An Onboard Survey
Of GoTriangle Passengers
2016

A study conducted by:

CJI Research
CORPORATION

Project conducted by:

- CJI Research Corporation
    - Hugh M. Clark, Ph.D.

- Transit Marketing, LLC.
    - Selena Barlow. MBA
    - Pamela Heller

CJI Research Corporation
224 East Gay Street
Columbus, Ohio 43215
(614) 338-1008

An Onboard Survey
Of GoTriangle Passengers
2016

Table of Contents

List of Figures

GoTriangle 2016 Onboard Passenger Survey: Executive Summary

A survey was conducted onboard GoTriangle buses from October 22 to November 3, 2016. A sample of runs and trips was developed to properly represent riders on the entire route structure. The 2016 survey includes 2,842 responses and has a margin of error of +/-1.8% at the 95% level of confidence.

Temporary workers were used for this purpose under the supervision of CJI Research Corporation and GoTriangle staff. Surveyors wore both ID badges and smocks identifying themselves as "Transit Survey" workers. Survey personnel accompanied drivers at the beginning of the shifts and rode the buses for an entire driver shift and surveyed all riders rather than a sample of riders.

Many changes have been made in public transit in the Triangle Region since the previous onboard passenger survey in 2013. Not the least of these was the rebranding from Triangle Transit to GoTriangle. Other changes included the introduction of GoTriangle Sunday service, changes in the fare structure, changes to certain routes, and the addition of new services.

The 2016 survey is intended to provide updated information on some aspects of the 2013 survey, and to provide new information on customer satisfaction, customer priorities for service improvements, how fares are paid, the use of ridesharing, and preference for mechanisms used to communicate service changes.

The results of the survey show positive effects of various GoTriangle policies. Improvement in customer satisfaction can be seen in certain aspects of service, most importantly in "Frequency of service," and "Hours the buses operate." In addition, "Speed of the bus ride to your destination," and the ease of making connections between GoTriangle and other systems also improved. On the other hand, satisfaction with "Buses running on time" slipped, perhaps because extensive construction within the service area during the survey period was associated with difficulties maintaining on-time performance. Other factors, including lower gasoline prices and population growth may also be increasing traffic congestion and consequently difficulty with maintaining fixed route schedules.

Key findings

Satisfaction: How Satisfied Are Riders with GoTriangle Service?

- While satisfaction scores for certain elements of service improved, the overall satisfaction score for GoTriangle service decreased somewhat, from 71% rating it as excellent or very good (7 or 6 on a 7-point scale), to 67% in 2016. This change occurred in spite of improvements in key indicators including service frequency and hours of service. The change is not large, but it follows consecutive improvements on the overall score in each of the previous surveys of 2009 and 2013.
    - It cannot be shown using the survey data itself, but given anecdotal information it seems likely that the scale of the construction in the service area caused serious problems for on-time performance – always a serious concern for transit users. Routes CRX, DRX, 100, 105, 300, 301, 700, and JCX, CLX, and FRX all had to deal with construction delays.
    - When asked to rank elements of service in terms of priorities for improvement, "buses running on time" was by far the most frequently cited aspect of service to improve. It received 24% of all mentions of top three improvements desired.

- In spite of improvements in satisfaction scores for frequency and hours of service, those two elements were second and third as service qualities cited most often as desired improvements, receiving 20% and 17% of all mentions (respectively). This suggests both that in improving performance on both of those elements, GoTriangle is on the right track, and that riders' desire for ever-better service is undiminished.

Trip Purpose: What Are the Main Purposes of GoTriangle Trips?

- Riders were asked the purpose of the specific trip they were making when surveyed. Trip purpose is primarily oriented to employment and school. However, many riders also use GoTriangle for a variety of purposes, including shopping, recreation, medical visits, and other functions.
  - GoTriangle is providing local labor force mobility. 70% use GoTriangle to get to and/or from work, an increase from 2013 when 63% reported making work-trips.
  - Other riders in the past month have used GoTriangle to get to and/or from college or vocational school (13%) or to get to or from middle or high school (2%).
  - Other riders use GoTriangle to go shopping (4%), get to medical visits (3%), or for recreation and social visits (2%). Some (2%) have used it to get to the airport.

Demographics: Who Are GoTriangle Riders?

- GoTriangle provides a key support function for employment and education. Of all GoTriangle riders, 65% are employed outside the home and another 14% are students who are also employed, for a total of 79% of riders who are employed. In addition, another 16% are students who are not also employed. Thus, 95% of the ridership is either gainfully employed or preparing for employment.
  - The percentage of non-students who are employed rose from 56% in the 2013 survey to 65% in 2016.
  - There was relatively little change in the ethnicity of riders, although there was a small decrease in the percent of riders identifying with the two largest ethnic groups in the ridership (Caucasians, 42%) and African Americans (33%). They declined by 2% and 3%, respectively from 2013. There was a corresponding small increase in Asian, Hispanic, and "other" groups.
  - As is true of most bus systems, the ridership of GoTriangle is young, with 52% under the age of 35.
  - One-third (33%) of GoTriangle riders report that their household incomes are less than $25,000. At the other end of the income spectrum, 27% report having incomes of $75,000 or more, an increase in that income level from 19% in 2013.
  - More than two-thirds of GoTriangle riders (68%) have at least one vehicle available for their use.

Travel Characteristics: How Do Riders Use GoTriangle?

- Riders were asked about the characteristics of their GoTriangle trips
    - The percent of riders saying they must transfer during their trips has increased from 54% in 2009 to 60% in 2016.
    - Approximately two-thirds of GoTriangle riders use only GoTriangle, even if they transfer. If they transfer between systems in the region, they are equally likely to transfer between GoTriangle and GoRaleigh (16%) or between GoTriangle and GoDurham (also 16%), and less likely to transfer between GoTriangle and Chapel Hill (10%).
    - The percentage who use only GoTriangle has increased to 67% since the survey of 2013 when it stood at 56%.
    - In 2016, 82% of riders began their trips on GoTriangle, up slightly from 2013 when the comparable figure was 79%.
    - Like ridership of most north American transit systems, GoTriangle's ridership includes many riders who are relatively new to the system. Of all GoTriangle riders surveyed in 2016, 34% said they had been using it for less than a year, while another 5% said that this was the first time using it, for a total of 39% beginning to use GoTriangle within the space of only one year. These results are very similar to the surveys of 2009 (41%) and 2013 (38%), an indication that GoTriangle has continued to attract new riders at this annual constant pace for at least seven years.
    - At the same time as new riders were beginning to use GoTriangle, the percentage of longer term riders was also increasing, a factor that contributes to ridership growth through customer retention. Riders who have used GoTriangle for four or more years increased from 16% in 2009 to 24% in 2016.

Accessing GoTriangle: How Riders Get to Their GoTriangle Bus?

- Riders get to their GoTriangle buses in a variety of ways, but none of them takes very long.
    - 43% walk to their bus stop. Others, 23%, say they drive to a bus stop, while 9% are dropped off. Another 14% transfer from another bus service in the area, and 8% transfer from another GoTriangle bus. 4% bicycle.
    - Almost two-thirds (63%) of GoTriangle riders take less than fifteen minutes to get to their GoTriangle bus, regardless of whether they walk, bike, or drive, take another GoTriangle bus, or a bus from another system. Forty percent (40%) take less than ten minutes.

Modal choice: Do GoTriangle Riders Have Personal Transportation Options?

- Nationally, 32% of bus riders have vehicles available to them according to the American Passenger Transportation Association report, "Who Rides Public Transportation?" Of all GoTriangle riders, more than twice that percentage, 68%, have a vehicle available to them and in that sense have modal choice, and are using GoTriangle by choice, not necessity.

Ridesharing: How Are the Ridesharing Services Uber and LYFT Being Used by GoTriangle Riders?

- Uber began service in the Durham area in 2014. Nationally, ridesharing on the Uber model has been growing rapidly. How has it affected GoTriangle riders?
    - By the time of the GoTriangle survey in the fall of 2016, 37% of GoTriangle riders had used either Uber of LYFT in the previous thirty days. Use of ridesharing is age-related. The younger the rider, the more likely he or she is to have used a ridesharing service in the previous thirty days.
    - Of all GoTriangle riders, 8% said they had used Uber or Lyft as part of a bus trip, and 20% said they had used a ridesharing service to replace a bus trip.

Fare Media: How Have Changes in GoTriangle Fare Media Been Utilized by Riders?

- The use of passes is important to speeding the boarding process, and thus the on-time performance, of buses, as well as providing convenience for passengers and in many cases a discount.
    - Only 16% of GoTriangle riders now use cash fares, a decrease from the 28% using cash in 2013.
    - Most riders (84%) use a pass of some type, most often a GoPass (53%) or a day pass (16%). The higher the rider's income, the more likely he or she is to use a GoPass. The lower the income, the more likely the rider is to use cash.

Communication: How Do GoTriangle Riders Prefer to Obtain Service Change Updates?

- Transit systems are experiencing a transition from the use of printed materials to communicate with riders to electronic and increasingly mobile electronic modes.
    - 97% of GoTriangle riders use a mobile phone. 94% of riders use their phones for texting, and 90% have smartphones they can use to access the internet and use apps like TransLōc.
    - TransLōc, introduced within GoTriangle in 2011, has been installed on their smartphones by 46% of GoTriangle riders.
    - Fueled by the diffusion of smartphones, there has been movement among riders away from wanting service change information from printed notifications which reach the general ridership, to service change messages directed directly to the individual rider by means of the TransLōc app or text message.
    - In 2013, 57% preferred to receive communication about service changes through printed notices inside the bus. In that year, only 15% preferred to get such information via text message. In 2016, only 24% preferred printed notice inside the bus, but 37% preferred a text message.

Introduction

An Onboard Survey

Onboard surveys are useful in studying transit passengers, their uses for transit, demographics, and attitudes regarding transit. Such surveys are used for purposes of planning, marketing, tracking customer satisfaction, and Title VI compliance.

As the name implies, they are conducted with passengers *onboard* the transit vehicles. Sampling and surveying all passengers on each trip is an excellent method of obtaining both large and highly representative samples. An onboard survey begins by drawing a systematic sample of runs and trips that cover all routes in a system, guaranteeing that passengers represented in the sample, and those who respond, are GoTriangle riders. A run is, essentially, a bus operator's work-shift. In fixed route service, a trip is the operation of a transit vehicle in one direction between fixed points.

Posting a survey on a transit system's website would not serve the same purpose because the responses to such surveys represent only those riders who visit the website and who are also willing to participate in a survey.

Other methods used for different kinds of surveys research, such as telephone data collection, are also not options. A survey *sample* must begin with a complete list of all elements to be surveyed. To take a simple example, to survey all residents (as opposed to all GoTriangle riders) of the GoTriangle service area would be relatively easy in that it would require a list of all addresses and/or telephone numbers of persons living in the service area. Such lists of address and telephone numbers are available. A sample of all residents is drawn from that list and those sampled are contacted for interviewing by telephone and/or mail. But to survey only GoTriangle riders in that service area is a different matter because there is no comprehensive list of those who use fixed route GoTriangle service. There is, however, a comprehensive list of runs, routes and trips operated by GoTriangle at fixed times. Thus we can sample those runs, routes and trips, place survey staff onboard the buses making those trips, and survey everyone onboard the selected transit vehicles.

Survey Data Collection

A survey was conducted onboard GoTriangle buses from October 22 to November 3, 2016. Temporary workers were used for this purpose under the supervision of CJI Research Corporation and GoTriangle staff. Surveyors wore both ID badges and smocks identifying themselves as "Transit Survey" workers. This uniform helps riders visually understand the purpose of the interviewers approaching them.

Survey personnel accompanied drivers at the beginning of the shifts, rode the buses for an entire run, and surveyed all riders rather than a sample of riders. The bus was in effect a sample cluster point within which all were surveyed. Survey personnel handed surveys to riders and asked them to complete the survey. They also provided pencils to the potential respondents.

At the end of the run, survey personnel placed completed surveys in an envelope labeled with the route name and run number and reported to the survey supervisors who completed a log form detailing the run.

Sample

A random sample of runs was drawn and examined to determine whether the randomization process had omitted any significant portion of the GoTriangle system's overall route structure. The sample was then adjusted to take any such omissions into account.

Figure 1 Completion Rates

A total of 4,903 riders were riding on the bus trips included in the survey

Of these 4,903 riders, the following were not surveyed:

108	or 2%, were children younger than 16 or spoke a language other than English or Spanish
1,069	or 22%, said they had completed the survey previously
3,726	or 76% were thus eligible to complete the survey

Of the 3,726 riders eligible:

692	or 19% refused to participate
192	or 5% left the bus with a survey and postage paid envelope but failed to return it
884	or 24% of eligible riders did not participate above
2,842	or 76% of 3,726 eligible riders and 58% of all 4,903 riders on the buses included in the survey, completed the survey

The resulting total sample size is 2,842 useable responses. When all respondents are included in a statistic, there is a sample error level of ±1.5% at 95% confidence. When a sub-sample is used, sample error increases somewhat, though with such a large overall sample this would affect the findings only in very rare circumstances in which only very small sub-segments of the ridership were being examined separately. This does not occur in the report presented here.

Participation Rates

A total of 4,903 GoTriangle riders were approached and asked to participate in the survey. Of these riders, 1,069 said they had already completed a survey. Another 692 were unwilling to participate. Thus, the total "effective distribution," defined as a rider accepting the survey materials and agreeing to complete a survey form, was 3,034 persons. Of these, 2,842 returned a useable survey form. Thus, of all persons approached for an effective participation rate of 76% of the 3,726 eligible and not previously approached.

Questionnaire

The questionnaire was self-administered and printed in both English and Spanish. It is reproduced in Appendix A.

Questionnaires were serial-numbered so records could be kept for the route and day of the week on which the questionnaire was completed. This is a more accurate method than asking riders which route they are riding when completing the survey.

Analysis

Data was weighted according to correct proportionality among the routes. The average daily ridership for the twelve months prior to the survey (Oct 2015 to Sept 2016) was used as the weighting criterion.

Analysis consists primarily of cross tabulations and frequency distributions. Tables were prepared in SPSS 24 and charts in Excel 2016.

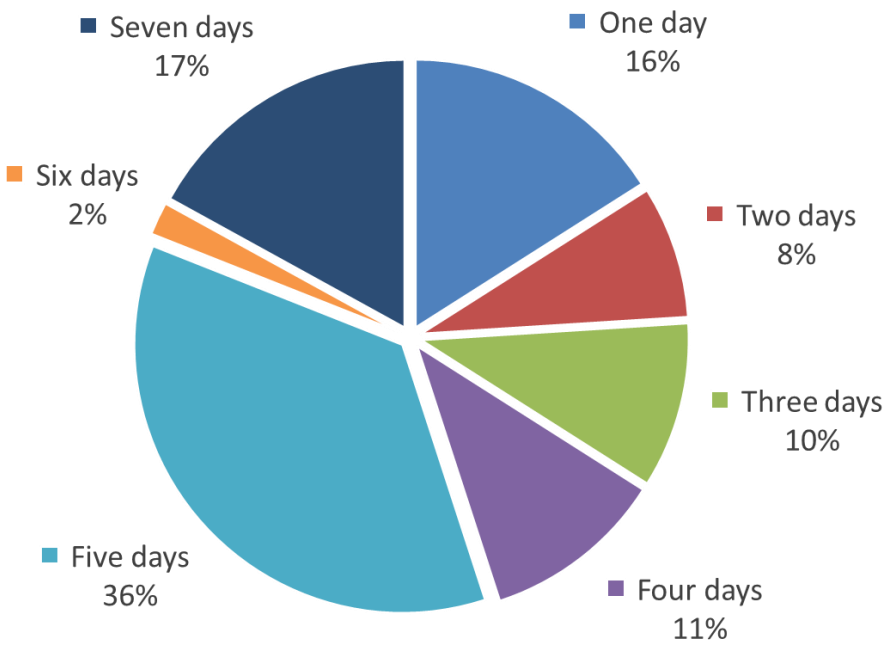
With a few exceptions, all percentages are rounded to the nearest whole number. In a few cases, when this could have caused important categories to round to zero, or when comparisons between charts would appear inconstant if tenths were not included, percentages are carried to tenths. Rounding causes some percentage columns to total 99% or 101%. This is not an error.

Rider Profile

Figure 2 Frequency of Using GoTriangle

Q1 Number of days in the past week riders used GoTriangle

(Source: GoTriangle Onboard Survey, 2016)

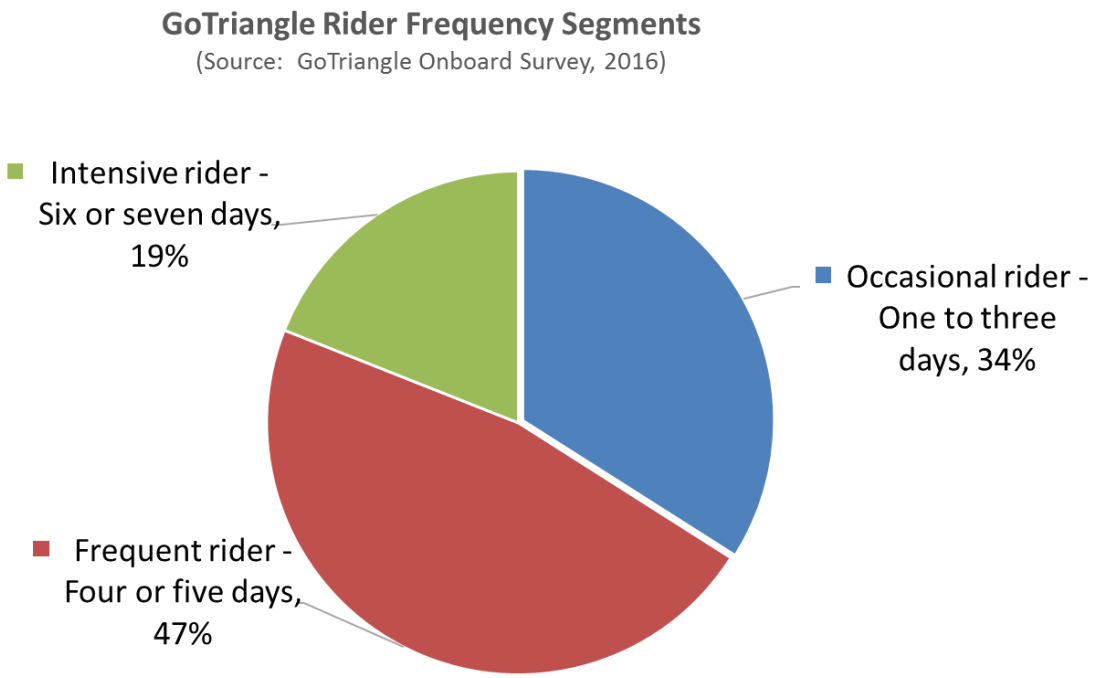


Frequency of Using GoTriangle

More GoTriangle riders travel four (11%) or five days a week (36%) than follow any other pattern. Another 2% travel six days a week, while 17% travel seven days a week, taking advantage of the Sunday service introduced since the previous survey in 2013. The balance, 34%, travel from one to three days a week.

Thus, we can define three groups, or segments, of the ridership market by the frequency with which they ride: Intensive users (six or seven days), frequent (four or five days), and occasional (one to three days).

Figure 3 Compressed Measure of Frequency of Using GoTriangle



Rider Segments

For purposes of further analysis, the riders are grouped into three sets, or "segments," depending upon how frequently the riders use GoTriangle. We refer to them as:

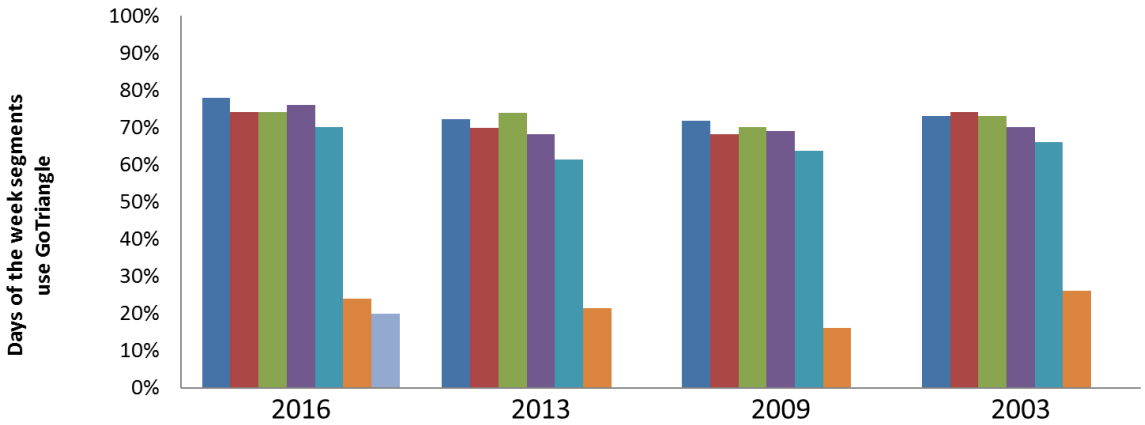
- "Occasional riders," who use GoTriangle one to three days a week (34%)
- "Frequent riders," who use GoTriangle four or five days a week (47%)
- "Intensive riders," who use GoTriangle six or seven days a week (19%)

For those who may compare the 2016 survey results to results from 2009 or 2013, be aware that the 2016 survey includes Sunday service, which was not in place during the earlier studies. Thus, the categorization of occasional, frequent and intensive users had to be changed. Prior to the 2016 survey, the categories were: Occasional, one or two days; Frequent, three or four days; Intensive, five or six days.

Figure 4 Days of the Week GoTriangle Was Used in the Past Week

Q1 During the past week, which days have you ridden GoTriangle?

(Source: GoTriangle Onboard Surveys, 2003, 2009, 2013, 2016)



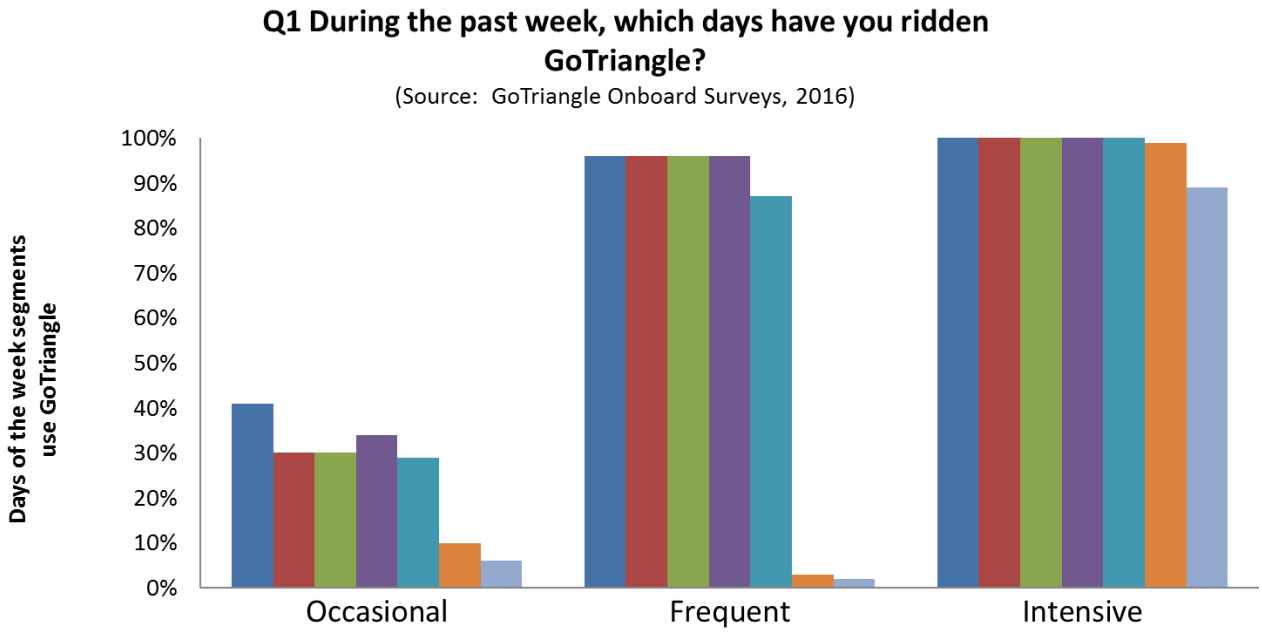
	2016	2013	2009	2003
Monday	78%	72%	72%	73%
Tuesday	74%	70%	68%	74%
Wednesday	74%	74%	70%	73%
Thursday	76%	68%	69%	70%
Friday	70%	61%	64%	66%
Saturday	24%	21%	16%	26%
Sunday	20%			No Sunday Service

Days of the Week GoTriangle Was Used in the Past Week

Between 2003 and 2016, ridership has been fairly consistent in terms of the days of the week on which GoTriangle is used. The primary change occurred in the 2016 data when Sunday service is reflected in the results for the first time. Twenty percent (20%) of GoTriangle riders said they had used the GoTriangle buses on Sunday during the past seven days.

One interesting change from prior years is that on Monday, Tuesday, Thursday, and Friday, a greater percentage of the riders said they had used GoTriangle on each of those days than had indicated that using GoTriangle on those days in 2013 or earlier. Also, in the 2013 survey, compared to surveys before and since then, there was a more severe drop-off after a Wednesday ridership peak to a lower percentage of riders saying they also ride on Thursday and Friday. For example, in 2013, 74% said they had used GoTriangle on Wednesday, but only 61% said they had used it on Friday, a drop-off of 13%. But in 2016, the drop off was from 74% to 70%. Thus, although in both surveys 74% indicated they had ridden on Wednesday, not only was the drop off to 70% riding on Friday smaller than in 2013, but also the Friday use by 70% was higher than in 2013 by 9%.

Figure 5 Days on Which GoTriangle Was Used, 2016 Only



	Occasional	Frequent	Intensive
Monday	41%	96%	100%
Tuesday	30%	96%	100%
Wednesday	30%	96%	100%
Thursday	34%	96%	100%
Friday	29%	87%	100%
Saturday	10%	3%	99%
Sunday	6%	2%	89%

Days on Which GoTriangle Was Used, 2016 Only

The daily usage patterns of GoTriangle among the three rider market segments was very much as expected. Intensive riders would be expected to ride virtually every day, and in fact, all (100%) of the intensive riders used GoTriangle each weekday, and almost all (99%) used it on Saturday and Sunday (89%).

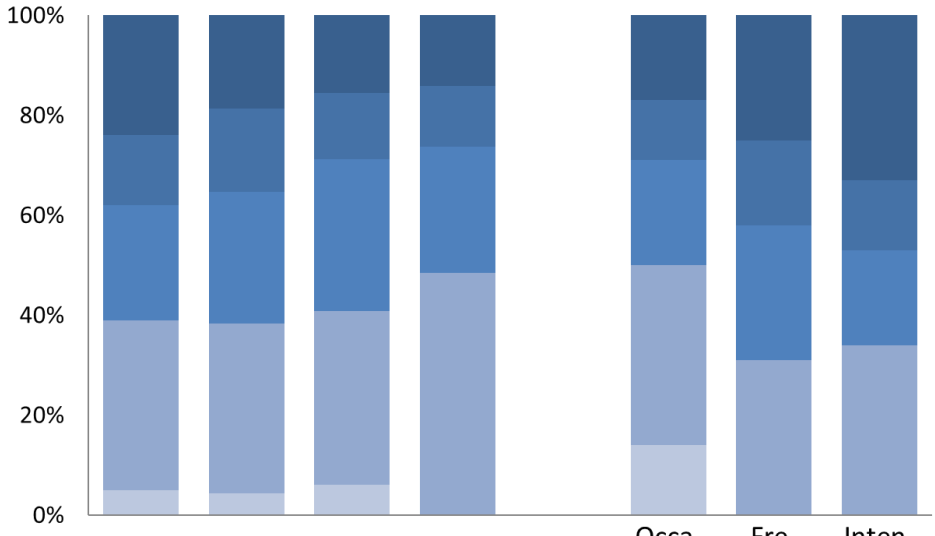
Many frequent riders use GoTriangle for commuting and thus would be expected to use it on most weekdays. As expected, 96% use it Monday through Thursday, followed by some drop-off on Friday (87%). Only a few use it on Saturday (3%) or Sunday (2%). This suggests that frequent riders are using GoTriangle for commuting purposes to weekday-only jobs.

Occasional riders use GoTriangle more frequently on Monday (41%) than on any other day. Few occasional riders use GoTriangle on Saturday (10%) or Sunday (6%). In a later chart (Figure 26), it can be seen that 72% of frequent riders and 54% of occasional riders are more likely to have both a driver's license and a vehicle than intensive riders (41%). Among other things, this means frequent and occasional riders have more options for weekend travel.

Figure 6 Length of Time Using GoTriangle

Q2 How long have you been riding GoTriangle?

(Source: GoTriangle Onboard Surveys, 2003, 2009, 2013 & 2016)



	2016	2013	2009	2003	Occa-sional	Fre-quent	Inten-sive
More than 4 years	24%	19%	16%	14%	17%	25%	33%
3 to 4 years	14%	17%	13%	12%	12%	17%	14%
1 to 2 years	23%	26%	30%	25%	21%	27%	19%
Less than 1 year	34%	34%	35%	48%	36%	31%	34%
This is the first time	5%	4%	6%		14%	0%	0%

Duration of Ridership

Of all GoTriangle riders surveyed in 2016, 34% said they had been using it for less than a year, while another 5% said that this was the first time using it, for a total of 39% beginning to use GoTriangle within the space of only one year. These results are very similar to the surveys of 2009 (41%) and 2013 (38%), an indication that GoTriangle has continued to attract new riders at this annual constant pace for at least seven years. However, while ridership has increased throughout the period of these surveys, it has not increased by more than one-third every year[1]. Therefore, the rate of the influx of new riders suggests that each wave of new riders must split between those who use GoTriangle for a period of time and then move on to other modes, and those who continue to use GoTriangle and contribute to growth of longer term ridership.

In fact, there has been growth in the percentage of riders who indicate they have been riding GoTriangle for more than four years. This percentage went from 14% in 2003, to 16% in 2009, to 19% in 2013, and 25% in 2016, an indication that rider retention is significant, growing, and presumably accounts for some of the overall growth of ridership.

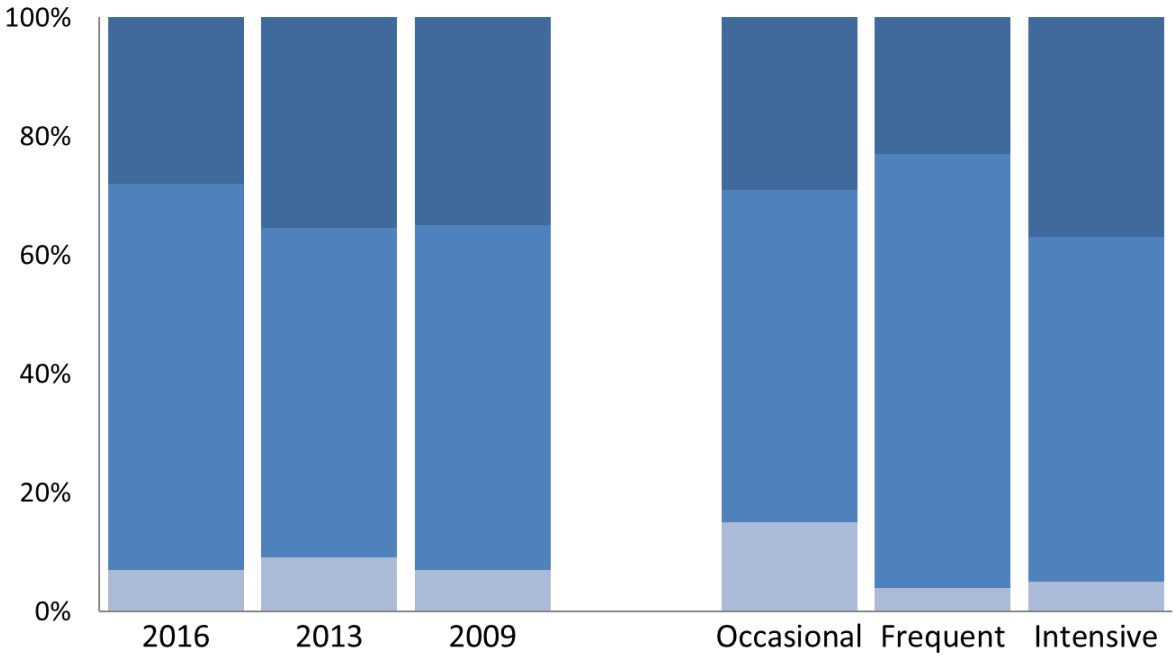
By definition, occasional riders are the most likely to indicate they are taking their first GoTriangle trip. They are also more likely than the other segments to have been riding for less than a year. Frequent and intensive riders are much more likely than occasional riders to have been riding for two years or more.

[1] The ridership grew by 63% from 2004 to 2015. The year over year percent change has averaged 9%.

Figure 7 Current Use of GoTriangle Versus One Year Ago

Q3 Compared to one year ago, do you now ride GoTriangle . . .

(Source: GoTriangle Onboard Survey, 2009, 2013 & 2016)



	2016	2013	2009	Occasional	Frequent	Intensive
More often	28%	35%	35%	29%	23%	37%
The same	65%	55%	58%	56%	73%	58%
Less often	7%	9%	7%	15%	4%	5%

Use of GoTriangle in 2013 Compared to One-Year Prior

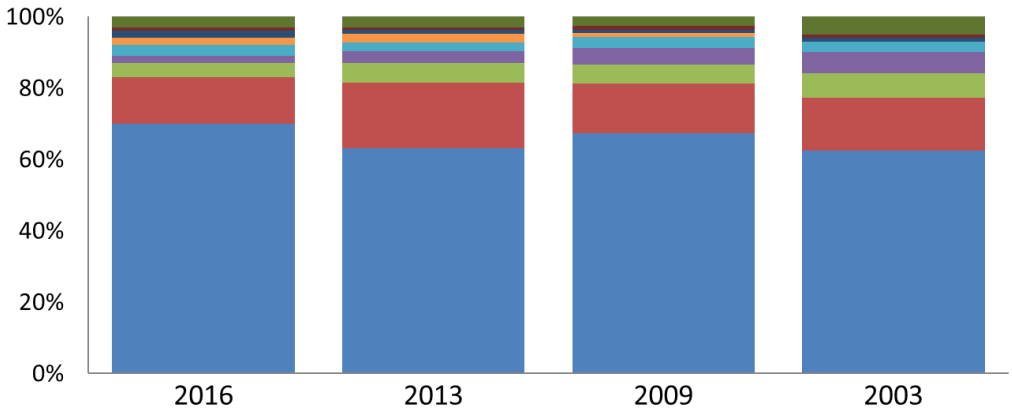
Riders who have used GoTriangle for one or more years (61% of riders) were asked whether, compared to one year ago, they now ride GoTriangle more often, less often, or about the same amount. Of that portion of the ridership in 2016, 65% said they use GoTriangle about the same amount as they did a year previously, while 28% said they use it more often, and 7% said they use it less often. These distributions were similar in the three surveys, 2009, 2013, and 2016 (e.g., strong majorities answered "the same"), but there was a significant jump in that percentage in 2016 (65%) compared to 2013 (55%). This may indicate further stabilization of the ridership.

Among the segments, 15% of occasional riders said they were riding GoTriangle less often. This suggests that they had perhaps been in one of the other rider segments in the past and rode more frequently at that time. Of the intensive riders, 37% said that they now ride GoTriangle more frequently than a year ago. Given the recent advent of Sunday service, this is not surprising for this segment. Of frequent riders, 23% indicated that they use GoTriangle more often. However, this would not be explained by the new Sunday service because, as shown in Figure 5, few frequent riders use GoTriangle on Sunday.

Figure 8 Primary Trip Purpose, 2003 - 2016

Q4 What is the *one main* purpose of this bus trip?

(Source: GoTriangle Onboard Surveys, 2003, 2009, 2013 & 2016)



	2016	2013	2009	2003
Other	3%	3%	3%	5%
Social services	1%	1%	1%	1%
Middle or high school	2%	1%	1%	1%
Airport (na in 2003)	2%	2%	1%	
Doctor / medical visit	3%	3%	3%	3%
Social visit or recreation	2%	3%	5%	6%
Shopping	4%	5%	5%	7%
College / vocational school	13%	18%	14%	15%
Work	70%	63%	67%	63%

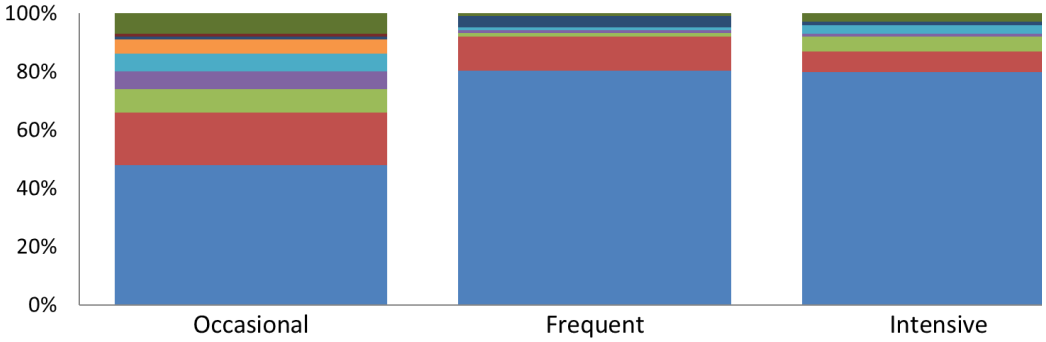
Primary Purpose of the Trip

Most (70%) GoTriangle riders in 2016, as in previous surveys, said they were taking the bus to or from work on the day they were surveyed. Another 13% indicated they were making a trip to college or vocational school and 2% to middle or high school, for a total of 85% of riders using GoTriangle for work or school trips. The balance was making various types of trips for social visits, shopping, going to the airport, and other purposes.

Airport service was not offered as a response option in the 2003 survey, but has been included in all surveys since that time. Only a small proportion, 1% in 2009 and 2% in 2016, indicated they were making a trip to the airport (the airport trip question specified whether respondents were traveling to or from the airport "for a plane trip").

Figure 9 Primary Trip Purpose, by Ridership Market Segment, 2016

Q4 What is the *one main* purpose of this bus trip?
(Source: GoTriangle Onboard Surveys, 2016)



	Occasional	Frequent	Intensive
Other	7%	1%	3%
Social services	1%	0%	0%
Middle or high school	1%	4%	1%
Airport	5%	0%	0%
Doctor / medical visit	6%	1%	3%
Social visit or recreation	6%	1%	1%
Shopping	8%	1%	5%
College / vocational school	18%	12%	7%
Work	48%	81%	79%

Primary Trip Purpose, by Ridership Market Segment, 2016

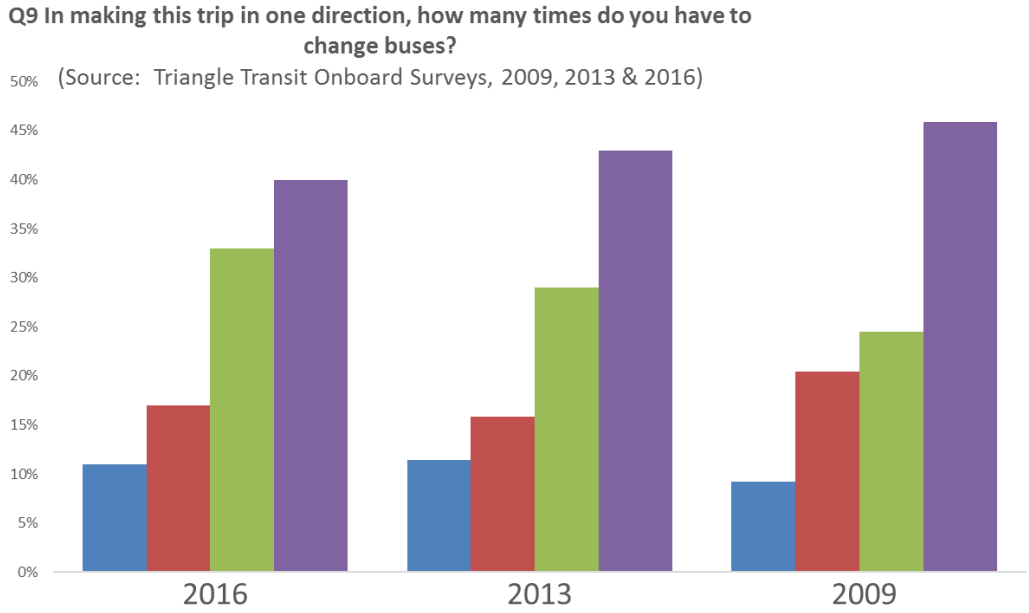
Trip purpose patterns:

- Frequent (81%) and intensive rider (79%) segments were much more likely than occasional riders (48%) to indicate they were going to or from work.

- The frequent and occasional riders were more likely than intensive riders to indicate they were making trips to college or vocational school (12% and 18%, respectively).

- Occasional riders were more likely than other groups to use the bus for non-routine purposes, such as airport trips (5%), recreational trips (6%), and for shopping (8%).

Figure 10 Number of Changes of Bus During Current Trip



	2016	2013	2009
Three or more times	11%	11%	9%
Twice	17%	16%	20%
Once	33%	29%	25%
No change of bus	40%	43%	46%

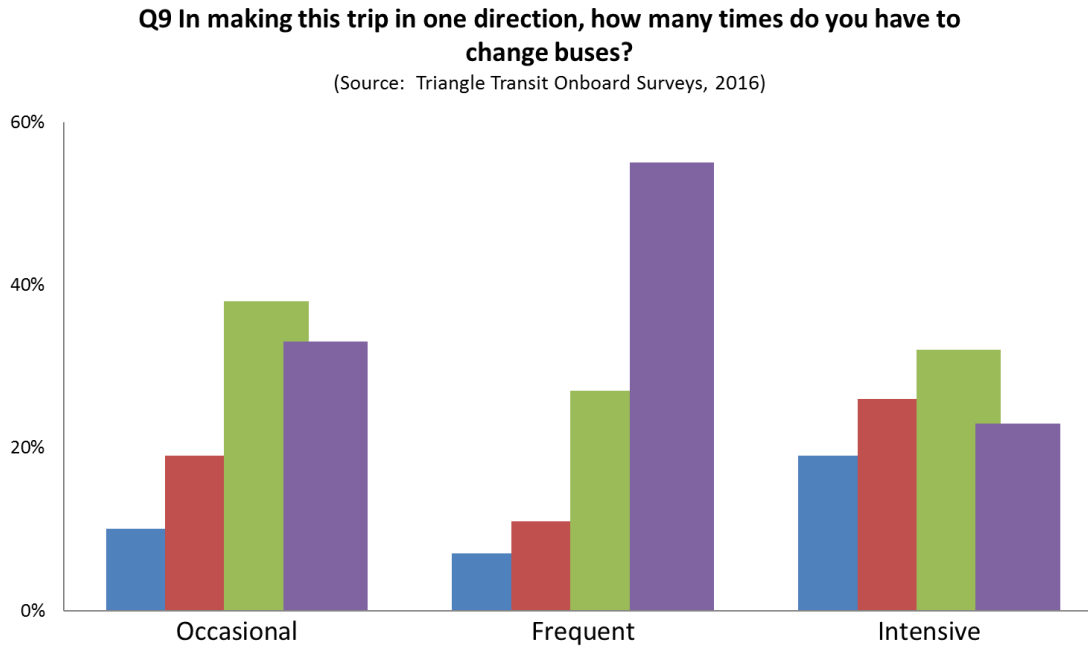
Number of Changes of Bus During Current Trip

Riders were asked the following question: "In making this trip in one direction, how many times do you have to change buses (including GoTriangle and other systems in the region, and any change of bus you may have already made)?"

The rate of transferring appears to have increased gradually from 2009 when it stood at 54%, to 2014, 57%, to 2016, 60%. Given the increases in GoTriangle service and the services of other systems in the area, this is not surprising.

Most of the increase has been among riders making one transfer, not multiple transfers, as can be seen in Figure 10 above.

Figure 11 Number of Changes of Bus During Current Trip, by Rider Market Segments



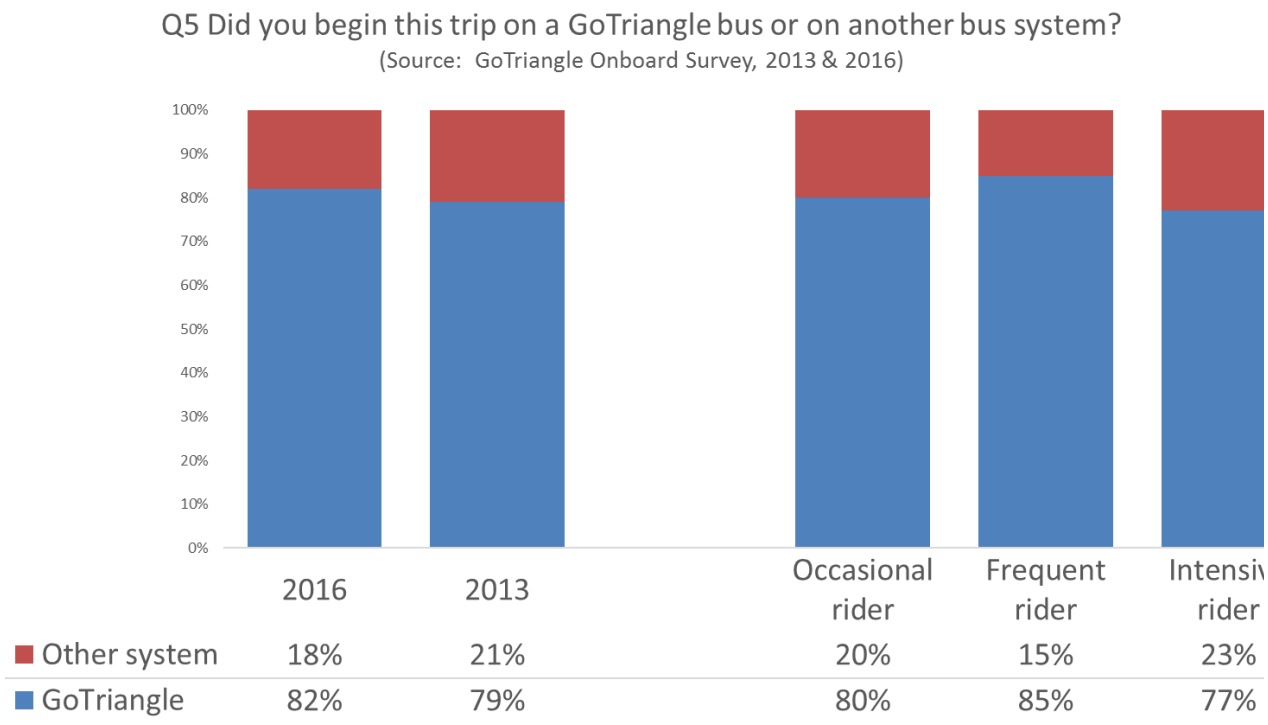
	Occasional	Frequent	Intensive
Three or more times	10%	7%	19%
Twice	19%	11%	26%
Once	38%	27%	32%
No change of bus	33%	55%	23%

Number of Bus Transfers During Current Trip, by Rider Market Segments

The frequent riders, who comprise almost half (47%) of the GoTriangle ridership are the least likely to transfer (45%). Although connecting routes through transfer options extends coverage, riders usually prefer direct service. Transferring is a disincentive to those who have a choice of mode.

Intensive riders are the most likely (67%) to have to transfer during their one-way trip. As will be shown later in Figure 24, intensive riders are also the most likely to lack personal transportation alternatives.

Figure 12 Did You Begin This Trip on GoTriangle or on Another Bus System?



Did You Begin This Trip on GoTriangle or on Another Bus System?

To a great extent – 82% overall in 2016 -- GoTriangle riders begin their trips on GoTriangle. This has increased from 79% in 2013.

All three market segments are similar in that a large majority begin their trips on GoTriangle. Even of the intensive users, who are the most likely to begin on another system, 77% begin on GoTriangle.

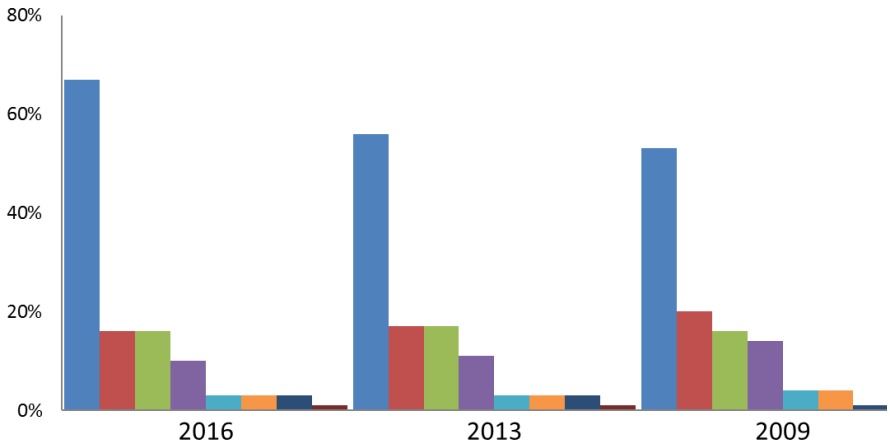
The start of the trip is only one element in the intersystem interaction. In Figure 13, which follows, we shall see the extent to which other local systems become involved in riders' trips.

Figure 13 Bus Systems Used During the Trip

Q8 Which bus systems do you use during this trip?

(Source: GoTriangle Onboard Survey, 2009, 2013 & 2016)

(Note that categories are not mutually exclusive and table columns do not sum to 100%)



	2016	2013	2009
GoTriangle Only	67%	56%	53%
GoTriangle and GoRaleigh	16%	17%	20%
GoTriangle and GoDurham	16%	17%	16%
GoTriangle and Chapel HIll	10%	11%	14%
GoTriangle and GoCary	3%	3%	4%
GoTriangle and Wolfline	3%	3%	4%
GoTriangle and Duke Transit	3%	3%	1%
GoTriangle and Greyhound /Trailways /Megabus	1%	1%	1%

Bus Systems Used During the Trip

In 2016, there was a substantial increase in the percentage of riders saying they use only GoTriangle for their trips. That percentage rose from 56% in 2013 to 67% in 2016, while the joint utilization of GoTriangle and other local systems remained consistent.

Surveyed riders indicating use of GoTriangle exclusively does not mean that they do not make transfers, but only that if they do so, they transfer within GoTriangle. Further analysis shows of those who indicate they use only GoTriangle for their trip, 62% say they make no change of bus, while 26% say they make more than one change, and 12% make more than one.

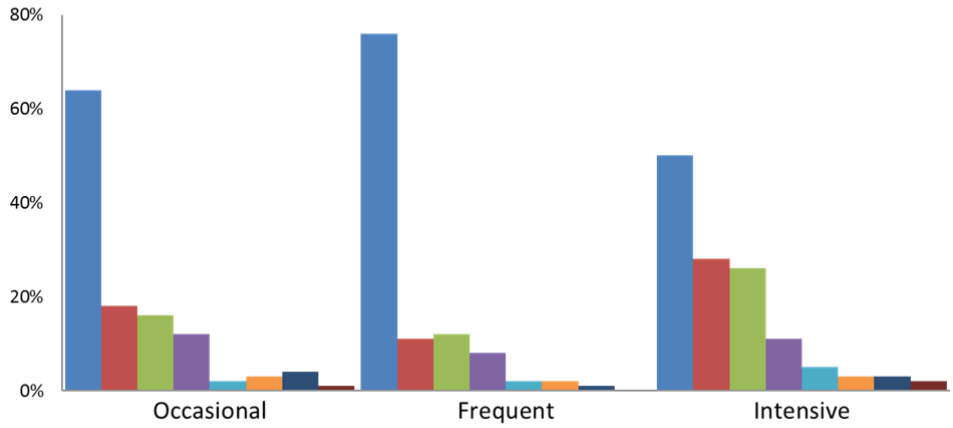
Those who do make intersystem transfers tend to make them between GoTriangle and GoRaleigh (16%) or GoDurham (16%). A substantial number (10%) also transfer between GoTriangle and Chapel Hill Transit.

Figure 14 Bus Systems Used on this Trip, by Rider Market Segment

Q8 Which bus systems do you use during this trip?

(Source: GoTriangle Onboard Survey, 2016)

(Note that categories are not mutually exclusive and table columns do not sum to 100%)



	Occasional	Frequent	Intensive
GoTriangle Only	64%	76%	50%
GoTriangle and GoRaleigh	18%	11%	28%
GoTriangle and GoDurham	16%	12%	26%
GoTriangle and Chapel HIll	12%	8%	11%
GoTriangle and GoCary	2%	2%	5%
GoTriangle and Wolfline	3%	2%	3%
GoTriangle and Duke Transit	4%	1%	3%
GoTriangle and Greyhound/Trailways/Megabus	1%	0%	2%

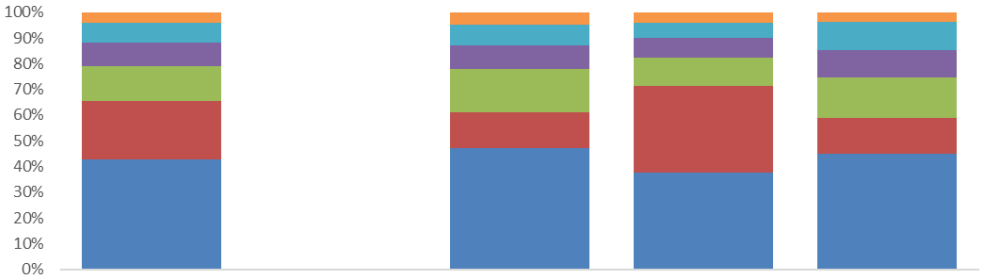
Bus Systems Used on this Trip, by Rider Market Segment

Consistent with their lower transfer rate, frequent riders are more likely (76%) than other rider segments (50% for intensive and 64% for occasional) to use only GoTriangle.

The top three for each for each rider segment are the same, GoRaleigh, GoDurham, and Chapel Hill. However, the rates of using these intersystem transfers varies greatly among the three segments. The intensive riders are far more likely to make intersystem transfers. On their current trips, 28% use both GoTriangle and GoRaleigh and 26% use both GoTriangle and GoDurham. This compares to only 11% of frequent riders who use both GoTriangle and GoRaleigh and 12% who use both GoTriangle and GoDurham. Similarly, 18% of occasional users use both GoTriangle and GoRaleigh and 16% use both GoTriangle and GoDurham.

Figure 15 Mode to Bus Stop

Q6. How did you get to the stop where you got on this GoTriangle bus?
(Source: GoTriangle Onboard Surveys, 2016)



	2016	Occasional rider	Frequent rider	Intensive rider
Biked	4%	5%	4%	4%
Other GoTriangle bus	8%	8%	6%	11%
Dropped off	9%	9%	8%	11%
Other bus service	14%	17%	11%	16%
Drove	23%	14%	34%	14%
Walked all the way	43%	47%	38%	46%

How Riders Get to the Bus Stop

Riders most commonly walk to their bus stop, 43% in 2016. Others, 23%, say they drive to a bus stop. These percentages are almost identical to the comparable figures from 2013 (42% walk, 23% drive) and similar to those of 2009 (40% walk, 27% drive)[2].

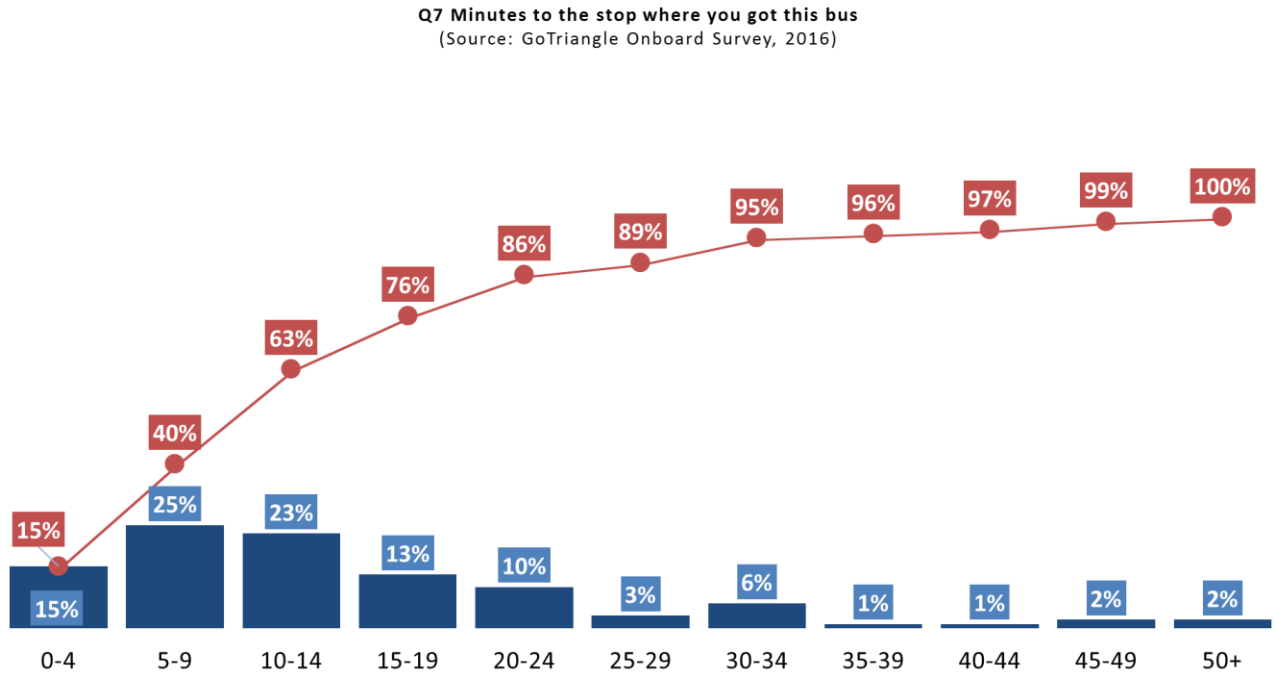
Frequent riders (38%) are less likely than intensive riders (46%) or occasional riders (47%) to indicate they walked to get to this GoTriangle bus. Frequent riders are also more likely to say they drove to catch this GoTriangle bus (34% compared to only 14% for both intensive and occasional riders).

Substantial numbers of each rider segment used one of the other bus services or another GoTriangle bus to get to the GoTriangle bus on which they were riding when surveyed. Specifically, 17% of occasional riders, 11% of frequent riders, and 16% of intensive riders used another local bus system. In addition, 8% of occasional riders, 6% of frequent riders, and 11% of intensive riders used a different GoTriangle bus.

Bikes were used by 4% or 5% of each rider segment, while dropping off was the mode for 9% of occasional riders, 8% for frequent riders and 11% of intensive riders.

[2] The responses to this question in 2009 and 2013 are not strictly comparable because of a wording and response change (name change is irrelevant). Pre 2016 the question was "How do you get to your usual Triangle Transit bus stop." In 2016 the wording was changed to "How did you get to this GoTriangle bus?" The latter wording allowed for inclusion of the use of a different GoTriangle bus in the responses, while the prior wording allowed for only other systems' services.

Figure 16 Time to Get to the Stop Where You Got on this GoTriangle Bus (Percentage)



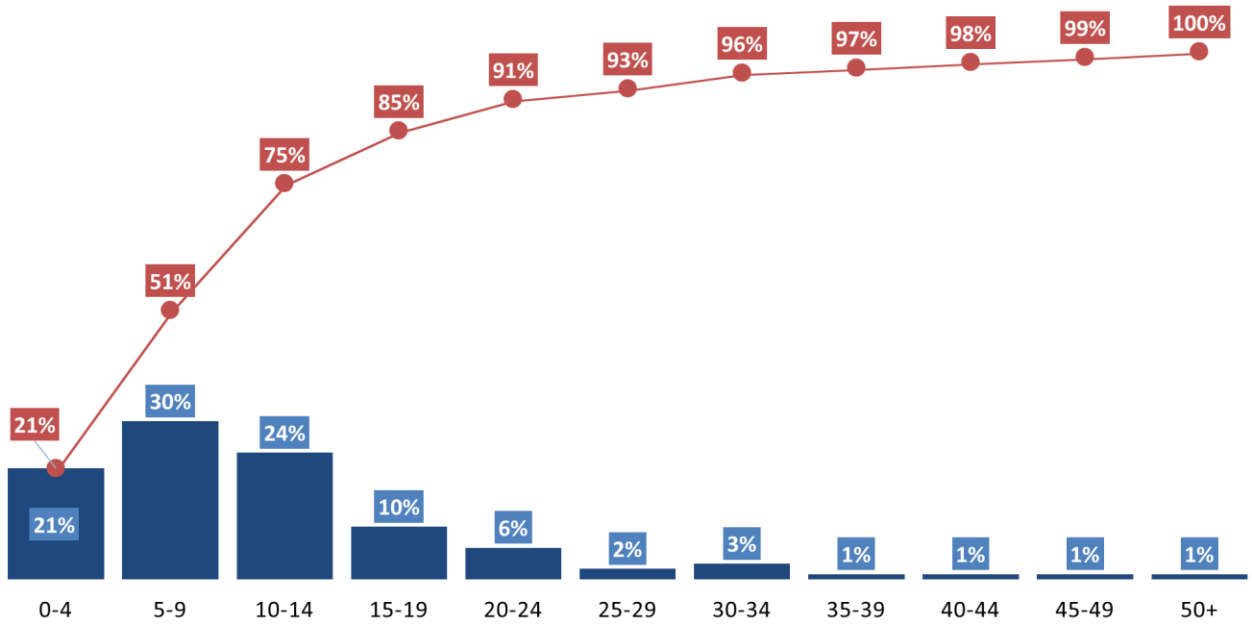
Time to Get to the Stop Where You Got on this GoTriangle Bus (Percentage)

Figure 16 displays, in five-minute intervals, the time riders spent getting to the stop at which they boarded the bus they were riding when surveyed. It shows this in two ways: (1) as the percent in each time interval (blue bars), and (2) as a cumulative percentage (red line).

As the cumulative percentage shows, almost two-thirds of GoTriangle riders (63%) spent less than fifteen minutes getting to their bus stop, and 41%, spent less than ten minutes. Another 26% took from fifteen to twenty-nine minutes for a total of 89% spending less than thirty minutes getting to the GoTriangle bus they were riding when surveyed.

Figure 17 Time to Get to the GoTriangle Bus if Walking

Q7 Minutes to the stop where you got this bus
Chart includes only those who walked all the way to their stop.
(Source: GoTriangle Onboard Survey, 2016)



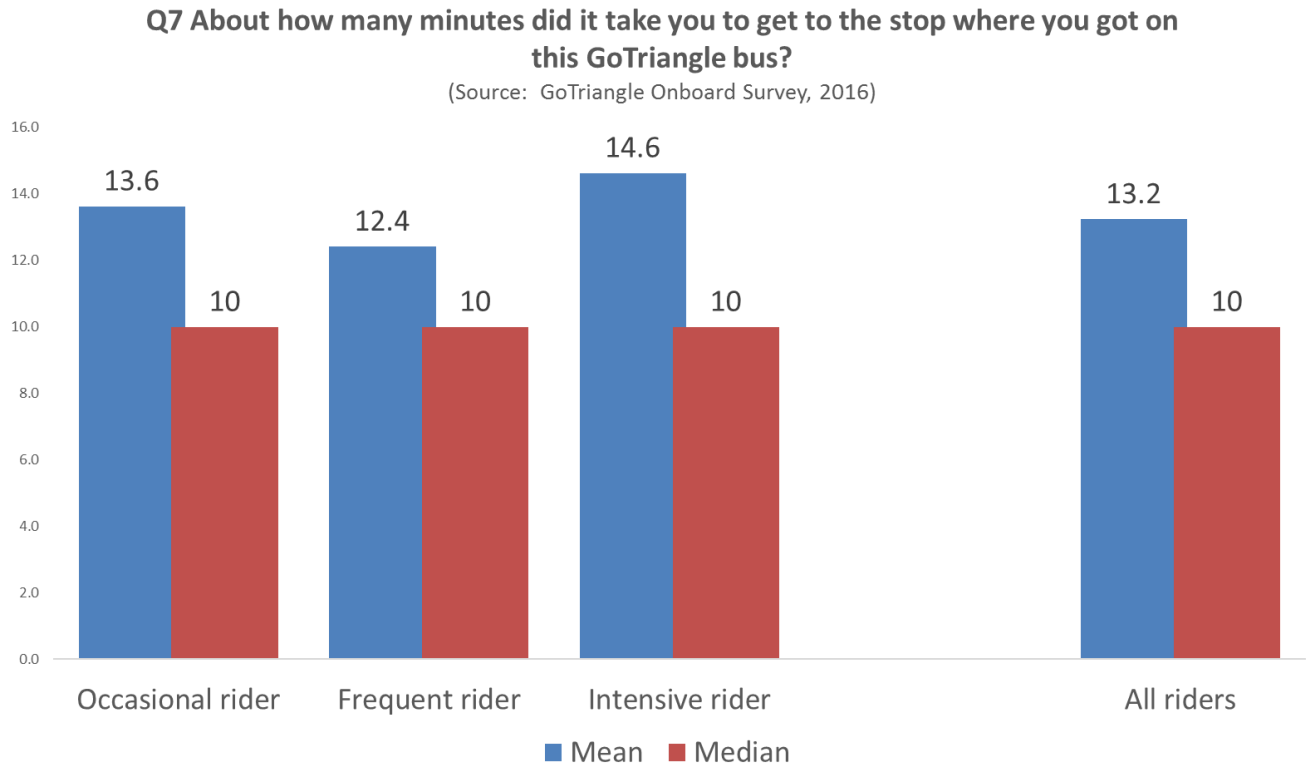
Time to Get to the GoTriangle Bus if Walking

In Figure 17, the data are shown for only those respondents who said they had walked all the way to the stop at which they boarded the GoTriangle bus. This sub-set of the sample includes 43% of the respondents.

Slightly more than half (51%) of those who walk to their GoTriangle stops spend less than ten minutes to reach their bus. A total of 75% of those who walk spend less than 15 minutes.

There are a few outliers who indicate that on the day of the survey they had spent an exceptionally long time walking. A total of 4% claim walks of 35 minutes or more.

Figure 18 Time to Get to the Stop Where You Got on this GoTriangle Bus (Mean)

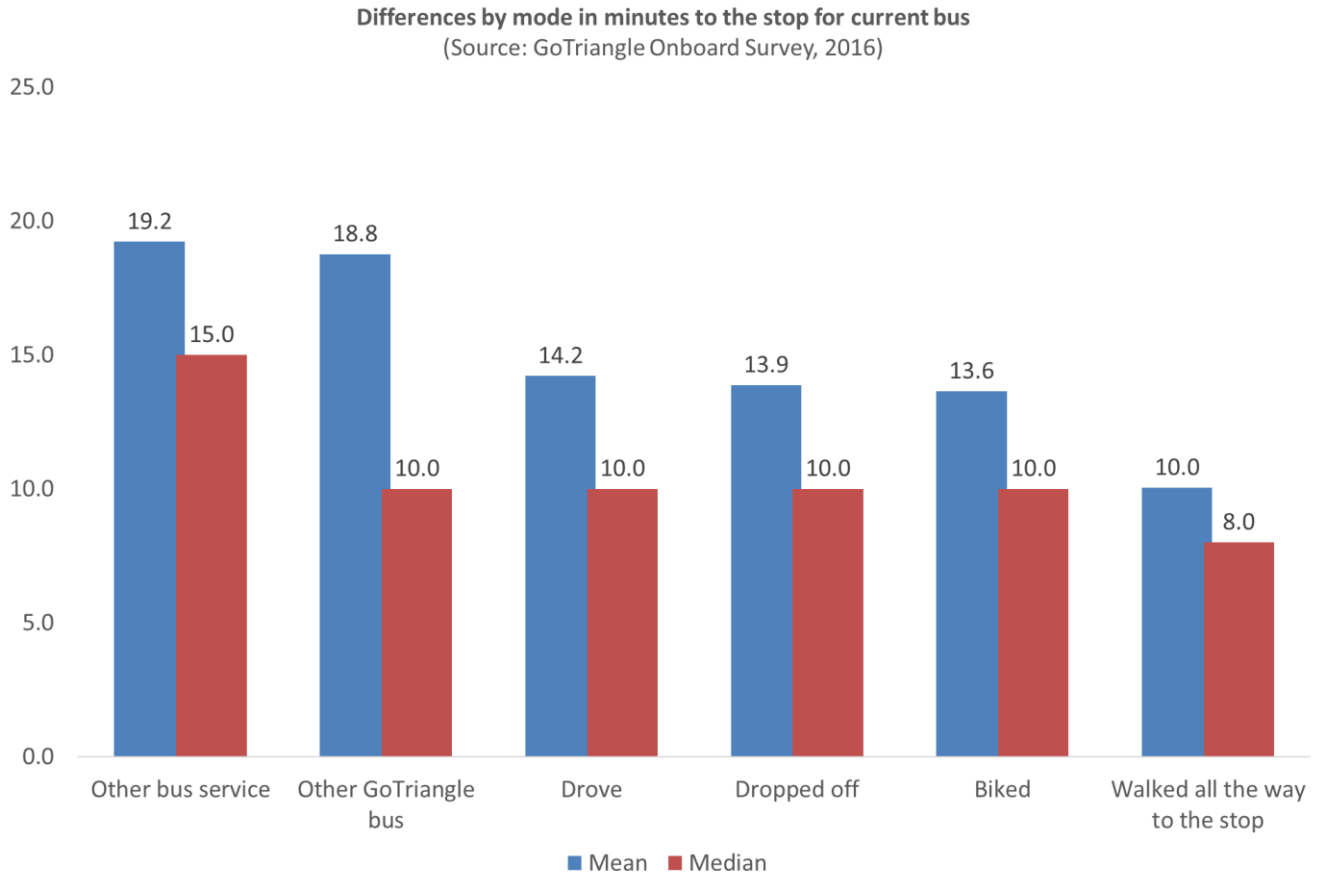


Time to Get to the Stop Where You Got on this GoTriangle Bus (Mean)

The mean (simple average) and median (half take less time and half take more time) minutes getting to the GoTriangle bus are shown above in Figure 18. The median is ten minutes for all riders, and for each of the rider segments. Half spend more and half spend less.

The mean time spent by riders getting to their bus stop is 13.2 minutes. This varies among rider segments, with the intensive riders spending the longest time (14.6) minutes, and the frequent riders the least (12.4 minutes).

Figure 19 Time to the Stop for this Bus, by Mode



Time to Get to the Bus Stop, by Mode Used to Get to the Stop

Riders were asked length of time it takes them to get to their bus stop by various modes of transportation. In terms of averages, the length of time it takes is about the same whether a rider walks, drives, or bicycles to the GoTriangle stop where they caught the bus on which they were being surveyed. The mean is 13 or 14 minutes and the median is 10 minutes. Those who are dropped off at the bus stop take a bit longer to get there.

Not surprisingly, the longest duration to get to the bus stop is found among those riders taking a local bus other than GoTriangle. That group averages 24 minutes to get to their bus stop and 20 minutes is the median amount of time spent.

GoTriangle Fare Media

In 2014, a new fare structure and new rates were introduced. The new structure includes the "GoPass." A GoPass is a subsidized transit pass offered to employees and tenants by the employer, property manager, or developer.

- Ride fare-FREE for a year on all transit routes in the Triangle with any agency, for commuting to and from work.
- Employer pays only for actual boardings – from 50-55% of published fare.
    - 50% of cost year 1
    - 52.5% of cost year 2
    - 55% of cost year 3 and beyond
    - Employer may charge an annual administrative fee,
    - but cannot pass other costs along to employee

Figure 20 GoTriangle Sare Structure at Time of Survey in 2016

Service	Fare Type	Full Fare	Discount Fare
Regional	Cash Fare	$2.25	$1.00
	Transfer to Express Route	$0.75	$0.25
	Day Pass*	$4.50	$2.00
	7-Day Pass*	$16.50	$7.50
	31-Day Pass*	$76.50	$34.00
Express	Cash Fare	$3.00	$1.25
	Day Pass*	$6.00	$2.50
	7-Day Pass*	$22.00	$9.25
	31-Day Pass*	$102.00	$42.50
Discounts	Children (under 5)***		Free
	Youth (ages 6-18)***		Discount
	Seniors (ages 65+)***		Discount
	Disabled with ID***		Discount
	$13.50 Stored Value**		$12.00
	$25 Stored Value**		$20.00
	$50 Stored Value**		$40.00

*Regional and Express passes are valid on GoDurham, GoRaleigh, and GoCary buses.

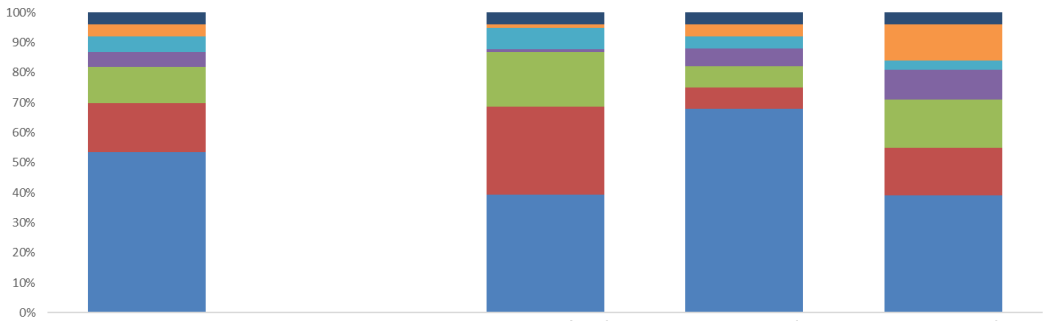
**Stored value cards can be used to pay for single rides and Day Passes on GoTriangle, GoDurham, and GoCary buses.

***Qualifications for Discount Fare can be found at GoTriangle.org

Figure 21 Fare Media

Q11 Fare media used

(Source: GoTriangle Onboard Survey, 2016)



	2016	Occasional rider	Frequent rider	Intensive rider
Other	4%	4%	4%	4%
7-day pass	4%	1%	4%	12%
Stored value card	5%	7%	4%	3%
31-day pass	5%	1%	6%	10%
Day pass	12%	18%	7%	16%
Cash for one-way ticket	16%	29%	7%	16%
GoPass	53%	39%	68%	39%

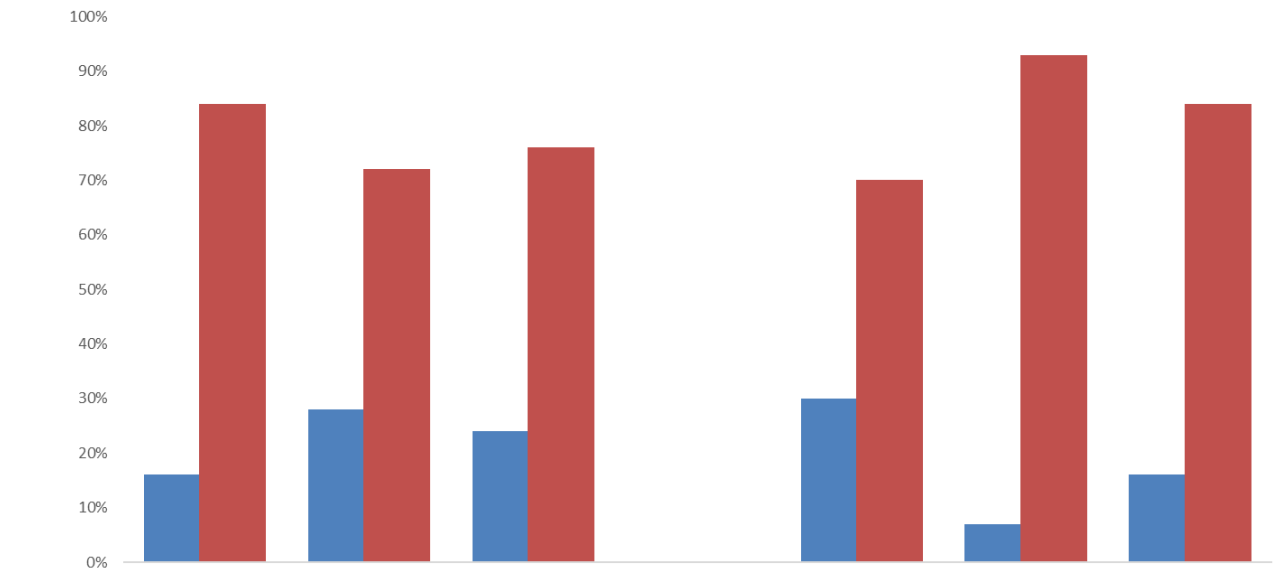
Fare Media Used

For payment of the fare on the first GoTriangle bus riders boarded during the trip on which they were surveyed, most riders used fare media other than cash. Only 16% indicated they use cash. Others use some type of pass. The most frequently used pass is the "GoPass" which is used by 53% of riders.

Occasional riders (29%) are more likely than frequent (7%) or intensive riders (16%) to pay cash. Frequent (68%) are more likely than either occasional (39%) or intensive riders (also 39%) to use a GoPass.

Figure 22 Use of Cash or Other Fare Media, 2009 - 2016

Fare paid with cash or with other fare medium
(Sources: GoTriangle Onboard Surveys, 2009, 2013, & 2016)



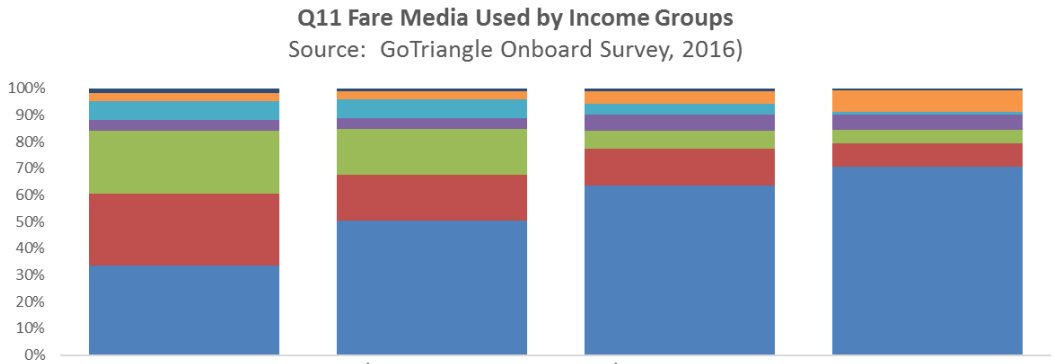
	2016	2013	2009	Occasional	Frequent	Intensive
Cash	16%	28%	24%	30%	7%	16%
Other	84%	72%	76%	70%	93%	84%

Comparing the Use of Cash and Other Fare Media Between 2009 and 2016

The use of cash to pay the fare increased by 4% between 2009 and 2013. However, between 2013 and 2016, it dropped from 28% to 17%.

Since 2013, the structure of the pass programs was simplified, and the migration to pass media from cash payment shows the result. While not all the categories are comparable, in 2013, 43% were using the GoPass which rose to 53% in 2016.

Figure 23 Method of Fare Payment, by Income



	<$20,000	$20,000 to $34,999	$35,000 to $74,999	$75,000 or more
Other	2%	1%	1%	1%
Stored value card	3%	3%	5%	8%
7-day pass	7%	7%	4%	1%
31-day pass	4%	4%	6%	6%
Day pass	24%	17%	7%	5%
Cash	27%	17%	14%	9%
GoPass	34%	50%	64%	72%

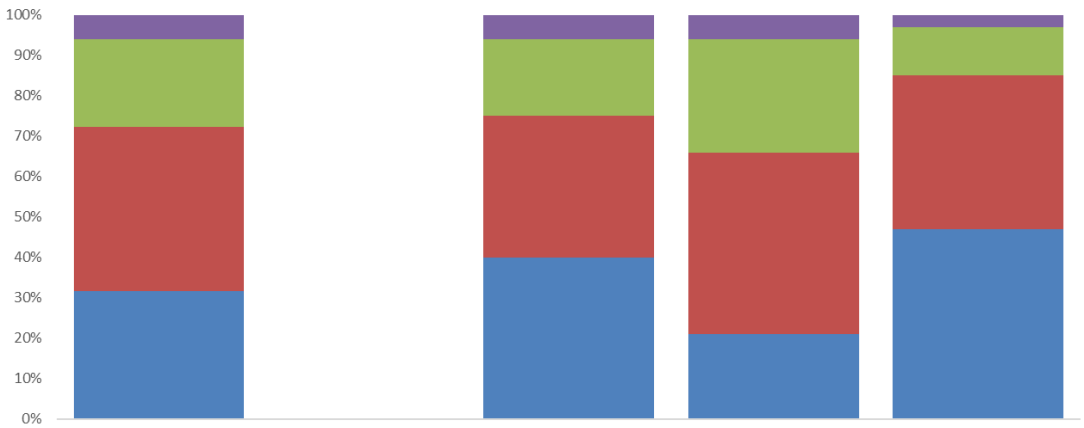
Income Level and Fare Media Used

The inverse relationship between income and the tendency to use a discounted pass for fare payment continues to prevail. In 2013, the report commented that… "Nationally, it is usually the case that those with the lowest incomes are the most likely to use a non-discounted cash fare. There are various reasons for this. One reason is that use of longer-term pass media, such as a 31-day pass, requires a significant outlay of cash which may not be available to a lower income household. In addition, many persons with lower income cannot enjoy steady work, and to purchase a pass in advance places resources at risk. Consequently, it may be a sensible decision to forgo the discount in order to avoid risk."

All of that remains true according to 2016 survey results. However, while cash was used for fare payment by 44% of the lowest income group in 2013, it was used by only 27% in 2016. And the GoPass, which was used by 26% of riders in 2013, was used by 34% in 2016. While it is still true that the lower the income, the more likely a rider is to use cash and forego a discounted fare, that is much less the case now than it was a few years ago.

Figure 24 Modal Choice

Q36 How many cars or other motor vehicles are available for you to use?
(Source: GoTriangle Onboard Survey, 2016)



	2016	Occasional rider	Frequent rider	Intensive rider
Three or more	6%	6%	6%	3%
Two	22%	19%	28%	12%
One	41%	35%	45%	38%
No vehicle	32%	40%	21%	47%

Modal Choice

To determine whether a rider had the option of using a personal vehicle, riders were asked similar questions in each survey since 2003:

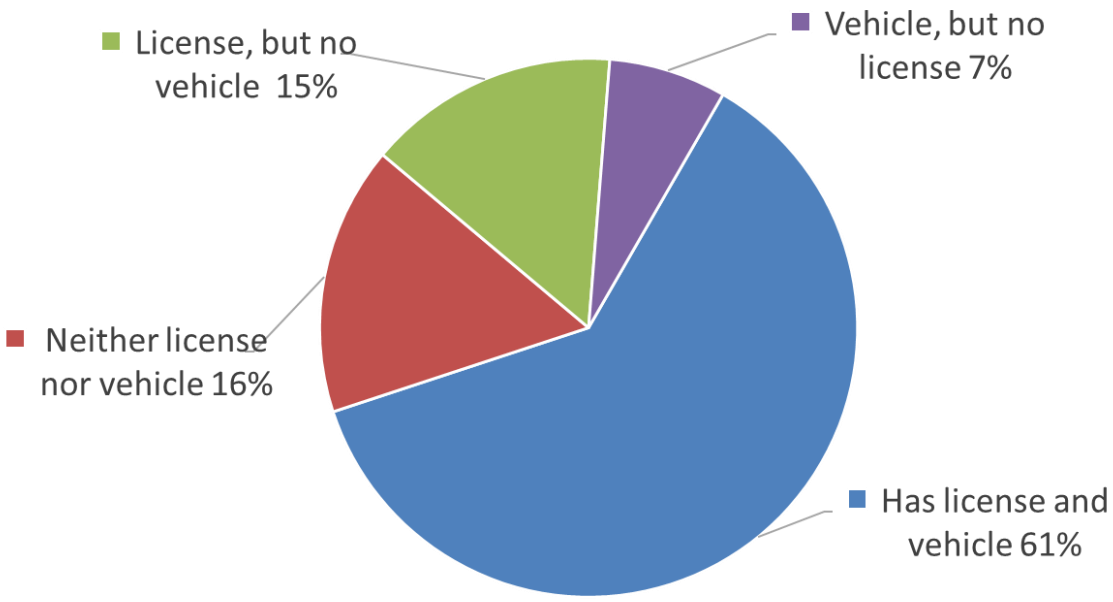
- 2009: How many cars or other motor vehicles are available for you to use?
- 2013: Was a car or other personal vehicle available for you to drive for this trip?
- 2016: How many cars or other motor vehicles are available for you to use?

In 2009, the wording of the modal choice question asked about general availability of a vehicle, and 65% indicated they had a vehicle available. In 2013 the wording changed, focusing on availability of a vehicle for "this trip," as opposed to general availability, and only 48% indicated they had a vehicle available in that sense. In 2016, the wording was more similar to 2009, and 68% indicated they have a vehicle, similar to the result in 2009. Nationally, only 32% of bus transit riders have vehicles available according to APTA's "Who Rides Public Transportation," 2016.

As in previous surveys, the rider segment most likely to have modal choice is the frequent riders, among whom, 79% have a vehicle available to them and 21% do not. Intensive users of transit are the most likely to lack a vehicle (47%). Occasional riders are also quite likely (40%) to lack a vehicle.

Figure 25 Vehicle and Valid Driver's License

Modal Choice
Q35 Do you have a valid driver's license?
Q36 How many cars or other motor vehicles are avilable for your use?
(Source: GoTriangle Onboard Survey, 2016)



Riders' with a Vehicle and Valid Driver's License

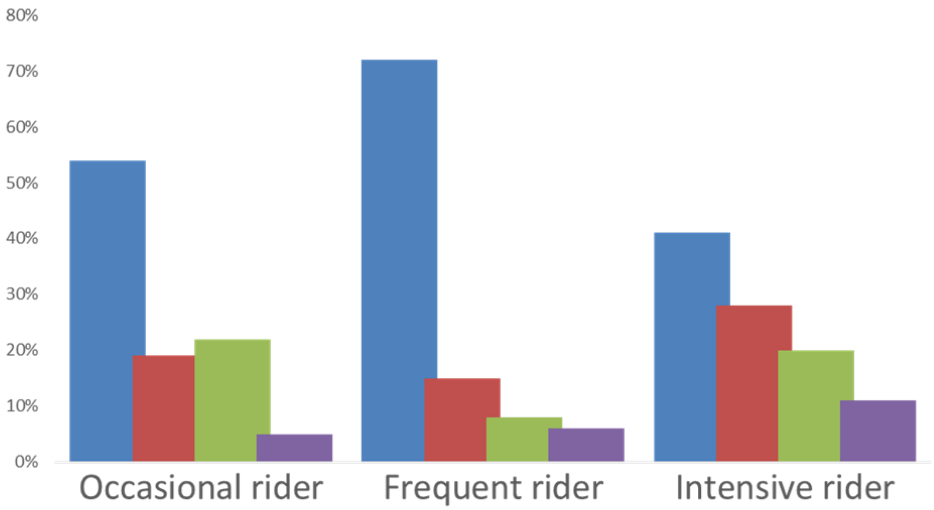
Among all GoTriangle riders:

- 61% say they have not only at least one vehicle available, but also a valid driver's license. They have full modal choice.
- 15% say they have a valid license but no vehicle. Many of these are students.
- 7% say they have a vehicle available but no license. Transit rider focus groups conducted by CJI in markets other than the Durham area[3] suggest that frequently people in this somewhat paradoxical position are persons who have a suspended license, or they are students or spouses without a license but living in a household in which a vehicle would otherwise be available to them.
- 16% say they have neither a vehicle nor a valid license and thus can be considered transit dependent.

[3] Focus groups were conducted in Urbana/Champaign, IL; Livermore, CA; Cincinnati, OH; Grand Rapids MI; Anchorage, AK; Sacramento, CA; Monterey, CA

Figure 26 Vehicle and License, by Segment

Q35 Do you have a valid driver's license?
Q36 How many cars or other motor vehicles are avilable for your use?
(Source: GoTriangle Onboard Survey, 2016)



	Occasional rider	Frequent rider	Intensive rider
Vehicle and license	54%	72%	41%
No vehicle, no license	19%	15%	28%
License, but no vehicle	22%	8%	20%
Vehicle but no license	5%	6%	11%

Vehicle and License, by Segment

According to the most recent survey, frequent riders are more likely (72%) than others to have a vehicle available and a valid license. They tend to have higher incomes and are presumably more likely to be able to afford a vehicle (See Figure 38). This is a very high proportion of riders with modal choice in this market segment.

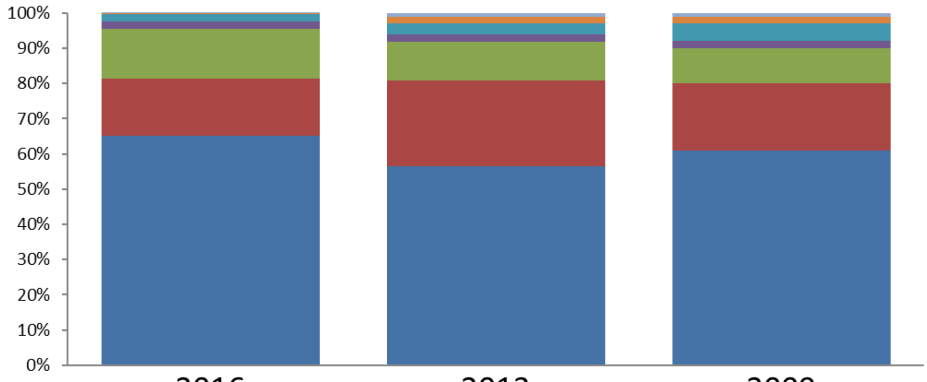
The occasional riders are second most likely to have personal transportation options. Of that segment, 54% have both a vehicle available to them and valid license. Intensive riders are the most transit dependent with 41% of that segment having both vehicle and valid license.

Demographics

Figure 27 Employment, 2009 – 2016

Q34 Employment

(Source: GoTriangle Onboard Survey, 2009, 2013, 2016)



	- 2016 -	- 2013 -	- 2009 -
Homemaker	0%	1%	1%
Employed for pay at home	0%	2%	2%
Unemployed	2%	3%	5%
Retired	2%	2%	2%
Student also employed	14%	11%	10%
Student	16%	24%	19%
Employed for pay outside your home	65%	56%	61%

Riders' Employment

Of all GoTriangle riders, 65% are employed outside the home. In addition, almost one-third (30%) are students, 14% of whom are also employed. The balance among the employee/ student/ employed-student categories has shifted from 2009 to 2013 and 2016. However, the total of the three has fluctuated in a range of only 5% from 90% in 2009 to 95% in 2016.

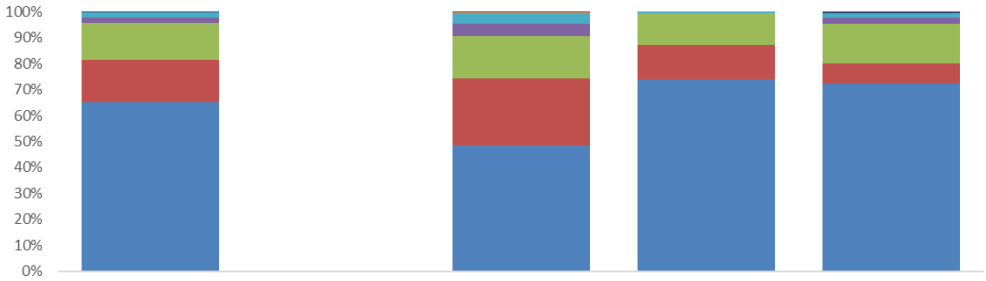
Employment outside the home is especially pronounced among the intensive and frequent users (68% and 80%, respectively) and is less pronounced among occasional riders (45%). On the other hand, 52% of occasional riders are students compared to 23% of intensive riders. We assume that many university students have classes fewer than 5 days a week, which may make is less likely they will fall into the intensive rider category.

Of occasional riders, 9% indicated they are unemployed, while this is true of 6% of frequent riders and only 3% of intensive riders. Relatively few riders are retired -- only 3% of all riders -- but they are more prevalent among occasional riders (4%) than the other rider segments. Finally, 2% consider themselves to be homemakers (though they may also fall into one or more of the other categories).

Figure 28 Employment, by Rider Segment

Q34 Employment

(Source: GoTriangle Onboard Survey, 2016)



	2016	Occasional rider	Frequent rider	Intensive rider
Employed at home	0.2%	0.4%	0.0%	0.5%
Homemaker	0.2%	0.3%	0.1%	0.3%
Unemployed	1.9%	4.0%	0.4%	1.7%
Retired	2.2%	4.9%	0.3%	2.2%
Student and employed	14.1%	16.2%	12.0%	15.4%
Student	16.4%	25.9%	13.2%	7.6%
Work outside home	65.0%	48.4%	73.9%	72.1%

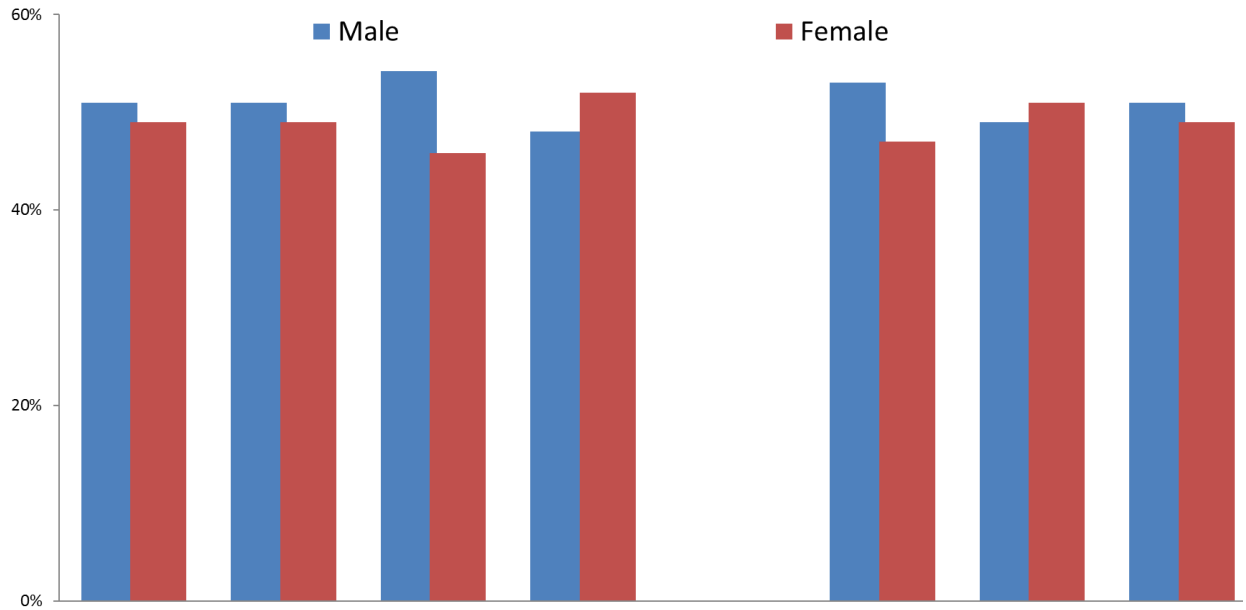
Employment, by Rider Segment

It is the frequent and intensive riders who are most likely to work outside the home and almost three-fourths of each group do. Occasional riders are more likely to be students, either students only (25.9%) or students who are also employed (16.2%).

Figure 29 Rider Segment by Gender

Q38 Do you identify as... (gender)

(Source: GoTriangle Onboard Surveys, 2003, 2009, 2013, & 2016)



	2016	2013	2009	2003	Occasional	Frequent	Intensive
Male	51%	51%	54%	48%	53%	49%	51%
Female	49%	49%	46%	52%	47%	51%	49%

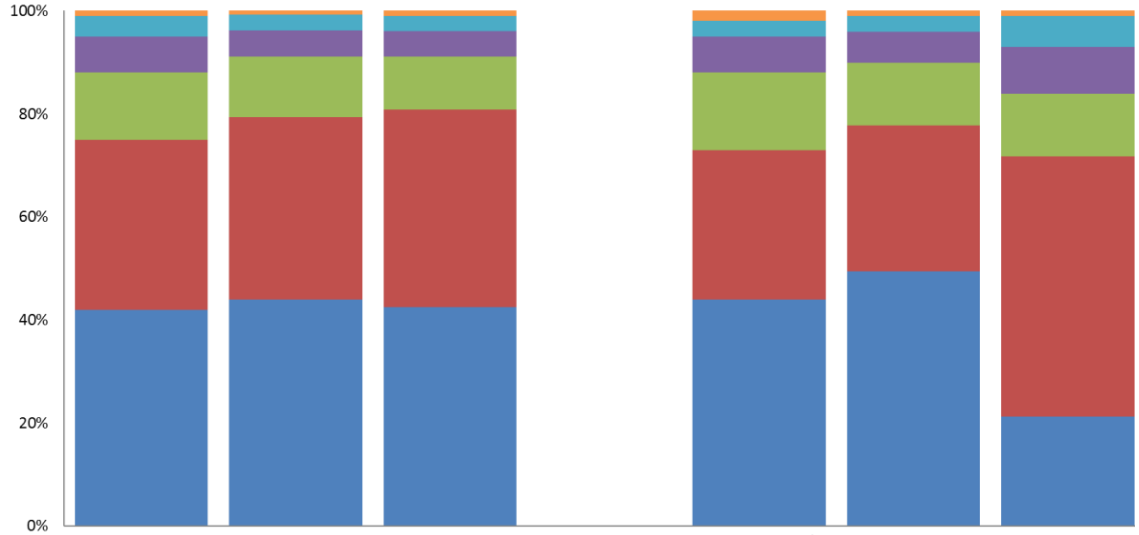
Gender of the Riders

GoTriangle riders include 51% men and 49% women, a balance identical to the previous survey in 2013. The gender balance is similar across the three rider segments, with the greatest difference between genders among occasional riders. 53% of occasional riders are men and only 47% are women.

Figure 30 Ethnicity

Q39 and Q40 Ethnicity

(Source: GoTriangle Onboard Surveys, 2003, 2009, 2013, 2016)



	2016	2013	2009	Occasional	Frequent	Intensive
Native American	1%	1%	1%	2%	1%	1%
Other	4%	3%	3%	3%	3%	6%
Hispanic	7%	5%	5%	7%	6%	9%
Asian	13%	12%	10%	15%	12%	12%
African-American	33%	36%	39%	29%	28%	50%
White	42%	44%	43%	44%	49%	21%

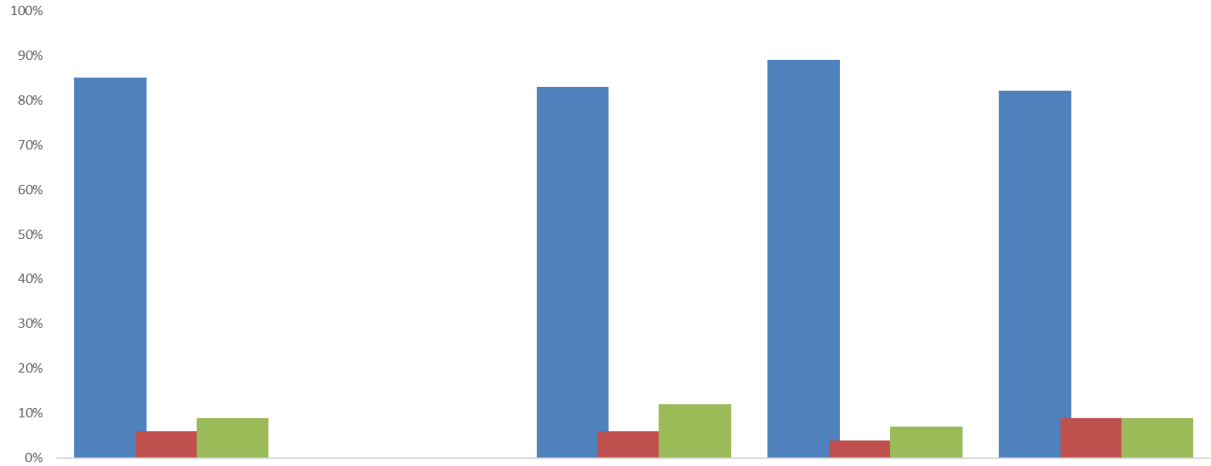
Ethnicity

There has been no fundamental shift in the ethnicities of the riders since 2009. However, the percentage of Hispanic, Asian, and “Other” riders has increased from 18% in 2009 to 24% in 2016.

Among the segments, a larger proportion of intensive riders identify themselves as African-American (50%) than do riders in the occasional (29%) and frequent (28%) rider segments. It follows, then, that Caucasians make up a larger portion of occasional (44%) and frequent riders (49%) than intensive riders (21%).

Figure 31 Language Spoken at Home

Q42 What language do you most often speak at home?
(Source: GoTriangle Onboard survey, 2016)



	2016	Occasional rider	Frequent rider	Intensive rider
English	85%	83%	89%	82%
Spanish	6%	6%	4%	9%
Other	9%	12%	7%	9%

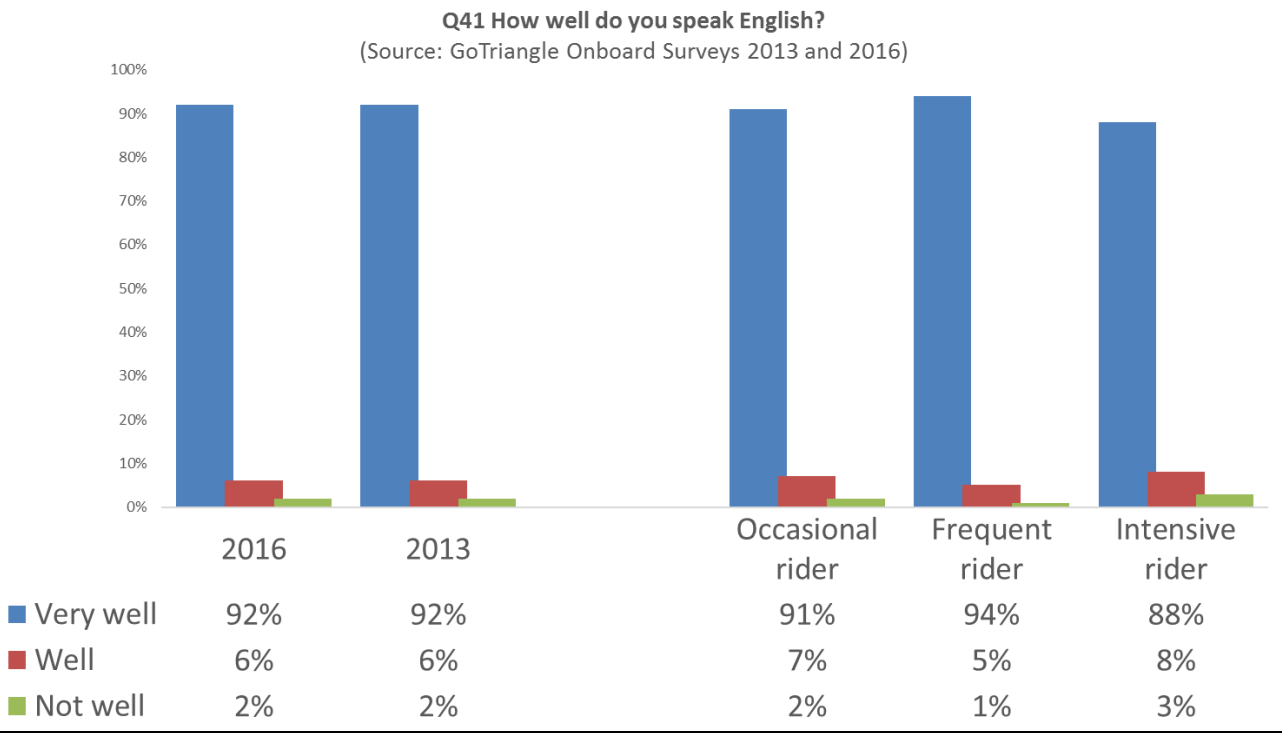
Language Spoken at Home

While 85% of riders speak English at home, 6% speak Spanish and 9% a variety of other languages, primarily Asian and African.

The three rider segments do not differ greatly in terms of their first language, with a range from 82% to 89%. The occasional and intensive rider segment each includes 18% for whom English is not the language spoken at home.

In responding to the survey, 167 riders (unweighted) said that Spanish was spoken at home, but 75% of them opted to complete the questionnaire in English. We find that this is characteristic in rider surveys throughout the United States. Typically, this tendency is age-related. The older the rider, more likely he or she is to complete the survey in Spanish. The age break among GoTriangle riders is 30 years of age. Of those completing the questionnaire in English 45% are 30 or younger, and 55% are older than 30. Of those completing it in Spanish, 27% are 30 or younger and 73% are older than 30.

Figure 32 Proficiency in English



Proficiency in English

A small percentage of riders indicated they do not speak English well or very well (2%, unchanged since 2013). Differences among the rider segments do not differ enough to warrant any marketing response directed to one group or the other.

Figure 33 Ethnicity and Ability in English

	African American/Black	Asian	Hispanic	Caucasian /White	Native American Indian	Other
English Proficiency						
Very well	97%	71%	75%	97%	94%	93%
Well	2%	24%	15%	3%	5%	7%
Not well	1%	5%	10%	0%	1%	0%
Language spoken at home						
English	94%	56%	38%	94%	94%	78%
Spanish	2%	2%	55%	1%	3%	8%
Other	3%	42%	8%	4%	2%	14%

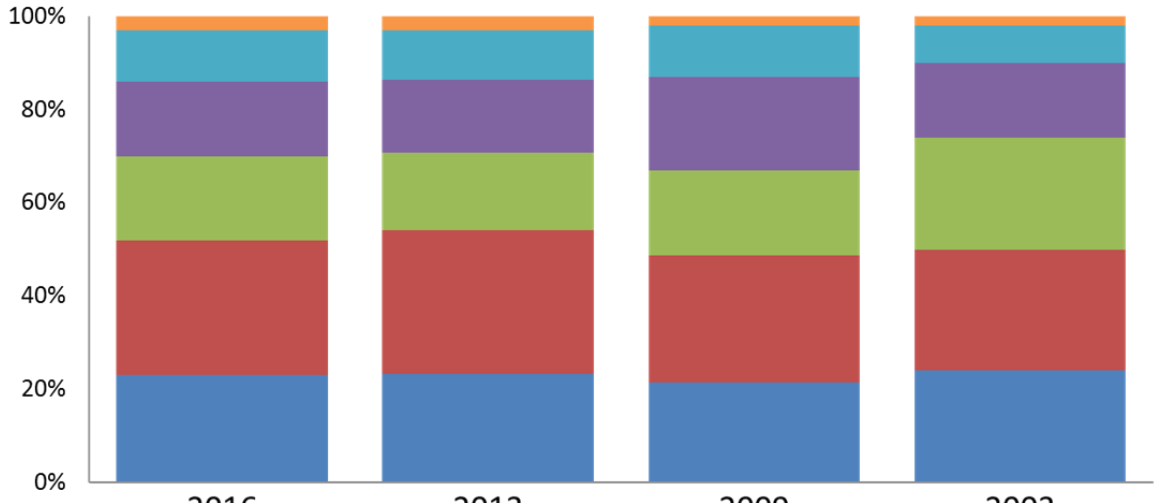
The inset table shows how these tendencies relate to ethnicity. Of GoTriangle riders who identify themselves as Hispanic (75%) say they speak English "very well." Hispanic riders are also the ethnic group more likely than others to say they speak a language other than English at home (55%).

Of riders who identify themselves as Asian, 71% say they speak English "very well," and 42% say they speak a language other than English or Spanish at home.

Figure 34 Age in Sets of Ten Years

Q33 Age

(Source: Triangle Transit Onboard Surveys, 2003, 2009, 2013, and 2016)



	2016	2013	2009	2003
65 or older	3%	3%	2%	2%
55 to 64	11%	11%	11%	8%
45 to 54	16%	16%	20%	16%
35 to 44	18%	17%	18%	24%
25 to 34	29%	31%	27%	26%
16 to 24	23%	23%	21%	24%

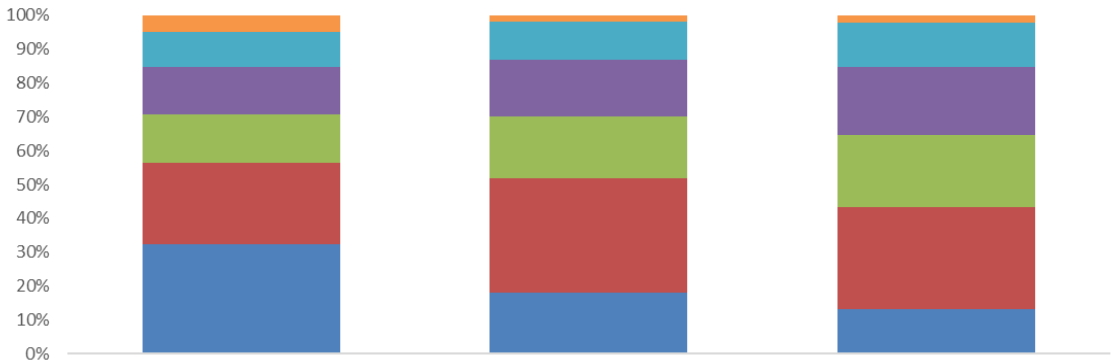
Age of Riders

The age distribution of GoTriangle ridership has been quite stable throughout the four surveys conducted by CJI Research, with the largest proportion of riders continuing to be under 45 years of age. In 2003, 74% were 44 years or younger; in 2009, 66% were 44 years or younger; and in 2013, 71% fell into that age group. Most recently, in 2016, 70% are 44 of younger.

Conversely, riders in the 45 and older age group have represented from 26% of the ridership in 2003 to 30% in 2016.

Figure 35 Age of the Rider Market Segments

Q33 Age of the rider market segments
(Source: GoTriangle Onboard Survey, 2016)

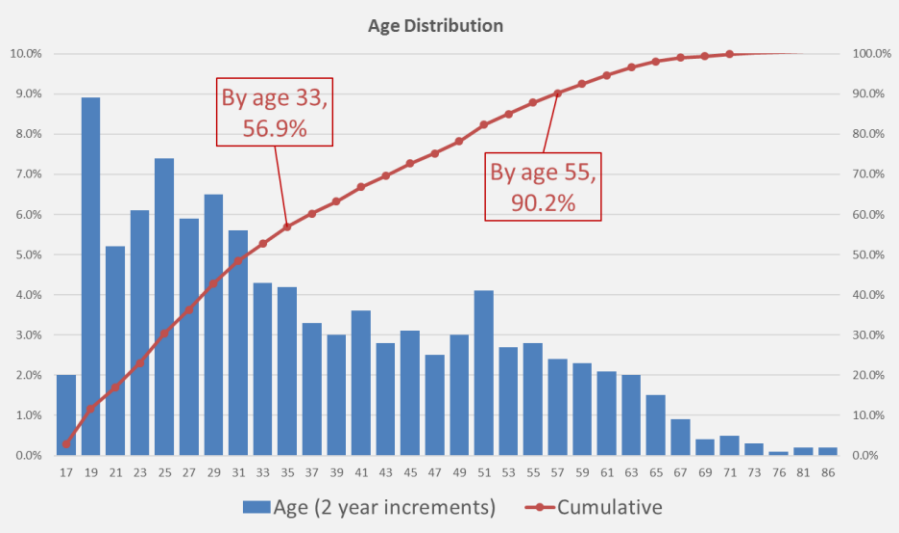


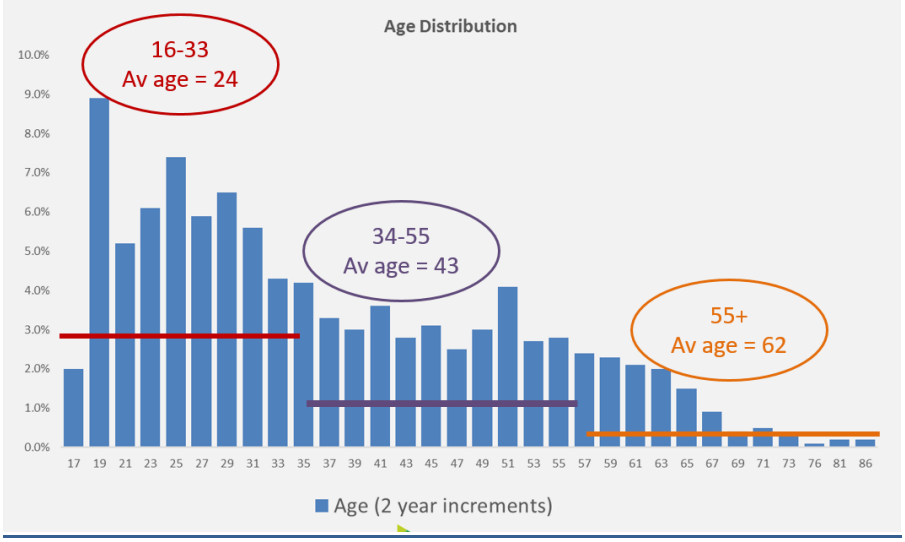
	Occasional	Frequent	Intensive
65 or older	5%	2%	2%
55 to 64	10%	11%	13%
45 to 54	14%	17%	20%
35 to 44	14%	18%	21%
25 to 34	24%	34%	30%
16 to 24	32%	18%	13%

Age of the Rider Market Segments

Occasional riders differ substantially from the other segments in terms of age. Among occasional riders, 32% fall in the 16 to 24 age groups compared to 18% for frequent and 13% for intensive riders. This appears to be related to the fact that more of the occasional riders are students. (See Figure 28.) While 42% of occasional riders are students, 23% of intensive riders, and only 15% of frequent riders are students.

Figure 36 Age Distribution





Age Distribution

Overall, the age distribution of GoTriangle ridership skews younger, as the charts at the left indicate. More than half, 56.9%, of the ridership is thirty-three or younger.

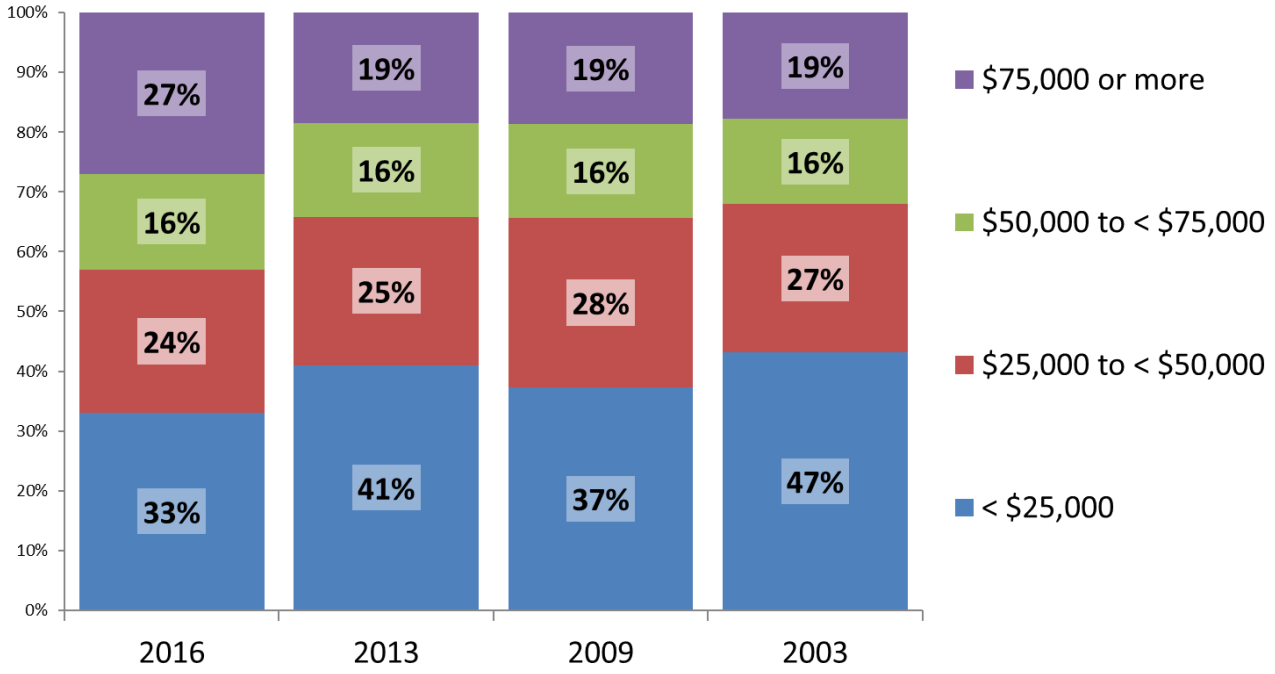
The use of transit appears to be a life-stage event as illustrated by the second chart. This is a pattern of age distribution that CJI has observed in various transit passenger studies in transit systems large and small.

The age groupings are somewhat arbitrary and vary from transit system to transit system. But the three tier pattern of the distributions persists. Note the high percentage of riders at the younger end of the ridership age-continuum between the ages of 16 and 30 or 31. This appears to coincide with the years of schooling and the early period of establishing a career. Using the age range of 16 to 31, the average age of the GoTriangle rider in this age-range is 24.

This first and largest age grouping is followed by a relatively flat distribution which, in most peoples' lives, coincides with a long career period from early thirties through the mid-fifties and appears to end as retirement begins to loom. For GoTriangle, if we take the range of 33 through 55, the average age of these riders is 43. The third stage, beginning at about the age of 55, coincides with a stage of late career and then retirement. Within that age range, the average age is 62.

Figure 37 Household Income

Q43 What is your total annual household income?
(Source: GoTriangle Onboard Survey, 2003, 2009, 2013, and 2016)

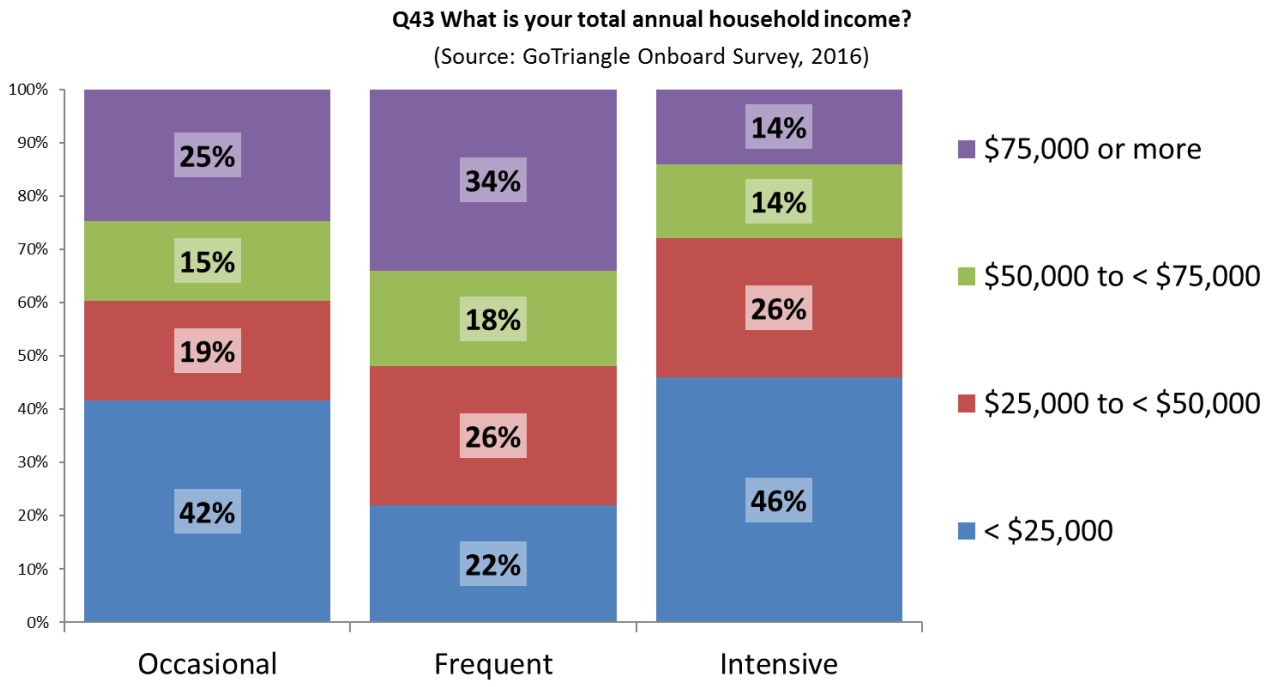


Household Income

A comparison of all riders from 2003 through 2016 reveals that household incomes of riders have fluctuated somewhat over time but increased markedly between 2013 and 2016. In 2013, 19% of surveyed riders reported household incomes of $50,000 or greater, while in 2016 the comparable figure was 27%. There was a corresponding decrease in the percentage of riders with incomes of less than $25,000 from 41% in 2013 to 33% in 2016.

These changes do not indicate that ridership has become affluent. A total of 57% have household incomes of less than $50,000. For perspective, median household income of the general population in Durham County in 2015 was $54,160, and in Wake County was $67,300.

Figure 38 Household Income by Ridership Market Segment



Household income by Ridership Market Segment

Income levels vary with surveyed riders' frequency of using GoTriangle. Frequent riders, who are likely to be using GoTriangle to commute and to be employed in four to five day a week jobs, are more likely than riders in the other segments to have household incomes of $50,000 or more (total of 52%, compared to 40% for occasional riders and 28% for intensive riders). Many occasional riders are students. Intensive riders are likely to be employed, but to be employed at lower wages than other riders as indicated by Figure 38.

Figure 39 Demographics in Table Format

Demographics	Occasional	Frequent	Intensive	Total 2016	Total, 2013	Total, 2009	Total, 2003
Gender							
Male	53%	49%	51%	51%	51%	54%	48%
Female	47%	51%	49%	49%	49%	46%	52%
Age							
16 to 24	32%	18%	14%	22%	23%	21%	24%
25 to 34	24%	34%	30%	30%	31%	27%	26%
35 to 44	15%	18%	21%	17%	17%	18%	24%
45 to 54	14%	17%	20%	16%	16%	20%	16%
55 to 64	10%	11%	13%	11%	11%	11%	8%
65 or older	5%	2%	2%	3%	3%	2%	2%
Ethnicity							
African-American	29%	28%	50%	33%	36%	38%	43%
Asian	15%	12%	12%	13%	12%	43%	39%
Caucasian/White	44%	49%	21%	42%	44%	12%	10%
Hispanic	7%	6%	9%	7%	5%	5%	5%
Native American	2%	1%	1%	1%	1%	1%	1%
Other	3%	3%	6%	4%	3%	3%	4%
Income							
Less than $10,000	20%	6%	15%	12%	18%	15%	17%
$10,000 to less than $15,000	6%	4%	10%	6%	8%	6%	9%
$15,000 to less than $20,000	3%	2%	6%	3%	6%	5%	7%
$20,000 to less than $25,000	13%	10%	15%	12%	9%	10%	14%
$25,000 to less than $35,000	9%	11%	16%	11%	11%	13%	15%
$35,000 to less than $50,000	10%	15%	10%	13%	14%	15%	12%
$50,000 to less than $75,000	15%	18%	14%	16%	16%	16%	15%
$75,000 to less than $100,000	11%	17%	7%	13%	8%	11%	7%
More than $100,000	14%	17%	7%	14%	11%	8%	5%
Household size							
One person in household	22%	18%	19%	20%			
Two persons	30%	41%	30%	36%		Not asked prior to 2016	
Three persons	19%	16%	19%	18%			
Four persons	18%	14%	19%	16%			
Five or more persons in household	11%	10%	12%	10%			
Poverty level (computed from income and household size)							
Approximately at or below poverty level	32%	16%	37%	25%			
Above poverty level	68%	84%	63%	75%			

Demographics in Detail

The demographics which we have already reviewed are contained in Figure 37 above. The purpose of the table is to place all the demographic information in one compact representation. It breaks household income into smaller categories than shown in the preceding charts.

Customer Satisfaction

Figure 40 Overall Satisfaction with GoTriangle Service

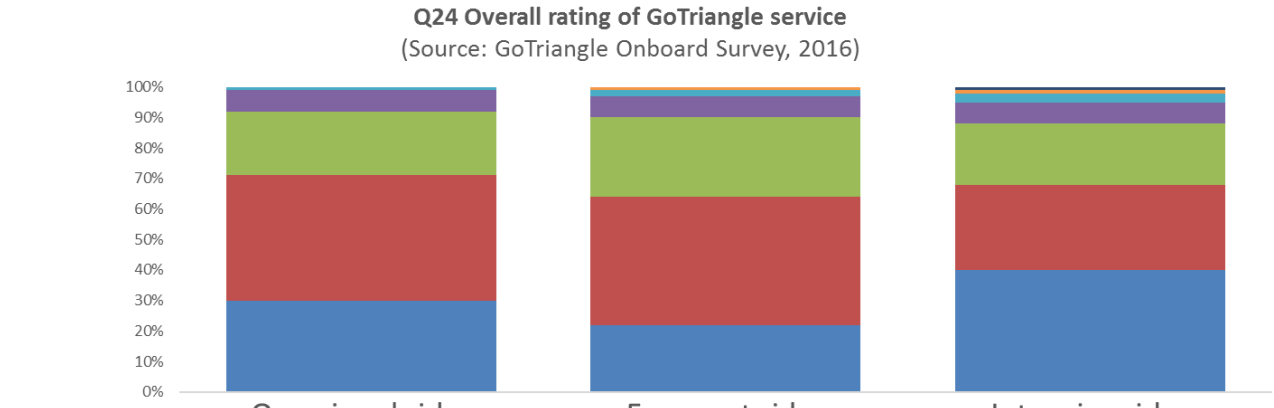
Q42 Overall, how do you rate GoTriangle?
(Source: GoTriangle Onboard Surveys, 2003, 2009, 2013, and 2016)

	2016	2013	2009	2003
Very poor	0%	1%	1%	1%
Near very poor	1%	1%	1%	1%
Low middle	2%	1%	2%	2%
Middle	7%	6%	8%	12%
High middle	23%	20%	25%	24%
Near excellent	39%	41%	36%	29%
Excellent	28%	30%	28%	31%

Overall Satisfaction with GoTriangle Service

The satisfaction score for GoTriangle service overall steadily increased from 2003 through 2013, and has plateaued since that time. In 2003, 60% of riders rated it excellent or near excellent, and in 2009 64% rated it excellent or near excellent. In 2013 the number rating GoTriangle excellent or near excellent rose to 71% but in 2016 it declined to 67%. While this results in an overall increase of 7% from 2003-2016, the decline from 2013-2016 could likely be attributed to the extensive construction in the area and resulting service challenges.

Figure 41 Overall Satisfaction with GoTriangle Service, by Rider Market Segments



	Occasional rider	Frequent rider	Intensive rider
Very poor	0%	0%	1%
2	0%	1%	1%
3	1%	2%	3%
4	7%	7%	7%
5	21%	26%	20%
6	41%	42%	28%
Excellent	30%	22%	40%

Overall Satisfaction with GoTriangle Service, by Rider Market Segments

Overall satisfaction with GoTriangle service varies among the three market segments. The intensive riders are the most likely to offer the top rating of excellent (40%). Frequent riders are less likely to provide an excellent score (22%), and occasional riders fall in between 30%.

It is not unusual for intensive riders to offer high ratings for transit service. Presumably this has to do with their relative dependence on the service, and that they feel it serves them well enough to be able to depend upon it six or seven days a week.

On the other hand, the frequent rider is usually using the service to commute, and an occasional delay could mean more than a minor inconvenience because of the importance of being on time for work. In addition, the frequent rider is more likely to have other transportation options and can afford to be more critical.

Figure 42 Overall Rating of Regional Service, 2009 - 2016

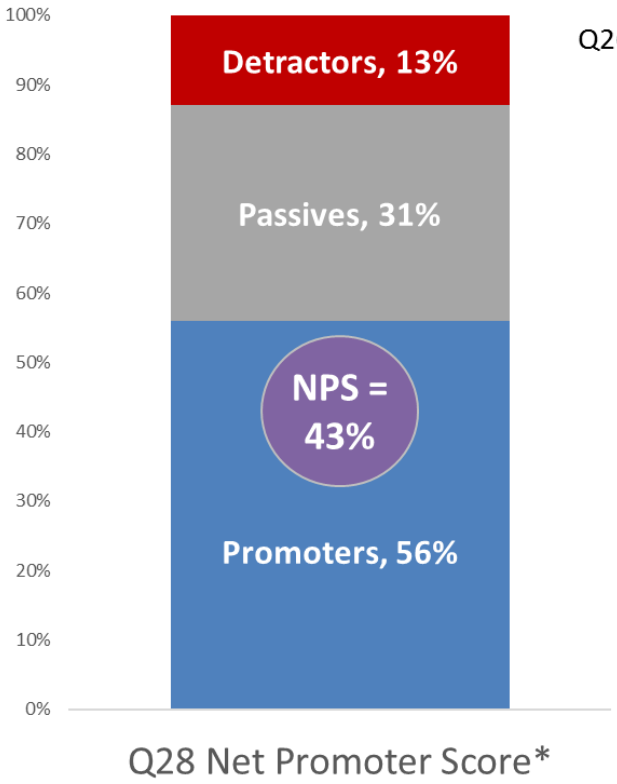
Q25 Overall, how do you rate transit service in the region, including all the bus systems you use?
(Source: GoTriangle Onboard Surveys, 2009, 2013, and 2016)

	2016	2013	2009
Very poor	1%	1%	1%
Near very poor	2%	2%	4%
Low middle	5%	4%	6%
Middle	12%	10%	14%
High middle	24%	24%	26%
Near excellent	31%	35%	26%
Excellent	23%	25%	23%

Overall Rating of Regional Service, 2009 - 2016

In 2016, the overall rating of transit service in the region, including all systems used by respondents, is quite positive, with 54% rating it in one of the two top categories. The rating was slightly higher in 2013, with 60% in the top two categories. That in-turn represented an improvement over the 49% rating regional service that well in 2009.

Figure 43 Net Promoter Score (NPS)



Q26 How likely are you to recommend GoTriangle service to a friend or colleague?
(Source: GoTriangle Onboard Survey, 2016)

Net Promoter Score =
(% promoters - % detractors.)
56% - 13% = 43%

* Net Promoter® and NPS® are registered trademarks and Net Promoter Score and Net Promoter System are trademarks of Bain & Company, Satmetrix Systems and Fred Reichheld.

Net Promoter Score

The NPS, or Net Promoter Score is a commercially marketed analysis tool that is widely used among corporations to compare performance on a common customer satisfaction standard. It is computed based on the response to the question: *How likely are you to recommend GoTriangle service to a friend or colleague?* Responses are recorded on an eleven-point scale from 0 to 10.

In the NPS concept:

- Promoters (score 9-10) are loyal enthusiasts who will continue to be customers and refer others, fueling growth.
- Passives (score 7-8) are satisfied but unenthusiastic customers who are vulnerable to competitive offerings.
- Detractors (score 0-6) are unhappy customers who can damage your brand and impede growth through negative word-of-mouth.

To calculate your company's Net Promoter Score (NPS®), take the percentage of customers who are Promoters and subtract the percentage who are Detractors[4].

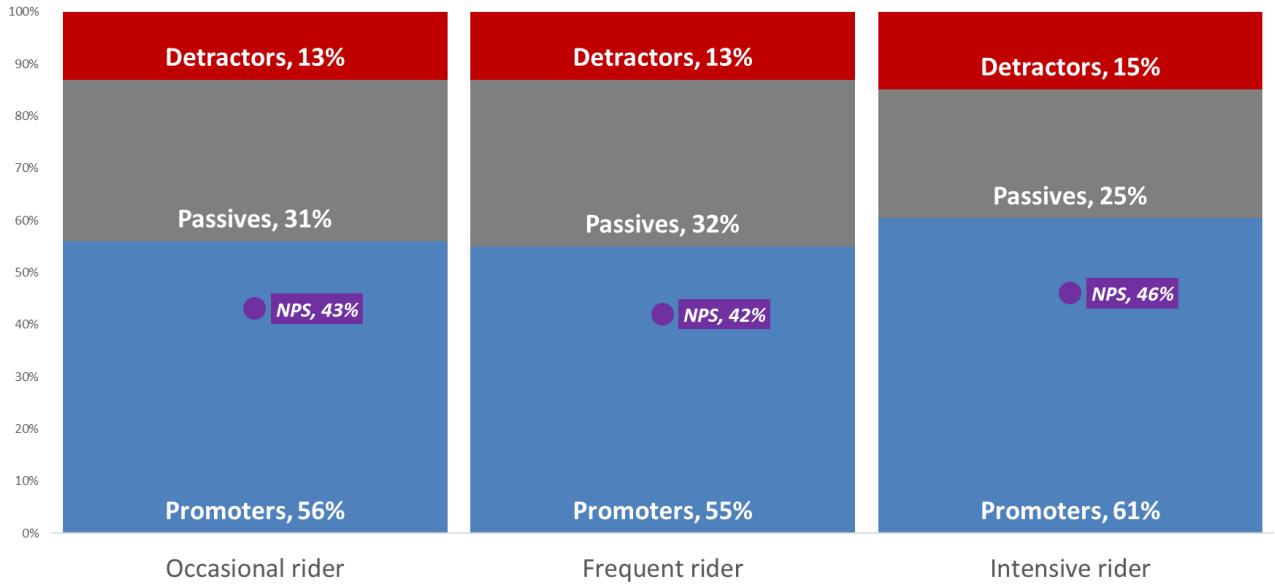
[4] Quoted from the Net Promoter Community website, of Satmetrix, at http://www.netpromoter.com/why-net-promoter/calculate-your-score

The difficulty in applying this score to a transit system is that comparisons are very few, if any. Commercial companies that use the NPS tend to be consumer companies with large marketing budgets and well-known brand names. Many enjoy NPS scores of 60 or more, something few transit systems could hope to approach simply because of the nature of the service.

In the case of GoTriangle, The Net Promoter Score is 43%, with a total of 56% promoters, and only 13% detractors.

Figure 44 NPS and Rider Market Segments

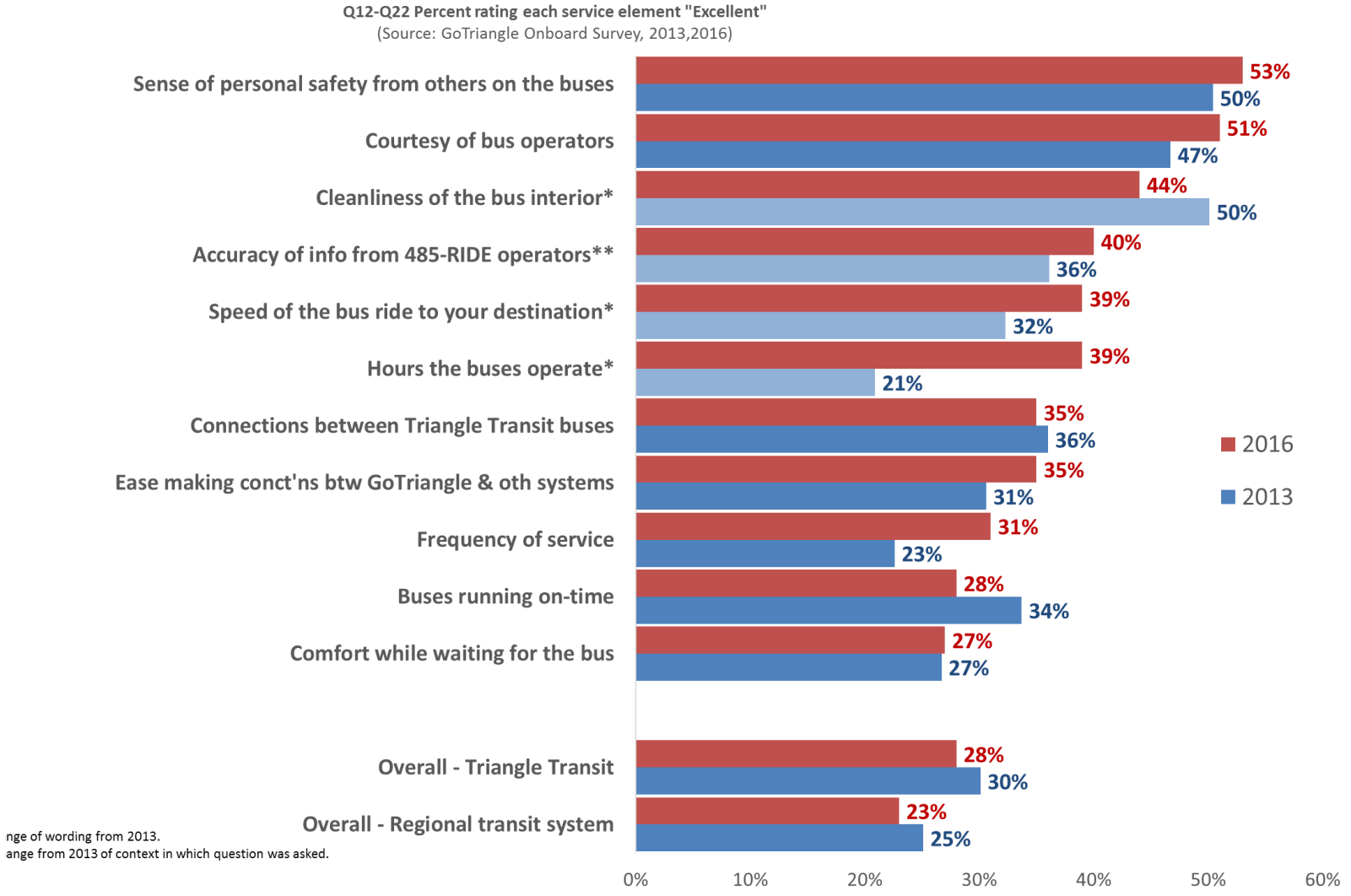
Q26 How likely are you to recommend GoTriangle service to a friend or colleague?
(Source: GoTriangle Onboard Survey, 2016)



NPS and Rider Market Segments

The NPS scores vary among the market segments as we would expect given the ratings shown in the previous chart, Figure 41. The best score, 46%, is found among the intensive riders while both occasional riders and frequent riders are somewhat lower at 43% and 42%, respectively.

Figure 45 Top Satisfaction Scores - Comparison of Responses to Similar Questions, 2013 & 2016



nge of wording from 2013.
ange from 2013 of context in which question was asked.

Satisfaction scores – Comparison of Responses to Similar Questions, 2013 & 2016

Figure 45 (previous page) presents our first look at more detailed customer satisfaction scores. The chart, for convenience, includes only the top score. In this case, because the customer satisfaction ratings scale ranged from 1 to 7 (seven being the best score), only scores of seven are reported here.

For several of the questions the comparison is only approximate because of significant changes in wording or context. In the chart the 2013 percentage is shown in an attenuated color to indicate that some of the difference may be a result of the change in question wording. These questions are:

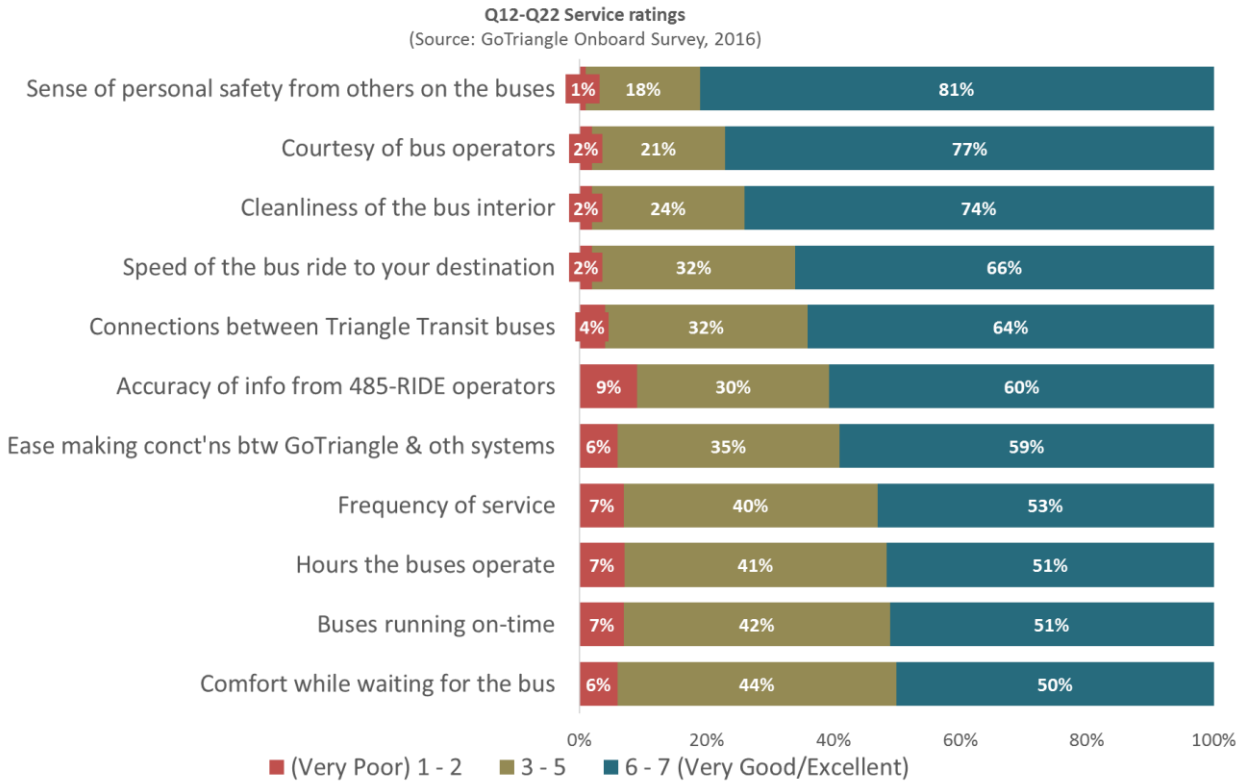
2016	**2013**
Hours the buses operate	Time Triangle Transit buses stop running in the evening
Speed of the bus ride to your destination	Total travel time, door to door
Ease of making connections between GoTriangle & other area bus systems (GoDurham, GoRaleigh, GoCary, etc.)	Connections between Triangle Transit and other local buses (CAT, CHT, DATA, C-Tran, Duke, Wolfline)
Cleanliness of the bus interior	Cleanliness of the bus
The following item involved a change, not in wording, but of the context in which the question was asked.	
Accuracy of information from 485-RIDE telephone operators	In 2013, this was asked in a set of other questions about information, including the ticket office staff at the Regional Transit Center, and the ease of understanding the printed bus schedules. In 2016, this was the only information services rating question.

The most important aspect of this chart is the improvement in most ratings. The characteristic with the greatest change in positive percent is the item involving service span asked in terms of the hours the buses operate. Unfortunately, that is not an unambiguous change since, as shown above, the wording changed significantly. The top scores for the differing measures went from 21% excellent in 2013 to 39% excellent in 2016. Frequency of service and the speed of the bus ride to the destination also showed improved scores with the former rising from 23% to 31%, and the latter rising from 32% to 39%.

Most other scores either remained constant (within 1%) or improved marginally, by between 1% and 4%.

Only two scores declined significantly. Buses running on time declined from 34% excellent to 28% excellent. The wording was constant. The cleanliness issue saw a decline from 50% to 44%, but the wording changed from cleanliness of the bus in 2013 to cleanliness of the bus interior in 2016.

Figure 46 Distribution of Satisfaction Ratings

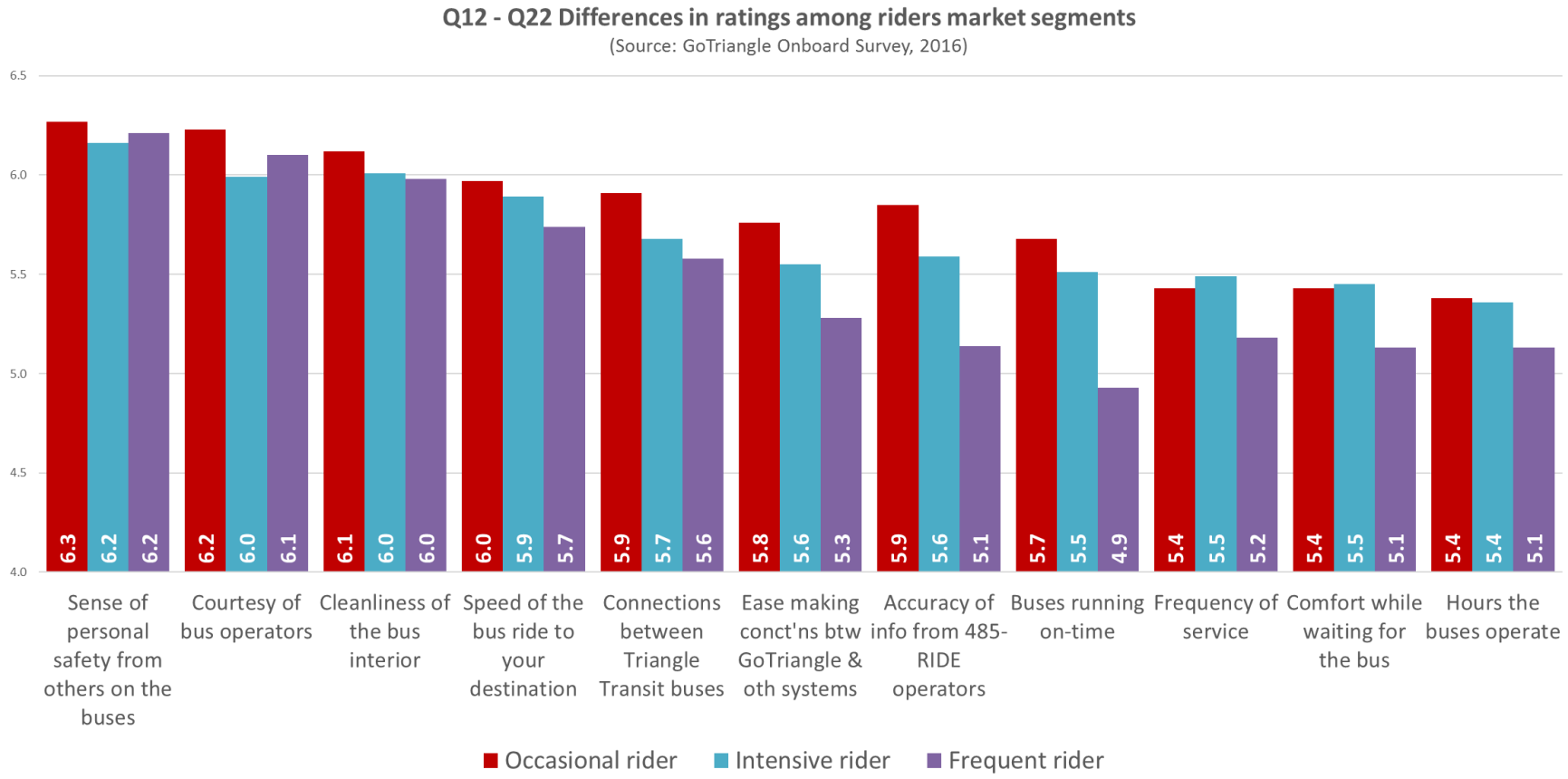


Satisfaction Ratings in Perspective

It is worth examining satisfaction scores from several perspectives. In the chart above, the top two scores are combined and the bottom two scores are combined. The middle scores, between three and five, can be considered neither extremely positive nor extremely negative, but rather C+ to C-. The scores of six or seven represent either excellent or nearly excellent scores and simply present another way to consider the results.

In Figure 46 we can see that the lower-scored items were not low because they were rated as very poor, but primarily because so many scores were in the middle, between three and five. It should also be noted that relatively few riders had direct experience with the 485-RIDE line so that the effective sample was smaller for that question than for others, a fact that mean a few negative scores had a stronger negative impact.

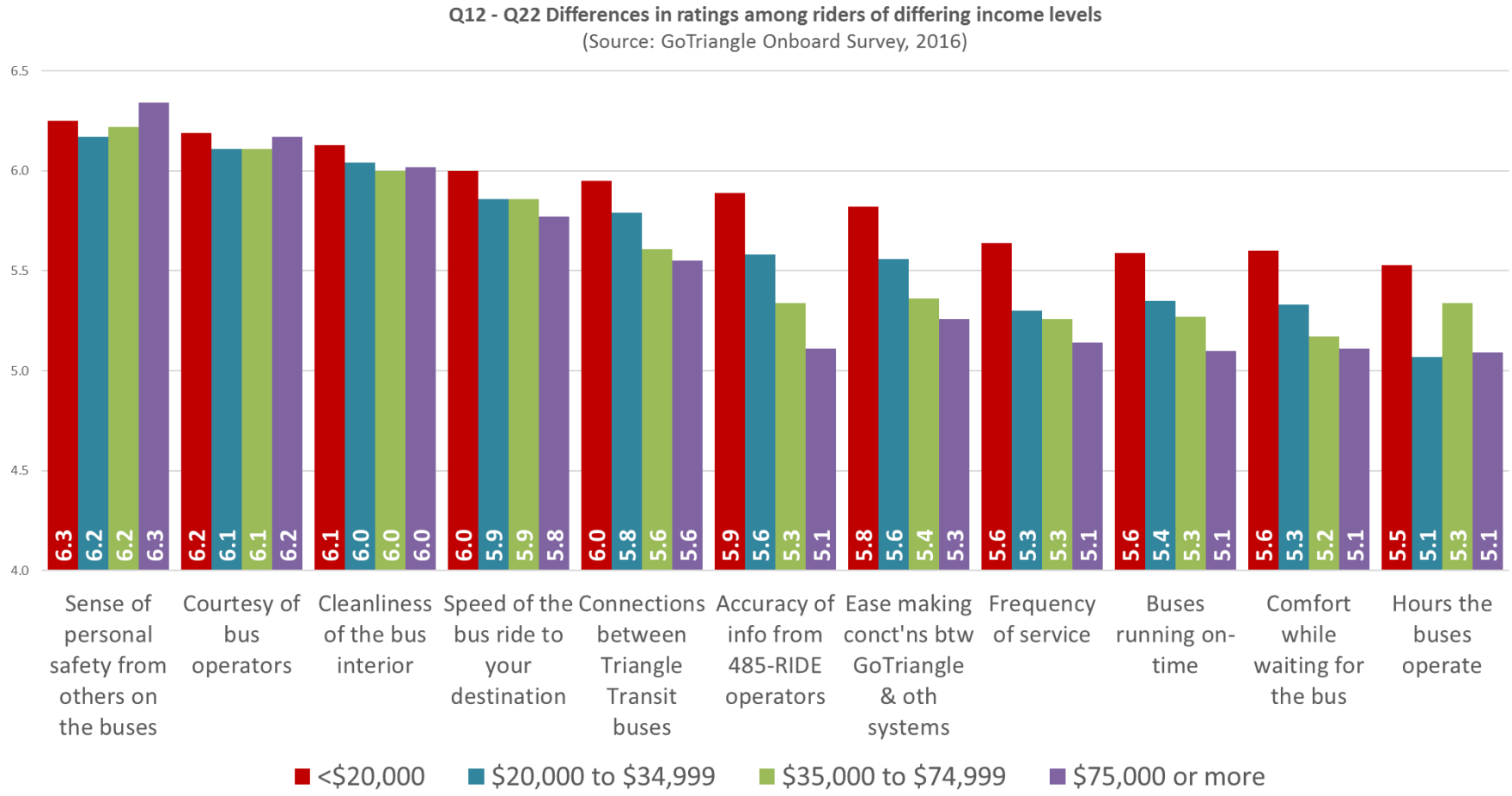
Figure 47 How the Ridership Segments Compare in Terms of Their Service Ratings



Comparing Mean Scores among the Segments

Differences in the mean scores of the segments are small on most service elements, with most differences in tenths, not full points (The chart in Figure 47 anchors the vertical axis at a score of four, not at zero in order to display the differences more clearly.) We can see that for the top three scores, all of which relate to comfort-level (sense of safety, courtesy of operators, cleanliness of bus interior), the scores are very close. They diverge on operational elements, speed, connections, on-time performance, and on information service, with occasional riders providing more favorable scores than intensive riders who provide more favorable scores than frequent riders. On frequency, comfort while waiting and hours of operation, both occasional and intensive riders offer more positive scores than frequent riders.

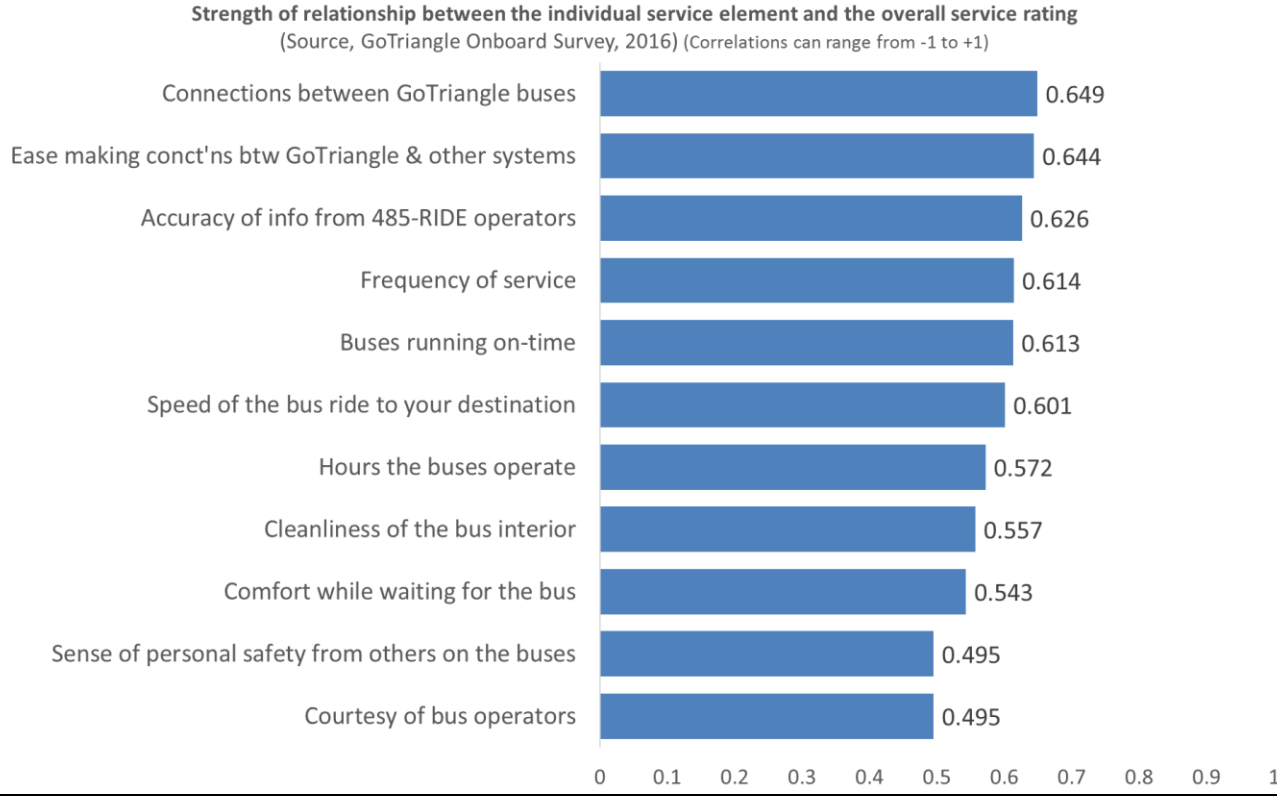
Figure 48 Household Income and Mean Service Ratings



Household Income and Mean Service Ratings

In Figure 48 we can see a relationship between income and ratings. It follows a pattern similar to that shown between ratings and rider market segments. The lowest income riders tend to give higher scores, while, with the exception of sense of safety, operator courtesy, and interior cleanliness, the highest income riders tend to give the lowest scores. A possible explanation is riders with the highest incomes have the ability to be more critical because they have greater modal flexibility.

Figure 49 Relationship Between Service Elements and Overall Satisfaction



Correlation Between Satisfaction with GoTriangle Service Overall and Individual Aspects of Service

The numbers in Figure 49 above represent correlation coefficients. Correlation coefficients measure the strength of relationship between two variables, in this case between the individual elements of service and the overall service rating. Correlation coefficients can vary from -1 to +1. A coefficient of zero would mean there is no relationship. A coefficient above +.5 (e.g., +.63) means there is a fairly strong positive relationship.

All of the ratings of individual elements of service are related to the overall service rating. Several of these factors are strongly correlated with overall satisfaction. Connections between GoTriangle buses and connections with other local buses are elements most closely associated with overall satisfaction. This is not to say that the others, such as the time the bus stops running in the evening, comfort while waiting for the bus, and so forth, are not important. However, as variables explaining why some people are more satisfied overall with GoTriangle service and why others are less satisfied, the service elements at the top of the list are more important.

For example, the correlation coefficient of .65 between overall satisfaction and connections between GoTriangle buses means that the more a rider is satisfied with those connections, the more likely he or she is to be satisfied with GoTriangle overall.

Introduction to a Quadrant Chart Method of Displaying Service Improvement Priorities

Prioritizing areas for service improvement is a major operational challenge for a transit system. Manipulating survey data from passengers to try to understand their priorities is also difficult. Figure 48 on the following page presents one approach to that task.

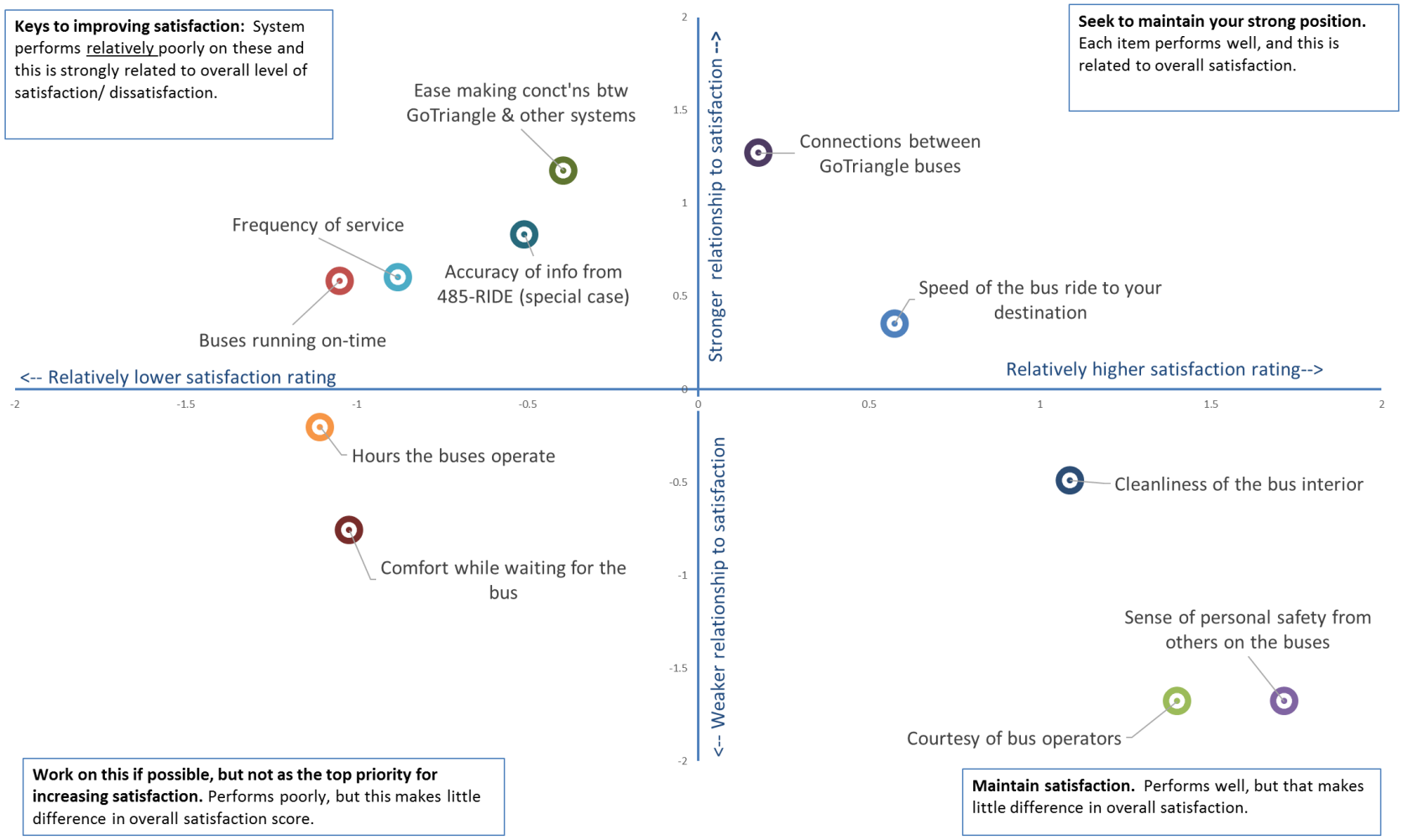
The satisfaction questions include one rating of service overall and a series of many ratings of individual elements of service. The key objective of the chart is to combine the individual rating of each element of service and the relationship of each element to the overall rating. The intent is to answer the question: "How important is each element, like driver courtesy or frequency of service (etc.) to the passengers' rating of service overall?" and "What actions should the administration take with respect to each element of service?"

A coefficient of correlation can vary from -1 to +1, and is generally a decimal number such as .23 or -.67 etc. The rating scores are all positive and vary from 1 – 5. Because these are such different numbers in absolute terms, the only way to compare them is to *standardize* them. To *standardize* scores simply means to *relativize* them with respect to each other so that they can be compared on a common basis. That is, numbers are converted to a new measurement of how relatively high or relatively low they are. The resulting chart is not a chart of absolute scores on each service but a combination of how well a service was rated relative to other services, and how strongly that rating is associated with the overall rating of service.

The resulting chart contains four quadrants:

Correlation of each service rating with the rating of overall service		
Relatively High	**Keys to improving satisfaction:** *Relatively* poor performance on these services compared to others and this is related to overall level of satisfaction. Performance here hurts overall rating.	**Maintain your strong position.** Each item performs *relatively* well compared to other items, and is significantly related to overall satisfaction.
Relatively Low	**Work on this if possible, but not as top priority for increasing satisfaction among current riders.** *Relatively* poor performance but that makes little difference in overall satisfaction score. Riders would be happier with improvement.	**Maintain satisfaction.** Performance of this service is well rated *relative* to other services, but that makes little difference in overall satisfaction.
	Service performance rating	
	Relatively Low	**Relatively High**

Figure 50 Relationship of Individual Aspects of Service and Overall Rating



Relationship of Individual Aspects of Service to Overall Rating – a Priority Matrix

Considering scores on a relativistic basis provides an opportunity to consider rider priorities that may be implied by the ratings.

Upper right: In this quadrant, we can see the relatively satisfactory elements of service that are relatively connected to overall scores are connections among GoTriangle buses and the speed of the bus trip. To maintain high satisfaction, it will be important to maintain these elements of service.

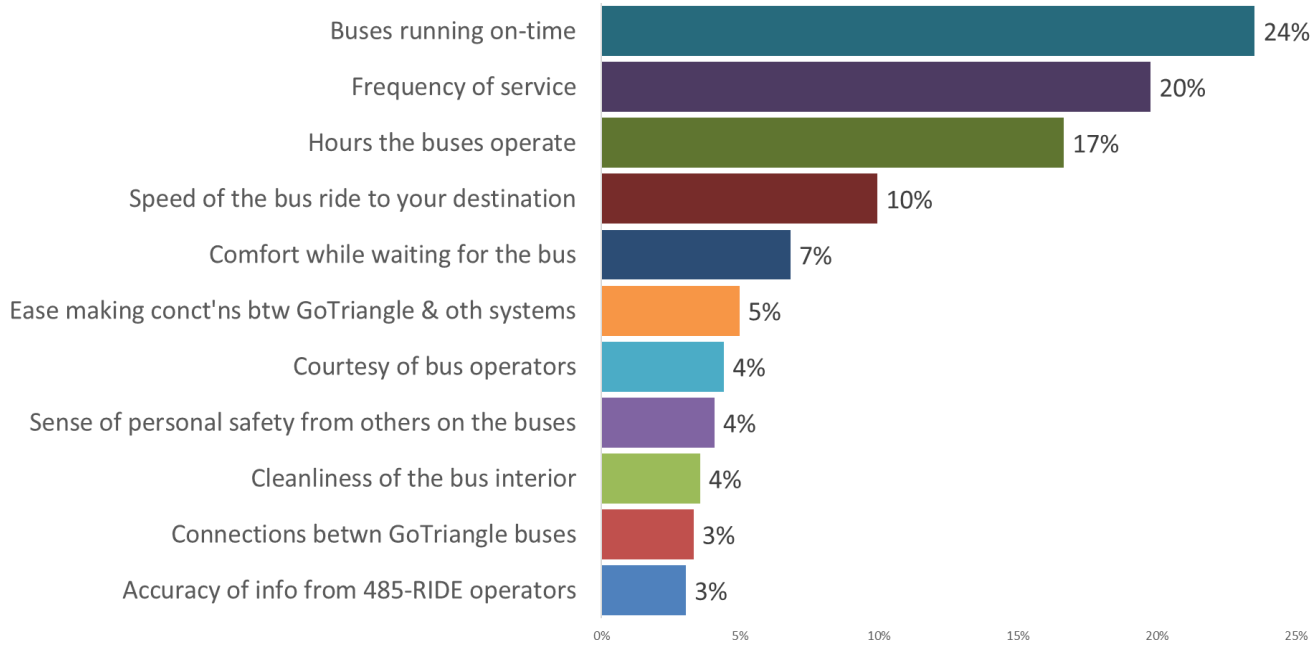
Lower right: These elements are relatively satisfactory to riders, but have little impact on overall satisfaction. Sense of personal safety is one of the three elements here, in addition to cleanliness of the bus interior and courtesy of operators. These are assumptions riders make – that they are safe, that their environment will be clean, and that they will be treated courteously. These are very personal things. If these assumptions were to be violated, that would result in movement not only in a negative direction horizontally in the chart, but also vertically toward the upper left, because suddenly they would take on greater, and very personal, importance.

Lower left: Hours of operation and comfort while waiting for the bus. These tend to be perennial low performers because few systems can operate twenty-four-hour service, and full weekend service. Moreover, while bus shelters and next-bus notifications make the wait easier, many stops will always have inadequate shelter, and there will always be some uncertainty about the arrival of the rider's bus. Riders grow accustomed to parameters provided in terms of hours and comfort, and for this reason these elements do not have significant impacts on overall satisfaction ratings. These are costly and difficult elements to improve. When it is possible to make improvements, they will be well received and will tend to nudge the scores toward the lower right quadrant.

Upper left: Compared to other elements of service, elements in this quadrant are relatively important to the overall service rating and with the exception of accuracy of information from telephone staff, these are operational fundamentals. They include frequency, inter-system connections, and buses running on time. "The accuracy of information from 485-RIDE telephone staff" is labeled as a "special case" because it is used by fewer riders than any of the other service elements, and only half of surveyed riders responded to the question. Therefore a few disgruntled riders would have an outsized impact on the result. As shown in Figure 46, it was the item with the highest negative rating (9%). In addition, if, for whatever reasons of operational difficulties, rider perceptions, or some other reason, information provided proves inaccurate in a few cases, that will have an outsized impact on the scores. Figure 51 examines the items identified by respondents as being the "…three most important to improve." Accurate information from the 485-RIDE telephone staff is lowest on that list (3%). In short, its position in the upper left quadrant of the matrix is caused by a combination of low instance of response due to low rider utilization, in addition to a small number of very negative scores. This combination suggests this is not a systemic problem, but that there may be reason to examine why a small minority of riders would have such a negative view of the service.

Figure 51 Areas for Improvement – Top Three Combined

Q23 Total of first, second, or third most important to improve
(Source: GoTriangle Onboard Survey, 2016)



Areas for Improvement – Top Three Combined

After riders were asked to rate the eleven aspects of service, they were then asked to name which of them would be the three most important to improve, ranking them first, second, and third in importance.

Figure 51 displays the combined percentage of mentions of each element as first, second, or third in importance to improve. The top three are, buses running on time (24%), frequency of service (20%), and hours the buses operate (17%). These are three of the items that appear in the upper left quadrant in Figure 50. Notice that the fourth item in that quadrant, accuracy of information from 485 – RIDE, is named as one of the top three elements to improve by only 3% of the respondents.

In 2013, frequency of service received the most mentions and buses running on time was second. These are, of course, fundamental to all transit riders, and it is not surprising that they are high on the service improvement measure.

Figure 52 Areas for Improvement - Detail

Q23 Top three aspects of service to improve

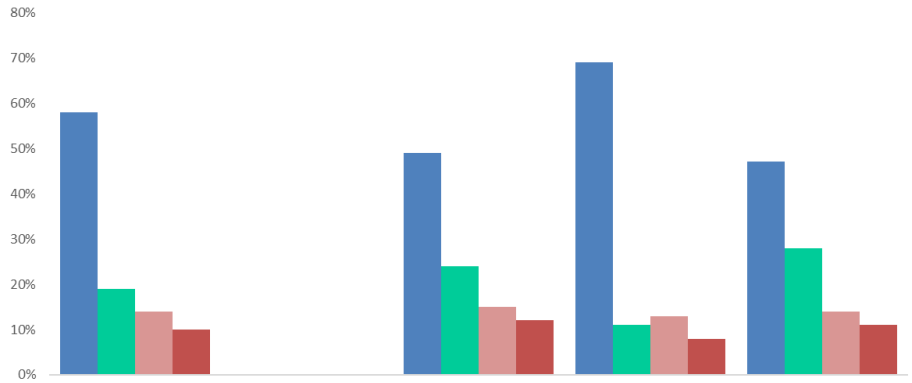
Priority	1st	2nd	3rd	1st, 2nd, or 3rd
Buses running on-time	39%	18%	12%	24%
Frequency of service	20%	24%	15%	20%
Hours the buses operate	15%	18%	18%	17%
Speed of the bus ride to your destination	8%	12%	10%	10%
Comfort while waiting for the bus	5%	6%	9%	7%
Ease making connnections between GoTriangle & other systems	3%	5%	7%	5%
Courtesy of bus operators	2%	5%	6%	4%
Sense of personal safety from others on the buses	3%	4%	5%	4%
Cleanliness of the bus interior	1%	4%	6%	4%
Connections between GoTriangle buses	1%	3%	6%	3%
Accuracy of information from 485-RIDE operators	2%	2%	5%	3%

Areas for Improvement – Detail

Figure 52 provides detail of the first, second, and third improvement priorities. On-time performance is very clearly the top priority at 39%. With 39% naming it as the first priority, it has approximately twice as many votes for that position as the second item, frequency of service.

Figure 53 Expectation of Using GoTriangle a Year from Now

Q29 A year from now, do you expect to …
(Source: GoTriangle Onboard Survey, 2016)



	2016	Occasional rider	Frequent rider	Intensive rider
No Change	58%	49%	69%	47%
Use GoTriangle more often than you do now	19%	24%	11%	28%
Use GoTriangle less often than you do now	14%	15%	13%	14%
Stop using Go Triangle entirely	10%	12%	8%	11%

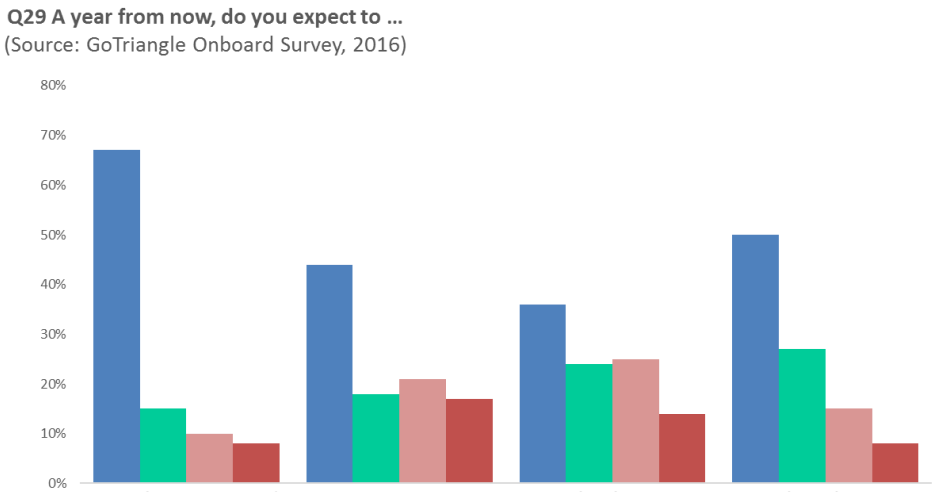
Expectation of Using GoTriangle a Year from Now

In the coming year, most riders (58%) expect to make no change in the frequency with which they use GoTriangle, and some (19%) expect to use it more frequently than at present. However, 14% expect to use it less often, and another 10% expect to stop using it entirely.

It is the frequent riders who are most likely to indicate that there will be no change in their frequency of use, or that they will be using GoTriangle more often (80%). Approximately half of occasional riders (49%) and intensive riders (47%) say they expect to make no change, but approximately one fourth, or slightly more indicate that they expect to use GoTriangle more often. This is true of 24% of the occasional riders, and 28% of the intensive riders.

All three rider segments are fairly similar in terms of the percentage who expect to use the system less often or not at all. For occasional riders that total is 27%, for frequent riders 21%, and for intensive riders 25%.

Figure 54 Modal Choice and Expectation of Using GoTriangle a Year from Now



	Has license and vehicle	License, no vehicle	Vehicle, no license	Neither license nor vehicle
No Change	67%	44%	36%	50%
Use GoTriangle more often than you do now	15%	18%	24%	27%
Use GoTriangle less often than you do now	10%	21%	25%	15%
Stop using Go Triangle entirely	8%	17%	14%	8%

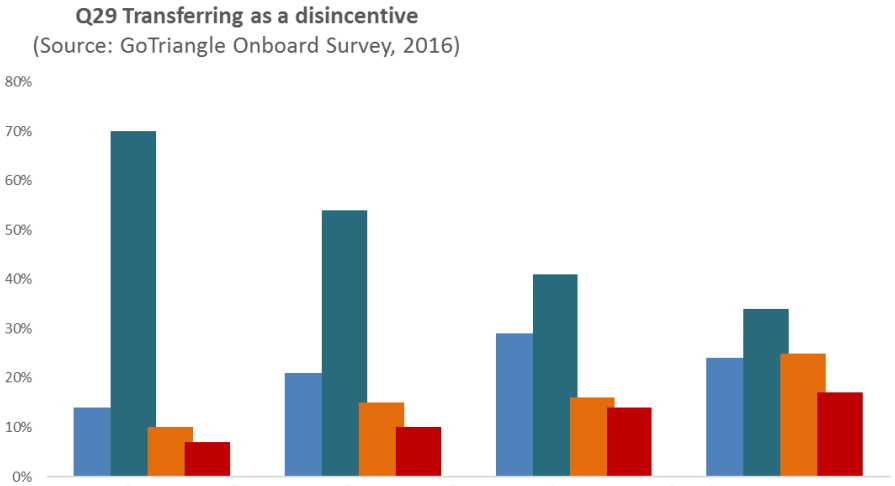
Modal Choice and Expectation of Using GoTriangle a Year from Now

The expectation of reducing or ceasing use of GoTriangle is indirectly related to the extent of modal choice. It is not those who have full modal choice who are more likely to exercise their ability to choose and reduce use of transit. It is those who *potentially* may soon have modal choice because they either have a valid license but no vehicle, or have a vehicle but no valid license, who are more likely than others to expect to use GoTriangle less or not at all.

It appears that those who are close to having transit options, but currently lack either a vehicle or a license, are more likely than those who currently have transportation options to believe they will cease to use GoTriangle.

While only 18% of those with full modal choice expect to reduce or cease use of GoTriangle, 38% of those with a license and no vehicle, and 39% of those with a vehicle but no license, expect to reduce or cease using GoTriangle.

Figure 55 Rider Retention and Transferring

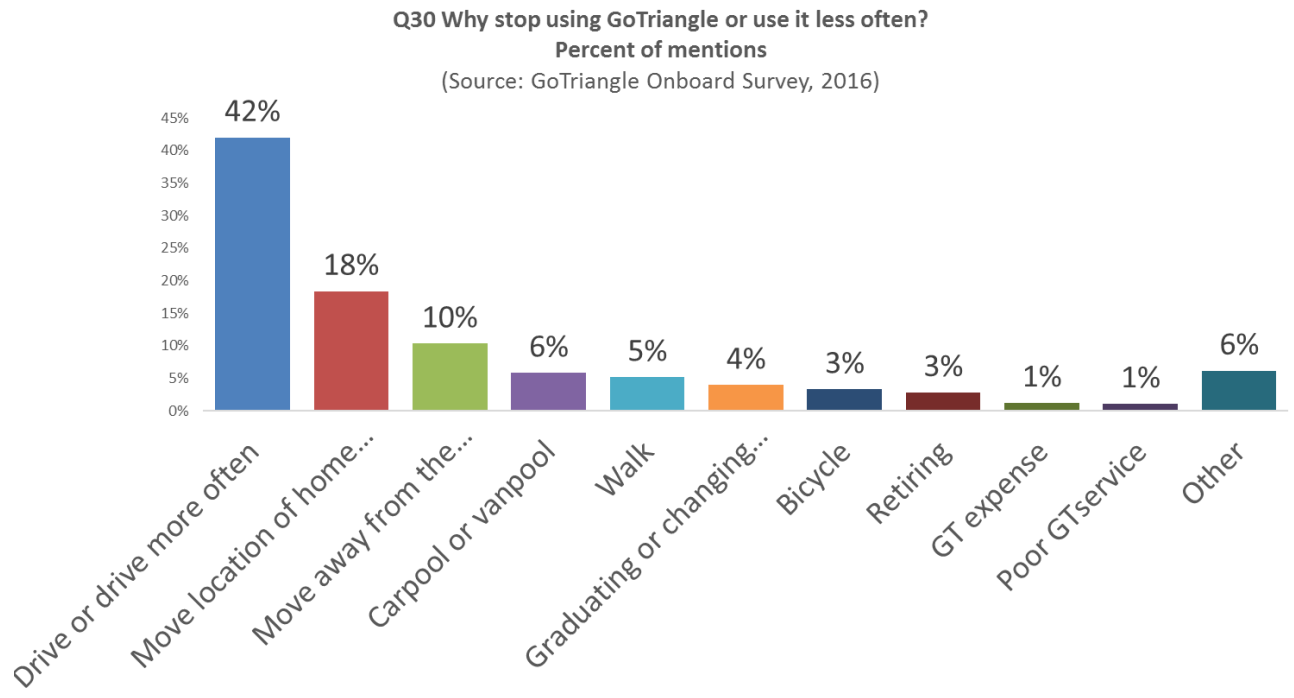


	No change of bus	One change of bus	Two changes of bus	Three or more changes of bus
Use GoTriangle more often than you do now	14%	21%	29%	24%
No Change	70%	54%	41%	34%
Use GoTriangle less often than you do now	10%	15%	16%	25%
Stop using Go Triangle entirely	7%	10%	14%	17%

Rider Retention and Transferring

While adequate coverage requires systems to build transfers into the service structure, riders tend to regard transferring as inconvenient, or at least less convenient than direct routes. Transferring is related to the expectation of continuing to use GoTriangle. Of those making no transfers, 17% expect to use GoTriangle less or not at all. The comparable figure for those transferring once is 25%, twice, 30%, and three or more times, 42%.

Figure 56 Reasons Given for Expecting to Reduce Use of GoTriangle



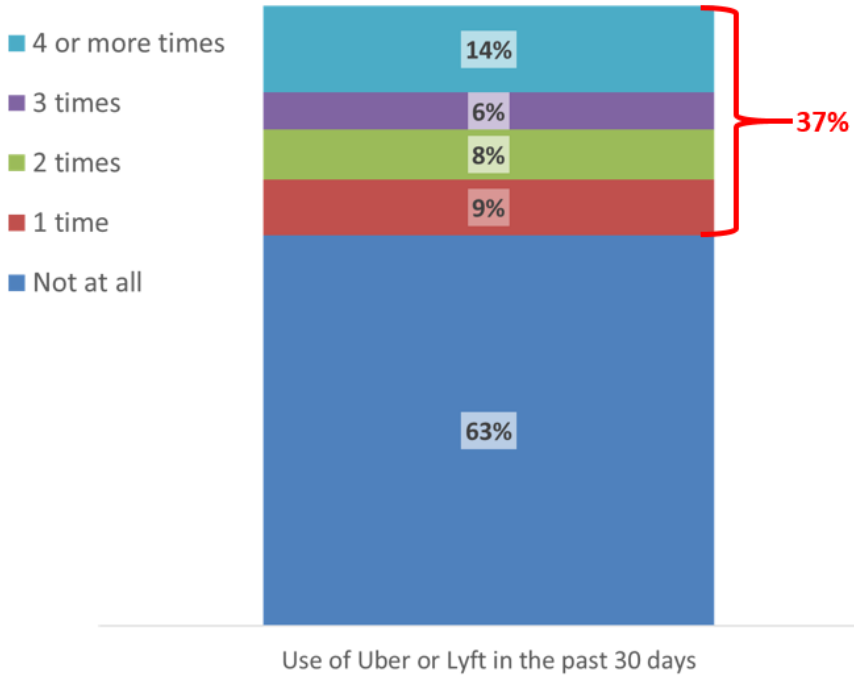
Reasons Given for Expecting to Reduce Use of GoTriangle

Those expecting to reduce their use of GoTriangle were asked what their reasons might be. They were given a list of options and a blank line in which they could fill in further reasons. The reason named more often than any other (42%), was that they would begin driving or drive more often.

The expense of using GoTriangle received 1% of the mentions as did what was perceived to be poor GoTriangle service. Changing modes to carpool or vanpool received 6% of the mentions, while walking received 5% and bicycling 3%. Structural reasons received a number of mentions, including a move of location of home or work (18%), moving away from the GoTriangle area (10%), graduating or changing schools (4%), and retiring (3%).

A total of 14% of the mentions were of a change to an alternative mode other than driving, and 35% of the mentions involved a change in life status or geography.

Figure 57 Use of Uber and Lyft



Use of Uber and Lyft

The advent of Uber and Lyft since 2013 has had a major impact. Among GoTriangle riders, 37% indicate that they have used at least once in the past 30 days, and many have used several times.

Relationship of Using Uber/Lyft to Use of GoTriangle

Respondents were asked whether they had used Uber or Lyft as part of a bus trip. They were also asked whether they had used it to replace a bus trip. While most riders (63%) said that they had not used either Uber or Lyft, 8% said they had used it as part of a bus trip, and 20% said they had used it to replace a bus trip. (Figure 58 shows only those who said they have used Uber or Lyft).

Figure 58 Relationship of Using Uber/Lyft to Use of GoTriangle

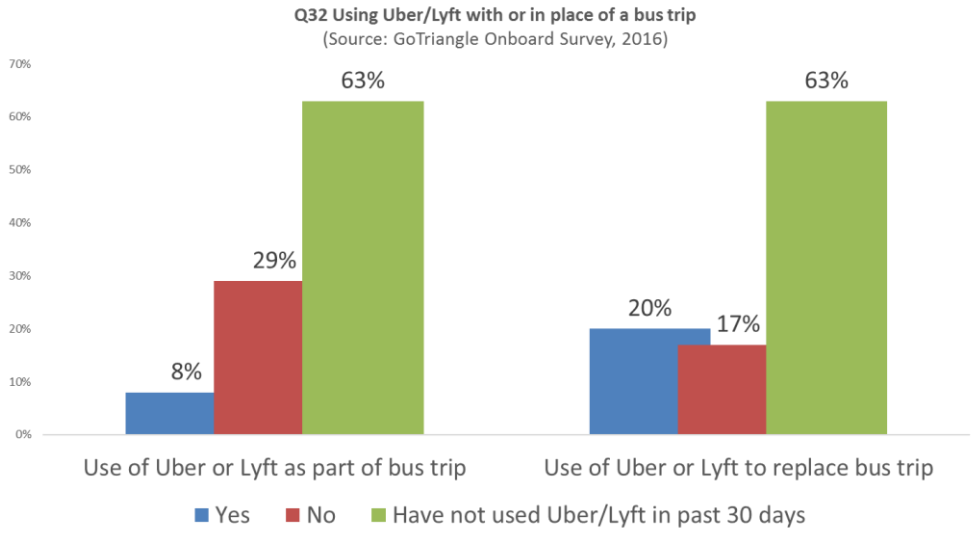
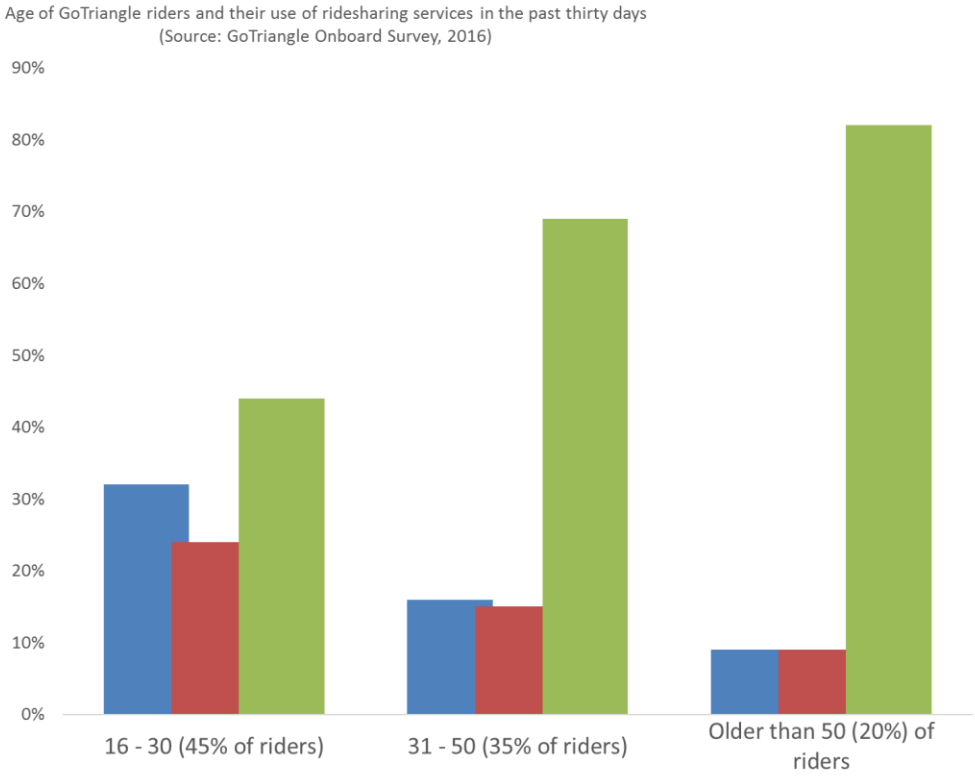


Figure 59 Age and the Use of Uber and Lyft



	16 - 30 (45% of riders)	31 - 50 (35% of riders)	Older than 50 (20%) of riders
Used Uber/Lyft 3 or more times	32%	16%	9%
Used Uber/Lyft once or twice	24%	15%	9%
Did not use Uber/Lyft past 30 days	44%	69%	82%

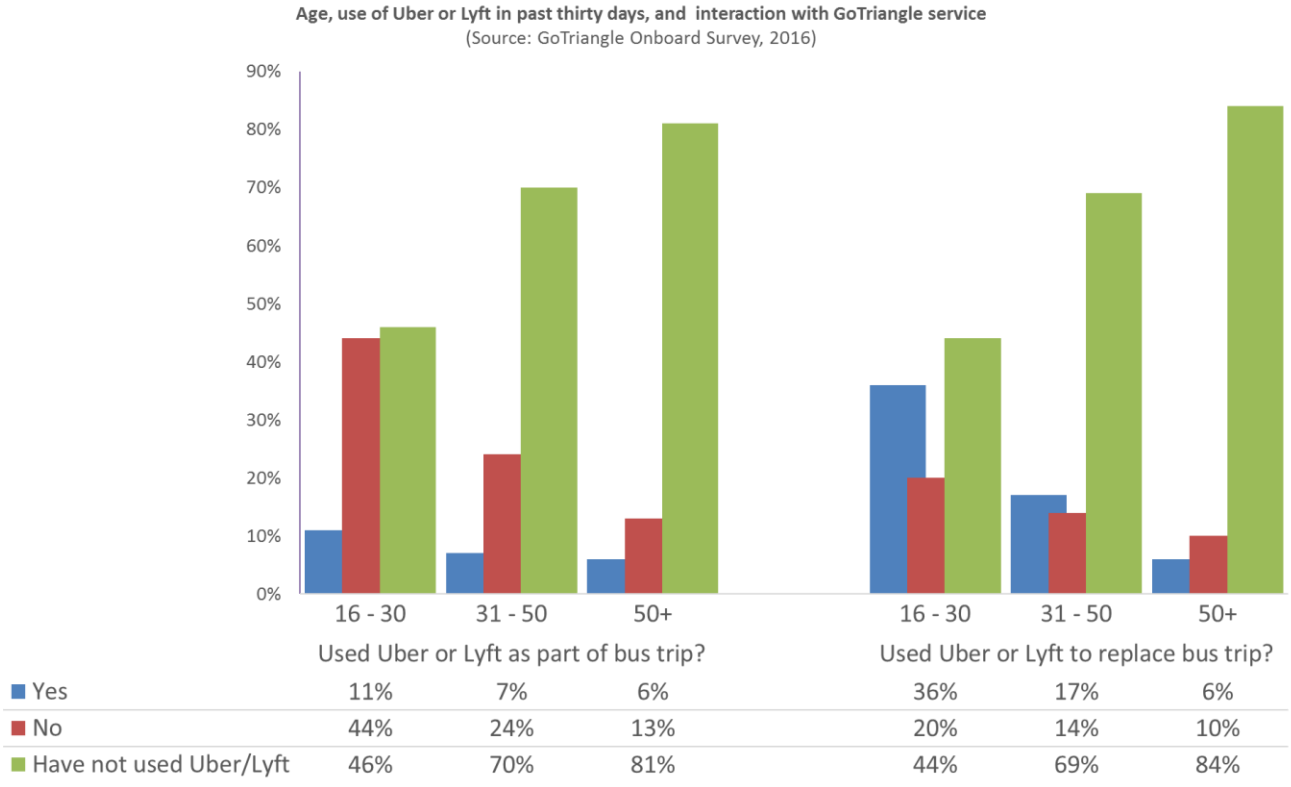
Age and the Use of Uber and Lyft

The use of the ride sharing services Uber and Lyft is inversely related to age. Twice as many GoTriangle riders in the age range from 16 through 30 used Uber or Lyft three or more times in the past 30 days (32%) compared to those in the age range 31 to 50 (16%). And those in the age range 31 to 50 were more likely (16%) than those older than 50 (9%) to have used ride sharing services three or more times.

Conversely, only 44% of the 16 to 30-year-olds had not used Uber or Lyft in the past 30 days compared to 69% of those in the age range from 31 to 50, and 82% of those older than 50.

Given the fact that almost half, 45%, of the ridership is in the youngest of these three age groups, a substantial portion of the GoTriangle rider market is interweaving GoTriangle and ride sharing services to meet its local or regional transportation needs.

Figure 60 Age of Riders and Use of Ridesharing in Conjunction with GoTriangle



	Used Uber or Lyft as part of bus trip?			Used Uber or Lyft to replace bus trip?		
	16 - 30	31 - 50	50+	16 - 30	31 - 50	50+
Yes	11%	7%	6%	36%	17%	6%
No	44%	24%	13%	20%	14%	10%
Have not used Uber/Lyft	46%	70%	81%	44%	69%	84%

Age of Riders and Use of Ridesharing in Conjunction with GoTriangle

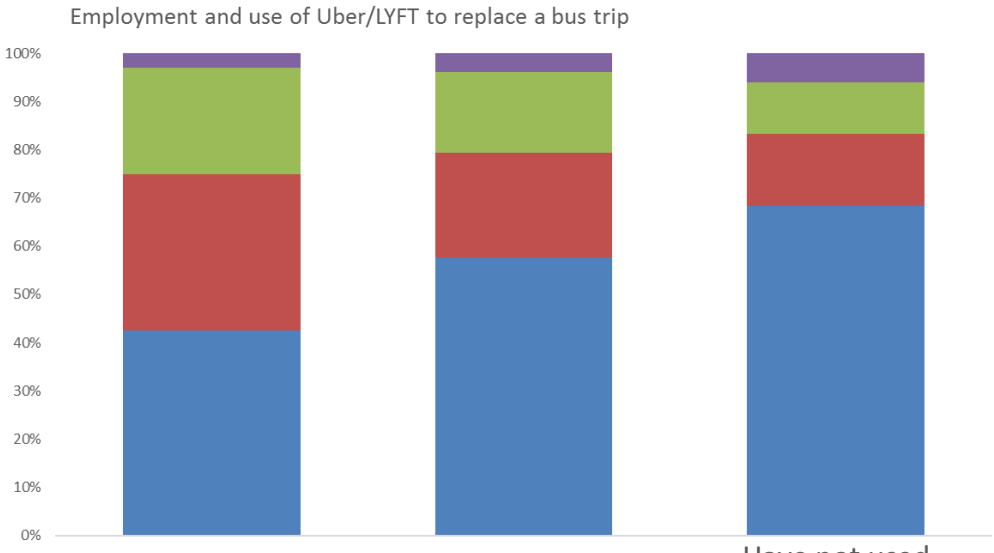
Figure 60 examines the use of Uber and/or Lyft among all riders and among rider age groups. It examines their use of these ridesharing services to supplement or to replace a trip on GoTriangle.

Riders are more likely (23%) to say that in the past thirty days they have replaced a GoTriangle trip with a rideshare trip than that they have supplemented a transit trip with a rideshare trip (9%).

Both practices are age-related. For example, six times as many riders in the youngest age group (36%) compared with riders in the oldest age group (6%) said they had replaced a GoTriangle trip with a rideshare trip in the previous thirty days. Also, the tendency to do this declines continuously among age groups. Of the 31 to 50-year-old riders, 17% replaced a GoTriangle trip with a rideshare trip. However, only 6% of those 50 or older did so.

We can assume that ridesharing will become more common among all age groups. The first reason to assume this is simply the evident growth of ridesharing companies. From a non-existent service only a few years ago, it has already attained a level of one or more uses during a thirty-day period by 37% of GoTriangle riders. Moreover, while there are age differences in level of use, even the oldest rider cohort includes 18% who have used ridesharing in just the previous thirty days. In addition, ridesharing will increase simply for generational reasons because it is likely that the strong tendency of the young generation of riders to rideshare will not diminish as they age from the 16-30 cohort to the 30-50 cohort. All of this assumes that there will be no game-changing regulatory or technological development. Shared autonomous vehicles may be one such market-change agent. However, it seems likely that they would have an impact similar to that of Uber and Lyft today.

Figure 61 Employment and the Use of Uber/Lyft to Replace a Bus Trip



	Used Uber or Lyft to replace bus trip in past 30 days?		
Other	3%	4%	6%
Student and employed	22%	17%	11%
Student	32%	22%	15%
Work outside home	42%	58%	68%

Employment and the Use of Uber/Lyft to Replace a Bus Trip

In Figure 61 the focus is on the 20% of GoTriangle riders who say they have used Uber or Lyft to replace a bus trip. The first column at the left in Figure 61 consists entirely of those riders who comprise that 20%. (This segment was displayed in Figure 58.)

Most of the 20% of GoTriangle riders who say they have replaced a bus trip with a shared ride on Uber or Lyft (54%) are students. This includes 22% who are employed students and 32% who are students only. This compares to 39% who are students among those who use ridesharing but have not replaced a bus trip with a shared ride, and compares to only 26% who are students among those who have not rideshared in the past thirty days.

Figure 62 Demographics of Those Who Used Uber/Lyft in Past Thirty Days to Replace a Bus Trip

		Used Uber or Lfyt to replace bus trip in past 30 days?			
		Used Uber/Lfyt to replace bus trip	Used Uber/Lfyt, but not to replace bus trip	Have not used Uber/Lfyt in past 30 days	All riders
Age group	16 through 23	37%	28%	15%	22%
	24 through 30	33%	29%	18%	23%
	31 through 43	21%	25%	25%	24%
	44 through 50	4%	6%	15%	11%
	over 50	5%	12%	27%	19%
Ethnicity	African American/Black	31%	24%	36%	33%
	Asian	22%	15%	11%	14%
	Hispanic	10%	7%	5%	7%
	Caucasian/White	35%	49%	43%	42%
	Native American Indian	1%	2%	1%	1%
	Other	2%	1%	4%	3%
Gender	Male	50%	52%	51%	51%
	Female	50%	48%	49%	49%
Household income	Less than $10,000	18%	18%	12%	14%
	$10,000 to $14,999	7%	5%	5%	6%
	$15,000 to $19,999	3%	3%	4%	3%
	$20,000 to $24,999	13%	10%	12%	12%
	$25,000 to $34,999	11%	8%	12%	11%
	$35,000 to $49,999	11%	9%	13%	12%
	$50,000 to $74,999	13%	15%	17%	16%
	$75,000 to $100,000	10%	13%	12%	12%
	More than $100,000	13%	18%	13%	14%

Demographics of Those Who Used Uber/Lyft in Past 30 Days to Replace a Bus Trip

Age is the only consistent demographic difference among the three types of rideshare users. Those who have used Uber or Lyft to replace a bus trip tend to be thirty years old (67%) or younger, while of those who use those services but have not replaced a bus trip with them somewhat fewer, 57% are thirty or younger. Of those who have not used ridesharing service in the thirty days prior to the survey, only 33% are thirty or younger.

There is no gender difference among the three groups, and very little and inconsistent difference in income. There is some ethnic difference, with those who used ridesharing to replace a bus trip somewhat more likely than others to identify as Asian, but the pattern is not very strong.

Figure 63 Riders' Attitudes Toward GoTriangle Service among Those Who Used Uber/Lyft in Past Thirty Days to Replace a Bus Trip

		Used Uber or LYFT to replace bus trip in past 30 days?			
		Used Uber/LYFT to replace bus trip	Used Uber/LYFT, but not to replace bus trip	Have not used Uber/LYFT in past 30 days	All riders
Expectation of future use	Use GoTriangle more often than now	16%	20%	19%	19%
	No Change	48%	58%	61%	57%
	Use GoTriangle less often than now	20%	13%	12%	14%
	Stop using Go Triangle entirely	16%	9%	8%	10%
Overall rating of GoTriangle	Very poor	0%	0%	0%	0%
	2	1%	0%	1%	1%
	3	2%	2%	2%	2%
	4	10%	3%	7%	7%
	5	27%	23%	21%	23%
	6	39%	41%	39%	39%
	Excellent	21%	30%	31%	29%
Ridership frequency segments	Occasional rider	48%	42%	34%	38%
	Frequent rider	31%	39%	45%	41%
	Intensive rider	20%	19%	21%	21%
Access internet on cell-phone	Yes	97%	95%	87%	91%
	No	3%	5%	13%	9%
TransLoc App on phone	Yes	49%	50%	44%	46%
	No	51%	50%	56%	54%

Use of Uber/Lyft to Replace Bus Trip and Riders' Attitudes Toward GoTriangle Service

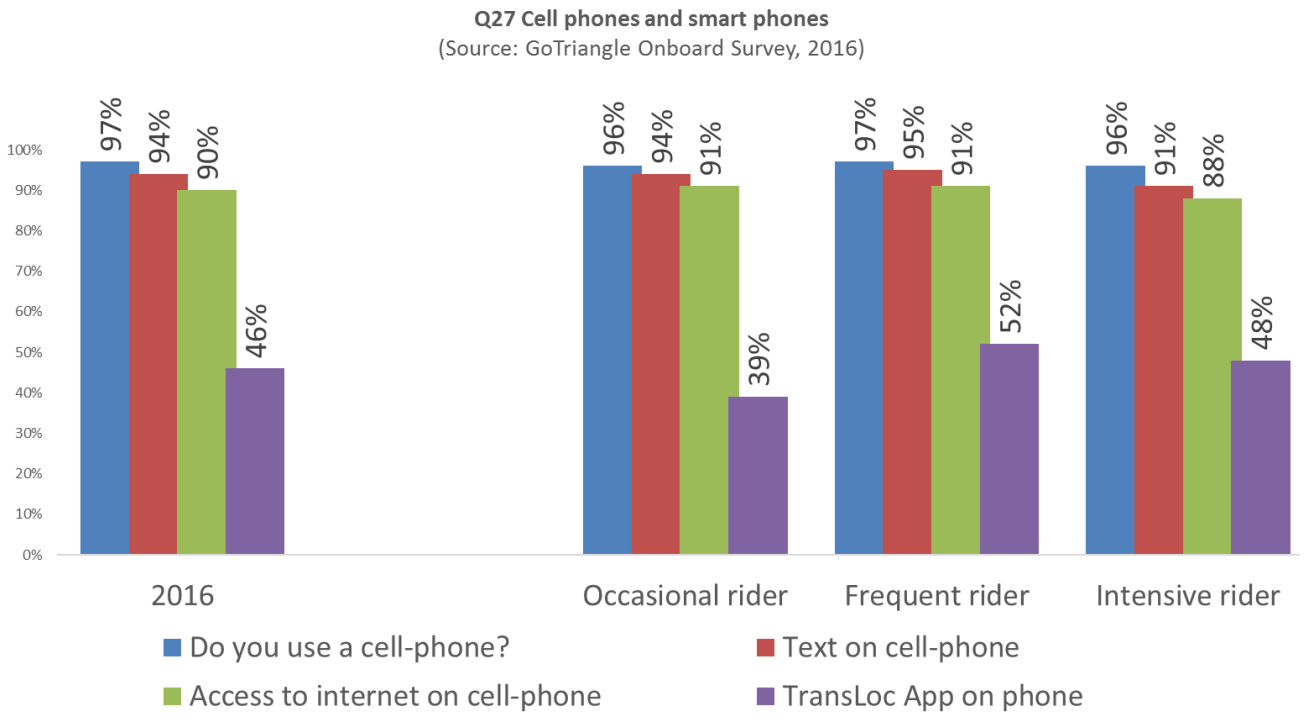
The use of ridesharing services to replace a bus trip is reflected in the expectation of future use of GoTriangle. Only 8% of those who have not used either Uber of LFYT in the past thirty days, but double that, 16%, of those who replaced a bus trip with ridesharing said they would stop using GoTriangle. Similarly, only 12% of those who have not used either Uber of LFYT in the past thirty days, but 20% of those who replaced a bus trip with ridesharing said they would use GoTriangle less often. In the coming year.

There is a somewhat greater tendency for those who used ridesharing in the past thirty days to be occasional rather than frequent or intensive riders. This seems likely to mitigate the impact of any rider loss associated with ridesharing.

There are slight differences in using a cell phone to access the internet, and in use of TransLōc, but the differences are unimportant.

Communications

Figure 64 Mobile Communication



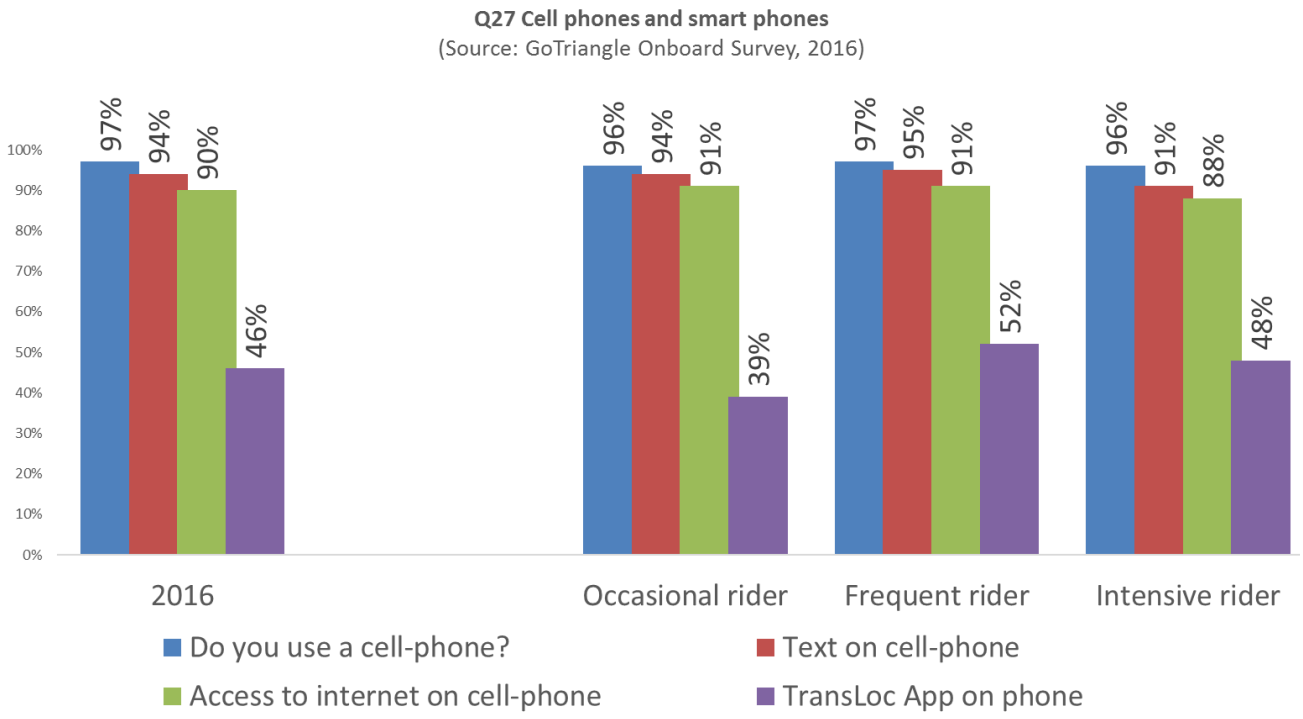
Mobile Communication

In 2016[5], 97% of GoTriangle riders indicated they use a cell phone, 94% for texting, and 90% for accessing the internet. In addition, almost half of those with a mobile phone have installed the TransLōc app (46%).

The use of these devices varies somewhat with rider age, but perhaps not as much as stereotypic views might assume. Younger riders are more likely than the oldest rider segment (40%) to have installed the TransLōc app, but they are less likely (46%) to have done so then those in the middle age group of 31 to 50 (51%). Also, the riders older than 50 are not lagging very far behind on the technological curve, since 85% indicate they text on their phones, and 76% access the internet.

[5] This question was not asked prior to 2016.

Figure 65 Cell Phone – Smart Phone, by Rider Market Segment

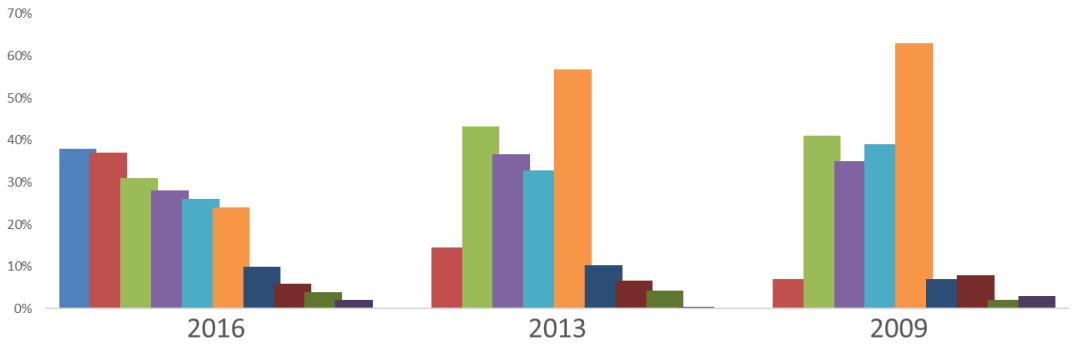


Cell phone – Smart phone, by Rider Market Segment

The transit rider market segments vary little with respect to use of their mobile devices for texting and access to the internet. They differ in terms of more of the frequent riders (52%) and intensive riders (48%) having installed the TransLōc app, than the occasional riders (39%).

Figure 66 Communication Preferences, 2009 - 2016

Q28 How would you prefer to receive information about route and service changes?
(Sources: GoTriangle Onboard Surveys, 2009, 2013, 2016)



	2016	2013	2009
TransLoc	38%		
Text message	37%	15%	7%
Website	31%	43%	41%
E-mail alert	28%	37%	35%
At major bus stops	26%	33%	39%
Inside the bus	24%	57%	63%
By phone	10%	10%	7%
Facebook	6%	7%	8%
Twitter	4%	4%	2%
Other	2%	1%	3%

Communication Preferences, 2009 - 2016

Riders were asked in each survey, 2009, 2013, and 2016, how they would prefer to receive information about route and service changes. The advent of TransLōc changed the information picture fundamentally[6]. However, the development of text messaging in the preceding years had also significantly altered the information landscape. The 2013 report commented that: "It is worth noting that the desire for text messages, though still small relative to the other modes of communication, has more than doubled since 2009."

Immediate messaging on personal mobile devices is displacing email and websites as well as printed materials at bus stops and onboard the buses as the preferred method to receive information. This makes sense in that a rider would likely prefer to have service change information prior to leaving for the bus stop and prior to boarding a bus.

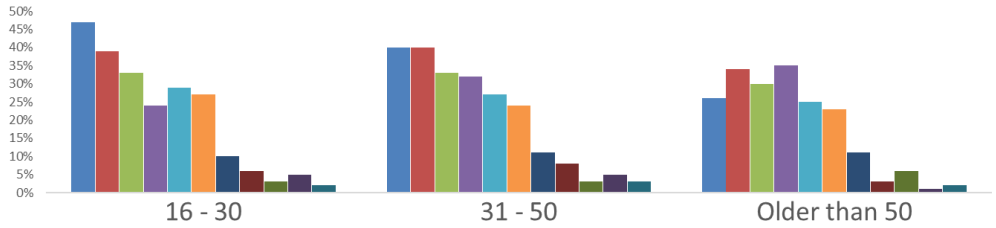
Riders were free to cite multiple preferred sources of information. One of the most striking changes since 2013, is that most riders (57%) said they preferred to receive such information inside the bus, and in 2016, 24% named information inside the bus as one of their preferred alternatives.

All of this is not to suggest that the more traditional communication modes do not continue to have value to many riders. Information at bus stops (26%) and information inside the bus (24%) are still the communication mode of choice for substantial numbers of riders.

[6] Although GoTriangle adopted TransLōc in 2011, it was not added to the onboard survey until 2016.

Figure 67 Communication Preferences, by Age

Age and preferred information delivery mode for route and service changes
(Source: GoTriangle Onboard Survey, 2016)



	16 - 30	31 - 50	Older than 50
TransLoc App	47%	40%	26%
Text messages	39%	40%	34%
GoTriangle website	33%	33%	30%
E-mail alert	24%	32%	35%
Notices at major bus stops	29%	27%	25%
Notices in the bus	27%	24%	23%
485-RIDE	10%	11%	11%
Facebook	6%	8%	3%
TV/Radio/Newspaper	3%	3%	6%
Twitter	5%	5%	1%
Other	2%	3%	2%

Communication Preferences, by Age

In 2013, the survey reported that: “Regardless of age, a clear majority of riders prefer to have information about service changes inside the bus. Those 29 years old and younger are more likely than older riders to prefer text message and Facebook communication, but not to a substantially greater degree than do 30 to 49 year olds.” All of that has changed.

The preference for information provided in the buses is now the preference of only 25% to 29% of each age group, while information delivered electronically to a personal mobile device is the preferred information mode. The preference for information on service change announcements delivered directly to the individual by the TransLōc app plus the preference for text messages now is stronger than preference for print media across all rider age groups.

The preference for using the TransLōc app is most pronounced among the younger riders. While 47% of the youngest group say that they prefer the TransLōc app for such information, 40% of 31 to 50 year olds, and only 26% of those 50 or older prefer it.

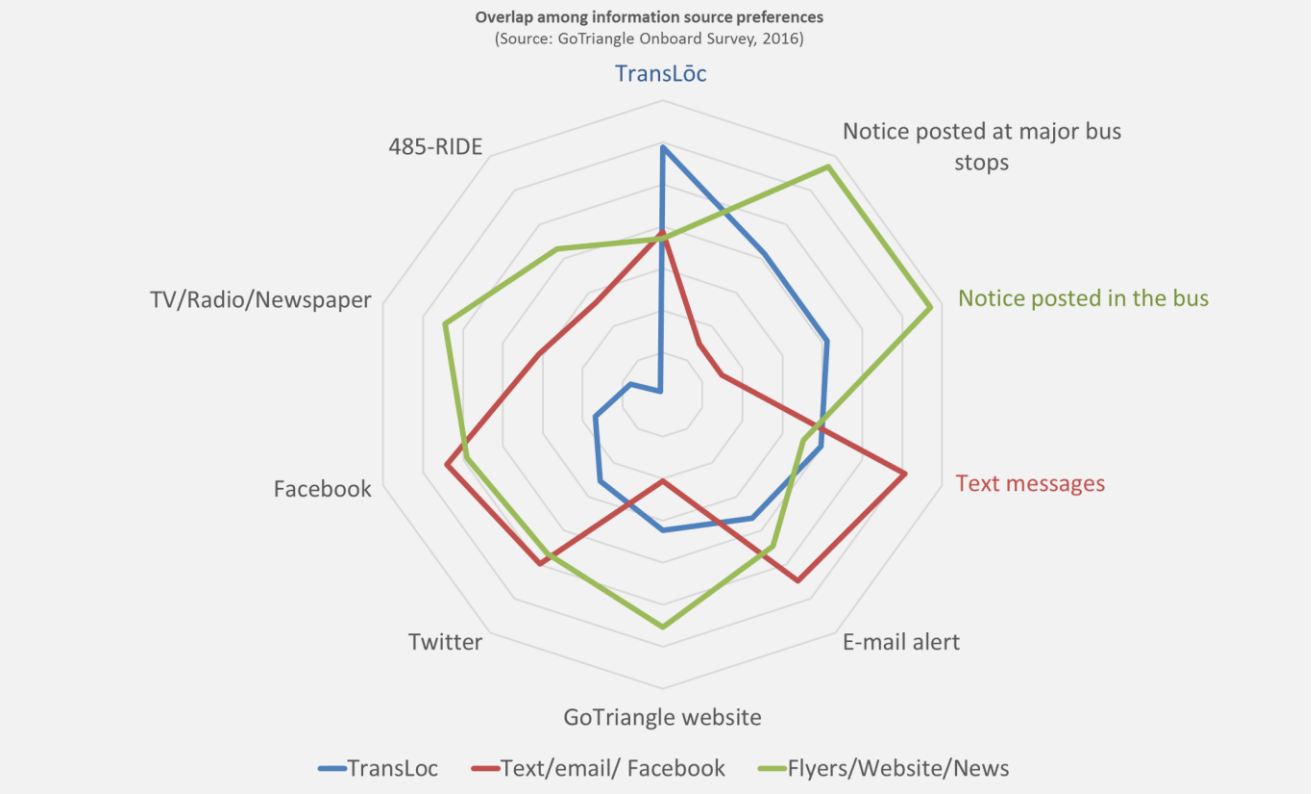
Preference for receiving alerts by text or the website are, however, less age-related. For receiving text alerts, the range of differences between youngest (39%) and oldest riders (34%) is only 5%. In the case of the website, 33% of the youngest and 30% of the oldest riders prefer it, a very small difference.

The key to the difference is probably the greater tendency of the younger population to adopt mobile computing in the form of the smartphone and not just mobile communication in the form of the cell phone. Older cell phones are text-capable, and a website is accessible by means other than a

smartphone. The unique aspect of the TransLōc app is that it depends on the smartphone. While the GoTriangle data show only a small difference by age in smartphone ownership, data from the PEW Research Center appear to show greater dependence on smartphones, and integration of smartphones into the lives of younger persons[7]. The adoption of the smartphone and its integration into the daily information-seeking routines of the public continues to very rapid and is well documented by PEW and others[8].

[7] See for example: http://www.pewinternet.org/fact-sheet/mobile/
[8] http://www.pewresearch.org/fact-tank/2017/01/12/evolution-of-technology/

Figure 68 Three Styles of Preference for Service Change Information Sources



Three Styles of Preference for Service Change Information Sources

Factor analysis is a statistical technique that enables us to observe underlying groupings of attitudes in survey data when responses are not mutually exclusive. In the case of preferred ways to communicate service changes, riders were *not* asked to choose only one information source for service changes. They were asked to indicate all that might apply to them. The statistical technique called "factor analysis" enables us to find patterns among the varied preferences – how their choices are connected, or how they are mutually exclusive.

For information about service changes, there are three styles which characterize different people.

Figure 69 Statistics Indicating the Communications Preference Patterns

Patterns of preference for communications on service changes

	TransLōc	Text/email/ Facebook	Notices / Website/ News
TransLoc App	**0.58**	0.17	0.14
Notice at bus stops	0.23	-0.30	**0.74**
Notice on the bus	0.22	-0.30	**0.74**
Text messages	0.19	**0.62**	0.11
E-mail alert	0.13	**0.50**	0.29
GoTriangle website	0.05	-0.19	**0.51**
Twitter	-0.09	0.39	0.34
Facebook	-0.26	0.48	0.38
TV/Radio/Newspaper	**-0.44**	0.02	**0.49**

The chart above shows those three groupings. The inset table shows the statistics underlying the chart above.

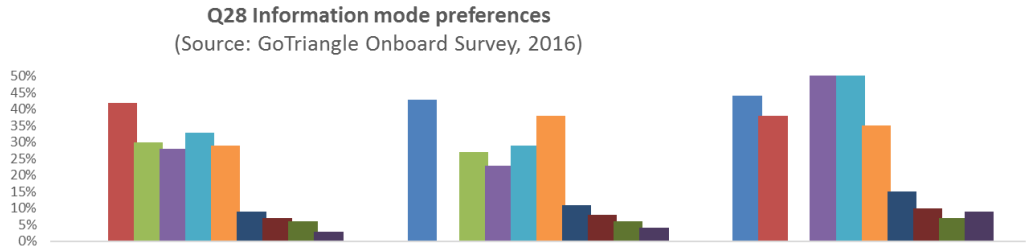
The scores in the table represent the "factor scores" on a scale from the lowest score shown in the table (-.44) to the highest score (+.74). Essentially the table shows three information-seeking types. There are:

- Those who prefer service change information via TransLōc,
- those who prefer it via text, email or Facebook, and
- those who prefer it in more traditional ways such as notices at stops or on the bus.

The chart shows both the three dominant tendencies and that there is extensive overlap. Think of the grid-space as representing all GoTriangle riders. The more of the space that each outline occupies, the greater the share of GoTriangle riders hold that orientation. The outline forms in the grid represent the share of riders with each general tendency. The closer the outline comes to the edge of the grid at the point where the label is located, the greater the proportion of the ridership that is oriented to that information-seeking style. Thus, the outlines show both the uniqueness of those preferences – especially of TransLōc – and the extent of the overlap.

The TransLōc outline is unique in its limited overlap. The greatest reach, but also the least focused, is by the traditional means of notices and similar communications methods. The relatively small area in which the three styles overlap suggests the fact that these tend to be mutually exclusive information-seeking styles. People apparently tend to prefer one or the other generally. However, there is considerable overlap as the final chart (Figure 70) will demonstrate. This means that in spite of the tendency of riders to prefer one communications mode or another, there is so much overlap in preferences that adequate communication continues to require multiple methods.

Figure 70 Seeking Multiple Sources of Service Change Information



Those riders who prefer: / Also prefer:	TransLoc	Text Message	Notices at major stops or onboard
TransLoc App	NA	43%	44%
Text Messages	42%	NA	38%
Notice at major stops	30%	27%	NA
Notice in the bus	28%	23%	64%
GoTriangle website	33%	29%	51%
E-mail alert	29%	38%	35%
485-RIDE	9%	11%	15%
Facebook	7%	8%	10%
Twitter	6%	6%	7%
TV/Radio/Newspaper	3%	4%	9%

Seeking Multiple Sources of Service Change Information

While riders have general preferences for one form of communication or another, they also tend not to be exclusive in their preferences. When the ridership is broken down by their preference for service updates via TransLōc, text message, or posted notices, it becomes clear not only that people choose multiple sources of information, but also which other sources they also prefer.

For example, of all riders who said they prefer service change information via TransLōc, 42% also mentioned text messages, 30% notices at bus stops, 33% the GoTriangle website, 29% an email alert, and 28% a notice inside the bus. Of all those who prefer the old-school approach of posted notices, 44% also prefer messages via TransLōc, and 38% by text message. And of those preferring text messages 43% also prefer to receive information via TransLōc, and 38% by email.

Predictability and certainty about transportation people rely on is important to transit riders for obvious reasons. It can therefore be expected that those who use transit will seek to obtain information not in a single manner but in various ways.

Perhaps the most notable thing about the information preference findings is that the communication modes preferred by most riders tend to be both passive and focused. They tend to be passive in the sense that a message is delivered without the rider having to actively seek the information as he or she would if, for example calling 485-RIDE. Whether a message is pushed via TransLōc or text messaging or is delivered as a notice at a bus stop, the rider does not have to take the initiative to get the information. The sources tend to be focused in the sense that the information received will be specific to the transportation needs of the rider. He or she does not have to sift through other messages to find the information as he or she would, for example, if listening to the radio or watching television, or even using Facebook or Twitter.

Appendix A: Basic Questionnaire

Please tell us about how you use GoTriangle

El cuestionario en español se encuentra en la parte posterior

GO Triangle

GoTriangle would like to know how you use the bus! Please check, circle, or write in your answers.

1. During the past week, which days have you ridden GoTriangle?
Mon Tue Wed Thur Fri Sat Sun Every day

2. How long have you been riding GoTriangle?
1 ☐ This is the first time 2 ☐ Less than 1 year 3 ☐ 1–2 years
4 ☐ 3-4 years 5 ☐ More than 4 years

3. Compared to one year ago, do you now ride GoTriangle…
1 ☐ More often? 2 ☐ The same? 3 ☐ Less often? 4 ☐ Did not ride a year ago

Please tell us about the one-way trip you are currently making

Example of one-way trip: going from home to work is a one-way trip even if you have to change buses. The return trip home is a different one-way trip.

4. What are the main purposes of this one-way bus trip?
1 ☐ go to or from work 2 ☐ go to or from shopping
3 ☐ go to or from middle or high school 4 ☐ go to or from college or vocational school
5 ☐ go to or from social services 6 ☐ go to or from the doctor or a medical visit
7 ☐ go to or from a social or recreational visit 8 ☐ go to or from the airport for a plane trip
9 ☐ Other _____

5. Did you begin this one-way trip on a GoTriangle bus or on another bus system?
1 ☐ GoTriangle 2 ☐ Other system

6. How did you get to the stop where you got on this GoTriangle bus?
1 ☐ Walked 2 ☐ Biked 3 ☐ You drove 4 ☐ You were dropped off 5 ☐ Other GoTriangle bus
6 ☐ Local bus other than GoTriangle 7 ☐ Other: _____

7. About how many minutes did it take you get to the stop where you got on this GoTriangle bus? _____ Minutes

8. Which bus systems do you use during this one-way trip? *(Check all that apply)*
1 ☐ GoTriangle 2 ☐ GoRaleigh 3 ☐ Chapel Hill Transit 4 ☐ GoCary
5 ☐ GoDurham 6 ☐ Duke Transit 7 ☐ Greyhound/Trailways/MegaBus 8 ☐ Wolfline

9. In making this one-way trip, how many times do you change buses?
Include both GoTriangle and other bus systems and any change of bus you have already made as part of this trip.
0-No change of bus 1 2 3 or more changes of bus

10. Did you use a discounted fare for this trip? *(Examples: a senior fare, a youth fare, a fare for persons with a disability, or other discounted fare?)* 1 ☐ Yes 2 ☐ No

11. How did you pay the fare on the first GoTriangle bus you boarded today?
1 ☐ Paid one-way cash fare 2 ☐ Bought or used a day pass 3 ☐ 7-day pass 4 ☐ 31-day pass
5 ☐ Stored value card 6 ☐ GoPass 7 ☐ Other _____

In the past thirty days, how would you rate GoTriangle on the following?	Excellent						Very Poor	Don't Know or don't use
12. Speed of the bus ride to your destination	7	6	5	4	3	2	1	☐
13. Buses running on-time	7	6	5	4	3	2	1	☐
14. Courtesy of bus operators	7	6	5	4	3	2	1	☐
15. Sense of personal safety from others on the buses	7	6	5	4	3	2	1	☐
16. Frequency of service	7	6	5	4	3	2	1	☐
17. Hours the buses operate	7	6	5	4	3	2	1	☐
18. Cleanliness of the bus interior	7	6	5	4	3	2	1	☐
19. Comfort while waiting for the bus	7	6	5	4	3	2	1	☐
20. Ease of making connections between GoTriangle and other area bus systems *(GoDurham, GoRaleigh, GoCary, etc.)*	7	6	5	4	3	2	1	☐
21. Ease of making connections between GoTriangle buses	7	6	5	4	3	2	1	☐
22. Accuracy of information from 485-RIDE telephone operators	7	6	5	4	3	2	1	☐

23. Of the services listed in questions 12 to 22 which would be the three most important to improve? *(Please write in the question numbers):*
_____ Most important _____ 2nd most important _____ 3rd most important

24. OVERALL, how do you rate GoTriangle service?	7	6	5	4	3	2	1	☐
25. OVERALL, how do you rate transit service in the region, including all the bus systems you use?	7	6	5	4	3	2	1	☐

26. How likely are you to recommend GoTriangle service to a friend or colleague?
Extremely likely = 10 9 8 7 6 5 4 3 2 1 0 = Not at all likely

27. Do you use a cell-phone? 1 ☐ Yes 2 ☐ No
a. If so, do you text on it? 1 ☐ Yes 2 ☐ No
b. If so, do you access the Internet on it? 1 ☐ Yes 2 ☐ No
c. Do you have the TransLōc App on your phone? 1 ☐ Yes 2 ☐ No

28. How would you prefer to receive information about route and service changes? *(All that apply)*
1 ☐ The TransLōc app for smartphones 2 ☐ Text message 3 ☐ E-mail alert 4 ☐ Facebook
5 ☐ Twitter 6 ☐ GoTriangle website 7 ☐ 485-RIDE 8 ☐ TV/Radio/Newspaper
9 ☐ Notice posted at major bus stops 10 ☐ Notice posted in the bus 11 ☐ Other _____

29. A year from now, do you expect to…
1 ☐ Use GoTriangle more often than you do now → Please skip to #31
2 ☐ No change - Continue using GoTriangle as often as you do now → Please skip to #31
3 ☐ Use GoTriangle less often than you do now → If less often, please answer #30
4 ☐ Stop using GoTriangle entirely → If stop, please answer #30

30. If you expect to stop using GoTriangle or to use GoTriangle less often, would that be because you would…
1 ☐ Drive or drive more often 2 ☐ Carpool or vanpool 3 ☐ Bicycle 4 ☐ Walk
5 ☐ Move location of home or work where GoTriangle does not operate
6 ☐ Move away from the GoTriangle area
7 ☐ Other _____

31. In the past 30 days, how often have you used Uber or Lyft?
0 times 1 time 2 times 3 times 4 or more times

32. If you used Uber or Lyft…
a. Did you use it as part of a bus trip? 1 ☐ Yes 2 ☐ No
b. Did you use it to replace a bus trip? 1 ☐ Yes 2 ☐ No

Please tell us about yourself

33. How old are you? _____ Years old

34. Please mark all of the following that apply to you. Are you:
1 ☐ Employed for pay outside your home 2 ☐ Employed for pay in your home
3 ☐ Homemaker 4 ☐ Student 5 ☐ Unemployed 6 ☐ Retired

35. Do you have a valid driver's license? 1 ☐ Yes 2 ☐ No

36. How many cars or other motor vehicles are available for you to use?
0 1 2 3 or more

37. How many people live in your household?
1 2 3 4 5 6 7 8 or more

38. Do you identify as… 1 ☐ Male 2 ☐ Female 3 ☐ Prefer not to answer

39. Do you identify as Hispanic/Latino? 1 ☐ Yes 2 ☐ No

40. Which do you consider yourself? *(Check all that apply to you)*
1 ☐ African American/Black 2 ☐ Asian 3 ☐ Caucasian/White
4 ☐ Native American Indian 5 ☐ Other: _____

41. Do you speak English? 1 ☐ Very well 2 ☐ Well 3 ☐ Not well

42. What language or languages do you most often speak at home?
1 ☐ English 2 ☐ Spanish 3 ☐ Other: _____

43. What is your total annual household income?
1 ☐ Less than $10,000 2 ☐ $10,000 to $14,999 3 ☐ $15,000 to $19,999
4 ☐ $20,000 to $24,999 5 ☐ $25,000 to $34,999 6 ☐ $35,000 to $49,999
7 ☐ $50,000 to $74,999 8 ☐ $75,000 to $100,000 9 ☐ More than $100,000

Comments: _____

Thank you! Please return this form to the surveyor on your bus.

Por favor díganos cómo usa GoTriangle

GO Triangle

A GoTriangle le gustaría saber cómo usted utiliza el autobús. Por favor, encierre en un círculo, marque la casilla, o escriba las respuestas.

1. Durante la semana pasada, ¿qué días a viajado en GoTriangle?
Lun Mar Mier Jue Vier Sab Dom Todos los días

2. ¿Cuánto tiempo ha estado viajando en GoTriangle?
1 ☐ Esta es la primera vez 2 ☐ Menos de 1 año 3 ☐ 1–2 años
4 ☐ 3-4 años 5 ☐ Más de 4 años

3. En comparación con hace un año, usa ahora GoTriangle…
1 ☐ ¿Mas seguido? 2 ☐ ¿Lo mismo? 3 ☐ ¿Menos? 4 ☐ No lo usaba hace un año

Por favor, díganos sobre el viaje de ida que está haciendo actualmente
Ejemplo de viaje de ida: ir de casa al trabajo es un viaje de ida, incluso si tiene que cambiar de autobús. El viaje de regreso es un viaje diferente de un solo sentido.

4. ¿Cuál es su propósito principal de este viaje en autobús de ida?
1 ☐ Ir o volver del trabajo 2 ☐ Ir o volver de compras
3 ☐ Ir o volver a la escuela media o secundaria 4 ☐ Ir o volver al colegio o escuela de formación profesional
5 ☐ Ir o volver a servicios sociales 6 ☐ Ir o volver del médico o una visita médica
7 ☐ Ir o volver de una visita social o recreativa 8 ☐ Ir o volver del aeropuerto para un viaje en avión
9 ☐ Otro _____

5. ¿Comenzó este viaje de ida en un autobús GoTriangle o en otro sistema de autobús ?
1 ☐ GoTriangle 2 ☐ Otro sistema

6. ¿Cómo llego a la parada en la tomo este autobús GoTriangle?
1 ☐ Caminó 2 ☐ En bicicleta 3 ☐ Manejo 4 ☐ Alguien lo dejo 5 ☐ Otro autobús GoTriangle
6 ☐ Autobús local que no sea GoTriangle 7 ☐ Otro: _____

7. Aproximadamente, ¿cuántos minutos le tomó llegar a la parada dónde tomó este autobús GoTriangle? _____Minutos

8. ¿Qué sistema de autobús utilizo durante este viaje de ida? *(Marque todo lo que corresponda)*
1 ☐ GoTriangle 2 ☐ GoRaleigh 3 ☐ Chapel Hill Transit 4 ☐ GoCary
5 ☐ GoDurham 6 ☐ Duke Transit 7 ☐ Greyhound/Trailways/MegaBus 8 ☐ Wolfline

9. Al hacer este viaje de ida, ¿cuántas veces cambiara de autobuses?
Incluya otros sistemas de autobús y GoTriangle y cualquier otro autobús que ya ha realizado como parte de este viaje.
0 - Ningún cambio de autobús 1 2 3 o más cambios de autobús

10. ¿Utilizó una tarifa con descuento para este viaje? *(Ejemplos: tarifa para mayor de edad, tarifa para jóvenes, tarifa para personas con discapacidad, u otra tarifa con descuento?)* 1 ☐ Sí 2 ☐ No

11. ¿Cómo pago la tarifa en el primer autobús GoTriangle que abordo hoy?
1 ☐ Tarifa en efectivo de ida 2 ☐ Compro o utilizo pase por un día 3 ☐ Pase de 7-días 4 ☐ Pase de 31-días
5 ☐ Valor almacenado 6 ☐ GoPass 7 ☐ Otro _____

En los últimos treinta días, ¿cómo calificaria a GoTriangle en lo siguiente?

	Excelente						Muy malo	No sé o no lo utilice
12. Velocidad del autobús a su destino	7	6	5	4	3	2	1	☐
13. Puntualidad de los autobuses	7	6	5	4	3	2	1	☐
14. Cortesía de los operadores de autobuses	7	6	5	4	3	2	1	☐
15. Sentido de seguridad personal de otros pasajeros en los autobuses	7	6	5	4	3	2	1	☐
16. Frecuencia del servicio	7	6	5	4	3	2	1	☐
17. Horio que los autobuses operan	7	6	5	4	3	2	1	☐
18. Limpieza en el interior del autobús	7	6	5	4	3	2	1	☐
19. Comodidad mientras espera el autobús	7	6	5	4	3	2	1	☐
20. Facilidad de hacer conexiones entre GoTriangle y otros sistemas de autobús *(GoDurham, GoRaleigh, GoCary, etc.)*	7	6	5	4	3	2	1	☐
21. Facilidad de hacer las conexiones entre autobuses de GoTriangle	7	6	5	4	3	2	1	☐
22. Exactitud en información de operadores telefonícos de 485-RIDE	7	6	5	4	3	2	1	☐
24. EN GENERAL, ¿cómo calificaría el servicio de GoTriangle?	7	6	5	4	3	2	1	☐
25. EN GENERAL, ¿cómo calificaría el servicio de tránsito en la región, incluyendo todos los sistemas de autobús que usted usa?	7	6	5	4	3	2	1	☐

23. De los servicios enumerados en las preguntas 12 a 22, ¿cuáles serían los tres más importante para mejorar? *(Por favor escriba los números de las preguntas):*
_____ más importante _____ 2da más importante _____ 3ra más importante

26. ¿Qué probabilidades hay que recomiende el servicio GoTriangle a un amigo o colega?
Muy probable = 10 9 8 7 6 5 4 3 2 1 0 = Nada probable

27. ¿Usa usted un teléfono celular? 1 ☐ Sí 2 ☐ No
a. Si es así, ¿utiliza texto en él? 1 ☐ Sí 2 ☐ No
b. Si es así, ¿tiene acceso al Internet en él? 1 ☐ Sí 2 ☐ No
c. ¿Tiene de la aplicación TransLóc en su teléfono? 1 ☐ Sí 2 ☐ No

28. ¿Cómo le gustaría recibir información sobre los cambios de ruta y de servicios?
(Todas las que correspondan)
1 ☐ Aplicación TransLóc para teléfonos 2 ☐ Mensaje de texto 3 ☐ Alerta de correo electrónico 4 ☐ Facebook
5 ☐ Twitter 6 ☐ Sitio web GoTriangle 7 ☐ 485-RIDE 8 ☐ TV/Radio/Periódico
9 ☐ Aviso en principales paradas de autobús 10 ☐ Aviso publicado en autobús 11 ☐ Otro _____

29. Dentro de un año, espera usted ...
1 ☐ Utilice GoTriangle con más frecuencia que lo hace ahora → Por favor pase a la #31
2 ☐ Sin cambios - Continúe utilizando GoTriangle tan a menudo como lo hace ahora→ Por favor pase a la #31
3 ☐ Utilice GoTriangle con menos frecuencia que lo hace ahora → Con menos frecuencia, por favor responda #30
4 ☐ Deje de usar por completo GoTriangle → Si deje de usar, por favor responda #30

30. Si tiene previsto dejar de usar GoTriangle o usar GoTriangle con menos frecuencia, lo haría debido a que...
1 ☐ Conduce o conduce con mayor frecuencia 2 ☐ Auto o camioneta compartida 3 ☐ Bicicleta 4 ☐ Camina
5 ☐ Cambió ubicación de casa o de trabajo, donde GoTriangle no opera
6 ☐ Alejarse de la zona de GoTriangle
7 ☐ Otro _____

31. En los últimos 30 días, ¿con qué frecuencia ha usado Uber o Lyft?
0 veces 1 vez 2 veces 3 veces 4 o más veces

32. Si utilizó Uber o Lyft...
a. ¿Lo uso como parte de un viaje en autobús? 1 ☐ Sí 2 ☐ No
b. ¿Lo uso para reemplazar un viaje en autobús? 1 ☐ Sí 2 ☐ No

Por favor, cuéntenos acerca de usted

33. ¿Cuantos años tiene? _____ Años

34. Por favor marque todos los siguientes que apliquen a usted. Es usted:
1 ☐ Empleado con paga fuera de su casa 2 ☐ Empleado con paga en su casa
3 ☐ Ama/o de casa 4 ☐ Estudiante 5 ☐ Desempleado 6 ☐ Jubilado

35. ¿Tiene una licencia de conducir válida? 1 ☐ Sí 2 ☐ No

36. ¿Cuántos autos u otros vehículos están disponibles para que usted pueda usar?
0 1 2 3 o más

37. ¿Cuántas personas viven en su hogar?
1 2 3 4 5 6 7 8 o más

38. ¿Usted se identifica como... 1 ☐ Hombre 2 ☐ Mujer 3 ☐ Prefiero no responder

39. ¿Se identifica como Latino/Hispano? 1 ☐ Sí 2 ☐ No

40. ¿Usted se considera como? *(Marque todo lo que aplica en su caso)*
1 ☐ Afro Americano/Negro 2 ☐ Asiático 3 ☐ Caucásico/Blanco
4 ☐ Indio Nativo Americano 5 ☐ Otro: _____

41. ¿Habla usted Inglés? 1 ☐ Muy bien 2 ☐ Bien 3 ☐ No muy bien 4 ☐ Nada

42. ¿Qué idioma o idiomas habla usted en el hogar?
1 ☐ Inglés 2 ☐ Español 3 ☐ Otro _____

43. ¿Cuál es el ingreso total anual de su hogar?
1 ☐ Menos de $10,000 2 ☐ $10,000 a $14,999 3 ☐ $15,000 a $19,999
4 ☐ $20,000 a $24,999 5 ☐ $25,000 a $34,999 6 ☐ $35,000 a $49,999
7 ☐ $50,000 a $74,999 8 ☐ $75,000 a $100,000 9 ☐ Mas de $100,000

Comentarios: _____

¡Gracias! Por favor, devuelva este formulario al encuestador en su autobús.