to be highly satisfied overall by five percent. Similarly, we can see that an improvement in riders' satisfaction with the number of times the bus stops is likely to make a smaller difference in overall satisfaction, since (on average) when we compare two similar riders who differ only in terms of their satisfaction with the number of times the bus stops, there is essentially zero difference in their likelihood of being highly satisfied overall.

Similarly, results for riders of high-volume routes are shown below. For these riders, we can clearly see that for riders of high-volume routes, increases in satisfaction with trip duration and route availability are likely to produce larger increases in overall satisfaction than increases in satisfaction with, say, the cost of fare or the number of times the bus stops.

For the typical rider of a high-volume route, satisfaction with trip duration and route availability is key to overall satisfaction

Estimated (average) contributions to overall satisfaction for specific service elements



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Methodology

Sampling Plan

In order to accurately model the TARC ridership population, IQS Research data collectors conducted onboard surveys with riders of all 46 TARC routes, in proportions that mirror the ridership population. As the proportional modeling suggests, routes with more daily riders are more heavily represented in our sample; this was accounted for by calculating the percentage of riders that each route contributed to total daily ridership and conducting a similar percentage of surveys on that route. At minimum, five surveys were completed on every route with the largest route accounting for 253 interviews.

Relative to the average weekday ridership count of 43,099 riders in fiscal year 2016, we conducted a total of 1,584 interviews. This sample yields a very reliable confidence level of 95% and margin of error of $\pm 2.4\%$. The table below outlines the specific number of desired and actual responses received on each of the local, express, and circulator routes in the TARC system; the goal for each route was met or exceeded in every instance.

Route Number	Route Name	Desired Responses	Completed Responses
1	FOURTH STREET CIRCULATOR	5	8
2	SECOND STREET	14	14
4	FOURTH STREET	130	137
6	SIXTH STREET	63	63
12	TWELFTH STREET	11	11
15	MARKET STREET	75	80
17	BARDSTOWN ROAD	33	36
17X	FERN CREEK EXPRESS	5	5
18	PRESTON-DIXIE HIGHWAY	248	253
19	MUHAMMAD ALI	96	99
21	CHESTNUT STREET	35	35
22	TWENTY-SECOND STREET	5	5
23	BROADWAY	238	243
25	OAK-WESTPORT CROSSTOWN	52	52
27	HILL STREET	26	35
29	EASTERN PARKWAY	55	58
31	SHELBYVILLE ROAD	27	28
31X	MIDDLETOWN EXPRESS	5	5
40	TAYLORSVILLE ROAD	29	30
40X	JEFFERSONTOWN EXPRESS	6	7
43	POPLAR LEVEL	52	52
45	OKOLONA EXPRESS	5	5
49	WESTPORT EXPRESS	5	5
50	DIXIE EXPRESS	15	16

Route Number	Route Name	Desired Responses	Completed Responses
52	MEDICAL CENTER CIRCULATOR	5	6
53	BRECKENRIDGE EXPRESS	5	5
54	MANSLICK EXPRESS	5	5
61	PLAINVIEW EXPRESS	5	5
62	BRECKENRIDGE - SHEPHERDSVILLE	5	5
63	CRUMS LANE	34	34
64	SOUTHERN OLDHAM COUNTY EXPRESS	5	5
65	SOUTHERN INDIANA EXPRESS	5	5
66	MT WASHINGTON-SHEPHERDSVILLE	5	5
67	OLDHAM I-71 EXPRESS	5	5
68	PROSPECT EXPRESS	5	6
71	JEFFERSONVILLE-LOUISVILLE-NEW ALBANY	37	47
72	CLARKSVILLE	19	19
75	BLUEGRASS INDUSTRIAL SHUTTLE	5	5
77	MAIN - MARKET CIRCULATOR	5	6
78	DOWNTOWN/BLEUGRASS EXPRESS	7	10
82	NEW ALBANY - CLARKSVILLE - JEFFERSONVILLE	9	10
90	WEST CAMPUS SHUTTLE	5	5
93	UPS SHUTTLE (UofL)	5	5
94	CARDINAL SHUTTLE	97	97
98	FLOYD ST. CIRCULATOR	5	5
99	UPS (DOWNTOWN - WEST LOUISVILLE)	5	7
Total		1517	1584

Onboard Data Collection Process

IQS-trained data collectors invited passengers on all routes to complete paper surveys during their bus trip. Surveys were distributed during peak ridership times for each route which, for nearly all routes, included both morning and afternoon collection windows. As a thank you for completing the survey, riders received one to two free TARC tickets (depending on the availability of tickets and the demand for surveys on each route). The survey, as well as instructions to take the survey, were provided in both English and Spanish. Data collection took place on weekdays from October 3 through October 27, 2016.

Overview

In order to assist TARC in better understanding the customer base, IQS Research asked an array of questions about the rider experience, in addition to a collection of demographic questions such as age, gender, ethnicity, and household size. While this information is useful in identifying the typical TARC rider, it is also useful for identifying patterns of usage among particular segments of the population. In the initial portion of this report, we will look at the demographic profile of the typical rider, and then compare this rider profile to the average Jefferson County resident.

Then, we will identify how the typical rider is interacting with TARC's services. We will examine which services TARC's customers are using, how frequently they are utilizing each one, and the purpose for which they are accessing TARC.

Next, we will examine the rider perceptions of TARC services by rating various aspects of their experience as well as their overall satisfaction.

Then, we will look at various segments of the ridership, such as low-income riders, to see where their responses differ from the overall opinion of riders.

Finally, we will look at drivers of satisfaction to identify areas that, if improved, would most increase satisfaction among the ridership.

Demographic Characteristics: Who is Riding TARC?

The typical TARC rider is a 36-year-old African-American woman who was born in the United States and does not speak another language at home. She lives alone or with one or two other people and has a household income below \$25,000. Compared to the broader population of Jefferson County residents, she and other TARC riders are disproportionately African-American, especially likely to speak languages other than English at home, and disproportionately likely to live with an income below the federal poverty threshold.

To create this typical rider, we used the average or most frequent response to each of the demographic questions, but obviously that leaves out a number of riders. The TARC ridership is actually fairly diverse, and this aggregation leaves out much of the nuance. Among our respondents, ages ranged from 13 to 84. Respondents listed 19 countries of origin, ranging alphabetically from Bolivia to Yugoslavia. Among the riders who speak a language besides English at home, they identified 29 unique languages. Riders live in 74 different zip codes, including 16 zip codes outside of the five county area serviced by TARC.¹ It is important to recognize that the TARC ridership has a broad base, and impacts a large portion of the populace.

Comparisons with Metro-area population

In many ways, the demographics of TARC's ridership echo those of the Louisville metro area. However, in order to get a more accurate comparison, we weighted our data to account for the contributions of the surrounding area. Six of TARC's routes service the counties of Bullitt and Oldham in Kentucky, as well as Clark and Floyd counties in Southern Indiana. These riders make up less than 5% of the daily ridership, with the remaining 95% of riders coming from Jefferson County.² The table below compares the TARC riders on several key demographic measures. Red font denotes percentages that are significantly different from the Jefferson County population.

	Jefferson County, Weighted	TARC Ridership
Population	727,266	
Percentage of Females	51.94%	51.11%
Percent Caucasian	73.80%	38.32%
Percent African-American	21.29%	53.00%
Percent Asian	2.91%	3.11%
Percent Hispanic	4.96%	4.74%
Percent Foreign Born	6.81%	6.98%
Percent Language other than English	7.84%	23.34%
Percent below poverty threshold	14.77%	34.09%

¹ While some of these zip codes included areas just outside the metro area (such as Shelby, Meade, and Henry Counties), it is probable that the remaining respondents are visitors or students

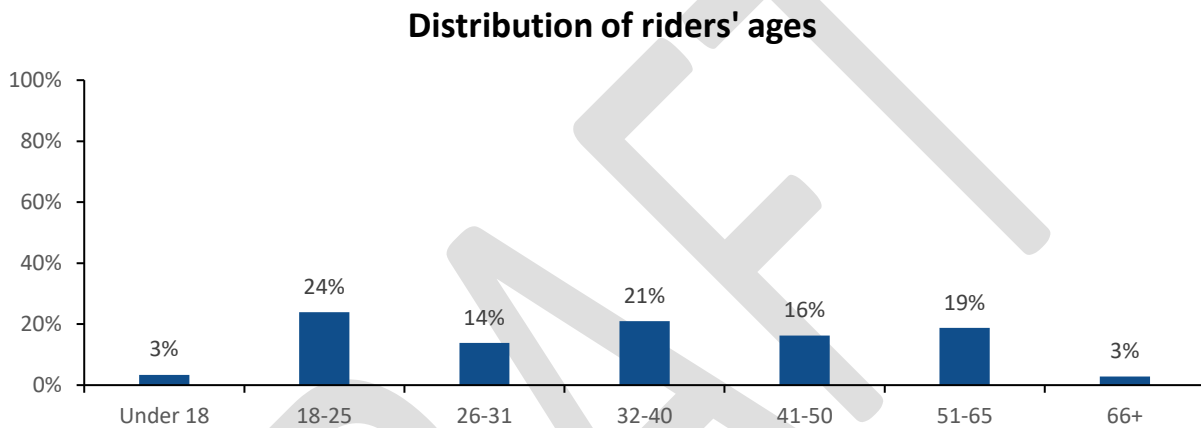
² For more details about the weighting methodology, please see the appendix.

Looking at this table, we can see that minority riders (especially African-Americans) are over-represented within the TARC ridership, as are speakers of languages other than English and lower income riders. Only 12% of riders make more than the median household income of \$48,973. We will look at these specific segments of the ridership later in this report.

Individual Demographics:

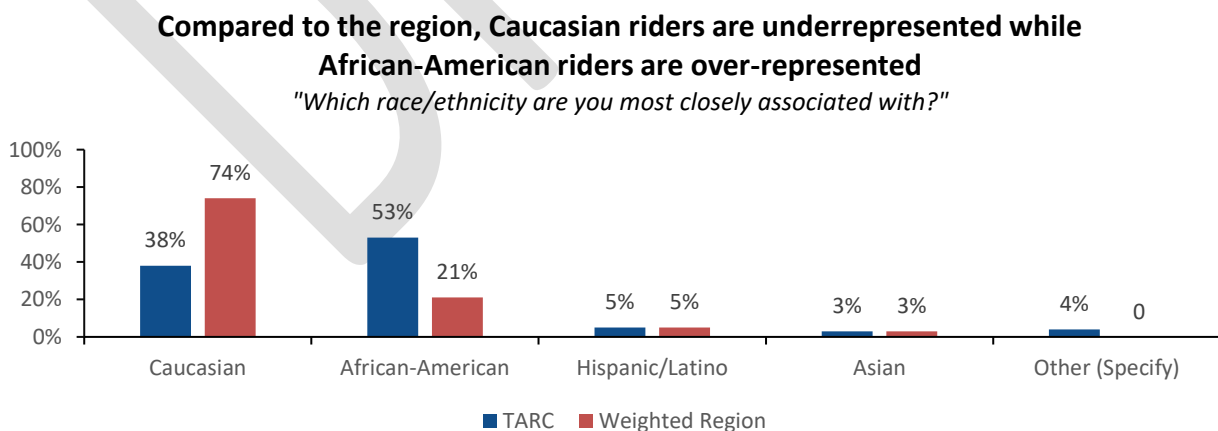
Age

The median age for TARC riders is 36, with an average age of 37.2. Respondents range in age from 13 to 84. Nearly a quarter of riders (24%) are age 18-25, with riders age 32-40 composing the next largest group.



Race/Ethnicity

While the percentage of Hispanic/Latino and Asian riders is in line with the overall constituency of the region, African-Americans are over-represented among the TARC ridership while Caucasians are under-represented. When combined, minority riders make up 54% of the TARC ridership.



Compared to 2013, the only statistically significant difference in the racial/ethnic composition of TARC’s ridership is that Hispanic/Latino riders constitute a larger (but still small) share of the total ridership, having increased from 2% of the ridership in 2013.

National Origin

In addition, 7% of our respondents (n=93) said they were born outside of the United States, listing a total of 19 countries of origin. The regional weighted percentage of foreign-born individuals is also 7%. Of the respondents who listed a country, nearly a quarter identified India as their birth country, followed by 20% listing Cuba. Mexico, Germany, China, Ethiopia, Japan, the Philippines, and Vietnam, each contributed multiple respondents. The table below lists all of the countries of origin identified by respondents, in alphabetical order.

Country	# of Responses	Country	# of Responses
Bolivia	1	Jamaica	2
Canada	1	Kenya	1
China	3	Mexico	5
Cuba	11	Nigeria	1
Egypt	1	Philippines	2
Ethiopia	2	U.K.	1
Germany	4	Vietnam	2
Haiti	1	West Germany	1
India	14	Yugoslavia	1
Italy	1		

Language Usage and English Proficiency

In addition to asking about country of origin, we also asked respondents if they spoke a language other than English at home. According to the weighted demographics, 8% of the region speaks another language, while 23% of our sample (n=306) does so. Respondents listed a total of 29 unique languages, with Spanish (19%) and Hindi (10%) having the highest representation. The table below lists all of the languages reported by our respondents, along with the number of respondents listing each.

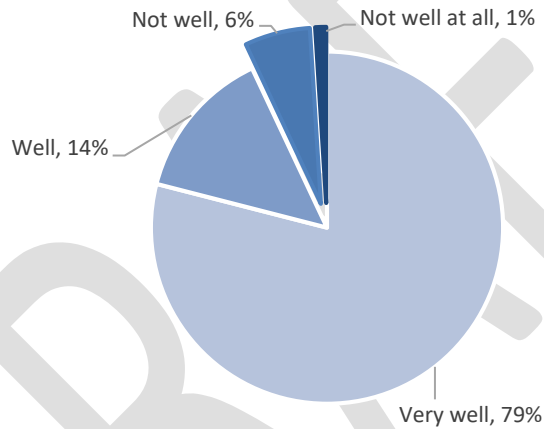
Language	# of Responses	Language	# of Responses	Language	# of Responses
Spanish	10	Bosnian	1	Nigerian	1
Hindi	5	Cantonese	1	Polish	1
Arabic	4	Chinese	1	Russian	1
French	3	Creole	1	Somali	1
Sign Language	3	Filipino	1	Swedish	1
German	2	Hiligaynon	1	Tagalog	1
Japanese	2	Latin	1	Telugu	1
Tamil	2	Malayalam	1	Ukrainian	1
Amharic	1	Marathi	1	Vietnamese	1
Bengali	1	Nepali	1		

We asked the respondents who spoke another language besides English to rate their proficiency with English, and 93% of them said they spoke English “Very well” or “well.” It is important to note that the surveys were conducted in English, although Spanish surveys were also available. It is possible that respondents who were not proficient in English self-selected out of the survey. Later on in the survey, we will report on characteristics of riders with Limited English Proficiency (LEP). In order to account for the under-representation within the sample, we coded this category more broadly, to include all of the respondents who said they spoke another language at home. While this is not an ideal method, the reasoning is that respondents who speak another language at home will either be more comfortable in a language other than English or have family members who are, and so are most likely to represent the views of riders who have limitations in English proficiency.

Most foreign-born riders consider themselves proficient in English

"[If you speak a language other than English at home]:

How well do you speak English?"



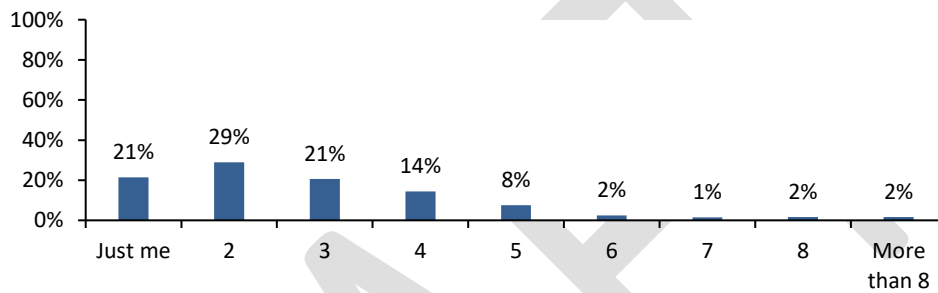
Household Demographics:

Household Size:

The median household size of TARC riders is similar to that of Louisville/Jefferson County residents: the median rider in our sample lives in a household of two to three persons, and for Louisville/Jefferson County, the average person lives in a household with 2.43 persons. Some 15% of riders live in a household with more than four persons.

The household sizes of TARC riders resembles those of Louisville/Jefferson County as a whole

"How many people live in your home including you?"

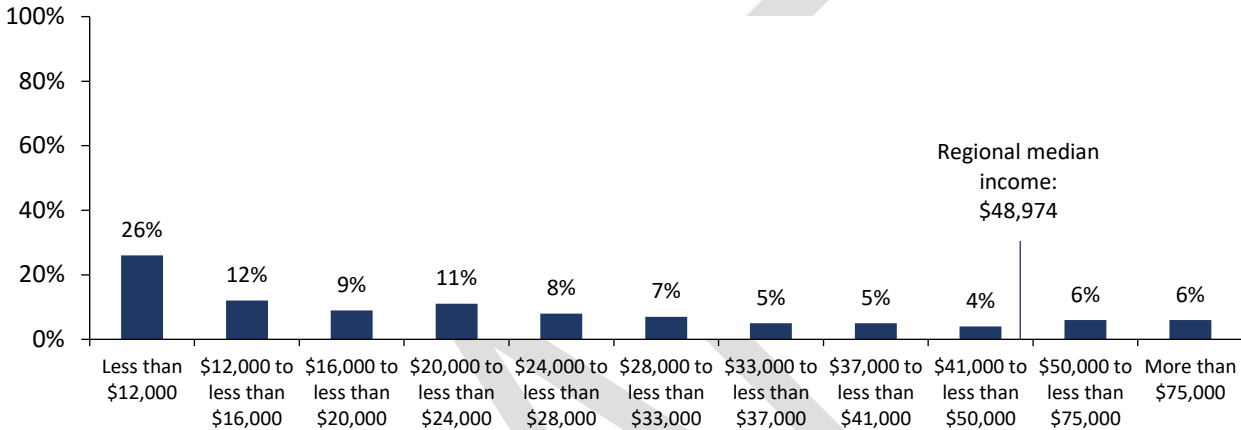


Income

Lower income residents are over-represented in our sample, as only 12% of the respondents reported a household income above the weighted median household income of \$48,973. The largest group of respondents report a household income of less than \$12,000. Nearly half of the TARC ridership (47%) has a reported income below \$20,000, while another 40% fall between \$20,000 and \$50,000.

Most riders have a household income well below the median income for the region

"What is the combined annual income of everyone in your home?"



There are a number of ways to think about income distribution, and so, in addition to comparing TARC riders to the median household income, we also looked at the percentage of riders who fall below the poverty thresholds, as defined by Health and Human Services and listed in the table below.³ Overall, 34% of our sample was considered to be below the poverty threshold, as compared to 15% of the weighted region.

# in HH	Poverty Threshold	% of TARC riders below threshold
1	\$12,000	41% (n=264)
2	\$16,000	33% (n=366)
3	\$20,000	47% (n=252)
4	\$24,000	51% (n=180)
5	\$28,000	55% (n=94)
6	\$33,000	60% (n=30)
7	\$37,000	71% (n=17)
8	\$41,000	95% (n=19)

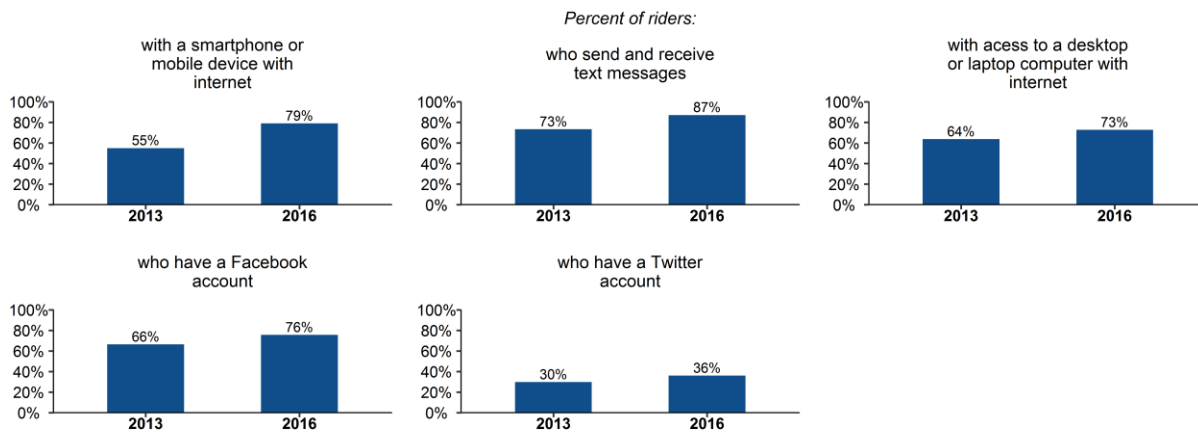
³ 2016 HHS poverty thresholds found here: <https://aspe.hhs.gov/poverty-guidelines>

Digital Connectedness

Overall, most TARC riders are digitally connected: overall, at least three out of every four riders either has a smartphone or other mobile device with internet or has access to a desktop or laptop computer with internet. In addition, many of them send and receive text messages, and many of them also have a social media account on Facebook or Twitter.

Compared to 2013, digital technology connectedness has markedly increased among TARC’s ridership. As can be seen in the charts below, ownership of smartphones or other internet-connected mobile devices has increased dramatically, and other hallmarks of digital connectedness (such as owning a Facebook account) have also become more common among riders.

Riders in 2016 are more digitally connected than riders in 2013



Usage of Banking Services

More than half of the respondents have a bank account (66%) or a debit card (76%), while only 38% possess a credit card. Compared to 2013, the only statistically significant difference in riders’ usage of banking services is that more riders possess a debit card in 2016: while 76% of riders today possess a debit card, only 68% of riders in 2013 possessed a debit card.

The TARC Experience

Now we will turn our attention to the TARC onboard experience, examining why riders get on the bus, which services they use, how often they use them, and covering other details about riders' experience with TARC. In general, most riders (91%) use TARC on a weekly or more frequent basis, primarily utilizing local routes and riding to work. When planning their trips, most riders plan their route using a paper schedule (42%) or the online trip planner (45%). After boarding the bus (typically taking five to ten minutes to reach the bus stop), most riders pay their fare with cash and ride the bus for an average of 32 minutes until they reach their destination. Most riders change buses for their trip, although connections are rare or unheard of for nearly half of the ridership. Since 2013, riders have increasingly come to use digital means (websites and mobile apps) to access schedule information and are more likely to pay for their trips using cash.

About half of riders would be willing to use alternative payments in the form of a Smart Card or mobile fare payment app. However, while about half of the ridership would be willing to use a mobile payment app, only 35% of the ridership would express a definite interest in using a mobile payment app *and* possesses a smartphone or mobile device with internet as well as the necessary banking services for in-app payments. In other words, lack of a smartphone or mobile device and (to a greater extent) lack of a credit card or bank account-linked debit card are obstacles to paying with a mobile app for many riders. Asked about the importance of Wi-Fi and text message delay notifications, most riders would say that these two services are important to them.

Most riders are reliant on TARC: 56% would consider it highly difficult to replace TARC if it were unavailable, and most riders do not own a car, despite often making trips that require at least 15 minutes on the road by bus. Outside of TARC, their alternative transportation is most often walking or getting rides in others' cars and, since 2013, they have increasingly turned to paid driving services (companies like Uber or Lyft especially) as alternative transportation, although these services are used by only about one in five riders.

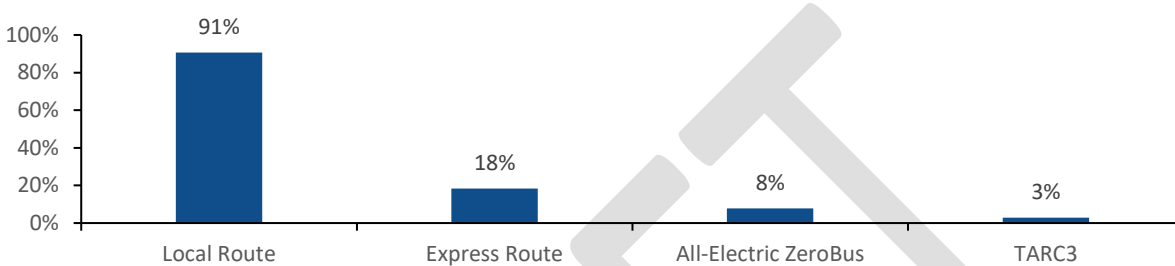
The following pages provide additional detail about the synopsis offered here.

Riding the Bus

Although the majority of respondents ride a local route, nearly a fifth (18%) utilize the express routes, either exclusively, or in addition to local routes. (Note that the total equals more than 100% since respondents could choose more than one type of TARC service.)

About a quarter of riders ride routes other than local routes, nearly all riders ride local routes

"Which TARC service(s) do you use?"

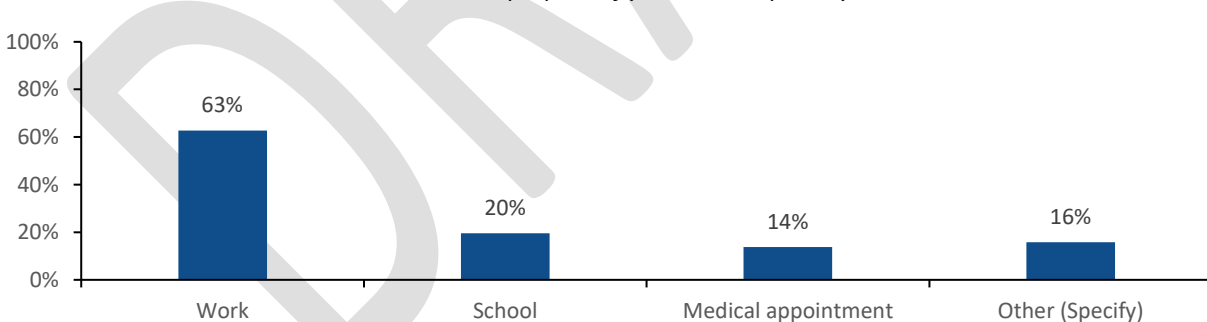


Purpose of Trip

A majority of riders chose work as the purpose of their current trip. About a fifth of the respondents were traveling for school and another 10% listed a medical appointment as their reason for riding the bus. Although this question was intended as a single-choice option, some respondents chose multiple responses so numbers do not add up to 100%.

Most riders ride TARC for work, although other reasons for riding are common

"What is the purpose of your TARC trip today?"



A handful of respondents (16%) found that our pre-defined options did not fit their needs, so we offered them an opportunity to list additional reasons for riding the bus. Some were more specific versions of the options we provided (for example 'doctor's appointment' was listed under "other" instead of checking "medical appointment") so we re-coded those answers into the proper categories. The remaining responses (n=191) were bucketed into broad categories. About half of the responses fell into the category of personal business which was subdivided into appointments (defined as having a specific time or requirement to attend) and general errands (such as shopping, paying bills, etc.). Respondents also said they used the bus to visit friends or relatives, look for a job, or as a general means of

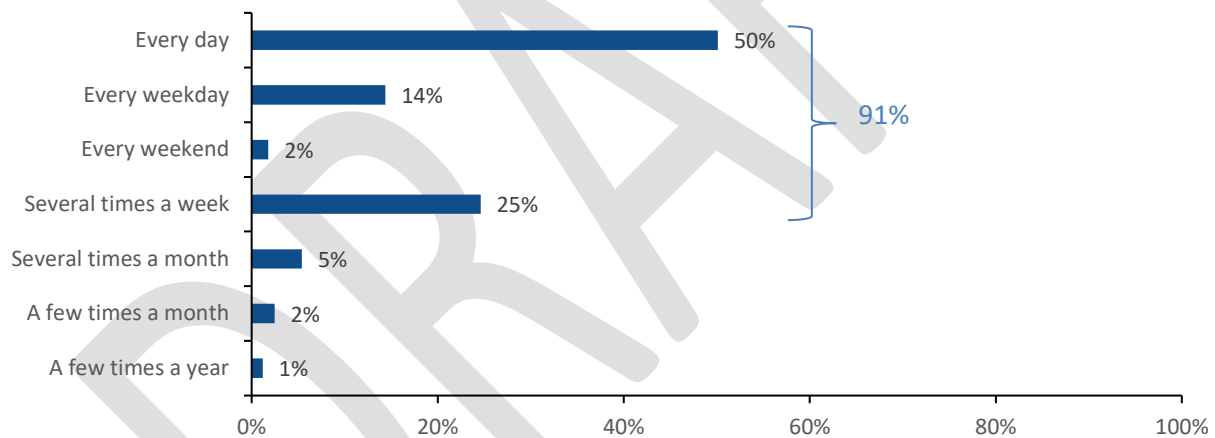
transportation. (Example comments: “I use the bus for everything” and “Anywhere I want to go”) The table below lists the categories and percentages for respondents who answered “Other” for their trip purpose.

Reason for trip:	Count	Percentage
Errands (shopping, go to bank, pay bills)	67	37%
Appointment (pick up child, jury duty, training classes)	39	21%
Social (visiting friend, going out, lunch, hanging out)	33	18%
General Transportation	26	14%
Job Search (interviews, job fair, look for job)	9	5%

As noted in the previous question, many TARC riders use the bus as their primary or only means of transportation. Because of this, we see that most respondents are heavy users of TARC services, with 91% of riders utilizing TARC on a weekly basis. Over half of our respondents ride TARC on a daily basis.

90% of riders ride TARC on a weekly or more frequent basis

"How often do you ride TARC?"

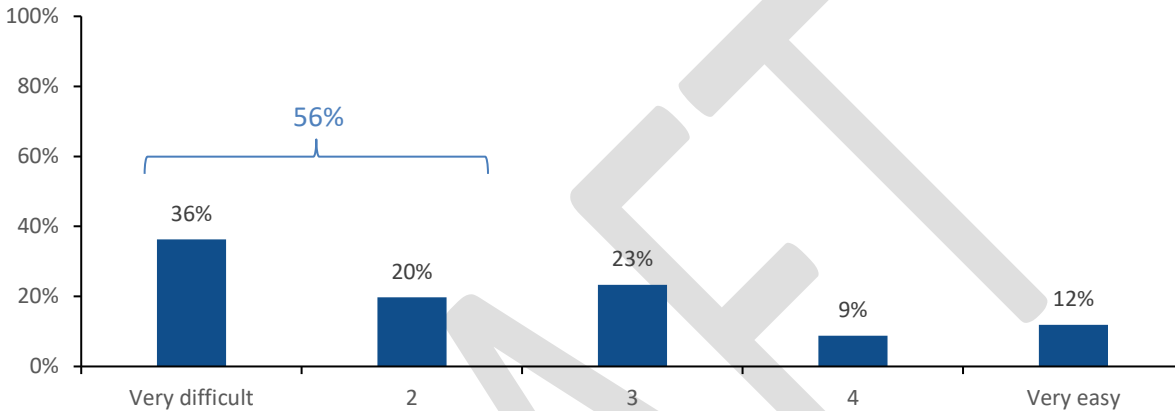


TARC Reliance

We asked TARC riders to rate how easy it would be for them to find another means of transportation if TARC was not available, and then to identify the other methods of transportation they would use. Nearly three-quarters of the respondents (73%) do not own a car, and half of the respondents (56%) say it would be highly difficult to find transportation.⁴

Most riders believe it would be difficult to replace TARC with other forms of transportation

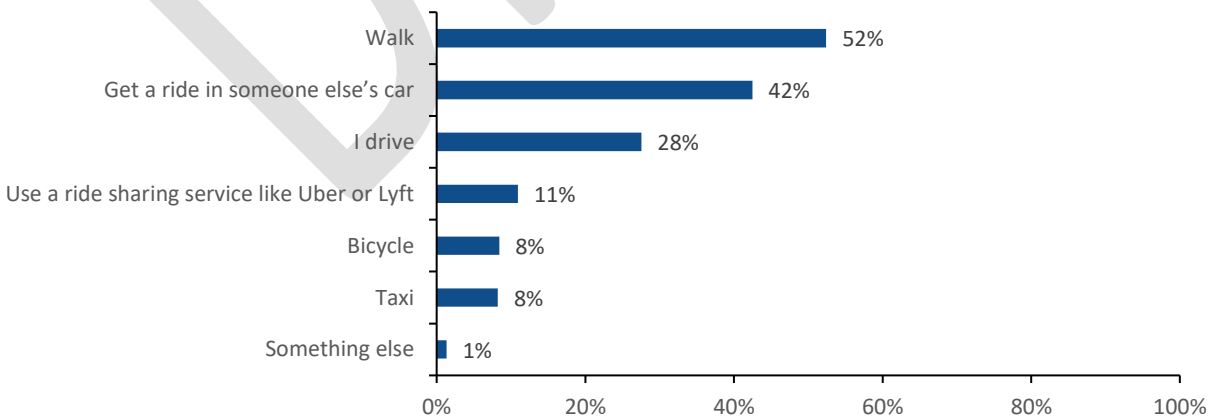
"How easy would it be for you to replace TARC with another form of transportation?"



When they are not riding the bus, a fifth of respondents (19%) use a paid option such as a taxi or ride-sharing company like Uber or Lyft. About half of the respondents (52%) walk to their destination, and the remainder use a variety of informal arrangements, such as riding with someone else (42%). Because respondents were encouraged to check all that apply, the totals equal more than 100%.

Outside of TARC, riders most often walk or get rides in others' cars (through paid or unpaid arrangements)

"When you're not riding TARC, what other means of transportation do you typically use?"

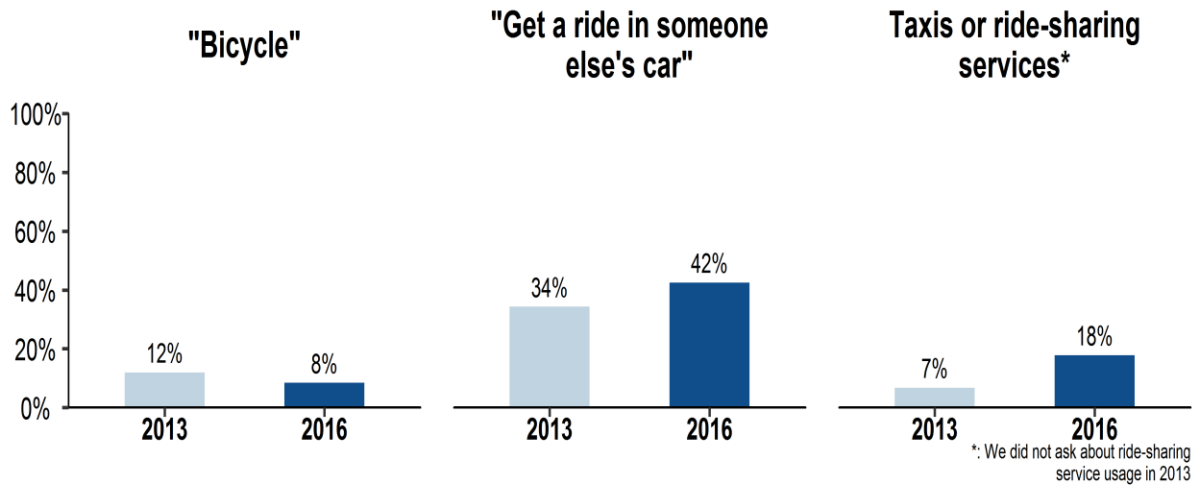


⁴ High difficulty = combined responses for 1-Very difficult and 2. Similar responses (high ease) combine the 4 and 5 responses.

Since 2013, the largest change in TARC riders' usage of other means of transportation has been the adoption of ride-sharing services such as Uber or Lyft. While rarely (if at all) used in 2013, 11% of riders in 2016 use ride-sharing services.⁵ As a result, the overall percentage of riders who use paid driving services (at least in the form of taxis or ride-sharing services) has increased substantially. In contrast, other forms of transportation remain essentially just as widespread in 2016 as they were in 2013, apart from bicycles (which are less popular) and "get[ting] a ride in someone else's car" (which has become more popular).

Amidst other smaller changes, the arrival of ride-sharing services has produced a large increase in TARC riders' usage of paid driving services

"...what other means of transportation do you typically use?"



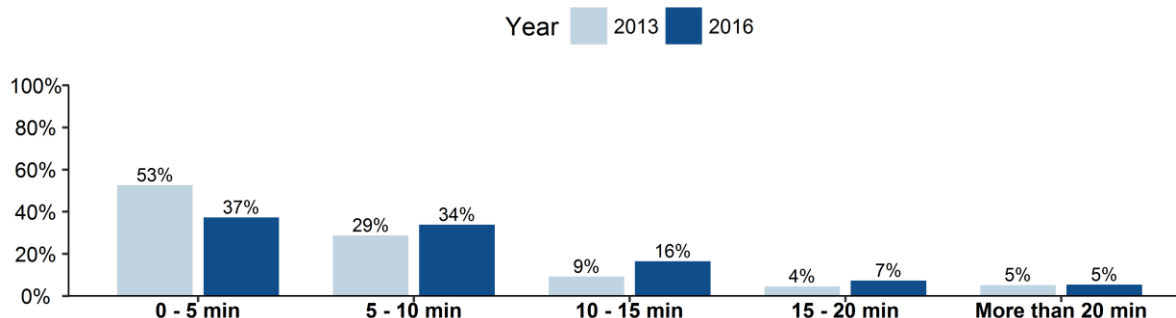
⁵ We think ride-sharing services like Uber or Lyft in Louisville were either non-existent or rare in 2013 for two reasons. The first reason is that, among survey respondents in 2013 who gave an open-ended description of the transportation they used outside of TARC, none mentioned services such as Uber or Lyft. The second reason is that Uber and Lyft (whose names are often stand-ins for ride-sharing services more generally) only launched in Louisville in April 2014. <http://www.bizjournals.com/louisville/feature/kentucky-derby-2014/2014/04/need-a-lift-uber-lyft-launch-in-louisville-just-in.html>

What does a typical trip look like?

Getting to the bus stop is relatively convenient, as most riders (71%) are less than 10 minutes from the bus stop. Only 5% of the respondents say it takes more than 20 minutes to get to the bus stop. Compared to 2013, the typical time it takes to reach a TARC stop has increased somewhat: while 53% of riders in 2013 required at most five minutes to reach their TARC stop, only 37% of riders in 2016 require so little time to reach their stop.

Compared to 2013, the median rider needs more time to get to their TARC stop

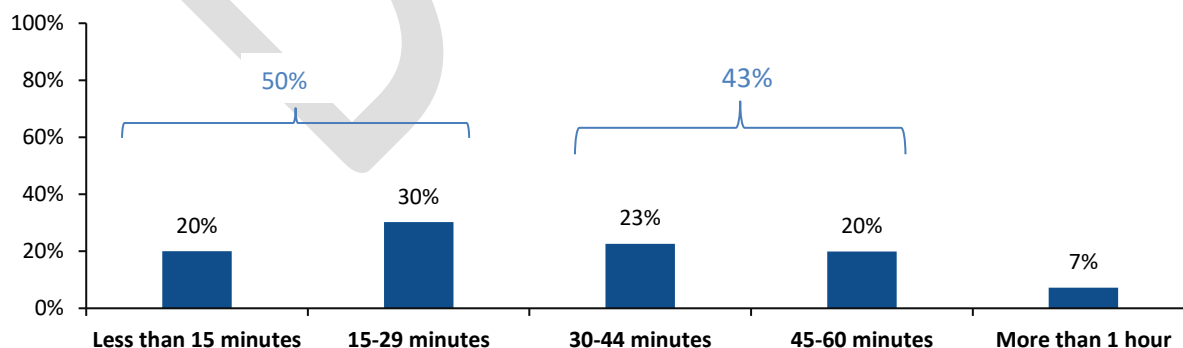
"How long does it take you to get to the TARC stop?"



Riders usually spend about half an hour on the bus (average: 32 minutes, most common response: 30 minutes). However, 7% of respondents say that it takes them more than an hour to reach their destination.

About half of the ridership spends under 30 minutes on the bus in their typical trip, under a tenth spends more than an hour

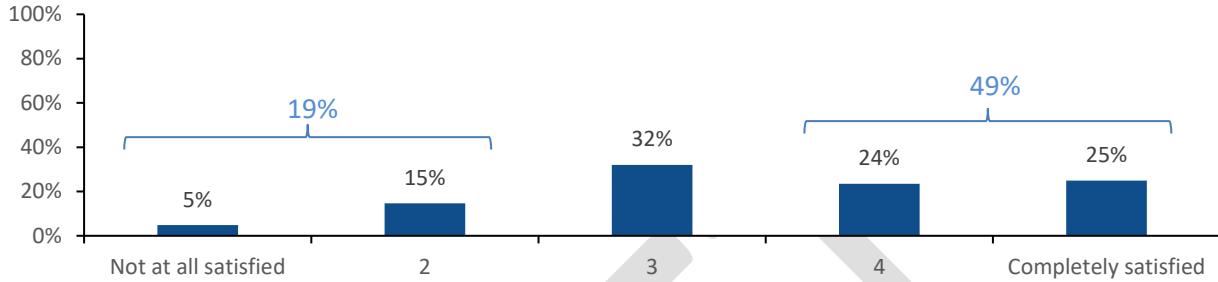
"How long is your typical bus trip from the time you get on the bus, to the time you get off at your final destination (one way)?"



Most respondents were relatively satisfied (49% high satisfaction) with the amount of time they spent on the bus, although only a quarter were completely satisfied.

Almost half of the ridership are highly satisfied with the amount of time spent on the bus while a fifth are highly dissatisfied

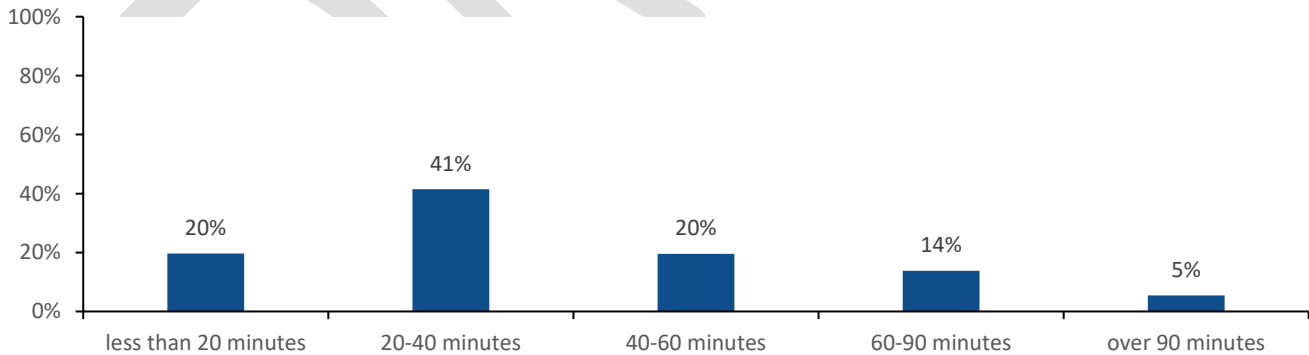
"How satisfied are you with the amount of time you spend on the bus for your typical trip?"



We calculated the total trip time by adding the average of the binned numbers in question 7 (for example, the average of 10-15 minutes would be 12.5) and the total trip time listed in the open-ended question 8. Most riders spent between 30 and 40 minutes total on their TARC trip (median: 32.5 minutes, mean: 39.9). The chart below shows bucketed totals for time from leaving the house to arriving at the destination.

The median rider's trip takes 20-40 minutes from the time they leave for the bus to the time they get off

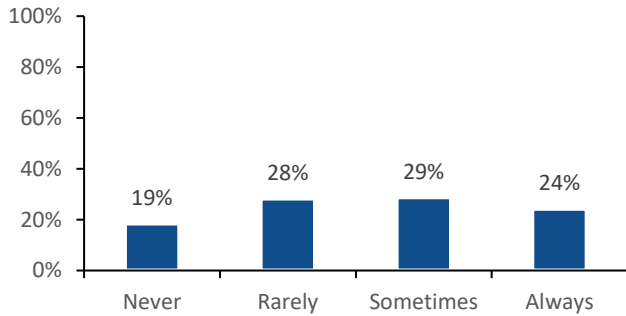
"How long is your typical bus trip from the time you get on the bus, to the time you get off at your final destination (one way)?"



Half of the respondents change buses either sometimes or always and half are highly satisfied with the number of connections they make.

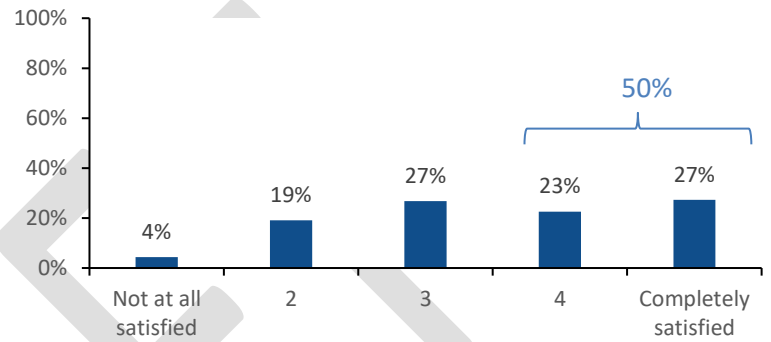
Most riders change buses, but it is rare at most for over 40% of riders

"How often do you change buses to get to your destination?"



About half of riders are highly satisfied with the number of connections, while almost a quarter are highly dissatisfied

"How satisfied are you with the number of connections you make?"



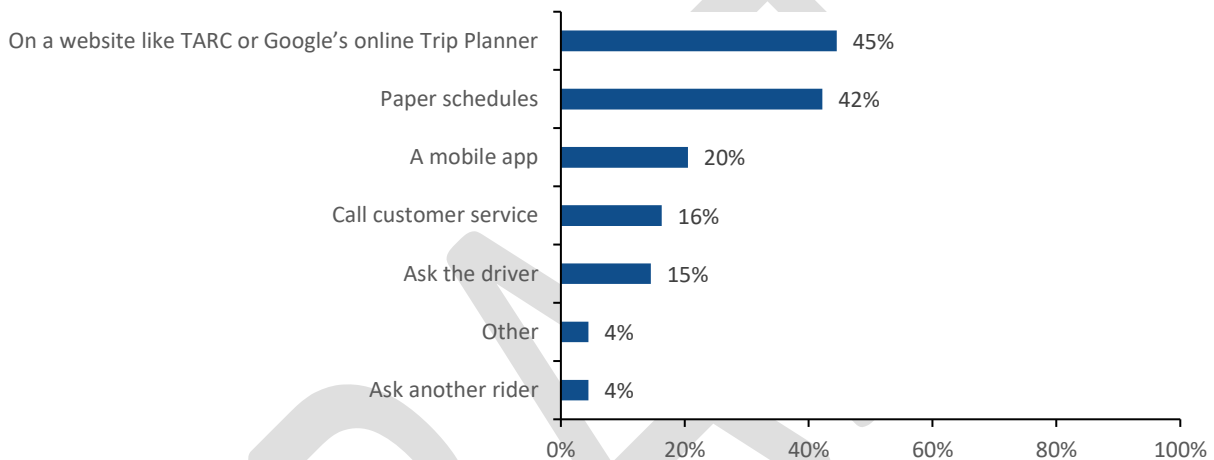
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Trip Scheduling and Payment

Respondents are fairly evenly split between those that rely on paper schedules (45%) and those who plan their trip online using a Trip Planner (42%). A third of respondents ask someone else for scheduling information – either another passenger, the driver, or customer service. Although 79% of riders have a smartphone, only 20% say they access TARC schedules using a mobile app. Again, since this question was a “check all” question, the totals equal more than 100%.

Websites and paper schedules are by far the most popular means through which riders get schedule information

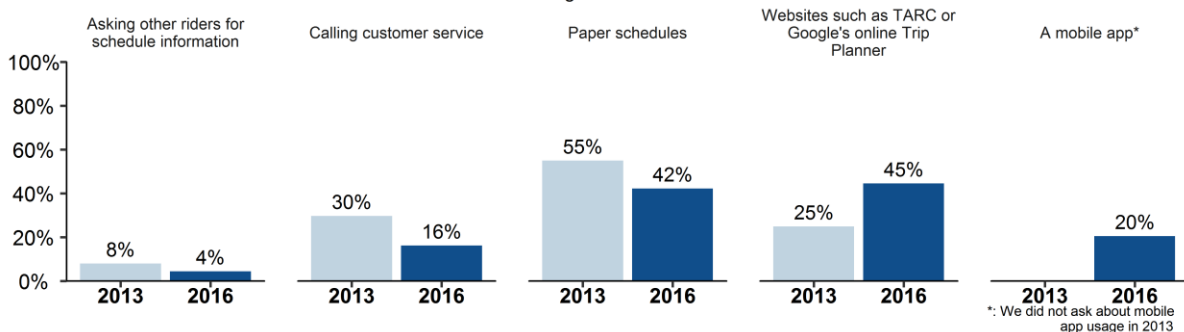
"How do you get TARC schedule information? (Check all that apply)"



Since 2013, there has been a large change in how riders obtain schedule information: usage of websites has nearly doubled, while many non-digital means (such as calling customer service) have become significantly less common. In total, 58% of riders in 2016 use a website or mobile app to obtain schedule information.

Many riders now get their schedule information through digital means rather than through other sources

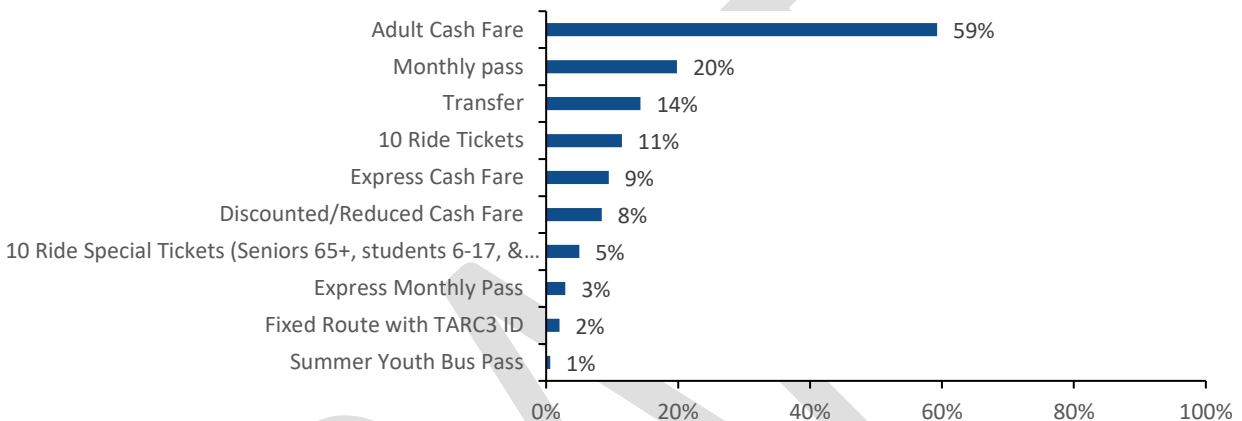
Percent of riders who get TARC schedule information via:



In most cases, riders pay for their fare using cash (59%). A fifth of respondents use a monthly pass (20%), while 12% of respondents use one of the express bus options (monthly pass: 3%, cash: 9%), and 16% use tickets. Respondents had the option of choosing more than one method of payment, so totals do not equal 100%. Note that since we collected data in October 2016, few of the respondents listed the Summer Youth Pass as an option for payment. Only 12% of respondents say their employee pays for their bus fare.

Cash fare is by far the most common means of payment

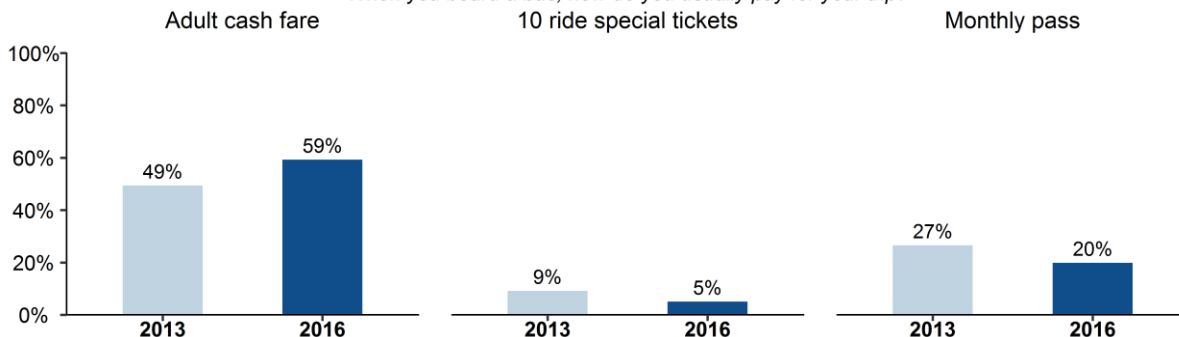
"When you board a bus, how do you usually pay for your trip?"



The means through which riders pay their fare have remained largely consistent since 2013, apart from three statistically significant differences displayed in the chart below.

Adult cash fare has become a more popular payment method, while monthly passes and 10 ride special tickets have declined in usage

"When you board a bus, how do you usually pay for your trip?"

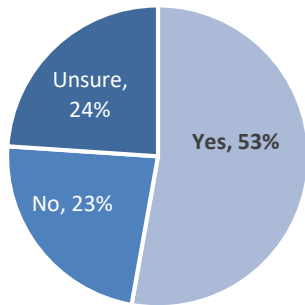


Payment Alternatives

Respondents were informed of two possible payment alternatives and asked their opinions of either a Smart Card or Mobile app payment option. About half of the respondents said they would use one of these methods of payment if they were available. Riders preferred the smart card over the mobile app (Card: 45%, App: 34%, don't like either option: 20%).

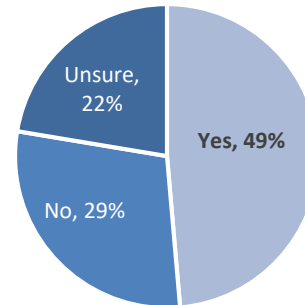
About half of the ridership would use a Smart Card; many are uncertain

"..would you use a Smart Card for your bus trips instead of cash or tickets?"



Almost half of riders would use a mobile app; many are uncertain

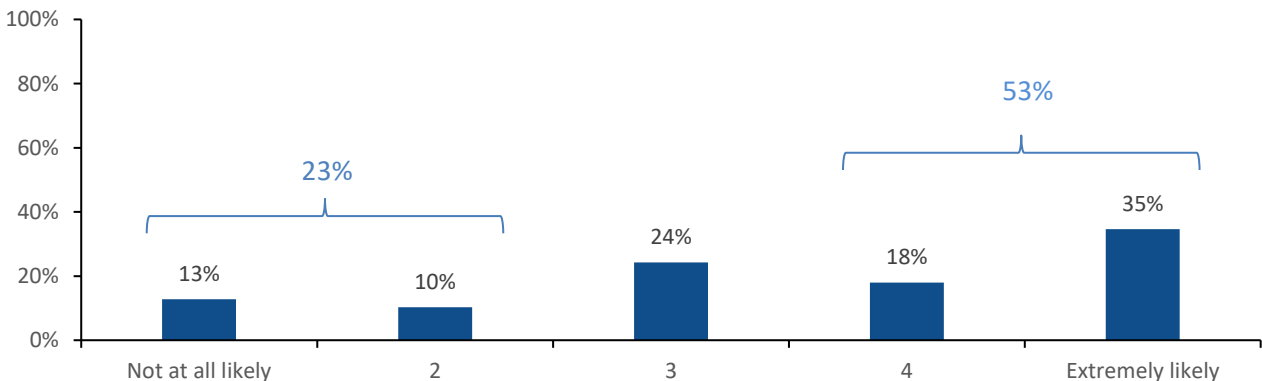
"...would you use [a mobile fare app] to pay your fare instead of paying with cash or tickets?"



While 53% of respondents say they would be likely to use one of these options if it saved them money, the support was not overwhelming, and nearly a quarter of respondents (23%) say they were unlikely to use an alternative form of payment, even if it were cheaper.

A majority of riders would use a smart card or a mobile app if it saved them money, although a quarter of riders are unlikely to do so

"If you could save money on your trips by paying with a smart card or a mobile app, how likely would you be to use one of

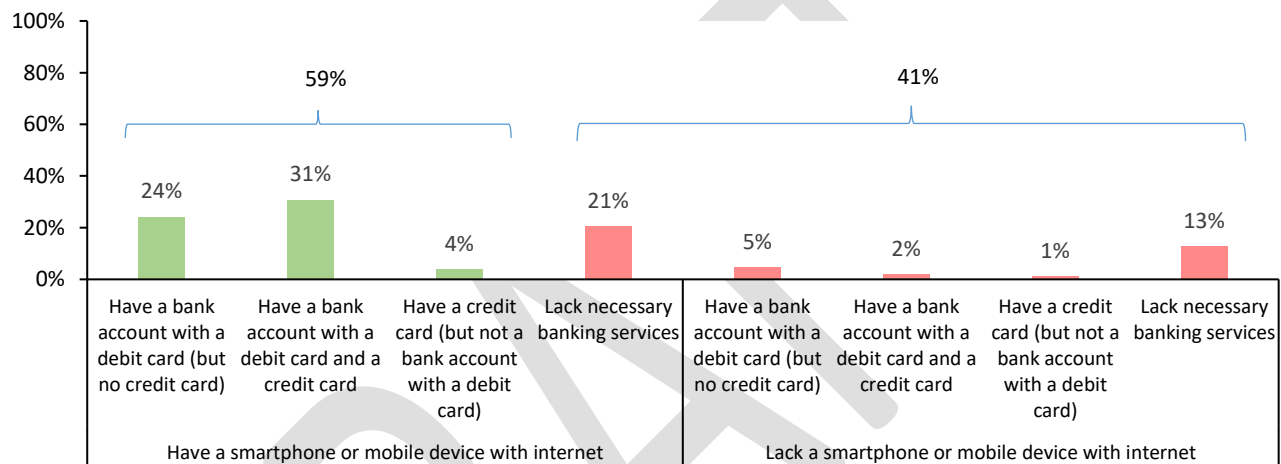


In order to better understand why some riders would not use a smart card or mobile app, we asked respondents to tell us their objections to using either the smart card or the mobile app. In response, riders offered a variety of explanations. Of the 190 reasons listed for the Smart Card option, 23% said it seemed like too much effort, while 20% said they did not currently pay for their fare and thus saw no need for the additional payment option. More respondents (n=204) commented on the mobile app, and 24% cited security concerns with either others accessing their phone or in linking the phone to a credit card account. Nearly as many respondents (22%) said that they didn't have consistent cell phone access or that they were unable or unwilling to download apps to their phone. The top two responses for each payment option are indicated in red.

	Smart Card (n=190)		Mobile App (n=204)		TOTAL (n=394)	
	Count	Percent	Count	Percent	Count	Percent
Security concerns	18	9%	49	24%	67	17%
Too much effort	44	23%	19	9%	63	16%
Don't pay currently	38	20%	16	8%	54	14%
Prefer cash/pass/tickets/other	29	15%	17	8%	46	12%
Has phone but might not be able to use it because of its reliability or availability, or cannot use app(s)	0	0%	17	8%	17	8%
Just don't like it	17	9%	9	4%	26	7%
Don't have a smartphone	0	0%	24	12%	24	6%
Depends on cost	12	6%	3	1%	15	4%
Don't have credit card/account	0	0%	15	7%	15	4%
Don't see the need	1	1%	6	3%	7	2%
Ride infrequently	2	1%	0	0%	2	1%
Off topic response	29	15%	26	13%	55	14%

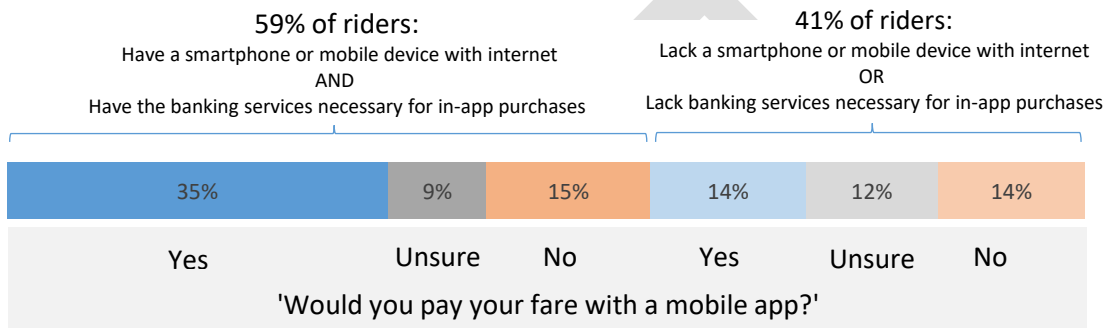
Since the usage of a mobile app fare payment system would likely require a smartphone (or other mobile device) as well as banking services required to make in-app payments, we have segmented the ridership according to whether they possess these requirements. Assuming that the banking services required to make in-app payments could be either a credit card or just a bank account with a debit card, we find that 59% of riders possess these requirements. Among those riders who lack these requirements, the most common obstacle is the lack of necessary banking services (rather than the lack of a device).

While most riders have the necessary banking services and a smartphone or mobile device with internet, the lack of a smartphone and (especially) the lack of necessary banking services are obstacles to many



When we consider the share of riders who not only satisfy the aforementioned requirements but also say they would pay their fare with a mobile app, we find that such riders account for 35% of the ridership. This can be seen in the chart below, which segments the sample of riders according to whether they possess the above-mentioned requirements and according to their responses to the question 'If a mobile fare app was available, would you use it to pay your fare instead of paying with cash or tickets?'

The trifecta of riders who have a smartphone or other device with internet, banking services required for in-app purchases, and a definite interest in paying with a mobile app account for 35% of the ridership



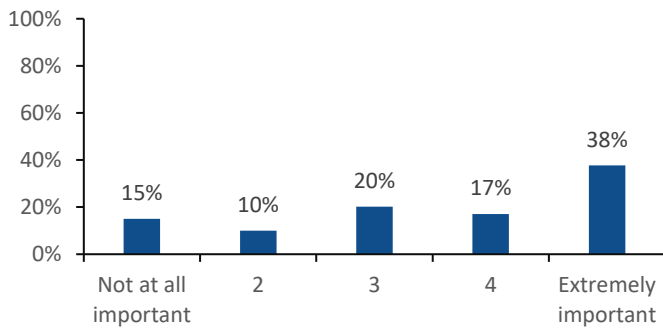
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Views on Wi-Fi and Text Message Notifications

TARC riders think it is important for TARC to offer Wi-Fi on its buses and appreciate text notifications when buses are delayed. But between a fifth and a quarter of respondents disagree that either option is important at all.

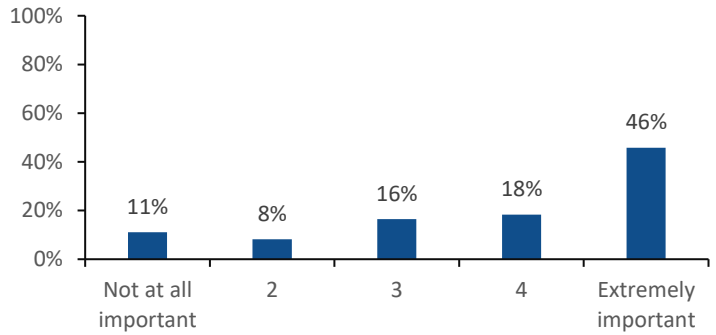
Many riders consider it important that TARC offer Wi-Fi on its buses

"How important is it to you that TARC offer Wi-Fi on its buses?"



Many riders consider it important to receive text messages about delays

"How important is it to you that you receive text messages from TARC telling you that your bus is delayed?"



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Satisfaction with TARC services

TARC riders were asked to rate their satisfaction with a number of TARC services. High satisfaction for each of these items averaged 49%, meaning that about half of the riders were satisfied with that particular item. Riders were most satisfied with the route coverage (“Routes going where you want to go” 65%) and least satisfied with crowding on the buses (37%), lighting at bus stops (37%), and the number of stops with benches or shelters (35%). Overall, 68% of respondents are highly satisfied with TARC’s ability to meet their transportation needs.

The first set of satisfaction questions deal with the functionality of TARC – bus routes, frequency of stops, cost, etc.

How satisfied are you with:	High Satisfaction	Completely satisfied	4	3	2	Not at all satisfied
Buses running on time	47%	21%	26%	33%	14%	6%
Routes going where you want to go	65%	36%	29%	23%	9%	3%
Number of times the bus stops	54%	24%	30%	32%	10%	4%
How often the bus runs	50%	23%	27%	28%	15%	7%
The cost of TARC fare	50%	26%	24%	28%	12%	10%
The time the bus starts and stops running in a day	48%	24%	24%	29%	13%	10%
How safe you feel on the bus and at your stops	59%	29%	30%	28%	10%	3%

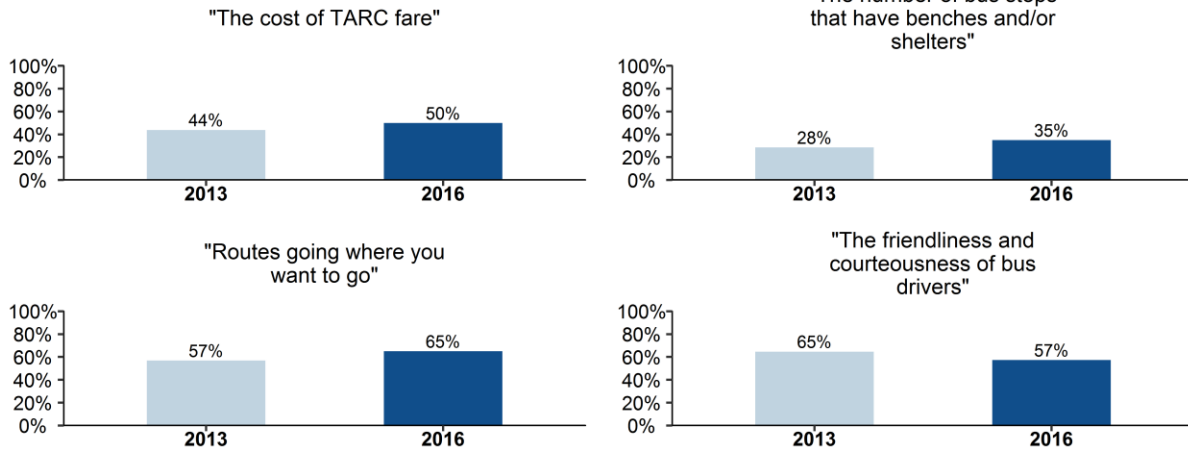
The following satisfaction questions rate TARC’s amenities and experience, such as the bus stops, customer service, and cleanliness of buses.

How satisfied are you with:	High Satisfaction	Completely satisfied	4	3	2	Not at all satisfied
The number of bus stops that have benches and/or shelters	35%	15%	19%	28%	20%	17%
Lighting at bus stops	37%	17%	20%	29%	20%	14%
Sidewalk access to bus stops	50%	24%	26%	31%	12%	7%
The cleanliness of TARC buses	46%	20%	27%	31%	15%	8%
The condition of TARC buses	50%	21%	30%	31%	12%	6%
The level of crowding on the bus	37%	13%	23%	31%	19%	14%
The friendliness and courteousness of bus drivers	57%	30%	28%	25%	11%	7%
Your ability to quickly get a response to your travel questions when you call the TARC customer service phone line	48%	24%	24%	31%	14%	8%

In comparison to 2013, riders' satisfaction has increased by a statistically significant degree in three areas (cost, availability of desired routes, and number of stops with benches and/or shelters) and declined in only one area (friendliness/courteousness of bus drivers).

Satisfaction with TARC service has increased in three areas, declined in one

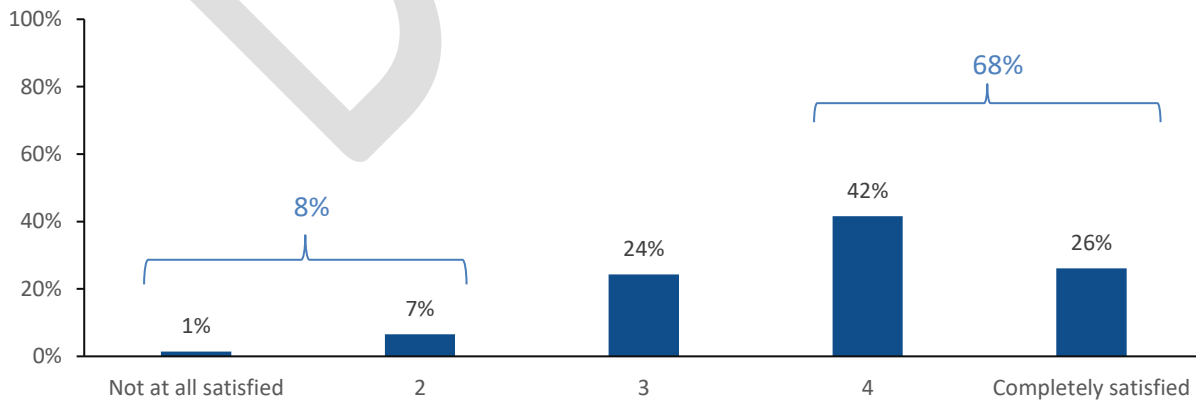
High satisfaction ('4' or '5', on a five-point scale)



While over half of the respondents said they were highly satisfied with TARC's ability to meet their transportation needs, this satisfaction was relatively lukewarm, as respondents were more likely to choose a response of "4" rather than "Completely satisfied." Nearly one in ten respondents (8%) were not satisfied, although only 1% said they were not satisfied at all.

Most riders are satisfied with TARC overall

"All things considered, how satisfied are you with TARC's overall ability to meet your transportation needs?"



Rankings of Service Elements' Importance to Overall Satisfaction

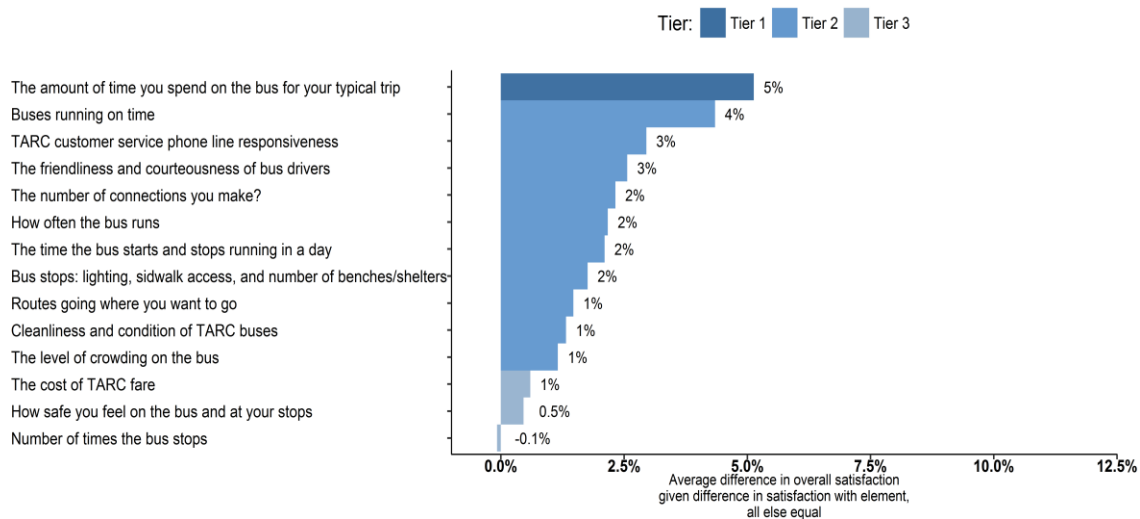
In order to develop an understanding of which TARC services matter most to riders, we developed statistical models of the relationship between riders' overall satisfaction with TARC and their satisfaction with specific aspects of their experiences with TARC, such as how often the bus runs or how much the fare costs. In doing so, we have identified groups of specific service elements where (everything else being equal) increases in satisfaction are associated with relatively large increases in riders' overall satisfaction with TARC; these areas seem to be the most likely to produce large changes in overall satisfaction were riders' satisfaction in these areas improved. Specifically, for both high-volume and normal-volume routes, we have grouped service elements into three tiers, with elements in Tier 1 representing those service elements where increased satisfaction with them seems likeliest to produce the largest increases in overall satisfaction.

Findings for Riders of Normal Volume Routes

The chart below displays the ranking of specific service elements for riders of normal volume routes in terms of how large a difference in overall satisfaction we would expect to see between two riders who are similar to one another and differ only in terms of their satisfaction with a given service element.

For the typical rider of a normal-volume route, satisfaction with trip duration is key

Estimated (average) contributions to overall satisfaction for specific service elements



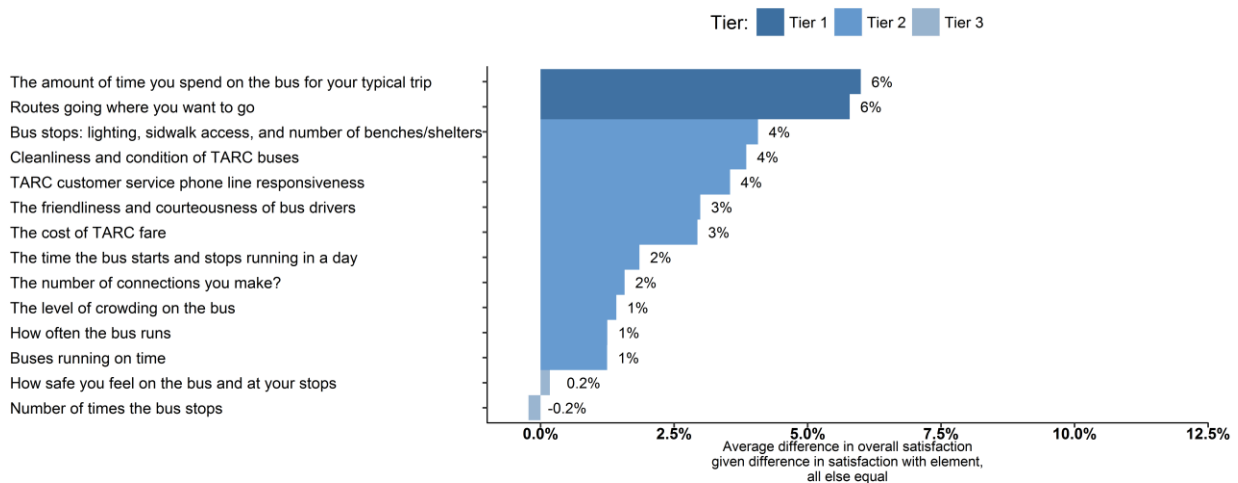
We can see that an improvement in riders' satisfaction with trip duration would seem to make the largest difference in overall satisfaction, as when we compare two similar riders who differ only in that the first rider is slightly more satisfied with their trip duration than the second rider, we find the first rider to be more likely to be highly satisfied overall by five percent. Similarly, we can see that an improvement in riders' satisfaction with the number of times the bus stops is likely to make a smaller difference in overall satisfaction, since (on average) when we compare two similar riders who differ only in terms of their satisfaction with the number of times the bus stops, there is essentially zero difference in their likelihood of being highly satisfied overall.

Findings for Riders of High Volume Routes

Similarly, results for riders of high-volume routes are shown below. For these riders, we can clearly see that for riders of high-volume routes, increases in satisfaction with trip duration and route availability are likely to produce larger increases in overall satisfaction than increases in satisfaction with, say, the cost of fare or the number of times the bus stops.

For the typical rider of a high-volume route, satisfaction with trip duration and route availability is key to overall satisfaction

Estimated (average) contributions to overall satisfaction for specific service elements



How we developed the models

While the ideal way to understand how to improve riders' satisfaction would be to actually try out many different experimental improvements and compare the results, such a method involves costly trial-and-error and is beyond the scope of this study. As an alternative approach, we answer this question by leveraging the variation in surveyed riders' experiences using the statistical modelling process described (in simplified form) below.

We start by dividing riders into groups of riders which are similar in terms of their usage of TARC (how often they ride, which services they use), their economic circumstances (measured by household income), and their satisfaction with all of the specific service elements measured in the survey. Then we divide each group into two groups: those who are more satisfied with how often the bus runs, for example, and those who are less satisfied with how often the bus runs, and we compare their levels of overall satisfaction. If we find that these two groups differ greatly in their overall satisfaction, and this pattern holds across many groups of otherwise similar riders, then our model indicates that satisfaction with how often the bus runs (in this example) likely matters a great deal to riders' overall satisfaction. Similarly, if two groups of riders which differ only in terms of their satisfaction with how often the bus

runs do not tend to differ at all in their overall satisfaction, then our model indicates that satisfaction in this area is relatively unimportant to riders' overall satisfaction.

In order to systematically conduct this process, we employed a widely-used modelling technique known as ordinal logistic regression, which essentially functions by simultaneously conducting the process outlined above for each specific service element (cost of fare, frequency of service, etc.) and combining the estimated effects of the different specific service elements together into a single model that accurately reflects the pattern of survey responses in the data. We repeated this process twice, producing one model for riders of high-volume routes and another model for riders of normal-volume routes.

Both of the models accurately depict the pattern of responses in the data and function well from a predictive point of view. In predicting whether a given rider is highly satisfied, the model for riders of the high volume routes has an accuracy rate of 86% while the model for the normal volume route sample has an accuracy rate of 81%. In predicting the *exact* response of riders to the survey's question on overall satisfaction (which uses a five-point scale) the models have a 68% accuracy rate for the high volume route sample and a 65% accuracy rate for the high volume route sample. From a predictive standpoint, the models are large improvements over the base predictive model (performing 49% and 76% better for the normal and high volume route samples, respectively).⁶ While the models were not designed to optimize predictive criteria and were instead designed for explanatory/descriptive purposes, they function well from a predictive standpoint.

In interpreting the above analysis, it is important to note that our models are descriptive of TARC's riders at a particular time in particular circumstances, and the findings based upon them cannot be used to extrapolate to substantially different circumstances. For instance, most of the riders surveyed in this study paid for their bus fare in one way or another and if, as a hypothetical example, fares were to become free, we would expect our model to no longer be a good description of TARC riders and what influences their overall satisfaction with TARC.

⁶ The base predictive model (known in statistics jargon as 'the intercept-only model') would simply find the most common response to a question (e.g. 'Completely satisfied') and predict that every rider would make that response. While crude, this can be a surprisingly effective predictive model.

Profiles of Rider Sub-groups

In this next section of the report, we will profile specific subsets of the TARC ridership, specifically minority riders, low income riders, median income or higher riders, and riders of high volume routes. We are specifically looking for ways that these groups differ from the overall ridership, as well as the needs and perceptions of these segments. For a complete distribution of responses for each of these groups, please see the appendix.

Minority Riders

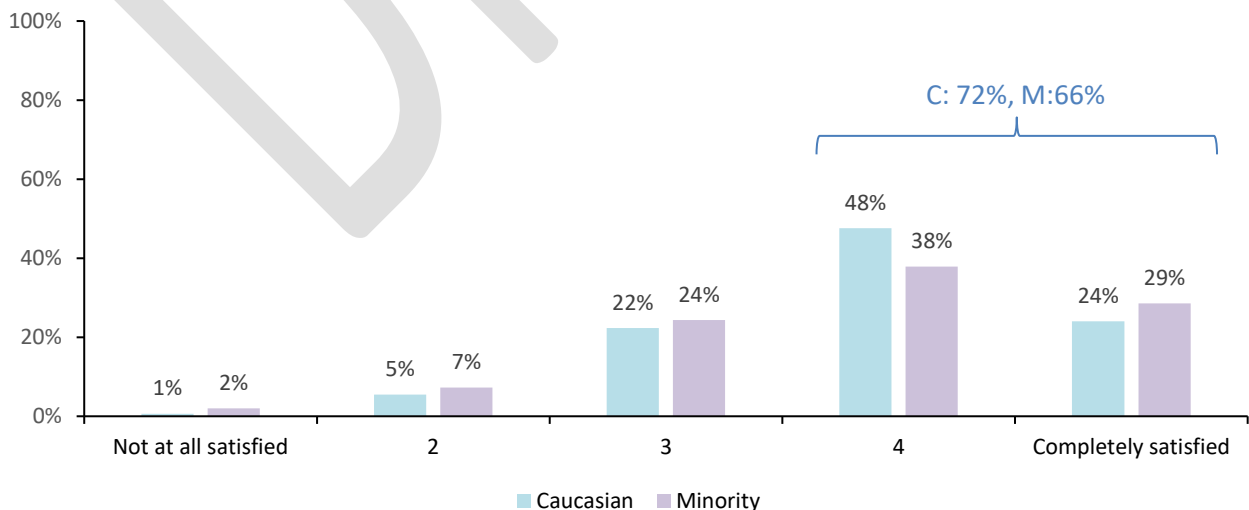
The typical minority rider is most likely to be a 37-year-old African American female, born in the United States, who does not speak another language at home. Her household income is less than \$20,000 and she is riding a local route to work. She is most likely to live in the 40211 or 40212 zip code, and spends nearly 45 minutes getting to the bus stop and riding one way. She usually rides daily, and when TARC is not available, she will either walk to her destination or get a ride from someone else. She does not own a car, and thinks it would be very difficult to find transportation without TARC.

Both the oldest and the youngest TARC riders in our sample are a member of a minority group.

When we compare Caucasian and minority riders, most of their responses are similar. Minority riders are less likely to be riding on an Express route (Caucasian: 26%, Minority: 12%). If TARC is not available, they are less likely to drive (C:38%, M:21%) because they are less likely to own a car (C:39%, M:19%). They are more likely to live within 5 minutes of the bus stop (C: 31%, M: 42%) and more likely to transfer to another bus (“Always” C: 19%, M: 28%). They are less satisfied than non-minority respondents on nearly every measure.

Minority riders are almost equally likely to be highly satisfied with TARC overall

"All things considered, how satisfied are you with TARC's overall ability to meet your transportation needs?"



Very Low Income Riders (Below the Poverty Threshold)

Because the rider below the poverty level is more likely to be a member of a minority group (75% are), their profile looks much like the previous one. These riders tend to be African-American females in their mid-30s, riding a local route to work. However, they have a greater likelihood than higher income riders to be traveling to a medical appointment, or for another reason not listed. They do not own a car and would find it very difficult to find alternate transportation, since they will walk or ride with someone else when TARC is not available.

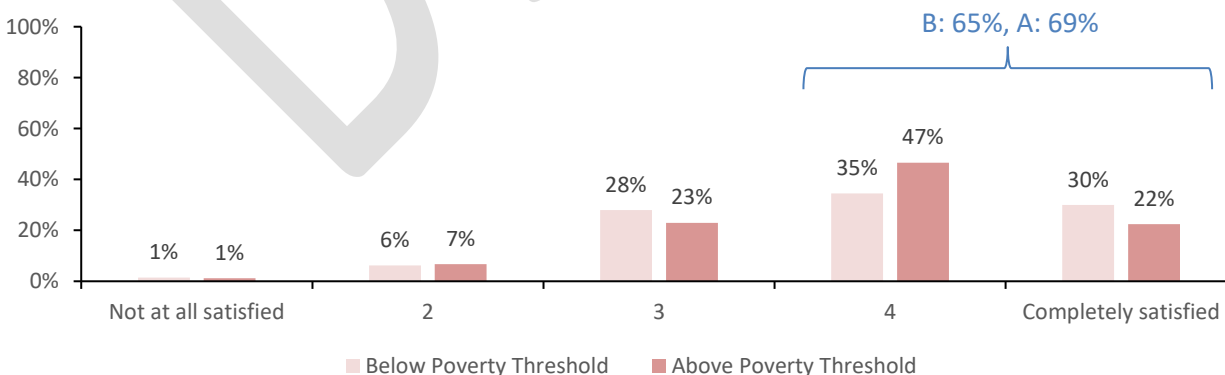
While this is the typical very low income rider, there are some demographic differences when they are compared to those riders who are above the poverty level. This group is more likely to contain riders who speak another language other than English at home (Below: 27%, Above: 20%) and more likely to live in a household with more than four members (B: 19%, A: 9%). Ages range from 14 to 74, and 13% of the riders are between the ages of 18 and 21.

When we compare the riders who are below the poverty threshold to the riders above the poverty threshold, we notice several differences. First, very low income riders are nearly five times less likely to be riding an Express bus than are higher income riders (B: 5%, A: 27%). They are more likely to be daily riders (B: 64%, A: 43%) and less likely to own a car (B: 11%, A: 38%). They are less likely to use an online trip planner (B: 39%, A: 52%), possibly because they are less likely to own a smartphone (B: 70%, A: 86%) or a computer with internet access (B: 60%, A: 83%).

Although their payment options are similar, very low income riders are less likely to have their fare paid by an employer (B: 6%, A: 16%), but they are also less likely to be employed at all ("Not employed" B: 19%, A: 8%). They are less satisfied than higher income riders on every measure except for satisfaction with TARC's customer service (B: 49%, A: 46%).

Riders below the poverty threshold are almost equally likely to be highly satisfied with TARC overall

"All things considered, how satisfied are you with TARC's overall ability to meet your transportation needs?"



High Income Riders (Median Income or Higher)

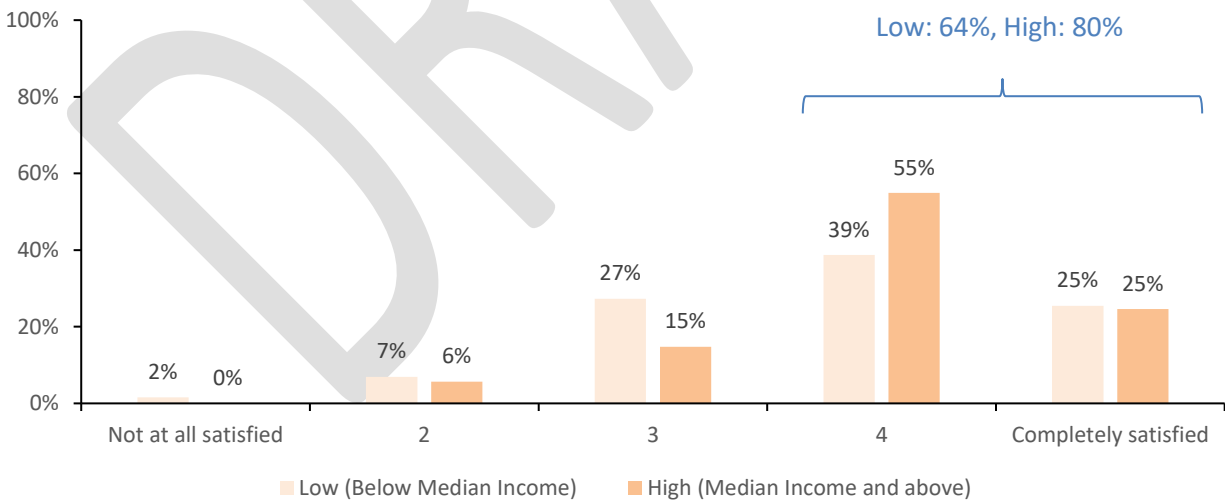
High Income riders are defined as riders with a household income above the regional median income. While many of those individuals would not consider themselves to be high income, compared to the majority of TARC riders, they represent a more affluent segment of riders and look different than the average TARC rider.

The typical high income rider is a 35 year old white male. While he is most likely riding on a local route, there is a greater probability that he is riding an express route (High Income: 26%, Low Income: 15%). Regardless of the type of route, he is less likely to change buses during his trip (“never” H:34%, L:12%). He likely rides at least weekly, but has other options since he does own a car, and will drive if TARC is not available. He spends about 39 minutes on a typical trip, from the time he leaves for the bus stop to the time he gets off the bus. The highest percentage of 18-21 year olds can be found in this group (16%), who are likely riding to school (H: 29%, L:15%).

High income riders are more likely to be riders of the express routes, but also the ZeroBus (H:13%, L: 7%). They find it easier to secure replacement transportation (“easy” H:37%, L:15%). High income riders are more likely to pay a discounted or reduced cash fare (H: 19%, L:6%), and their employer is also more likely to pay for the bus fare (H:28%, L:8%). They are more likely to consider using a smart card or mobile app for payment (“likely” to use H: 67%, L:51%) and prefer a mobile app (H: 40%, L:33%).

Riders with below-median incomes tend to be less satisfied with TARC overall

"All things considered, how satisfied are you with TARC's overall ability to meet your transportation needs?"



Riders of High Volume Routes

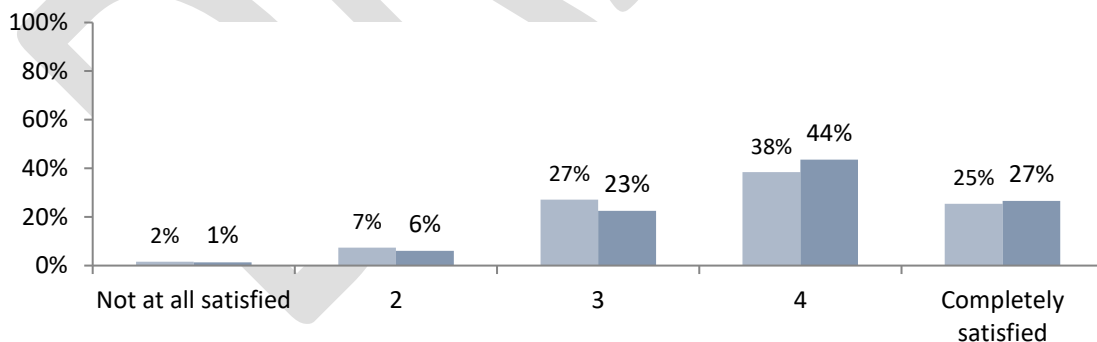
Because of the high volume of riders on routes 4, 18, and 23, we looked at these routes in comparison to the other routes. The typical rider of a high volume route is most likely to be an African American male with a household income of less than \$20,000. He is most likely to be riding a local route to work, and rides daily, spending about 29 minutes on the bus for a total trip time of 37 minutes. He does not own a car, and if TARC were not available, it would be difficult for him to find transportation as he generally walks when he is not riding the bus. He is most likely to live in one of the following zip codes: 40203, 40211, 40216, 40272. He has a bank account with a debit card, as well as a smartphone with internet access. He has access to a computer and uses Facebook and text messaging.

Similar percentages of riders on both high volume and lower volume routes are traveling to work (High Volume: 64%, All Others: 62%), but riders on the other routes are more likely to be traveling to school (HV: 11%, AO: 25%). Riders of all other routes are also more likely to be daily riders (HV: 58%, AO: 69%). Although only a third of riders on other routes own a car, they are nearly twice as likely to do so as High Volume riders (HV: 17% LV: 32%), and are twice as likely to drive when not riding TARC (HV: 18%, LV: 34%).

Riders on less traveled routes are more likely to use an online trip planner (HV: 39%, AO: 48%). They are somewhat more likely to have their fare paid by an employer (HV: 9%, AO: 14%) and more likely to say they would use an alternate method of payment if it saved them money (HV: 42%, AO: 60%). High Volume riders were less likely to have a smartphone with internet access (HV: 75%, AO: 82%). Other technology access was similar for both groups.

Riders of high volume routes are slightly less satisfied with TARC overall

"All things considered, how satisfied are you with TARC's overall ability to meet your transportation needs?"



Satisfaction levels for both groups were similar, although riders on lower volume routes were slightly more satisfied with all items except how often the bus runs (HV: 52%, AO: 49%), the number of bus stops with benches or shelters (HV: 36%, AO: 34%), and the lighting at bus stops (HV: 39%, AO: 36%). Riders on high volume routes were less satisfied with TARC's overall ability to meet their needs (HV: 64%, AO: 70%).

Appendix

In the following sections of this appendix, we present the full distribution of (closed-ended) survey responses from the sample overall as well as the survey responses for various sub-populations (such as lower-income and higher-income riders).

Survey Responses from the Entire Sample

The most frequent response for a given item is highlighted in blue font. Items where more than 10% of survey respondents declined to answer the item's question (perhaps because they had to exit the bus before finishing their survey) are indicated in red.

All Riders (n=1584)

Q1. Which TARC service(s) do you use? (Check all that apply.)	Count	Percent
Local Route	1410	91%
Express Route	286	18%
All-Electric ZeroBus	122	8%
TARC3	45	3%
Q2. What is the purpose of your TARC trip today?	Count	Percent
Work	973	63%
School	304	20%
Medical appointment	213	14%
Other (Specify)	246	16%
Q3. How often do you ride TARC?	Count	Percent
Every day	788	50%
Every weekday	226	14%
Every weekend	28	2%
Several times a week, but not every day	387	25%
Several times a month, but not every week	85	5%
A few times a month	39	2%
A few times a year	19	1%
Q4. When you're not riding TARC, what other means of transportation do you typically use? (Check all that apply.)	Count	Percent
I drive	428	28%
Walk	814	52%
Taxi	128	8%
Use a ride sharing service like Uber or Lyft	170	11%
Get a ride in someone else's car	660	42%
Bicycle	131	8%
Something else	21	1%
Q5. Do you own a car?	Count	Percent
Yes	407	27%
No	1127	73%

Q6. If TARC weren't available for you, how easy would it be for you to secure other means of transportation?	Count	Percent
Very difficult	568	36%
2	309	20%
3	365	23%
4	138	9%
Very easy	186	12%

Q7. How long does it take you to get to the TARC stop?	Count	Percent
0 - 5 min	582	37%
5 - 10 min	529	34%
10 - 15 min	257	16%
15 - 20 min	114	7%

Q8. How long is your typical bus trip from the time you get on the bus, to the time you get off at your final destination (one way)? [calculated from open-ended responses, n=1449]	Count	Percent
Mean (average): 32 minutes; median: 27.5 minutes		
Less than 15 minutes	291	20%
15-29 minutes	438	30%
30-44 minutes	328	23%
45-60 minutes	289	20%
More than 1 hour	104	7%

Q9. How satisfied are you with the amount of time you spend on the bus for your typical trip?	Count	Percent
Not at all satisfied	75	5%
2	230	15%
3	502	32%
4	369	24%
Completely satisfied	391	25%

Q10. How often do you change buses to get to your destination?	Count	Percent
Never	288	19%
Rarely	441	28%
Sometimes	448	29%
Always	378	24%

Q11. How satisfied are you with the number of connections you make?	Count	Percent
Not at all satisfied	68	4%
2	295	19%
3	412	27%
4	347	23%
Completely satisfied	420	27%

Q12. How do you get TARC schedule information? (Check all that apply.)	Count	Percent
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Paper schedules	653	42%
Ask the driver	225	15%
Ask another rider	69	4%
Call customer service	252	16%
On a website like TARC or Google's online Trip Planner	689	45%
A mobile app	317	20%
Other	69	4%

Q13. When you board a bus, how do you usually pay for your trip? (Check all that apply.)	Count	Percent
Adult Cash Fare	857	59%
Fixed Route with TARC3 ID	29	2%
Express Monthly Pass	42	3%
Express Cash Fare	137	9%
Monthly pass	287	20%
Summer Youth Bus Pass	9	1%
Transfer	207	14%
10 Ride Tickets	166	11%
10 Ride Special Tickets (Seniors 65+, students 6-17, & citizens with disabilities)	73	5%
Discounted/Reduced Cash Fare	122	8%
Q14. Does your employer help pay for your bus fare?	Count	Percent
Yes	176	12%
No	1108	74%
Not employed	209	14%
Q15. If this [Smart Card] was available on TARC, would you use a smart card for your bus trips instead of cash or tickets?	Count	Percent
Yes	772	53%
No	340	23%
Unsure	350	24%
Q16. If a mobile app was available, would you use it to pay your fare instead of paying with cash or tickets?	Count	Percent
Yes	704	49%
No	420	29%
Unsure	324	22%
Q17. If you could save money on your trips by paying with a smart card or mobile app, how likely would you be to use one of these options?	Count	Percent
Not at all likely	189	13%
2	152	10%

3	358	24%
4	266	18%
Extremely likely	512	35%
Q18. If you had to choose between a smart card or a mobile app, which would you prefer?	Count	Percent
Smart card	640	45%
Mobile app	482	34%
I don't like either option	287	20%
[Non-response]	175	11%

Q19. How important is it to you that TARC offer Wi-Fi on its buses?	Count	Percent
Not at all important	225	15%
2	150	10%
3	301	20%
4	256	17%
Extremely important	563	38%
Q20. How important is it to you that you receive text messages from TARC telling you that your bus is delayed?	Count	Percent
Not at all important	166	11%
2	122	8%
3	246	16%
4	274	18%
Extremely important	684	46%

How satisfied are you with . . .	Not at all satisfied	2	3	4	Completely satisfied
Buses running on time	6%	14%	33%	26%	21%
Routes going where you want to go	3%	9%	23%	29%	36%
Number of times the bus stops	4%	10%	32%	30%	24%
How often the bus runs	7%	15%	28%	27%	23%
The cost of TARC fare	10%	12%	28%	24%	26%
The time the bus starts and stops running in a day	10%	13%	29%	24%	24%
How safe you feel on the bus and at your stops	3%	10%	28%	30%	29%

How satisfied are you with . . .	Not at all satisfied	2	3	4	Completely satisfied
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The number of bus stops that have benches and/or shelters	17%	20%	28%	19%	15%
Lighting at bus stops	14%	20%	29%	20%	17%
Sidewalk access to bus stops	7%	12%	31%	26%	24%
The cleanliness of TARC buses	8%	15%	31%	27%	20%
The condition of TARC buses	6%	12%	31%	30%	21%
The level of crowding on the bus	14%	19%	31%	23%	13%
The friendliness and courteousness of bus drivers	7%	11%	25%	28%	30%
Your ability to quickly get a response to your travel questions when you call the TARC customer service phone line	8%	14%	31%	24%	24%

Q23. All things considered, how satisfied are you with TARC's overall ability to meet your transportation needs?		
	Count	Percent
Not at all satisfied	20	1%
2	92	7%
3	341	24%
4	582	42%
Completely satisfied	366	26%
[Non-response]	183	12%
Q24. What is your zip code? [calculated from open-ended responses n=1341]		
	Count	Percent
Jefferson County	1242	93%
Clark County	29	2%
Floyd County	27	2%
Bullitt County	12	1%
Oldham County	13	1%
Outside of 5 county region	18	1%
Q25. What is your age? [calculated from open-ended responses n=1157]		
	Count	Percent
Mean: 37.20 years, median: 36 years, range: 13-84 years		
Under 18	39	3%
18-25	277	24%
26-31	160	14%
32-40	243	21%
41-50	188	16%
51-65	217	19%
66 and older	33	3%
Q26. Which race/ethnicity are you most closely associated with?		
	Count	Percent
Caucasian	517	38%

African-American	715	53%
Hispanic/Latino	64	5%
Asian	42	3%
Other (Specify)	56	4%
Q27. Gender?	Count	Percent
Male	682	49%
Female	713	51%
[Non-response]	189	12%
Q28. Where were you born?	Count	Percent
In the United States	1240	93%
Outside the United States	93	7%
[Non-response]	251	16%

Q29. Do you speak a language other than English at home?	Count	Percent
Yes	306	23%
No	1005	77%
[Non-response]	273	17%
Q29a. (If yes) what is this language?	Count	Percent
Spanish	10	19%
Hindi	5	10%
Arabic	4	8%
French	3	6%
Sign Language	3	6%
German	2	4%
Japanese	2	4%
Tamil	2	4%
Amharic	1	2%
Bengali	1	2%
Bosnian	1	2%
Cantonese	1	2%
Chinese	1	2%
Creole	1	2%
Filipino	1	2%
Hiligaynon	1	2%
Latin	1	2%
Malayalam	1	2%
Marathi	1	2%
Nepali	1	2%

Nigerian (Unspecified)	1	2%
Polish	1	2%
Russian	1	2%
Somali	1	2%
Swedish	1	2%
Tagalog	1	2%
Telugu	1	2%
Ukrainian	1	2%
Vietnamese	1	2%
Q29b. (If yes) How well do you speak English?	Count	Percent
Very well	199	79%
Well	36	14%
Not well	15	6%
Not well at all	3	1%

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Q30. How many people live in your home including you?	Count	Percent
Just me	284	22%
2	384	29%
3	273	21%
4	191	15%
5	100	8%
6	32	2%
7	19	1%
More than 8	22	2%
[Non-response]	279	18%
Q31. What is the combined annual income of everyone in your home?	Count	Percent
Less than \$12,000	321	26%
\$12,000 to less than \$16,000	156	12%
\$16,000 to less than \$20,000	115	9%
\$20,000 to less than \$24,000	135	11%
\$24,000 to less than \$28,000	97	8%
\$28,000 to less than \$33,000	82	7%
\$33,000 to less than \$37,000	68	5%
\$37,000 to less than \$41,000	64	5%
\$41,000 to less than \$50,000	55	4%
\$50,000 to less than \$75,000	76	6%
More than \$75,000	80	6%
[Non-response]	335	21%

Q32. Do you personally . .	Yes	No	[Non-Response]
Have a bank account?	66%	34%	20%
Have a debit card?	76%	24%	21%
Have a credit card?	38%	62%	23%
Have a smartphone or mobile device (iPad, Tablet, etc.) with internet access?	79%	21%	21%

Q33. Do you personally . .	No	Yes, don't use regularly	Yes, use regularly	[Non-Response]
Have access to a desktop or laptop computer with internet access?	27%	31%	41%	19%
Send and receive text messages?	13%	20%	67%	20%
Have a Facebook account?	24%	22%	54%	20%
Have a Twitter account?	64%	17%	19%	21%

DRAFT

Survey Responses from Varying Sub-populations

Minority Riders (Caucasian = 489, Minority = 859)

Q1. Which TARC service(s) do you use? (Check all that apply.)	Caucasian	Minority
Local Route	89%	93%
Express Route	26%	12%
All-Electric ZeroBus	7%	8%
TARC3	4%	2%
Q2. What is the purpose of your TARC trip today?	Caucasian	Minority
Work	59%	66%
School	21%	19%
Medical appointment	12%	14%
Other (Specify)	17%	15%
Q3. How often do you ride TARC?	Caucasian	Minority
Every day	38%	59%
Every weekday	21%	11%
Every weekend	0%	2%
Several times a week, but not every day	30%	20%
Several times a month, but not every week	7%	5%
A few times a month	2%	2%
A few times a year	2%	1%
Q4. When you're not riding TARC, what other means of transportation do you typically use? (Check all that apply.)	Caucasian	Minority
I drive	38%	21%
Walk	47%	56%
Taxi	5%	10%
Use a ride sharing service like Uber or Lyft	17%	7%
Get a ride in someone else's car	39%	46%
Bicycle	11%	7%
Something else	1%	1%
Q5. Do you own a car?	Caucasian	Minority
Yes	39%	19%
No	61%	81%
Q6. If TARC weren't available for you, how easy would it be for you to secure other means of transportation?	Caucasian	Minority
Very difficult	31%	40%
2	21%	19%
3	23%	23%
4	10%	8%
Very easy	16%	9%

Q7. How long does it take you to get to the TARC stop?	Caucasian	Minority
0 - 5 min	31%	42%
5 - 10 min	38%	31%
10 - 15 min	16%	15%
15 - 20 min	8%	7%
More than 20 minutes	7%	4%
Q8. How long is your typical bus trip from the time you get on the bus, to the time you get off at your final destination (one way)? [calculated from open-ended responses, n=1449]	Caucasian	Minority
Mean (average): 43.1 minutes; median: 37.5 minutes		
Q9. How satisfied are you with the amount of time you spend on the bus for your typical trip?	Caucasian	Minority
Not at all satisfied	2%	6%
2	12%	15%
3	33%	31%
4	28%	23%
Completely satisfied	24%	25%
Q10. How often do you change buses to get to your destination?	Caucasian	Minority
Never	27%	14%
Rarely	30%	28%
Sometimes	24%	30%
Always	19%	28%
Q11. How satisfied are you with the number of connections you make?	Caucasian	Minority
Not at all satisfied	2%	6%
2	17%	19%
3	24%	29%
4	24%	21%
Completely satisfied	33%	25%
Q12. How do you get TARC schedule information? (Check all that apply.)	Caucasian	Minority
Paper schedules	44%	40%
Ask the driver	14%	14%
Ask another rider	5%	4%
Call customer service	12%	18%
On a website like TARC or Google's online Trip Planner	48%	43%
A mobile app	18%	22%
Other	7%	3%

Q13. When you board a bus, how do you usually pay for your trip? (Check all that apply.)	Caucasian	Minority
Adult Cash Fare	56%	61%
Fixed Route with TARC3 ID	2%	2%
Express Monthly Pass	5%	2%
Express Cash Fare	14%	7%
Monthly pass	19%	20%
Summer Youth Bus Pass	0%	1%
Transfer	8%	18%
10 Ride Tickets	10%	12%
10 Ride Special Tickets (Seniors 65+, students 6-17, & citizens with disabilities)	5%	5%
Discounted/Reduced Cash Fare	11%	6%
Q14. Does your employer help pay for your bus fare?	Caucasian	Minority
Yes	14%	11%
No	71%	75%
Not employed	15%	14%
Q15. If this [Smart Card] was available on TARC, would you use a smart card for your bus trips instead of cash or tickets?	Caucasian	Minority
Yes	56%	52%
No	23%	22%
Unsure	21%	26%
Q16. If a mobile app was available, would you use it to pay your fare instead of paying with cash or tickets?	Caucasian	Minority
Yes	49%	49%
No	32%	27%
Unsure	20%	24%
Q17. If you could save money on your trips by paying with a smart card or mobile app, how likely would you be to use one of these options?	Caucasian	Minority
Not at all likely	11%	12%
2	10%	10%
3	22%	25%
4	22%	17%
Extremely likely	35%	36%
Q18. If you had to choose between a smart card or a mobile app, which would you prefer?	Caucasian	Minority
Smart card	47%	46%
Mobile app	37%	32%
I don't like either option	16%	22%

Q19. How important is it to you that TARC offer Wi-Fi on its buses?	Caucasian	Minority
Not at all important	20%	12%
2	12%	8%
3	21%	20%
4	20%	16%
Extremely important	28%	45%
Q20. How important is it to you that you receive text messages from TARC telling you that your bus is delayed?	Caucasian	Minority
Not at all important	13%	9%
2	8%	8%
3	17%	16%
4	23%	15%
Extremely important	40%	52%

How satisfied are you with:	High Satisfaction		Low Satisfaction	
	Caucasian	Minority	Caucasian	Minority
Buses running on time	51%	44%	15%	24%
Routes going where you want to go	70%	64%	9%	13%
Number of times the bus stops	61%	51%	11%	16%
How often the bus runs	53%	48%	20%	23%
The cost of TARC fare	53%	47%	16%	27%
The time the bus starts and stops running in a day	53%	46%	18%	25%
How safe you feel on the bus and at your stops	64%	55%	9%	16%

How satisfied are you with:	High Satisfaction		Low Satisfaction	
	Caucasian	Minority	Caucasian	Minority
The number of bus stops that have benches and/or shelters	40%	32%	30%	42%
Lighting at bus stops	41%	34%	25%	40%
Sidewalk access to bus stops	55%	47%	12%	23%
The cleanliness of TARC buses	54%	41%	15%	29%
The condition of TARC buses	57%	46%	13%	23%
The level of crowding on the bus	42%	33%	26%	37%
The friendliness and courteousness of bus drivers	67%	53%	11%	21%
Your ability to quickly get a response to your travel questions when you call the TARC customer service phone line	48%	49%	22%	21%

Q23. All things considered, how satisfied are you with TARC's overall ability to meet your transportation needs?	Caucasian	Minority
Not at all satisfied	1%	2%
2	5%	7%
3	22%	24%
4	48%	38%
Completely satisfied	24%	29%
Q24. What is your zip code? [top minority responses n=818]	Caucasian	Minority
40211	140	17%
40203	92	11%
40212	85	10%
Q25. What is your age? [minority responses n=699]	Caucasian	Minority
Mean: 37 years, median: 35 years, range: 13-84 years		
Q26. Which race/ethnicity are you most closely associated with?	Caucasian	Minority
Caucasian	100%	3%
African-American	0%	83%
Hispanic/Latino	0%	7%
Asian	0%	5%
Other (Specify)	0%	7%
Q27. Gender?	Caucasian	Minority
Male	51%	48%
Female	49%	52%
[Non-response]	14%	11%
Q28. Where were you born?	Caucasian	Minority
In the United States	98%	91%
Outside the United States	2%	9%
Q29. Do you speak a language other than English at home?	Caucasian	Minority
Yes	10%	31%
No	90%	69%
Q29a. (If yes) what is this language? [not tabulated]	Caucasian	Minority
Q29b. (If yes) How well do you speak English?	Caucasian	Minority
Very well	87%	78%
Well	11%	15%
Not well	3%	6%
Not well at all	0%	2%

Q30. How many people live in your home including you?	Caucasian	Minority
Just me	20%	22%
2	39%	23%
3	17%	22%
4	13%	16%
5	6%	9%
6	3%	3%
7	1%	2%
More than 8	0%	2%
Q31. What is the combined annual income of everyone in your home?	Caucasian	Minority
Less than \$12,000	18%	30%
\$12,000 to less than \$16,000	10%	15%
\$16,000 to less than \$20,000	9%	10%
\$20,000 to less than \$24,000	10%	11%
\$24,000 to less than \$28,000	9%	7%
\$28,000 to less than \$33,000	9%	5%
\$33,000 to less than \$37,000	4%	7%
\$37,000 to less than \$41,000	7%	3%
\$41,000 to less than \$50,000	4%	5%
\$50,000 to less than \$75,000	9%	5%
More than \$75,000	12%	3%
[Non-response]	10%	15%

Do you:	Yes		No	
	Caucasian	Minority	Caucasian	Minority
Have a bank account?	75%	60%	25%	40%
Have a debit card?	80%	73%	20%	27%
Have a credit card?	46%	32%	54%	68%
Have a smartphone or mobile device (iPad, tablet, etc) with internet access?	82%	78%	18%	22%

	No		Yes, don't use regularly		Yes, use regularly	
	Caucasian	Minority	Caucasian	Minority	Caucasian	Minority
Have access to a desktop or laptop computer with internet access?	20%	31%	29%	33%	51%	36%
Send and receive text messages?	10%	14%	13%	24%	77%	62%
Have a Facebook account?	20%	26%	22%	22%	59%	52%
Have a Twitter account?	66%	62%	16%	18%	18%	20%

Very Low Income Riders (Above Poverty Threshold n=680, Below n=540)

Q1. Which TARC service(s) do you use? (Check all that apply.)	Above PL	Below PL
Local Route	89%	95%
Express Route	27%	5%
All-Electric ZeroBus	8%	8%
TARC3	3%	2%
Q2. What is the purpose of your TARC trip today?	Above PL	Below PL
Work	67%	62%
School	20%	16%
Medical appointment	10%	17%
Other (Specify)	11%	20%
Q3. How often do you ride TARC?	Above PL	Below PL
Every day	43%	64%
Every weekday	18%	8%
Every weekend	1%	3%
Several times a week, but not every day	26%	19%
Several times a month, but not every week	8%	4%
A few times a month	3%	3%
A few times a year	2%	0%
Q4. When you're not riding TARC, what other means of transportation do you typically use? (Check all that apply.)	Above PL	Below PL
I drive	37%	13%
Walk	42%	68%
Taxi	10%	7%
Use a ride sharing service like Uber or Lyft	17%	5%
Get a ride in someone else's car	45%	41%
Bicycle	10%	7%
Something else	1%	1%
Q5. Do you own a car?	Above PL	Below PL
Yes	38%	11%
No	62%	89%
Q6. If TARC weren't available for you, how easy would it be for you to secure other means of transportation?	Above PL	Below PL
Very difficult	26%	49%
2	21%	20%
3	28%	19%
4	11%	6%
Very easy	15%	6%

Q7. How long does it take you to get to the TARC stop?	Above PL	Below PL
0 - 5 min	36%	39%
5 - 10 min	35%	34%
10 - 15 min	18%	14%
15 - 20 min	6%	8%
Q8. How long is your typical bus trip from the time you get on the bus, to the time you get off at your final destination (one way)? [very low income riders only n=540]	Above PL	Below PL
Mean (average): 44 minutes; median: 37.5 minutes		
Q9. How satisfied are you with the amount of time you spend on the bus for your typical trip?	Above PL	Below PL
Not at all satisfied	4%	6%
2	15%	15%
3	35%	29%
4	25%	23%
Completely satisfied	21%	27%
Q10. How often do you change buses to get to your destination?	Above PL	Below PL
Never	23%	11%
Rarely	31%	27%
Sometimes	25%	32%
Always	21%	30%
Q11. How satisfied are you with the number of connections you make?	Above PL	Below PL
Not at all satisfied	3%	5%
2	19%	20%
3	24%	31%
4	24%	21%
Completely satisfied	29%	23%
Q12. How do you get TARC schedule information? (Check all that apply.)	Above PL	Below PL
Paper schedules	41%	46%
Ask the driver	12%	15%
Ask another rider	2%	5%
Call customer service	11%	19%
On a website like TARC or Google's online Trip Planner	52%	39%
A mobile app	22%	21%
Other	6%	2%

Q13. When you board a bus, how do you usually pay for your trip? (Check all that apply.)	Above PL	Below PL
Adult Cash Fare	57%	66%
Fixed Route with TARC3 ID	2%	2%
Express Monthly Pass	4%	1%
Express Cash Fare	14%	3%
Monthly pass	22%	16%
Summer Youth Bus Pass	0%	1%
Transfer	11%	18%
10 Ride Tickets	11%	12%
10 Ride Special Tickets (Seniors 65+, students 6-17, & citizens with disabilities)	5%	4%
Discounted/Reduced Cash Fare	9%	7%
Q14. Does your employer help pay for your bus fare?	Above PL	Below PL
Yes	16%	6%
No	76%	75%
Not employed	8%	19%
Q15. If this [Smart Card] was available on TARC, would you use a smart card for your bus trips instead of cash or tickets?	Above PL	Below PL
Yes	62%	46%
No	21%	24%
Unsure	17%	30%
Q16. If a mobile app was available, would you use it to pay your fare instead of paying with cash or tickets?	Above PL	Below PL
Yes	56%	43%
No	29%	29%
Unsure	15%	28%
Q17. If you could save money on your trips by paying with a smart card or mobile app, how likely would you be to use one of these options?	Above PL	Below PL
Not at all likely	10%	13%
2	9%	13%
3	23%	24%
4	20%	16%
Extremely likely	38%	33%
Q18. If you had to choose between a smart card or a mobile app, which would you prefer?	Above PL	Below PL
Smart card	47%	47%
Mobile app	39%	28%
I don't like either option	14%	25%

Q19. How important is it to you that TARC offer Wi-Fi on its buses?	Above PL	Below PL
Not at all important	15%	13%
2	10%	10%
3	20%	20%
4	22%	12%
Extremely important	33%	45%
Q20. How important is it to you that you receive text messages from TARC telling you that your bus is delayed?	Above PL	Below PL
Not at all important	10%	11%
2	7%	9%
3	15%	18%
4	22%	13%
Extremely important	47%	49%

How satisfied are you with:	High Satisfaction		Low Satisfaction	
	Above PL	Below PL	Above PL	Below PL
Buses running on time	48%	42%	17%	24%
Routes going where you want to go	66%	65%	11%	12%
Number of times the bus stops	58%	49%	12%	16%
How often the bus runs	51%	45%	23%	23%
The cost of TARC fare	54%	41%	16%	31%
The time the bus starts and stops running in a day	50%	43%	20%	26%
How safe you feel on the bus and at your stops	61%	54%	12%	16%

How satisfied are you with:	High Satisfaction		Low Satisfaction	
	Above PL	Below PL	Above PL	Below PL
The number of bus stops that have benches and/or shelters	37%	30%	32%	45%
Lighting at bus stops	39%	31%	29%	41%
Sidewalk access to bus stops	53%	45%	14%	25%
The cleanliness of TARC buses	48%	42%	20%	28%
The condition of TARC buses	52%	46%	16%	24%
The level of crowding on the bus	38%	33%	28%	40%
The friendliness and courteousness of bus drivers	61%	50%	13%	23%
Your ability to quickly get a response to your travel questions when you call the TARC customer service phone line	46%	49%	22%	21%

Q23. All things considered, how satisfied are you with TARC's overall ability to meet your transportation needs?	Above PL	Below PL
Not at all satisfied	1%	1%
2	7%	6%
3	23%	28%
4	47%	35%
Completely satisfied	22%	30%
Q24. What is your zip code? [very low income only n=504]	Above PL	Below PL
40211	79	16%
40203	69	14%
40212	55	11%
Q25. What is your age? [very low income only n=440]	Above PL	Below PL
Mean: 35.5 years, median: 33 years, range: 14-74 years		
Q26. Which race/ethnicity are you most closely associated with?	Above PL	Below PL
Caucasian	50%	27%
African-American	42%	66%
Hispanic/Latino	4%	5%
Asian	4%	1%
Other (Specify)	3%	4%
Q27. Gender?	Above PL	Below PL
Male	53%	44%
Female	47%	56%
Q28. Where were you born?	Above PL	Below PL
In the United States	93%	94%
Outside the United States	7%	6%
[Non-response]	16%	12%
Q29. Do you speak a language other than English at home?	Above PL	Below PL
Yes	20%	27%
No	80%	73%
Q29a. (If yes) what is this language?	Above PL	Below PL
[not tabulated]		
Q29b. (If yes) How well do you speak English?	Above PL	Below PL
Very well	81%	81%
Well	15%	13%
Not well	3%	6%
Not well at all	2%	0%

Q30. How many people live in your home including you?	Above PL	Below PL
Just me	23%	20%
2	36%	22%
3	20%	22%
4	13%	17%
5	6%	10%
6	2%	3%
7	1%	2%
More than 8	0%	3%
Q31. What is the combined annual income of everyone in your home?	Above PL	Below PL
Less than \$12,000	0%	58%
\$12,000 to less than \$16,000	6%	21%
\$16,000 to less than \$20,000	7%	12%
\$20,000 to less than \$24,000	15%	6%
\$24,000 to less than \$28,000	13%	2%
\$28,000 to less than \$33,000	11%	1%
\$33,000 to less than \$37,000	10%	0%
\$37,000 to less than \$41,000	9%	0%
\$41,000 to less than \$50,000	8%	0%
\$50,000 to less than \$75,000	11%	0%
More than \$75,000	11%	0%

Do you:	Yes		No	
	Above	Below	Above	Below
Have a bank account?	82%	46%	18%	54%
Have a debit card?	87%	62%	13%	38%
Have a credit card?	52%	20%	48%	80%
Have a smartphone or mobile device (iPad, tablet, etc) with internet access?	86%	70%	14%	30%

	NO		Yes, not regularly		Yes, use regularly	
	Above	Below	Above	Below	Above	Below
Have access to a desktop or laptop computer with internet access?	17%	40%	32%	32%	52%	28%
Send and receive text messages?	8%	18%	14%	27%	78%	54%
Have a Facebook account?	20%	28%	22%	22%	58%	49%
Have a Twitter account?	61%	67%	17%	17%	21%	16%

High Income (Median Level or above n=146, Below n=1030)

Q1. Which TARC service(s) do you use? (Check all that apply.)	Above	Below
Local Route	84%	93%
Express Route	26%	15%
All-Electric ZeroBus	13%	7%
TARC3	4%	2%
Q2. What is the purpose of your TARC trip today?	Above	Below
Work	63%	66%
School	29%	15%
Medical appointment	8%	15%
Other (Specify)	13%	16%
Q3. How often do you ride TARC?	Above	Below
Every day	42%	55%
Every weekday	23%	11%
Every weekend	1%	2%
Several times a week, but not every day	22%	23%
Several times a month, but not every week	3%	6%
A few times a month	6%	2%
A few times a year	2%	1%
Q4. When you're not riding TARC, what other means of transportation do you typically use? (Check all that apply.)	Above	Below
I drive	49%	20%
Walk	34%	58%
Taxi	6%	9%
Use a ride sharing service like Uber or Lyft	11%	12%
Get a ride in someone else's car	36%	46%
Bicycle	9%	9%
Something else	3%	1%
Q5. Do you own a car?	Above	Below
Yes	53%	19%
No	47%	81%
Q6. If TARC weren't available for you, how easy would it be for you to secure other means of transportation?	Above	Below
Very difficult	21%	40%
2	21%	20%
3	21%	25%
4	14%	8%
Very easy	23%	7%

Q7. How long does it take you to get to the TARC stop?	Above	Below
0 - 5 min	41%	37%
5 - 10 min	34%	34%
10 - 15 min	11%	18%
15 - 20 min	8%	7%
More than 20 minutes	6%	4%
Q8. How long is your typical bus trip from the time you get on the bus, to the time you get off at your final destination (one way)? [high income only n=146]	Above	Below
Mean (average): 39.6 minutes; median: 37.5 minutes		
Q9. How satisfied are you with the amount of time you spend on the bus for your typical trip?	Above	Below
Not at all satisfied	3%	5%
2	13%	16%
3	25%	34%
4	27%	23%
Completely satisfied	32%	22%
Q10. How often do you change buses to get to your destination?	Above	Below
Never	34%	12%
Rarely	24%	31%
Sometimes	23%	30%
Always	18%	27%
Q11. How satisfied are you with the number of connections you make?	Above	Below
Not at all satisfied	2%	4%
2	9%	22%
3	23%	29%
4	29%	22%
Completely satisfied	38%	22%
Q12. How do you get TARC schedule information? (Check all that apply.)	Above	Below
Paper schedules	30%	46%
Ask the driver	14%	14%
Ask another rider	1%	4%
Call customer service	11%	16%
On a website like TARC or Google's online Trip Planner	51%	44%
A mobile app	26%	21%
Other	6%	3%

Q13. When you board a bus, how do you usually pay for your trip? (Check all that apply.)	Above	Below
Adult Cash Fare	50%	65%
Fixed Route with TARC3 ID	2%	2%
Express Monthly Pass	2%	2%
Express Cash Fare	7%	10%
Monthly pass	23%	19%
Summer Youth Bus Pass	1%	1%
Transfer	10%	15%
10 Ride Tickets	15%	11%
10 Ride Special Tickets (Seniors 65+, students 6-17, & citizens with disabilities)	7%	4%
Discount/Reduced Cash Fare	19%	6%
Q14. Does your employer help pay for your bus fare?	Above	Below
Yes	28%	8%
No	58%	79%
Not employed	14%	13%
Q15. If this [Smart Card] was available on TARC, would you use a smart card for your bus trips instead of cash or tickets?	Above	Below
Yes	59%	54%
No	17%	23%
Unsure	24%	23%
Q16. If a mobile app was available, would you use it to pay your fare instead of paying with cash or tickets?	Above	Below
Yes	51%	51%
No	27%	29%
Unsure	22%	21%
Q17. If you could save money on your trips by paying with a smart card or mobile app, how likely would you be to use one of these options?	Above	Below
Not at all likely	8%	12%
2	8%	11%
3	17%	25%
4	21%	18%
Extremely likely	47%	33%
Q18. If you had to choose between a smart card or a mobile app, which would you prefer?	Above	Below
Smart card	49%	47%
Mobile app	40%	33%
I don't like either option	10%	21%

Q19. How important is it to you that TARC offer Wi-Fi on its buses?	Above	Below
Not at all important	11%	15%
2	13%	10%
3	15%	21%
4	23%	17%
Extremely important	38%	38%
Q20. How important is it to you that you receive text messages from TARC telling you that your bus is delayed?	Above	Below
Not at all important	7%	11%
2	7%	8%
3	16%	17%
4	20%	18%
Extremely important	50%	47%

How satisfied are you with:	High Satisfaction		Low Satisfaction	
	Above	Below	Above	Below
Buses running on time	58%	43%	14%	21%
Routes going where you want to go	73%	63%	12%	12%
Number of times the bus stops	64%	51%	7%	15%
How often the bus runs	49%	48%	24%	22%
The cost of TARC fare	66%	44%	14%	25%
The time the bus starts and stops running in a day	50%	45%	24%	24%
How safe you feel on the bus and at your stops	72%	55%	6%	16%

How satisfied are you with:	High Satisfaction		Low Satisfaction	
	Above	Below	Above	Below
The number of bus stops that have benches and/or shelters	37%	32%	36%	40%
Lighting at bus stops	42%	33%	34%	36%
Sidewalk access to bus stops	58%	46%	16%	20%
The cleanliness of TARC buses	53%	43%	20%	24%
The condition of TARC buses	58%	47%	14%	21%
The level of crowding on the bus	45%	33%	30%	34%
The friendliness and courteousness of bus drivers	69%	53%	8%	20%
Your ability to quickly get a response to your travel questions when you call the TARC customer service phone line	52%	46%	19%	23%

Q23. All things considered, how satisfied are you with TARC's overall ability to meet your transportation needs?	Above	Below
Not at all satisfied	0%	2%
2	6%	7%
3	15%	27%
4	55%	39%
Completely satisfied	25%	25%
Q24. What is your zip code? [not tabulated]	Above	Below
For high income, no zip code had >10% of respondents		
Q25. What is your age? [high income only n=126]	Above	Below
Mean: 35 years, median: 33 years, range: 15-67 years		
Q26. Which race/ethnicity are you most closely associated with?	Above	Below
Caucasian	51%	36%
African-American	35%	57%
Hispanic/Latino	4%	5%
Asian	12%	1%
Other (Specify)	3%	4%
Q27. Gender?	Above	Below
Male	64%	46%
Female	36%	54%
Q28. Where were you born?	Above	Below
In the United States	81%	95%
Outside the United States	19%	5%
Q29. Do you speak a language other than English at home?	Above	Below
Yes	29%	22%
No	71%	78%
Q29a. (If yes) what is this language? [not tabulated]	Above	Below
Q29b. (If yes) How well do you speak English?	Above	Below
Very well	78%	80%
Well	16%	14%
Not well	3%	5%
Not well at all	3%	1%

Q30. How many people live in your home including you?	Above	Below
Just me	8%	24%
2	25%	30%
3	19%	20%
4	22%	13%
5	17%	7%
6	4%	2%
7	2%	1%
More than 8	1%	2%
Q31. What is the combined annual income of everyone in your home?	Above	Below
Less than \$12,000	0%	30%
\$12,000 to less than \$16,000	0%	15%
\$16,000 to less than \$20,000	0%	11%
\$20,000 to less than \$24,000	0%	13%
\$24,000 to less than \$28,000	0%	9%
\$28,000 to less than \$33,000	0%	8%
\$33,000 to less than \$37,000	0%	7%
\$37,000 to less than \$41,000	0%	6%
\$41,000 to less than \$50,000	37%	0%
\$50,000 to less than \$75,000	52%	0%
More than \$75,000	11%	0%

Do you:	Yes		No	
	Above	Below	Above	Below
Have a bank account?	83%	62%	17%	38%
Have a debit card?	82%	74%	18%	26%
Have a credit card?	53%	34%	47%	66%
Have a smartphone or mobile device (iPad, tablet, etc) with internet access?	92%	76%	8%	24%

	No		Yes, don't use regularly		Yes, use regularly	
	Above	Below	Above	Below	Above	Below
Have access to a desktop or laptop computer with internet access?	11%	31%	21%	35%	69%	34%
Send and receive text messages?	6%	14%	11%	22%	82%	64%
Have a Facebook account?	18%	25%	18%	23%	64%	52%
Have a Twitter account?	52%	67%	21%	16%	26%	17%

By Route Volume (High Volume n=478, Low Volume n=1106)

Q1. Which TARC service(s) do you use? (Check all that apply.)	High volume	All other
Local Route	91%	90%
Express Route	22%	16%
All-Electric ZeroBus	8%	8%
TARC3	3%	3%
Q2. What is the purpose of your TARC trip today?	High volume	All other
Work	64%	62%
School	11%	25%
Medical appointment	18%	11%
Other (Specify)	19%	14%
Q3. How often do you ride TARC?	High volume	All other
Every day	48%	51%
Every weekday	10%	17%
Every weekend	2%	2%
Several times a week, but not every day	26%	24%
Several times a month, but not every week	9%	3%
A few times a month	4%	2%
A few times a year	2%	1%
Q4. When you're not riding TARC, what other means of transportation do you typically use? (Check all that apply.)	High volume	All other
I drive	18%	34%
Walk	56%	50%
Taxi	9%	7%
Use a ride sharing service like Uber or Lyft	13%	9%
Get a ride in someone else's car	44%	42%
Bicycle	11%	7%
Something else	1%	2%
Q5. Do you own a car?	High volume	All other
Yes	17%	32%
No	83%	68%
Q6. If TARC weren't available for you, how easy would it be for you to secure other means of transportation?	High volume	All other
Very difficult	34%	38%
2	23%	18%
3	28%	20%

4	6%	11%
Very easy	9%	14%

Q7. How long does it take you to get to the TARC stop?	High volume	All other
0 - 5 min	31%	41%
5 - 10 min	34%	34%
10 - 15 min	22%	13%
15 - 20 min	9%	6%
More than 20 minutes	4%	6%
Q8. How long is your typical bus trip from the time you get on the bus, to the time you get off at your final destination (one way)? [not tabulated]	High volume	All other
Q9. How satisfied are you with the amount of time you spend on the bus for your typical trip?	High volume	All other
Not at all satisfied	5%	5%
2	18%	12%
3	36%	29%
4	19%	27%
Completely satisfied	22%	27%
Q10. How often do you change buses to get to your destination?	High volume	All other
Never	10%	24%
Rarely	35%	24%
Sometimes	33%	26%
Always	22%	26%
Q11. How satisfied are you with the number of connections you make?	High volume	All other
Not at all satisfied	5%	4%
2	26%	14%
3	29%	25%
4	21%	24%
Completely satisfied	19%	33%
Q12. How do you get TARC schedule information? (Check all that apply.)	High volume	All other
Paper schedules	45%	41%
Ask the driver	17%	13%
Ask another rider	4%	5%
Call customer service	15%	17%
On a website like TARC or Google's online Trip Planner	39%	48%

A mobile app	16%	23%
Other	3%	6%

DRAFT

Q13. When you board a bus, how do you usually pay for your trip? (Check all that apply.)	High volume	All other
Adult Cash Fare	63%	57%
Fixed Route with TARC3 ID	2%	2%
Express Monthly Pass	2%	4%
Express Cash Fare	16%	5%
Monthly pass	19%	21%
Summer Youth Bus Pass	0%	1%
Transfer	13%	15%
10 Ride Tickets	11%	12%
10 Ride Special Tickets (Seniors 65+, students 6-17, & citizens with disabilities)	4%	6%
Discount/Reduced Cash Fare	5%	11%
Q14. Does your employer help pay for your bus fare?	High volume	All other
Yes	9%	14%
No	80%	71%
Not employed	11%	16%
Q15. If this [Smart Card] was available on TARC, would you use a smart card for your bus trips instead of cash or tickets?	High volume	All other
Yes	59%	49%
No	22%	24%
Unsure	19%	27%
Q16. If a mobile app was available, would you use it to pay your fare instead of paying with cash or tickets?	High volume	All other
Yes	58%	43%
No	25%	32%
Unsure	18%	26%
Q17. If you could save money on your trips by paying with a smart card or mobile app, how likely would you be to use one of these options?	High volume	All other
Not at all likely	12%	13%
2	11%	10%
3	34%	18%
4	14%	20%
Extremely likely	28%	39%
Q18. If you had to choose between a smart card or a mobile app, which would you prefer?	High volume	All other
Smart card	39%	50%
Mobile app	39%	31%
I don't like either option	23%	19%
[Non-response]	11%	11%

Q19. How important is it to you that TARC offer Wi-Fi on its buses?	High volume	All other
Not at all important	15%	15%
2	12%	9%
3	22%	19%
4	21%	15%
Extremely important	30%	43%
Q20. How important is it to you that you receive text messages from TARC telling you that your bus is delayed?	High volume	All other
Not at all important	12%	11%
2	10%	7%
3	20%	14%
4	21%	16%
Extremely important	37%	52%

How satisfied are you with:	High Satisfaction		Low Satisfaction	
	HV	AO	HV	AO
Buses running on time	40%	51%	21%	20%
Routes going where you want to go	57%	70%	13%	11%
Number of times the bus stops	50%	57%	16%	13%
How often the bus runs	52%	49%	18%	24%
The cost of TARC fare	48%	51%	19%	25%
The time the bus starts and stops running in a day	45%	50%	21%	24%
How safe you feel on the bus and at your stops	57%	60%	13%	14%

How satisfied are you with:	High Satisfaction		Low Satisfaction	
	HV	AO	HV	AO
The number of bus stops that have benches and/or shelters	36%	34%	33%	40%
Lighting at bus stops	39%	36%	29%	37%
Sidewalk access to bus stops	47%	52%	19%	19%
The cleanliness of TARC buses	42%	49%	23%	23%
The condition of TARC buses	46%	53%	18%	19%
The level of crowding on the bus	35%	38%	33%	32%
Your ability to quickly get a response to your travel questions when you call the TARC customer service phone line	44%	50%	25%	19%

Q23. All things considered, how satisfied are you with TARC's overall ability to meet your transportation needs?	High volume	All other
Not at all satisfied	2%	1%
2	7%	6%
3	27%	23%
4	38%	44%
Completely satisfied	25%	27%
[Non-response]	12%	11%
Q24. What is your zip code? [not tabulated]	High volume	All other
Q26. Which race/ethnicity are you most closely associated with?	High volume	All other
Caucasian	37%	39%
African-American	54%	52%
Hispanic/Latino	6%	4%
Asian	2%	4%
Other (Specify)	5%	4%
Q27. Gender?	High volume	All other
Male	51%	48%
Female	49%	52%
[Non-response]	15%	10%
Q28. Where were you born?	High volume	All other
In the United States	93%	93%
Outside the United States	7%	7%
[Non-response]	19%	14%
Q29. Do you speak a language other than English at home?	High volume	All other
Yes	24%	23%
No	76%	77%
[Non-response]	20%	15%
Q29a. (If yes) what is this language? [not tabulated]	High volume	All other
Q29b. (If yes) How well do you speak English?	High volume	All other
Very well	74%	82%
Well	16%	13%
Not well	8%	5%
Not well at all	2%	1%

Q30. How many people live in your home including you?	High volume	All other
Just me	25%	19%
2	31%	28%
3	19%	21%
4	12%	16%
5	6%	9%
6	2%	3%
7	2%	1%
8	2%	2%
More than 8	2%	1%
[Non-response]	18%	15%
Q31. What is the combined annual income of everyone in your home?	High volume	All other
Less than \$12,000	24%	27%
\$12,000 to less than \$16,000	12%	13%
\$16,000 to less than \$20,000	9%	9%
\$20,000 to less than \$24,000	13%	9%
\$24,000 to less than \$28,000	11%	5%
\$28,000 to less than \$33,000	9%	5%
\$33,000 to less than \$37,000	6%	5%
\$37,000 to less than \$41,000	7%	4%
\$41,000 to less than \$50,000	4%	5%
\$50,000 to less than \$75,000	4%	8%
More than \$75,000	2%	10%
[Non-response]	21%	22%

Do you:	Yes		No	
	HV	AO	HV	AO
Have a bank account?	67%	65%	33%	35%
Have a debit card?	78%	74%	22%	26%
Have a credit card?	41%	37%	59%	63%
Have a smartphone or mobile device (iPad, tablet, etc) with internet access?	75%	82%	25%	18%

	No		Yes, don't use regularly		Yes, use regularly	
	HV	AO	HV	AO	HV	AO
Have access to a desktop or laptop computer with internet access?	30%	26%	37%	28%	34%	46%
Send and receive text messages?	16%	11%	21%	19%	63%	70%
Have a Facebook account?	26%	23%	26%	20%	48%	57%
Have a Twitter account?	67%	62%	15%	18%	18%	20%

Eligibility of Riders to Pay for Fare Using a Mobile App

In order to better understand the feasibility of paying fare through a mobile app some riders are eligible to pay for their fare using a mobile app and others are not, we have classified riders according to whether they possess a smartphone or other mobile device with internet and according to whether they use the banking services required to make in-app purchases on such a device. Based on this classification, the crucial distinction between riders who are eligible to pay for fare with a mobile app and those who are not is that riders who *are* eligible meet the following conditions:

- 1) They possess a smartphone or other mobile device with internet access
AND
- 2) They possess either:
 - a. A credit card
OR
 - b. Both a bank account and a debit card

Some riders may be far from satisfying these conditions (for example they may not have a smartphone and they may not use any banking services at all) while other riders may just barely satisfy these conditions (they might have a smartphone and use a credit card but no other banking services). Accordingly, in the table below, we outline the extent to which riders satisfy the different eligibility requirements listed above.

Breakdown of ridership in terms of eligibility to use a mobile app as a form of payment

Eligibility	Eligibility requirements satisfied				Percent of Riders	Total Survey Respondents
Eligible	Bank account	Debit card	Credit card	Smartphone / mobile device with internet	31%	369
	Bank account	Debit card	-	Smartphone / mobile device with internet	24%	290
	-	Debit card	Credit card	Smartphone / mobile device with internet	2%	28
	Bank account	-	Credit card	Smartphone / mobile device with internet	1%	12
	-	-	Credit card	Smartphone / mobile device with internet	1%	6
Ineligible	-	-	-	Smartphone / mobile device with internet	11%	131
	-	-	-	-	10%	116
	-	Debit card	-	Smartphone / mobile device with internet	8%	99
	Bank account	Debit card	-	-	5%	57
	-	Debit card	-	-	2%	28
	Bank account	Debit card	Credit card	-	2%	23
	Bank account	-	-	Smartphone / mobile device with internet	1%	16
	Bank account	-	-	-	1%	10
	-	Debit card	Credit card	-	1%	8
	Bank account	-	Credit card	-	1%	6
	-	-	Credit card	-	0%	1

Methodology for Weighting Census Data

We wanted to compare the TARC ridership to the general population of the areas in which they live. Because TARC services the counties of Bullitt, Clark, Floyd, and Oldham, in addition to Jefferson County, we needed to aggregate data from each of these counties. In order to do this, we weighted each county's contribution to the aggregate summary according to our estimate of that county's share of TARC ridership.

We started by identifying the six TARC routes that service the counties outside of Jefferson County. In estimating the number of riders from each of the outlying counties, we allocated all of the ridership on those routes to the outlying county, and calculated the county's percentage of the total ridership under the assumption that riders using each of these routes was most likely to live in one of the outlying counties.

For the routes that crossed into both Clark and Floyd counties, we allocated half of the riders to each county. This gave Clark and Floyd counties a total of 1,225 riders (3%) and 677 riders (2%) respectively.

These routes are:

Route	Outlying County Served	Daily Riders	% of Total Ridership
Route 65	Clark/Floyd	24	0.1%
Route 66	Bullitt	44	0.1%
Route 67	Oldham	105	0.2%
Route 71	Clark/Floyd	1,075	2%
Route 72	Clark	548	1%
Route 82	Clark/Floyd	256	1%

These four counties account for 4.76% percent of the total ridership (n= 2,052 riders).

County	Total Riders	Weight
Bullitt	44	0.0010
Clark	1,225	0.0284
Floyd	677	0.0157
Jefferson	41,047	0.9524
Oldham	105	0.0024

Using these weights, we aggregated census data from the different counties to compute various measures for the overall area in which the ridership lives, such as the percentage of foreign-born persons or overall population size for the area.

Weighted Percentages	Oldham	Bullitt	Jefferson	Floyd	Clark	Area-Wide	Survey
Population 7/1/2015	1860	780	727266	11995	21704	763605	
Females 7/1/2015	0.11%	0.05%	49.52%	0.80%	1.45%	51.94%	51.11%
Whites 7/1/2015	0.22%	0.10%	69.52%	1.43%	2.53%	73.80%	38.32%
African American 7/1/2015	0.01%	0.00%	20.95%	0.09%	0.23%	21.29%	53.00%
Asian 7/1/2015	0.00%	0.00%	2.86%	0.02%	0.03%	2.91%	3.11%
Hispanic 7/1/2015	0.01%	0.00%	4.76%	0.05%	0.14%	4.96%	4.74%
Foreign Born, 2011-2015	0.01%	0.00%	6.67%	0.05%	0.09%	6.81%	6.98%
Language other than English, 2011-2015	0.01%	0.00%	7.62%	0.06%	0.14%	7.84%	23.34%
Percent in poverty	0.01%	0.01%	14.29%	0.17%	0.28%	14.77%	34.09%

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