# An Onboard Survey of GoRaleigh Customers

## 2018

*A study conducted by:*

*In Conjunction with:*

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# Executive Summary

## Introduction

In late October and early November 2018, CJI Research conducted an onboard survey of GoRaleigh customers (Oct 26 – Nov 3). The questionnaire was distributed to all passengers on the bus during sampled runs by trained survey staff.  It was self-administered. The GoRaleigh survey includes 2,629 responses and has a margin of error of +/-1.8% at the 95% level of confidence.  The 2018 survey is intended to provide a baseline for comparison to later annual surveys.

## Key Findings

### TRAVEL CHARACTERISTICS

- 42% of customers use GoRaleigh six or seven days a week, while 41% use it four or five days, and the balance, 17%, use it from one to three days a week.
- Trip purpose is primarily oriented to employment (68%) and school trips (13%), but many customers also use GoRaleigh for shopping (6%), medical visits (5%), or recreation (2%). The trips for work, school, and shopping illustrate the major economic impact the system has for the labor force and for retail.
- 37% of GoRaleigh customers say they are using GoRaleigh more often than in the previous year and 15% say they began riding only in 2018.  Only 9% say they are riding less often now.  Although the numbers are computed differently, the direction of change appears consistent with the agency's ridership figures which show a 7% increase from 2017 to 2018.
- The percent of customers saying they make connections at least once with other buses during their trip stands at 75%.
- When using other systems in the Triangle Region, GoRaleigh customers are more likely (14%) to use GoDurham than the other systems.
- Ridesharing
    - 37% have used Uber or Lyft at least once in the thirty days prior to the survey.
    - Of the 37% using Uber or Lyft, 40% (15% of all GoRaleigh customers) used Uber or Lyft to replace a GoRaleigh trip.
    - Of the 37% who have used Uber or Lyft in the previous thirty days, 27% (or 10% of all customers) have used them as part of a GoRaleigh trip.
- Fare media
    - The largest percentage of GoRaleigh customers (36%) boarded with a day-pass purchased either on the bus (20%) or ahead of time (16%).
    - Twenty-nine percent (29%) paid their fare in cash.
    - Combining the cash fare and the day-pass purchase on the bus, a total of 49% make a fare transaction on the bus
    - 51% either purchase a pass prior to boarding (day-pass or longer term pass), or use a free pass such as GoPass or a university ID, thus reducing the time they spend boarding.

### DEMOGRAPHICS

- GoRaleigh provides a key support for employment and education.  Of all GoRaleigh customers, 50% are employed full time and another 20% part time.  Another 19% are students, for a total of 89% of customers being employed or students.

- 59% of GoRaleigh customers identify themselves as African-American, 21% identify themselves as Caucasian, 7% Hispanic, 5% Asian 3% Native American and 6% "Other."
- Like most bus systems in the United States, the ridership of GoRaleigh is young, with 46% younger than thirty-five.
- More men (54%) than women (44%) use GoRaleigh.  (2% preferred not to answer.)
- Similar to the ridership of many bus systems, many GoRaleigh customer households report that they have extremely low household incomes. In this survey, 35% report income of less than $10,000 and only 13% report household incomes of $50,000 or more.
- Customers are quite transit dependent, with 67% reporting that they have either no vehicle or no licensed driver (or neither) in the household.

## SERVICE QUALITY AND PRIORITIES FOR IMPROVEMENT
- Of all GoRaleigh customers, 54% rate service overall as 6 or 7 meaning Very good or Excellent on a scale of 1 – 7 where 7 means "Excellent" and 1 means very poor.
- Hours of weekday service were rated six or seven by 53%, and 52% rated as 6 or 7 both ease of transfers and weekday service frequency.
- Ratings of GoRaleigh service overall and of each of the nineteen service rated were positive.  Very few rated services as poor. Therefore, further improvement in service ratings as the Wake Transit Plan is implemented, will involve ratings moving from good to better to excellent rather than from poor to good.
- Respondents were asked to name the three aspects of GoRaleigh service they felt were most important to improve.  Having buses run on time was named by more respondents, 55%, than any other aspect of services.  Coverage, stated as "availability of service to all destinations you want to get to," was second on the priority list with 24%, and weekday service frequency was third, with 20%, in spite of the fact that 52% also rated it in the top rating categories.
- Another way to examine customers' service improvement priorities is to examine the statistical correlation of each aspect of service with the rating of GoRaleigh service overall.  This technique identified three areas of improvements that would have a significant impact on the overall GoRaleigh service rating if implemented.  Two of these are the same as those indicated by asking respondents for their top three improvement priorities: Increased coverage and Improved on-time performance.  The third is the total time a trip takes.

## MOBILE COMMUNICATION
  - Transit systems nationally continue to find more and more customers relying on mobile electronic modes of information-seeking, although printed materials continue to be essential.
  - 61% of GoRaleigh customers use not just a cellphone, but a smartphone on which they can access the internet.
  - A transit app has been downloaded by 37% of GoRaleigh customers.
  - While the use of smartphones is still very much inversely related to age, the use of basic cellphones is not.  For example, 85% of customers over the age of sixty-five use a cell phone, but only 30% of that group uses a smartphone.

# Introduction and Methodology

## Background

As part of a regional customer satisfaction measurement program, CJI Research, LLC conducted a survey of customers onboard GoRaleigh buses from October 26 through November 3, 2018. Similar surveys were conducted during the preceding three weeks with customers of GoDurham, GoTriangle, and GoCary.

The questionnaire used in the survey was initially developed by CJI Research and refined by GoRaleigh staff and a coordinating committee from GoTriangle and Campo led GoTriangle, the agency coordinating the multi-system project.

## Methods: How the Survey Was Conducted

### SAMPLE

A random sample of runs was drawn from a list of all GoRaleigh runs. This initial sample was examined to determine whether the randomization process had omitted any significant portion of the GoRaleigh system's overall route structure. The sample was adjusted slightly to take any such omissions into account.

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

Because all customers were asked to participate rather than a sample of customers on the bus, 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 GoRaleigh survey includes 2,629 respondents and has a margin of error of +/-1.8% at the 95% level of confidence. When the distribution of responses is other than 50:50 on a specific question, the sample error for a given sample size decreases somewhat. When a sub-sample is used, sample error increases somewhat. However, with such a large overall sample this would affect the findings only in circumstances in which only very small sub-segments of the ridership were being examined separately.

### DATA COLLECTION

Temporary workers from the Greer Group Inc. of Durham, NC 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 for which a person they do not know would be approaching them. This reduces anxiety, clarifies the situation and increases the cooperation rate.

In most cases, the survey personnel met the bus operators at pull-out, accompanied them at the beginning of their shifts, and rode the bus 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.

The questionnaire was self-administered. Survey personnel handed surveys and a pen to customers and asked them to complete the survey.

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 of the week.  At the end of their assignments they then reported to their survey supervisors who completed a log form detailing each assignment.  In this manner a total of 529 trips were sampled and recorded.

## PARTICIPATION RATES

### Completion Rates on GoRaleigh Onboard Survey, 2018

| | | | |
|---|---:|---|---:|
| *A total of* | *7,661* | *adults (16 years old or older) were riding during the surveyed trips and had a chance to participate* | |
| Of this total… | 2,557 | said they had already completed the survey | 25% |
| thus, | 5,104 | had not yet completed the survey | 67% |
| and | 2,075 | of those who had not yet completed the survey refused outright | 41% |
| and | 257 | customers spoke a language other than English or Spanish | 5% |
| thus | 2,772 | accepted the survey form with the apparent intention of finishing it | 54% |
| | | | |
| *Thus, these* | *2,772* | *customers represent, the total "effective distribution, " i.e., the raw sample* | |
| Of these… | 143 | accepted the survey form but did not complete it on the bus | 14% |
| and | 2,550 | completed the survey on the GoRaleigh bus | 86% |
| | 79 | completed the survey and returned it to an operator on another bus | 1% |
| Finally: | 2,629 | returned useable survey questionnaires. They comprise the base sample | 95% |
| | | Of all adults riding on a surveyed vehicle, including those who had already completed the survey, this represents: | 34% |
| | | Of all adults riding on a surveyed vehicle who had not yet completed the survey, this represents: | 52% |
| | | Of all the customers on sampled trips who accepted a questionnaire, this represents: | 95% |

Of the 2,629 GoRaleigh respondents:

- 2,604, or 99% of the sample completed the customer satisfaction questions
- 2,003, or 76%, completed all questions in the survey.
- Another 336, or 13% completed all but the final question, household income, which always has a high refusal rate
- 2,341, or 90% therefore completed 98% of the questions (i.e. all but the income question)

In the analysis, those who did not respond to a question are eliminated from the computations.  The exceptions were those case in which there was a way to infer the response.  For example, if a rider gave as a trip purpose *getting to or from school,* it was apparent that this was a student.  Thus, employment could be coded as "student," even if the respondent had not responded to the employment question.

## QUESTIONNAIRE

The questionnaire was self-administered.  It is reproduced in Appendix A.

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

The survey is printed in English on one side and in Spanish on the other.  In the survey of GoRaleigh customers, 208 customers, or 8% of the unweighted sample identified themselves as Hispanic, but only 74, or 3% of the completed questionnaires were completed in Spanish.  Stated in another way, only about one-third (36%) of the customers identifying themselves as Hispanic completed the survey in Spanish.

Analysis consists primarily of crosstabulations and frequency distributions.  Tables were prepared in SPSS, version 25 and charts in Excel 2016.  The GoRaleigh survey data will be archived by CJI Research so that it will be available for further analysis as needed.

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

**WEIGHTING**

Although the sample of runs and trips is random, and for that reason is largely representative in its unweighted form, some maximum quotas had to be imposed on the number of hours spent collecting on the more populous routes once an adequate route level sample had been collected.  Also, there are occasional deviations from the usual ridership on any given route.  To be certain that the sample is correctly proportioned among the whole GoRaleigh route system, the data were weighted according to the normal ridership of each sampled route.  This corrects any of the minor deviations from normal ridership proportions among routes.  It also assures that future surveys weighted in the same manner will be representing a stable comparison unaffected by short term fluctuations.

## Our Objectives in this report

We have several objectives in preparing this report.  We intend to:

- Establish a set of benchmarks against which to measure change in the coming years as the Wake County Transit Plan is implemented.
- Provide GoRaleigh management with a perspective on the demographic characteristics of the GoRaleigh customer base, and compare them insofar as data are available, to Wake County population characteristics
- Provide GoRaleigh management with a perspective on the GoRaleigh customer transit user characteristic such as frequency of use, dependency on transit, trip purpose and other characteristics, and to compare them, when data are available, to national bus transit user characteristics.
- Measure customer satisfaction using multiple approaches, some very straightforward and direct (e.g., Name the top three aspects of service that should be improved"), and some of which are more complex (correlation analysis) to understand customer views from various angles.
- Provide analysis that stimulates additional questions that can be answered by further analysis of the survey data.

# Rider Profile

## Frequency of Using GoRaleigh

Riders were asked on how many days in a typical week they use GoRaleigh. Thirty percent (30%) use it daily during the usual five day business week, while another 11% use it four days a week for a total of 42% in this combined group. Six and seven-day travelers who use GoRaleigh most frequently, not only during the week but also on the weekend, comprise another distinct group. Together they include 42% of the ridership. Occasional transit users who travel only one, two, or three days a week make up 17%.

### Figure 1 Frequency of Using GoRaleigh



Weekly Frequency of Using GoRaleigh

## Rider Segments

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

- One to three days: Those who use GoRaleigh one, two, or three days a week (17%)
- Four to five days: Those who use GoRaleigh four or five days a week (41%)
- Six to seven days: Those who use GoRaleigh six or seven-days a week (42%)

### Figure 2 Compressed Measure of Frequency of Using GoRaleigh



Weekly Frequency of GoRaleigh Use
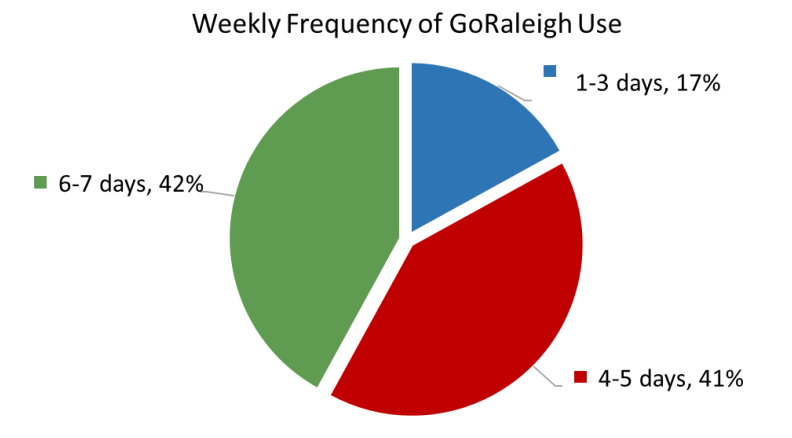
Why are the results segmented in this manner? The frequency of using public transportation is the most fundamental of all transit customer characteristics. It is useful for marketing, for planning, and for a general perspective on the customer base to know how the most frequent transit users differ from (or are the same as) the least frequent transit users in terms of the travel characteristics and demographics.

The survey data files are, however, a resource for further examination. When additional analysis is needed to break down the ridership in other ways such as transit dependency/non-dependency, trip-purpose, route, or other characteristics, that can easily be provided. The rider frequency segments used in this report are simply one basic way to think about comparisons among riders within the overall sample.

## Figure 3 Length of Time Using GoRaleigh

### Years using GoRaleigh



|  | 1 - 3 days | 4 - 5 days | 6 - 7 days | 2018 |
|---|---|---|---|---|
| ■ More than 4 yrs | 32% | 34% | 43% | 38% |
| ■ 3-4 yrs | 15% | 12% | 14% | 13% |
| ■ 1-2 yrs | 16% | 21% | 20% | 19% |
| ■ Less than 1 yr | 10% | 14% | 10% | 12% |
| ■ Less than 6 mo | 27% | 18% | 14% | 18% |
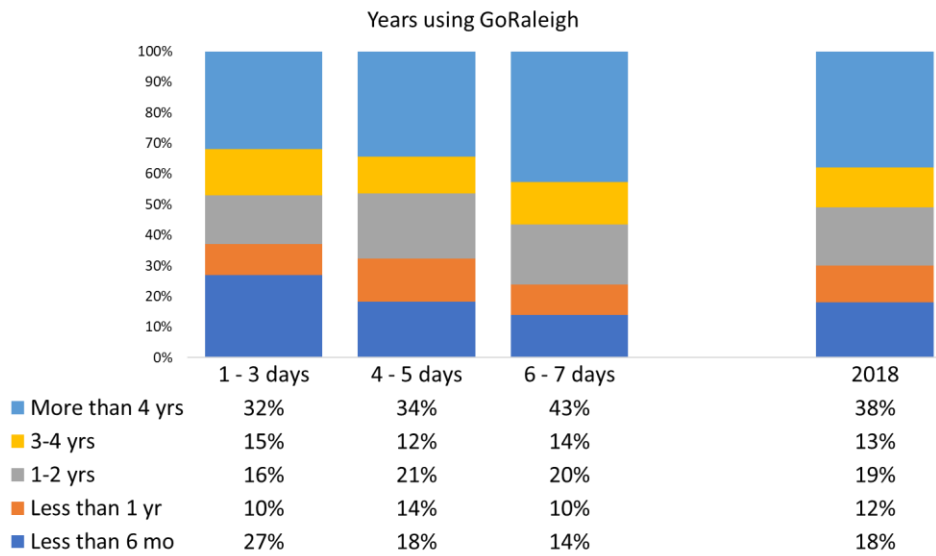
## Duration of Ridership

Riders were asked for how long they had been using GoRaleigh. Eighteen percent (18%) said, "Less than six months," while another 12% said "less than a year," for a total of 30% of customers who said they had begun using GoRaleigh only within the past year.

Given that ridership has not grown to that extent since 2017 (see Figure 6), this means that GoRaleigh, like most transit systems CJI has studied, turns over close to one-third of its customers annually. In addition, another 19% say they have been using GoRaleigh for only one to two years, for a total of 49% or almost half of the ridership, riding for two years or less.

This is higher than the national norm of 31% (See Figure 4) [1]. However, both the national and the GoRaleigh figures make the same point: On a continuing basis, a large proportion of the ridership is relatively new. Yet, because the ridership overall has not grown to the extent of new ridership, it is apparent that among the most important ways to achieve ridership growth is by retention of a higher proportion of those riders for a longer period. The higher proportion of longer term riders in the national data may have to do with the fact that the population of the greater Raleigh area has been growing faster than many of the systems included in the report

## Figure 4 Duration Using Transit GoRaligh Survey and (APTA "Who Rides Public Transportation," 2016, a CJI Research Report)

### Years Using Transit



On the other hand, among GoRaleigh customers, there is a substantial proportion of the ridership that is longer term, with 38% having used GoRaleigh for more than four years and another 13% for three to four years. The customer segment with the longest perspective is the most frequent 6 - 7 day riders, among whom a total of 57% have been utilizing GoRaleigh services for three or more years.

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[1] http://www.apta.com/resources/reportsandpublications/Documents/APTA-Who-Rides-Public-Transportation-2017.pdf

Service Use Compared to Last Year



|  | 1 - 3 days | 4 - 5 days | 6 - 7 days | 2018 |
|---|---|---|---|---|
| ■ Did not ride a year ago | 20% | 17% | 10% | 15% |
| ■ Less often | 21% | 8% | 5% | 9% |
| ■ The same | 33% | 40% | 40% | 39% |
| ■ More Often | 26% | 34% | 45% | 37% |
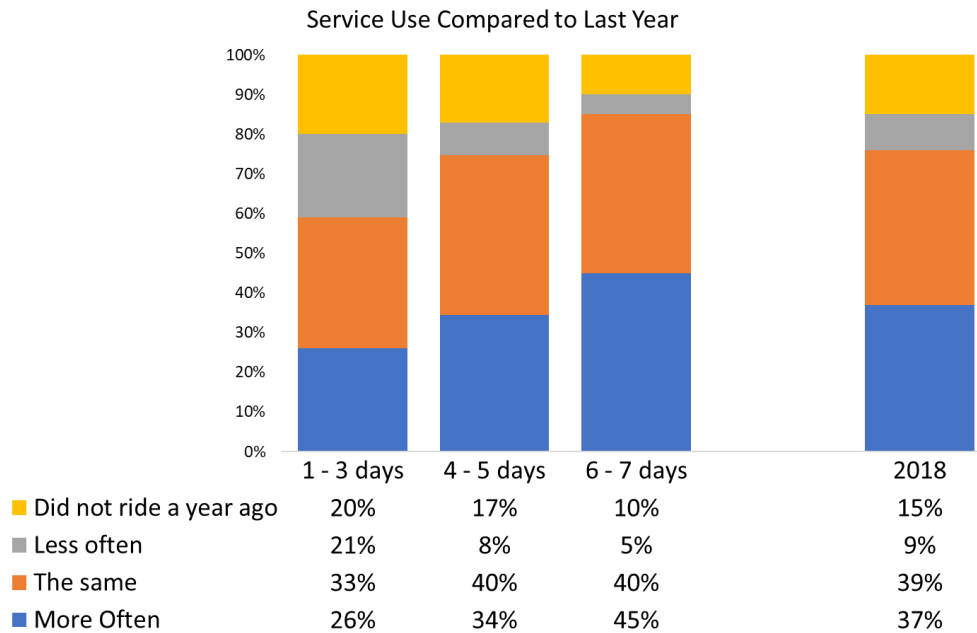
## Riding Frequency Compared to a Year Ago

Overwhelmingly, respondents say that they are riding either with same frequency (39%) or more often (37%) than a year ago, and 15% say they are new riders.  Only 9% say they are riding less often.  The one to three day riders are the most likely to be new riders (20%), while the most frequent riders are more likely (45%) than the other segments to say they are riding more often.

**Figure 6 Ridership Statistics from GoRaleigh, 2012 - 2018**



Trips per year on GoRaleigh
(Source: GoRaleigh  internal records from Planning Department)

|  | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|
| GoRaleigh annual trips (in thousands) | 5,990 | 6,243 | 5,981 | 5,803 | 5,466 | 4,838 | 5,183 |
| Average for the period | 5,643 | 5,643 | 5,643 | 5,643 | 5,643 | 5,643 | 5,643 |
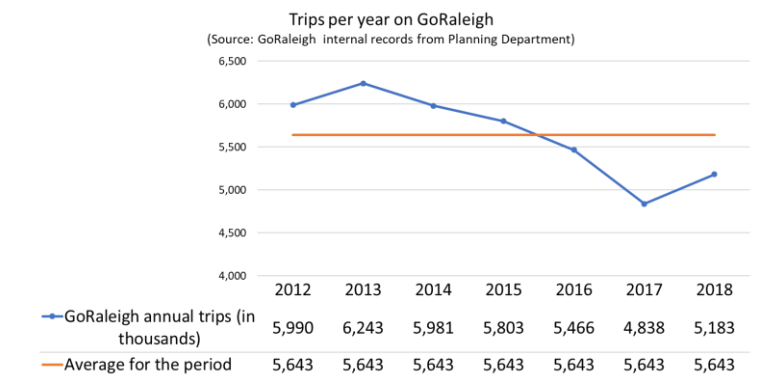
How do the survey data comport with the actual ridership data provided by GoRaleigh?  With the caveat that we cannot directly infer changes in overall ridership from survey data, the survey responses among current riders are consistent with the recent ridership increase.

GoRaleigh ridership saw a long decline from 2013 to 2017 followed by a 7% increase from 2017 to 2018.  A ridership increase like that reported in Figure 6 can be assumed to include not only new riders, but a combination of new riders, retention of existing riders, (see the survey data supporting this in Figure 3), and greater frequency of travel among existing riders (see Figure 5).

**Figure 7 Trip Purpose**

Main Trip Purpose for Using GoRaleigh Buses

| | 1 to 3 days | 4 - 5 days | 6 - 7 days | 2018 |
|---|---|---|---|---|
| ■ Other | 7% | 2% | 6% | 5% |
| ■ Recreational Event | 6% | 2% | 2% | 2% |
| ■ Medical/Dental | 11% | 5% | 3% | 5% |
| ■ Shopping | 13% | 5% | 5% | 6% |
| ■ School/College | 18% | 17% | 7% | 13% |
| ■ Work | 44% | 69% | 77% | 68% |
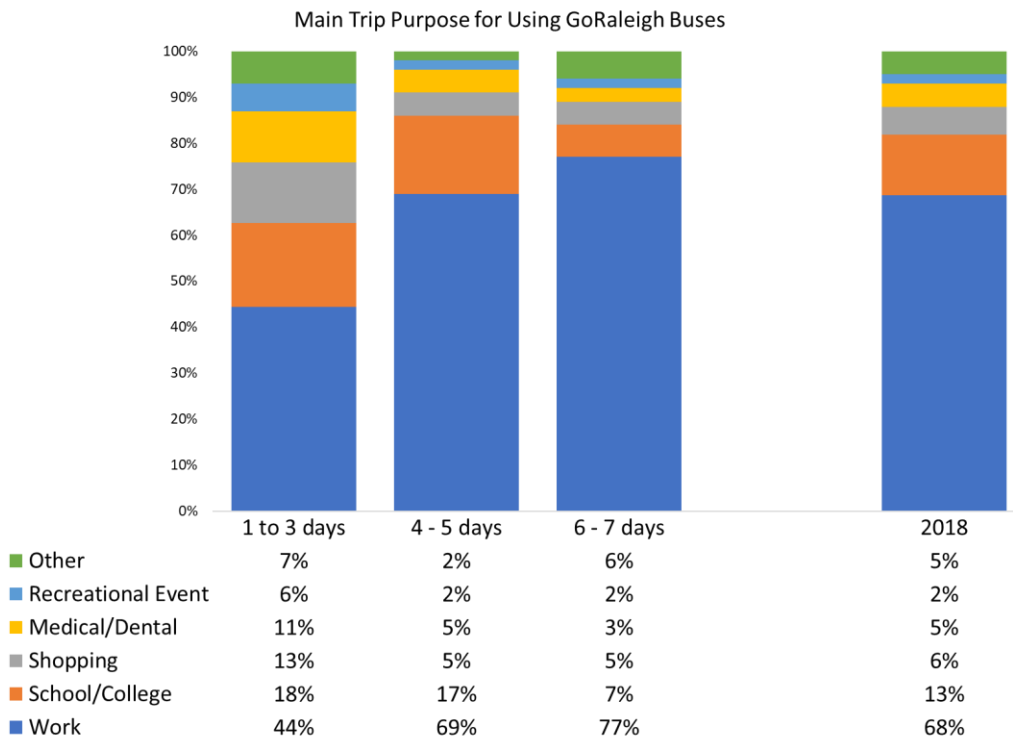
## Trip Purpose: Use of GoRaleigh for Various Purposes, by Segment

Customers were asked to name the single main purpose for which they use GoRaleigh.

- Getting to or from work is the primary trip-purpose, with 68% of customers citing that as their most frequent trip purpose.
- School and college trips make up another 13% of trips.  Thus, GoRaleigh is carrying a large proportion of its customers either for work trips or for school trips.
- Another 6% of the customers indicate that they make shopping trips, a set of trips with immediate economic impact.
- Medical and recreational trips account for 7%

We can think of GoRaleigh, then, as having major economic impact in two ways, (1) as an engine of labor mobility, with 81% of GoRaleigh customers using the system either to get to work or to schooling in preparation for future work, and (2) in terms of bringing people to shop or to meet medical, recreational, or other needs.

More than three-fourths of the six to seven-day riders (77%) and more than two-thirds of the four to five day riders (69%) had made work-trips.  The one to three-day a week riders are more likely than the other segments to have used GoRaleigh for each of the non-work purposes.  It is interesting, however, that even among these least frequent customers, work trips are common (48%).  They must either be working part-time or using different modes on different days.

**Figure 8 Employment and Trip Purpose**

Trip Purpose by Employment

| | Full time | Part time | Unemployed but seeking | Homemaker | Student | Retired | Volunteer position |
|---|---|---|---|---|---|---|---|
| Other | 1% | 2% | 14% | 4% | 2% | 14% | 5% |
| Recreation-Event | 1% | 3% | 4% | 2% | 2% | 6% | 9% |
| Medical-Dental | 1% | 4% | 14% | 18% | 0% | 20% | 7% |
| Shopping | 2% | 3% | 11% | 14% | 3% | 37% | 7% |
| School-College | 2% | 18% | 15% | 14% | 52% | 5% | 14% |
| Work | 92% | 71% | 42% | 49% | 40% | 18% | 59% |
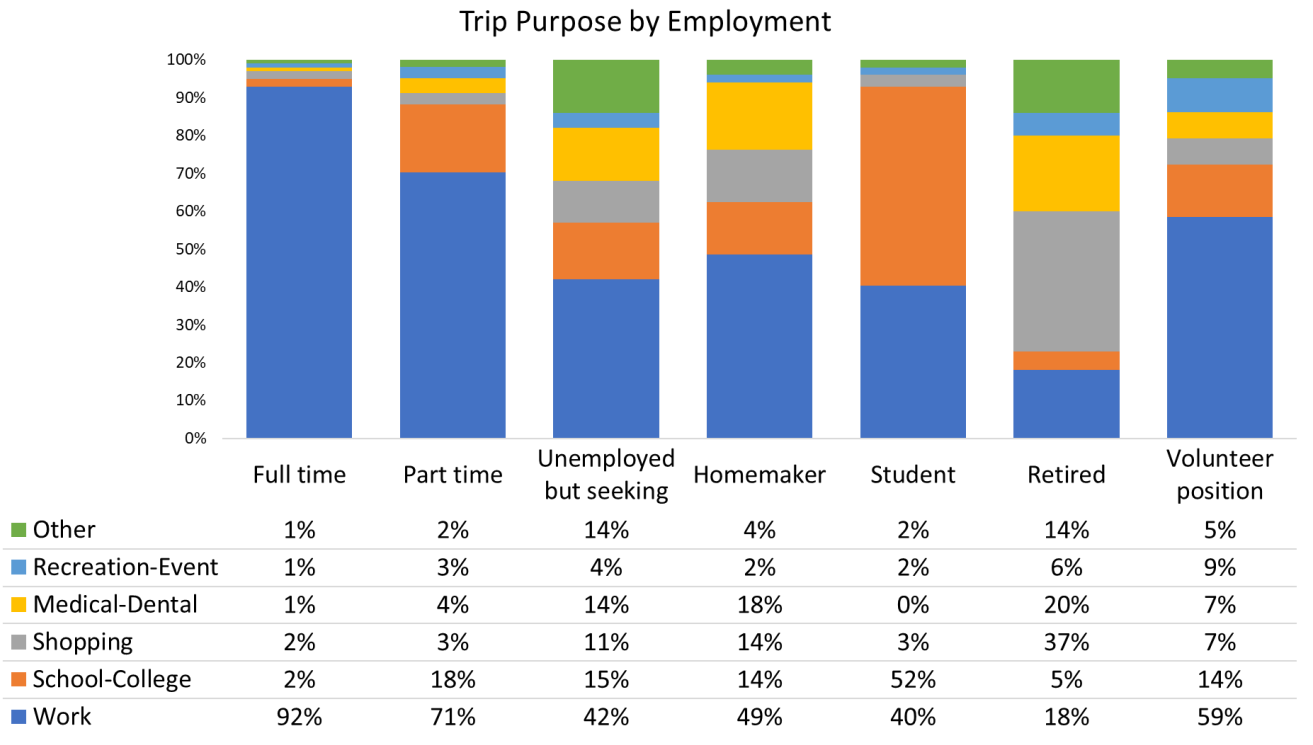
## Employment and Trip Purpose

The relationship of employment to trip purpose would appear to be self-evident. For example, we can expect many employed persons to use GoRaleigh to get to work. However, there are some variations. As expected, 92% of those employed full time use GoRaleigh to go to or from work, while 71% of part-time workers are headed for work, but another 18% are headed for school. These are as anticipated.

Less expected is that 42% of those who say they are unemployed say they are going to or coming from work. Probably they are in temporary jobs of some sort while looking for work and consider themselves to be unemployed. Similarly, 18% of retirees say they are making a work trip, probably working part time but still considering themselves to be primarily retired. Many homemakers too (49%) say they are going to work. Possibly they are working part time but consider homemaker to be their main occupation. Students, as expected, are going either to work (40%) or to school (52%).

**Figure 9 Mode to the GoRaleigh Bus Stop**

### How Passengers Got to Bus Stop for Current Trip



|  | 1 - 3 days | 4 - 5 days | 6 - 7 days | 2018 |
|---|---|---|---|---|
| ■ Another mode | 1% | 1% | 1% | 1% |
| ■ Bus other than this system | 7% | 4% | 6% | 5% |
| ■ Other bus (same system) | 0% | 1% | 0% | 0% |
| ■ Was dropped off by family/friend | 5% | 3% | 2% | 3% |
| ■ Uber/Lyft | 4% | 2% | 1% | 2% |
| ■ Drove | 2% | 2% | 1% | 1% |
| ■ Biked | 1% | 2% | 2% | 2% |
| ■ Walked | 81% | 85% | 87% | 85% |
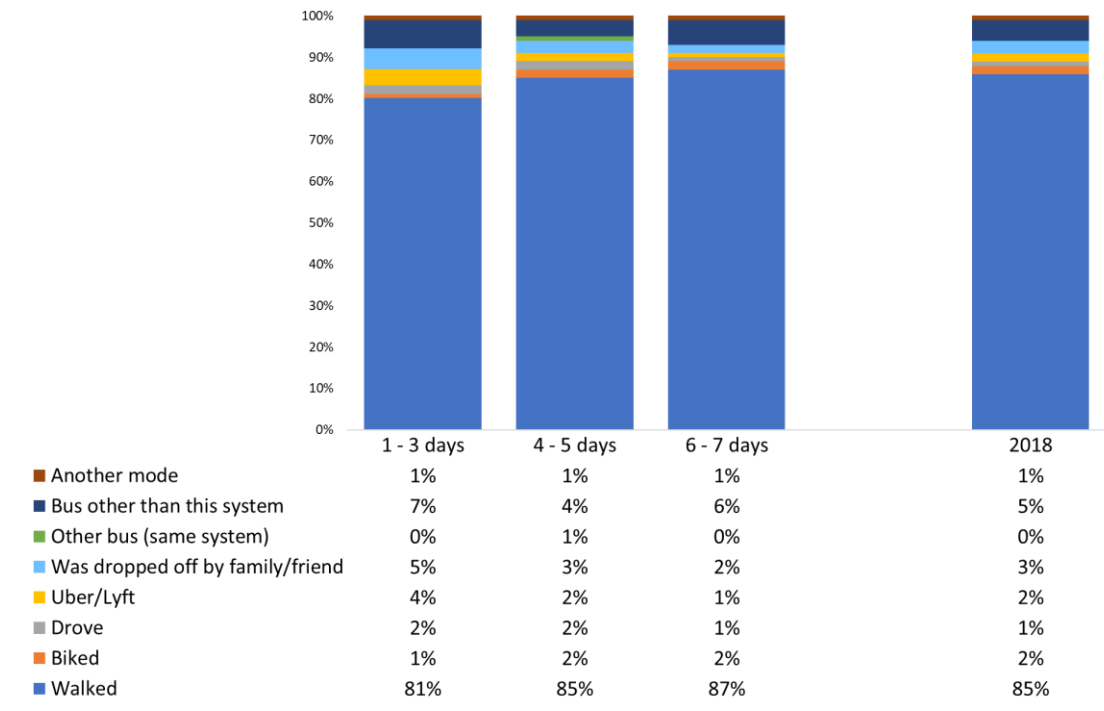
## Mode to the Bus Stop

Most people, 85%, most often simply walk to the nearest bus stop. The six to seven day riders are somewhat more likely than the two other segments to walk to their stop. However, the relationship is not strong, and more than 80% of all three frequency segments walk to their stops.

With respect to the mode to stop, GoRaleigh is very much in line with national norms. Nationally, 81% of bus system riders walk to their stops, while 85% of GoRaleigh riders do so. While 9% of bus riders nationally, use public transit to access the stop, the same is true for 5% of GoRaleigh riders.

**Figure 10 Access Mode – GoRaleigh and Nationally (Go Raleigh Survey and APTA, *op cit*)**

### Mode to the bus stop, GoRaleigh and National



Nationally, although only bus riders are included in the chart, some of the bus riders surveyed were from systems that include rail as well as bus, thus increasing the tendency to use other transit service to access the bus stop. This may account for the small 4% difference in accessing the GoRaleigh stop via transit compared to the national figure.

**Figure 11 Bus Systems Used in a Typical Week**

Area Transit Systems Other than GoRaleigh Used in a typical week
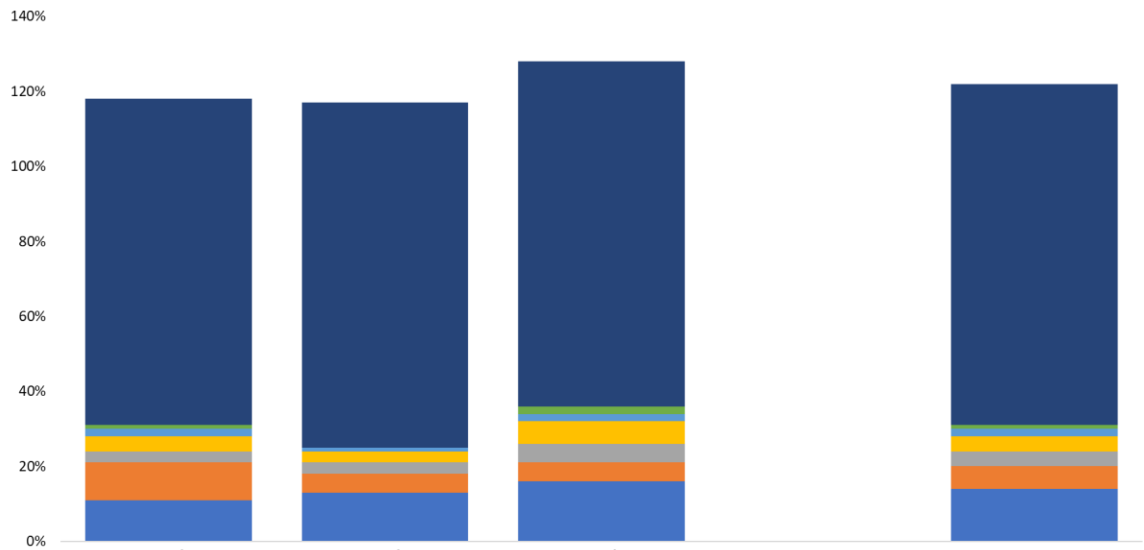
| | 1 - 3 days | 4 - 5 days | 6 - 7 days | 2018 |
|---|---|---|---|---|
| ■ GoRaleigh | 87% | 92% | 92% | 91% |
| ■ Duke Transit | 1% | 0% | 2% | 1% |
| ■ Chapel Hill Transit | 2% | 1% | 2% | 2% |
| ■ GoTriangle | 4% | 3% | 6% | 4% |
| ■ GoCary | 3% | 3% | 5% | 4% |
| ■ Wolfline | 10% | 5% | 5% | 6% |
| ■ GoDurham | 11% | 13% | 16% | 14% |

## Use of Area Bus Systems

Respondents were asked which of the transit systems in the region they use in a typical week.  Since they can use multiple systems, the sums of the percentages exceed 100% in Figure 11.

As expected, almost all riders (91%) said they use GoRaleigh in a typical week.  Conversely, this suggests that about 9% do not use GoRaleigh every week and were encountered in the survey in one of their multi-system trips, or that they are only occasional and not weekly users of GoRaleigh.

For all segments in 2018, GoRaleigh customers use GoDurham more than any other local system (14% overall).  The six to seven day riders are more likely than others to use multiple systems.  This is as one would expect, given that they are less likely to have a personal vehicle available (as we shall see in Figure 18).

Of the one to three day riders 26% are students.  Thus, it is not surprising that 10% said they typically use Wolfline.

Use of Demand Response Services



| | 1 - 3 days | 4 - 5 days | 6 - 7 days | 2018 |
|---|---|---|---|---|
| ■ GoDurham Access | 2% | 0% | 2% | 1% |
| ■ GoCary Door-to-Door | 1% | 1% | 1% | 1% |
| ■ GoWake Access | 1% | 1% | 3% | 2% |
| ■ GoTriangle Access | 2% | 1% | 4% | 3% |
| ■ GoRaleigh Access | 9% | 8% | 7% | 8% |
| ■ None of these | 85% | 89% | 83% | 85% |

## Use of Demand Response Services for those 65+ or with Disability

Respondents were asked: "In a typical week, which, if any, of the following services for those 65 or older or with a disability do you use?" All of the systems' ADA services had at least 1% of GoRaleigh riders saying that they had used it.

It is interesting that all of these riders were intercepted during the GoRaleigh fixed route survey, a fact that suggests the extent of crossover use of fixed route and demand response.

**Figure 13 Number of Connections or Transfers in Current Trip**

Number of Bus Connections During Current Trip

| | 1 - 3 days | 4 - 5 days | 6 - 7 days | 2018 |
|---|---|---|---|---|
| 3 or more connections/transfers | 8% | 12% | 23% | 16% |
| 2 connections/transfers | 31% | 32% | 35% | 33% |
| 1 connection/transfer | 25% | 30% | 22% | 25% |
| No connections/transfers | 36% | 27% | 20% | 25% |
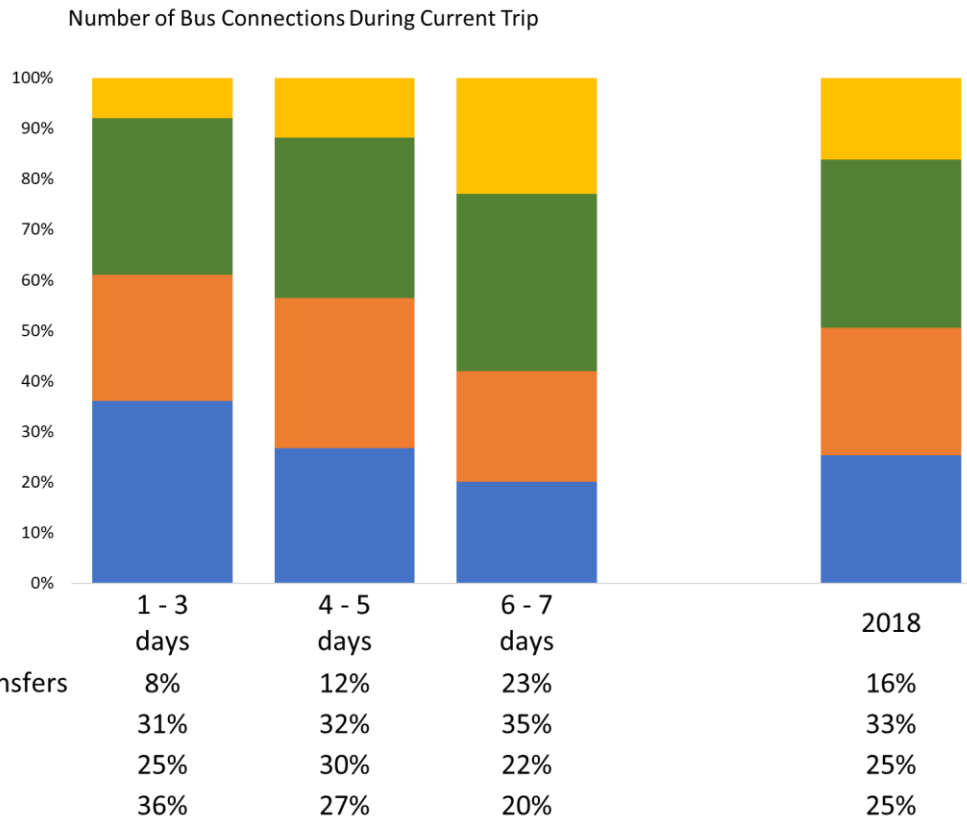
## Connections or Transfers During the Trip

Customers were asked how often they "…connect with or transfer to another bus to complete your trip." Figure 13 shows that one-fourth of the riders (25%) make no connections or transfers, while another fourth (25%) transfer once, one third (33%) transfer twice and 16% transfer three times or more.

As one would expect, given the frequency with which they use GoRaleigh, the six to seven-day riders are more likely than other segments to make connections during a trip. A total of 80% make connections compared to 73% of four to five-day riders and 64% of one to three day riders. One reason for this difference is that the six to seven day riders tend to be more transit dependent than the other segments (see Figure 20). This suggests that they must use GoRaleigh for all types of trips to more diverse locations and more often than other customers, thus probably requiring more complex routings for at least some trips.

## Figure 14 GoRaleigh Fares at the Time of the Survey

| FARE TYPE | FULL FARE | REDUCED FARE |
|---|---|---|
| Cash Fare | $1.25 | $0.60 |
| Day Pass | $2.50 | $1.25 |
| 7-Day Pass | $12.00 | $6.00 |
| 31-Day Pass | $45.00 | $22.50 |
| $25 Stored Value Card | $20.00 | $20.00 |

- **Best Pass Value**: $25 Stored Value Card | Accepted by Regional providers GoRaleigh, GoTriangle, GoDurham & GoCary.
- Passes do not begin to lose value until they are validated on the GoRaleigh bus.
- No Transfers Issued

**DISCOUNTED/REDUCED FARE INFORMATION**

| | |
|---|---|
| Persons with Disabilities | 50% Discount |
| Teens Ages 13-18 | Free with Youth GoPass* |
| Children 12 & Under | Free |
| Seniors 65 & Over | Free |

- **50 percent Discount** with approved ID:
  - Persons with disabilities (with GoRaleigh ID)
- **Fare Free**
  - Children Ages 12 and Under (with GoRaleigh ID if over 60 inches tall)
  - Teens ages 13-18 (free with Youth GoPass)
  - Seniors 65+ (with GoRaleigh ID)

## GoRaleigh Fares at the Time of the Survey

The table above, copied from the GoRaleigh website[2], displays the several types of pass media and special fares available at the time of the survey in 2018. In addition to the fares listed, the GoPass is accepted from customers affiliated with certain institutions.

## Type of Fare Used

The largest percentage of GoRaleigh customers (36%) boarded with a day-pass purchased either on the bus (20%) or ahead of time (16%). Twenty-nine percent (29%) paid their fare in cash. Thus, combining the cash fare and the day-pass purchase on the bus, a total of 49% make a fare transaction on the bus.

The other customers used free or pre-paid passes of some other type. This includes 14% using the GoPass which is free to them, and 8% a university ID, also free to the user. Finally, 13% used a seven or thirty-one day pass.

## Figure 15 Fare Medium Used

### Fare Medium Used for Current Trip

| | 1 - 3 days | 4 - 5 days | 6 - 7 days | 2018 |
|---|---|---|---|---|
| Use a 7 or 31 day pass | 3% | 10% | 19% | 13% |
| Use a unversity or other ID | 14% | 9% | 5% | 8% |
| Buy a day pass on the bus | 15% | 21% | 21% | 20% |
| Use a day pass bought ahead of time | 16% | 14% | 18% | 16% |
| Use a GoPass | 18% | 17% | 10% | 14% |
| Pay cash fare this trip only | 34% | 28% | 28% | 29% |
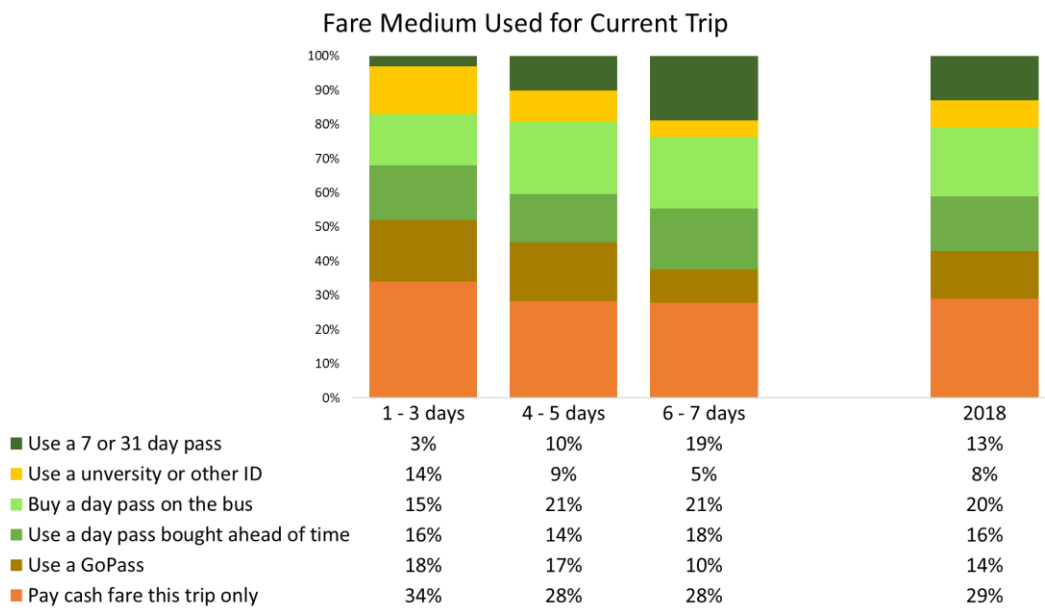
**Figure 16 Income and Type of Fare**

Income and Type of Fare Paid

| | Less than $20,000 | $20,000 to $49,999 | $50,000 or more |
|---|---|---|---|
| ■ Cash | 32% | 28% | 27% |
| ■ Day pass | 36% | 39% | 28% |
| ■ 7 - 31 day pass | 13% | 15% | 7% |
| ■ GoPass or University ID | 18% | 18% | 38% |
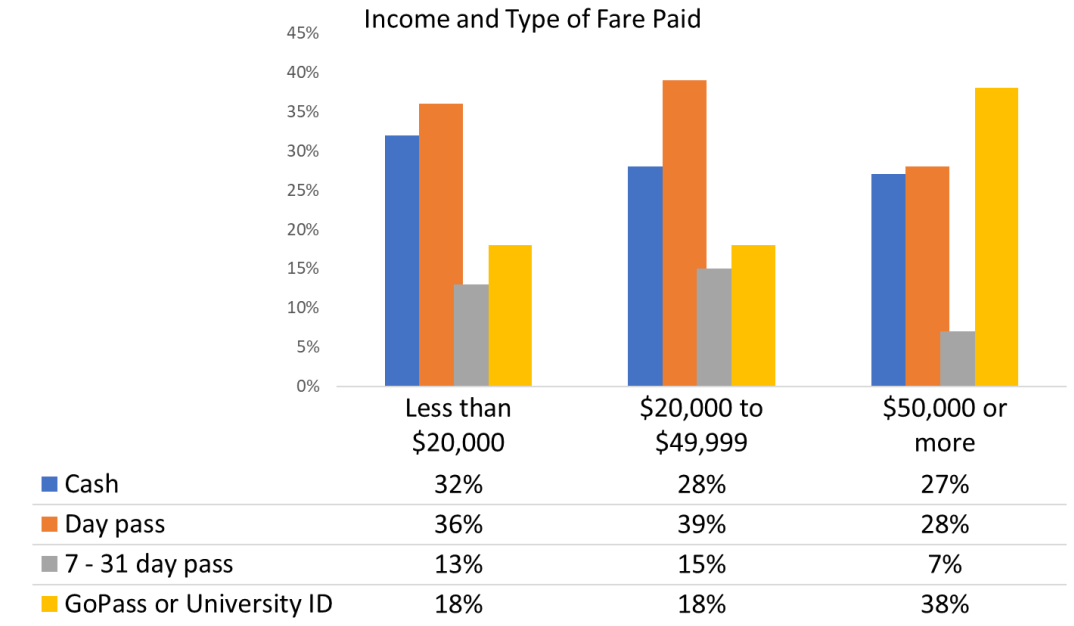
## Income and Type of Fare

In surveys of systems a decade or more ago, when the day-pass was not yet widely offered, the primary discounted pass option was often a monthly pass and sometimes a seven day pass. Lower income riders rarely could afford to take advantage of the discount such passes offered because of the challenge of allocating their limited cash flow, and the risk of committing so much cash in advance for a month's or even a week's transportation. Thus, in customer survey data it was found that the lower the income of a rider household, the more likely the rider was to use a full cash fare while, conversely, the higher the income, the more likely the rider was to take advantage of discounted pass.

With the advent of the day pass, the inverse relationship between the use of discounted multi-trip pass fare media and income has weakened to the point of almost disappearing. The day pass rarely offers as deep a discount as a longer term pass, but it imposes little risk or cash flow problem, and does save money for the user. Moreover, if it is pre-purchased off-the bus or when it is used a second time even if purchased on the bus, it also saves boarding time for the system. Thus, it provides both a social and an operational benefit.

The relationship of using cash fare to income is not pronounced at GoRaleigh. At GoRaleigh, 32% of those with household incomes of less than $20,000 use cash, but a similar number of those with incomes of $50,000 or more (27%) also use cash. The primary difference related to income, is the use of the subsidized pass for free fare. Those with incomes of $50,000 or more are twice as likely (38%) as those with incomes less than that (18%) to use a GoPass or a university ID to board at no cost to themselves.

## Figure 17 Three Aspects of Mode Choice

Transportation options
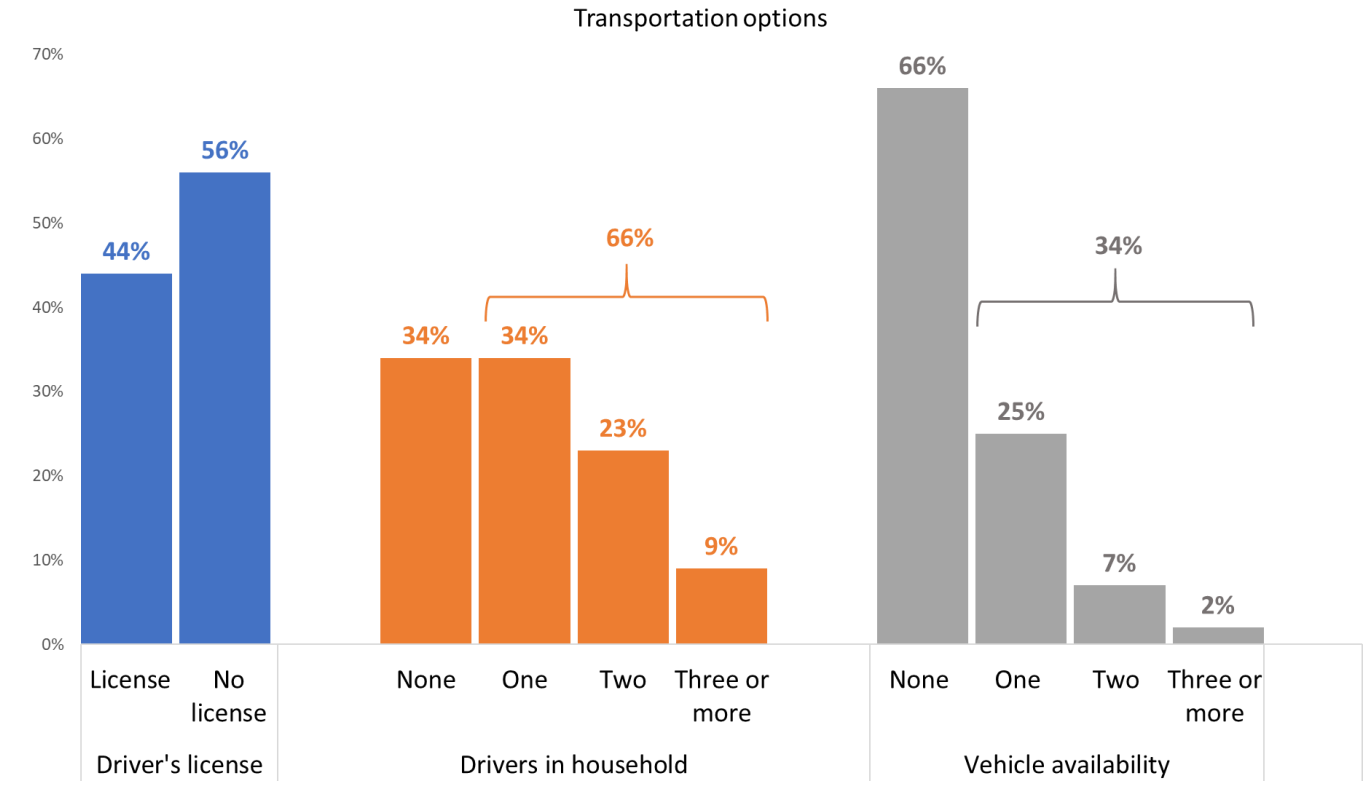


**Three Aspects of Mode Choice**

Having a choice of local transportation mode depends on both the availability of a vehicle and on having a valid driver's license. It may also include having to share within the household the use of whatever vehicles the household may have available. Figure 17 indicates that a large minority of customers (44%) hold a valid license, 66% have one or more licensed drivers in the household, and 34% of customer households have a vehicle available.

### Figure 18 Vehicle Availability (APTA, *op cit)*



Was a Vehicle Available for You to Use for This Trip? - All Transit Users
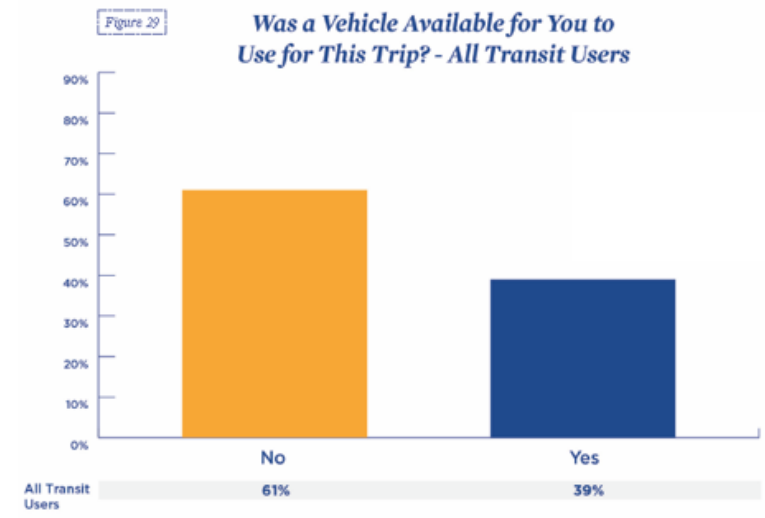
Nationally, the meta analysis conducted for APTA and previously cited indicated that among bus customers, 61% lacked a vehicle for the trip they were making when surveyed. This places GoRaleigh very close to the national norm the national norm in this respect.

**Figure 19 Driver/Vehicle Ratio - Transportation Options**

Household Transportation Options

| | 1 - 3 days | 4 - 5 days | 6 - 7 days | 2018 |
|---|---|---|---|---|
| ■ More vehicles than drivers | 4% | 4% | 3% | 3% |
| ■ Same number veh & drivers | 21% | 18% | 14% | 17% |
| ■ More drivers than vehicles | 19% | 17% | 7% | 13% |
| ■ Driver, no vehicle | 30% | 35% | 38% | 35% |
| ■ No vehicle no driver | 26% | 26% | 39% | 31% |
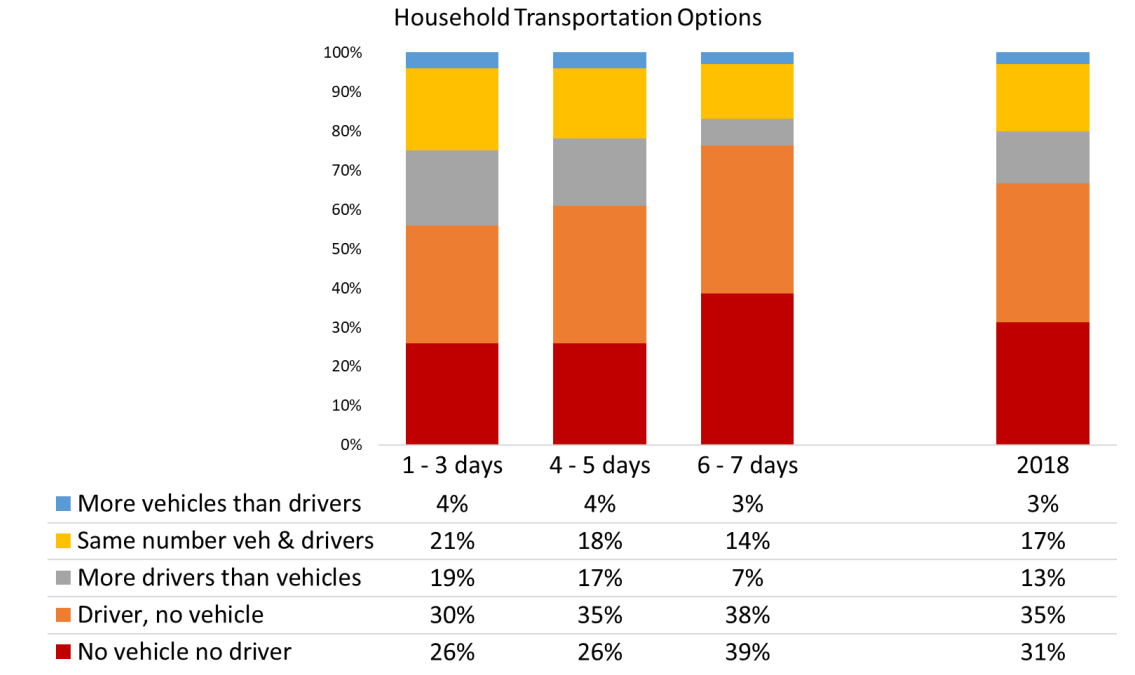
## Drive/Vehicle Ratio - Transportation Options

In Figure 19 we see that of all GoRaleigh customer households:

- 31% have neither a vehicle nor a licensed driver. I.e., they have no household level vehicular transportation options at all.
- Another 35% may have a license, but report having no vehicle.
- Others have more drivers than vehicles (13%) which means sharing a vehicle, thus limiting options.
- The balance have either an equal number of drivers and vehicles (17%) or more vehicles than drivers (3%), providing them with the greatest flexibility of household-based options.

As one would expect, it is the six to seven day, most intensive transit users who are most likely to lack options. Of this segment, 39% have neither vehicle nor driver, and 35% have at least one driver in the household but no vehicle, for a total of 74% dependent upon GoRaleigh.

A majority of the one to three day riders, are, like the other segments, likely to have either no vehicle and no licensed driver (26%), or at least one driver, but no vehicle (30%) for a total of 56% compared to 76% for all GoRaleigh customers. Conversely, they are also more likely than the other segments to have one or more vehicles (44% compared to 33% for all GoRaleigh customers). The four and five day riders fall between the two other segments in this respect.

## Figure 20 Effective Modal Choice, Summary of within Houseold Options

Effective Modal Choice

| | 1 - 3 days | 4 - 5 days | 6 - 7 days | 2018 |
|---|---|---|---|---|
| ■ Car available | 25% | 22% | 17% | 20% |
| ■ Shared availability | 19% | 17% | 7% | 13% |
| ■ No vehicle or no lic driver available | 56% | 61% | 77% | 67% |

## Effective Modal Choice, Summary of within Household Options

Figure 20 provides a summary way to think about the transportation options within a household:

- Two-thirds of GoRaleigh customers (67%) lack either a vehicle or licensed driver (or both), and thus have no household-based vehicular transportation options.

- Another 13% share vehicle availability.

- 20% have a vehicle available.

**Figure 21 Use of Uber or Lyft in Past Thirty Days**

Use of Rideshare in Past 30 Days



| | 1 - 3 days | 4 - 5 days | 6 - 7 days | 2018 | |
|---|---|---|---|---|---|
| 🟨 3 times | 10% | 14% | 12% | | 12% |
| ⬜ Twice | 13% | 15% | 11% | 37% | 13% |
| 🟧 Once | 16% | 12% | 10% | | 12% |
| 🟦 0 times | 60% | 59% | 67% | | 63% |
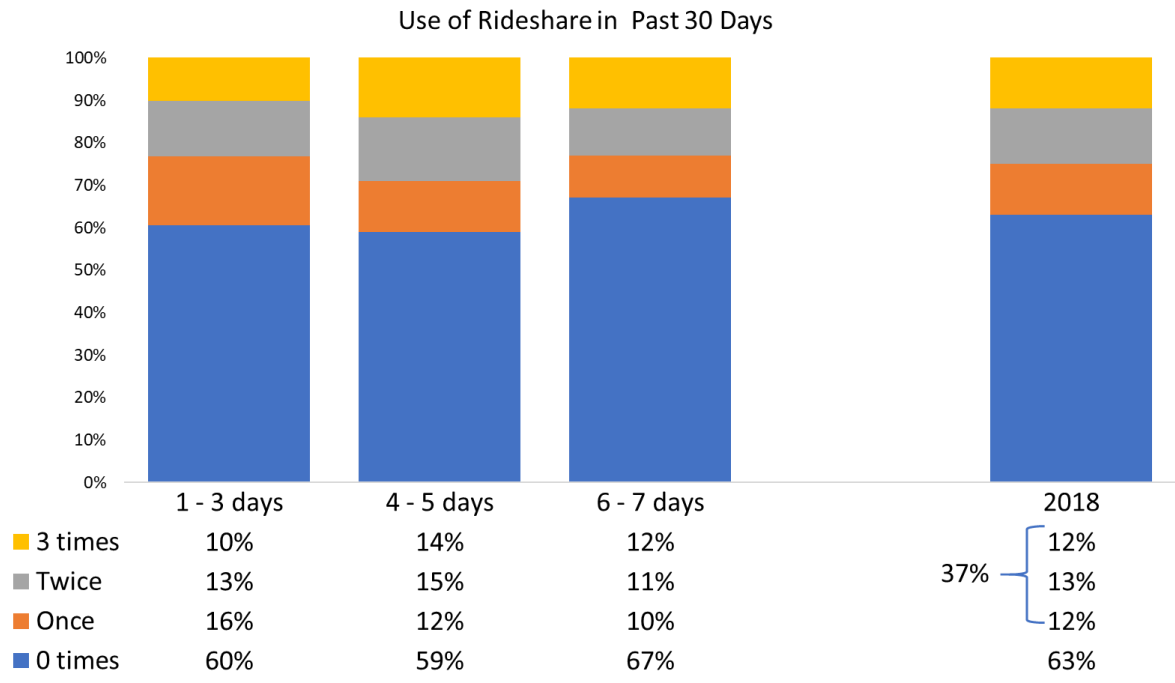
## Use of Uber or Lyft in Past Thirty Days

Mode choice is no longer simply about owning or leasing a personal vehicle. Since 2015, car sharing has become mainstream. Of all GoRaleigh customers, 63% say they have not used car sharing services in the past thirty days. Conversely, this means that 37% have done so. This includes 12% who have used them only once, 13% twice, and 12% who have used them three or more times.

The use of Uber and Lyft differs somewhat among the three rider frequency segments. The least likely to use the ridesharing services are the most frequent riders. This may be due to the cost and the somewhat lower income of this segment (see Figure 36) [3]. However, even among this segment one-third have used ridesharing.

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[3] In future surveys it may be useful to determine if customers using shared rides are doing so with dependents because that may be no more costly than multiple cash bus fares.

## Use of Ridesharing Services in Relation to GoRaleigh
(Chart includes only the 38% of riders who have used Uber or Lyft in the past thirty days.)



## Use of Uber and/or Lyft to Supplement or Replace a Trip on GoRaleigh

Figure 21 on the previous page indicated that 37% of GoRaleigh customers had used Uber or Lyft at least once in the past thirty days. How have those trips interacted with GoRaleigh? Figure 22 provides basic answers.

Of the 37% who have used Uber/Lyft in the past thirty days, 73% say they have used ridesharing to _replace_ a bus trip. This amounts to 27% of the total ridership, (i.e. 40% x 37% = 27%) enough to have a meaningful impact on ridership numbers, depending on the number of rideshare trips they make. Conversely, this suggests that 37% have not used Uber/Lyft to replace a GoRaleigh trip.

Also, of the 37% riders who have used Uber or Lyft, almost half (48%) say they have used Uber or Lyft as part of a bus trip. This amounts to 18% of the ridership who say that they have used it as _part of_ a bus trip (i.e., 48% x 37%=18%). Conversely, 82% of all riders have not used ridesharing as part of a GoRaleigh trip.

We do not know in what ways some Uber/Lyft riders have combined a rideshare trip with a GoRaleigh trip. However, in Figure 9 (Mode to the GoRaleigh Bus Stop) only 2% say they used Uber/Lyft to get to the bus stop for their current trip. Of course, more may have accessed their bus stop using a rideshare for other trips, or may have used it, not for the "first mile," getting to the stop, but for the "last mile." Or they may have incorporated ridesharing into their GoRaleigh trip in some other way. This issue will be worth exploring in some manner in the coming years if only on an informal basis.

**Figure 23 Combining/Replacing GoRaleigh Trip with Rideshare**

Ridesharing and GoRaleigh
(Chart includes only the 37% of all riders who have used Uber or Lyft in past 30 days)
(Chart displays only the responses of those replacing or combining a trip)

| | 1 - 3 days | 4 - 5 days | 6 - 7 days | 2018 |
|---|---|---|---|---|
| ■ Replaced a GoRaleigh trip | 36% | 45% | 56% | 48% |
| ■ Combined with a GoRaleigh trip | 60% | 74% | 78% | 73% |
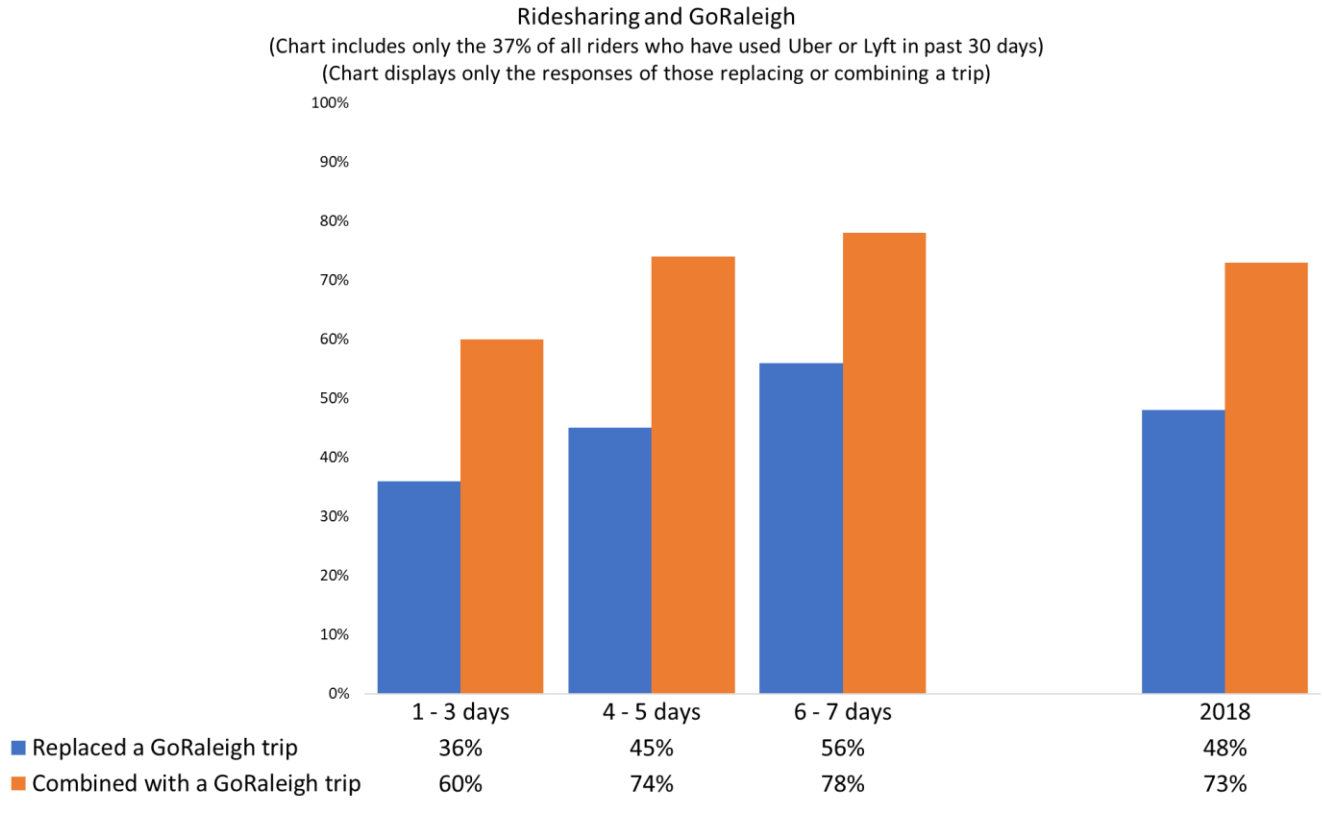
## Combining/Replacing GoRaleigh Trip with Rideshare

Among those GoRaleigh customers who use Uber or Lyft at all, the more often they use GoRaleigh, the more often they either combine a trip with ridesharing or replace one altogether.  Those, of course, makes sense since the frequency of using GoRaleigh is a proxy for the frequency with which they travel locally.

Figure 24 Use of Shared Rental Bikes and/or Scooters

## Use of Rented/Shared, Bike/Scooter

| | 1 - 3 days | 4 - 5 days | 6 - 7 days | 2018 |
|---|---|---|---|---|
| ■ Use shared scooter | 16% | 8% | 15% | 12% |
| ■ Use shared bicycle | 11% | 6% | 9% | 8% |
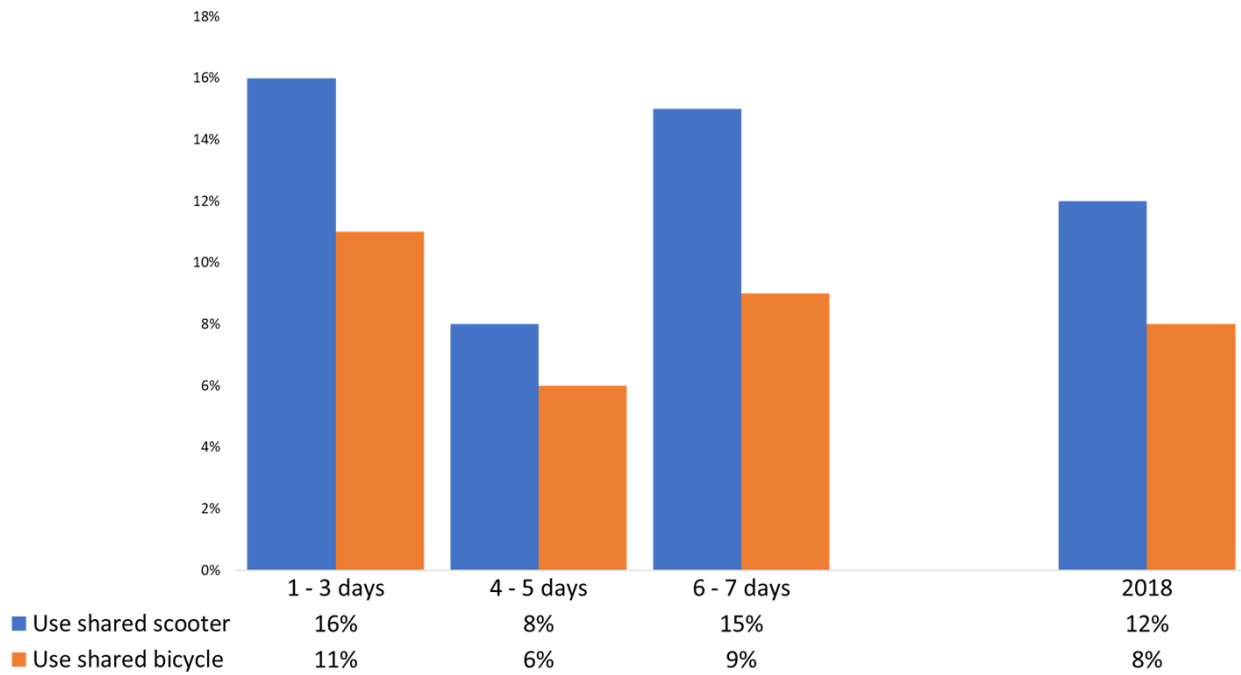
## Use of Shared Rental Bikes and/or Scooters

Respondents were asked whether "During any part of this trip, have you used, or will you use:
    (a) a Lime, Citrix Cycle, or similar shared bicycle?"
    (b) A Bird, Lime, or similar rental scooter?"

Of all GoRaleigh riders, 12% said they had used, or will use, a scooter as part of the current trip, and 8% said they had used, or will use, a shared bicycle.

These tendencies vary considerably among the three rider segments, with the six to seven day riders more likely than the four to five day riders to use a scooter, and equally likely as the one to three riders to do so.

We might expect that the use of these somewhat athletic first/last mile options would be related to the age of the rider. But they are unrelated. Although the tables are not shown here, the demographic differences among the segments such as age and type of employment do not provide a consistent explanation for why some customers use these modes and others do not.

# Demographics

Figure 25 Employment of Customers

Employment
(All that apply.  The sums of percentages exceed 100% because of multiple roles)

| | 1 - 3 days | 4 - 5 days | 6 - 7 days | 2018 |
|---|---|---|---|---|
| ■ Homemaker | 4% | 4% | 5% | 5% |
| ■ Volunteer position | 3% | 3% | 7% | 5% |
| ■ Retired | 12% | 6% | 10% | 9% |
| ■ Unemployed but seeking | 13% | 9% | 10% | 10% |
| ■ Student | 26% | 22% | 14% | 19% |
| ■ Part-time | 18% | 21% | 18% | 20% |
| ■ Full-time | 38% | 51% | 54% | 50% |
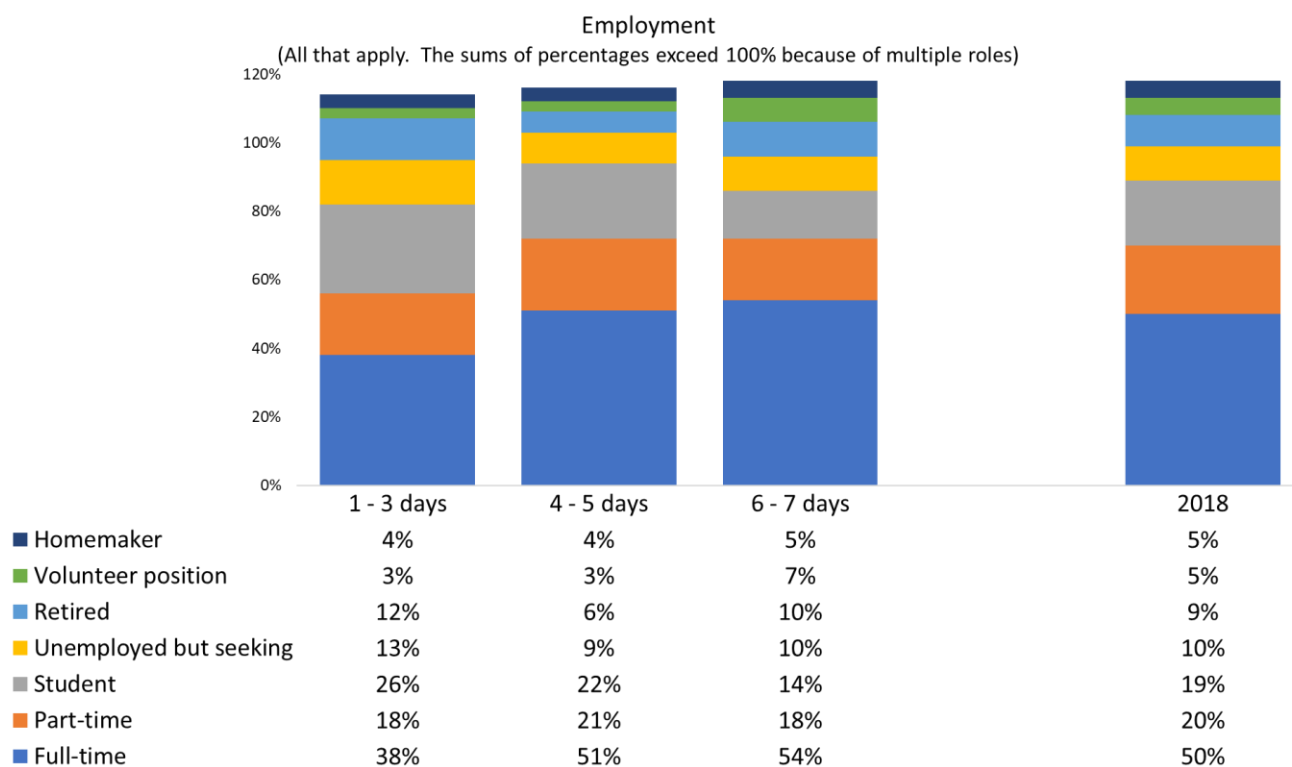
## Employment of Customers

Respondents were asked about their employment. In 2018, a total of 50% of GoRaleigh customers reported being employed full time, while another 20% said they are employed part time.  Another 19% say they are students.  Although it is not displayed in the chart, students who are employed full or part time comprise 8% of all riders.

Full time employment is somewhat more frequent among the six to seven day riders (54%) than among the four to five day riders (51%).  They are also considerably more likely than the one to three day riders (38%) to be employed full time.  On the other hand, the one to three day riders are more likely than the other segments to be students (26%) than the four to five day a week riders (21%) or the six to seven day riders (14%).

**Figure 26 Unemployment Rates in NC, Wake, Durham, and Orange Counties**
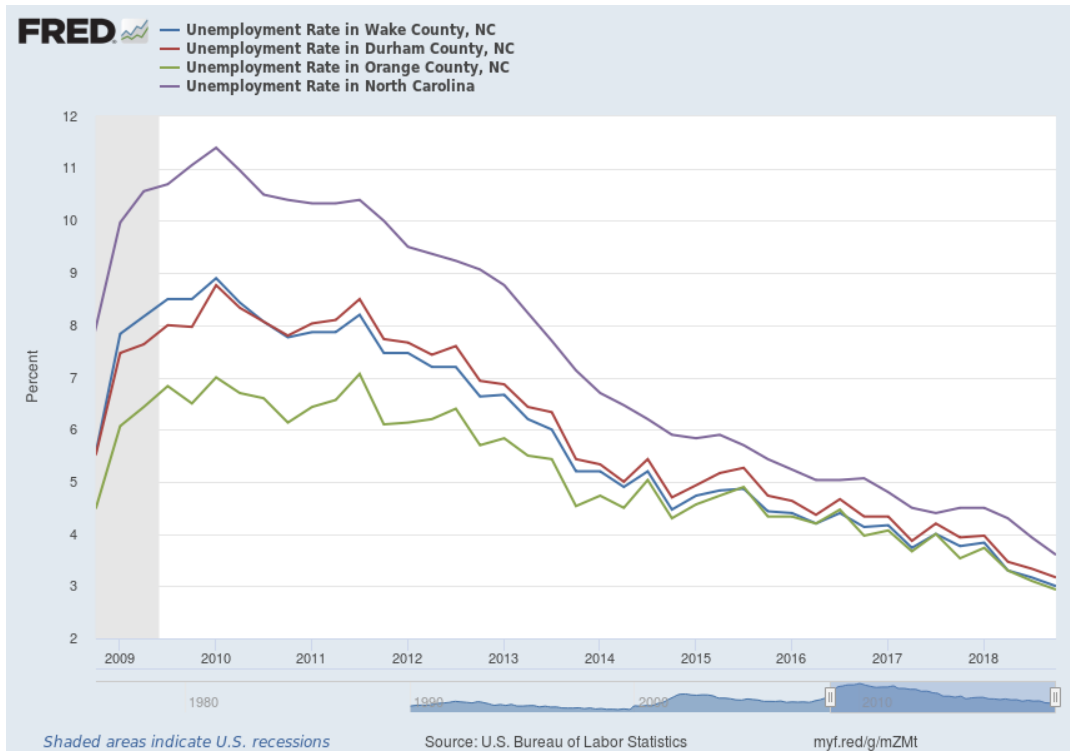


Source: U.S. Bureau of Labor Statistics, Unemployment Rate sin North Carolina [NCUR], and selected NC counties, retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/NCUR, February 15, 2019.

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

In the survey, 10% indicated that they consider themselves unemployed. We also saw in Figure 8 that 42% of these "unemployed" riders said that their trip purpose was getting to or from work. Thus, they are "employed," in Labor Department statistics although they consider themselves to be unemployed and their employment may be an interim tactic while seeking a new job. How do these figures compare to the official unemployment figures in the region?

The substantial decrease in unemployment in the Triangle Region since the Great Recession is shown clearly in Figure 26. At the time of the survey, the official rate was 3.6% statewide and 2.9% in Wake County. If 42% of the 10% "unemployed" in the survey are actually employed, this would put the rate among riders at approximately 5.8%, somewhat higher than the total adult population, but given the relationship of income to transit use, that is not surprising.

Coupled with the fact that 89% of GoRaleigh riders are either employed or students (or in some cases both) the service to those between jobs and seeking employment is another illustration of the important role of GoRaleigh as a major factor in labor mobility and emphasizes its critical economic role in supporting the local labor force.

Figure 27 Rider Segment by Gender

## Gender of Respondents

| | 1 - 3 days | 4 - 5 days | 6 - 7 days | 2018 |
|---|---|---|---|---|
| ■ Prefer not to answer | 2% | 2% | 2% | 2% |
| ■ Female | 41% | 44% | 46% | 44% |
| ■ Male | 57% | 54% | 52% | 54% |
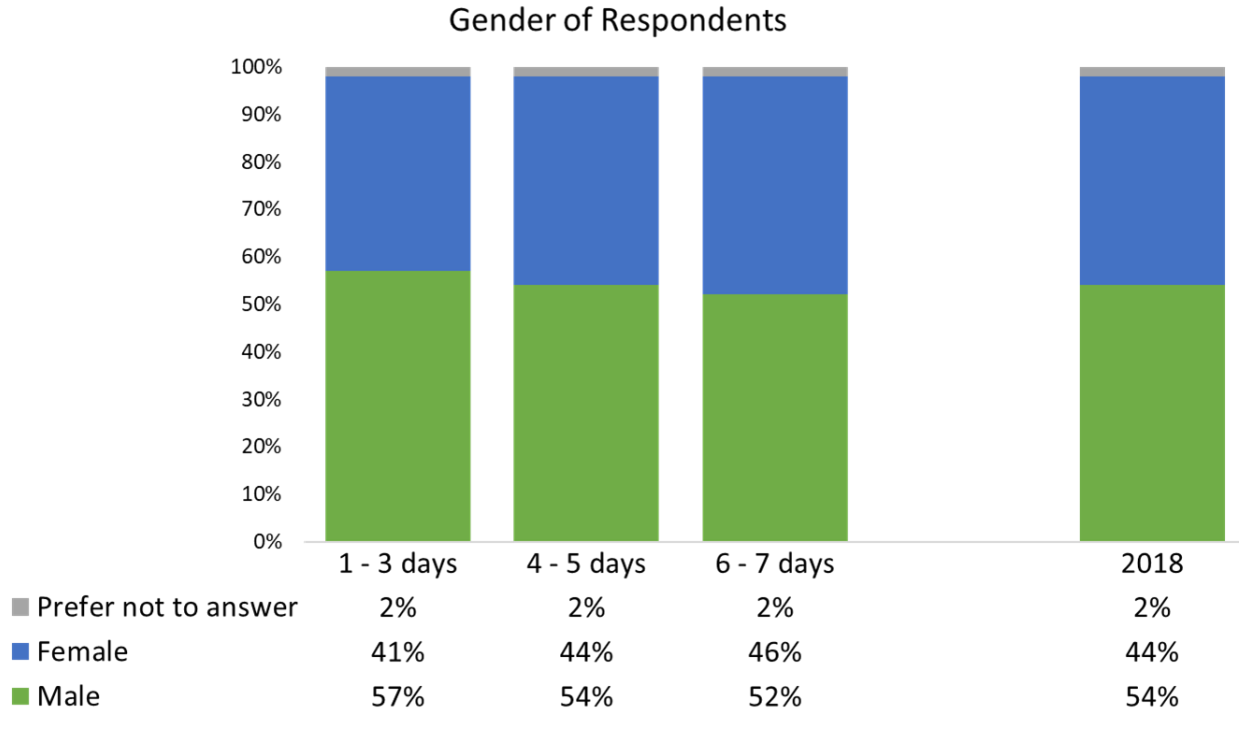
## Gender of the Customers

A majority of GoRaleigh customers (54%) are male and 44% are female with 2% preferring not to state a gender identity.

The gender balance differs slightly among the rider segments, with the least frequent customers identifying more often as male (57%) compared to the four to five-day riders (54%) and the six or seven day riders (52%).

Nationally, according to the CJI APTA report cited earlier, among bus customers, 56% are women.  However, recent surveys by CJI and others have found a majority of males among the riders in several rider surveys.  A recent joint study by CJI with EMC Research Inc in Columbus, Ohio, for example, found the same result as the GoRaleigh survey, with a 56% male ridership.  Whether or not these findings represent a significant change in the transit market will not be known until additional studies are conducted.

## Figure 28 Ethnicity of Customers

Ethnic Self-Identification

| | 1 - 3 days | 4 - 5 days | 6 - 7 days | 2018 |
|---|---|---|---|---|
| 🟩 Other | 7% | 5% | 6% | 6% |
| 🟦 Native American Indian | 3% | 3% | 3% | 3% |
| 🟨 Asian | 9% | 6% | 3% | 5% |
| ⬜ Hispanic | 7% | 8% | 6% | 7% |
| 🟧 Caucasian/White | 21% | 22% | 20% | 21% |
| 🟦 African American/Black | 54% | 58% | 63% | 59% |
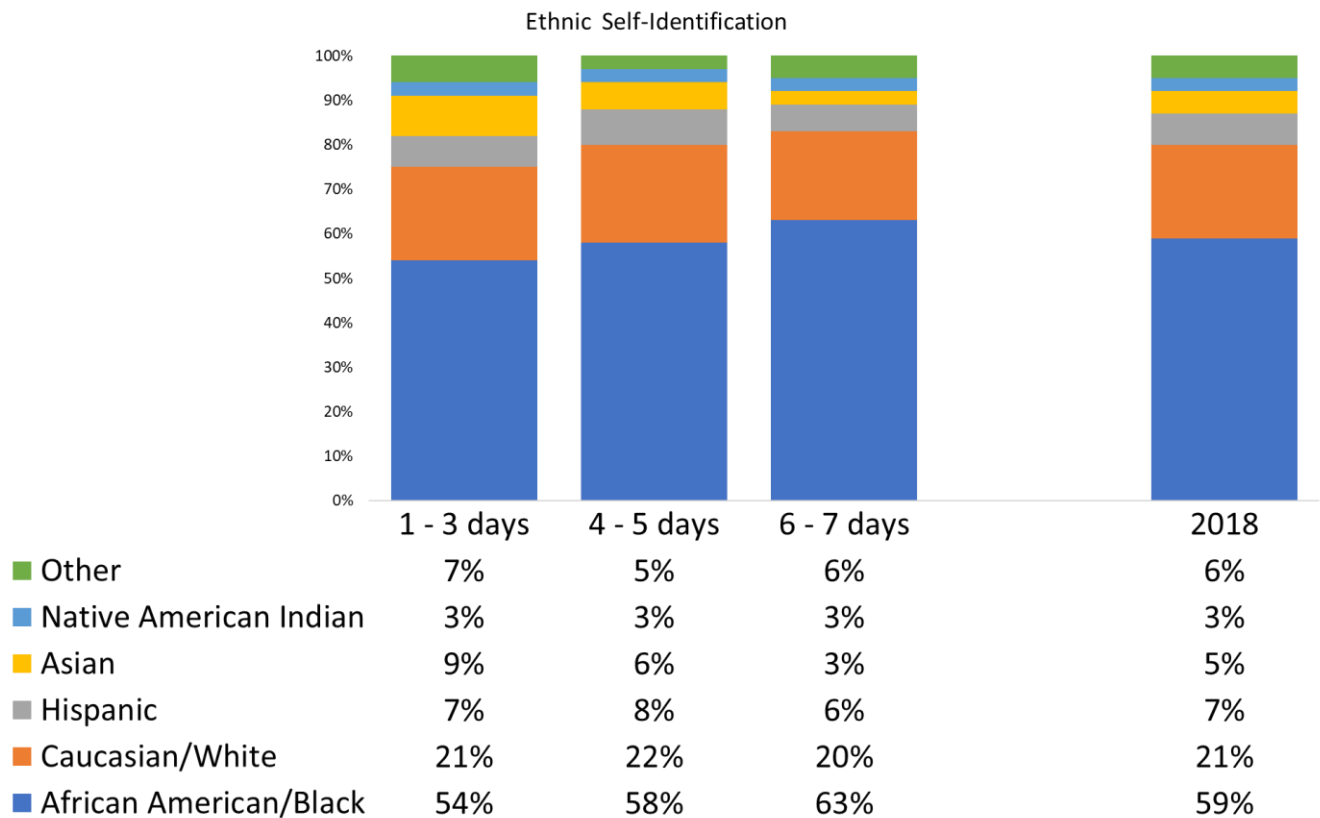
## Ethnicity of Customers

In measuring ethnicity, it is important to focus on self-identification by asking "Which do you consider yourself…?" and asking that respondents note all descriptions that apply to them.  In this way surveys usually capture some overlap among the several groups.  However, in spite of the instruction to "…check all that apply to you," almost all GoRaleigh respondents checked only one identity although clearly many riders, like the Wake County population in general, must share multiple cultures and identities.

In 2018, 59% of the respondents identified themselves as African American/Black and 21% as Caucasian/White.  These two groups total 80% of the ridership.

Those identifying as Hispanic account for 7% of the ridership, Asian as 5%, and Native American as 3%.  The "Other" category allowed for a handwritten response.  However, the write-in "other" responses were predominantly expressions of nationality or cultural groups (Greek, Egyptian, Jewish, etc.) or notation such as "mixed, " or sardonic (e.g. "American," "Human") and in this context are not helpful.

The distribution of ethnicity differs somewhat among the rider segments, with seven-day customers considerably more likely (63%) to identify as African American compared to four or five days customers (58%) or one to three day customers (54%)

## Figure 29 Language Spoken Most Often at Home

Language spoken at home



| | 1 - 3 days | 4 - 5 days | 6 - 7 days | 2018 |
|---|---|---|---|---|
| ■ Other | 5% | 3% | 2% | 3% |
| ■ Spanish | 4% | 4% | 4% | 4% |
| ■ English | 91% | 92% | 95% | 93% |
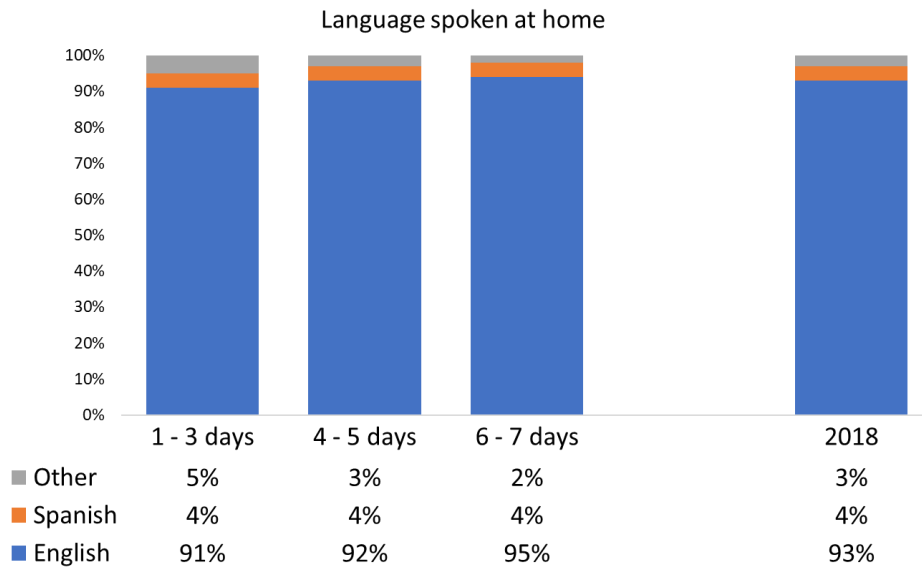
## Language Spoken Most Often at Home

The great majority (93%) of GoRaleigh customers most often speak English at home. The next largest language group is Spanish, with 4%. The rider frequency segments do not vary significantly in this respect.

In the GoRaleigh survey, 208 respondents (unweighted) identified themselves as Hispanic, but only seventy-four Hispanic persons (36%), completed the survey in Spanish. Yet, of all customers who identify as Hispanic, 40% said they speak English at home, while 60% said they speak Spanish. It is apparent, then, that for many GoRaleigh customers who identify as Hispanic, the public and private language behaviors differ.

## Figure 30 Comfort Level Speaking English

How Comfortable Are You Speaking English?



| | All GoRaleigh customers | Hispanic | Not Hispanic | English | Spanish | Other |
|---|---|---|---|---|---|---|
| | | Ethic Identity | | | Language spoken at home | |
| ■ Very comfortable | 91% | 64% | 93% | 95% | 45% | 49% |
| ■ Mostly comfortable | 6% | 20% | 5% | 4% | 33% | 32% |
| ■ Slightly comfortable | 2% | 11% | 1% | 1% | 17% | 15% |
| ■ Not comfortable | 1% | 4% | 1% | 1% | 4% | 4% |
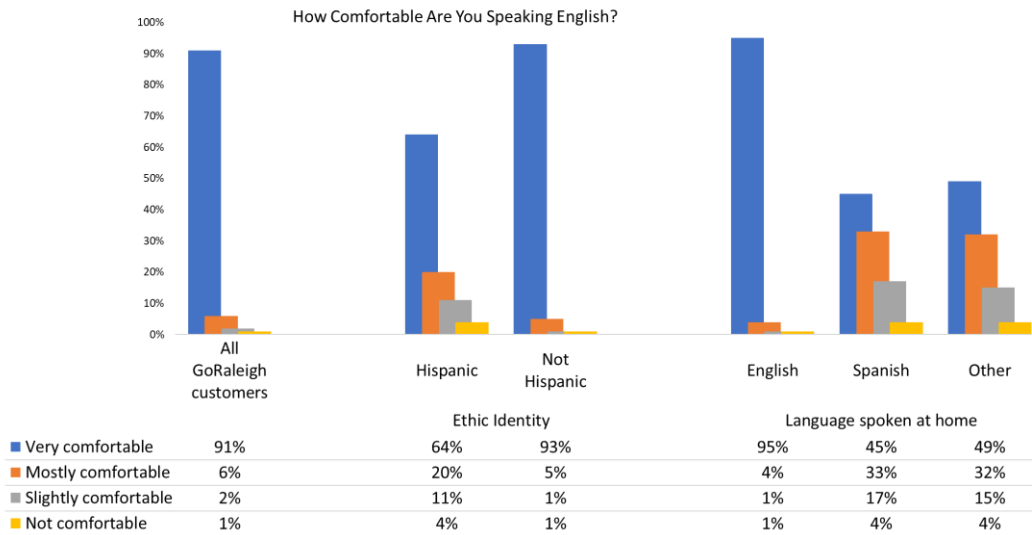
## Comfort Level Speaking English

While 91% of all GoRaleigh customers say they are very comfortable speaking English, of those who identify themselves as Hispanic, the percentage is lower, 64%. Also, of those who speak Spanish at home, only 45% say they are very comfortable speaking English.

Given that only 7% of the customers self-identify as Hispanic, these figures suggest that in terms of sheer numbers, those encountering a language barrier are relatively few. However, it is also clear that several percent, perhaps 3% or 4% of all riders, are not completely at ease in English.

## Figure 31 Age of Customers

### Age Groups of Respondents



|  | 1 - 3 days | 4 - 5 days | 6 - 7 days | 2018 |
|---|---|---|---|---|
| ■ 65 or older | 8% | 4% | 6% | 7% |
| ■ 55 - 64 | 13% | 12% | 15% | 13% |
| ■ 45 - 54 | 13% | 18% | 18% | 17% |
| ■ 35 - 44 | 12% | 15% | 20% | 15% |
| ■ 25 - 34 | 26% | 23% | 24% | 25% |
| ■ 16 - 24 | 29% | 28% | 17% | 23% |
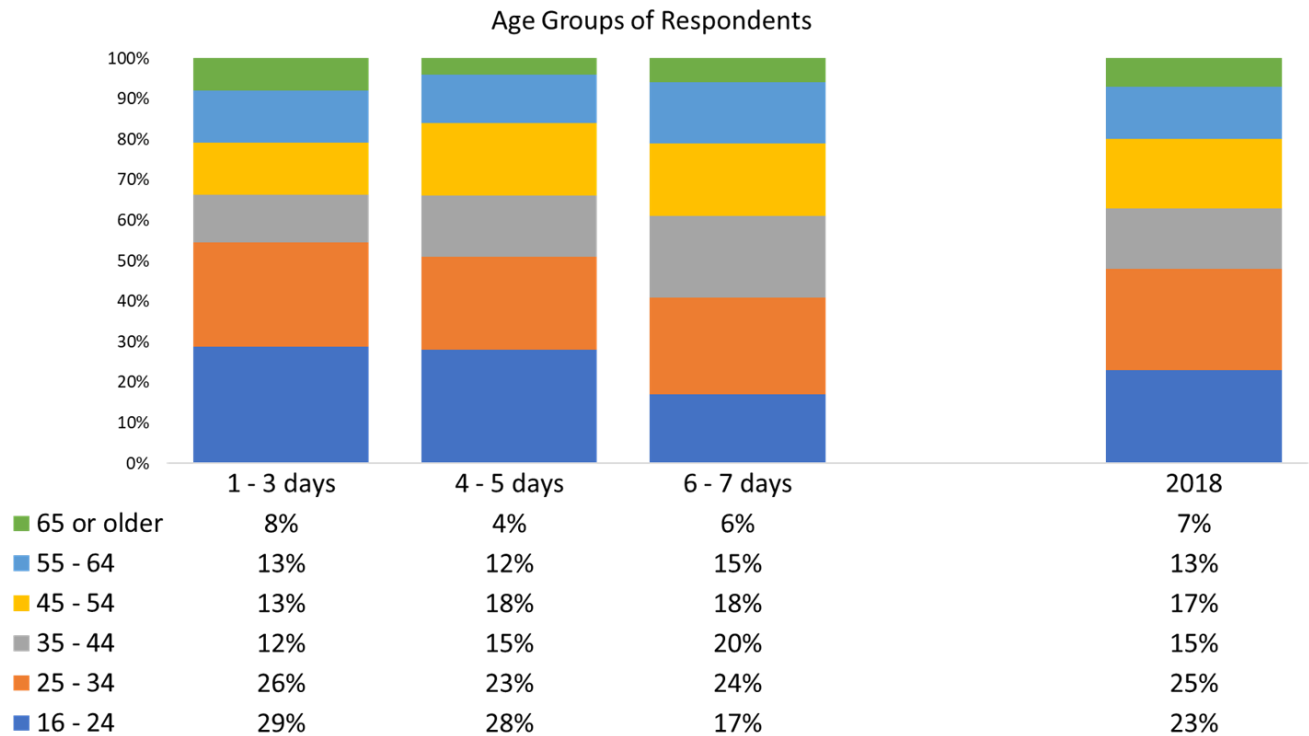
## Age of Customers

Like most bus transit systems in the United States, GoRaleigh has a young ridership. Of all GoRaleigh riders, close to half, 46%, are under the age of 35. This actually underestimates the youth somewhat because for reasons of data validity and ethical practice, we did not attempt to survey anyone who appeared to be younger than 16.

The age distributions vary somewhat among the three rider segments. The most notable variation is that compared to the six to seven-day customers (17%), somewhat more of the one to three-day and four to five-day customers are in the youngest age group (29% and 28% respectively). This youthful age characteristic reflects the greater proportion of students in the one to three-day and four to five day categories that we saw earlier in Figure 25.

Figure 32 on the following page demonstrates that nationally, the age distribution among GoRaleigh customers is similar to that of bus system customers in general.

## Age Profile of GoRaleigh Customers and Transit Customers Nationally

The age profile of GoRaleigh customers is closely aligned with national norms for bus customers. Nationally. The comparisons are approximate given that the age categories under the age of 29 differ somewhat between the two studies:

- Nationally, 22% of bus customers are under the age of 25, a percentage identical to that the 23% under 25 among to GoRaleigh customers.

- Another 21% are between 25 and 34, compared to GoRaleigh's 25%.

- Another 17% are between 35 and 44, compared to GoRaleigh's 15%

- Nationally, 17% are between 45 and 54 the same as the 17% among GoRaleigh customers.

- The balance, 23% nationally and 20% for GoRaleigh, are 55 or older.

**Figure 33 Age of GoRaleigh Customers and the Wake County Population**

Age Distribution of ridership and of Wake Co. population 15 and older

(Source of population data: American Community Survey, five year estimates, 2017)
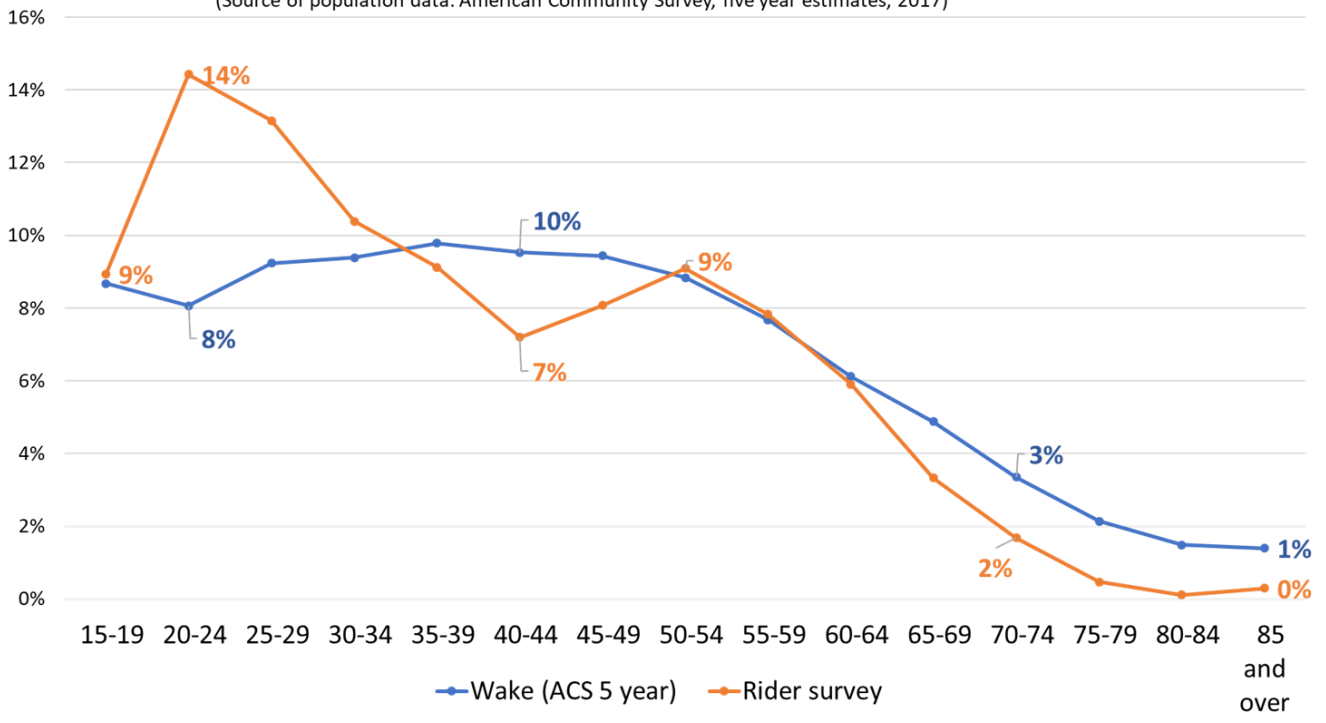


## Age of GoRaleigh Customers and the Wake County Population

The age distribution of the GoRaleigh ridership relative to the age of the Wake County population fifteen and older diverges in the age range from 20 to 24. The population in that age range accounts for 8%, while in the ridership it accounts for 14%. The percentages again diverge at 40 to 44, but in the reverse direction, and not as substantially. After that age, the two populations follow similar downward trajectories, although each age group, as a percentage of all riders, is consistently below the percentage of the population in the same age group.

**Figure 34 Age Profile of GoRaleigh Customers**



| Age | 16-20 | 21-25 | 26-30 | 31-35 | 36-40 | 41-45 | 46-50 | 51-55 | 56-60 | 61-65 | 66+ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| % | 11% | 16% | 13% | 10% | 9% | 6% | 8% | 9% | 8% | 4% | 6% |

Legend: 16-25, 26-40, 41-55, 61+, Cumulative %

Cumulative values shown: 27%, 59%, 82%, 100%
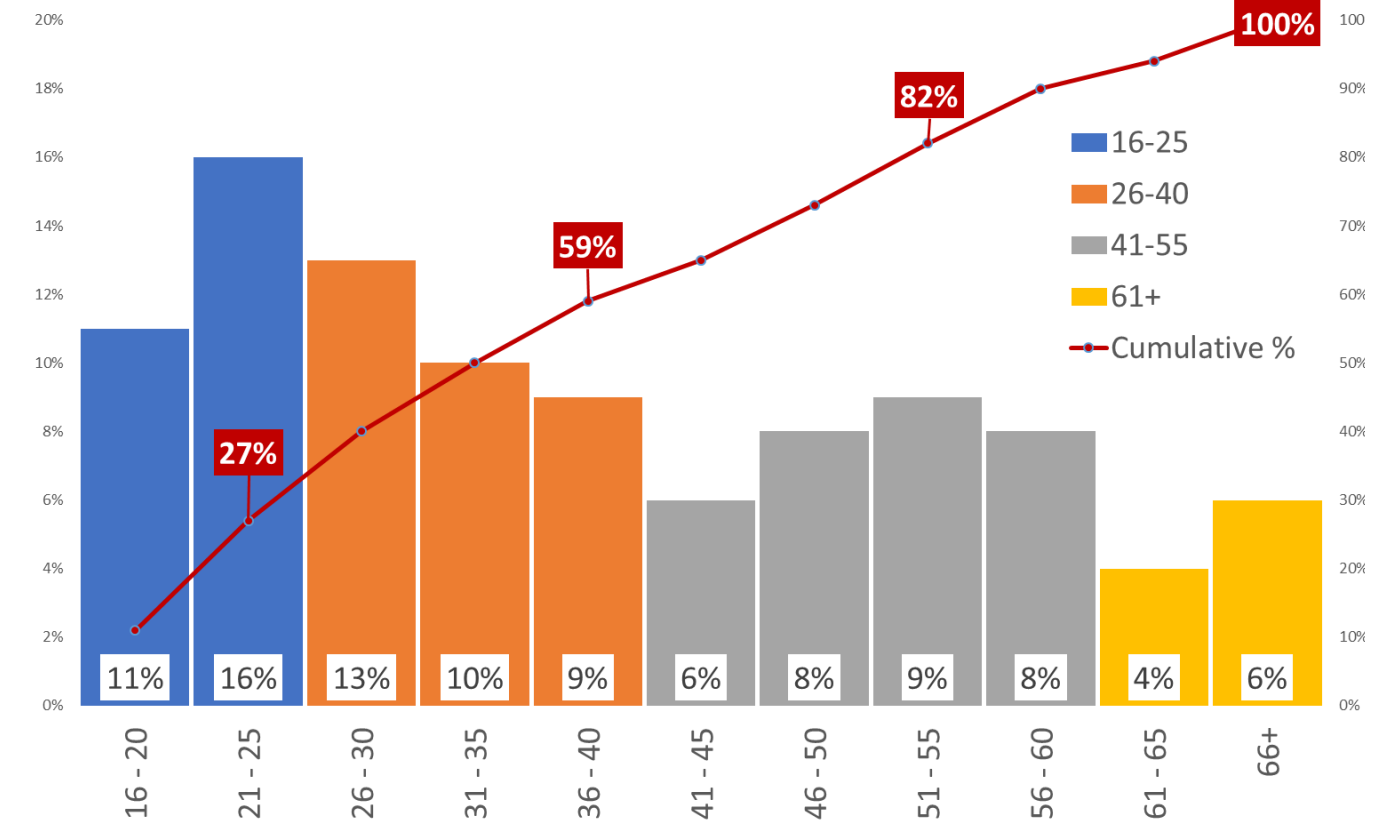
## An Age Profile of GoRaleigh Customers

A quick glance at the chart above tells an important story about the age of GoRaleigh customers: They are disproportionately young. More than one-fourth of GoRaleigh riders are 25 or younger. Almost sixty percent (59%) are 40 or younger.

In several studies of transit customers conducted elsewhere, CJI has found that the age profile of any given system's bus ridership tends to follow an age progression similar to that shown above in Figure 34. Generally, about one-fourth to one-third of ridership falls into a youthful cohort. They are young, often in school, college, or a first job, preparing for adult work-life, and ranging in age from 16 to approximately 25. After the age of 25 the percentage of customers in each age group drops off and enters a declining slope, which, for most transit systems we have studied, represents a life cycle period when many transit customers are entering a career phase of life, earning more, often buying a vehicle, perhaps starting a family, and ceasing to use public transportation.

The age-curve then tends to flatten out somewhat between the age of forty and sixty, in the GoRaleigh case, averaging 8% of the ridership during that period. There is a slight increase (3%) between 40 and 55, but it is small relative to the differences in the younger age sets.

After the age of 60, the percent of ridership tends to fall off as people begin to retire. Although in that age range the percentage that each age group contributes to overall ridership varies somewhat, it does not vary greatly as a percentage of total ridership and averages 5%.

**Figure 35 Generations and Ridership**
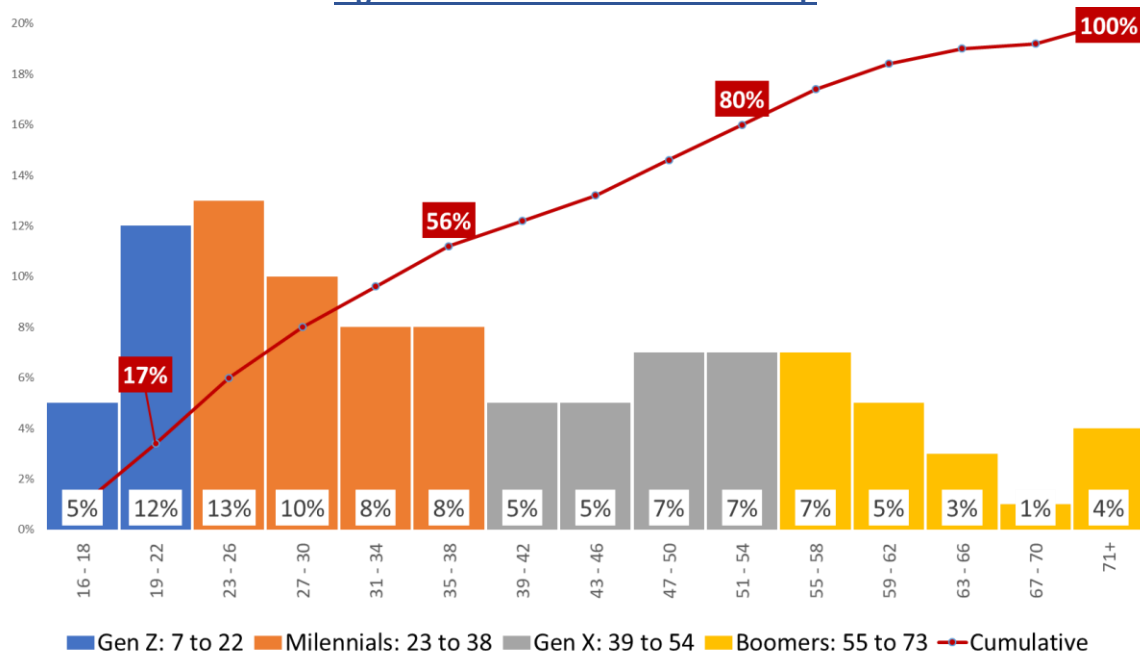
## Generations and Ridership

For purposes of visualizing the age characteristics of the GoRaleigh customer base, another way to think about the age distribution of the ridership is to apply the age-ranges popularly used to describe generational groups.  In Figure 35 we have used definitions proposed by Pew Research Center[4]. The age groupings used by PEW and those in the survey questionnaire do not entirely correspond, because while Pew defines Gen Z as between the ages of 7 and 22, the GoRaleigh survey interviewed no one below the age of 16.  Also, while Baby Boomers are said to be no older than 73, there are too few riders in the survey above that age to create a separate group for the older generation ("The Silent Generation") and they are grouped with the Boomers for purposes of the chart.  However, these definitions provide an adequate guide.

In Figure 35, we see a pattern very similar to that presented in Figure 34.  Both charts make the point that a disproportionately large proportion of the ridership is young.  In the case of generations, the youthful Gen Z and Millennial generations account for more than half of the total ridership (56%).

The bulge in the percentage of riders at middle age noted on the previous page represents a combination of the leading edge of Gen X and the trailing end of the Baby Boom.

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[4] See http://www.pewresearch.org/fact-tank/2019/01/17/where-millennials-end-and-generation-z-begins/

Figure 36 Income of Rider Households

## Household Income



| | 1 - 3 days | 4 - 5 days | 6 - 7 days | 2018 |
|---|---|---|---|---|
| ■ More than $100,000 | 5% | 2% | 1% | 2% |
| ■ $75,000 to $100,000 | 5% | 3% | 2% | 3% |
| ■ $50,000 to $74,999 | 8% | 11% | 5% | 8% |
| ■ $35,000 to $49,000 | 6% | 6% | 4% | 5% |
| ■ $25,000 to $34,999 | 7% | 13% | 11% | 11% |
| ■ $20,000 to $24,999 | 15% | 19% | 17% | 17% |
| ■ $15,000 to $19,999 | 6% | 6% | 7% | 7% |
| ■ $10,000 to $14,999 | 11% | 11% | 14% | 12% |
| ■ Less than $10,000 | 37% | 28% | 40% | 35% |
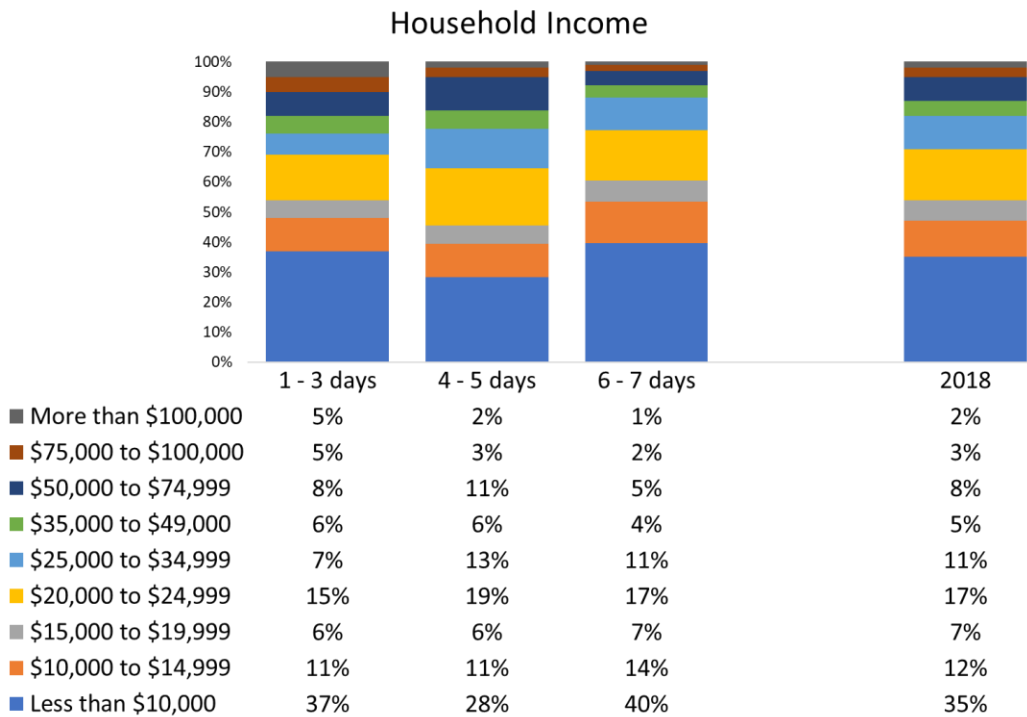
## Income of Rider Households

As is true of riders in many passenger transit surveys of other systems, most GoRaleigh riders surveyed have very low household incomes. In 2018, 35% report household incomes of less than $10,000.  Another 19% report their incomes as ranging from $10,000 to just under $20,000, while 46% report incomes of $20,000 or more.

The income distribution varies somewhat among the three levels of riding frequency.  Among those who use GoRaleigh on a four to five-day basis, the percent reporting incomes below $10,000 is considerably lower than for the other segments.  Conversely, the percent reporting incomes of $20,000 or is somewhat greater among this segment (54%, compared to 46% for the one to three day riders, and 40% for the six to seven day riders). These differences in income are not due to a higher level of employment in this segment because the employment level among this segment (51%) is not significantly higher than for the total GoRaleigh sample (50%).  It seems likely that a greater percentage of this segment hold somewhat higher paying five-day-a-seek jobs.

## Figure 37 Size of Customer Households

### Household Size

| | 1 - 3 days | 4 - 5 days | 6 - 7 days | 2018 |
|---|---|---|---|---|
| Three or more | 40% | 42% | 37% | 40% |
| Two | 28% | 28% | 23% | 26% |
| One | 32% | 30% | 40% | 34% |

## Figure 38 Estimated Percent with Poverty Level Income

### Poverty Level Income

| | 1 - 3 days | 4 - 5 days | 6 - 7 days | 2018 |
|---|---|---|---|---|
| Above poverty level | 55% | 62% | 52% | 56% |
| Approximately at or below poverty level | 45% | 38% | 48% | 44% |
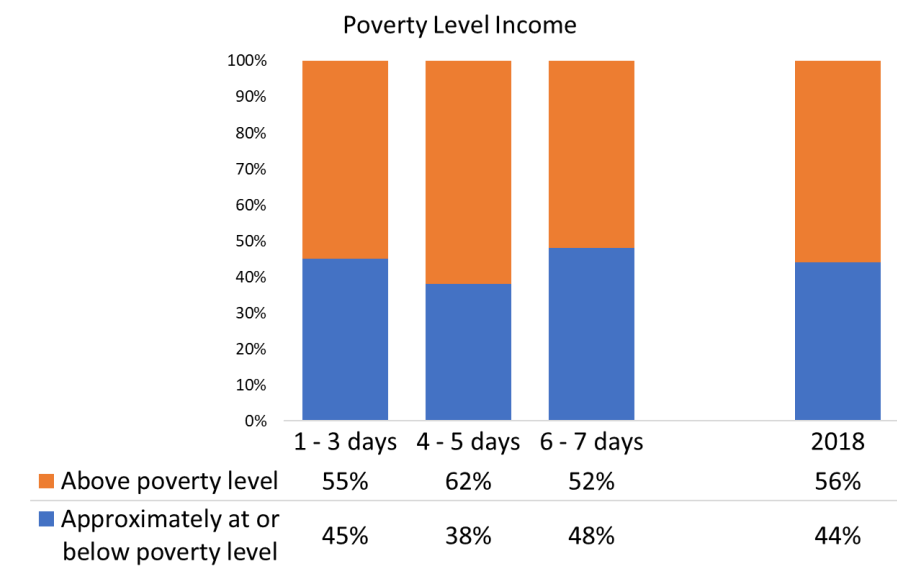
### 2018 poverty guideline

| Number of People in Household | 48 States & DC |
|---|---|
| One | $12,140 |
| Two | $16,460 |
| Three | $20,780 |
| Four | $25,100 |

## Size of Customer Households

Approximately one-third (34%) of GoRaleigh customer households are single person households, while 26% are two-person, and 40% three or more person households.

## Estimated Poverty Level Incomes

Using the current federal definitions of poverty level income, based on a ratio of number of persons in the household to income, we can approximate the percentage of poverty level income among the ridership[5].

This is only an approximation as the footnote explains. However, it offers some perspective on the income challenges facing many riders, 44% of whom are estimated to be residing in households with poverty level income.

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[5] The questionnaire collects income in grouped income levels. To obtain the poverty estimates it is necessary to approximate absolute income by taking the mid-point between the levels shown in the questionnaire so that, for example, income of $10,000 to $14,999 becomes $12,500. In addition, the approximation is limited because the survey limits the number of people in the household to "3 or more." This means that in a few cases very large households with substantial incomes would be classified as in poverty. However, this would not affect many cases in the survey.

# Rating of GoRaleigh Service

Figure 39 Overall Service Rating by Rider Segment

## Rating of GoRaleigh Service overall
## on a scale from 1 - 7

| | 1 - 3 days | 4 - 5 days | 6 - 7 days | 2018 |
|---|---|---|---|---|
| ■ 7 Excellent | 31% | 23% | 30% | 27% |
| ■ 6 | 29% | 30% | 22% | 26% |
| ■ 5 | 21% | 23% | 23% | 23% |
| ■ 4 Neutral | 14% | 16% | 16% | 16% |
| ■ 3 | 3% | 5% | 4% | 4% |
| ■ 2 | 0% | 2% | 2% | 2% |
| ■ 1 Very poor | 1% | 1% | 4% | 2% |
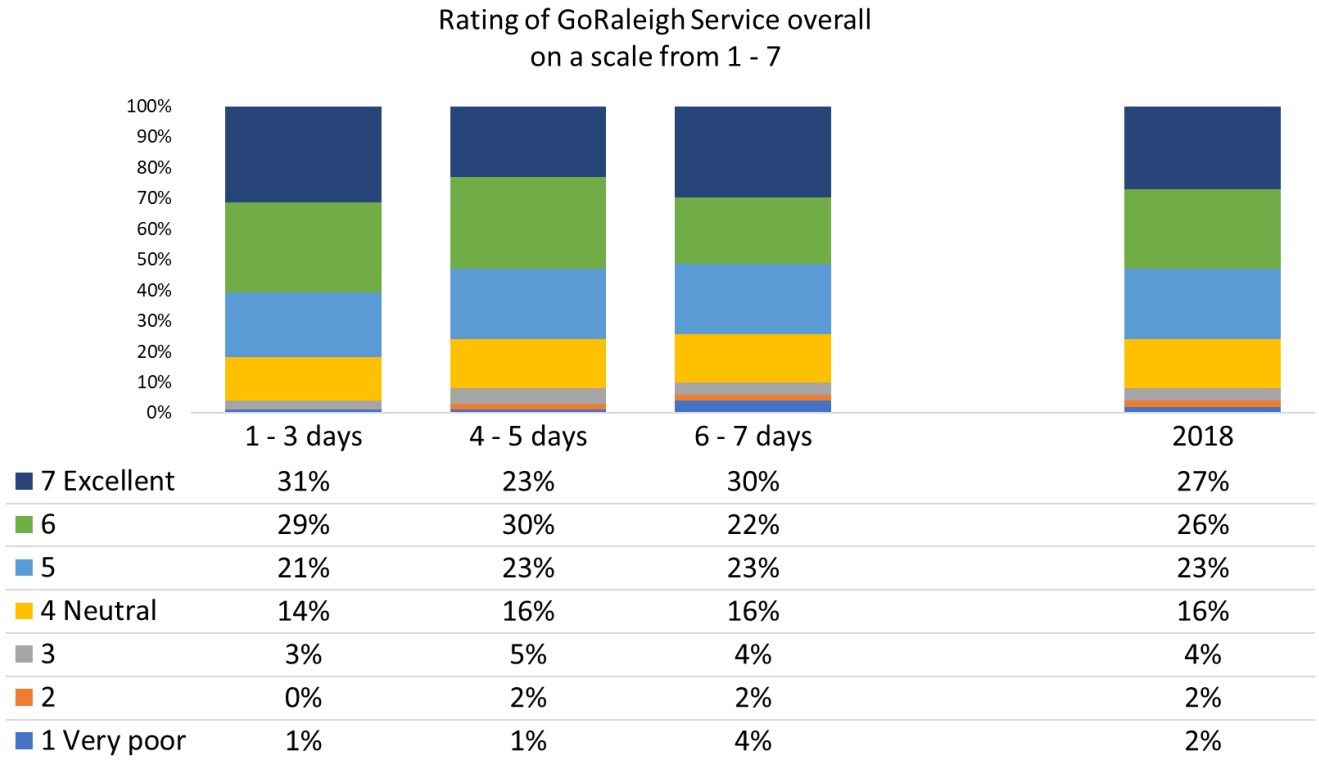
## Overall System Rating Score by Rider Segment

Customers were asked to rate GoRaleigh service overall using a scale from 1 to 7 on which a score of 1 means "Very poor," and 7 means "Excellent." (See questionnaire page 72). They were also asked to rate nineteen separate elements of aspects of GoRaleigh service using the same scale. We begin this section of the report with the overall rating of service, and then turn to a discussion of the nineteen separate elements.

Twenty-seven percent (27%) rate service overall as 7, or excellent. Another 26% score it 6, giving a total of 54% with high satisfaction scores. Only 4% score it in the low ranges of 1 and 2. The most important thing about this chart is that 92% of the riders give scores ranging from neutral to excellent. This is important because it means that the customers are saying that services are already good, so any improvement will be in degrees of positive movement, not from negative to positive.

The occasional, one to three day riders, offer the highest score on overall service quality, with a total of 60% scoring service overall as 6 or 7 on the seven point scale, while fewer (52%) of the six to seven day riders, and 53% of the four to five day riders assign a score that high. The four to five day riders, who typically have the most routine commutes, offer a lower "excellent" percentage (23%) than the other segments. This apparent relative reluctance to assign a perfect score for transit service is not uncommon for this segment, probably because they are likely to rely on the service to provide an unbroken commuting routine, and in addition have slightly more income which allows them the freedom to be a bit more critical.

## Figure 40 Services Included in the Survey, Grouped by Type and Showing Percentage Unable to Provide a Rating

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



**Operations / High utilization**

| Service | Applicable | Not applicable |
|---|---|---|
| Weekday service hours | 98% | 2% |
| Weekday service frequency | 98% | 2% |
| Ease of transfer within system | 94% | 6% |
| Buses running on time | 99% | 1% |
| Service to all destinations | 98% | 2% |
| Total trip time | 98% | 2% |

**Operations / Lower utilization**

| Service | Applicable | Not applicable |
|---|---|---|
| Ease of transfer between systems | 84% | 16% |
| Saturday service hours | 86% | 14% |
| Saturday service frequency | 86% | 14% |
| Sunday service hours | 84% | 16% |
| Sunday service frequency | 83% | 17% |

**Travel environment**

| Service | Applicable | Not applicable |
|---|---|---|
| Fare medium options | 96% | 4% |
| Usefulness of printed information | 94% | 6% |
| Bus operator courtesy/helpfulness | 99% | 1% |
| Sense of safety on bus | 99% | 1% |
| Bus interior cleanliness | 99% | 1% |
| Usefulness of telephone operators | 81% | 19% |
| Bus shelter/transit center cleanliness | 97% | 3% |
| Quality of WiFi | 88% | 12% |

■ Applicable - provided rating    ■ Not applicable - Unable to provide rating

**Services Included in the Survey, Grouped by Type and Showing Percentage Stating that the Service was not Applicable to Them**

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 utilization.  Figure 40 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 some are simply static aspects of the travel experience.

UTILIZATION

Taking utilization first, some services 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 changing proportion of respondents offering ratings, Figure 40 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.

TYPE 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 the GoRaleigh 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 40, in order to come closer to an apples to apples comparison among service types in their scoring, we break the services into three sets 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.  Those operational aspects of service that had "not-applicable" percentages greater than 10% have been placed in a separate category since they have an immediate impact on fewer people, and fewer people therefore provide the rating scores.

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 GoRaleigh, 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 40.  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.

Percent Excellent, by service type

**Operations - High utilization**
- Overall service: 27%
- Ease of transfer within system: 31%
- Weekday service hours: 31%
- Weekday service frequency: 30%
- Service to all destinations: 27%
- Buses running on time: 23%
- Total trip time: 22%

**Operations - Low utilization**
- Ease of transfer between systems: 29%
- Saturday service hours: 21%
- Saturday service frequency: 21%
- Sunday service hours: 19%
- Sunday service frequency: 18%

**Travel environment**
- Fare medium options: 42%
- Usefulness of printed information: 40%
- Bus operator courtesy/helpfulness: 39%
- Usefulness of telephone operators: 38%
- Sense of safety on bus: 32%
- Quality of WiFi: 30%
- Bus interior cleanliness: 28%
- Bus shelter/transit center cleanliness: 24%

(Axis: 0% 5% 10% 15% 20% 25% 30% 35% 40% 45%)

## Rating Scores: Scores of "Excellent" in 2018 on Individual Components of GoRaleigh Service

Figure 41 above 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.

Like Figure 40, Figure 41 is organized by the types of services being rated. At the top of the chart are operational services fundamental to all customers. They include ease of transferring within the system, weekday service hours and frequency all have 30% or 31% rating them as excellent. With 75% of customers telling us that they transfer at least once (Figure 13), and 68% saying they use GoRaleigh to get to work (Figure 7), these percentages on three service fundamentals provide an encouraging starting point as the Wake County Plan builds additional service. Coverage (service to all destinations you want to get to) finds more than one-fourth of customers rating it as excellent (27%). On time performance and total time required for a trip reach almost one-fourth (23% and 22%, respectively).

Operational aspects of service that are used by fewer customers than other services, tend to have somewhat fewer ratings of excellent than the more universally used service elements[6]. This is particularly true for weekend service. Transferring between systems is the one element included in this set that does not involve weekend service. It is in 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."

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[6] Note that the percentage is based on only those who were able to provide a rating, not the total sample so that the percent "excellent" is not falsely reduced by inclusion of those who answered "not applicable" in the denominator.

Inn a separate question, respondents were asked which, if any, of the other transit systems in the region they *"…usually* use *in a typical week"* (Q28 in the survey).  The response indicates that only 20% of GoRaleigh respondents say they "*usually"* use one or more of the other systems in the region during a *"typical week."*  This suggests that 80% do not do so.  However, only 16% indicate in the service rating responses that this aspect of service was "not applicable" to them.  The combination of these percentages suggests that most of the riders have used an inter-system transfer often enough to provide a rating, but that they do not *usually* do so *in a typical week."*

Of those who do make inter-system transfers at least occasionally, and thus do not say that the question is not applicable to them, 29% rate the ease of transferring as excellent, by far the highest score in this set (more on this rating later).

## Figure 42 Distribution of Grouped Service Rating Scores



**Operations / High utilization**

| Category | Very poor to Poor (1,2) | Middle (3,4,5) | Very good to excellent (6,7) |
|---|---|---|---|
| Overall service | 4% | 42% | 54% |
| Weekday service hours | 8% | 39% | 53% |
| Ease of transfer within system | 8% | 41% | 52% |
| Weekday service frequency | 8% | 40% | 52% |
| Buses running on time | 10% | 47% | 44% |
| Service to all destinations | 13% | 45% | 42% |
| Total trip time | 12% | 47% | 41% |

**Operations / Lower utilization**

| Category | Very poor to Poor (1,2) | Middle (3,4,5) | Very good to excellent (6,7) |
|---|---|---|---|
| Ease of transfer between systems | 9% | 43% | 48% |
| Saturday service hours | 18% | 46% | 36% |
| Saturday service frequency | 18% | 47% | 35% |
| Sunday service hours | 22% | 45% | 33% |
| Sunday service frequency | 23% | 45% | 31% |

**Travel environment**

| Category | Very poor to Poor (1,2) | Middle (3,4,5) | Very good to excellent (6,7) |
|---|---|---|---|
| Usefulness of printed information | 5% | 33% | 63% |
| Fare medium options | 6% | 32% | 62% |
| Bus operator courtesy/helpfulness | 8% | 33% | 59% |
| Usefulness of telephone operators | 8% | 35% | 57% |
| Sense of safety on bus | 5% | 39% | 56% |
| Bus interior cleanliness | 9% | 42% | 49% |
| Quality of WiFi | 14% | 39% | 46% |
| Bus shelter/transit center cleanliness | 10% | 45% | 44% |

■ Very poor to Poor (1,2) ■ Middle (3,4,5) ■ Very good to excellent (6,7)

## Service Rating Distributions

CJI Research

The previous chart, Figure 41, showed 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 range from 1 – 7.

To simplify the chart showing the distributions, the scores of 1 to 7 have been combined into three sets as shown in Figure 42 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 neither extremely positive nor extremely negative.  The scores of six or seven represent either excellent or 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 percentages in the lowest rating categories of 1 and 2 tend to be 10% or less.  The percentages giving positive scores of six and seven on the scale in contrast, tend to be much greater.  For example, of the six operational high utilization characteristics, three have high six/seven ratings greater than 50%.  The other three range from 41% to 44% in the top category.

There are exceptions which have percentages greater than 10% in the low score range.  With one exception (Wi-Fi), these are structural limits on the extent of service as it currently stands in 2018.  These include service to all places you want to go, (low score percentage, 13%) and total trip time (12%), both of which exceed the somewhat arbitrary 10% target, but neither of which is very high.  These also, however, include the hours and frequency of Saturday and Sunday service which range from 18% to 23%, indicating that they do present a problem in terms of customer satisfaction.

The score for WiFi quality (14%) differs in kind from these structural aspects. WiFi is an amenity and not fundamental to the system's operation.  As such, WiFi may be more susceptible to short-term administrative action to improve it, although external forces such as signal interference and the quality of the customer's devices, no doubt also influence the perception (and even the reality) of service quality.

**Figure 43 Comparing Ratings among the Segments Using Mean Scores**

Mean Rating scores, by segment, within service type
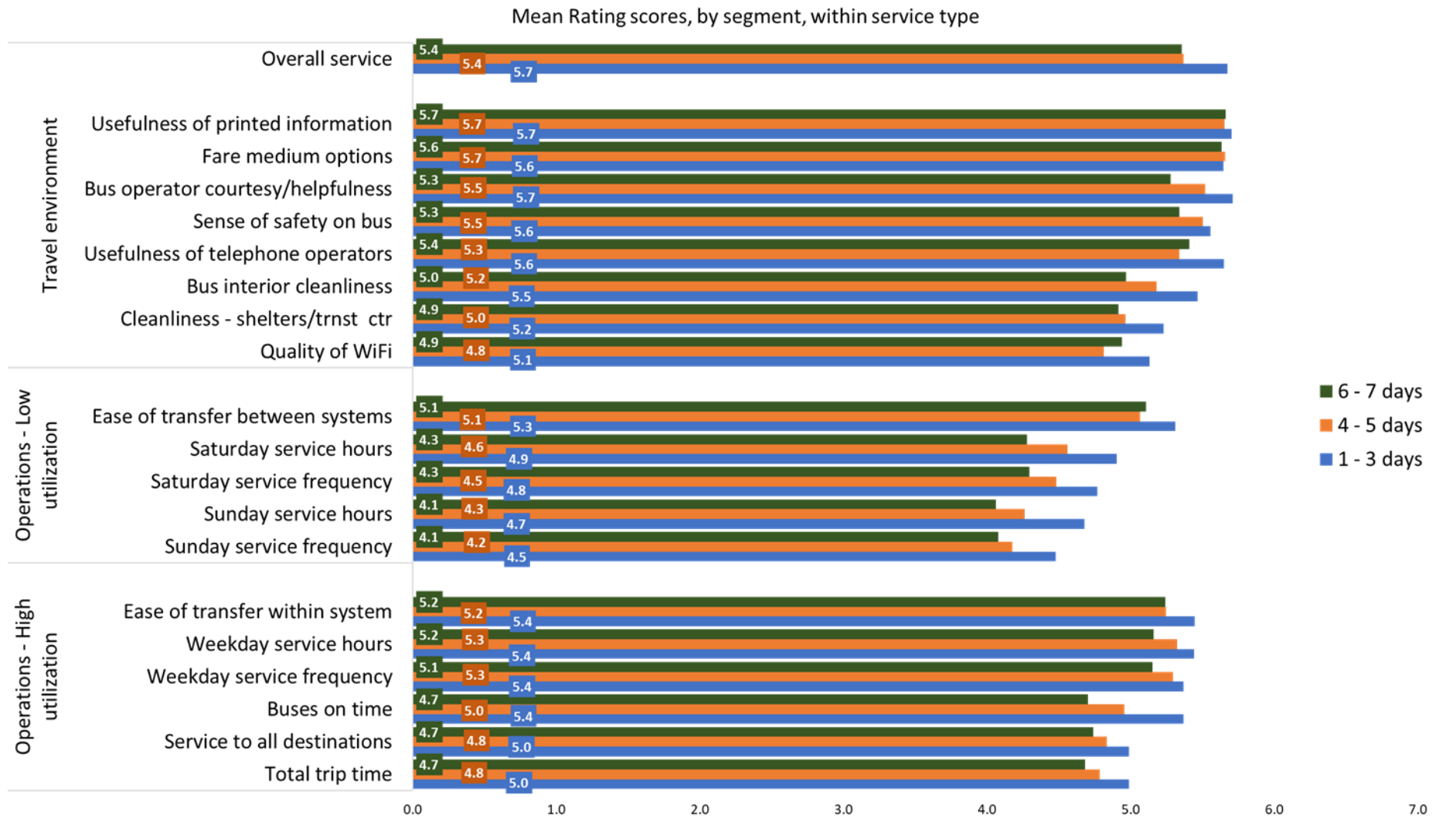


## Comparing Ratings among the Segments Using Mean Scores

As measured by the mean score, the rating scores of three segments tend to be mostly in agreement. This tendency for the rider frequency segments to agree in their ratings is indicated by two characteristics of this chart. First, within each of the three service types, the rank-order of

their scores is similar.  Second, the maximum difference among the segments is small, only 0.7, (for buses running on time) on the seven-point scale.  These two observations suggest that regardless of how often one uses GoRaleigh services, the experience will tend to be perceived in generally similar ways.

However, the most frequent, six or seven-day customers do tend, across almost all service elements, to give somewhat lower ratings than the other rider frequency segments. Given that they generally produce the largest portion of all trips, this is important. But this difference is also a common finding in transit customer surveys because obviously no system can operate perfectly at all times, and the six to seven day, frequent rider segment has many more opportunities than others to observe or experience whatever imperfections may arise.

## Determining Customer Priorities for Service Improvement

In the charts from Figure 39 through Figure 43 we have seen the opinions of GoRaleigh customers about service overall and of nineteen separate elements that make up GoRaleigh service.  While these charts give us considerable information about how customers perceive GoRaleigh service (quite positively), it is static information.  It does not tell us how to prioritize service improvements.  Two methods of prioritizing are presented in Figure 44 and Figure 45

- The first method (Figure 44 ) is very straightforward.  It is based on customer response to the simple request: "Of the services in questions 1 – 19 above, please list the three most important to improve."

- The second method (Figure 45) involves a combination of two statistical analyses.  First it compares each service rating to the average rating of all services: Is the rating above or below the average score for all nineteen elements of GoRaleigh services?  Second, it correlates the rating of each element of service with the rating of GoRaleigh service overall so that we can infer its influence on that overall score.

## Figure 44 Most Important Element to Improve

Service element most important to improve (Sum of three mentions)

| Service Element | Percentage |
|---|---|
| Buses on time | 55% |
| Service to all destinations | 24% |
| Weekday service frequency | 20% |
| Total trip time | 20% |
| Sunday service hours | 19% |
| Saturday service frequency | 18% |
| Saturday service hours | 18% |
| Sunday service frequency | 17% |
| Bus operator courtesy/helpfulness | 15% |
| Weekday service hours | 15% |
| Bus interior cleanliness | 14% |
| Quality of WiFi | 14% |
| Sense of safety on bus | 13% |
| Bus shelter/transit center cleanliness | 11% |
| Ease of transfer within system | 9% |
| Fare medium options | 6% |
| Ease of transfer between systems | 6% |
| Usefulness of telephone operators | 4% |
| Usefulness of printed information | 2% |

## One way to prioritize: Ask Customers "What Are the Three Most Important Services to Improve?"

Fifty-five percent (55%) of GoRaleigh customers indicate that having the buses run on-time is one of their top three improvement priorities.

It is important to keep in mind that the customer belief that on-time performance has to be improved is a customer *perception,* not a measurement-based observation.  Customers themselves will often arrive at their stop early, marginally on time, or a bit late for their bus and perceive that it is the bus that is off schedule.  They may also not know the relationship of their stop to a time point.  Thus, their perception and the reality can be quite different.

To the extent that more people begin to use real-time transit apps for real time information, as 37% now do (see Figure 46), or get real-time information at transit centers, that information will decrease the anxiety of waiting and will help reduce the perception of a lack of on time performance.  In addition, greater frequency will have a similar effect because even in the absence of real time information, frequent service creates certainty that the next bus will be coming soon.

The next closest priority, "Service to all destinations you want to get to" is rated in the top three by 24%. The third and fourth in the rank order of customer service improvement priorities, are weekday service frequency, and total trip time with 20% each (rounded).

# A second way to prioritize: Determine Which Service Elements Would Move the Needle of the Overall GoRaleigh 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 44 presented one way to do it. Figure 45 on page 64 presents a second way to accomplish it. This approach takes the pool of nineteen services and answers the question: Which of these are more important and which are less important in determining the customers' rating of GoRaleigh service overall? This question is answered in a matrix. The matrix itself (Figure 45, page 64) is actually less complex than it may seem, but it does require some explanation.

- The concept of the matrix in Figure 45 is as follows: Respondents rated nineteen separate aspects of GoRaleigh service as shown in Figure 44 on the previous page. They also rated "The quality of GoRaleigh services overall." We can assume that customers' ratings of the quality of services overall sum up their ratings of quality of the nineteen specific elements of service. Assuming this, we can answer the key question which is: Which elements of GoRaleigh services would, if improved, move the needle of the rating of GoRaleigh service overall?

- 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 GoRaleigh. 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 means using a simple graph with the 1-7 rating on one axis and the correlation coefficient on the other axis. However, there are two challenges to doing this.

  o First, the numbers are of different types. The rating scale uses whole numbers specified in the questionnaire 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 always a decimal since perfect positive or negative relationships just do not exist. Rather than trying to represent whole numbers on one axis and decimals on the other, it helps to have common measurement units.

  o The second and more important challenge for the analysis is that the ratings tend to skew positive and to vary more between scores of 4 through 7 than between 1 and 3 (see Figure 39). There are very few poor ratings. This only makes sense, since if many riders 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 GoRaleigh service rating, the positive tilt of the ratings means that if we are to use the ratings to prioritize service improvements, we have to examine how the best scores differ from the good scores, not how the best scores differ from the worst scores.

One way to solve both of these challenges is to *standardize* the scores. This simply means to convert them statistically to comparable scores based on how each rating and each correlation differs from the average of such ratings and correlations. This procedure enables us to construct a matrix that shows the services which, if improved, would have the most powerful effect on the rating of GoRaleigh service overall.

The matrix will help answer the question: What service improvements would move the needle on the rating of GoRaleigh service overall?   To do this we look at the ratings and at the correlation of each of those ratings with the rating of GoRaleigh service overall.  The results can be charted in a matrix like this which will show service improvement action priorities as shown below:

| | | Service ratings | |
|---|---|---|---|
| **High correlation** | Correlation of each service rating with the rating of overall service | Relatively low ratings<br>but<br>relatively important to the overall rating, dragging it down<br><br>*Improvement here moves the needle most, but these tend to be structural and the most difficult to change* | Relatively high ratings<br>and<br>relatively important to the overall rating<br><br>*Service already good and core to the overall system score. Important to maintain it or risk losing the overall rating* |
| **Low correlation** | | Relatively low ratings<br>but<br>relatively unimportant to the overall rating<br><br>*Improvement desirable, but unlikely to move the overall quality needle much* | Relatively high ratings<br>and<br>relatively unimportant to the overall rating<br><br>*Service good. Further improvement unlikely to move the overall quality needle, but deterioration may reduce the rating.* |
| | | Low rating | High rating |

Figure 45 on the following page displays how the nineteen elements of service are positioned within this priority matrix.

## Figure 45 Relationship between Overall Performance Rating and Ratings of Individual Service Elements

**Keys to improving overall rating:** Strong correlation, relatively low ratings. System is perceived to perform relatively poorly on these and these ratings *are* strongly related to the *overall* rating score. Improving these would substantially improve the *overall* rating.
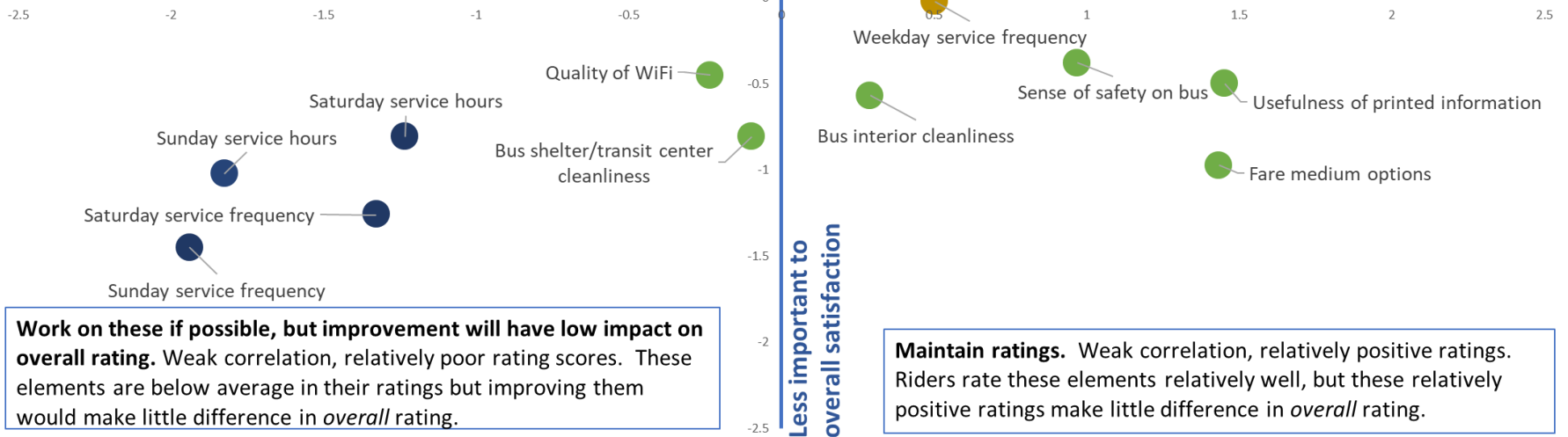
**Work to maintain your strong position.** Strong correlation, relatively high ratings. System is perceived to perform relatively well on these elements, and scores are related to the *overall* rating.

**Legend:**
- Operations – Relatively high utilization
- Operations – Relatively low utilization
- Travel environment

More important to overall satisfaction

Less important to overall satisfaction

Lower satisfaction rating — Higher satisfaction rating

- Ease of transfer between systems
- Ease of transfer within system
- Service to all destinations
- Bus operator courtesy/helpfulness
- Buses on time
- Usefulness of telephone operators
- Total trip time
- Weekday service hours
- Weekday service frequency
- Quality of WiFi
- Sense of safety on bus
- Usefulness of printed information
- Bus interior cleanliness
- Saturday service hours
- Sunday service hours
- Bus shelter/transit center cleanliness
- Fare medium options
- Saturday service frequency
- Sunday service frequency

**Work on these if possible, but improvement will have low impact on overall rating.** Weak correlation, relatively poor rating scores. These elements are below average in their ratings but improving them would make little difference in *overall* rating.

**Maintain ratings.** Weak correlation, relatively positive ratings. Riders rate these elements relatively well, but these relatively positive ratings make little difference in *overall* rating.

## Relationship between Overall Performance and Individual Service Elements

In the chart, the location of a service up or down along the *vertical axis indicates the strength of its correlation* with, and presumably influence on, the overall rating for GoRaleigh service. The higher on that axis, the more important we can assume that element is in influencing the overall score. The lower on the line, the weaker it is. The *horizontal axis indicates the rating score* for the individual element of service relative to the rating of 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. The two lines cross at the mid-points of the scores.

In considering Figure 45, 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[7].

### TOP, BOTTOM, LEFT, RIGHT

- Services appearing above the horizontal line are more important to the overall rating of GoRaleigh service than those that appear below the line, those that appear below the line are less important.

- Services appearing at the right of the vertical line are rated better in quality than the services as the left of the line. The closer to the far right, the better the rating; the closer to the far left, the worse the rating.

Elements in the upper right of the chart are currently helping to boost the overall GoRaleigh service rating by being better than the average of all nineteen elements of GoRaleigh 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 which are 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 little statistical relationship to the overall score, and can be assumed to have little influence on it.

### COLOR CODING SHOWS THE LOCATION OF THE SERVICE TYPES IN THE MATRIX

Notice the color coding of the service elements and how it relates to placement in the quadrants.
- All of the aspects of service we have labeled "Operations, relatively high utilization" are *above* the horizontal line that indicates average importance to the overall service rating.
- Of the five elements we have labeled "Operations, relatively low utilization" four are *below* the line of average importance to the overall score, and one, ease of transferring among area systems, is above the line.
- The unique placement of ease of inter-system transfer would seem to be caused by the fact that the ease of transferring among systems is an existing function that riders can use on a regular basis, is important to them, and they feel works well.
- Weekend service, on the other hand, has a low quality rating because compared to weekday service, it is lacking. It is relatively low in importance, probably because the existing ridership tends not to rely on it.

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[7] 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 ratings of the three elements in the upper left quadrant would have the greatest positive impact on the rating of GoRaleigh service overall.  Service to all destinations desired by the customer, buses running on time, and total trip time all appear in this quadrant.  These three are all operational elements with high utilization.  Of course, none of these is easily changed. However, the Wake Transit Plan is aimed at just these kinds of structural factors, and over time we should see these scores move to the right in the chart.

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

These services are relatively strong and support the current overall positive rating. At the upper right are five elements of service that represent relative strengths among all GoRaleigh services because they score relatively well, and they are important to the overall GoRaleigh rating.  Two of these, ease of transfer within system, and weekday service hours, are operational with high utilization.  Finding structural elements like these in this quadrant is somewhat unusual and is a positive sign that these system basics are relatively strong.  A third element, weekday service hours, is on the margin of the quadrant, scoring relatively well, and moderately influential in the overall rating.  The other two items in this upper right quadrant involve personnel.  In surveys of other transit systems, personnel ratings often appear in this quadrant of the matrix because transit customers generally have positive experiences dealing with transit personnel.

### THE SPECIAL CASE OF WEEKDAY SERVICE FREQUENCY: THIS SERVICE IS GOOD, BUT IMPROVEMENT WOULD BE WELCOME

One other element, weekday service frequency, lies to the right side of the matrix indicating a positive rating, but it also lies precisely on the line of average importance to overall satisfaction score.  We saw earlier that it earns 52% ratings of 6 or 7 (see Figure 42).  Also, as we saw in Figure 44, it is among the top three aspects of service deemed most important to improve.  This combination of findings between the two methods suggests that this improvement would have a substantial impact on the overall satisfaction score.  Basically, riders are saying that the service is very good, but it would be somewhat important to them if it could be made even better.

As service frequencies are increased under the Wake Transit Plan, we would expect the rating score for this item to improve and move this point farther to the right in the matrix.  Also, since frequency interacts with the perception of the importance and quality of on-time service, increased frequency may also have the effect of indirectly improving score for on-time performance by reducing the stakes involved in having to wait for a bus.

### LOWER LEFT QUADRANT: IT WOULD BE NICE TO IMPROVE THIS, BUT IT WOULD NOT AFFECT THE RATING OF GORALEIGH SERVICE OVERALL BY MUCH

The four aspects of weekend service, which were at the bottom of the rank ordered rating list in Figure 42, appear to the left of the vertical line.  This indicates relatively low quality ratings.  But they also appear below the horizontal line, meaning that they are low in their power to affect the overall rating.  This combination of low rating and low influence on the overall rating sometimes occurs with services (such as weekend service levels) that are regularly utilized by only a portion of the entire ridership.  Because most riders do not work on the weekends, the level of weekend service lacks salience for them, although it is extremely important to those who must work on the weekend.  Given low ridership in these off-peak periods, it is difficult to justify levels of service that would satisfy these customers.  Moreover, while better weekend service would probably improve perceptions among those to whom it is crucial, it would be unlikely to "move the needle" on *overall* satisfaction among the total ridership.

However, this case illustrates why priorities have to be considered in a broader context than an statistical analysis can provide by itself. Improved weekend service can make the difference between retaining or losing existing customers who must work on the weekend. In conducting focus groups and in surveys in other systems, we have seen a relationship between low ratings on the issue of off-peak service levels and the desire to cease using transit – i.e., attrition. Moreover at least one CJI client (TheRide, Ann Arbor, Michigan) has experienced ridership growth due in part to rider retention because of improved weekend coverage and span.

LOWER RIGHT QUADRANT: THINGS ARE GOING WELL. DO NOT ALLOW THEM TO SLIP

Finally, at the lower right are service elements with fairly high ratings that are relatively unimportant in influencing overall satisfaction. GoRaleigh does well on these and needs to maintain that level of satisfaction, but efforts to improve all or any one of these would have minimal impact on the rating of GoRaleigh service *overall.*

One item in the lower right quadrant – sense of personal safety on the bus -- illustrates the fact that although currently, this aspect of service is not greatly influencing the overall service score, slippage in such a basic factor would rapidly diminish it. It is one aspect of service that does not influence the overall score because it is a *sine qua non.* A sense of safety is basic, assumed, and essential. It is likely that the only movement in this score would be in a negative direction and that would have powerful effects on the overall score until resolved.

THE POTENTIAL FOR DEMOGRAPHIC CHANGE WITHIN THE RIDERSHIP TO ALTER RATINGS AS SERVICE IS CONTINUALLY IMPROVED

Finally, fulfillment of the Wake Transit Plan will represent a profound change in transit service levels. The survey reported here deals only with the current 2018 riders. As services are continually improved, the demographic base of the ridership is likely to change. Average income, and probably average age of customers, are likely to increase. The ethnic mix might also change as new geographic areas are served. More people are likely to begin relying on the service to get to professional and other white collar jobs. When such changes occur, in spite of objective improvements in service, how they are reflected in service ratings is uncertain because new customers attracted by better service may be more demanding.

# Mobile Communication

Figure 46 Use of Cell and Smart Phones

## Use of cellphone and smartphone features

| | Uses a cellphone? | Accesses the internet on it? | Use local transit app? |
|---|---|---|---|
| ■ No cell phone or not applicable* | | 11% | 12% |
| ■ No, does not use | 10% | 29% | 52% |
| ■ Yes, uses | 90% | 61% | 37% |
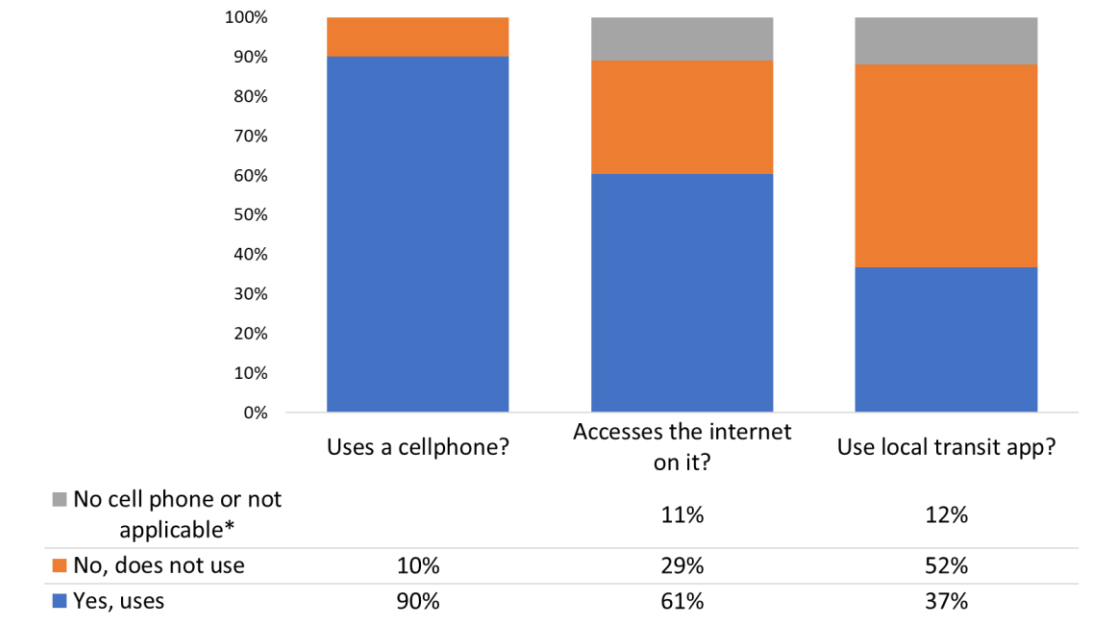
## Use of Cell and Smart Phones

Among GoRaleigh customers, cell phone ownership is high, but not quite universal, with 90% of customers indicating they use a cell phone.

- Of all GoRaleigh customers, 61% access the internet on their phones, thus indicating that the phone is a smartphone capable of running a transit app.

- 37% of GoRaleigh customers use a transit app on their phones.

These numbers indicate that while 61% of GoRaleigh customers are now using their smartphones as general information devices, and 37% specifically for transit information, those practices are not yet universal and other communication modes continue to be necessary.

**Figure 47 Age and the Use of Smart Phones**

Use of cell phones and cellphone features, by age

| | 16 - 24 | 25 - 34 | 35 - 44 | 45 - 54 | 55 - 64 | 65 or older |
|---|---|---|---|---|---|---|
| ■ Cell-phone use | 94% | 94% | 91% | 89% | 89% | 85% |
| ■ Internet on cell-phone | 77% | 77% | 65% | 54% | 46% | 30% |
| ■ Local transit mobile app | 50% | 43% | 39% | 30% | 31% | 17% |
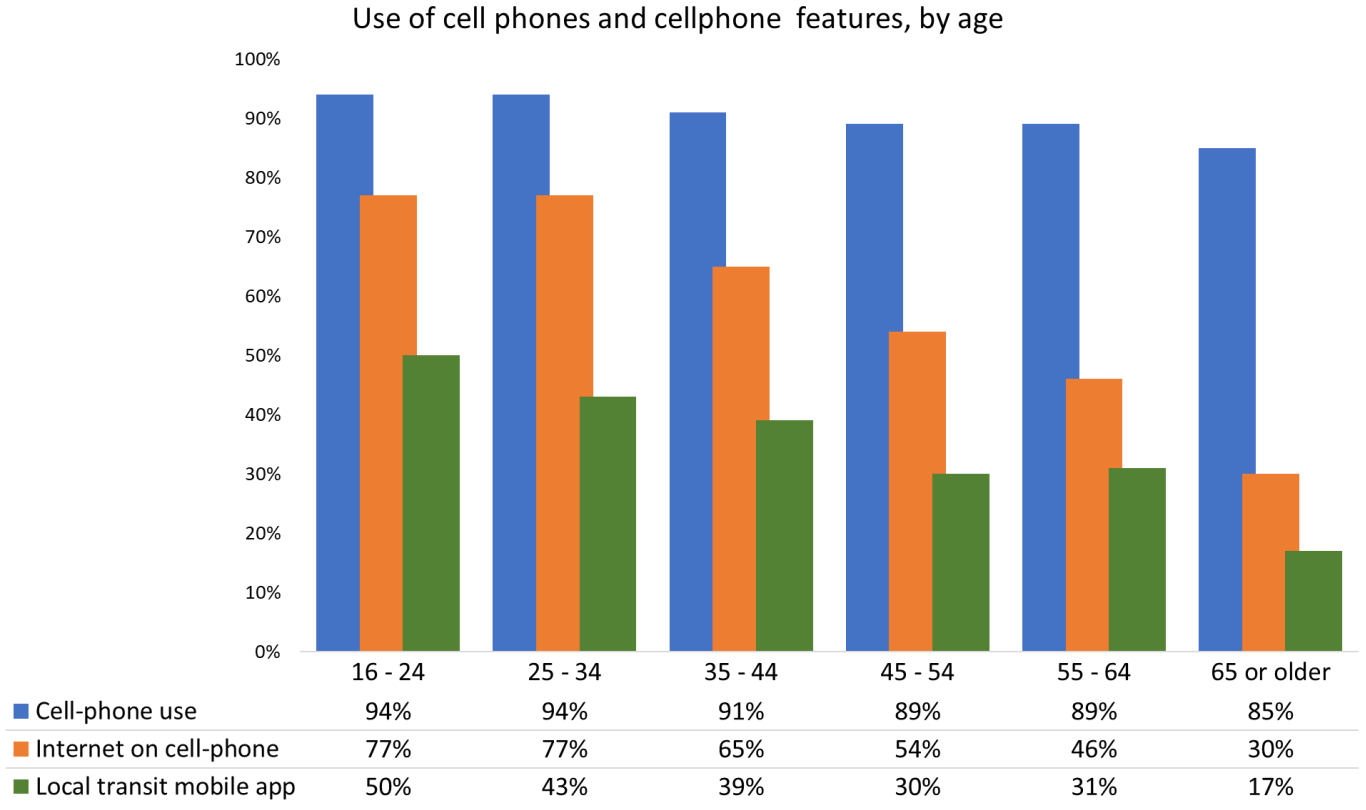
## Age and the Use of Smart Phones

It is certainly not news that the use of mobile communications is related to age. Figure 47 demonstrates that relationship in the case of the GoRaleigh ridership. Relating use of mobile communications to age allows us to see what is most likely to be the pattern of use as current riders age and new, young riders begin to use GoRaleigh.

There are several notable findings in this chart:
- Use of cellphones is no longer strongly age-related. Even at the older end of the age continuum shown above (65+) 85% are using a cell phone.
- The use of smartphones, however, declines substantially among customers 35 or older. On the other hand, even at age 65+, 30% of the customers say they access the internet on their phones. This share will increase both as the technology continues to diffuse through all generations and as the younger cohorts age but retain their tech-adopting behaviors
- Use of a transit app is characteristic of half of the younger riders but use of such apps declines from there to a level of only 17% among those 65 or older.

# Appendix A: Questionnaire

In the past 30 days, how would you rate GoRaleigh on the following services...
*(Circle a rating for each question or check the box indicating that it does not apply to you)*

**GO Raleigh**

| | Excellent | | | Neutral | | | Very poor | Not applicable to me |
|---|---|---|---|---|---|---|---|---|
| 1. Buses running on-time | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 2. Frequency of service on weekdays *(Mon-Fri)* | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 3. Frequency of service on Saturday | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 4. Frequency of service on Sunday | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 5. Hours the buses operate weekdays *(Mon-Fri)* | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 6. Hours the buses operate Saturday | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 7. Hours the buses operate Sunday | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 8. Total time required to make your usual trip | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 9. Availability of service to all destinations you want to get to | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 10. Ease of transferring within GoRaleigh system | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 11. Ease of transferring between GoRaleigh and other area bus transit systems | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 12. Cleanliness of the bus interiors | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 13. Cleanliness of the bus shelters and transit center | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 14. Your sense of personal safety from other passengers on the buses | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 15. Courtesy and helpfulness of bus operators | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 16. Usefulness of information from 485-RIDE telephone operators | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 17. Usefulness of printed information such as schedules or brochures | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 18. Available ways for you to pay your bus fare | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 19. Quality of wireless Internet *(WIFI)* service | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 20. The quality of GoRaleigh services overall | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |

23. Of the services in questions 1 – 19 above, please list the three most important to improve?
_____ Most important    _____ 2nd most    _____ 3rd most

24. On how many days in a typical week do you use GoRaleigh? *(Circle only one)*
1   2   3   4   5   6   7

25. What is the ONE main purpose for which you most often use the GoRaleigh bus? 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 _____

26. How long have you been riding GoRaleigh? *(Check only one)*
1 ☐ Less than six months    2 ☐ Less than 1 year    3 ☐ 1–2 years
4 ☐ 3-4 years    5 ☐ More than 4 years

27. Compared to one year ago, do you currently ride GoRaleigh... *(Check only one)*
1 ☐ More often    2 ☐ The same    3 ☐ Less often    4 ☐ Did not ride a year ago

28. In a typical week, which bus systems do you usually use? *(Check all that apply)*
1 ☐ GoRaleigh    2 ☐ GoDurham    3 ☐ GoTriangle    4 ☐ GoCary
5 ☐ Chapel Hill Transit    6 ☐ Duke Transit    7 ☐ Wolfline

29. In a typical week, which, if any, of the following services for those 65 or older or with a disability do you use? *(Check all that apply)*
1 ☐ GoRaleigh Access    2 ☐ GoDurham Access    3 ☐ GoTriangle Access
4 ☐ GoCary Door-to-Door    5 ☐ GoWake Access    6 ☐ None of these

30. In making this one-way trip, how many times do you connect with, or transfer to, another bus to complete your trip? *(Circle only one)*
0 - No connections/transfers   1   2   3 or more connections/transfers

31. For your fare on the first GoRaleigh bus you boarded during this trip, did you... *(Check only one)*
1 ☐ ...pay cash fare for this 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

32. How did you get to the stop where you got on the first GoRaleigh bus you boarded during this trip? *(Check only one)*
1 ☐ Walked    2 ☐ Used own bike    3 ☐ Used rented bike/scooter
4 ☐ Drove    5 ☐ Was dropped off by family/friend    6 ☐ Uber or Lyft
7 ☐ Bus other than GoRaleigh    8 ☐ Other: _____

33. Do you use a cell-phone? *(Check only one)*    1 ☐ Yes   2 ☐ No
If you use a cell phone, do you access the Internet on it?   1 ☐ Yes   2 ☐ No   3 ☐ Not applicable
Do you have a mobile app for local transit on your cellphone? 1 ☐ Yes   2 ☐ No   3 ☐ Not applicable

34. In the past 30 days, how often have you used Uber or Lyft or a similar ridesharing company? *(Check only one)*
☐ 0 not at all    ☐ 1 time    ☐ 2 times    ☐ 3 times    ☐ 4 or more times

35. If you used Uber, Lyft, or a similar ridesharing service... *(Check only one)*
Did you use it in combination with a bus trip on GoRaleigh? 1 ☐ Yes   2 ☐ No   3 ☐ Not applicable
Did you use it to replace a bus trip on GoRaleigh?    1 ☐ Yes   2 ☐ No   3 ☐ Not applicable

36. During any part of this trip, have you used or will you use: *(Check only one)*
A Lime, Citrix Cycle, or similar shared bicycle    1 ☐ Yes   2 ☐ No
A Bird, Lime, or similar rental scooter    1 ☐ Yes   2 ☐ No

37. How old are you? _____ Years old

38. 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

39. Do you have a valid driver's license? *(Check only one)*    1 ☐ Yes   2 ☐ No

40. How many cars or other vehicles are available for your use? *(Circle only one)*
0   1   2   3 or more

41. How many licensed drivers live in your household? *(Circle only one)*
0   1   2   3 or more

42. How many people, including you and any children, live in your household? *(Circle only one)*   1   2   3 or more

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

44. 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: _____

45. How comfortable are you speaking English? *(Check only one)*
1 ☐ Very comfortable   2 ☐ Mostly comfortable   3 ☐ Slightly comfortable   4 ☐ Not comfortable

46. What language do you most often speak at home? *(Check only one)*
1 ☐ English    2 ☐ Spanish    3 ☐ Other: _____

47. 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: _____
_____
_____
_____

CJI Research

## Por favor, díganos sobre cómo utiliza GoRaleigh

**En los últimos 30 días, Cómo calificaría a GoRaleigh en los siguientes servicios...**
*(Circule una calificación para cada pregunta o marque la casilla que indica que no se aplica a usted)*

**GO Raleigh**

| | Excelente | | | Neutral | | | Muy mal | No se aplica a mí |
|---|---|---|---|---|---|---|---|---|
| 1. Autobuses transitan a tiempo | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 2. Frecuencia de servicio entre semana *(Lun-Vie)* | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 3. Frecuencia de servicio el sábado | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 4. Frecuencia de servicio el domingo | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 5. Horas que autobuses operan entre semana *(Lun-Vie)* | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 6. Horas que autobuses operan el sábado | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 7. Horas que autobuses operan el domingo | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 8. Tiempo total requerido para hacer su viaje regular | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 9. Disponibilidad del servicio a todos los destinos a los que desea llegar | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 10. Facilidad de transferir dentro del sistema GoRaleigh | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 11. Facilidad de transferir entre GoRaleigh y otros sistemas de tránsito de autobuses del área | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 12. Limpieza del interior del autobús | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 13. Limpieza de los albergues de autobús y de centros de tránsito | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 14. Su sentido de seguridad personal de otros pasajeros en los autobuses | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 15. Cortesía y amabilidad de operadores de autobús | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 16. Utilidad de la información de los operadores telefónicos de 485-RIDE | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 17. Utilidad de la información impresa tal como horarios o folletos | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 18. Formas para que pagues tu tarifa de autobús | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 19. Calidad del servicio de internet inalámbrico *(WIFI)* | 7 | 6 | 5 | 4 | 3 | 2 | 1 | ☐ |
| 20. Calidad de los servicios de GoRaleigh en general | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |

**23. De los servicios en las preguntas 1 a 19 anteriores, ¿por favor enumera los tres más importantes para mejorar?**

____ Lo más importante   ____ 2º más   ____ 3º más

---

**24. ¿Cuántos días en una semana típica usas GoRaleigh?** *(Circule sólo uno)*
1   2   3   4   5   6   7

**25. ¿Cuál es el ÚNICO propósito principal para el que usas el autobús GoRaleigh más seguido? Es ir hacia o desde...** *(Marque sólo una)*
1 ☐ Trabajo   2 ☐ Escuela/colegio   3 ☐ Compras
4 ☐ Médica/dental   5 ☐ Recreación/evento   6 ☐ Otro _____

**26. ¿Cuánto tiempo llevas viajando en GoRaleigh?** *(Marque sólo una)*
1 ☐ Menos de seis meses   2 ☐ Menos de 1 año   3 ☐ 1–2 años
4 ☐ 3-4 años   5 ☐ Más de 4 años

**27. Comparado con hace un año, ¿actualmente usas GoRaleigh...** *(Marque sólo una)*
1 ☐ Más a menudo   2 ☐ Lo mismo   3 ☐ Menos   4 ☐ No lo usaba hace un año

**28. En una semana típica, ¿que sistemas de autobús sueles usar?** *(Marque todo lo que corresponda)*
1 ☐ GoRaleigh   2 ☐ GoDurham   3 ☐ GoTriangle   4 ☐ GoCary
5 ☐ Chapel Hill Transit   6 ☐ Duke Transit   7 ☐ Wolfline

**29. En una semana típica, ¿cuál de los siguientes servicios, para mayores de 65 años o con alguna discapacidad, usa usted?** *(Marque todo lo que corresponda)*
1 ☐ GoRaleigh Access   2 ☐ GoDurham Access   3 ☐ GoTriangle Access
4 ☐ GoCary Door-to-Door   5 ☐ GoWake Access   6 ☐ Ninguno de éstos

**30. Al hacer este viaje de ida, ¿cuántas veces se conecta o se transfiere a otro autobús para completar su viaje?** *(Circule sólo una)*
0 - Sin conexiones/transferencias   1   2   3 o más conexiones/transferencias

**31. Para su tarifa en el primer autobús GoRaleigh que abordó en este viaje, usted...** *(Marque sólo una)*
1 ...pago tarifa en efectivo solo por este viaje   2 ...compro el pase de 1-Día en el autobús
3 ...compro el pase de 1-Día con anticipación   4 ...uso un pase de 7 o 31-Días
5 ...uso identificación de universidad u otra   6 ...uso un GoPass

**32. ¿Cómo llegaste a la parada donde subiste al primer autobús GoRaleigh que abordaste durante este viaje?** *(Marque sólo una)*
1 ☐ Caminada   2 ☐ Utilizo bicicleta propia   3 ☐ Alquilo bicicleta/motoneta
4 ☐ Conduje   5 ☐ Lo llevo familia/amistad   6 ☐ Uber o Lyft
7 ☐ Autobús que no sea de GoRaleigh   8 ☐ Otro: _____

**33. ¿Usas un teléfono celular?** *(Marque sólo una)*   1 ☐ Sí   2 ☐ No
Si usa un teléfono celular, ¿tiene acceso a Internet en él?   1 ☐ Sí   2 ☐ No   3 ☐ No aplica
¿Tiene aplicación móvil para tránsito local en su teléfono celular?   1 ☐ Sí   2 ☐ No   3 ☐ No aplica

**34. En los últimos 30 días, ¿con qué frecuencia usó Uber o Lyft o una compañía de viaje compartido similar?** *(Marque sólo una)*
☐ 0 para nada   ☐ 1 vez   ☐ 2 veces   ☐ 3 veces   ☐ 4 o más veces

---

**35. Si usó Uber, Lyft o un servicio de viaje compartido similar...** *(Marque sólo una)*
¿Lo usaste en combinación con un viaje en autobús en GoRaleigh?   1 ☐ Sí   2 ☐ No   3 ☐ No aplica
¿Lo usaste para reemplazar un viaje en autobús en GoRaleigh?   1 ☐ Sí   2 ☐ No   3 ☐ No aplica

**36. Durante cualquier parte de este viaje, ¿ha usado o usará:** *(Marque sólo una)*
A Lime, Citrix Cycle, o bicicleta compartida similar   1 ☐ Sí   2 ☐ No
A Bird, Lime, o motoneta de alquiler similar   1 ☐ Sí   2 ☐ No

**37. ¿Cuantos años tienes?** _____ Años

**38. Marque todo lo siguiente que se aplique a usted. Eres tú:** *(Marque todo lo que corresponda)*
1 ☐ Empleado tiempo completo   2 ☐ Empleado medio tiempo   3 ☐ Desempleado y buscando trabajo
4 ☐ Ama/o de casa   5 ☐ Estudiante   6 ☐ Jubilado
7 ☐ Puesto de voluntario

**39. ¿Tiene una licencia de conducir válida?** *(Marque sólo una)*   1 ☐ Sí   2 ☐ No

**40. ¿Cuántos automóviles u otros vehículos hay disponibles para su uso?** *(Circule sólo uno)*   0   1   2   3 o más

**41. ¿Cuántos conductores con licencia viven en su hogar?** *(Circule sólo uno)*   0   1   2   3 o más

**42. ¿Cuántas personas, incluidos usted y sus hijos, viven en su hogar?** *(Circule sólo uno)*   1   2   3 o más

**43. ¿Te identificas como...**   1 ☐ Masculino   2 ☐ Femenino   3 ☐ Prefiero no responder

**44. ¿Te consideras ser...** *(Por favor marque todo lo que aplica a usted)*
1 ☐ Afroamericano/Negro   2 ☐ Asiático   3 ☐ Caucásico/Blanco
4 ☐ Hispano   5 ☐ Indio Nativo Americano   6 ☐ Otro: _____

**45. ¿Qué tan cómodo te sientes hablando inglés?** *(Marque sólo una)*
1 ☐ Muy cómodo   2 ☐ Mayormente cómodo   3 ☐ Poco cómodo   4 ☐ Nada cómodo

**46. ¿Qué idioma habla más a menudo en casa?** *(Marque sólo una)*
1 ☐ Inglés   2 ☐ Español   3 ☐ Otro: _____

**47. ¿Cuál es su ingreso familiar anual en total?** *(Marque sólo una)*
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 ☐ Más de $100,000

Comentarios: _____
_____
_____
_____

# Appendix B: Rider Comments (Under separate Cover)