

# An Onboard Survey of Transit Customers in The Triangle Region

2019



*A study conducted by:*



*In Conjunction with:*



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**An Onboard Survey of  
Triangle Region Transit Customers  
Of GoDurham, GoRaleigh, GoTriangle and GoCary**

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## Executive Summary

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## Introduction

Starting on October 9 and running through November 3, 2019, CJI Research conducted onboard random sample surveys of transit customers of four transit systems, GoDurham, GoRaleigh, GoTriangle, and GoCary. The total number of questionnaires completed was 4,523. A random sample survey of this size, when used as a total sample, has a margin of error of +/-1.4% at the 95% level of confidence. Sub-samples for each of the systems have higher margins noted in the individual system reports. All margin of error statistics assume a split of 50:50 in response. Margin of error is slightly lower when response proportions are unequal, as for example 60:40 (+/-1.42), 75:25 (+/-1.25), or 90:10 (+/-0.87).

## CUSTOMER SATISFACTION

- For this report, the four on-board survey data files were combined, weighted appropriately, and analyzed as a single file.
- The survey obtained customer ratings of overall Triangle Region service and nineteen specific elements of service. A seven-point satisfaction scale was used on which a score of 1 means very poor and 7 means excellent. The percent rating the four systems on overall service as 7, or “Excellent,” is 27%. Another 23% rated service as 6 on the same scale, meaning that the total rating service as excellent or very good is 50%.
  - GoDurham (26%), GoRaleigh (28%), and GoTriangle (25%) varied very little in this top score, but GoCary was the exception with 42% offering a score of Excellent for service overall.
- Nineteen elements of service were rated separately. Regionally, top rated elements with high percentages of scores of 6 or 7 include three aspects of service that help define the environment in which customers travel. These are the same three that topped the high scoring list in 2018.
  - Fare medium options (57%)
  - Usefulness of printed information (57%)
  - Bus operator helpfulness (56%)
- Top rated operational aspects of service used by all customers include weekday service hours (53%), weekday service frequency (51%), ease of within system transfers (51%). Lower percentages of positive scores were given to three other operational aspects of service, specifically service to all destinations desired (44%), buses operating on time (39%), and total duration of the trip (39%). The rank order of these scores was essentially the same in 2018.
- When asked to name the top three aspects of service most important to improve:
  - "Buses running on time" was by far the most frequently cited aspect of service to improve. It was cited by 51% of customers as first, second, or third most important to improve among the nineteen specific aspects of service examined. It is important to note that more customers (60%) cited this aspect in 2018. It cannot be determined from the survey data why this major change occurred, but apparently actual OTP did not change substantially from 2018 to 2019. The change in customer perception may have to do with short term traffic factors affecting service at the time of the survey in 2018 and not in 2019, or it may have to do with the substantially increased use of a transit app providing assurance of timing. Or it may have to do with the dramatically increased use of Uber/Lyft as a backup. Or some combination of these.

- Second most important in this sense is “Weekday service frequency” (25%). This is interesting because this aspect was also among the best rated aspects of service that all customers use. Apparently there is no effective upper limit on desired frequency.
- Third most important: “Total average trip time” (21%) and “Interior cleanliness of the buses” (also 21%).
- Another way to consider service improvement priorities is to examine the correlation of each aspect of service with the overall service rating. That technique identified three priorities that would have a significant impact on the overall quality of service rating. They differ substantially from the list of the three most important improvements. They are, in ascending order of the impact on the overall satisfaction score: Total average trip time, service to all destinations desired (coverage), and quality of WiFi. The appearance of WiFi in this priority list may be associated with the increased use of the transit app, and of Uber/Lyft and an associated desire to use onboard WiFi rather than cellular data to communicate.
- Trip purpose is primarily oriented to employment (65%) and school or college (14%), but some customers (totaling 21%) also use Triangle Region transit services for shopping, medical/dental visits, recreation or other purposes. These purposes are essentially unchanged since 2018.

#### DEMOGRAPHICS

- Triangle Region transit systems provide key support for employment and education. Of all Triangle Region customers, 47% are employed full time and another 14% part time. Another 13% are students who are also employed, for a total of 74% being employed. Another 9% are students not also employed. Overall, the transit systems are engines of labor mobility in that 81% of customers are either currently employed or preparing for employment.
- In terms of racial/ethnic identity, 58% of the respondents identified themselves as African American/Black and 22% identified themselves as Caucasian/White. Another 8% identified as Asian, 7% Hispanic and 1% Native American, and 4% as “Other.”
- Like most U.S. bus systems, the ridership of Triangle Region is young, with 47% younger than thirty-five, essentially the same as in 2018 (49%).
- Unlike the customer base of most transit systems in the United States which include a majority of women, a roughly similar proportion of women (48%) as men (50%) use one or more of the Triangle Region systems. (2% preferred not to answer the gender identity question.)
- Similar to the ridership of many bus systems, many Triangle Region customer households report that they have low household incomes. In this survey, 67% report household incomes of less than \$25,000.

#### TRAVEL CHARACTERISTICS

- 35% of Triangle Region customers say they are using transit more often than in the previous year and another 18% say they began riding only in 2018. Only 9% say they are riding less often now. Given that ridership has not increased by 18% as the percentage of new riders might suggest (or even more than that given that many customers say they are now riding more often) there must be very substantial turnover within the ridership with almost as many ceasing to ride as are beginning to ride.
- Triangle Region customers are similar to the national norm of 39% in terms of having a vehicle available for their use. Of Triangle Region customers 40% have a vehicle available.

#### MOBILE COMMUNICATION AND TRANSIT APPS

- Use of a transit app increased dramatically from 45% in 2018 to 55% in 2019 among Triangle Region customers, an unusual pace of change in customer behavior.
- While the use of transit apps is still inversely related to age, the increased use of a transit app increased throughout the age spectrum. For example, use of a transit app increased from 27% to 35% among those 65 or older.

#### RIDESHARING

- 50% have used Uber or Lyft at least once in the thirty days prior to the survey. This is a major increase from 44% in 2018. In addition, those using Uber/Lyft three or more times in the past thirty days increased from 21% to 29%. Moreover, the increased use was greatest among the most frequent riders. These tendencies greatly compounded the total utilization of commercial ridesharing among customers.
- Of the 50% of customers who used Uber/Lyft in the previous thirty days, 21% used Uber or Lyft to replace a Triangle Region transit trip. This amounts to 11% of all Triangle Region customers of the four systems studied.

#### FARE MEDIA

- Region-wide, the day pass, either purchased on the bus (19%) or before boarding (10%), for a total of 29%, is the most widely used fare medium. Cash fare, at 27%, is the second most widely used fare medium. Longer term passes for 7 or 31 days are used by 12%, while a university ID or a GoPass is used by 8% and 17%, respectively.

## Introduction and Methodology

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## Background

As part of a regional customer satisfaction measurement program, CJI Research, LLC conducted surveys of customers onboard buses in each of four systems serving the Triangle Region, GoDurham, GoRaleigh, GoTriangle, and GoCary in 2018 and 2019. Surveys for this report were conducted between October 9 and November 3, 2019.

The multi year measurement program includes conduct of a large sample survey sufficient to analyze at the route level for each of the four systems once every three years in rotation, beginning with GoRaleigh in 2018, GoTriangle and GoCary in 2019, and GoDurham in 2020. The systems not conducting the large route level sample in a given year will conduct smaller sample to provide a system overview but without sufficient sample size for analysis down to the route level. Besides the differing sample sizes, the questionnaires used will also differ in length, with a longer forty-four question survey used in conjunction with the large samples, and a shorter, thirty-eight question survey used for the smaller sample surveys. However, a core of twenty customer satisfaction questions, demographic and certain other questions are included in both forms. This report is based on only those questions common to both forms.

## Methods: How the Survey Was Conducted

### SAMPLE

For each of the four system surveys, a random sample of runs was drawn from a list of all runs. These initial draft samples of runs and routes were examined to determine whether the randomization process had omitted any significant portion of the systems' overall route structures. The samples were adjusted slightly to take any such omissions into account.

Survey data collection occurred onboard the buses. On the buses, survey staff approached all customers rather than a sample. The only exception was that customers who appeared younger than sixteen were not approached for reasons of propriety and because children are typically unable to provide meaningful answers to several of the questions.

Because all customers on the bus were asked to participate rather than a sample of customers, there was little or no opportunity for a survey staff member to introduce bias in selection of persons to survey. In effect, a bus operating within a specified window of time became a sample cluster point in a sample of such clusters throughout the total system.

The combined sample size is 4,523. A random sample survey of this size has a margin of error of +/-1.44% at the 95% level of confidence, and assuming a split of 50:50 in response. Margin of error is smaller when response proportions are unequal.

Sample sizes vary among the four systems. This is because of the three year rotation of the long form survey used at GoTriangle in 2019 and because GoCary ridership is of a size that makes it impractical to collect a large sample despite every attempt to do so. The sample sizes are as follows:

GoDurham	920	GoTriangle	2,514
GoRaleigh	1,123	GoCary	247

Because the sample sizes are – intentionally – both unequal, and not proportional to the riderships, treating the combined sample as a unitary regional sample required weighting by the total annual ridership to get

correct proportions. However, each sample was also weighted by route within each system to correct any disproportions within the individual system samples. Thus, the final dual weighting factor assures that the samples are appropriately weighted within each system's sample, and between systems as well, thus producing a sound regional sample.

Results can vary slightly between the results for an individual system in this multi-system report and the individual system reports because the weighting factors used for the regional study differ slightly from the factors used in the individual system analyses. For the individual survey reports, the individual system survey files were weighted by a single factor: Route level average daily ridership. The regional combined sample, however, is weighted by two factors: (1) Route level average daily ridership and (2) The proportion of the total annual ridership of the four systems accounted for by each of the four systems. The latter is essential in order to keep proper proportions among the systems which differ considerably in their total ridership.

The reader may notice small differences of, for example, 1% or even as much as 3%, in the system-wide figures presented in this report when compared to the analogous tables in the individual system report. This is not an error in either study. Such differences are usually due to how rounding will sometimes vary slightly depending upon how a sample is analyzed. In any event, what we are after here is a set of big picture comparisons. Surveys are very rarely precise to one or two percent, and such differences should be ignored.

With a few exceptions, 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 inconsistent if tenths were not included, percentages may be carried to tenths. Rounding causes some percentage columns to total 99% or 101%. These are not errors and should be ignored.

## DATA COLLECTION

Temporary workers from the Greer Group Inc., Quality Staffing, and Robert Half Staffing were trained to administer the surveys under the supervision of CJI Research staff. Surveyors wore smocks identifying them in large print as "Transit Survey" workers. This uniform helps customers visually understand the purpose of why a person they do not know would be approaching them. It also legitimizes them as official staff persons. Simple though it is, this device increases cooperation rate.



In most cases, the survey personnel met the bus operators at pull-out, and accompanied them at the beginning of their shifts and rode the buses throughout the driver's assignment. In some instances, in order to assure broader coverage of certain routes, surveyors rode partial runs and then transferred to another route or run or were dropped off by survey supervisors at a meeting point.

At the end of each sampled trip on a given run, the survey personnel placed the completed surveys in an envelope marked with the route, the run, the time, and the day and reported to the survey supervisors who completed a log form detailing the assignment.

In the analysis, those who did not respond to a question are eliminated from the computation of percentages and means unless there was a way to infer the response. For example, if a customer gave as a trip purpose *getting to or from school*, it was apparent that this was a student, and that employment could be coded as "student," even if the respondent had not responded to the employment question.

## QUESTIONNAIRE

The common basic questionnaire used in the survey was initially developed by Hugh Clark of CJI Research refined a coordinating committee from led by Elizabeth Raskopf of GoTriangle, the agency coordinating the multi-system project. The committee included representatives of all four transit agencies and CAMPO.

- The questionnaires for the four systems are identical in their common questions in terms of wording of the question and response choices provided. Thus, they are able to be combined for the analysis used in this joint report.
- The questionnaire was printed in English on one side and Spanish on the other to facilitate use by speakers of either language.
- All four forms include the common questions used in this report. For this reason, only the basic “short form” questionnaire (used for this report) is reproduced in Appendix A.
- The questionnaire was self-administered. Survey personnel handed a questionnaire and a pen to customers, politely asking them to complete the survey, and to return it to them before leaving the bus.
- The questionnaires were serial numbered. The serial number identifies the transit system, the route, the date and day of the week. This is a more accurate method than requiring the survey personnel to record such data and/or asking customers which route they are riding when completing the survey.

## ANALYSIS

Analysis consists primarily of crosstabulations and frequency distributions. Tables were prepared in SPSS, version 26 and charts in Excel 2016. The survey data will be archived by CJI Research so that it will be available for further analysis as needed.

## Customer Transit Use Profile

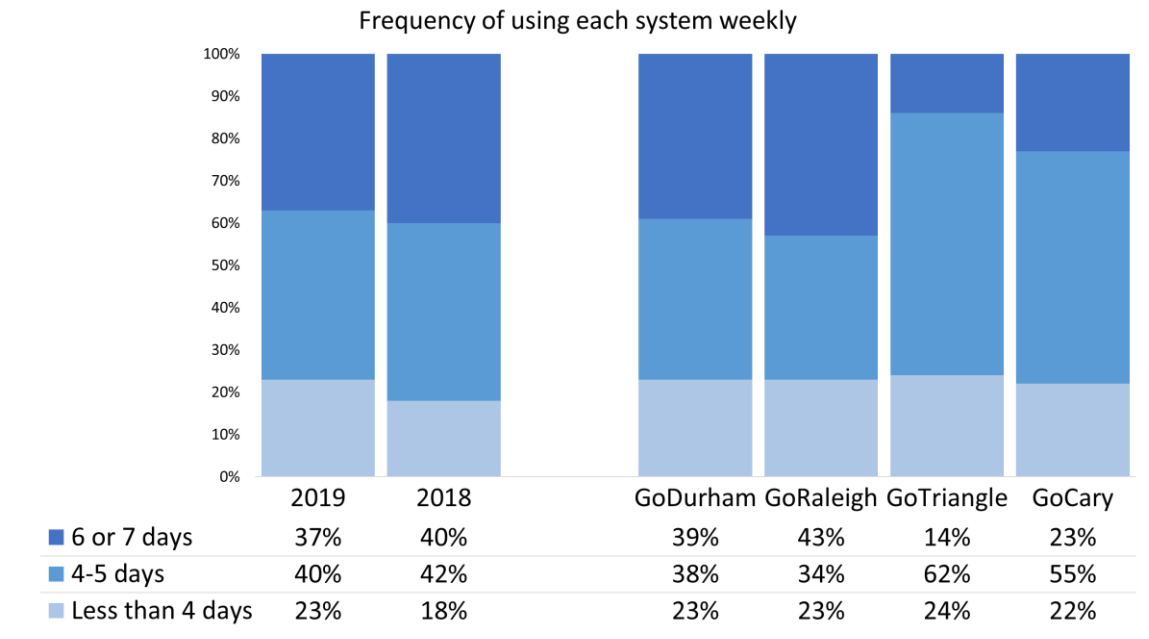
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## Frequency of Using Transit in the Triangle Region

The first and arguably the most basic characteristic of a transit customer is how frequently they typically use transit in a typical week. The frequency with which customers in the region used transit in a “typical week” declined slightly between 2018 and 2019. The decrease consisted of two elements. The percent using transit six or seven days a week slipped 40% to 37% while the percent using it infrequently (fewer than four days a week) increased 18% to 23%. We will see in a later section how this net decline is related to the increasing use of ridesharing services (see Figure 13 and Figure 14).

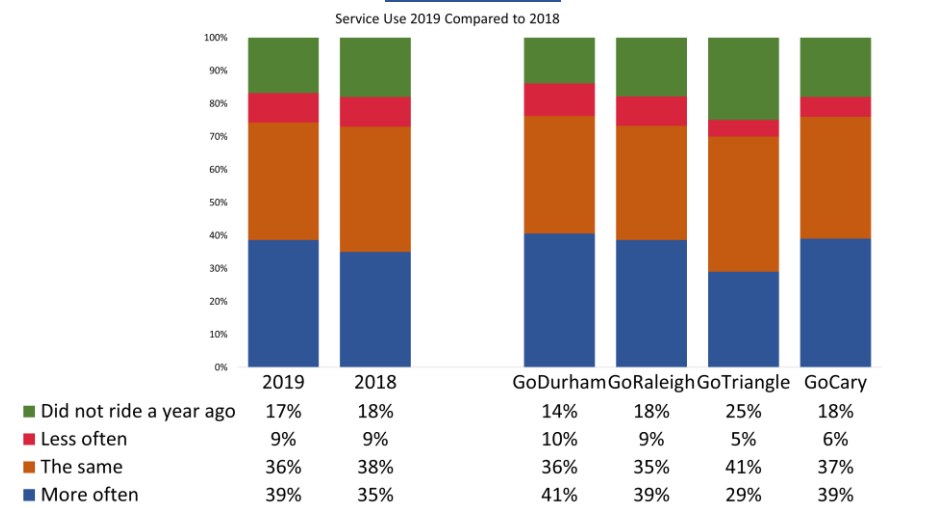
**Figure 1 Frequency of Using Public Transportation**



## Frequency of Using Public Transportation

Weekly use of transit service varies among the four systems. However, they are very similar in the proportion of infrequent riders. The percent using the systems fewer than four days a week varies within the narrow range of 22% to 25%. The differences among the systems lie mostly in the percentage of their customers who regularly use the service either four or five, or six or seven days in a typical week. Specifically, while GoDurham and GoRaleigh have large percentages who use their services six or seven days a week (39% and 43% respectively) GoTriangle has only 14% of its customers in this category and GoCary only 23%.

**Figure 2 Compared to a Year Ago, Do You Ride More Often, Less Often or the Same?**



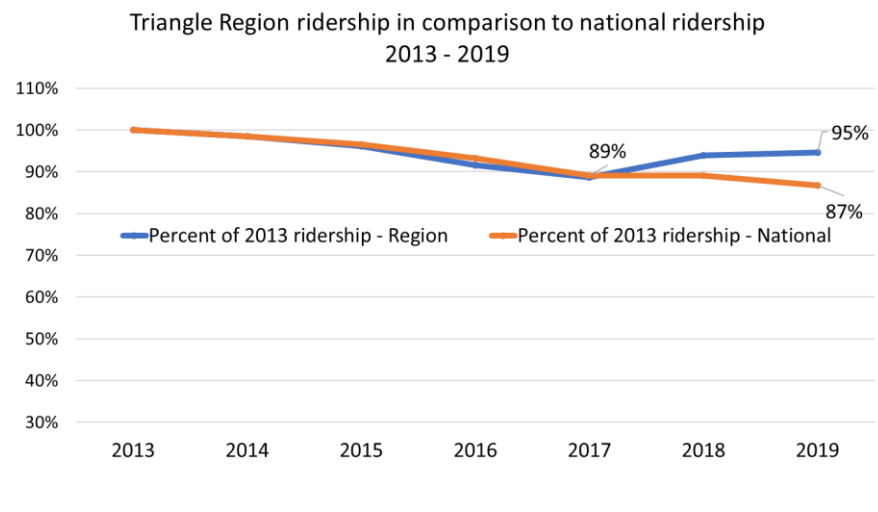
**Compared to a Year Ago, Do You Ride More Often, Less Often or the Same?**

In spite of the results shown for net decrease in frequency of transit use shown in Figure 1, respondents say that they are riding either with same frequency (36%) or more often (39%) than a year ago. Only 9% say they are riding less often. Although the results of the two charts may appear inconsistent, they are not. For example, seventeen

percent (17%) say they are new customers who by definition are riding more often. Customers in the other frequency groups too may have begun using transit more often.

The percentages differ somewhat among the four systems, but the individual system patterns are similar to the combined four-system total. GoTriangle is again the exception. While from 39% to 41% of GoDurham, GoRaleigh and GoCary customers say they are riding more often, that is true of only 29% of GoTriangle customers.

**Figure 3 Total Bus Ridership, National, and Regional, 2013 to 2019**



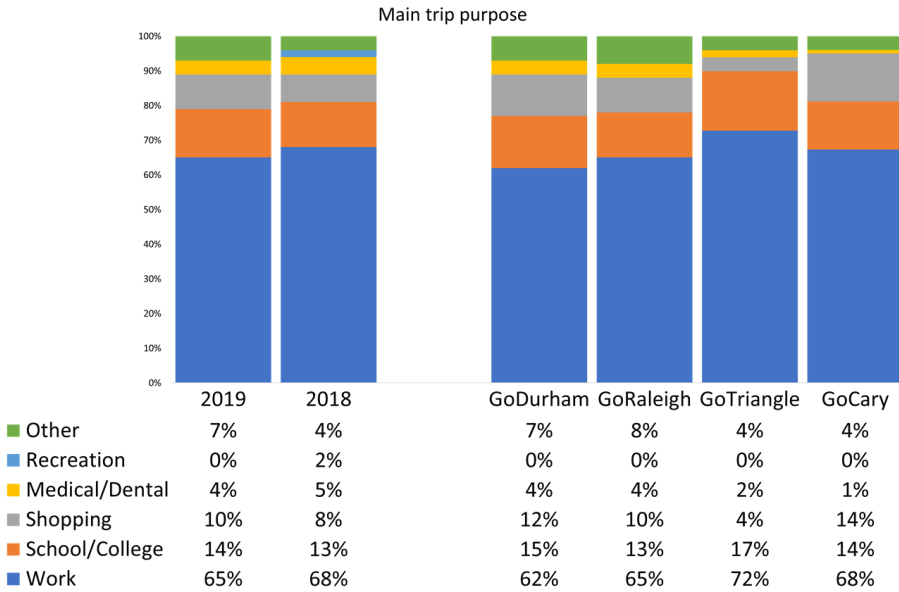
**Perspective on Regional Ridership**

Nationally, bus ridership continues to be in a long decline. Figure 3 displays ridership as a percentage of 2013 ridership<sup>1</sup>. It indicates that nationally, bus ridership in 2019 was 87% of the 2013 base, while ridership in the Triangle Region had bottomed in 2017 and had risen to 95% of the 2013 figure. It also indicates that there was very little, if any, change from 2018 to 2019.

Figure 2 shows that a substantial percentage of customers say that they were not using the system last year. GoTriangle is the highest in this respect, with 25% saying they were new to the system in 2019. We know from Figure 3 that ridership did not increase in these systems to anything close to the percentages saying they are new to the system. Thus, it is evident that there is a substantial turnover of the customer base annually. This in turn suggests that customer retention should be a major marketing and planning priority.

<sup>1</sup> Figures based on ridership numbers provided by the systems in preparation for sampling.

**Figure 4 Trip Purpose**



**Main Purpose of Using Transit**

Customers were asked to name the single main purpose for which they most often use the system on which they were surveyed.

- For all four systems, getting to or from work was the primary trip-purpose in both 2018 and 2019, although work trips appear to have declined slightly in that period from 68% of trips to 65%.
- In 2019, school and college trips make up another 14% of trips. Thus, these

systems carry a large proportion of their customers (79%) either for work trips or for school trips, indicators of their impact on labor force mobility and thus of their overall economic impact on the community.

- Another 10% of the customers indicate that they use transit in the Triangle Region to make shopping trips, another source of economic impact.
- Medical (4%) and “other” (7%) purposes account for the other 11%.

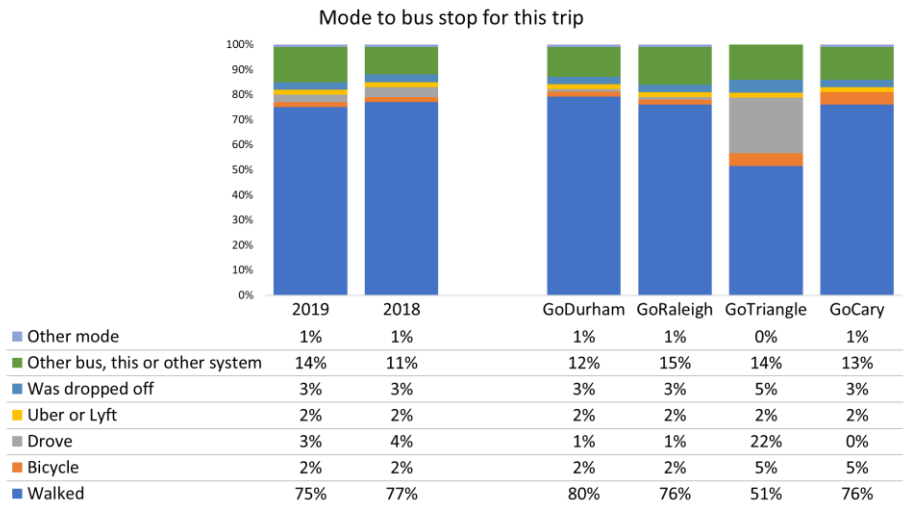
The four systems differ very little with respect to the rank order of trip purposes of their customers. In each case, work trips account for most trips (ranging from 62% to 72%). However, GoTriangle has a higher percentage of both work trips (72%) and somewhat higher percentage of school/college trips (17%) than the other systems.

GoTriangle also has a much lower level of shopping trips (4%) than the other three systems.

**Mode to the Bus Stop**

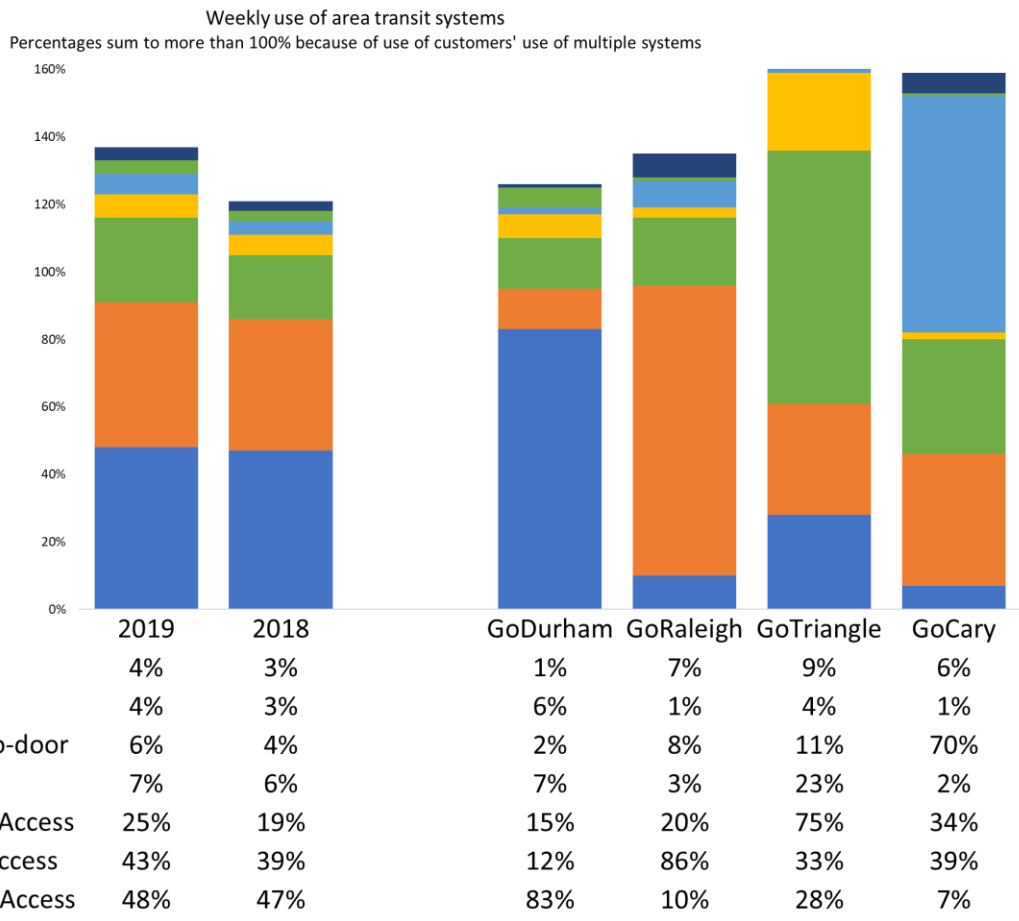
Figure 5 presents information on the mode used to get to the first bus stop the customer used for the trip on which they were surveyed. Regionally, three-fourths of users (75%), most often simply

**Figure 5 Mode to the Bus Stop**



walk to the nearest bus stop. However, there are differences among the several systems in this respect. GoTriangle is once again the outlier in this respect. It has the lowest percentage of those who walk (51%) and the highest percentage who drive (22%). The latter is far above the national norm of 3% of bus customers who drive to their stop.

**Figure 6 Bus Systems Used in a Typical Week**



### Use of Area Bus Systems

Respondents were asked which of the transit systems in the region they use in a typical week. Since many use multiple systems, the sums of the percentages exceed 100% in Figure 6.

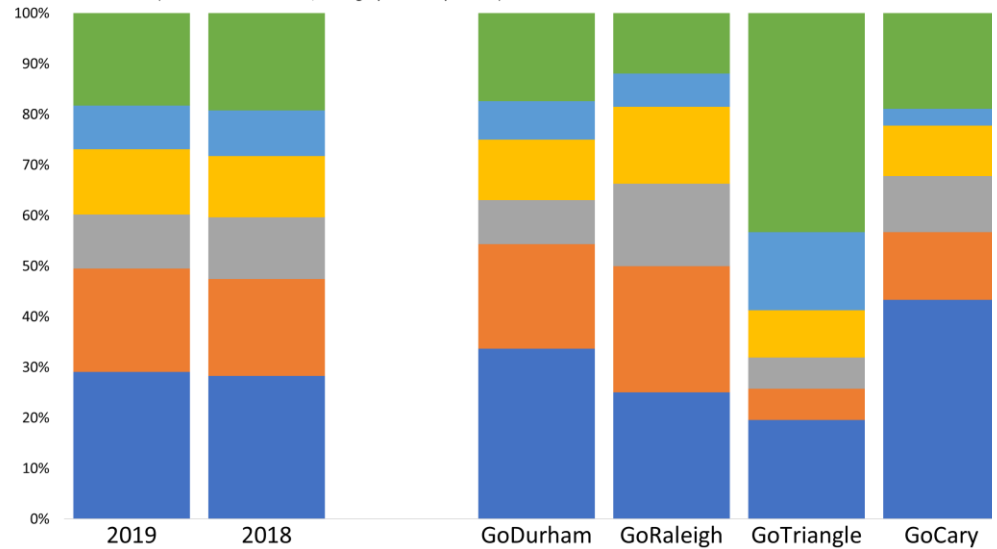
As one would expect, during a “typical week” most, but not all, of the respondents use the system on which they were surveyed. For example, of customers surveyed on GoDurham, 83% said that they use GoDurham in a typical week, but conversely 17% do not. Among the four systems, GoRaleigh has the highest level of single-system use at 86%, and GoCary the least, with 70%. GoTriangle, with 75%, lies in between those extremes, not surprising, given its role as a regional system.

The chart columns are of unequal heights because customers of the four systems vary in the extent to which they use a variety of systems.

- Fewer customers surveyed on GoDurham use more than one system in a “typical week.”
- GoRaleigh is next because of its customers’ somewhat more frequent use of GoCary and Wolfline.
- GoTriangle and GoCary have similar tendencies to use more than one systems, but are quite different in the systems they use.
  - GoTriangle customers connect much more than others with both GoDurham and GoRaleigh, but also with Chapel Hill Transit.
  - GoCary customers are more likely to connect with GoTriangle and GoRaleigh, but not with GoDurham or Chapel Hill Transit.

## Figure 7 Fare Medium Used

Fare medium used for first trip on this system  
(Chart excludes free fares, a category asked only in 2019)



	2019	2018	GoDurham	GoRaleigh	GoTriangle	GoCary
Use a GoPass	17%	19%	16%	11%	42%	17%
Use a university or other ID	8%	9%	7%	6%	15%	3%
Use a 7 or 31 day pass	12%	12%	11%	14%	9%	9%
Use a day pass bought ahead of time	10%	12%	8%	15%	6%	10%
Buy a day pass on the bus	19%	19%	19%	23%	6%	12%
Pay cash fare this trip only	27%	28%	31%	23%	19%	39%

## Type of Fare Used

### BY REGION

How do the systems' customers vary in terms of their use of fare media?

- Region-wide, the day pass, either purchased on the bus (19%) or before boarding (10%) for a total of 29% is the most widely used fare medium.
- Cash fare, at 27%, is the second most used fare medium.
- Longer term passes for 7 or 31 days are used by 12%.
- A university ID or a GoPass is used by 8% and 17%, respectively.

These figures show no statistically significant change since 2018.

### BY TRANSIT SYSTEM

- GoDurham and GoCary have the highest percentages of customers using cash fares (31% and 39%, respectively).
- GoRaleigh has the highest percentage of customers using a day pass purchased either on the bus (23%) or pre-purchased (15%) for a total of 38%.
- GoTriangle is an outlier in that many more customers use the GoPass (42%) compared to GoDurham (16%), GoRaleigh (11% each) or GoCary (17%).

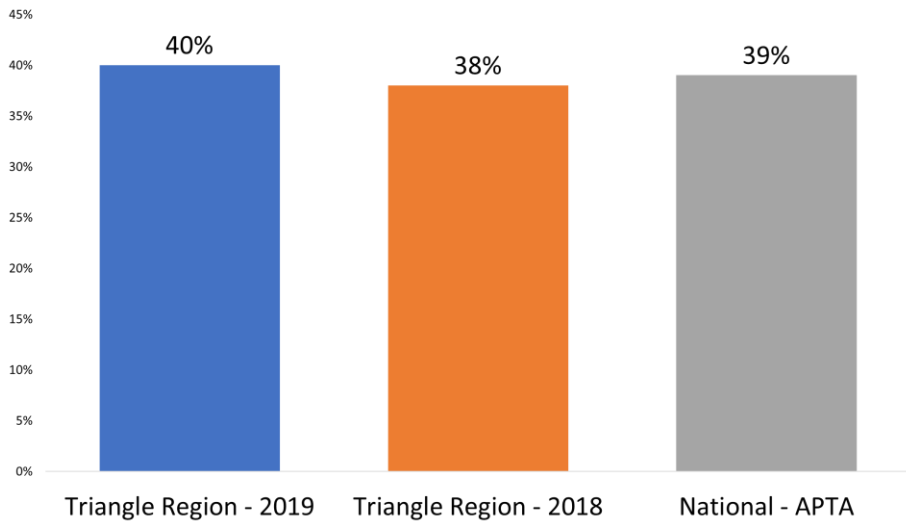
## Use of Modes Other than Public Transportation

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- Many customers have a personal vehicle available for their use.
- Many customers use commercial ridesharing services (Uber/Lyft)

**Figure 8 Vehicle Availability**

Vehicle available - Triangle Region and National



**Personal Vehicle, and Uber/Lyft as Alternatives to Public Transit**

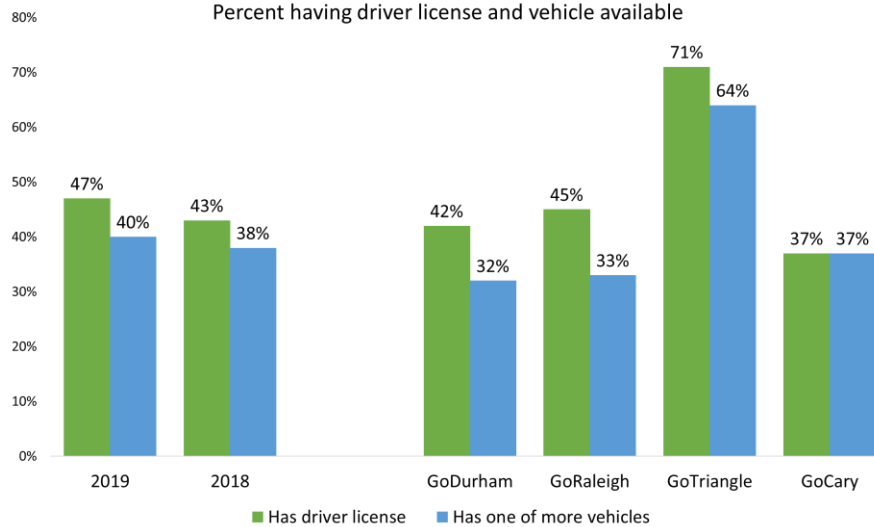
Uber and Lyft have added a new dimension to local mobility options. However, access to a personal vehicle remains a key variable in personal mobility. In this section of the report, we consider access to a vehicle, having a license to drive, and use of Uber/Lyft.

**Availability of a Vehicle**

There has been a significant increase of 4% in the percentage of customers with a driver’s license. There may also may have been a slight increase in availability of vehicles since 2018 to Triangle Region transit customers. The latter difference is only two percent, only marginally greater than the margin of sampling error (+/-1.44%), and for this reason we do not treat the difference as definitive. The slight, 2% uptick in availability of a vehicle in the region since 2018, is consistent with the increased level of employment among transit users (see Figure 19). It is not, however, consistent with the fact that household incomes showed no change Figure 21.

**Figure 9 Driver License and Availability of a Vehicle**

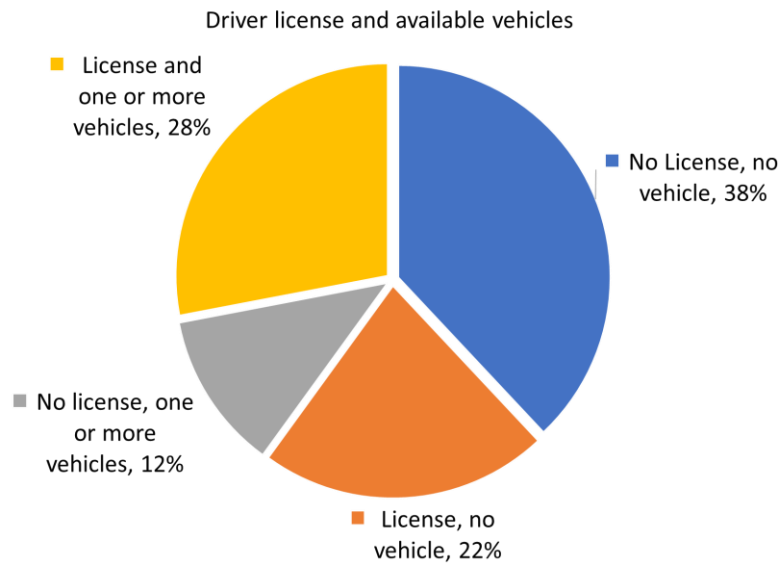
Percent having driver license and vehicle available



Regionally, 7% more customer hold a valid driver license than have access to a vehicle. GoCary customers have identical percentages holding driver licenses and having access to a vehicle (37%). More customers of the other three systems hold licenses than have vehicles available to them.

Among three of the four Triangle Region systems, availability of a vehicle is very similar, varying only from a high of 37% among GoCary customers to a low of 32% among GoDurham customers and 33% among GoRaleigh customers. The regional GoTriangle system is an exception, with 64% of customers reporting that they have a vehicle available.

**Figure 10 Having Both Driver License and Available Vehicle**



**HAVING A VALID LICENSE TO DRIVE**

Full “modal choice” requires both a vehicle and a valid license to drive. Only 28% of regional transit customers meet that criterion.

Among customers of each transit system, with the exception of GoCary, license holders outnumber those with an available vehicle. This suggests that they have an intent to obtain a vehicle at some point, may have had one at one time, or they may have a license as a form of ID with no intention of driving.

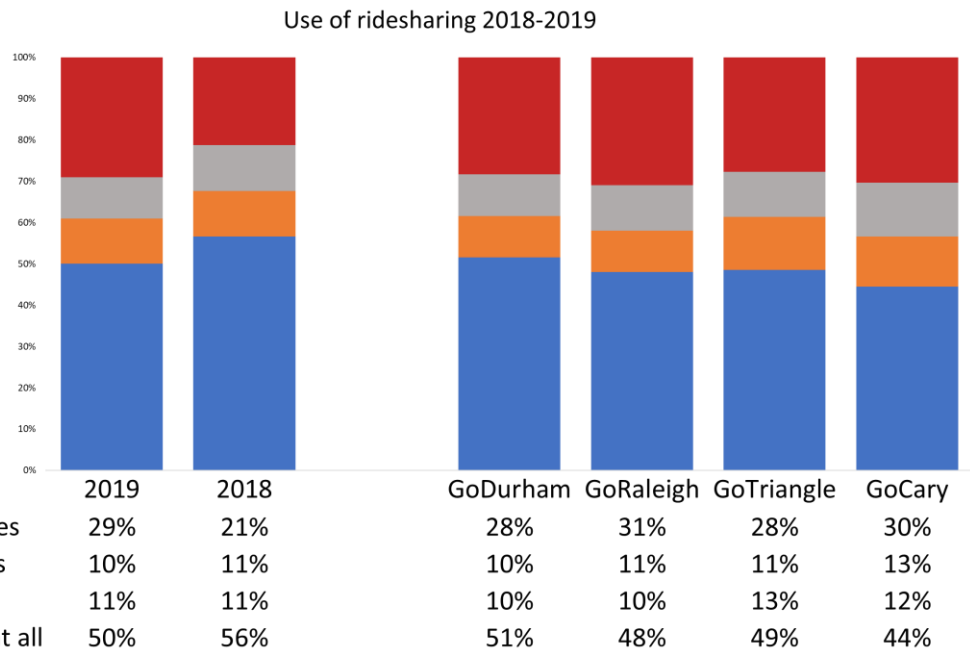
**Increased Use of Uber or Lyft**

Mode choice is no longer simply about owning or leasing a personal vehicle. Since 2015, use of Uber and Lyft has become mainstream.

Of all Triangle Region transit customers, 50% say they have used Uber or Lyft services in the past thirty days

and 50% have not. Conversely, this means that 50% have used one of the car-sharing services, up significantly from 2018 when 44% had used them. In 2019, this includes 11% who have used them only once, 10% twice, and 29% three or more times.

**Figure 11 Use of Uber or Lyft in Past Thirty Days**

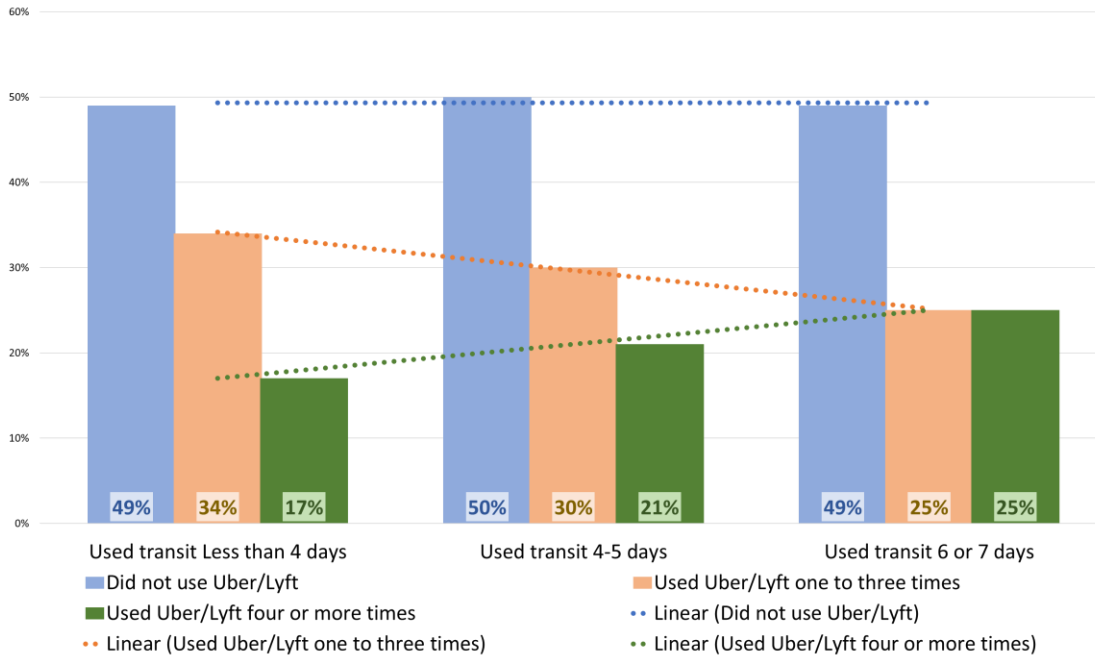


Use of Uber and Lyft increased in two ways between 2018 and 2019. First, more customers used Uber/Lyft in 2019 (50%) than in 2018 (44%). Second, those who used the services three times or more increased from 21% to 29%. The net result is that many more ridesharing trips were taken in 2019 than in 2018.



**Figure 13 Use of GoSystems and Use of Uber/Lyft**

Relationship between frequency of using GoSystems and use of Uber&Lyft



The impact on regional transit ridership is made clear in Figure 13. Using or not using ridesharing services does not vary significantly with the frequency of using transit. However, the more frequently customers use transit, the

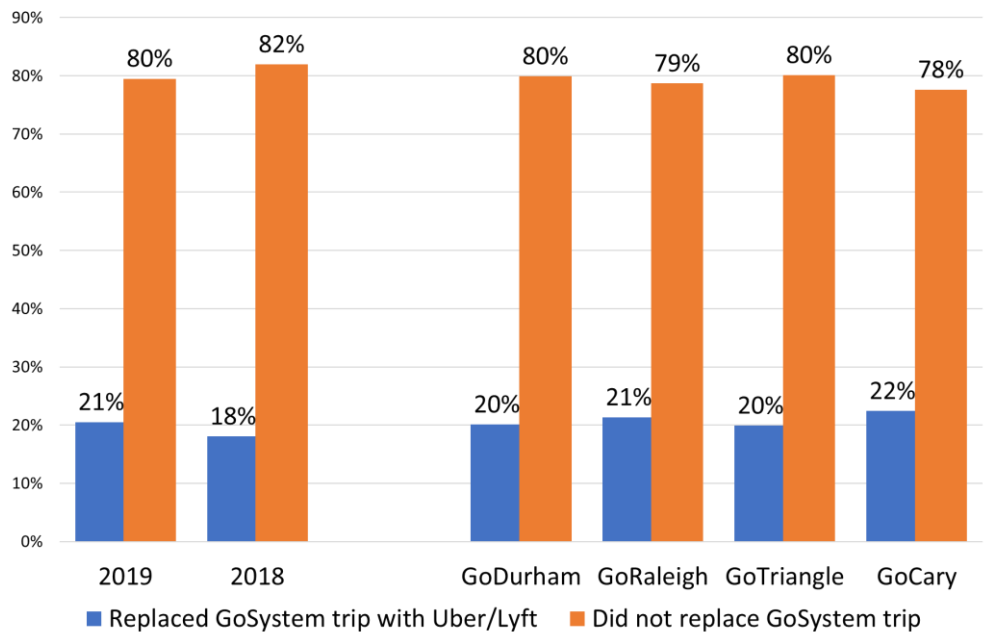
more often they also use ridesharing services. Of those using transit fewer than four days a week, only 17% used ridesharing, four or more times in the past thirty days. But the analogous figure for those who use transit six or seven days a week, is 25%. Clearly, this magnifies the impact of commercial ridesharing on transit ridership.

**Use of Uber and/or Lyft to Replace a Transit Trip**

Figure 11 indicated that 50% of Triangle Region transit customers had used Uber or Lyft in the past thirty days. How have those trips interacted with the individual transit systems? Figure 12 provides a basic answer.

**Figure 12 Use of Uber and/or Lyft to Supplement or Replace a Transit Trip**

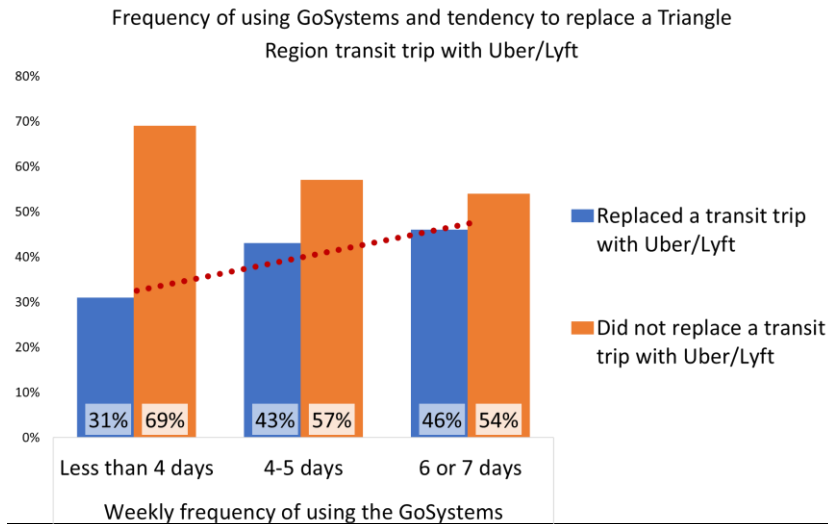
Replacement of a trip on one of the four GoSystems with an Uber/Lyft trip



Of the 50% of Triangle Region customers who have used Uber or Lyft, 21% say they replaced a transit trip with a ridesharing trip. This amounts to 11% of all Triangle Region transit customers (i.e. 21% of 50% = 11%).

There is little or no variation in this respect among the four transit systems.

**Figure 14 Frequency of Using GoSystems and Replacing a Transit Trip with a Ridesharing Trip**



**Frequency of Using Transit, and Tendency to Replace Local Transit Trips with Ridesharing Service**

In addition to the multiplier effects shown in Figure 13, Figure 14 demonstrates that the more often customers use one of the systems in the region, the more likely they are to say they have *replaced* a local transit trip with a commercial ridesharing trip.

One might argue that ridesharing is a useful supplement to transit service in that it enables some customers to

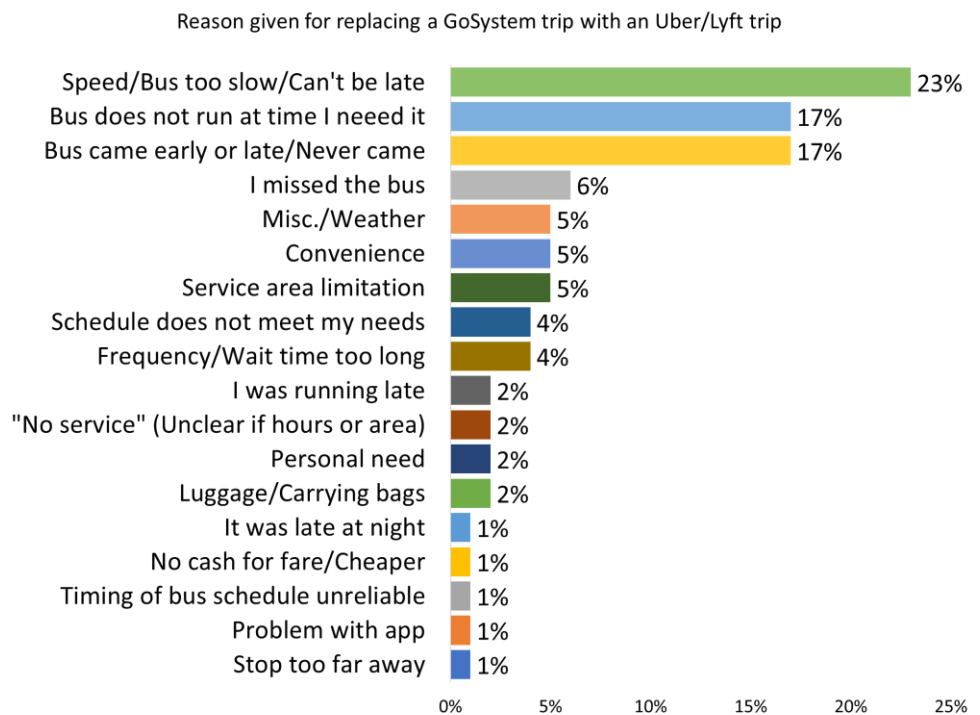
continue using transit whereas without such supplementary services, they might find it necessary to purchase a vehicle. If true, the use of Uber/Lyft by such customers might slow the turnover in the customer base among those whose transportation needs cannot be fully met by the local transit systems. However, it is also possible that the tendency to replace some transit trips with ridesharing service trips is an early stage of customers moving away from reliance on public transportation. Time will tell.

**Reasons to Replace a Transit Trip with a Rideshare Trip**

When the 21% who replaced a transit trip with an Uber/Lyft trip were asked why they had replaced a transit trip with an Uber/Lyft trip, the response given most often involved speed of the trip (23%).

Some respondents said simply that the bus service was “too slow” or “would take too long.” Others gave reasons for their concern with speed, such as “...I would have been late for work,” or

**Figure 15 Reasons Given for Replacing a Local Transit Trip with a Rideshare Trip**



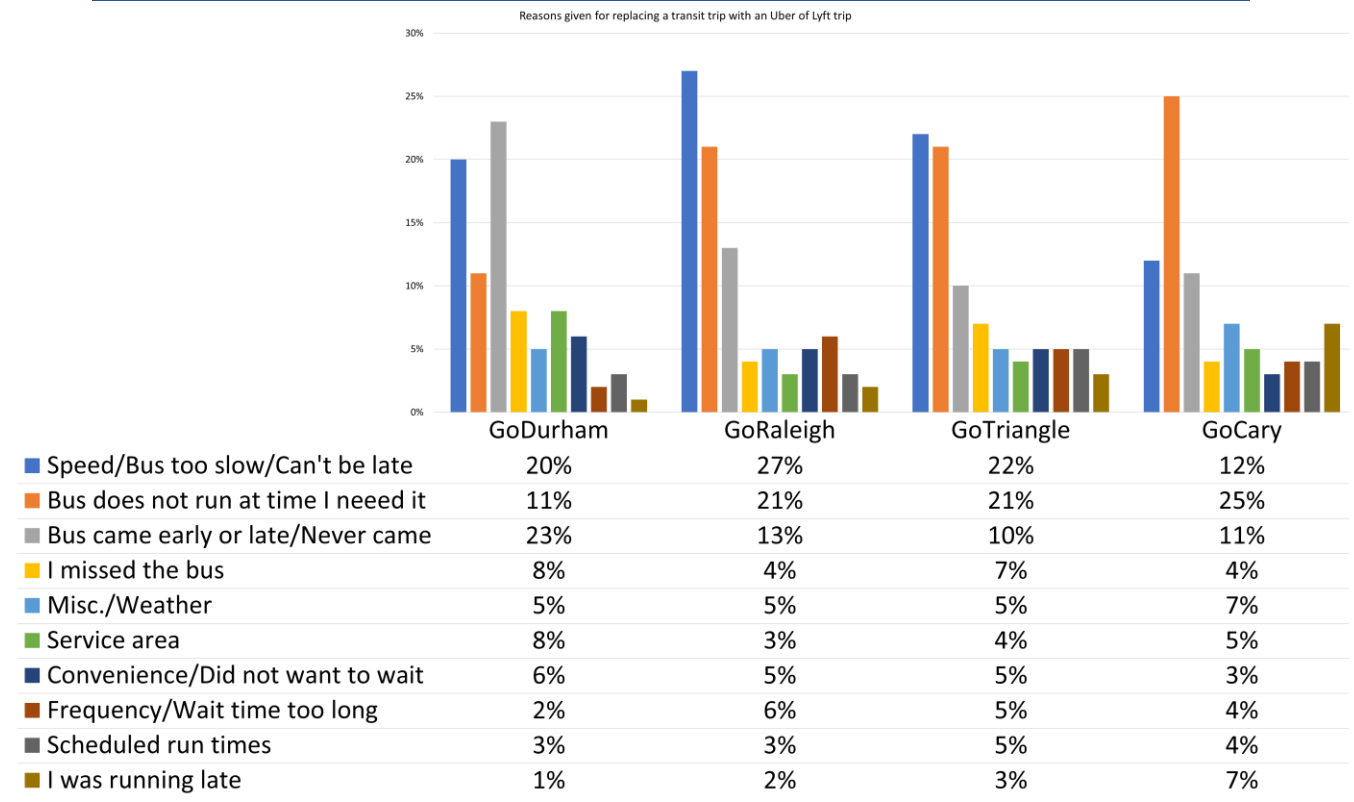
“I had to get to an interview. Of course, these responses beg the question of why they would not have begun their trip earlier as they might have in the pre-Uber/Lyft era. However, the customer’s perception in these cases was that they needed greater speed than a transit trip could provide.

Two reasons were tied (17%) for the second most common reason for replacing a transit trip. They are that the bus was not running when the customer needed it or that, according to the customer, the bus had “left the stop early,” was “too late to the stop” to make the trip feasible, or simply “never came.” There is no way to judge the reality of those latter statements. Some other respondents (2%) were frank about it: “I missed the bus” rather than blaming the service.

As to the bus not running at the hour needed, those statements were often attached to specific times or routes (or both) which lend credibility to them. Generally, this involved nighttime service. In this survey respondents were not asked their work schedules, but in surveys and focus groups elsewhere we have found that this problem frequently occurs among those customers, usually young, who are new to the workforce, work in service jobs, and must work late into the evening on weekends. The small potential ridership on affected routes would be unlikely in itself to justify the additional hours of service that would be needed to serve the needs of this small but important subset of young customers, we have also found that these customers are the most likely to defect from transit use to purchasing a vehicle. For this reason, the additional hours of service may have an indirect effect on ridership retention. That appears, for example, to have been the case in Ann Arbor Michigan. Those studies, however, predated the widespread use of Uber and Lyft, and those commercial ridesharing services may provide the solution for these workers, especially if they are connected to the fare structure of the transit system in some manner.

It is interesting that the higher cost of the ridesharing service was apparently not of concern to those who replaced a transit trip. It was not mentioned at all. Apparently, the marginal additional cost was regarded as inconsequential in relation to the immediate need. It is also interesting that a handful of customers (1%) said that they used a ridesharing service because they lacked cash for the bus at that time or that, in one case, for the particular trip it would be cheaper.

**Figure 16 Top Ten Reasons for Replacing a Transit Trip with a Rideshare Trip, by System**



**Top Ten Reasons for Replacing a Transit Trip with a Rideshare Trip, by System**

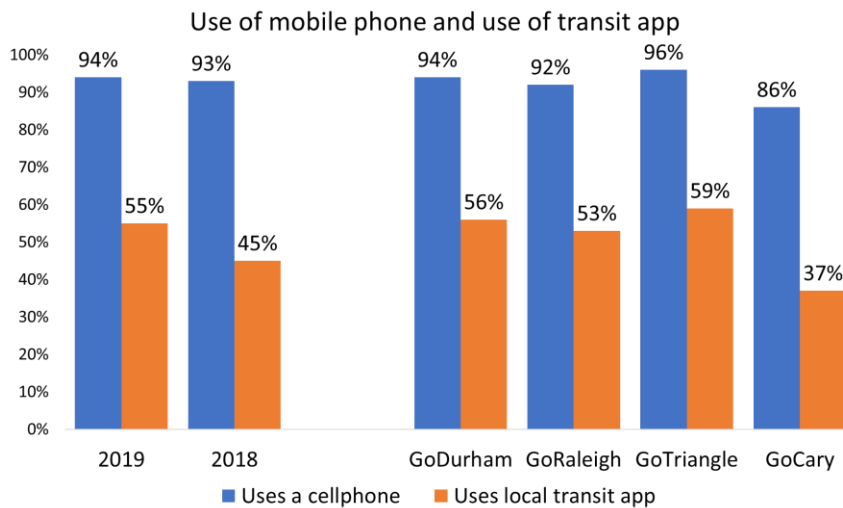
Of the top ten reasons to replace a transit trip with a commercial rideshare service trip, the variation among systems occurs primarily among the top three. The major take-aways are:

- Speed of the trip is important to 20% or more of customers in the three large systems, and much less so in GoCary.
- The perception that the bus was off schedule, too early or late to the bus stop, is more common (23%) among those replacing a transit trip with an Uber/Lyft trip at GoDurham than the other three systems (10% to 13%).
- The lack of service at the hour it was needed was the most common reason given among GoCary customers, and second most common reach among GoTriangle and GoRaleigh customers.

## Mobile Communication

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**Figure 17 Use of Cellphones and Transit App**



**Use of Cellphones and a Transit App**

Among Triangle Region transit customers, cell phone use is high, but not quite universal, with 94% of customers indicating they use a cell phone. Fifty-five percent (55%) use a transit app on their cell phones, a major increase from the 45% using an app in 2018 (Figure 17). This increase occurred across all age levels (Figure 18).

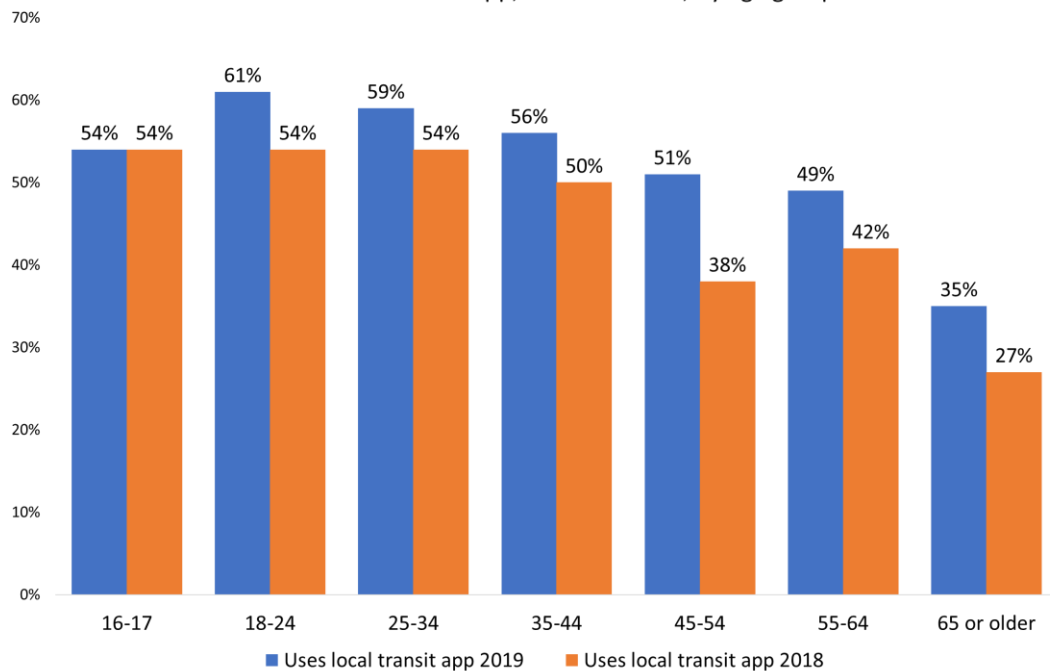
While the use of a transit app is still not universal, if the rapid

growth rate from 2018 to 2019 continues, it will take only three or four years until the use of an app among customer can be assumed. Meanwhile, other communication modes continue to be necessary for the declining minority of customers not using an app.

That mobile apps still cannot be relied on to provide the only communications channel to the ridership is illustrated by the results shown in Figure 18. That figure demonstrates that the use of such apps continues to be related to age with a general downward trend in utilization as age increases. This means that it will take several more years for the transit app to become effectively the assumed primary source of information. This will occur as adoption of transit apps continues to spread across all ages, and as more of the oldest customers age out of regular ridership.

**Figure 18 Age and the Use of Mobile Transit App**

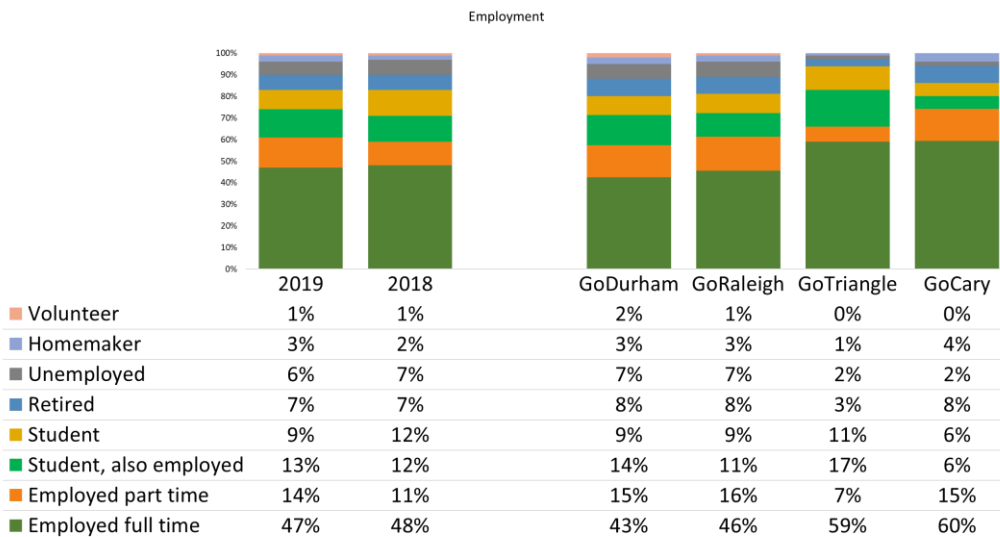
Use of a local transit app, 2018 and 2019, by age group



# Demographics

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**Figure 19 Employment of Customers**



**Employment of Customers**

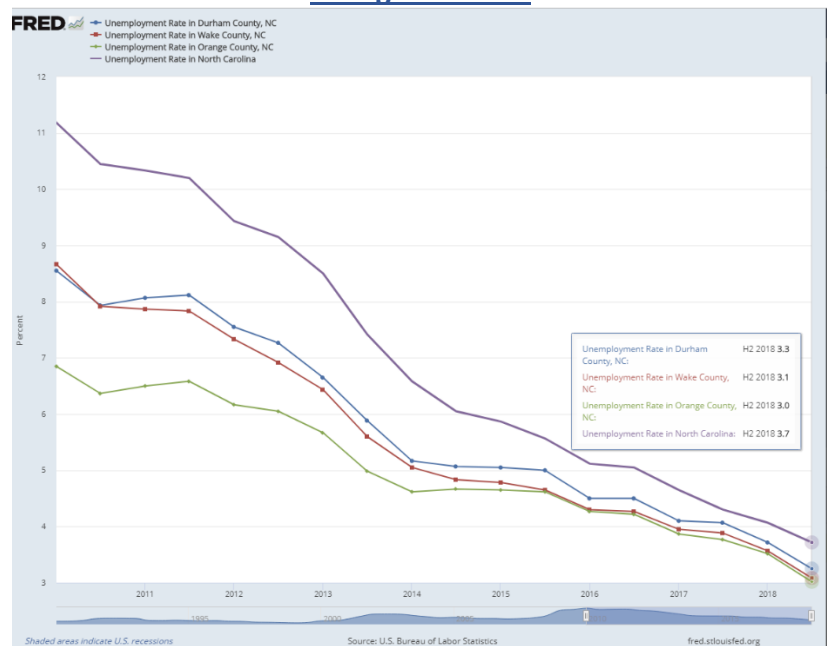
Respondents were asked about their employment. In 2019, a total of 47% of Triangle Region transit customers reported being employed full time, while another 14% said they were employed part time, and 22% said they are students<sup>2</sup>. This includes 13% who

are both employed and students and 9% who are students-only. The important finding here is that the 83% of the region’s ridership is productively engaged as employed persons or students in the region’s economy and community life.

**Unemployment Rates in NC, Wake, Durham, and Orange Counties**

In the surveys, 6% indicated that they consider themselves unemployed and seeking work. We know from analysis not shown here that one-third of the respondents who labeled themselves as unemployed but seeking employment said that their most frequent transit trip purpose was getting to or from work. This would be 2% of the ridership. Thus, they were probably working at a secondary job while seeking new employment. If so, they are employed in terms used by the Department of Labor, although their employment may be only an interim tactic while seeking a new job. This would amount to about 2% of the ridership leaving 4% unemployed in BLS terms. At the time of the survey, the rate of unemployment was 3.7% statewide and 3.3%, 3.1%, and 3.0% in Durham, Wake, and Orange Counties respectively. Thus 4% rate for customers of the several systems in the region would be in the same range as unemployment among the general public in the three county area.

**Figure 20 Unemployment Rates in NC, Wake, Durham, and Orange Counties**

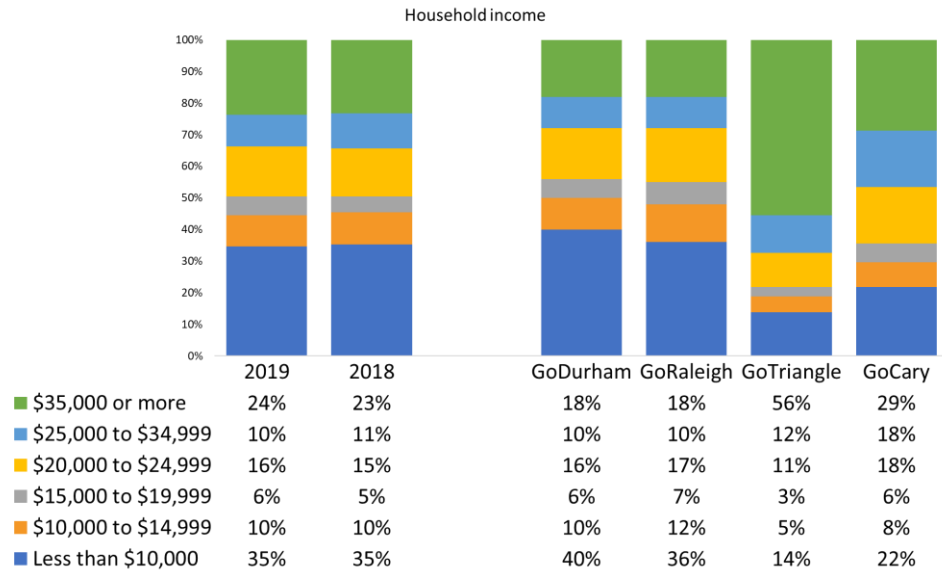


Source: U.S. Bureau of Labor Statistics, Unemployment Rates in North Carolina [NCUR], and selected NC counties, retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/NCUR>, February 15, 2019.

<sup>2</sup> There are small differences between the employment numbers cited in Figure 19 and employment figures in the individual system reports. The reason for this is that a slightly different, and improved, method was used in this report to compensate for those respondents who failed to answer the employment question. Individual system reports can be updated upon request. The differences, however, do not materially affect any conclusions.



**Figure 21 Income of Customer Households**



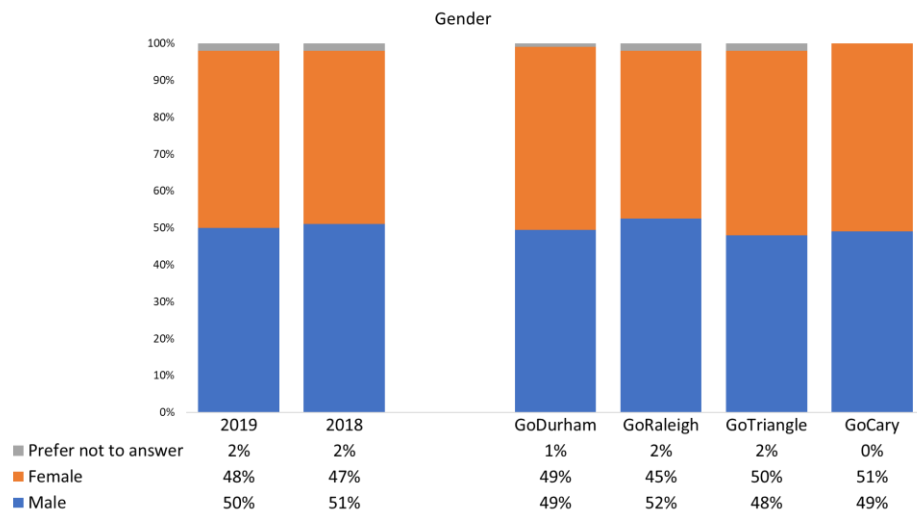
**Income of Customer Households**

As is true of customers in many transit passenger surveys of other systems in the United States, many Triangle Region transit users have low household incomes. In 2019, 67% report household incomes of less than \$25,000. This is statistically unchanged since 2018 then the comparable total was 65%.

In terms of household income, GoTriangle is, again, an outlier among the four systems. While the income level of \$35,000 or more at GoDurham and GoRaleigh, and 29% at GoCary, 56% of GoTriangle customers fall into that higher category.

GoDurham and GoRaleigh have very similar distributions of income levels although a slightly greater percentage of GoDurham customers are at the extreme low end the income continuum (40% less than \$10,000 for GoDurham compared to 36% for GoRaleigh).

**Figure 22 Customer Segment by Gender**

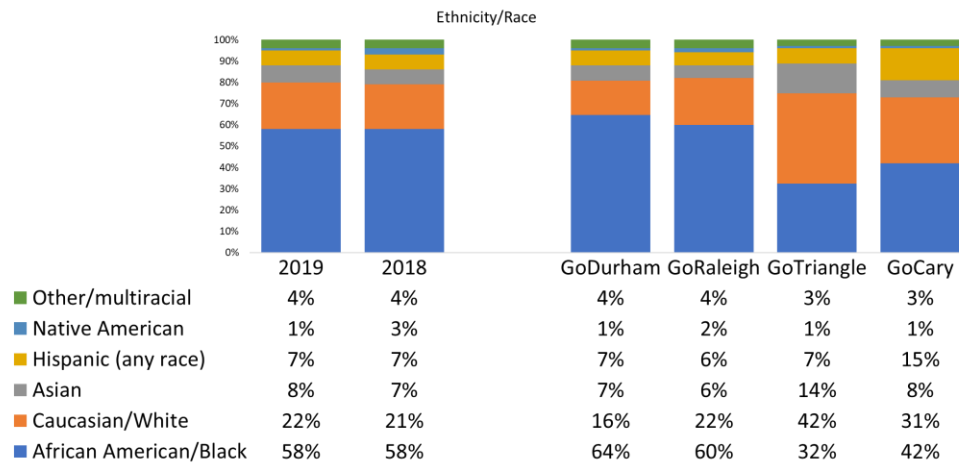


**Gender of the Customers**

Transit customers in the region are 51% male and 47% female, with 2% preferring not to state a gender identity. The gender balance varies only slightly among the four systems. At 45% female, GoRaleigh has the highest rate of customers who are women. Other variations among the systems are minor.

The Triangle region, with a roughly equal percentage of women and men, differs from the national figures on gender of transit customers. Nationally, according to the CJ I APTA report cited earlier, among bus customers, 56% are women.

**Figure 23 Ethnicity of Triangle Region Transit Customers**



**Ethnicity of Customers**

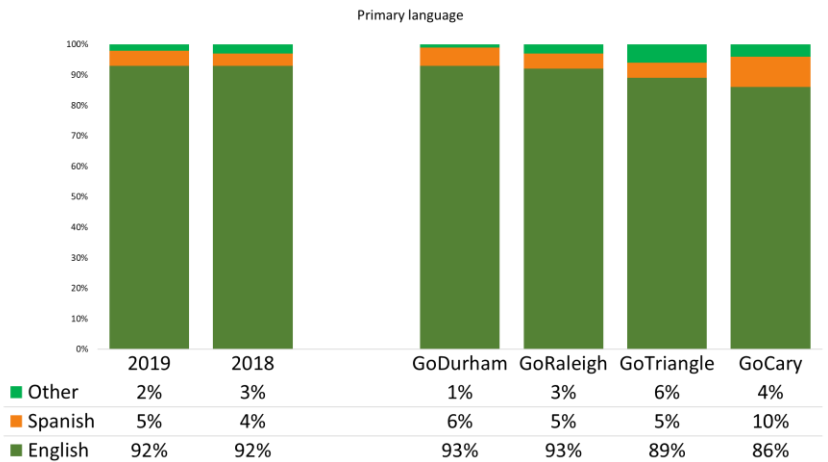
In measuring ethnicity, it is important to focus on self-identification by asking "Which do you consider yourself...?"

In both 2018 and 2019, 58% of the regional respondents identified as African American/Black. The percentages identifying with other

ethnic groups remains statistically unchanged as well. In 2019, 22% identified themselves as Caucasian/White, another 8% identified as Asian, 7% Hispanic and 1% Native American, and 4% as "Other". The "Other" category (5%) allowed for a handwritten response. But regardless of the system, the write-ins were predominantly expressions of nationality or cultural groups (Hawaiian, African, Middle Eastern, Turkish, Black Hebrew, etc.) or notations such as "biracial," or sardonic (e.g. Human) and are not helpful.

The ethnic profiles differ substantially among the Triangle Region systems. In terms of customers identifying as African American, GoDurham, with 64%, has the largest proportion, with GoRaleigh next at 60%. The overall profile of those two systems is similar, however, in that the African-American ridership is the largest ethnic/racial identity group, Caucasian/White next, with smaller segments of Asians, Hispanics, Native Americans and others.

**Figure 24 Language Spoken Most Often at Home**

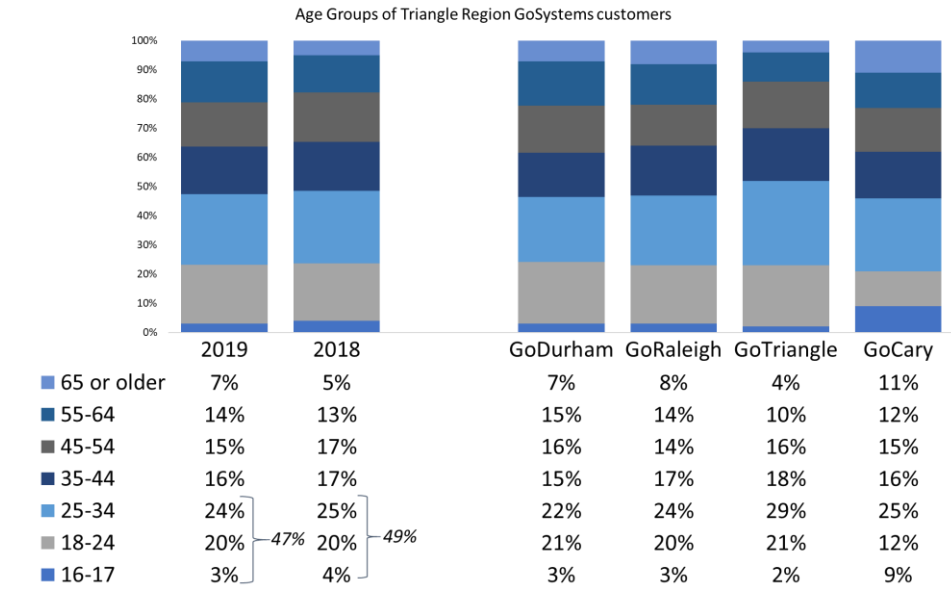


GoTriangle and GoCary are quite different from the two larger systems in this respect. In both cases, African Americans constitute a much smaller proportion of the ridership (32% for GoTriangle and 42% for GoCary). More of the GoTriangle ridership identifies as Caucasian/white (42%) than any other group. GoCary has the largest percentage of Hispanic customers (15%).

**Language Spoken Most Often at Home**

The overwhelming majority (92%) of Triangle Region customers most often speak English at home while only 5% speak Spanish and 2% another language. The GoCary customers, who have the largest proportion of Hispanic customers, are more likely than more likely (10%) than customers of other systems to speak Spanish as their primary language.

**Figure 25 Age of Customers**



**Age of Customers**

Like most bus transit systems in the United States, the Triangle Region has a young ridership. Of all regional customers, almost half (47%) are under the age of 35. This may be down slightly from 49% in 2018, although the change is close to the margin of sampling error and we cannot be completely confident that there has been a real change.

This percentage of young riders probably actually underestimates the youth somewhat because for reasons of data validity and ethical practice, we did not attempt to survey anyone appearing younger than 16.

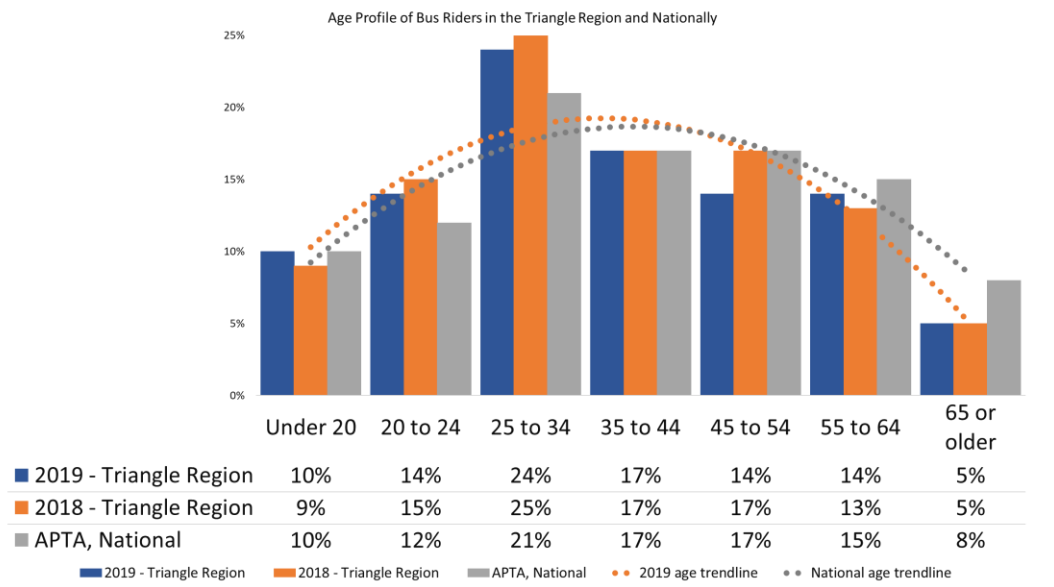
The age distributions are similar among the systems, but they differ somewhat. They are similar in that customers under the age of 35 comprise roughly half of the ridership in each of the four systems. They differ slightly in that GoTriangle has a noticeably larger cohort of customers in the 25-34 age range.

**Age Profile of Transit Customers in the Triangle Region and Nationally**

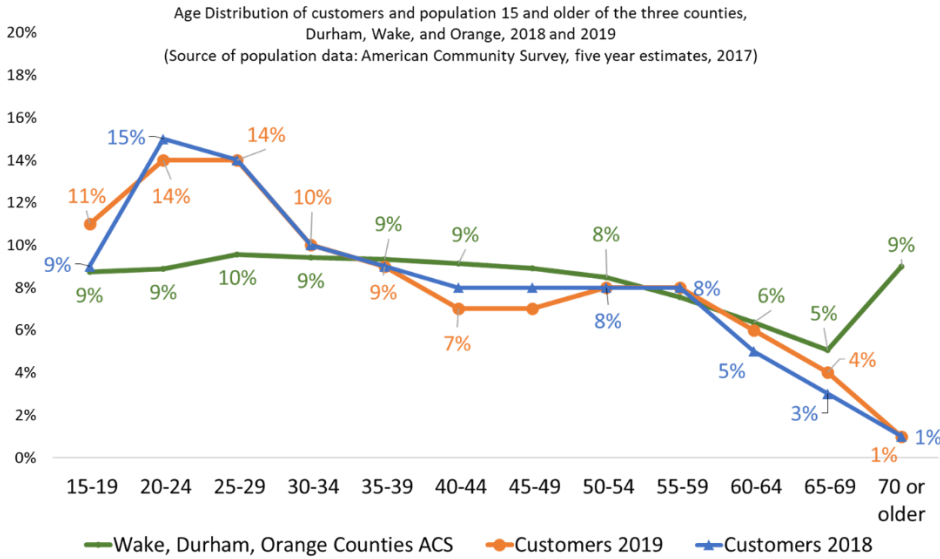
Figure 26 demonstrates that nationally, the age distribution among Triangle Region transit customers is similar to the age distribution among bus system customers nationally, but the Triangle Region skews slightly younger.

- The major difference between the national and the Triangle Region figures is in the 20 to 34 year old range. Nationally, 23% are between twenty and thirty-four, but among Triangle Region transit users 28% are in this age range.
- There was very little change in the age distribution from 2018 to 2019 among Triangle Region customers.

**Figure 26 Age Profile of Transit Customers In the Triangle and Nationally**



**Figure 27 Ages of Triangle Region Transit Customers and Wake, Durham, & Orange County Populations**



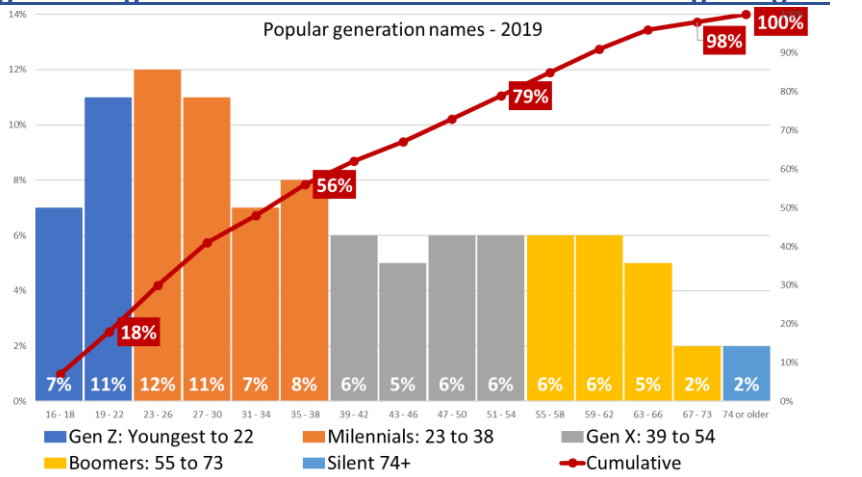
**Ages of Triangle Region Transit Customers and the Wake, Durham, & Orange County Populations**

In 2019, relative to the percentages in each age group among the Wake, Durham, & Orange County Populations fifteen and older, Triangle Region ridership diverges most in the age ranges from twenty to twenty-nine, and above fifty-five.

The twenty to twenty-nine year old age cohort in the

Triangle Region accounts for 19% of the population fifteen or older, while among the ridership it accounts for 28%. And at the age of fifty-five and older, the percentage of the population is 28% while among customers it is only 17%. The greatest divergence occurs starting at the age of 65 when retirements are most common.

**Figure 28 Age Profile of Transit Customers in the Triangle Region**



**Generations and Ridership**

Another way to think about the age distribution of the ridership is to apply the age-ranges popularly used to describe generational groups. We have used definitions used by PEW Research Center<sup>3</sup>. The age cohorts used by PEW and those in the customer surveys are very similar but do not correspond precisely. While PEW defines Gen Z as between the ages of seven

and twenty-two, the survey interviewed no one who appeared to be younger than sixteen.

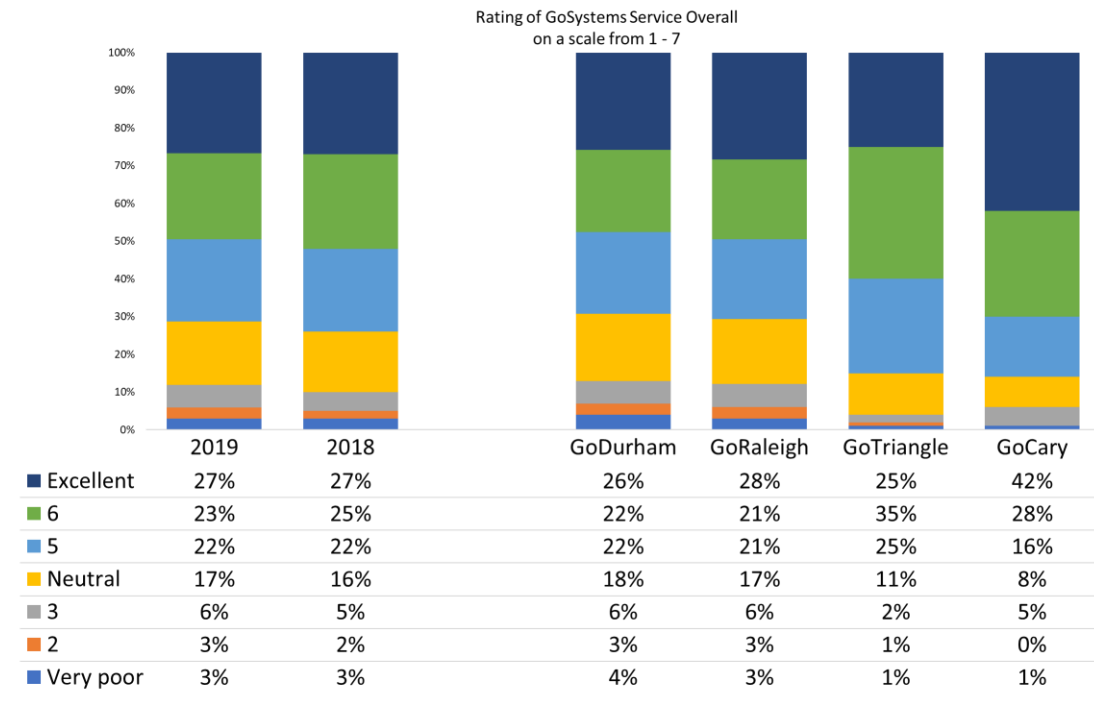
In Figure 28, we see again that a disproportionately large proportion of the ridership is young. In the case of generations, the youthful Gen Z and Millennial generations together account for more than half of the total ridership (56%).

<sup>3</sup> See <http://www.pewresearch.org/fact-tank/2019/01/17/where-millennials-end-and-generation-z-begins/>

## Customer Satisfaction

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**Figure 29 Overall Service Ratings**



**Overall System Rating Score by Customer Segment**

Customers were asked to rate nineteen aspects of transit service using a scale from 1 to 7 on which a score of 7 means “Excellent,” and 1 means “Very poor.” They were then asked to rate the service overall (See questionnaire page 51, questions 1-20). We begin this section of the report with the overall rating of service.

More than one quarter (27%) of the total regional sample rate service overall as 7, or excellent. This is unchanged since 2018. Another 23% score it 6, giving a total of 60% with high satisfaction scores. As is typically the case in such customer satisfaction rating scales, the scores differ primarily in the degree of positive ratings, not between positive and negative ratings. In other words, most of the variation (i.e., statistical variance) is between scores of 4 and 7, not between 1 and 7.

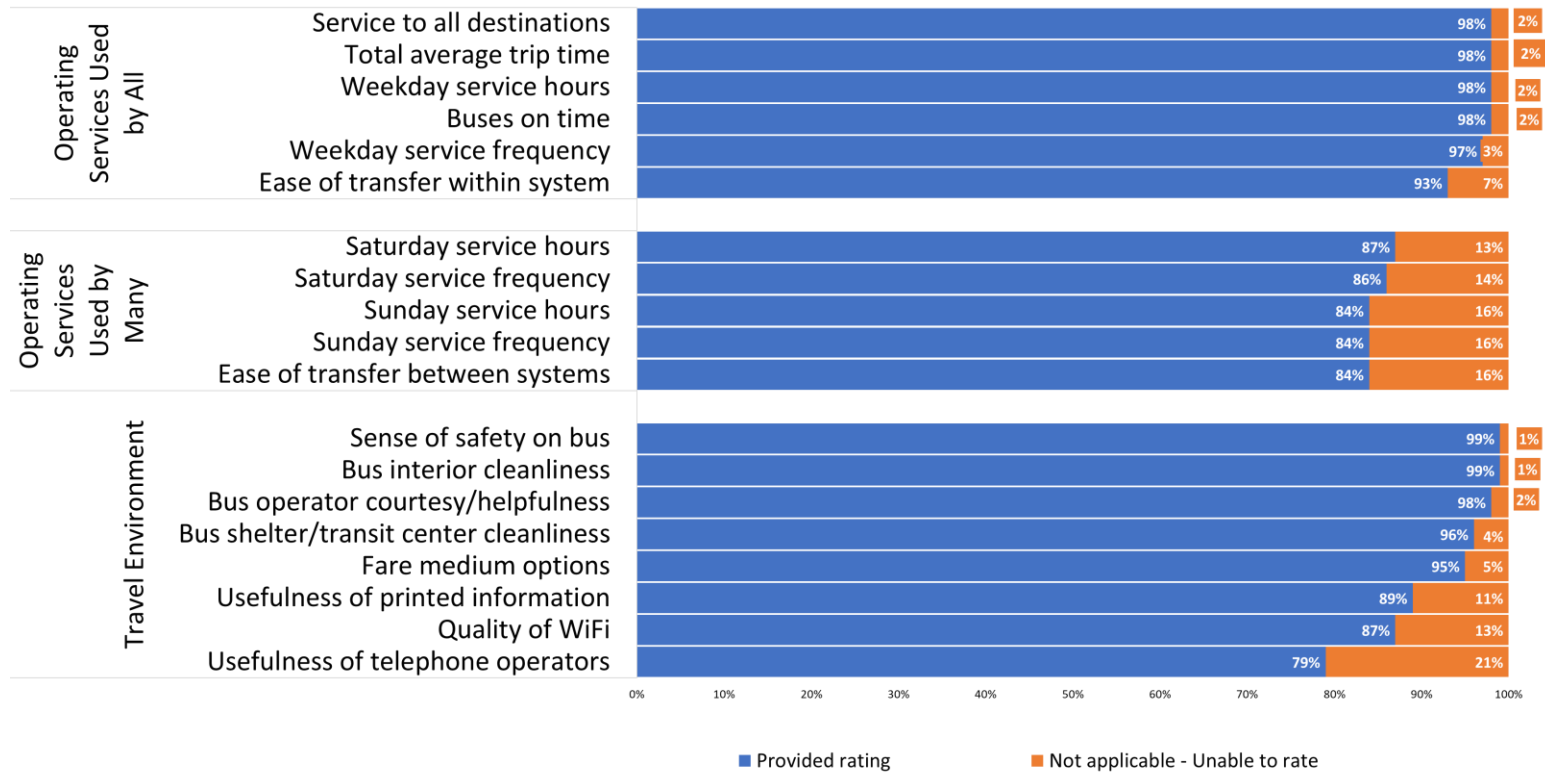
With the exception of GoCary, the systems have virtually identical percentages in the top score category, with scores of “Excellent” ranging only between 25% and 28%. However, GoCary scores an unusually positive 42% in the top category. There are some lesser variations among the scores of the other three systems, with GoTriangle higher in the combined categories of five and six (60%) than GoDurham or GoRaleigh (48% and 49%, respectively), and lower in the neutral category.

In terms of improving customer satisfaction scores, the challenge is not primarily a matter of moving people from giving scores of one or two to giving scores of six or seven. The task instead involves improving service such that customers’ perceptions of service move from 4 to 5, and/or from 5 to 6, and to a lesser extent from 6 to 7<sup>4</sup>.

<sup>4</sup> It is for the purpose of capturing this kind of marginal change that scales ranging from one to seven are more useful than scales of one to five.

**Figure 30 Services Grouped by Type and Showing Percentages Able or Unable to Provide Ratings**

Percent of riders providing a rating vs those saying that this aspect of service was "Not applicable" to them



**Services Grouped by Type and Showing Percentages Able or Unable to Provide Ratings**

Two interacting parameters help shape the distributions of the rating scores.

- (1) One parameter is simply the proportion of all customers who can provide a rating, thus presumably indicating that they use the service at least occasionally. We refer to this as “Use” or “Utilization.” Figure 30 displays in blue bars the percent able to provide any rating whether positive, neutral or negative. It displays in the orange portion of the bars the percent who answered that the service was not applicable to them.
- (2) The second parameter is the type of service being rated. These types are explained below, but the essence is that some are operational and used by all customers while others are operational, but are used by fewer customers, and, finally, some are simply static aspects of the travel experience.

Two interacting parameters help shape the distributions of the rating scores.

- (3) One parameter is simply the proportion of all customers who can provide a rating, thus presumably indicating that they use the service at least occasionally. We refer to this as “Use” or “Utilization.” Figure 30 displays in blue bars the percent able to provide any rating whether positive, neutral or negative. It displays in the orange portion of the bars the percent who answered that the service was not applicable to them.
- (4) The second parameter is the type of service being rated. These types are explained below, but the essence is that some are operational and used by all customers while others are operational, but are used by fewer customers, and, finally, some are simply static aspects of the travel experience.

### UTILIZATION

Some aspects of service such as weekend service, were given ratings by fewer customers than others. We consider the extent to which customers can provide ratings a proxy for *utilization* of the service. To illustrate this, Figure 30 displays the percent of all respondents who offered any rating, whether positive or negative, and the percent who said that the service did not apply to them. Ratings for services with fewer users than others have a different denominator when percentages are computed for the ratings and they are thus reflective of only those who use them. The computation of the percentages in the charts which follow and show service ratings are based on only those who answered the rating question, not on the total sample.

### THREE TYPES OF SERVICE

The second parameter involves the type of service. The typology is intended to put comparisons of ratings among the various services on an apples-to-apples basis. One major factor differentiating the nineteen services included in the survey is whether the service element is *operational* in the sense that it involves some combination of system design and the ongoing process of keeping the vehicles moving and serving passengers on a daily basis or is the type of service that sets the general environment in which the customer experiences transit services. To take an example, clearly the “Quality of Wi-Fi” and “Fare medium options” are service elements that help set a general environment, while “service to all destinations” and “Buses running on time” are operational matters.

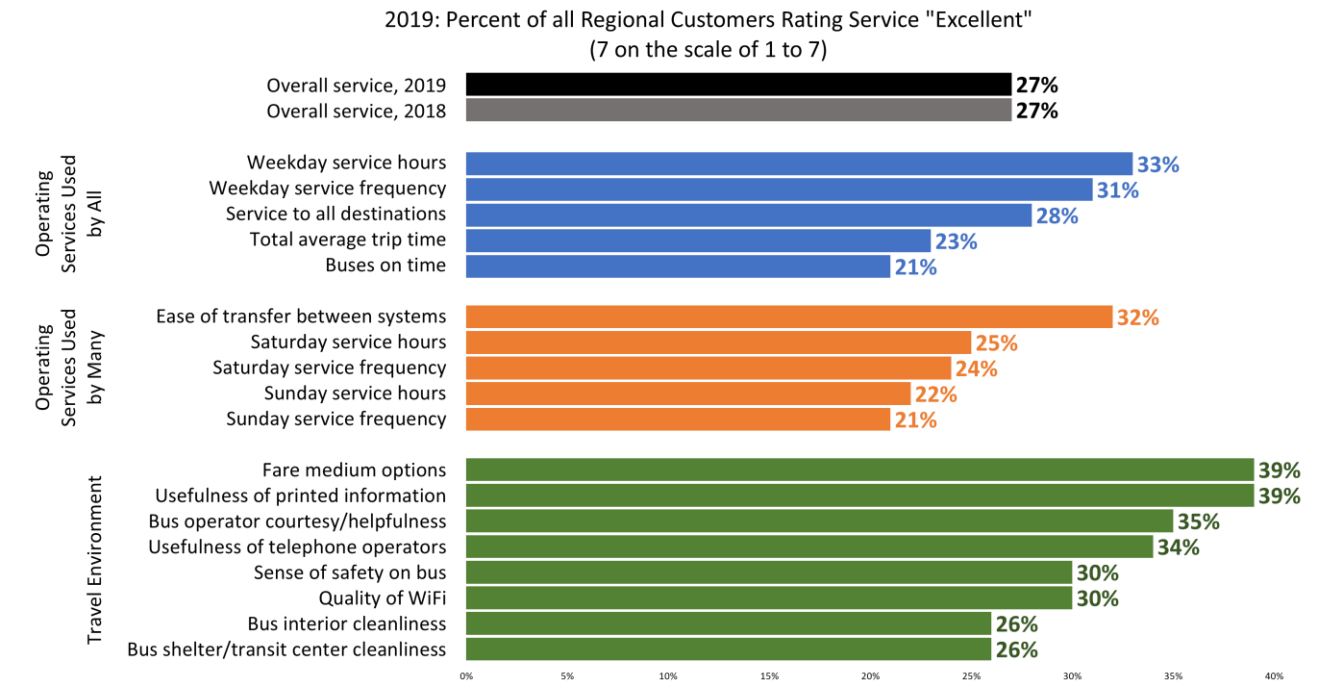
In Figure 30, we apply this reasoning to differentiate three types of service elements based on two criteria: (1) the type of service (operational or travel environment) and (2) the extent to which operational services service are utilized, using the “not applicable” response as a proxy for not utilizing the service.

One can obviously debate the categorizations. For example, is interior cleanliness of the buses an operational factor or a factor that affects the customer’s perception of the travel environment? It certainly involves operational activity by transit providers, but on the other hand, it does not impact such things as the time customers wait for a bus or their ability to get to various locations. Thus, it is categorized with other factors affecting the environment in which people travel, rather than with operations.

No specific conclusion is to be drawn from Figure 30. It is provided only to give the reader a perspective on the differences among the elements in terms of service type and the proportion of customers using the service, as scores are compared in the several figures that follow.



**Figure 31 Scores of "Excellent" on Components of Triangle Region Transit Service**



**Scores of "Excellent" on Components of Triangle Region Transit Service**

Figure 31 presents a first look at customer rating scores for individual elements of service. This chart includes only the top score of seven, or "Excellent," on the seven-point scale<sup>5</sup>.

Like Figure 30, Figure 31 is organized by the type of service being rated. At the top of the chart are the six operational services fundamental to all customers. The top two of these each has more than 30% scoring it as excellent. The top two are Weekday service hours (33%) and Weekday service frequency (31%). The three lowest in this tier are Service to all destinations (i.e. coverage) (28%), total average trip time (23%), and buses running on time (21%).

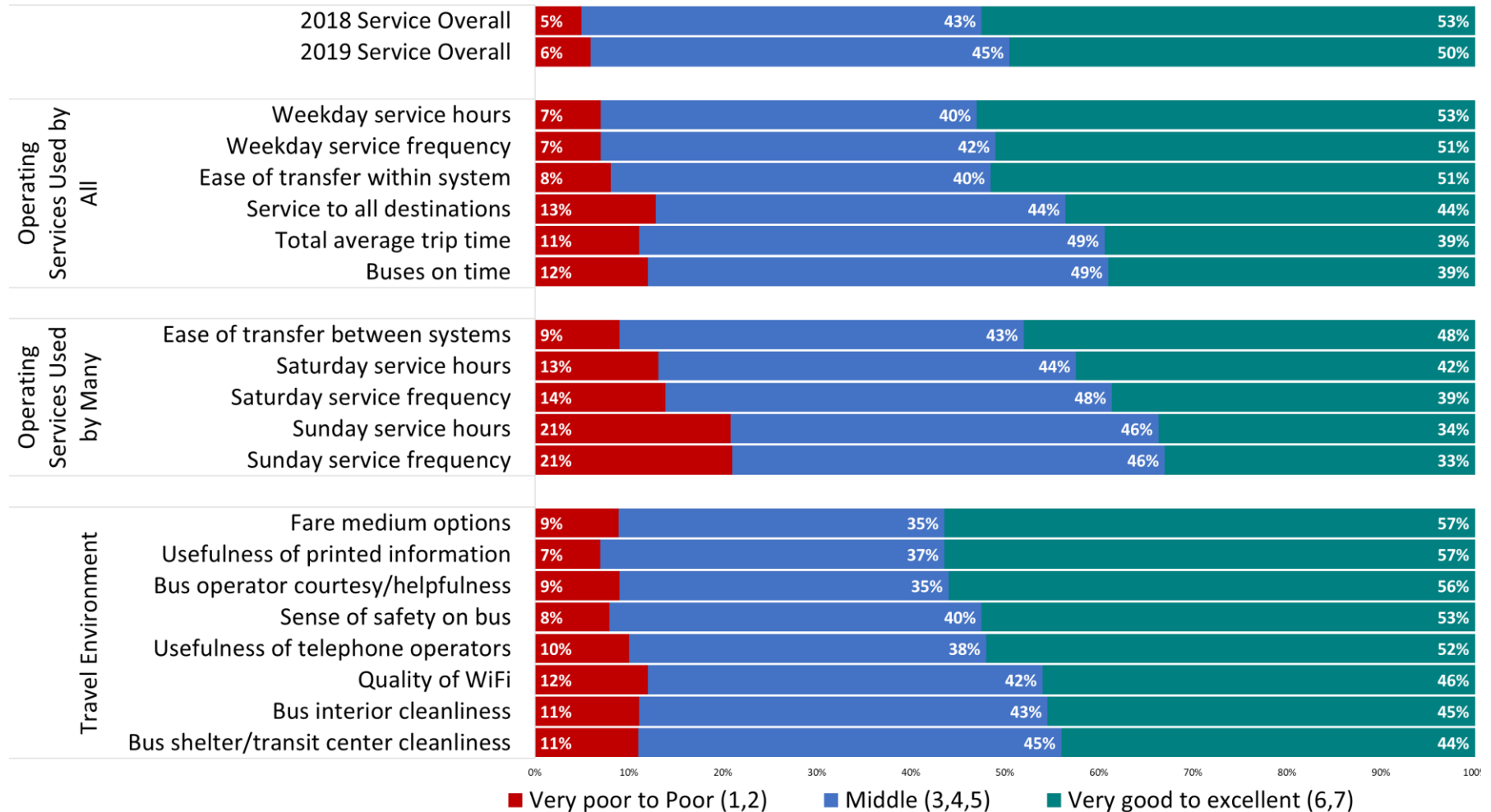
Operating services used by most or many customers, but not by all, have top scores ranging from a low of 21% for Sunday service frequency to 32% for ease of transferring between systems in the region. The latter is the only one of this middle tier set of services that does not involve weekend service levels. It is included this set because 16% said the question did not apply to them, implying that they do not make such inter-system transfers in a "typical week."

The third set of services involves the environment in which transit customers travel. Of the eight services included in this set, the top four get excellent scores ranging from 34% to 39% of the respondents. Fare media options, with 39% excellent is in the top place. Usefulness of information sources, specifically printed materials also is rated excellent by 39%. Courtesy and helpfulness of the bus operators with 35% follows. The usefulness of telephone operators follows with 34%. Two items, sense of safety while on the bus and the quality of WiFi both stand at 30%.

Only two items fall below 30%. Both have only 26% scoring them as excellent: cleanliness of facilities, including the bus interiors and bus shelters and transit centers.

<sup>5</sup> Note that the percentage is based on only those who were able to provide a rating (the blue segment of the bars in Figure 30), not the total sample so that the percent "excellent" is not falsely reduced by inclusion of those who answered "not applicable" in the denominator.

**Figure 32 Distribution of Grouped Service Rating Scores**



**Service Rating Distributions**

The previous chart, Figure 31, showed only the top percentages on the seven-point scale. However, so that we can see what the balance is between positive and negative ratings, it is important to also consider the distribution of scores within the full 1 – 7 range.

To simplify the chart showing the distributions, the scores of 1 to 7 have been combined into three sets as shown in Figure 32 above. The top two positive scores (6 and 7) are combined as are the bottom two scores (1 and 2). The combined middle scores of 3, 4, and 5 can be considered a mid-point neither extremely positive nor extremely negative. The scores of six or seven represent the sum of excellent and nearly excellent scores. This is simply a way to summarize the results that also allows us to visualize the distribution of the scores.

## RESULTS TEND TO BE POSITIVE

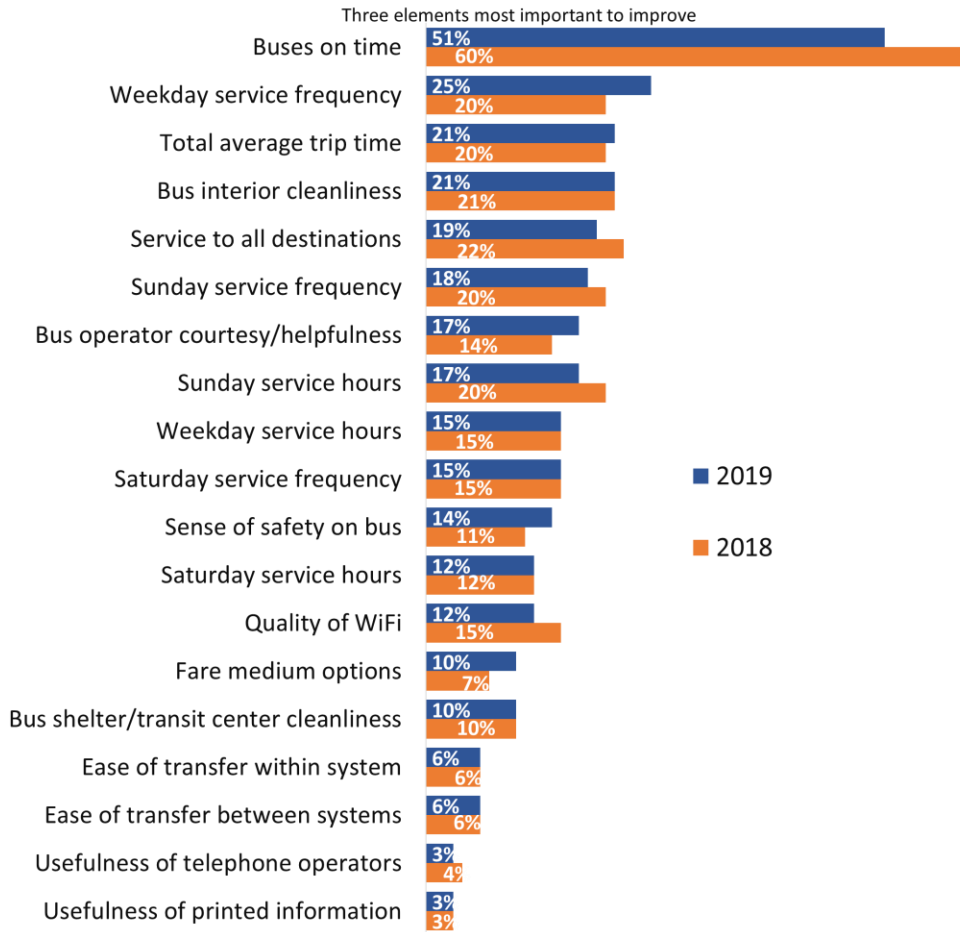
The basic story of this chart is that, as with most similar surveys for other transit systems, the ratings differ primarily in the degrees of positive ratings, not in stark differences between positive and negative ratings. The tendency to give positive ratings to a service used regularly is sufficiently strong that, as a rule-of-thumb, CJI uses 10% as a threshold at or above which there should be concern. When low ratings significantly exceed 10% of the customer base in any industry, it is a clear signal that a significant proportion of the core customers is pushing at the limits of what the services as structured can currently provide. For the Triangle Region transit customers, the percentages in the lowest rating categories of 1 and 2 tend to be less than 10%, but there are exceptions.

The six operational high utilization characteristics have positive ratings in the range of 39% to 53%. Weekday service hours (53%), weekday service frequency (51%) and ease of transferring within systems (51%) are the elements of service with the highest ratings in this set. Each of these also has a negative rating of 7% or 8%. However, the three lowest within this set, service to all destinations (46%), buses being on time (43%) and total trip time (42%) all have negatives between 11% and 13%.

Among the less-used operational elements shown in the second tier of Figure 32, “Ease of transfer between systems” scores 48% positive and 9% negative, a sign of substantial customer satisfaction. On the other hand, all weekend services not only fall below that level (ranging from 33% to 42%), but also have negative ratings by more than 10% of the customers. Saturday service levels, including hours of service (42%) and frequency (39%) score better than Sunday services, but both have negative scores exceeding 10%. Sunday service hours (34% positive, 21% negative) and Sunday service frequency (33% positive, 21% negative) are the poorest rated service elements, an indication that there is significant dissatisfaction and perhaps latent demand in these respects.

Most aspects of service we have labeled “Travel Environment” score more positively than most the operational aspects, with five of the eight elements garnering positive percentages above 50%, including two of 57% (fare media options and usefulness of printed information). Three elements fall below 50% positive and have negatives greater than 10%. One of these, quality of WiFi, (46% positive/12% negative) is a convenience factor. But the other two involve the cleanliness of the travel environment and should be of concern. They are: bus interior cleanliness (45% positive, 11% negative) and bus shelter and transit center cleanliness (44% positive, 11% negative).

**Figure 33 Top Three Aspects of Service to Improve**



**Top Three Aspects of Service to Improve**

Respondents were asked to name the three elements of service shown in the list of nineteen items to be rated. As is almost universally the case with transit customer satisfaction surveys, on-time-performance was cited by a majority of Triangle Region transit customers (51%) as one of the top three aspects of service to improve. Less predictable, and for that reason more interesting, are the elements of service next in priority, all cited by 19% to 25% of customers as one of the top three in need of improvement. Three of these are high utilization operational elements: Weekday service frequency (25%), total average trip time (21%), and service to all destinations (19%). The other item in this set is bus interior cleanliness (21%). Each of these is an aspect of service affecting all customers.

Weekday service frequency was rated positively by 51% (Figure 32), and yet it appears near the top of the list here. Frequency of service like the other elements in this set, reduction of trip duration, cleanliness of the buses and service to all destinations, are all aspects of service for which, in the eyes of the transit customer, there is always room for improvement because there can never be enough.

Two of the next three elements involve Sunday service, both frequency and hours of service. CJJ’s focus group studies and surveys elsewhere have shown that demand for Sunday service is often related to work in service

jobs that require weekend and evening hours. Transit customers with those jobs often complain that while they can usually get to work on Sunday, they cannot get home using transit service, especially from evening shifts. For this reason, they have the greatest tendency to say that they will cease using transit as soon as possible. These studies predate 2015 and the advent of car-sharing services. We suspect that some of the demand for ridesharing among transit users is related to this problem, but that there is a preference for the less costly (for the customer) transit solution. Yet the numbers of users of such services are too small to justify much fixed route service under usual formulas. For this reason, a ridesharing agreement that provided discounted ridesharing service for weekend evening workers might help fill the gap and aid customer retention.

**Another way to prioritize: Determine Which Service Elements Would Move the Needle of the Overall Transit Service Rating if They Were to Be Improved**

Using survey data to prioritize elements of service that customers feel need improvements is a challenge Figure 33 presented one way to do it. Figure 36 on page 47 presents a second, more complex and revealing way to accomplish it. This approach takes the pool of nineteen elements of service and answers the question: Which of these are more important and which are less important in determining the customers’ rating of Triangle Region transit service overall? This question is answered in a matrix. The matrix itself (Figure 36, page 47) is actually less complex than it may seem, but it does require some explanation.

The concept of the matrix in Figure 36 is as follows: Respondents rated nineteen separate aspects of transit service as shown in the questionnaire in Appendix A: Questionnaires, page 51. They also rated “The quality of transit services overall.” We can assume that customers’ ratings of the quality of services overall sum up their ratings of quality of the nineteen

**Figure 34 Mean Rating Scores and Correlations for Matrix**

Raw data for matrix table		
	Mean rating (scale 1-7)	Correlation with overall importance rating (range -1 to +1)
Usefulness of printed information	5.42	0.598
Fare medium options	5.39	0.579
Bus operator courtesy/helpfulness	5.32	0.662
Weekday service hours	5.28	0.600
Sense of safety on bus	5.28	0.619
Weekday service frequency	5.24	0.605
Ease of transfer within system	5.24	0.645
Usefulness of telephone operators	5.17	0.606
Ease of transfer between systems	5.13	0.640
Quality of WiFi	4.97	0.616
Bus interior cleanliness	4.95	0.587
Bus shelter/transit center cleanliness	4.94	0.581
Service to all destinations	4.87	0.613
Total average trip time	4.81	0.616
Saturday service hours	4.80	0.589
Buses on time	4.76	0.589
Saturday service frequency	4.74	0.596
Sunday service hours	4.38	0.533
Sunday service frequency	4.35	0.532

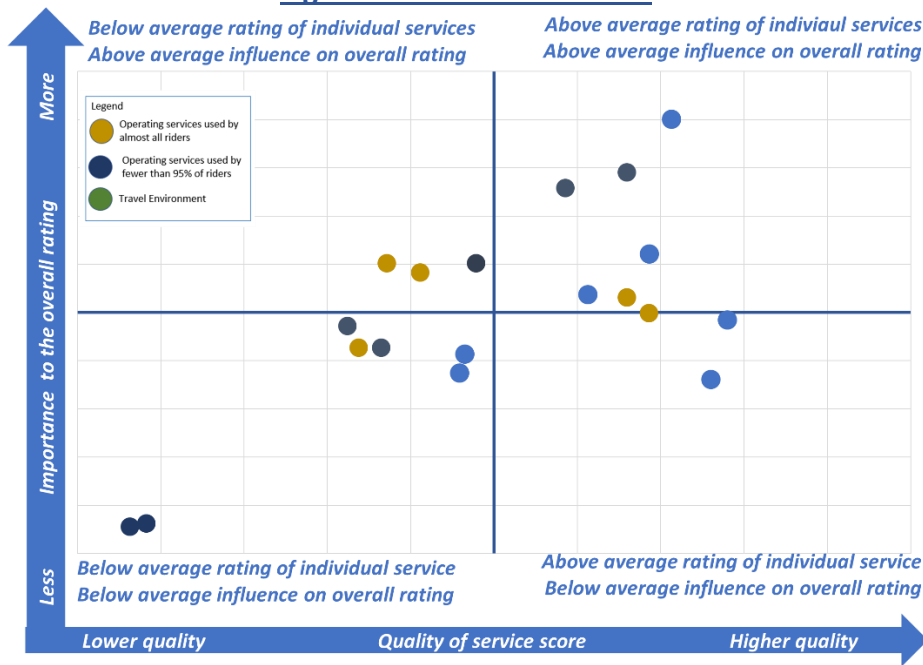
specific elements of service. Assuming this, we can answer the key question which is: Which elements of services would, if improved, move the needle of the rating of service overall?

- Figure 34 shows two basic statistics are involved in this analysis, first the average or “mean” rating of service quality on the scale from 1 – 7 and, second, a correlation statistic that measures the strength of the relationship (i.e., the *correlation*) between each element of service and the overall service rating for Triangle Region transit service. These statistics, when used together, answer two questions: How do customers rate each of the nineteen elements of service? And how closely related is each of those ratings to the overall rating?

- To visually display the results of this kind of analysis requires using a graph with the 1-7 rating on one axis and the correlation on the other axis. However, there are two challenges to doing this.

- The ratings tend to skew positive and to vary more between scores of 4 through 7 than between 1 and 3 (see the mean score in Figure 34). There are no few ratings less than 4.35 on the seven point scale. This positive tilt only makes sense, since if many customers rated service negatively, it would be odd if they continued to use the service. But for analysis of how to “move the needle” on the overall service rating, the fact that all ratings are positive means that to use them to prioritize service improvements, we have to show how the best scores differ from the merely good scores, not how the best scores differ from the worst scores.
- Second, the satisfaction ratings and the correlation coefficients are of different types. The rating scale uses a scale ranging from 1 – 7. The correlation coefficients are decimal numbers ranging from -1 to +1. A perfectly negative relationship is -1 and a perfectly positive relationship is +1. As a practical matter, the correlation is never a perfect -1 or +1, but is always a decimal since perfect positive or negative relationships just do not occur in the real world. Rather than trying to represent such differing units on the two axes, it helps to have common measurement units.

**Figure 35 Matrix Illustration**



positive or negative relationships just do not occur in the real world. Rather than trying to represent such differing units on the two axes, it helps to have common measurement units.

- The solution is to standardize the scores on both scales. This approach simply shows how the individual service elements score relative to each other in the sense of “this is better than that,” and “this is more important than that.” In this way, the matrix helps answer the question: What service improvements would move the needle on the rating of service overall? To do this we

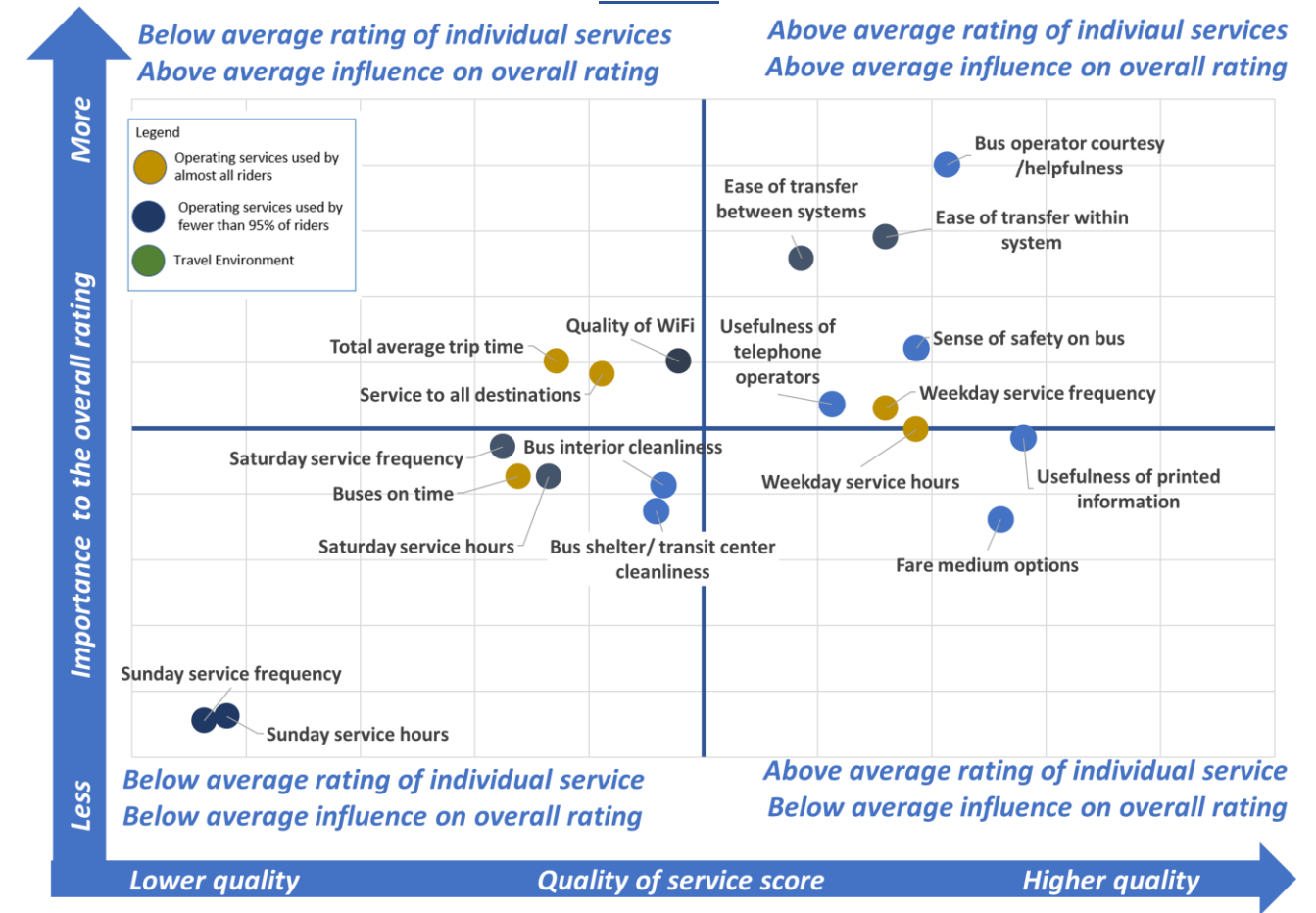
look at the ratings and at the correlation of each of those ratings with the rating of service overall. The results can be charted in a matrix like that provided for illustration in Figure 35.

Elements in the upper right of the chart are currently helping to boost the overall service rating by being better rated than the average of all nineteen elements of service, while others (top left quadrant) are currently detracting from it. It is elements in the latter group that require particular attention given that the objective is to improve overall customer ratings, a proxy for customer satisfaction. Elements in the lower left of the chart receive relatively poor performance scores but have relatively little influence on the overall score. Similarly, elements in the lower right quadrant have relatively high rating scores, but they too have relatively less relationship to the overall score and can be assumed to have little influence on it.

When we add the actual survey statistics and associated labels to fill out the matrix, it will show service improvement action priorities and types of service (color coded). Figure 36 below displays how the nineteen elements of service are positioned within this priority matrix based on the actual regional data.



**Figure 36 Relationship between Overall Performance Rating and Ratings of Individual Service Elements**



**Figure 36, the Quadrants: Relationship between Overall Performance and Individual Service Elements**

To repeat: In the chart, the location of a service vertically, up or down along the *vertical axis indicates the strength of its correlation* with, and presumably influence on, the overall rating for Triangle Region service. The higher on that axis, the more important we can assume that element is in influencing the score for service overall. The lower on the line, the weaker it is. The *horizontal axis indicates the rating score* for the individual element of service relative to all rating scores. The farther to the left, the poorer the rating compared to the average of all ratings, and the farther to the right, the better the rating compared to the average of all ratings. The two lines cross at the mid-points of the scores.

In considering Figure 36, keep in mind that the position of a service element in the matrix is based on its rating *relative to the average for all scores*. For example, a service element appearing at the right means that it is rated *better than the average of all service elements*. If, for example, the average score for all nineteen service elements were, say, 3.0, and the score for a specific element were 4, it would have a *relatively positive* score in spite of the fact that in absolute terms on a scale from 1 – 7, a 4 would be a neutral score, not a highly positive score. It would be, in short, better than average<sup>6</sup>.

<sup>6</sup> The statistic is called the Z-score in statistics jargon and is based on the number of standard deviations from the mean for both the correlation and the satisfaction score. The scores from -2.5 to +2.5 shown on the axes are counts of the number of standard deviations from the mean.

### **THE UPPER LEFT QUADRANT: IMPROVING THESE WOULD MOVE THE OVERALL RATING NEEDLE THE MOST**

Improving service and thus, presumably, the ratings of the five elements in the upper left quadrant would have the greatest positive impact on the rating of Triangle Region transit service overall. There are three items in this quadrant. They are:

- Service to all destinations (Coverage)
- Duration of the trip
- Quality of WiFi

The presence of coverage and trip duration in this quadrant is not surprising. These are core service elements in which customers generally hope for improvement. Both are in the top five aspects of service in terms to the percent of customers naming them as important to improve (see Figure 33).

However, the presence in this quadrant of WiFi and the absence of ontime performance (OTP) are quite surprising for two reasons. First, their positions in the matrix switched from their positions in 2018 when OTP was in the upper left (below average performance, above average influence on the overall score) and WiFi in the lower left (below average performance, and below average influence on the overall score. Second, in the list of the top three service components to improve, ontime performance is by far the top priority for most (51%) of customers by a margin of 2:1 over the second element, weekday service frequency (25%).

What explains these paradoxical changes? First, although OTP is still the component most likely to be cited as the most often mentioned service element to improve, it is named as such by 9% fewer customers than in 2018, a change that would account for the movement of OTP from upper left to lower left quadrant. In spite of this more favorable result, inquiries to staff suggest that objectively measured OTP changed very little between 2018 and 2019. It appears that customer perceptions changed for reasons not immediately evident in the survey. Whatever the reason, it is clear that perceptions of OTP changed.

Why would the influence of perceived quality of WiFi on the overall system performance score increase? WiFi scored just as well in 2019 as in 2018 (46% positive in both years). The negative scores did not change significantly (12% in 2019, vs 13% in 2018). Moreover, the mean score actually improved from 4.4 in 2018 to 4.9 in 2019. Why, then, the increased urgency of improving the quality of WiFi? What changed was the increased use of the mobile app and the increased use of ridesharing among the most frequent customers.

Figure 17 showed that the use of a transit app had increased from 45% to 55% of customers, a fact that would make WiFi important to many more customers in 2019 than in 2018. In addition, the use of commercial rideshare services increased among the most frequent customers. Given that most users, especially those on limited data plans, would prefer to use WiFi for internet access to services such as Uber/Lyft to preserve data usage, it seems likely that the quality of WiFi in using not only the transit app itself, but also the summoning of a rideshare service may be especially important.

### **LOWER LEFT QUADRANT: MIXED RESULT - NOT AS IMPORTANT TO IMPROVE AS THE UPPER LEFT, BUT ON THE MARGIN**

In the lower left quadrant lie seven service elements. Two, Sunday service frequency and service hours lie far below the line of average important and far to the left of average performance. All of the other elements of service lie close to the line separating below and above average importance and all have somewhat below average satisfaction ratings. OTP lies in this area for reasons discussed previously.



Saturday service frequency and service hours are also found here, lower in importance overall perhaps because those who do not use transit six or seven days a week do not perceive them as terribly important. But to those who work weekends, they may be very important.

Cleanliness of bus interiors and shelters and transit centers also fall in this space indicating that the impact of improvement would be modest in moving the overall service rating. However, their proximity to the X axis indicates that they would have some effect.

#### **THE UPPER RIGHT QUADRANT: MAINTAIN THIS RELATIVELY STRONG POSITION**

At the upper right of the matrix are six elements of service that represent strengths because they score relatively well and they are important to the overall rating. Compared to all other aspects of service, these are relatively strong and support the current overall rating. Three relate to the travel environment: Bus operators' courtesy/helpfulness (perennially in this quadrant), the sense of safety on the bus, and the usefulness of telephone information operators are aspects of what we refer to as the *environment* of the transit customer experience. Two involve transfers, within a system and among systems. Apparently these are well regarded aspects of service and they impact the overall score positively. Two of these, weekday service frequency and hours of service are operational services relied on by virtually all customers. Service frequency is clearly in this quadrant while weekday service hours lies on the line dividing the more and less important service elements. Both, however, have moderately positive scores, an important fact since these are such core elements of service.

#### **THE LOWER RIGHT QUADRANT: THIS SERVICE IS GOOD, BUT IMPROVEMENT WOULD BE WELCOME**

At the lower right are two service elements with high favorable ratings relative to other services, but that under current service configurations are relatively unimportant in influencing overall satisfaction. They are the fare media options and the usefulness of printed information. The Triangle Region's systems do well on these and need to maintain that level of satisfaction, but efforts to improve either of these would have minimal impact on the rating of service *overall*.

#### **Summary observations on the ratings**

From 2018 to 2019, the basic story of the surveys was continuity, not change. For the most part customer satisfaction scores, travel behaviors, and demographics changed very little. Customer satisfaction remained quite stable. The basic ratings on the scale of 1 – 7 remained quite positive in 2019 and similar to the scores in 2018. Scores that were relatively very positive or relatively less positive in 2018 remained so in 2019.

However, two significant changes occurred which appear related to a third change. First, the use of Uber/Lyft rose markedly. This included increase in their use to replace transit trips. Second, the use of a transit app increased substantially. Third, and we believe related to the first two changes, the *relative* importance to the customer of improving ontime performance (OTP) diminished somewhat in importance, while the *relative* importance of WiFi quality increased somewhat. It is important to note that this does not mean that OTP is unimportant. It means only that its importance relative to other service components is less than in 2018.

We know that improving ontime performance was less important to customers in 2019 than it had been in 2018. We know this because, (a) The percent citing it as one of the top three to improve declined from 60% to 51% (still at the top of the list, but with a substantially lower percentage) and (b) the standardized score (i.e. known as the "Z-score") for the importance of OTP slipped from 1.3 in 2018 to -.37 in 2019. In plain non-jargon

English this means that *relative* to all the other service components, OTP was simply less important to customers in 2019 than it had been in 2018.

#### **WHY WOULD CONCERN WITH ONTIME PERFORMANCE DIMINISH RELATIVE TO OTHER SERVICE COMPONENTS FROM 2018 TO 2019?**

By objective measures, actual OTP did not change substantially from 2018 to 2019. It is possible that short term factors in 2018 (e.g. special events, construction traffic., etc.) created problems with OTP that did not recur in 2019. If so, that could account for the diminution of OTP as a priority for improvement. However, survey field supervisor observation at the time of the 2018 surveys gave no indication of such problems.

Another possibility is that frequency of service was substantially increased on a significant number of routes or heavily travelled routes. Increased frequency has the effect of reducing the impact of occasional off-schedule performance because of the decreased wait times for the next bus.

There might have been other operational changes since 2018 of which the author of this report is unaware that could have produced the changes observed. We suspect that two other aspects of the transportation market are likely to have influenced this change in attitude.

First, the percentage of transit customers using Uber/Lyft increased from 44% to 50%. That major increase was further multiplied by the increase Uber/Lyft trips taken by those who used these services. The percentage of customers who used Uber/Lyft for three or more trips in a thirty day period increased from 21% to 29%.

Second, while the use of Uber/Lyft was increasing, so was the use of a transit app which increased from 45% to 55% of the ridership. That increase was consistent across all age groups, not just among the young. Perhaps in response to the increased use of transit apps, the relative importance of the quality of WiFi increased from a negative to a positive Z score of (-.79 to .51), resulting in the previously noted movement of WiFi to the upper left quadrant in 2019 from the lower left (see matrix above). In other words, WiFi gained *relative* importance among all components of service as important to customers' overall rating of the four systems.

In establishing real-time app based information systems, one hope has been that the anxiety of waiting for the bus would be diminished even in the absence of greater frequency or improved OTP. We believe it is likely that this occurred. This interpretation is also consistent in the increased concern with the quality of WiFi which is desirable for use with the transit app as well as in hailing Uber/Lyft without using data minutes.

In addition to this perceptual effect, substantially increased use of Uber/Lyft provided a readily available backup for many customers in the event that they missed the bus. Frequently the reason given for missing the bus was that the customer perceived that it arrived or left early or late. Having Uber/Lyft as a fall back would naturally reduce the urgency of improving ontime performance.

## Appendix A: Questionnaires

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Note. The questionnaires for GoTriangle and GoCary are identical, “long form” questionnaires. The GoDurham and GoRaleigh questionnaire are identical, but are short form. The 2019 questionnaires for GoTriangle and GoCary differ in part in that it has more questions, but in addition, the survey sample was larger to support a route level survey. The survey planned for the fall of 2020 for GoDurham will use the longer form and larger sample.

However, core questions and response options for all four surveys are identical, thus making it possible to merge the data from the four surveys.

This report includes only the core data common to all four surveys. For this reason, only the short form of the survey is shown in the appendix. Since the questionnaires are identical, only one version, in this case GoDurham is shown here.

**Please tell us about how you use GoDurham**

*El cuestionario en español se encuentra en la parte posterior*

**In the past 30 days, how would you rate GoDurham on the following services...**



*(Circle a rating for each question or check the box indicating that it does not apply to you)*

	Excellent	Neutral	Very Poor	Don't Know or don't use				
1. Buses running on-time	7	6	5	4	3	2	1	<input type="checkbox"/>
2. Frequency of service on weekdays (Mon-Fri)	7	6	5	4	3	2	1	<input type="checkbox"/>
3. Frequency of service on Saturday	7	6	5	4	3	2	1	<input type="checkbox"/>
4. Frequency of service on Sunday	7	6	5	4	3	2	1	<input type="checkbox"/>
5. Hours the buses operate weekdays (Mon-Fri)	7	6	5	4	3	2	1	<input type="checkbox"/>
6. Hours the buses operate Saturday	7	6	5	4	3	2	1	<input type="checkbox"/>
7. Hours the buses operate Sunday	7	6	5	4	3	2	1	<input type="checkbox"/>
8. Total time required to make your usual trip	7	6	5	4	3	2	1	<input type="checkbox"/>
9. Availability of service to all destinations you want to get to	7	6	5	4	3	2	1	<input type="checkbox"/>
10. Ease of transferring within GoDurham system	7	6	5	4	3	2	1	<input type="checkbox"/>
11. Ease of transferring between GoDurham and other area bus transit systems	7	6	5	4	3	2	1	<input type="checkbox"/>
12. Cleanliness of the bus interiors	7	6	5	4	3	2	1	<input type="checkbox"/>
13. Cleanliness of the bus shelters & transit center	7	6	5	4	3	2	1	<input type="checkbox"/>
14. Your sense of personal safety from other passengers on the buses	7	6	5	4	3	2	1	<input type="checkbox"/>
15. Courtesy and helpfulness of bus operators	7	6	5	4	3	2	1	<input type="checkbox"/>
16. Usefulness of information from 485-RIDE telephone operators	7	6	5	4	3	2	1	<input type="checkbox"/>
17. Usefulness of printed information such as schedules or brochures	7	6	5	4	3	2	1	<input type="checkbox"/>
18. Available ways for you to pay your bus fare	7	6	5	4	3	2	1	<input type="checkbox"/>
19. Quality of wireless internet (WIFI) service	7	6	5	4	3	2	1	<input type="checkbox"/>
20. The quality of GoDurham services overall	7	6	5	4	3	2	1	<input type="checkbox"/>

**21. Of the services in questions 1 - 19 above, please list the three most important to improve?**

1  Most important \_\_\_\_\_ 2  2nd most \_\_\_\_\_ 3  3rd most \_\_\_\_\_

**22. In a typical week on how many days do you use GoDurham? (Circle only one)**

0 (None - Not a regular GoDurham rider) 1 2 3 4 5 6 7

**23. What is the ONE main purpose for which you most often use the GoDurham buses? Is it to go to or from... (Check only one)**

1  Work 2  School/college 3  Shopping  
4  Medical/dental 5  Recreation/event 6  Other

**24. Compared to one year ago, do you currently ride GoDurham...**

1  More often 2  The same 3  Less often 4  Did not ride a year ago

**25. For your fare on the first GoDurham bus you boarded during this trip, did you... (Check only one)**

1  pay cash fare for that trip only 2  buy a day pass on the bus  
3  use a day pass bought ahead of time 4  use a 7 or 31 day pass  
5  use a university or other ID 6  use a GoPass  
7  use free senior fare & ID 8  First GoDurham trip was on a free fare route

**26. How did you get to the stop where you got on this GoDurham bus? (Check only one)**

1  Walked 2  Biked 3  Drove  
4  Uber or Lyft 5  Was dropped off by family/friend 6  Other GoDurham bus  
7  Bus other than GoDurham 8  Other \_\_\_\_\_

**27. Please check all Triangle Region bus systems you use in a typical week.**

1  GoRaleigh 2  GoDurham 3  GoTriangle 4  GoCary  
5  Chapel Hill Transit 6  Duke Transit 7  Wolfline

**28. Do you use a cell-phone?** 1  Yes 2  No

**a. If you use a cell phone, do you access the internet on it?** 1  Yes 2  No

**b. Do you have a mobile app for local transit on your cellphone?** 1  Yes 2  No

**29. In the past 30 days, how often have you used Uber or Lyft in the Triangle region?**

1  0 not at all 2  1 time 3  2 times 4  3 times 5  4 or more times

**30. If you used Uber or Lyft in the past thirty days...**

**a... did you use both GoDurham and Uber/Lyft during the same one-way trip?** 1  Yes 2  No

**b... did you use Uber/Lyft for a trip you otherwise would have made on GoDurham?** 1  Yes 2  No

If yes, you did that because? \_\_\_\_\_

**31. Please mark all of the following that apply to you. Are you... (Check all that apply)**

1  Employed full time 2  Employed part time 3  Unemployed and seeking work  
4  Homemaker 5  Student 6  Retired 7  Volunteer position

**32. Do you have a valid driver's license?** 1  Yes 2  No

**33. How many cars or other vehicles are available for your use?**

0 None 1 2 3 4 5 or more

**34. How old are you?** \_\_\_\_\_ Years old

**35. Do you identify as...** 1  Male 2  Female 3  Prefer not to answer

**36. Do you consider yourself to be... (Please Check all that apply to you)**

1  African American/Black 2  Asian 3  Caucasian/White  
4  Hispanic 5  Native American Indian 6  Other: \_\_\_\_\_

**37. What language do you most often speak at home? (Check only one)**

1  English 2  Spanish 3  Other: \_\_\_\_\_

**38. What is your total annual household income? (Check only one)**

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:** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Por favor díganos cómo usa GoDurham

En los últimos 30 días, ¿cómo calificaría GoDurham en los siguientes servicios...

(Circule una calificación por cada pregunta o marque la casilla que indica que no aplica a usted)



	Excelente		Neutral		Muy Malo	No le sé o no lo uso		
1. Autobuses funcionan a tiempo	7	6	5	4	3	2	1	<input type="checkbox"/>
2. Frecuencia de servicio entre semana (lun-vier)	7	6	5	4	3	2	1	<input type="checkbox"/>
3. Frecuencia de servicio el sábado	7	6	5	4	3	2	1	<input type="checkbox"/>
4. Frecuencia de servicio el domingo	7	6	5	4	3	2	1	<input type="checkbox"/>
5. Horario de autobuses entre semana (lun-vier)	7	6	5	4	3	2	1	<input type="checkbox"/>
6. Horario de autobuses los sábados	7	6	5	4	3	2	1	<input type="checkbox"/>
7. Horario de autobuses los domingos	7	6	5	4	3	2	1	<input type="checkbox"/>
8. Tiempo total requerido para su viaje diario	7	6	5	4	3	2	1	<input type="checkbox"/>
9. Disponibilidad de servicio a los destinos que desea ir	7	6	5	4	3	2	1	<input type="checkbox"/>
10. Facilidad de transir dentro de GoDurham	7	6	5	4	3	2	1	<input type="checkbox"/>
11. Facilidad de transferir entre GoDurham y otros sistemas de tránsito del área	7	6	5	4	3	2	1	<input type="checkbox"/>
12. Limpieza de los interiores del autobús	7	6	5	4	3	2	1	<input type="checkbox"/>
13. Limpieza de las paradas y centro de tránsito	7	6	5	4	3	2	1	<input type="checkbox"/>
14. Su sentido de seguridad personal de otros pasajeros en los autobuses	7	6	5	4	3	2	1	<input type="checkbox"/>
15. Cortesía y ayuda de operadores de autobús	7	6	5	4	3	2	1	<input type="checkbox"/>
16. Utilidad de la información de los operadores telefónicos 485-RIDE	7	6	5	4	3	2	1	<input type="checkbox"/>
17. Utilidad de la información impresa, como horarios o folletos	7	6	5	4	3	2	1	<input type="checkbox"/>
18. Formas para pagar la tarifa del autobús	7	6	5	4	3	2	1	<input type="checkbox"/>
19. Calidad del servicio de internet (WIFI)	7	6	5	4	3	2	1	<input type="checkbox"/>
20. Calidad de servicios GoDurham en general	7	6	5	4	3	2	1	<input type="checkbox"/>

21. De los servicios en las preguntas 1 a 19 arriba, enumere los tres más importantes ¿Para mejorar?

1  Más importante \_\_\_\_\_ 2  2do más \_\_\_\_\_ 3  3er más \_\_\_\_\_

22. En una semana típica, ¿cuántos días usas GoDurham? (Círcule solo uno)

0 (Ninguno — No es un pasajero regular de GoDurham) 1 2 3 4 5 6 7

23. ¿Cuál es el propósito principal número UNO para el que usa con mayor frecuencia el autobús GoDurham? ¿Es para ir o venir de... (Marque solo uno)

1  Trabajo 2  Escuela/colegio 3  Compras  
4  Médico/dental 5  Recreación/evento 6  Otro

24. En comparación con hace un año, ¿actualmente viajas en GoDurham...

1  Mas seguido 2  Lo mismo 3  Menos seguido 4  No viajaba hace un año

25. Para su tarifa en el primer autobús GoDurham que abordó en este viaje, ¿Usted... (Marque solo uno)

1  pago solo en efectivo por ese viaje 2  compro un pase de un día en el autobús  
3  uso un pase de un día comprado con anticipación 4  uso un pase de 7 a 31 días  
5  uso identificación universitaria u otra 6  uso un GoPass  
7  use free senior fare & ID 8  1er viaje de GoDurham fue ruta de tarifa gratis

26. ¿Cómo llegaste a la parada donde subiste a este autobús de GoDurham? (Marque solo uno)

1  Caminando 2  Bicicleta 3  Manejo  
4  Uber o Lyft 5  Fue dejado por familia/amigo 6  Otro autobús GoDurham  
7  Autobús que no sea GoDurham 8  Otro \_\_\_\_\_

27. Marque los sistemas de autobús de Triangle Region que use en una semana típica.

1  GoRaleigh 2  GoDurham 3  GoTriangle 4  GoCary  
5  Chapel Hill Transit 6  Duke Transit 7  Wolfline

28. ¿Usas un teléfono celular? 1  Sí 2  No

a. Si usa un teléfono celular, ¿tiene acceso a Internet en él? 1  Sí 2  No

b. ¿Tiene una aplicación móvil para transito local en su celular? 1  Sí 2  No

29. En los últimos 30 días, ¿cuanto ha usado Uber o Lyft en la región de Triangle?

1  0 en absoluto 2  1 vez 3  2 veces 4  3 veces 5  4 o mas veces

30. Si usó Uber o Lyft en los últimos treinta días...

a... ¿Usó GoDurham y Uber/Lyft durante el mismo viaje de un sentido? 1  Sí 2  No

b... ¿Uso Uber/Lyft para un viaje que de otra forma hubieras hecho en GoDurham? 1  Sí 2  No

¿Si sí, lo hiciste porque? \_\_\_\_\_

31. Marque todo lo siguiente que aplique a usted. ¿Eres tú... (Marque todo lo que corresponda)

1  Empleado de tiempo completo 2  Empleado de medio tiempo 3  Desempleados y buscando trabajo  
4  Ama/o de casa 5  Estudiante 6  Jubilado/o 7  Puesto voluntario

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

33. ¿Cuántos automóviles u otros vehículos están disponibles para su uso?

0 Ninguno 1 2 3 4 5 o más

34. ¿Cuántos años tienes? \_\_\_\_\_ Años

35. ¿Te identificas como... 1  Hombre 2  Mujer 3  Prefiero no responder

36. ¿Te consideras... (Por favor marque todo lo que corresponda a usted)

1  Afroamericano/Negro 2  Asiatico 3  Caucásico/Blanco  
4  Hispano 5  Indio Nativo Americano 6  Otro: \_\_\_\_\_

37. ¿Qué idioma hablas con más frecuencia en casa? (Marque solo uno)

1  Inglés 2  Español 3  Otro: \_\_\_\_\_

38. ¿Cuál es su ingreso familiar total anual? (Marque solo uno)

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: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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