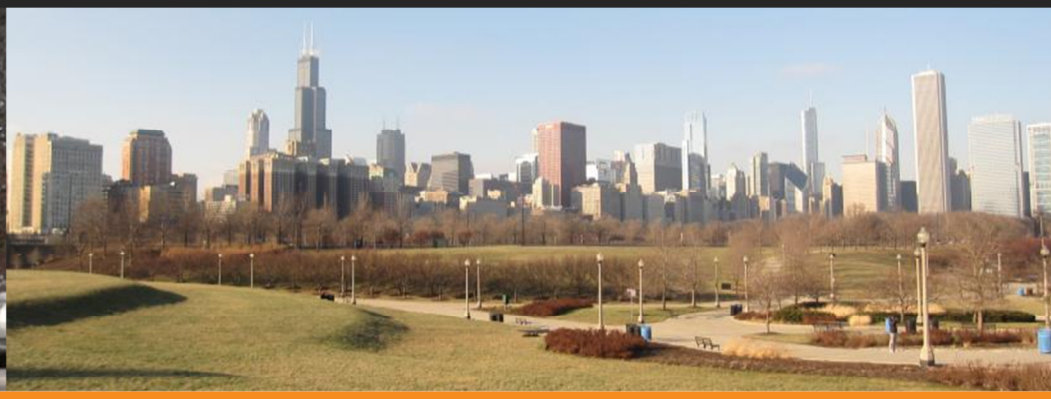
REPORT

PACE FOX VALLEY MARKET ANALYSIS STUDY

RSG
the science of insight

2.25.2015



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1.0 EXECUTIVE SUMMARY

This report summarizes the findings of the 2014 Pace Fox Valley Service Analysis Study. Pace's objectives for this study was to help evaluate Pace's performance and to prioritize future service adjustments to ultimately provide the most efficient service available and to increase ridership. Towards these goals, RSG fielded a study between September and October 2014 to understand residents' perception of the quality of Pace service, identify satisfaction with service and unmet needs, understand travel patterns among residents, and to identify non-riding segments that are most receptive to switching to transit use. RSG developed a bilingual online-based survey and sent postcard invitations to a representative subset of the study area population. The postcard included a URL and unique password for respondents and a toll-free phone number for those respondents who preferred to take the survey on the phone. Additional recruitment methods included the distribution of postcard invitations at the Aurora Transportation Center (ATC), onboard Pace buses, and sending out invites to employees in the area, email lists, and to a purchased online panel.

A total of 878 completes were deemed usable, consisting of respondents who are using Pace in the study area as well those who do not. Following the completion of the data collection effort, surveys were cleaned and weighted. Results indicated that compared to Former Riders (i.e., those who used to ride Pace but no longer do), Current Pace Riders were less likely to have a vehicle in the household, were less likely to have at least one child in the household, and less likely to be employed, but were more likely to be single, younger, and to have a lower household income. One possible explanation for these differences is that some riders may "age out" and abandon Pace for other modes of transportation as they go through different life stages (e.g., marry, have children, obtain secure employment with higher salary). Current Riders report making significantly fewer shopping and entertainment trips, perhaps suggesting that they restrict the types and number of trips they make to only the most necessary ones. Former and Non-Riders (i.e., those who have never taken Pace) rated their *perception* across a variety of Pace service attributes significantly lower than Current Riders rate their actual *experience* with the same attributes, including buses running on time, and being able to access necessary destinations with Pace. This suggests that Pace might want to consider public outreach among Non-Riders to counteract some of these misperceptions that Non-Riders have.

In order to identify segments who might be receptive to increasing transit use, a latent class segmentation analysis was performed. Out of four identified segments, two stood out as potential growth segments: First, a larger segment of Car-Centric Pragmatists who exhibit a practical approach to mode choice and might be willing to consider switching to transit under the right circumstances, such as when they perceive a time, convenience, or productivity advantage to using transit. Second, a smaller Choice User segment that consists already of occasional transit users. Pace should concentrate on getting Choice Riders to ride more often, and to address issues that may prevent Car-Centric Pragmatists from riding Pace. Choice Riders take Pace for certain trips because the existing service fits their travel patterns. Addressing attributes that Choice Riders rate poorly, such as "The time it takes to go places using Pace buses is reasonable" may prompt this market segment to ride more often. Inducing Car-Centric Pragmatists to switch to transit is more difficult because this segment does not believe that Pace operates in areas they need to go. A targeted marketing effort directed at study area residents detailing Pace routes, frequency of service and travel times may be worthwhile for this segment.

2.0 BACKGROUND

Pace, the Suburban Bus Division of the Regional Transportation Authority (RTA), provides fixed route bus service, Dial-a-Ride and ADA Paratransit service and a vanpool program throughout northeastern Illinois's six-county region including Cook, DuPage, Kane, Lake, McHenry, and Will Counties. Pace's Vision 2020 strategic plan envisions coordinated local service with improved efficiency and effectiveness of Paces' operations, providing Chicago's suburbs more frequent, more reliable access to public transportation. To meet the goals of the Vision 2020 plan, Pace is incrementally expanding its family of services throughout the service area to improve and maximize transit ridership, develop solutions to unmet transit needs, build local relationships, and enhance the image of transit as a viable alternative to the automobile by making transit faster, more effective and more efficient. As part of this Vision 2020 plan, Pace contracted with RSG in 2014 to conduct a market analysis study for their fixed-route bus services in the Fox Valley/Southwest DuPage region. The region has seen sharply climbing population growth in the early 2000s, with Aurora, IL being one of the fasted growing cities in US and now the second largest city in Illinois. However, ridership has not kept up with this general trend: Whereas in 2010 the Aurora population was at 246% of its 1985 level, the Pace ridership was only at 62% of its ridership level from 1985.

The main goal of the project was to conduct a market analysis study of the service provided by the Pace Fox Valley Division. Pace will use this information to provide the most efficient service available in order to increase ridership in the area. One auxiliary goal was to address the disproportionately low percentage of the Hispanic population riding Pace in the study area, even as the Hispanic population as a whole has substantially grown over the last several years. In order to address these issues, RSG conducted a survey of Current Riders and Non-Riders in the Fox Valley area to understand travel patterns, barriers to riding transit, prioritization of general transit service improvement, specific service attribute trade-offs, and attitudes towards transit. The study area is shown in Figure 1 and includes Aurora, North Aurora, Warrenville, Geneva, and portions of western Naperville. Pace routes that fall into the study area and are applicable can be found in Table 1.

FIGURE 1: PACE FOX VALLEY MARKET ANALYSIS STUDY AREA

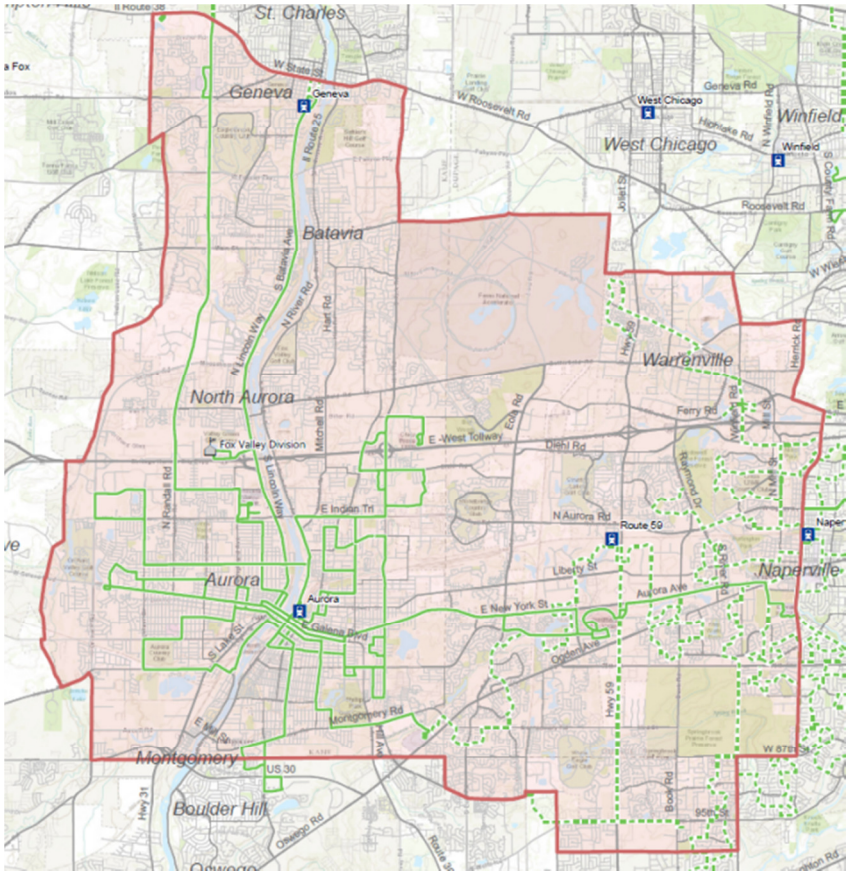


TABLE 1: PERTINENT PACE ROUTES IN STUDY AREA

ROUTE	ROUTE NAME	2013 AVERAGE DAILY RIDERSHIP
521	East Circulator	279
524	West Aurora Circulator	161
528	Aurora Tran. Ctr. - Rush-Copley Med	137
529	Randall Road - 5th Street	382
530	West Galena-Westfield Fox Valley Center	899
532	Illinois Avenue	158
533	Molitor	236
534	Fox Valley Villages / Rt 59	46
802	Aurora-St. Charles	276

3.0 SURVEY DESIGN

RSG closely worked with Pace during the survey design process, and Pace provided frequent feedback and input on the content and format of the questions. The Pace survey collected details about customers' trips, which were used to better understand Current Riders and Non-Riders needs and satisfaction among various segments of their ridership, but also provided a better understanding of how and why customers are using Pace in the Fox Valley region. The survey was programmed in English and Spanish, and could be taken in either language.

3.1 | SURVEY OUTLINE

Specifically, the survey instrument included the following broad sections:

- Number of days different modes used for commuting and non-commuting during prior week
- Weekly frequency of different types of trips
- Types of trips in typical week
- For one trip type, the following specific trip information:
    - Origin
    - Destination
    - Mode
    - Access
    - Egress
    - Time of day
    - Day of week
    - Duration
    - Alternative mode
- Attitudinal questions on public transit
- Barriers to Pace use (for Non-Riders and Former Riders)
- Pace familiarity
- Satisfaction with Pace (Current Riders)/Expectations about Pace (Non-Riders)
- Global service priorities
- Specific improvement trade-offs
- Demographics

3.2 | WEB SURVEY SCREENSHOT EXAMPLES

This section provides illustrations of some of the survey questions included in the online survey. Figure 1 shows the opening page that interested participants saw when they entered the survey website. This "landing page" was shown to individuals who received a postcard via the address-based sampling (ABS) method, or through the terminal or onboard recruiting method. Participants were required to enter the unique password that was assigned to them.

FIGURE 2: LANDING PAGE FOR PARTICIPANTS RECRUITED VIA POSTCARDS

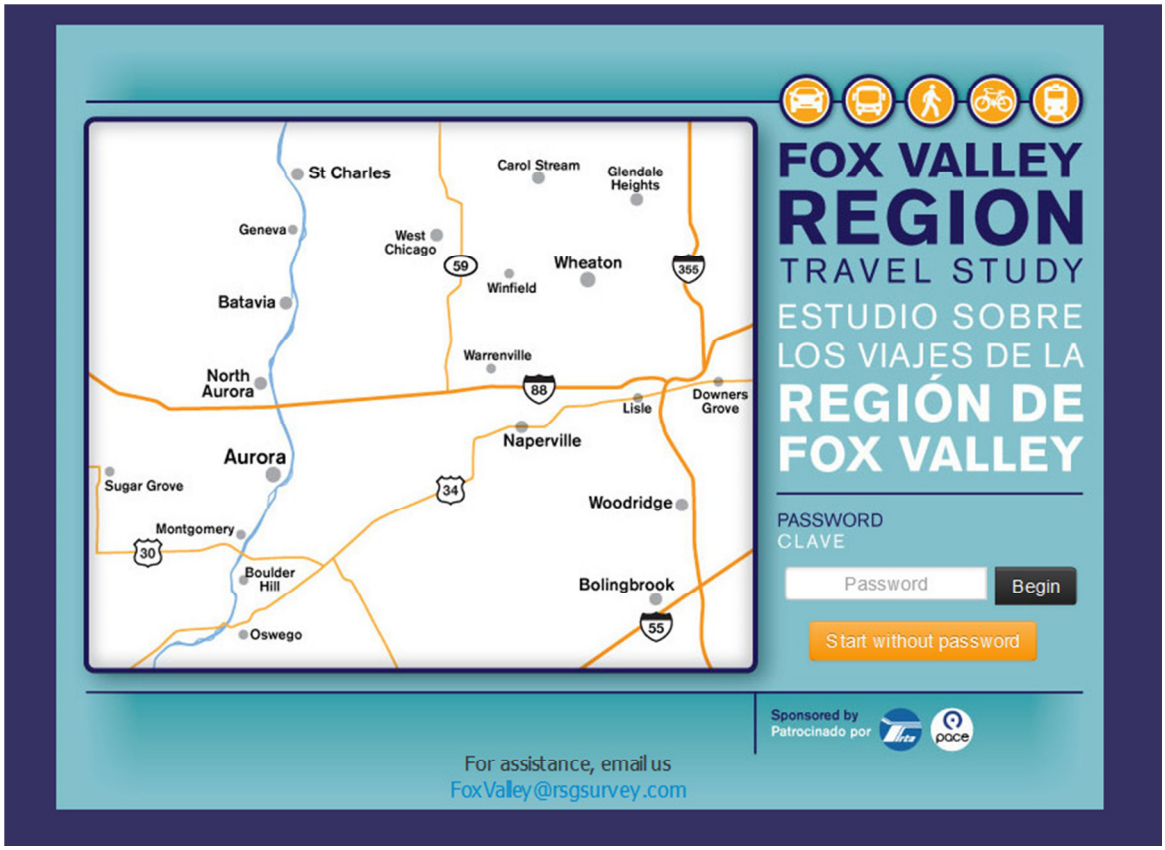
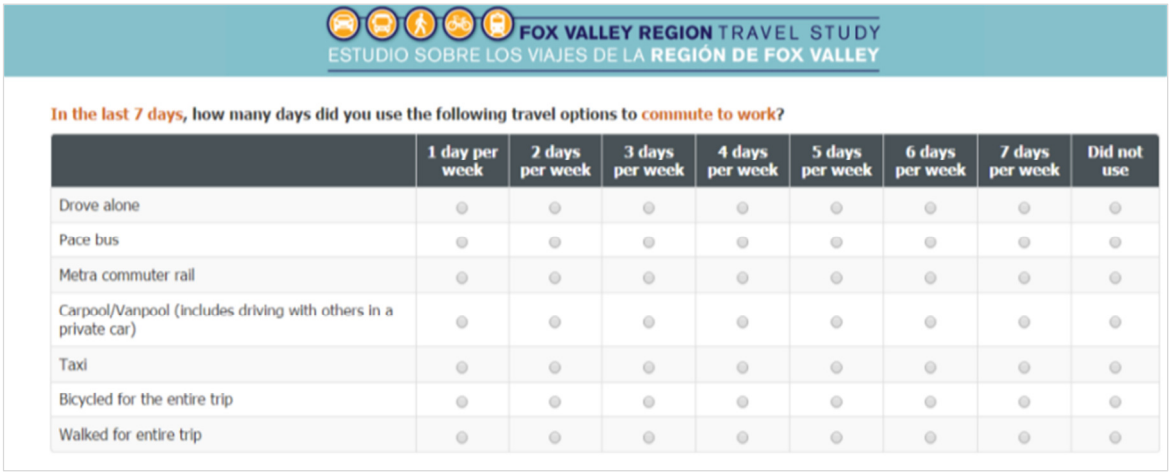


Figure 3 shows a question on the number of days the respondent commuted to work or school via different types of modes. This question was repeated for non-commuting trips, as well. Both types of questions provide an overview and snapshot of the types of modes that participants used recently, and can provide insights into whether different types of modes are being used for commuting vs. non-commuting trips.

FIGURE 3: NUMBER OF DAYS DIFFERENT MODES WERE USED FOR COMMUTING DURING PRIOR WEEK



	1 day per week	2 days per week	3 days per week	4 days per week	5 days per week	6 days per week	7 days per week	Did not use
Drove alone								
Pace bus								
Metra commuter rail								
Carpool/Vanpool (includes driving with others in a private car)								
Taxi								
Bicycled for the entire trip								
Walked for entire trip								

Figure 4 illustrates the question that asked resondents to select which types of trips they make in a typical trip. The answers provided insight into the purposes of all trips made by survey respondents.

FIGURE 4: TYPES OF TRIPS MADE IN TYPICAL WEEK

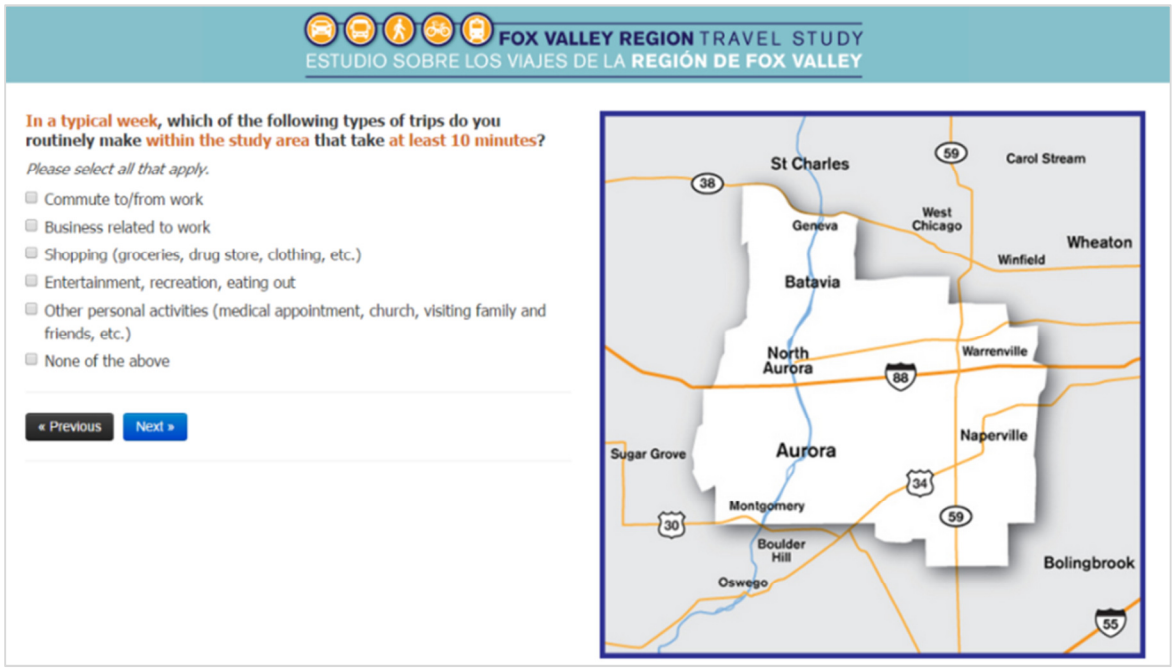
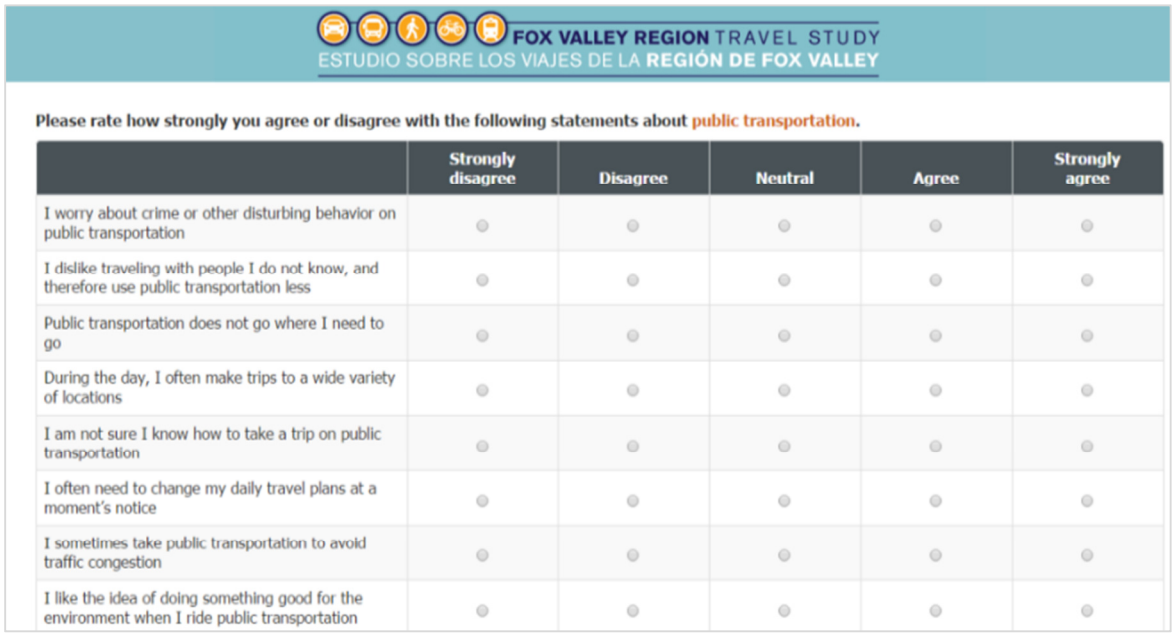


Figure 5 shows attitudinal questions about public transportation. These attitudinal questions can help segment respondents into different classes and identify those segments who are more (vs. less) open towards the idea of using public transportation.

FIGURE 5: ATTITUDINAL QUESTIONS ON PUBLIC TRANSIT



3.3 | LOGIC CHECKS AND SAFEGUARDS

In order to minimize exclusions during the data analyses phase based on illogical answer choices, several safeguards were programmed into the survey. First, the recruitment postcards and all email initiations clearly stated that the area of interest was Fox Valley, and the postcard as well as the main survey included an easy-to-understand, simplified map of the study area. Second, when asked about a typical trip, respondents were directly asked to provide a trip that starts, ends, or goes through the study area, and the map of the study area was displayed next to that question. Third, given that the survey was entirely programmed online, RSG was able to include validation checks that verified, in real time, that logical and valid responses were provided. For instance, an error message appeared when respondents provided illogical answers such as indicating that there are more employed individuals in the household than the total number of individuals.

4.0 SURVEY ADMINISTRATION

4.1 | SAMPLING PLAN

The sampling plan was designed with the goal of obtaining a general population sample of the geographic area, but oversampling current Fox Valley Pace bus riders. The overall sample size was targeted to be around 800 completes, including about 150 current Pace riders. The primary sampling method for this study was ABS, with the assumption that 600 completed surveys would be obtained via this method and the remaining completes would be obtained through the Pace Customer Satisfaction email list, GovDelivery subscribers, as well as terminal, onboard, or business recruitment.

4.2 | RECRUITMENT AND FIELDING

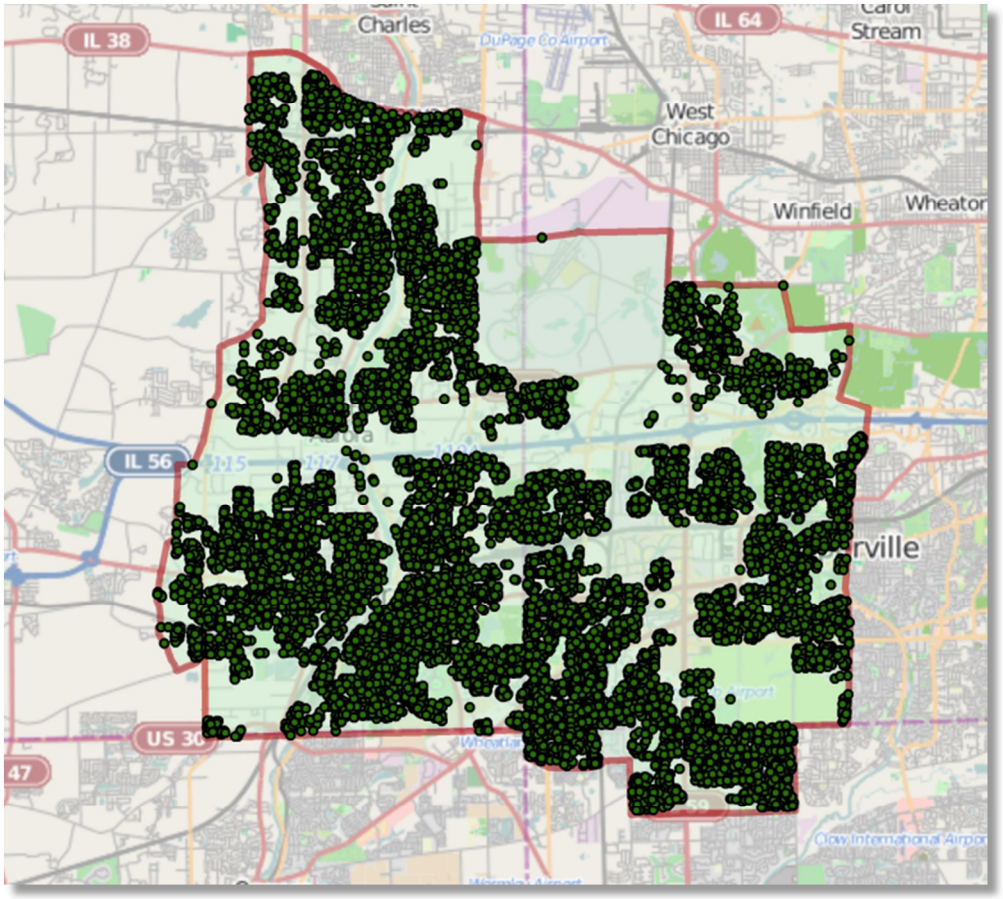
ADDRESS-BASED SAMPLING (ABS)

An ABS sampling plan was created to ensure the invitations were sent to a representative sample of residents in the service area; residents were targeted by Census Block and selected addresses in proportion with US Census population data. The sampling plan assumed that 20,000 postcards would be mailed via ABS and would lead to a 3% response rate. Only permanent residence addresses were selected, which meant that addresses associated with seasonal occupancy, traditional PO boxes, and vacant addresses were all excluded from the address sample. The number of households, study area population, and number of mailed postcards is displayed in Table 2. The resulting list of sampled addresses is mapped in Figure 6.

TABLE 2: NUMBER OF HOUSEHOLDS, POPULATION SIZE, AND NUMBER OF MAILED POSTCARDS

APPROX. HOUSEHOLDS IN STUDY AREA	APPROX. POPULATION IN STUDY AREA	# OF MAILED POSTCARDS
114,758	338,070	20,000

FIGURE 6: ADDRESSES FROM ABS SAMPLING APPROACH



TERMINAL BASED SAMPLING

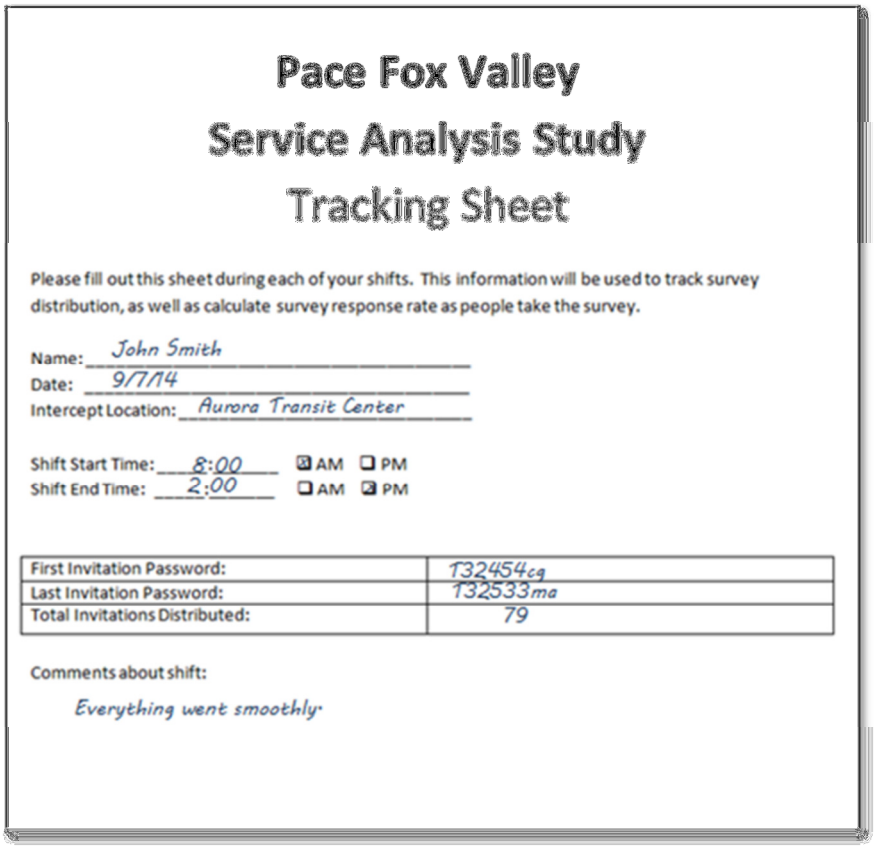
In order to oversample current Pace riders, postcards to riders of all Fox Valley routes that are part of the study were distributed. Surveyors handed out 1,875 postcards to Pace riders between September 8, 2014 and September 20, 2014. With the exception of 1 day when postcards were handed out at the Route 59 Metra Station, which is served by Route 534, all fielding shifts occurred at the Aurora Transportation Center (ATC), on average, for 9 hours per day. This terminal-based recruitment strategy had a variety of advantages compared to onboard recruitment:

- *Flexibility:* It allowed for flexible scheduling of distribution shifts, since it eliminated organizing and coordinating visits at Pace garages
- *Little interference with Pace personnel*: Given that the distribution occurred at a terminal, the presence of the surveyor was less disruptive to Pace personnel than it would have been at garages and on buses
- *Reach of maximum number of riders:* Choosing the ATC as the primary recruitment site had the advantage of reaching a maximum number of riders on a range of routes in a short period, since with the exception of Route 534 all relevant routes pass through the ATC.

In order to record the number of handouts during each individual shift, surveyors were provided with distribution sheets, on which they were to write down the date and time of shifts, the number of handed out postcards, and any exceptions that occurred during the trip. An example of such a distribution sheet is shown

in Figure 7. Surveyors were instructed to circulate up and down the concrete bus island, roaming occasionally into the station building, once they had hit everyone on the island. Surveyors were instructed to approach every person at the terminal that was not a Pace or Metra employee, and were asked to give everyone a postcard, not just people they thought would say yes. The importance of looking engaged, friendly, and interested in what passersby had to say for the response rate was emphasized. Finally, surveyors were reminded to mention the lottery incentive to increase response rates.

FIGURE 7: EXAMPLE DISTRIBUTION SHEET



Pace Fox Valley
Service Analysis Study
Tracking Sheet

Please fill out this sheet during each of your shifts. This information will be used to track survey distribution, as well as calculate survey response rate as people take the survey.

Name: John Smith
Date: 9/7/14
Intercept Location: Aurora Transit Center

Shift Start Time: 8:00 ☒ AM ☐ PM
Shift End Time: 2:00 ☐ AM ☒ PM

First Invitation Password:	T32454cg
Last Invitation Password:	T32533ma
Total Invitations Distributed:	79

Comments about shift:
Everything went smoothly.

ONBOARD POSTCARD DISTRIBUTION

The terminal-based postcard distribution was supplemented by onboard distribution of postcards, which occurred between September 10 and September 15, 2014. Distributing postcards onboard buses ensured that riders were reached who were boarding and alighting at stops other than the Aurora Transportation Center. Postcards were distributed on all relevant bus routes of the Fox Valley division that were part of the study scope, with the exception of Route 534, for which postcards were distributed at the Route 59 Metra Station as Pace riders entered and exited the bus.

GOV DELIVERY AND CUSTOMER SATISFACTION EMAIL LISTS

RSG also used existing e-mail lists to recruit Pace Fox Valley riders for the online study, including Pace's internal GovDelivery email system and contact information from Fox Valley riders who participated in the 2013 or 2011 Pace Customer Satisfaction (CS) study. The advantage of using the GovDelivery system and the

Pace CS email lists as a recruitment tool was the ability to target only Pace riders, and only riders who ride Pace routes in the pertinent geographic area (i.e., Fox Valley).

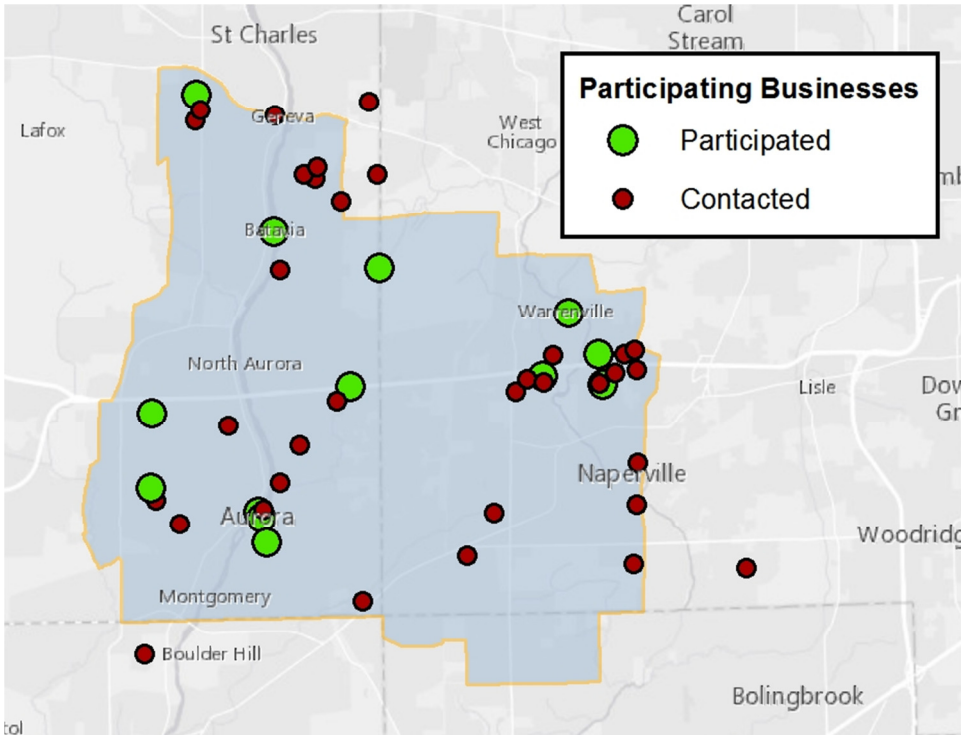
BUSINESSES AND ORGANIZATIONS EMAILS

In addition to the other recruitment methods, RSG contacted a variety of businesses and organizations located in or near the study area to ask for their help in recruiting employees or members to take the survey. Targeting employees of local businesses had the advantage of reaching individuals who might not necessarily live in the Fox Valley region, but are commuting to work. Each business and organization was contacted at least twice to inquire about their willingness to help with recruitment. When a business or organization agreed to distribute a link to their employees, RSG sent a business-specific link to the employer that allowed for the tracking of respondents from that particular business only. Local businesses and employers that RSG contacted and were willing to help with recruitment are listed in Table 3.

TABLE 3: CONTACTED AND PARTICIPATING BUSINESSES AND ORGANIZATIONS

CONTACTED BUSINESSES AND ORGANIZATIONS	PARTICIPATED IN STUDY
Agco Corp., Parts Div.	
Aurora City Hall	✓
Aurora East School District 131	✓
Aurora Hispanic Chamber of Commerce	
Aurora Regional Chamber of Commerce	✓
Aurora University	
Batavia Chamber of Commerce	✓
BP	
Caterpillar, Inc.	
Chicago Premium Outlets	✓
Coriant	✓
Delnor-Community Hospital at Cadence	
DePaul University	
Dreyer Medical Clinic	
Dukane Precast, Inc. - Aurora plant	
Durham School Services	
Eagle Concrete, Inc.	
Edward Hospital	
Exelon Energy	✓
Express Employment Professionals	
Extended Stay America	
Fermilab	✓
First American Title Company	✓
Geneva Chamber of Commerce	
Geneva Commons (shopping center)	✓
Hollywood Casino	
Hotel Arista	
Indian Prairie Public Library District	
LTD Commodities, Inc.	
MetLife	
Mondelēz International (formerly Kraft)	✓
Nalco	
Naperville Area Chamber of Commerce Chamber	
Nicor Advanced Energy	
Office Max	
Phonak	
Power Packaging, Inc.	
Red Roof Inns, Inc.	
Rush-Copley Medical Center	
Sealy Mattress Co., Inc.	
Suncast Corp.	
Valley Industrial Association	✓
Waste Management West	
Waubonsee Community College	
Western DuPage Chamber of Commerce	✓
Westfield Shoppingtown Fox Valley	

FIGURE 8: GEOGRAPHIC DISTRIBUTION OF CONTACTED BUSINESSES AND ORGANIZATIONS



PHONE STAFFING AND ADMINISTRATION

RSG contracted with Seville Staffing to have interviewers available to take calls and allow respondents to complete the survey over the phone rather than online. The phone was staffed Monday through Friday, 8am to 5pm from September 3, 2014 to October 19, 2014. During off hours, callers were able to leave a voicemail, and interviewers returned voicemail messages during the next business day and allowed the caller to complete the survey at that time. Voicemail greetings for off-hour callers were recorded in English and Spanish, and bilingual staff were available to take calls from those who preferred to complete the survey in Spanish.

SUPPLEMENTARY FIELDING

During the main recruitment effort it became apparent that the return rate of completed surveys, in particular via ABS recruitment, was not meeting the initial targets set at the outset of the project. As a result, the following supplemental recruitment efforts were used to meet the targeted number of completed surveys.

Purchased Online Sampling

RSG obtained additional purchased sample from an online panel provider. Sample invites were based on home ZIP codes of potential respondents, and only participants who reported one of the qualifying ZIP codes in the area were allowed to take the survey. Respondents with ineligible zip codes were terminated. This sampling approach provided an additional 281completes.

Reminder Calls

RSG contracted with the ABS sample provider to append telephone numbers to names and home addresses where postcards were originally sent. This allowed the phone interviewers to make follow-up calls and leave

voicemail messages to remind individuals to complete the survey online or via the phone. In total, 550 follow-up calls were attempted, leading to 270 reminder voice mail messages left on answering machines.

Email Append

In addition to telephone numbers, RSG also obtained 4,170 deliverable emails that could be matched to households that originally received one of the invitation postcards. An email reminder to these email addresses resulted in 12 additional completes.

Social Media Outreach

Finally, Pace and RSG engaged in social media outreach by announcing the study on the Pace website and by purchasing advertisement for the study on Facebook. Pace's Facebook invitation and RSG's Facebook ad led to 1 and 2 completes, respectively.

4.3 | STAFF PREPARATION AND PRETEST

TRAINING FOR GROUND STAFF

RSG and its subcontractors trained locally hired staff to distribute postcards with invitation text printed in English or Spanish to take the survey online or via the phone. The main field effort commenced with a staff-training meeting, which was held at RSG's Chicago office on 9/5/2014. A RSG supervisor was joined by supervisors from Seville and the surveyors. At this meeting, each surveyor was provided with the following items:

- Postcards
- Field instructions
- Distribution sheets
- 50-count stacks of invitation postcards (see Figure 9 for postcard)

FIGURE 9: FRONT AND BACK OF BILINGUAL RECRUITMENT POSTCARD

TRAINING FOR PHONE INTERVIEWERS

A separate one hour training session was held for the telephone interviewers who handled respondents that preferred to take the survey over the phone rather than online. The training was attended by 2 interviewers and 3 supervisors and included topics such as the study's purpose and background, how to conduct the interview, and how to record participants' answers. Also covered were frequently asked questions that callers might ask to the interviewer. After the training, an RSG staff person called the survey telephone number unannounced and pretended to be an actual caller, completing the entire interview as an actual caller would.

After this "incognito" interview, RSG provided feedback to the interviewer on their performance, and provided suggestions for future interviews.

PRETEST

Before the main survey was launched, RSG and Pace conducted a pretest of the survey. One representative of Pace and one of RSG went to the ATC and downtown Aurora on 8/26/2014 and recruited potential survey respondents. The pretest was conducted with the help of an iPad, which allowed potential respondents to complete the survey immediately. Based on the pretest, a change to the survey logic was made, such that minors living in the household were allowed to be categorized as either employed or unemployed members of the household. In total, this pretest led to 1 complete.

4.4 | RESPONSE RATES

While the ABS sampling method and the supplemental purchased online sample yielded the majority of the responses for this survey, offering other recruitment methods for taking the survey did help boost the response rate in general, and that of current Pace riders, in particular. Completion rates by recruitment method are shown in Table 4.

TABLE 4: COMPLETION RATE BY RECRUITMENT MODE

RETURN METHOD	DISTRIBUTED SURVEYS	COMPLETED SURVEYS	% RETURNED SURVEYS
Terminal and Onboard	1,874	74	4%
Address-Based Sampling	20,000	263	1%
Business	-	218	-
Web-Based	-	3	-
2013 Customer Satisfaction Email List	148	9	6%
Pace GovDelivery Email	627	15	2%
ABS Email Append	4,170	12	0.3%
Purchased Online Sample	281	281	-
Facebook	-	3	-
Total Returned	26,473	878	-

As can be seen in Table 5, a total of 8 surveys were completed in Spanish.

TABLE 5: LANGUAGE IN WHICH SURVEY WAS TAKEN

SURVEY LANGUAGE	# RESPONSES
English	870
Spanish	8
Total	878

In total, 905 surveys were completed and a total of 878 were considered valid completed surveys; the data cleaning process is described in more detail in the following section. It should be noted that 80 of the surveys that were categorized complete were initially considered incomplete. With Pace's consent, a completeness threshold was established where any respondent who had completed the survey through the Transit Attitudes section of the questionnaire could be considered complete. Thus, travel and trip information, as well as attitudes about transportation in the Fox Valley region were collected for all of these surveys. However, these surveys may be missing some demographic information that was asked later in the questionnaire.

5.0 DATA CLEANING AND ANALYSES

RSG examined the data to find any respondents providing inconsistent or illogical answers and removed these respondents from the analyses.

5.1 | EXCLUSION CRITERIA

The following exclusion criteria were used to exclude an entire respondent's answers:

- Nine surveys were identified as "speed-throughs" and discarded because the entire survey was completed in less than 7 minutes
- Nine surveys were excluded for being duplicate surveys, that is, completed by the same respondent. In order to categorize a survey as a duplicate record, a survey had to include the same origin and destination trip combination as another survey in the data set. In additional, other data such as the provided email address or demographic information had to be identical to another survey.
- Finally, 10 surveys were excluded from the analyses because the reported origin and destination of the reported trip was more than 2 miles away from the border of the study area *and* neither the participant's home ZIP nor the participant's work/school ZIP code (if applicable) were inside the study area.

5.2 | CRITERIA FOR FLAGGING RESPONDENT'S TRIP

In addition to the exclusion of entire records as outlined above, certain records were excluded from the Trip Characteristics portions of the analysis. Forty-eight records were used for the analysis of attitudes, prioritization of service attributes, demographics, etc. but the associated trip-specific answers were not used because it was shorter than .5 miles in length, or the straight-line of the trip was more than 2 miles from the closest location on the study area. For a survey to be retained in those instances, respondents must have reported a home or a work/school ZIP code that was within the study area. The reason behind not excluding the entire record was that answers to the more general questions are still useful, given that individuals with

qualifying home/work ZIP codes are almost guaranteed to make some qualifying trips, even if the particular trip that was selected (e.g., "shopping" or "entertainment") happened to fall outside the study area.

5.3 | DATA WEIGHTING

RSG reviewed the data and compared them to Census data on some of the most important demographics for the study area, including ethnicity (Hispanic vs. not), age, and ZIP code. The Census data used for this comparison was the US Census Bureau's 2008-2012 American Community Survey (ACS). For respondents falling within the study area, a series of marginal weighting schemes were employed to weight the respondent demographic characteristics to the regional demographics, using ZIP Code as the base geography for aggregation.

The following tables show the differences between the Census data and the unweighted survey data. Note that grayed rows indicate where demographics categories were merged in order to ensure that sufficient response was present for each demographic category.

TABLE 6: COMPARING CENSUS AND UNWEIGHTED SURVEY DATA - AGE

AGE	CENSUS PROPORTION	UNWEIGHTED SURVEY PROPORTION	DIFFERENCE
Age 16-34	34%	15%	19%
Age 35-44	22%	18%	4%
Age 45-54	20%	26%	-6%
Age 55+	24%	41%	-17%

TABLE 7: COMPARING CENSUS AND UNWEIGHTED SURVEY DATA - ETHNICITY

ETHNICITY	CENSUS PROPORTION	UNWEIGHTED SURVEY PROPORTION	DIFFERENCE
Non-Hispanic	75%	92%	-17%
Hispanic	25%	8%	17%

TABLE 8: COMPARING CENSUS AND UNWEIGHTED SURVEY DATA - PROPORTION OF POPULATION IN EACH ZIP CODE IN STUDY AREA

ZIP CODE	CENSUS PROPORTION	UNWEIGHTED SURVEY PROPORTION	DIFFERENCE
60134	7%	6%	1%
60502	5%	8%	-3%
60503	4%	4%	0%
60504	9%	9%	0%
60505	16%	9%	7%
60506	13%	15%	-2%
60510	7%	11%	-4%
60538	6%	3%	3%
60539	0%	0%	0%
60540	10%	9%	1%
60542	4%	5%	-1%
60555	3%	4%	-1%
60563	8%	8%	0%
60564	9%	8%	1%

First, a weight was developed to match relative population sizes by ZIP Code. Next, a second weight was developed using iterative proportional fit (IPF) to match the relative proportions of both ethnicity and age categories. Finally, the ZIP Code weight and the demographic weights were multiplied to get a final weight. Respondents falling outside the study area, or who did not respond to the ethnicity question, were assigned a weight of 1.

The following tables show the proportions of the new weighted survey tallies as compared to the Census data. Note that due to the fact that respondents were allowed to skip the ethnicity question and some respondents lived outside the study area, the demographics do not exactly match the Census data, but have been brought much more in line with it than the unweighted survey counts.

TABLE 9: COMPARING CENSUS AND WEIGHTED SURVEY DATA - AGE

AGE	CENSUS	SURVEY (WEIGHTED)	DIFFERENCE
Age 16-34	34%	32%	3%
Age 35-44	22%	22%	-1%
Age 45-54	20%	21%	-1%
Age 55+	24%	25%	-1%

TABLE 10: COMPARING CENSUS AND WEIGHTED SURVEY DATA - ETHNICITY

ETHNICITY	CENSUS	SURVEY (WEIGHTED)	DIFFERENCE
Non-Hispanic	75%	74%	1%
Hispanic	25%	26%	-1%

TABLE 11: COMPARING CENSUS AND WEIGHTED SURVEY DATA - PROPORTION OF POPULATION IN EACH ZIP CODE IN STUDY AREA

ZIP CODE	CENSUS	SURVEY (WEIGHTED)	DIFFERENCE
60134	7%	5%	2%
60502	5%	6%	-1%
60503	4%	4%	0%
60504	9%	10%	-1%
60505	16%	18%	-2%
60506	13%	15%	-2%
60510	7%	6%	1%
60538	6%	7%	-1%
60539	0%	0%	0%
60540	10%	8%	2%
60542	4%	4%	0%
60555	3%	3%	0%
60563	8%	9%	0%
60564	9%	8%	2%

The weighting scheme used was able to bring the survey data into much closer alignment with the Census data than it was originally. A final weight was developed for Origin-Destination (OD) data, and this was developed in order to account for the discrepancy between the proportion of trip purposes for which we collected OD data, and the reported number of trips the respondent made each week. To develop this OD weight, the total number of respondents who reported making a trip of each type was multiplied by the average number of days that respondents reported making a trip for the given purpose. This allowed for a calculation of the proportion of trips made each week that were for a given purpose. The respondent primary trip purposes were then compared to this calculated trip proportion, and a purpose weight was developed. Finally, this trip purpose weight was multiplied by the previously calculated final weight to produce a final OD weight.

TABLE 12: COMPARING FREQUENCY OF REPORTED TRIP PURPOSE AND OD TRIP PURPOSE

TRIP PURPOSE	CALCULATED % OF TRIPS MADE PER WEEK	SURVEY TRIP PURPOSE	DIFFERENCE
Commute to/from work	33%	18%	15%
Commute to/from school	1%	0%	1%
Business related to work	6%	5%	1%
Shopping	23%	32%	-10%
Entertainment, recreation, eating out	18%	21%	-3%
Other personal activities	20%	24%	-3%

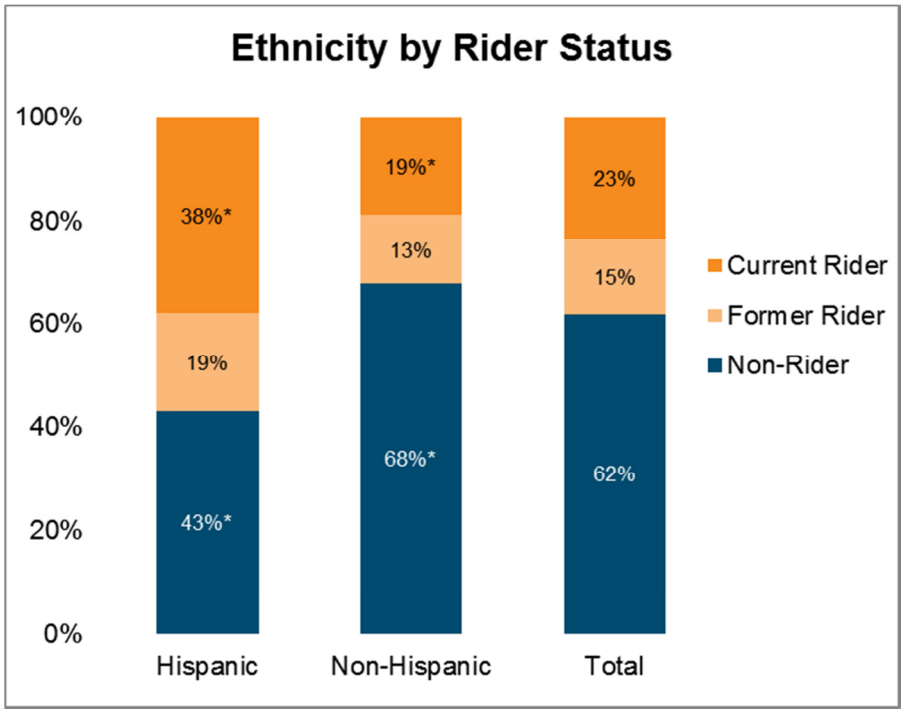
6.0 RESULTS

The following section describes the results of the market analysis study. Statistical tests were run at the 95% significance level and statistically significant results are indicated with an asterisk (*). The test indicates whether a particular segment (e.g., Non-Riders) is significantly different from the group of all other segments (e.g., combined Current and Former Riders) for a particular answer option (e.g., "Full-Time Employment"). Whenever appropriate, we present data broken out by different segments as well as for a "Total" as comparison. "Total" in those instances refers to the combined result of all respondents who answered that particular question. Results that are based on questions with multiple response sets ("Select all that apply") are indicated as such.

6.1 | SAMPLE DEMOGRAPHICS

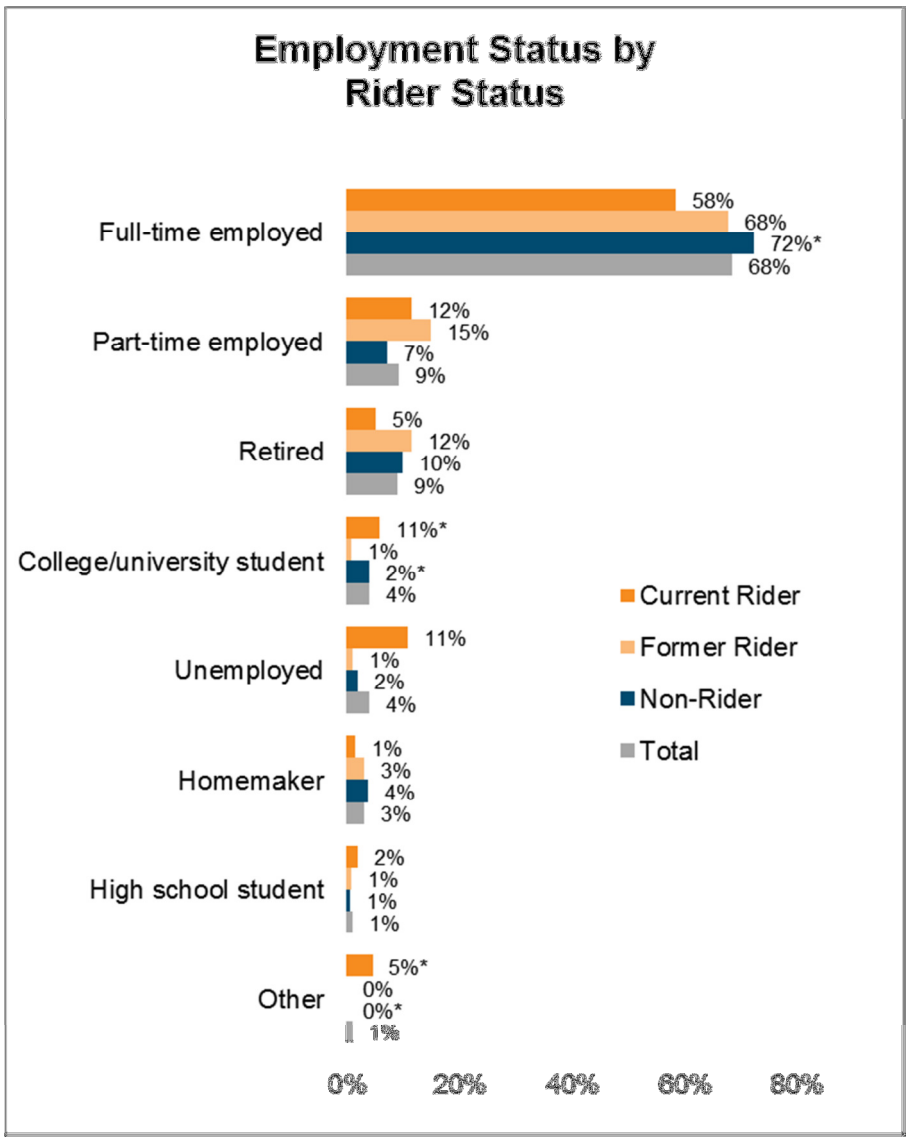
DEMOGRAPHICS BY RIDER STATUS

FIGURE 10: ETHNICITY BY RIDER STATUS



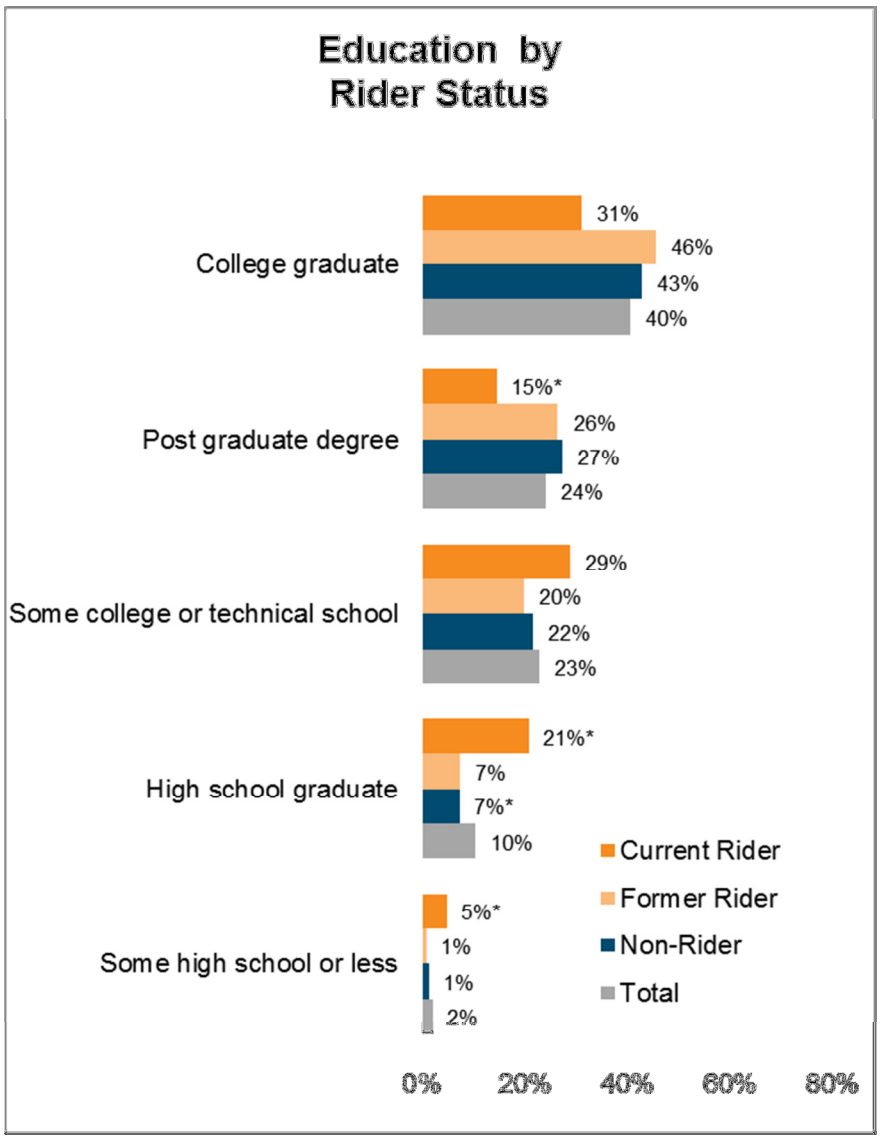
As can be seen in the above chart, recruiting efforts to attract respondents from the Hispanic community were successful, in particular with regards to Current Pace Riders. Compared to Non-Hispanic respondents, Hispanic respondents were more likely to be Current Riders, and slightly more likely to be Former Riders. For the remainder of the report, this allowed us to obtain a clearer picture of the needs and wants of Current Riders who are Hispanic to gain insight into how Pace might be able to gain higher Hispanic ridership among the rest of the population.

FIGURE 11: EMPLOYMENT BY RIDER STATUS



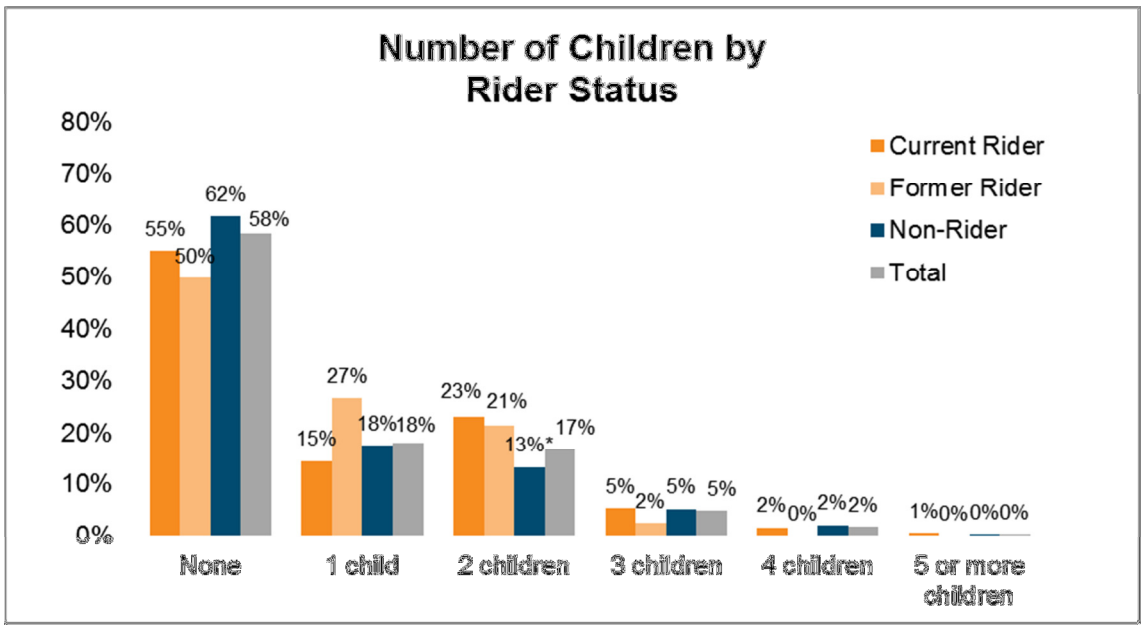
Non-Riders are more likely to be full-time employed (72%), whereas Current Riders are more likely to be unemployed (11%).

FIGURE 12: EDUCATION BY RIDER STATUS



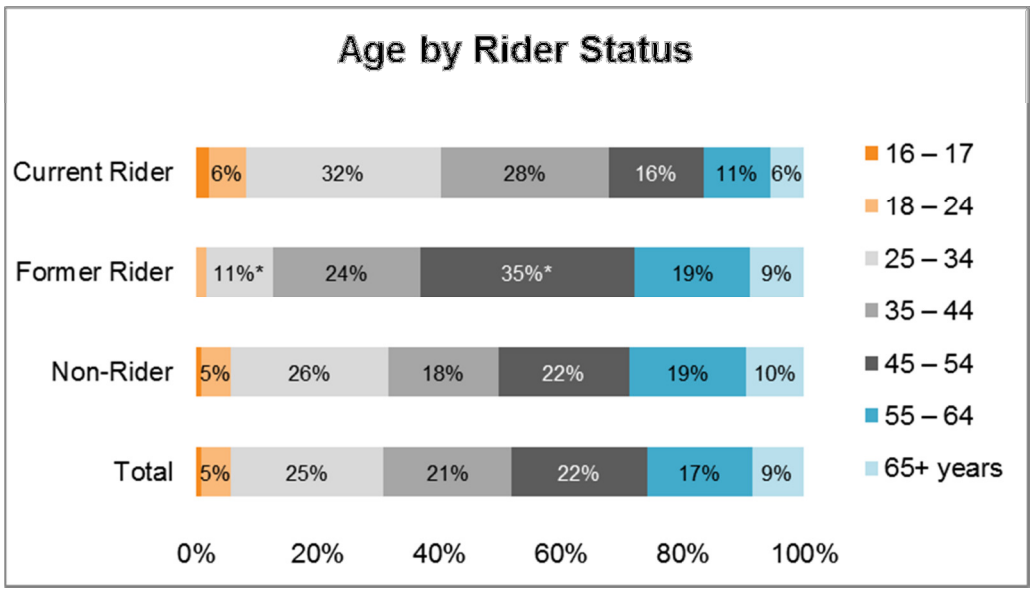
Current Riders are less likely to have graduated from college or have a postgraduate degree (Current-, Former-, and Non- Riders, 46%, 72%, and 70%, respectively) and more likely to have obtained some college education or less (55%) compared to Former Riders (28%) and Non-Riders (30%).

FIGURE 13: NUMBER OF CHILDREN IN HOUSEHOLD BY RIDER STATUS



Former Riders are more likely to have at least one child in the household (50%) compared to either Current Riders (45%) or Non-Riders (38%).

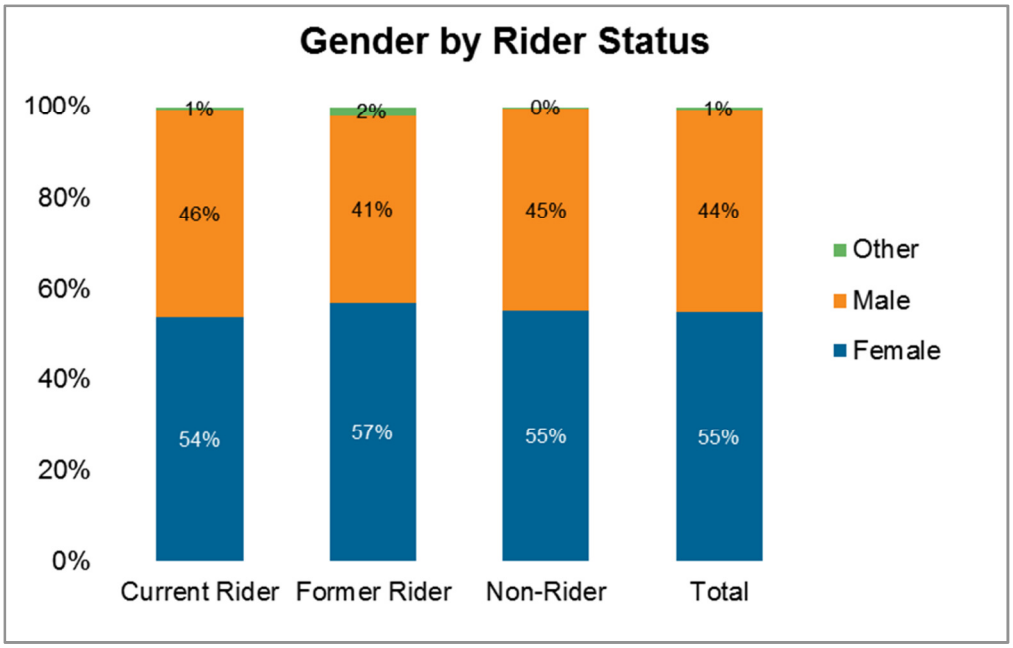
FIGURE 14: AGE BY RIDER STATUS



Current Riders tend to be younger, with 39% of Current Riders under the age of 35 compared to only 31% of Non-Riders, and 13% of Former Riders. This could be a function of the younger generation not being able to afford to drive or could signal a move towards transit that could persist as they age. Data from Figure 11 through Figure 14 suggest that Former Riders and Non-Riders tend to have demographics that are more similar to each other than to Current Riders and that more highly educated, employed and older individuals tend to ride Pace less. Results from Figure 13 also suggest that Former Riders are more likely to have children in their household. Taken together, these results may indicate that as younger Pace Riders become older and

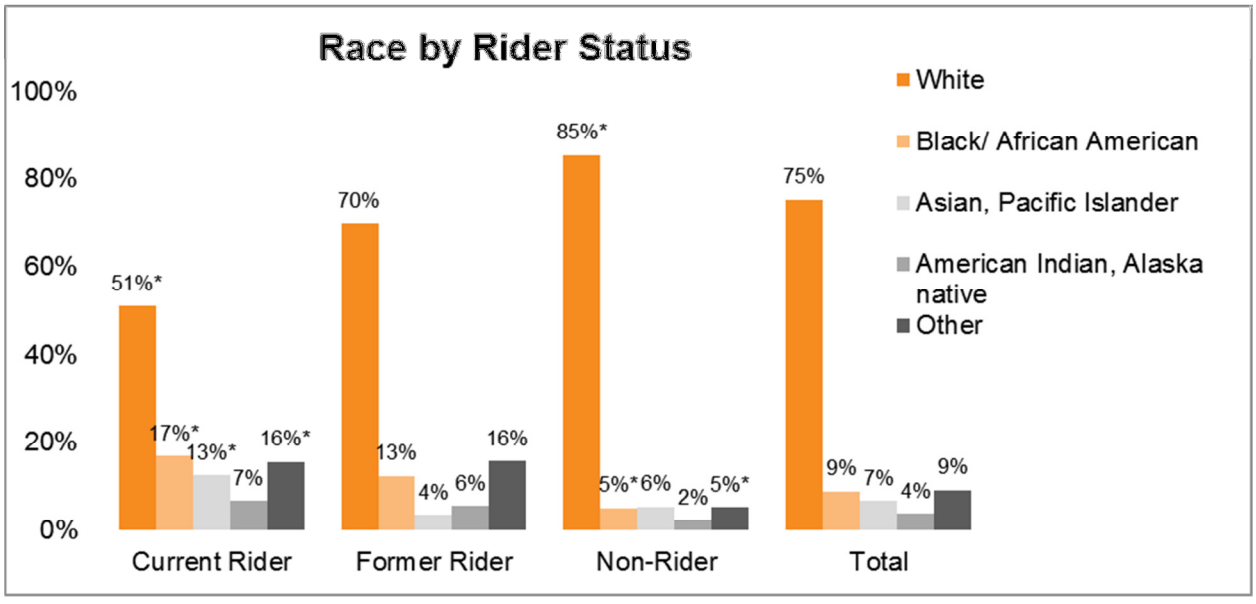
go through different life stages, earn higher incomes, and start to have children, they abandon Pace for other modes of transportation that they perceive fulfilling their needs more. As an example, one Former Rider mentions under the open-ended comments the following: "I have children which need to go to various locations throughout the day. The bus system isn't reliable enough to use for that."

FIGURE 15: GENDER BY RIDER STATUS



Compared to Former Riders (57%) and Non-Riders (55%), Current Riders (54%) are slightly less likely to be female, but this difference is not statistically significant.

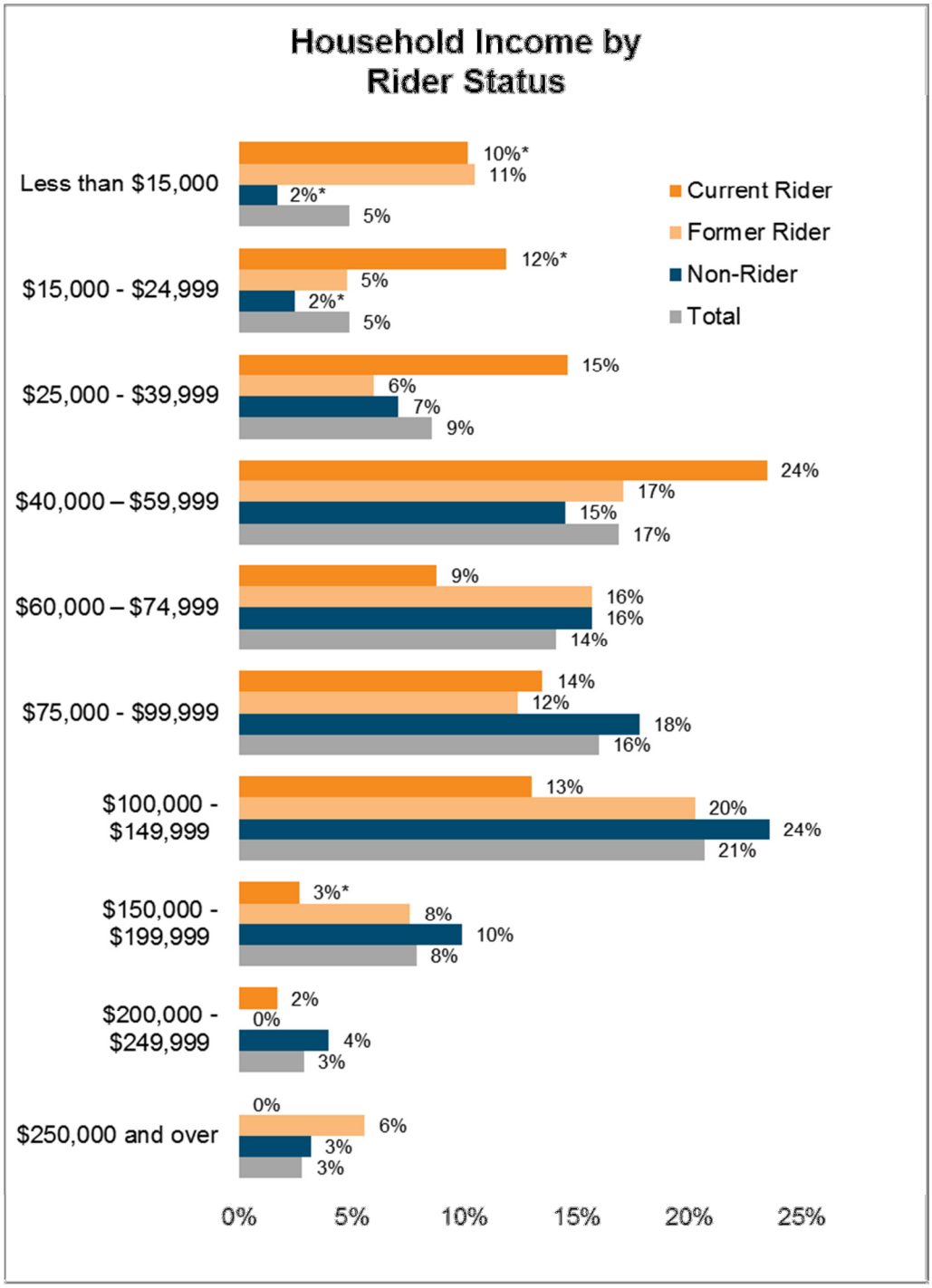
FIGURE 16: RACE BY RIDER STATUS



Note: Bars may not add up to 100% due to multiple responses per record.

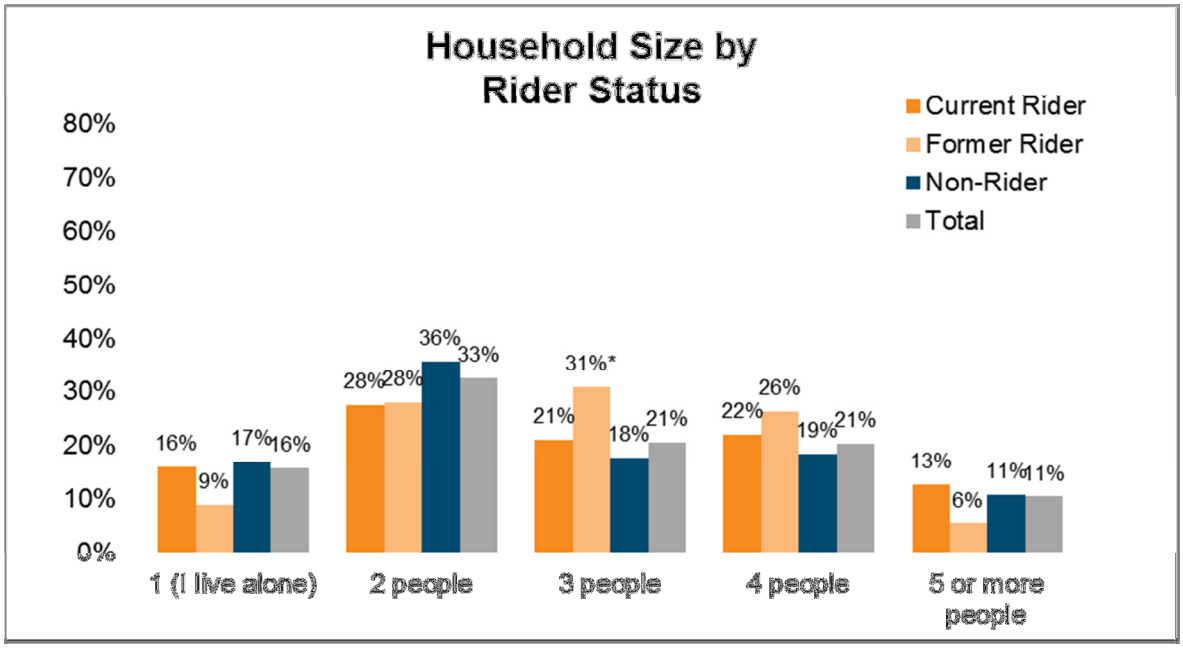
Current Riders and Former Riders showed greater racial diversity than Non Riders, with the most frequently reported Non-White race among Current Riders being Black/African American (17%), followed by Asian and Pacific Islander (13%). Respondents who reported "other" for race were equally represented in both the Current Rider and the Former Rider group (16%), but dropped to only 5% of the Non-Rider group.

FIGURE 17: HOUSEHOLD INCOME BY RIDER STATUS



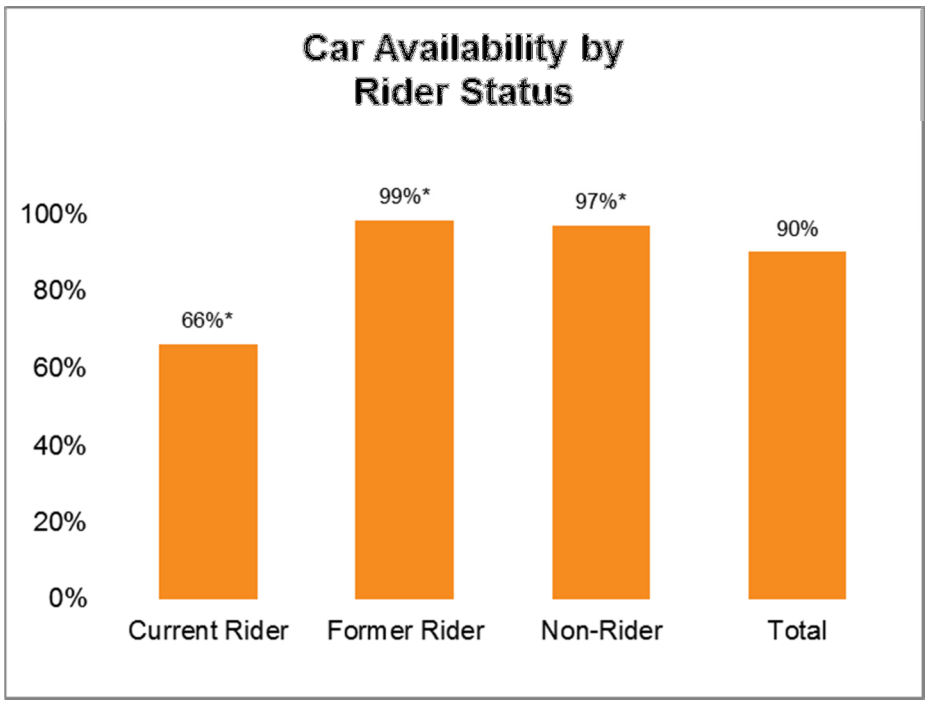
Current Riders are much more likely to have a household income of less than $60,000 (61%) compared to either Former Riders (39%) or Non-Riders (26%). This is likely because those with lower household incomes are less likely to own a car and therefore more likely to rely on transit to get them where they need to go.

FIGURE 18: HOUSEHOLD SIZE BY RIDER STATUS



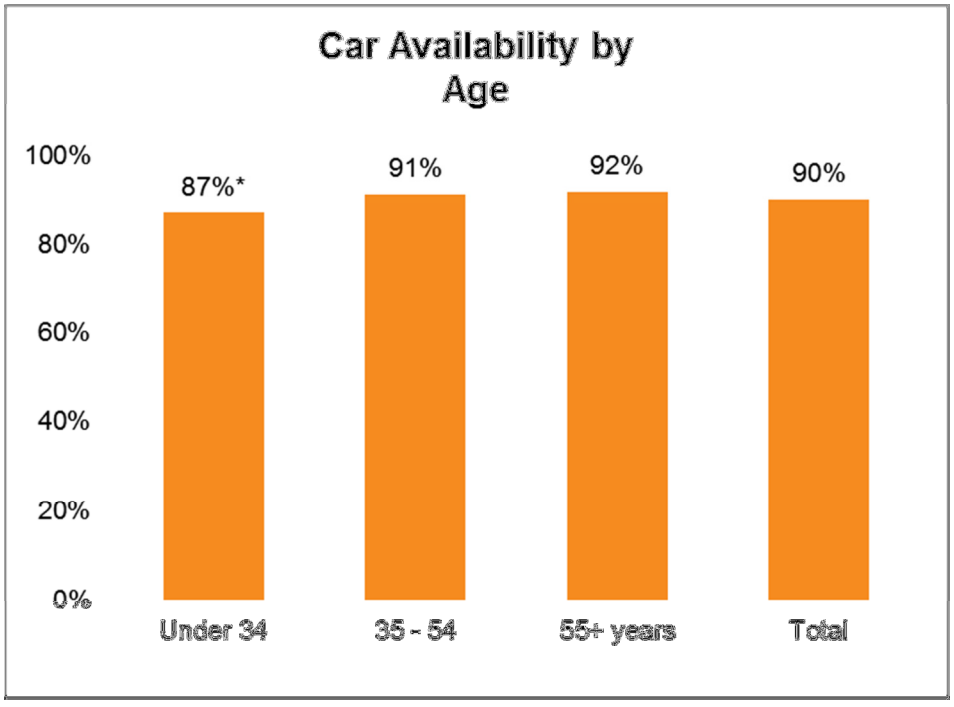
Former Riders are the least-well represented group for single-person households, and are best represented in the 3- and 4-person household, which may suggest that some riders cease to take the bus once they have children. This idea may be substantiated by Figure 21: Marital Status by Rider Status, which shows a higher proportion of Former Riders in the Married/In a committed relationship category than in the single category. Current and Non-Riders do not show much difference when compared within a household size category, and in fact none of the observed differences between these groups is significant.

FIGURE 19: CAR AVAILABILITY BY RIDER STATUS



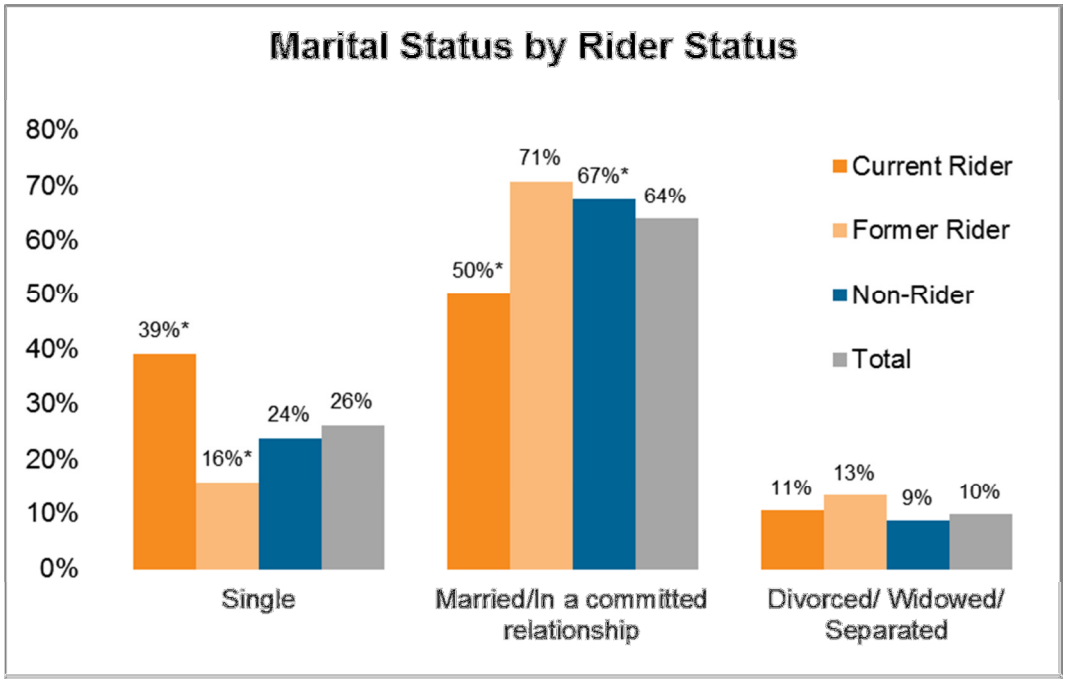
Current Riders are much less likely to have a vehicle available for their personal use (66%) compared to either Former Riders (99%) or Non-Riders (97%). This entails that at least for the subset of Current Riders who do not have a car available (34%), Pace may be the only way to meet their most basic travel needs. On the other hand, the fact that two-thirds of Current Riders *do* have a car available for personal use suggests that some Riders, who could presumably use a car, prefer to ride Pace for some trips.

FIGURE 20: CAR AVAILABILITY BY AGE



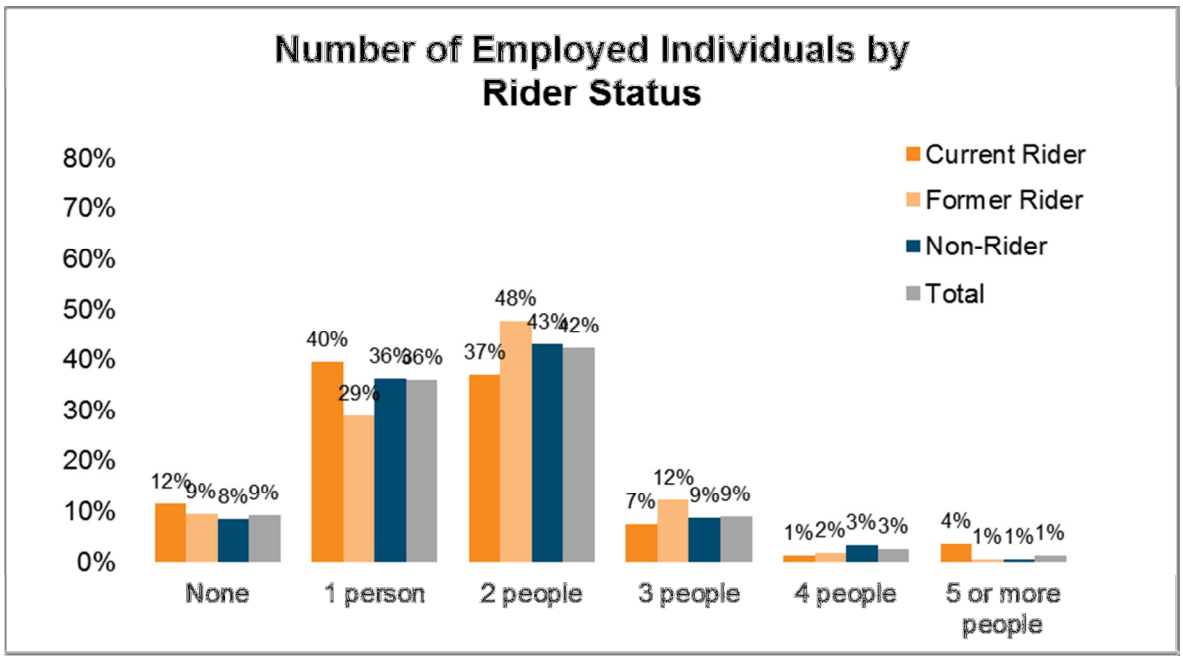
Car availability is correlated with age, such that older respondents are more likely to have a car available compared to respondents under the age of 34. This may explain why a relatively large proportion of Current Riders (39%) is under the age of 35 (see Figure 14).

FIGURE 21: MARITAL STATUS BY RIDER STATUS



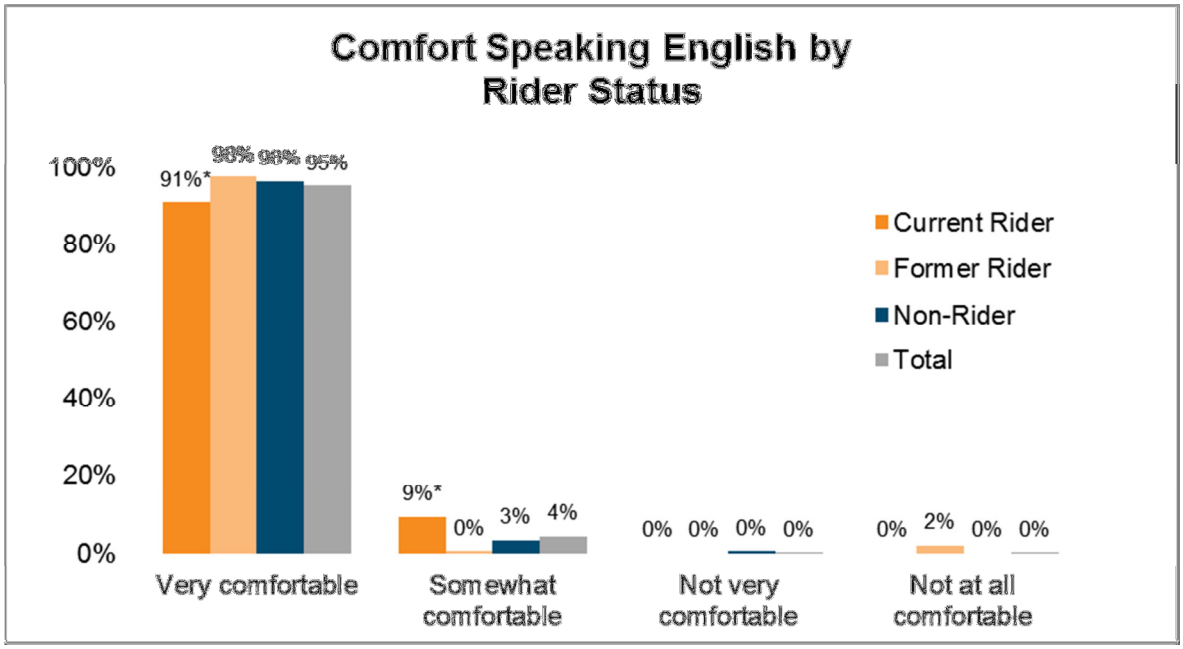
Current Riders are much more likely to be single (39%) compared to Former Riders (16%) or Non-Riders (24%). One interpretation of these results is that individuals who are in a relationship or are married are more likely to make trips with other individuals, and that riding Pace buses is less convenient when travelling with other people compared to alone.

FIGURE 22: NUMBER OF EMPLOYED INDIVIDUALS BY RIDER STATUS



Current Riders are less likely to have two or more employed individuals in the household (49%) compared to Former Riders (63%) or Non-Riders (56%). It is possible that having to juggle different work schedules among multiple individuals in the household requires many to rely on the flexibility of a car to meet their travel needs.

FIGURE 23: COMFORT SPEAKING ENGLISH BY RIDER STATUS

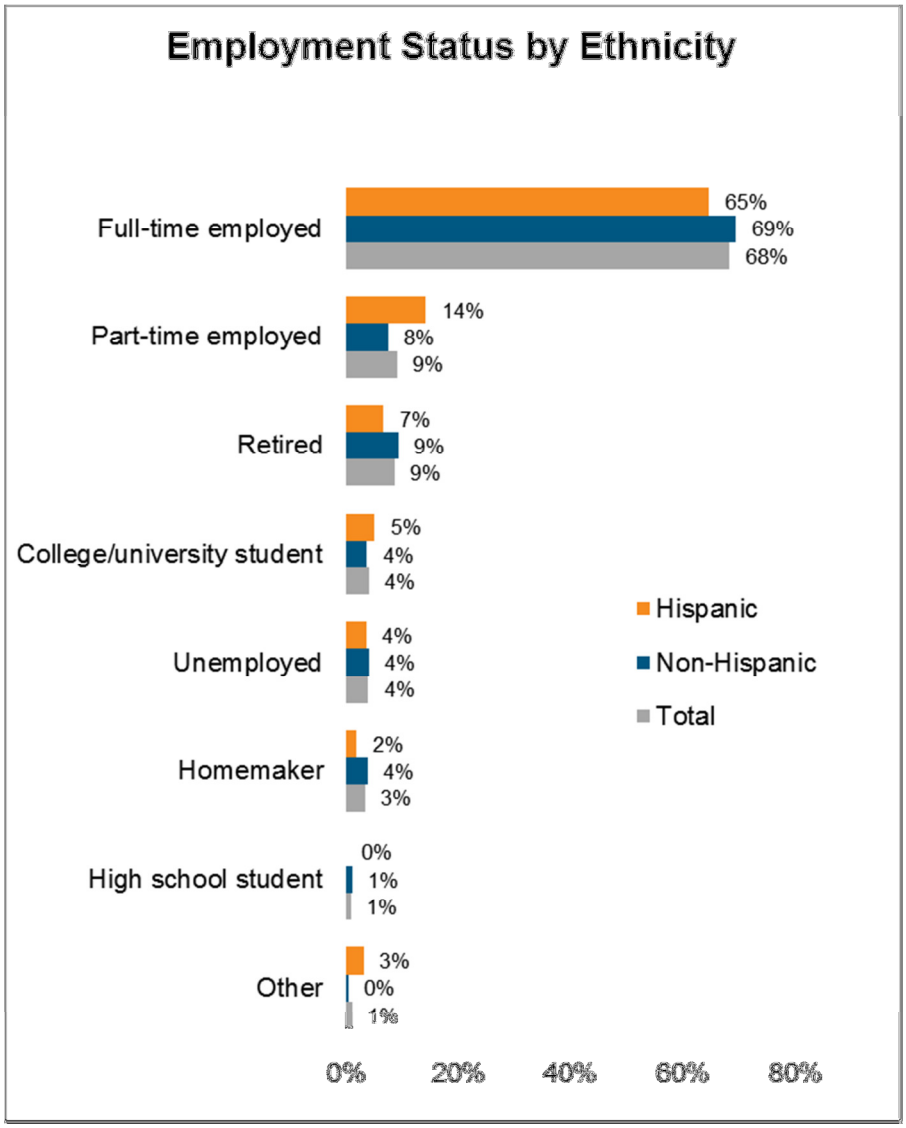


Nine percent of Current Riders, compared to 0% of Former Riders and 3% of Non-Riders indicate that they are only "Somewhat Comfortable" speaking English.

DEMOGRAPHICS BY ETHNICITY

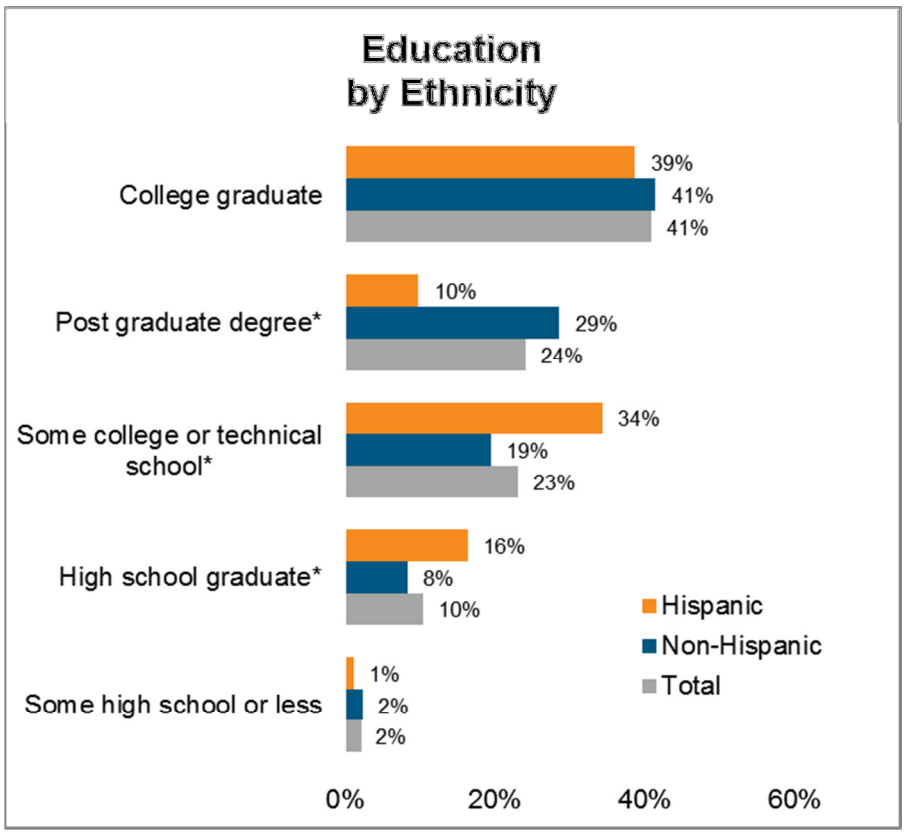
The following section presents demographic information segmented by ethnicity (Hispanic vs. Non-Hispanic). Note that the "Total" results presented in this section might differ slightly from the "Total" results presented under Demographics by Rider Status, since a small number of respondents declined to provide an answer for Ethnicity.

FIGURE 24: EMPLOYMENT STATUS BY ETHNICITY



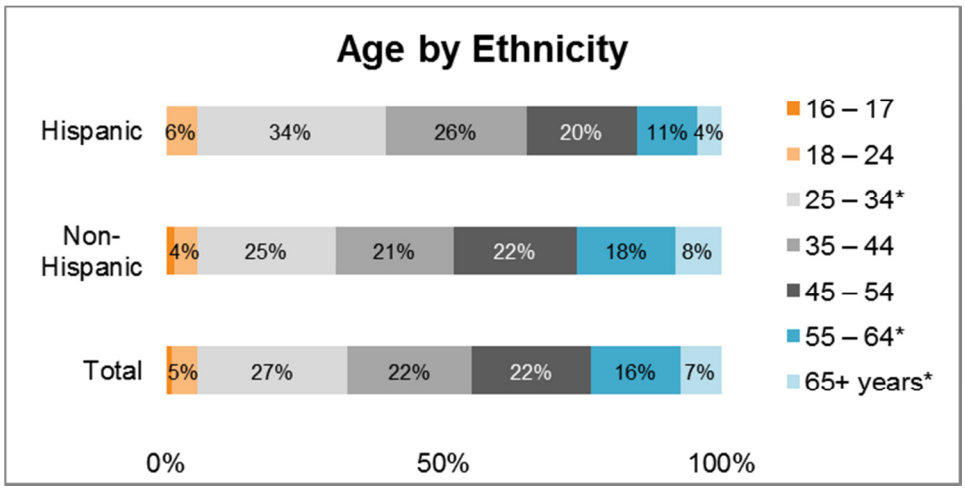
Hispanic respondents are slightly less likely to hold full-time employment compared to Non-Hispanic respondents (65% vs. 69%, respectively), but this difference is not statistically significant.

FIGURE 25: EDUCATION BY ETHNICITY



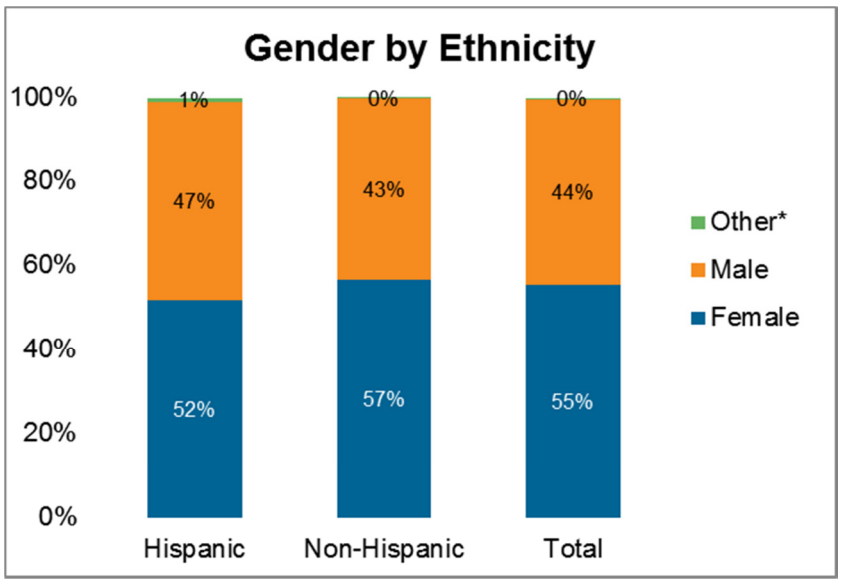
Hispanic respondents are less likely to have a postgraduate degree (10% vs. 29%) and are more likely to have obtained up to some college education compared to Non-Hispanic respondents (51% vs. 29%, respectively).

FIGURE 26: AGE BY ETHNICITY



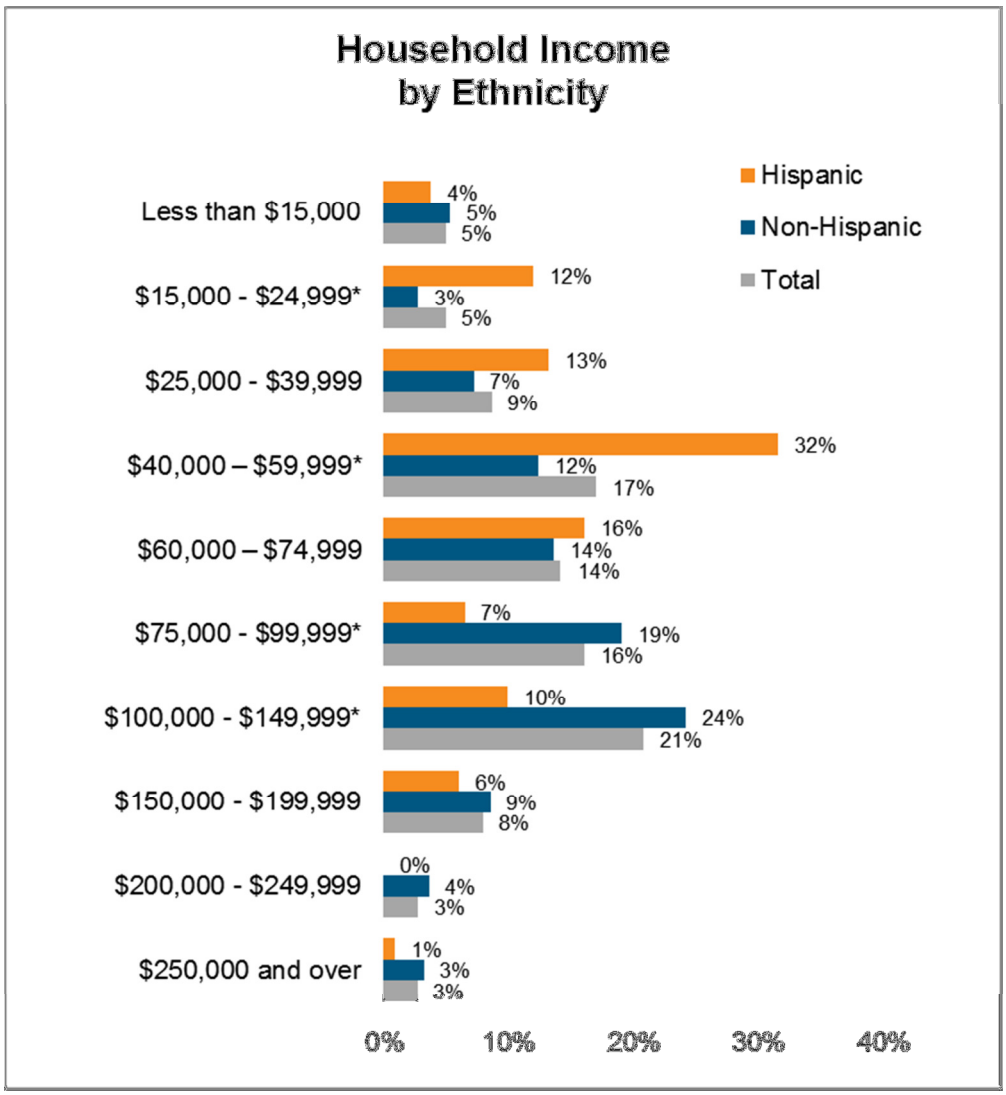
Hispanic respondents tend to be younger than Non-Hispanic respondents: Proportionally, more Hispanic respondents fall into the 25-34 age group (34% vs. 25%), and fewer are 55 years old or above (15% vs. 26%).

FIGURE 27: GENDER BY ETHNICITY



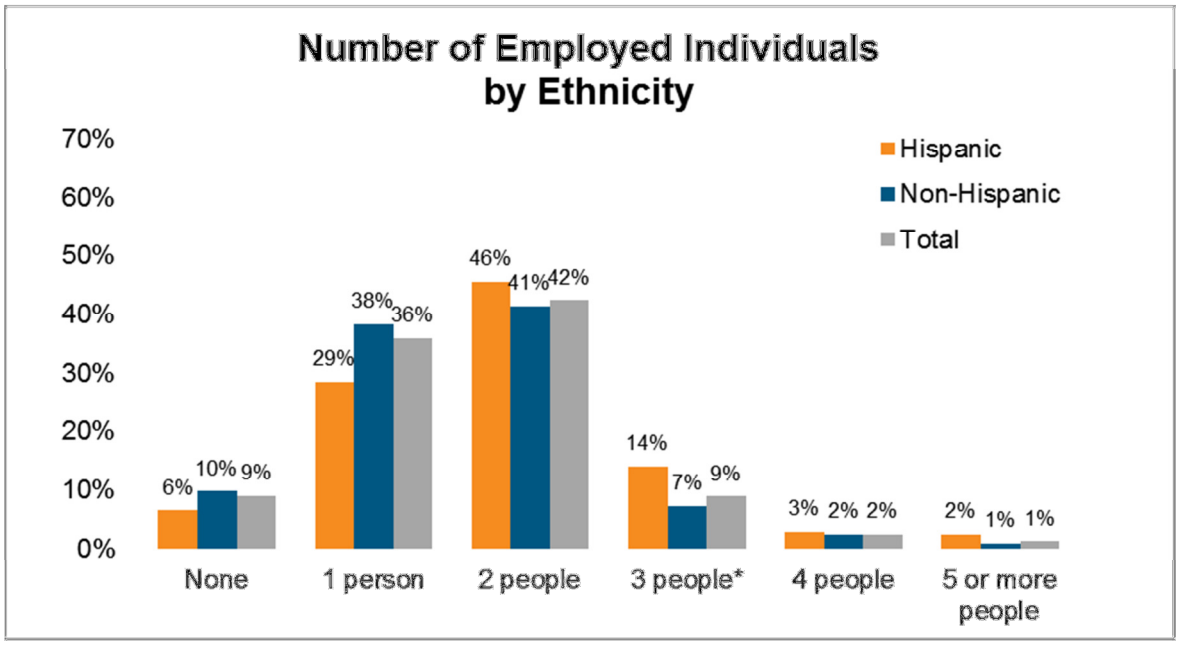
Overall more females responded to the survey than males, and Hispanic respondents are slightly less likely to be female (52%) compared to Non-Hispanic respondents (57%), but this difference is not statistically significant.

FIGURE 28: HOUSEHOLD INCOME BY ETHNICITY



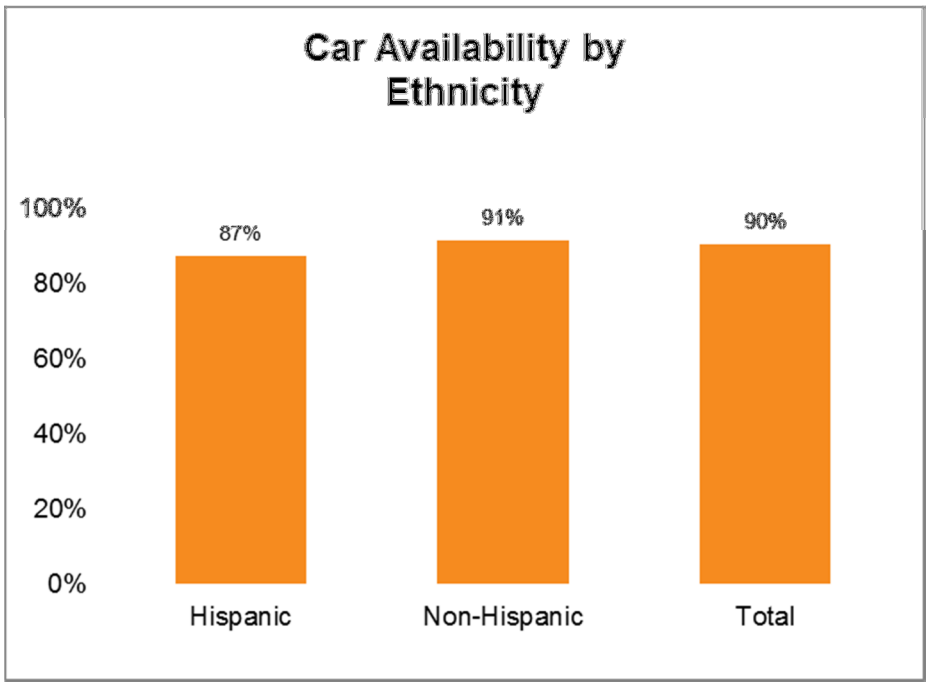
Hispanic respondents are much more likely to have a household income of less than $60,000 compared to Non-Hispanic respondents (61% vs. 27%).

FIGURE 29: NUMBER OF EMPLOYED INDIVIDUALS BY ETHNICITY



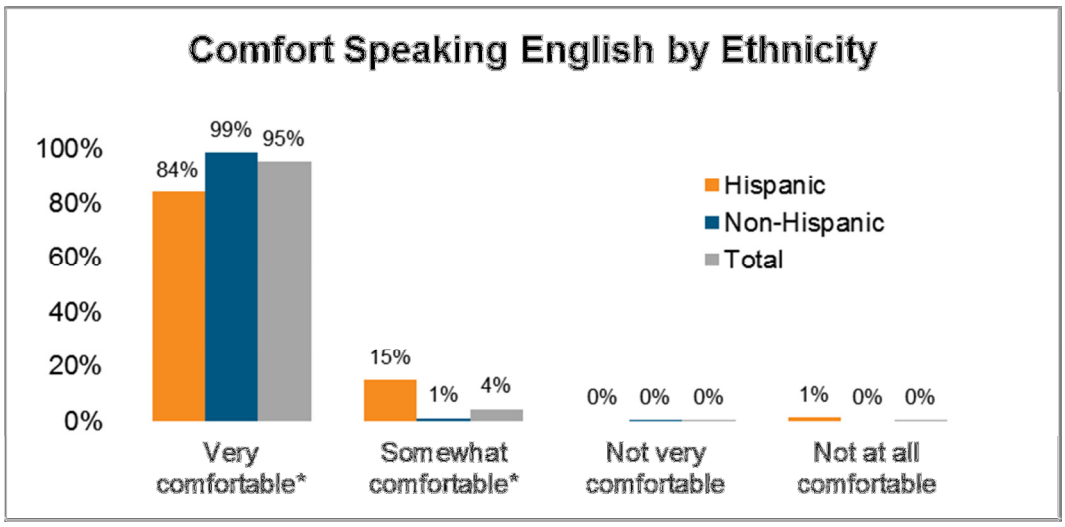
Respondents in Hispanic households report higher numbers of employed individuals living in the household than Non-Hispanic respondents. For instance, compared to Non-Hispanic respondents (7%), Hispanic respondents (14%) are more likely to live in a household with three employed individuals.

FIGURE 30: CAR AVAILABILITY BY ETHNICITY



Compared to Non-Hispanic respondents (91%), Hispanic respondents (87%) are slightly less likely to own a car, but this difference is not statistically significant.

FIGURE 31: COMFORT SPEAKING ENGLISH BY ETHNICITY



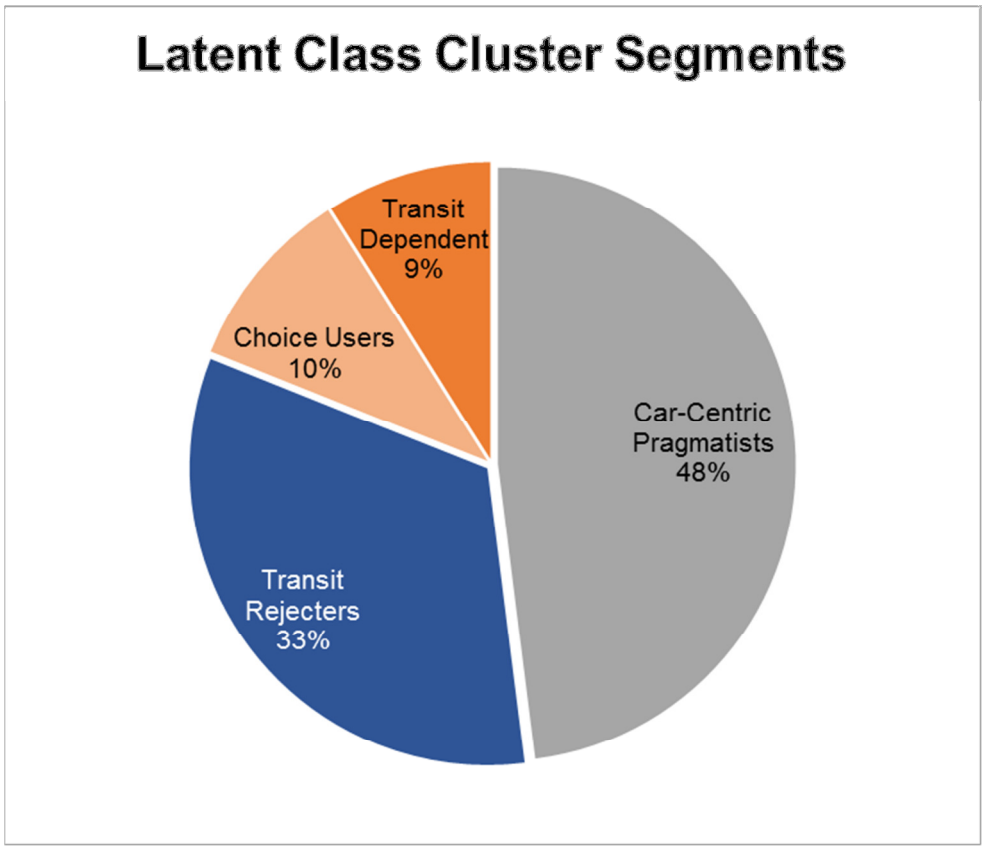
Even though a great majority of Hispanic (84%) and Non-Hispanic (99%) respondents indicate that they are "Very comfortable" speaking English, more Hispanic (15%) than Non-Hispanic (1%) respondents indicate that they are only "Somewhat comfortable," which suggests that providing information in Spanish in addition to English might be beneficial to some Hispanic residents.

6.2 | LATENT CLASS CLUSTER SEGMENTATION ANALYSIS

Fox Valley residents have different wants, needs, and attitudes. For the purposes of discussion and analysis, it is often useful to group a population into discrete categories that can be characterized and compared to one another. This provides a useful framework for discussing how service changes may appeal to different segments and help attract more customers from each segment. The analysis determines which customers care about which service features and ways to reach and communicate with those customers.

In order to identify categories of respondents based on their attitudes toward transit use, we employed a technique called latent class cluster (LCC) analysis. LCC analysis allows researchers to find groups of people who share many of the same attitudes. These clusters then allow analysis of the social characteristics of each group. We identified (and named) four segments in our LCC analysis, as shown in Figure 32.

FIGURE 32: RELATIVE SIZE OF LATENT CLASS CLUSTER SEGMENTS



In Table 13, we show a set of key characteristics for each segment. The segments are largely based on attitudinal questions.

TABLE 13: KEY CHARACTERISTICS OF LATENT CLASS SEGMENTS

	Cluster Characteristics	Car-Centric Pragmatists	Transit Rejecters	Choice Users	Transit Dependent
	Cluster Size	***48%***	***33%***	***10%***	***9%***
Demogs	% Hispanic	19%	17%	62%	31%
	% under 35	28%	24%	58%	39%
	% White	77%	87%	44%	52%
	% College Graduates or higher	81%	59%	39%	24%
	% Single	22%	18%	49%	48%
	% Earning Under $60k/year (household)	23%	33%	60%	81%
	% With Kids at Home	40%	39%	69%	27%
Trip Mode (commute, number of days prior week)	Drove alone	4.1	4.6	3.0	0.3
	Pace bus	0.3	0.1	1.7	3.8
	Metra	0.8	0.2	1.1	1.8
	Taxi	0.1	0.0	0.4	0.3
	Bicycled	0.1	0.0	0.6	0.0
	Walked	0.1	0.1	0.5	1.8
Trip Mode (non-work, number of days prior week)	Drove alone	4.2	4.4	3.3	0.0
	Pace bus	0.0	0.0	1.3	2.7
	Metra	0.1	0.0	1.3	0.9
	Taxi	0.0	0.0	0.9	0.4
	Bicycled	0.2	0.1	1.2	0.1
	Walked	0.4	0.2	1.5	1.2
Transit Use	% Current Pace Rider	12%	5%	77%	85%
	% Informed about Pace	7%	6%	52%	61%
Car	% With Access to Car	99%	99%	97%	8%
Key Attitudes	I like the idea of doing something good for the environment when I ride public transportation	76%	21%	82%	73%
	I feel safe when riding public transportation	64%	13%	70%	84%
	Riding public transportation is less stressful than driving on congested highways	86%	22%	80%	81%
	My family and friends typically use public transportation	17%	4%	46%	44%
	I like to make productive use of my time when I travel	84%	52%	80%	91%
	I sometimes take public transportation to avoid traffic congestion	60%	10%	95%	36%
	If it would save time, I would change my form of travel	82%	34%	63%	48%
	During bad weather, riding public transportation is more reliable	48%	8%	43%	58%

The largest segment we identified in the sample are the **Car-Centric Pragmatists**. This segment is highly educated and may or may not have children in their household. They are very pragmatic in their travel choices, such that their primary concern is travel time. Even though they are almost certain to have access to a car and are very likely to have used the car on several days in the prior week, they are not ideologically opposed to transit. Indeed, they might be willing to switch travel mode if they perceive the alternative to be faster, less stressful, or providing a more productive use of their time. As a result, they should be considered a growth segment, but one that perhaps is harder to convert than Choice Users (see below).

The next largest group we have termed **Transit Rejecters**. This segment is the oldest, most likely to be White/Caucasian, highly car-dependent and has no interest in riding transit, even if it were improved. In fact, their attitudes suggest that they are almost ideologically opposed to transit and are satisfied with their car-centric lifestyle. According to their own responses, little can be done to draw this group onto transit.

Choice Users is the segment that most likely has children, is predominantly Hispanic, and the least likely to be White/Caucasian. This segment's willingness to try transit is not driven by necessity (97% report having access to a car), but partly driven by the desire to be "green," to avoid congestion or because it is what their friends and family are doing (i.e., normative influences). This group may be ripe for using more transit and a primary growth segments, as their current travel mode choice already shows the most variability in mode choice the prior weeks, suggesting that they are open to trying different types of modes depending on the situation and needs.

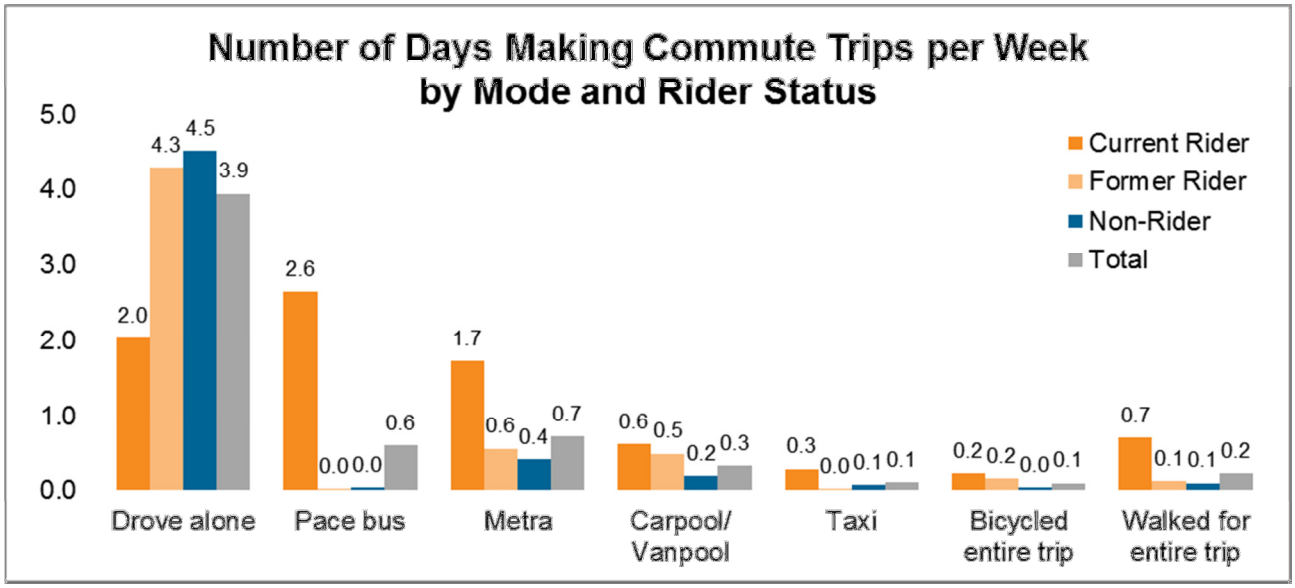
The **Transit Dependent** segment is the most likely to report that they are already Pace riders, and they are already much informed about Pace's services, and they feel safe and comfortable riding transit. This segment is also most likely to earn under $60,000 in annual household income. Unlike Choice Riders, this segment is highly dependent on public transit, as 92% report not having access to a car, making transit a necessity, not a choice for them. This necessity is also reflected in their attitudes, which suggest that changing travel mode to save time or to prevent congested areas is not an option for them. This is not a growth segment for Pace as this population is unlikely to have a car and is heavily reliant on transit for its travel needs. Nonetheless, this is an important segment for Pace and efforts should concentrate on retaining this ridership.

6.3 | TRAVEL PATTERNS

Respondents were asked a variety of questions regarding how they traveled in the past week. Questions about respondent travel included what modes of travel they used, how frequently they made commuting and non-work trips, and how frequently they made trips for a given set of trip purposes. Finally, respondents were asked to provide the full details of the most recent trip they made for a given purpose. The details of this trip included the origin and destination, modes used, time of day, day of week, and trip duration. The details of these trip data do not permit the development of a full OD model, however, they do allow for some insight into specific travel patterns of trips that go to and from the Fox Valley region.

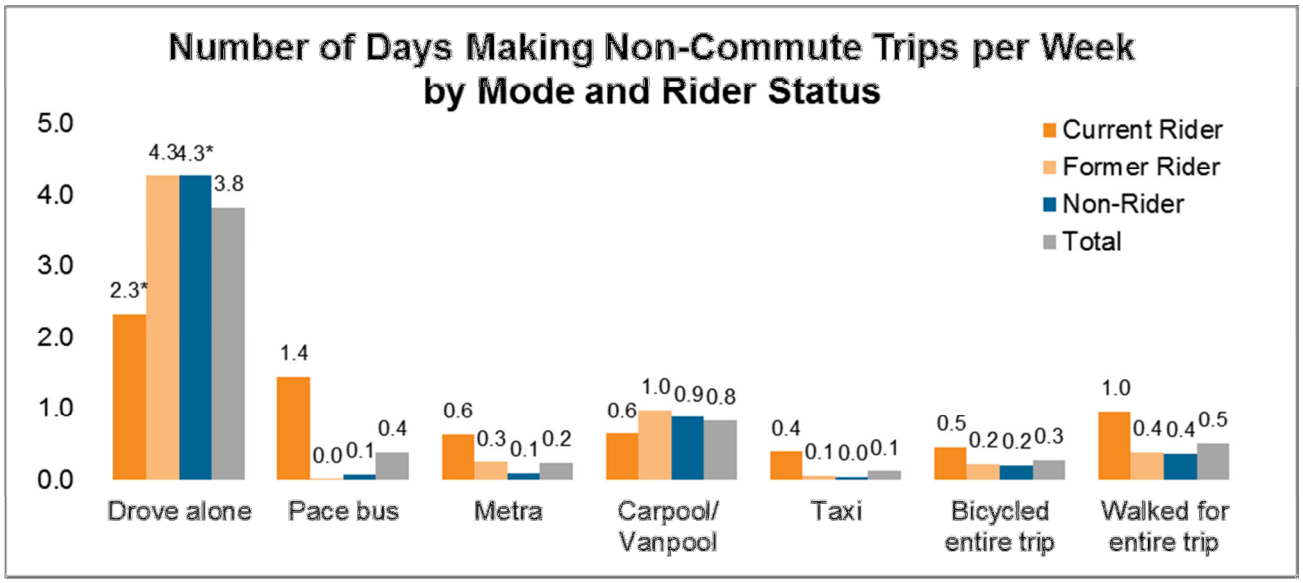
GENERAL TRAVEL BEHAVIOR

FIGURE 33: NUMBER OF DAYS MAKING COMMUTE TRIPS PER WEEK BY MODE AND RIDER STATUS



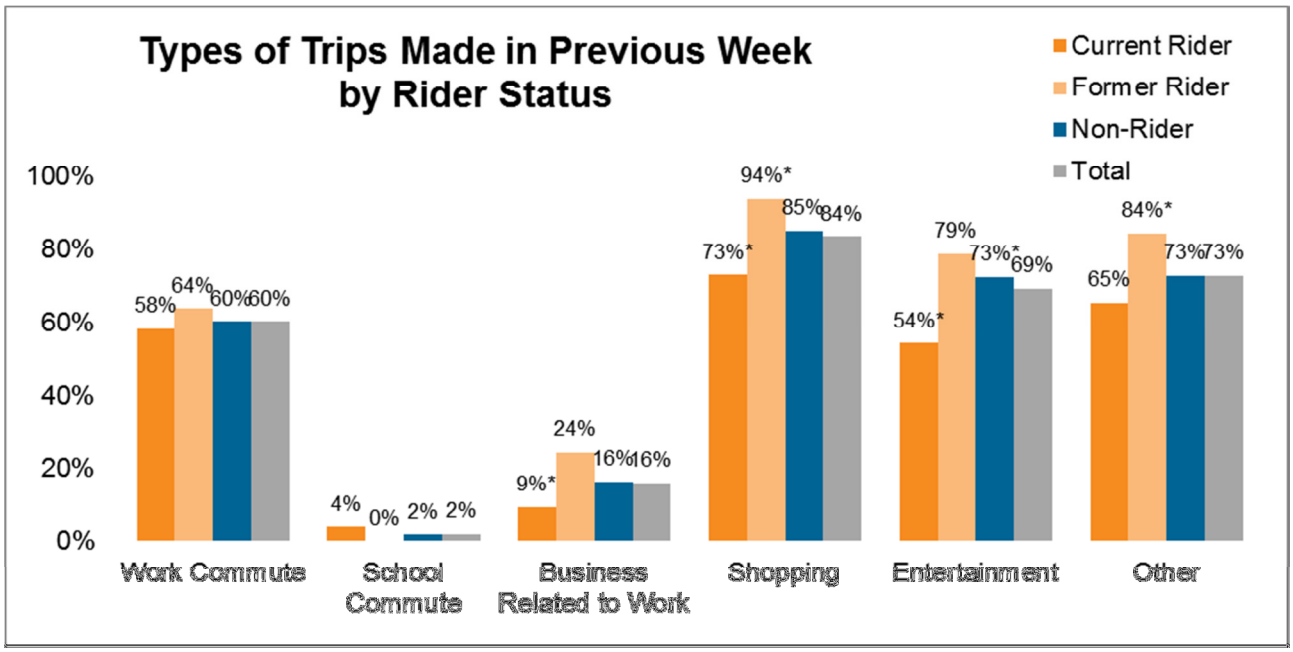
Results from this question indicate that most residents commute by driving alone in their car. Current Riders of Pace reported using a car less frequently than they use the Pace buses, and reported using Metra almost as frequently as they reported using Pace buses. This might suggest that the interconnectivity of the Pace and Metra systems could be an important aspect for commuters. Further, it is interesting to note that Current Riders drive about half as much as other segments. Finally, Former Riders' mode choice mirrors that of Non-Riders', suggesting that once they abandoned Pace, their behavior is very similar to those individuals who have never been Pace Riders.

FIGURE 34: NUMBER OF DAYS MAKING NON-COMMUTE TRIPS PER WEEK BY MODE AND RIDER STATUS



Non-commute trips show similar overall patterns in frequency of mode-choice when compared to commute trips. As with commute trips, the most commonly used travel mode is driving alone, but there is an increase in using carpool/vanpool, which includes driving with others. Most likely, this is because some of the non-commuting trips that people make (such as shopping, entertainment) entail going to a destination (shopping mall, going to the movies) with other people. Metra is not used as frequently for non-commute trips, and in fact more respondents report walking for the entirety of their trip than taking Metra for non-commute trips.

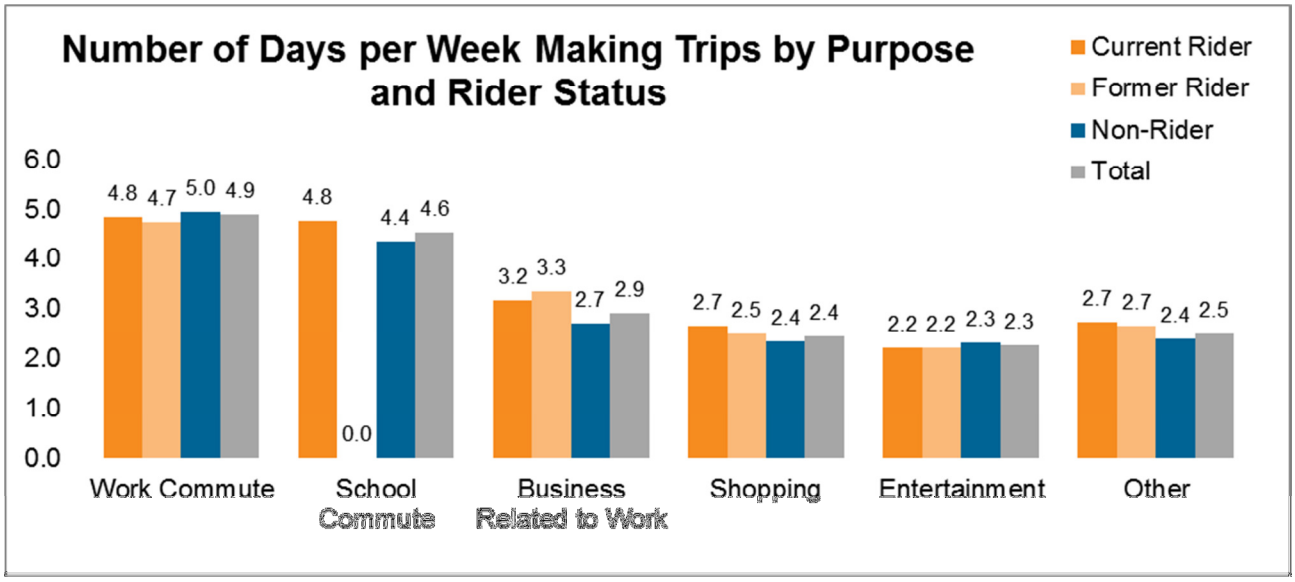
FIGURE 35: TYPES OF TRIPS MADE IN PREVIOUS WEEK BY RIDER STATUS



Note: Bars may not add up to 100% due to multiple responses per record.

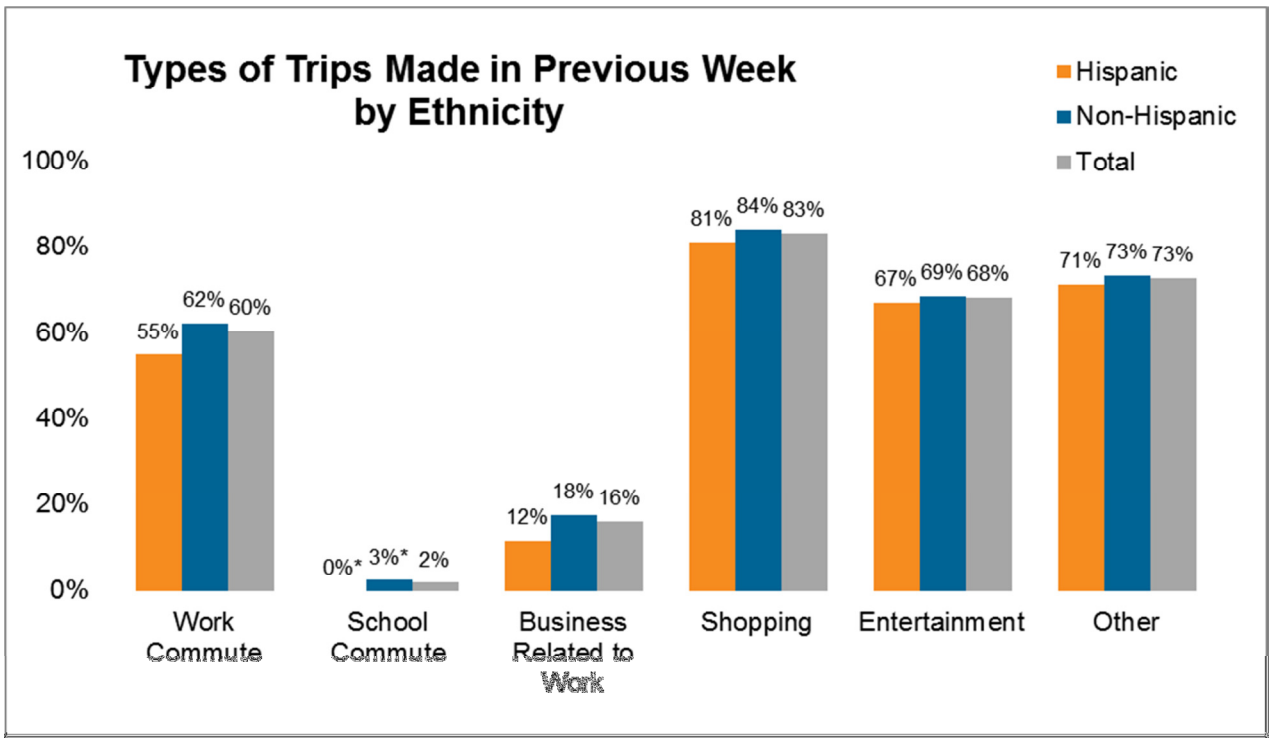
Overall, most respondents reported making trips for shopping, entertainment, a work trip, or "other," fewer respondents made business-related-to-work trips. School commute trips were the least likely. Current Riders report making significantly fewer shopping and entertainment trips. It is therefore possible that Current Riders, who also are less likely to have a car, are more selective in the trips they make, choosing only to make those trips they perceive to be essential (i.e. commuting to work).

FIGURE 36: NUMBER OF DAYS PER WEEK MAKING TRIPS BY PURPOSE AND RIDER STATUS



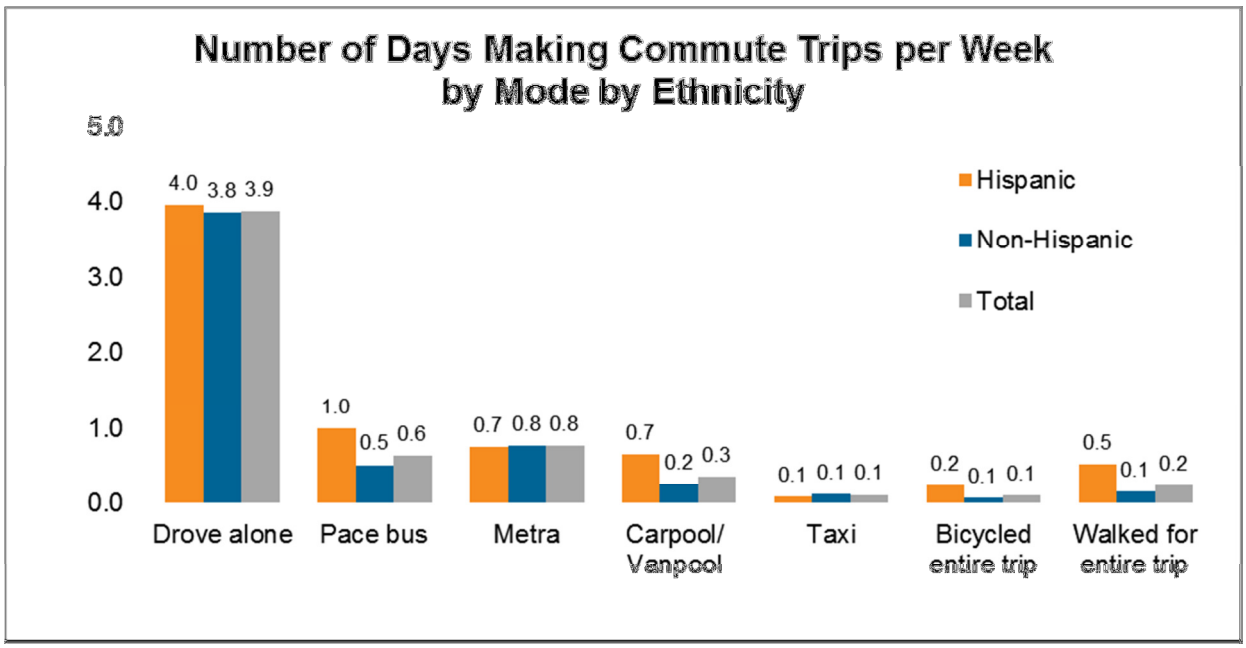
Respondents who reported making commute-type trips indicate an average of nearly 5 days per week, with other trip types occurring less frequently. Overall, there seems to be little differences in the number of days per week that Current vs. Former vs. Non-Riders report making make various types of trips. However, it should be noted that the trip frequency was reported *only* if respondents reported making a trip for a given purpose, and therefore the variability associated with whether or not a trip was made is removed (see Figure 35).

FIGURE 37: TYPES OF TRIPS MADE IN PREVIOUS WEEK BY ETHNICITY



Fewer Hispanic respondents than Non-Hispanic respondents reported making commute trips, but this difference was not statistically significant.

FIGURE 38: NUMBER OF DAYS MAKING COMMUTE TRIPS PER WEEK BY MODE AND ETHNICITY

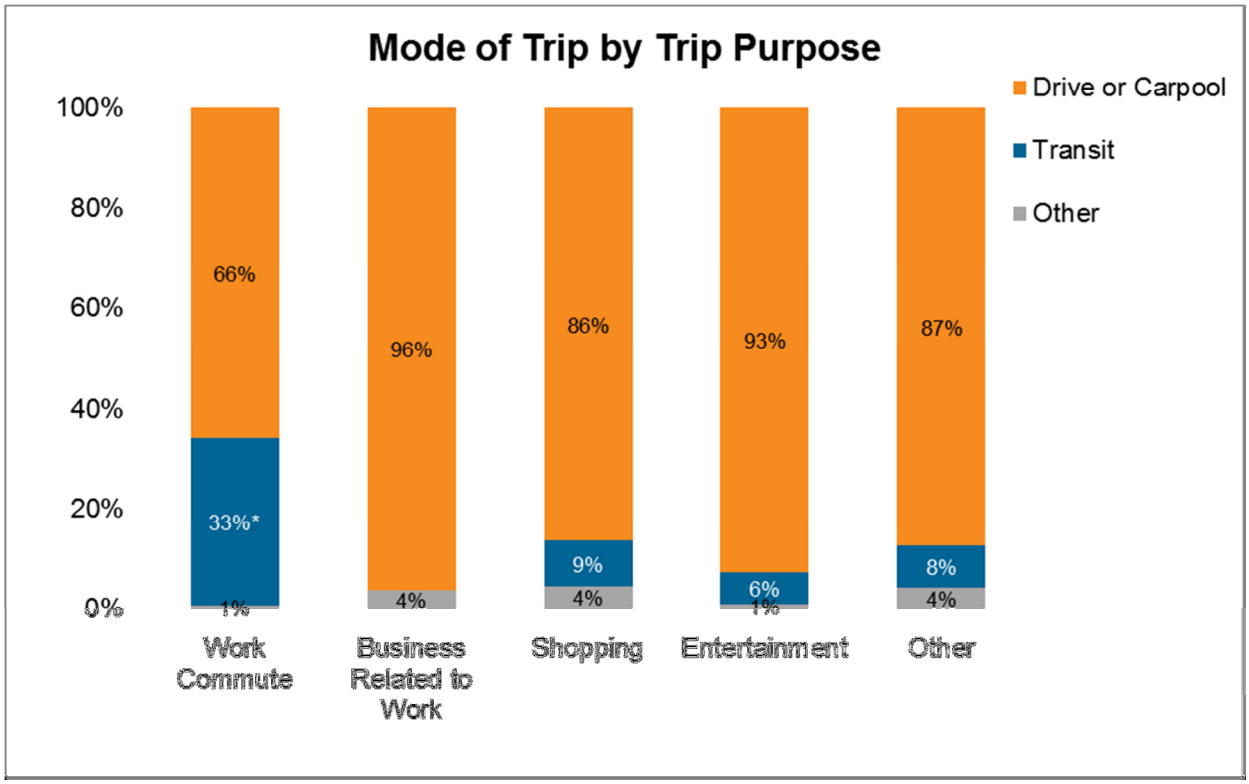


There is little difference in the frequency with which Hispanic and Non-Hispanic respondents report using various modes of transportation for commuting. Hispanic respondents reported slightly more frequent use of Pace bus and carpool/vanpool, but this difference was not statistically significant.

OD TRIP BEHAVIOR

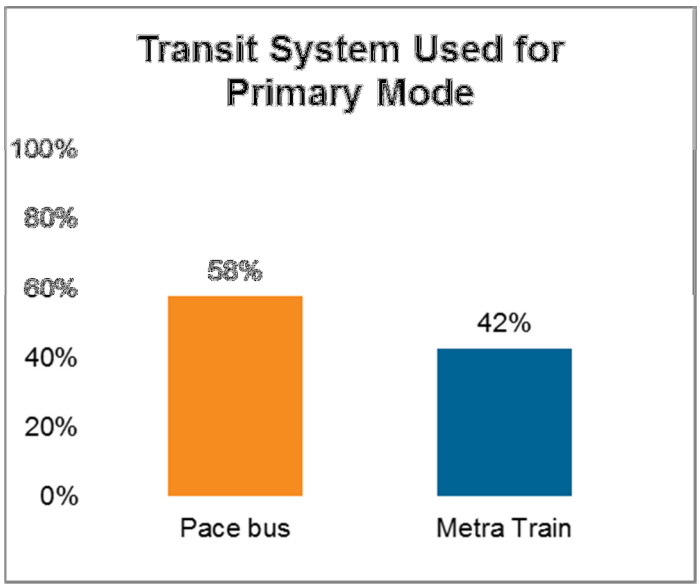
To obtain ODs for a variety of trip types respondents were instructed to provide the details of their most recent trip for a given purpose. The trip purpose was randomly selected from one of the trips the respondent reported making in the previous week. Please note that the results presented in the following section were weighted by the final OD weight.

FIGURE 39: MODE OF TRIP BY TRIP PURPOSE



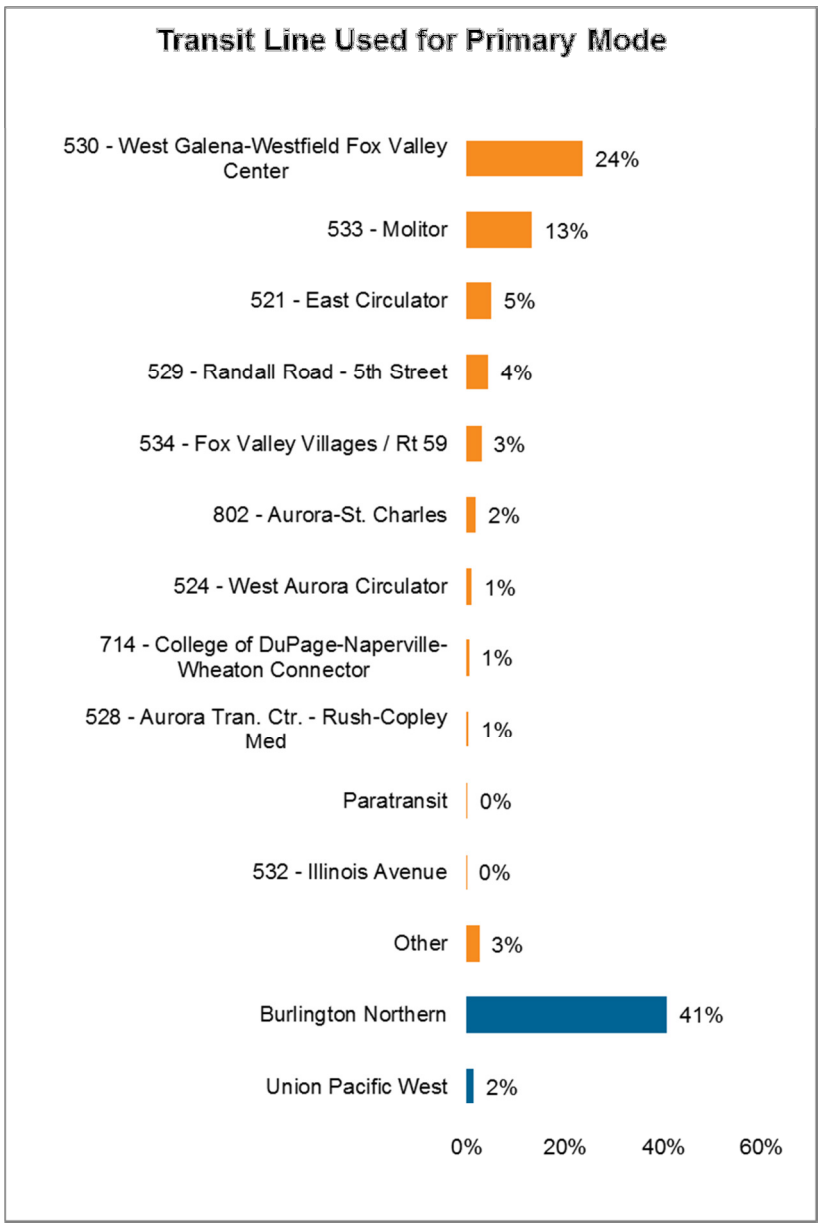
As can be seen in Figure 39, independent of the type of trip they described, most respondents reported driving for their most recent trip. Work commute trips had the highest transit use (33%) and the lowest car use (66%). Only 9% of shopping trips are made with transit. One potential reason for the low percentage is that public transportation is not always conducive to carrying large personal items, including shopping or grocery bags. Also low is the relative percentage of entertainment trip made by transit. Given the current limited evening schedule of Pace buses in the Fox Valley, and given that most entertainment trips occur during the evening or at night, it is possible that transit use is simply not an option for most of these types of trips.

FIGURE 40: TRANSIT SYSTEM USED FOR PRIMARY MODE



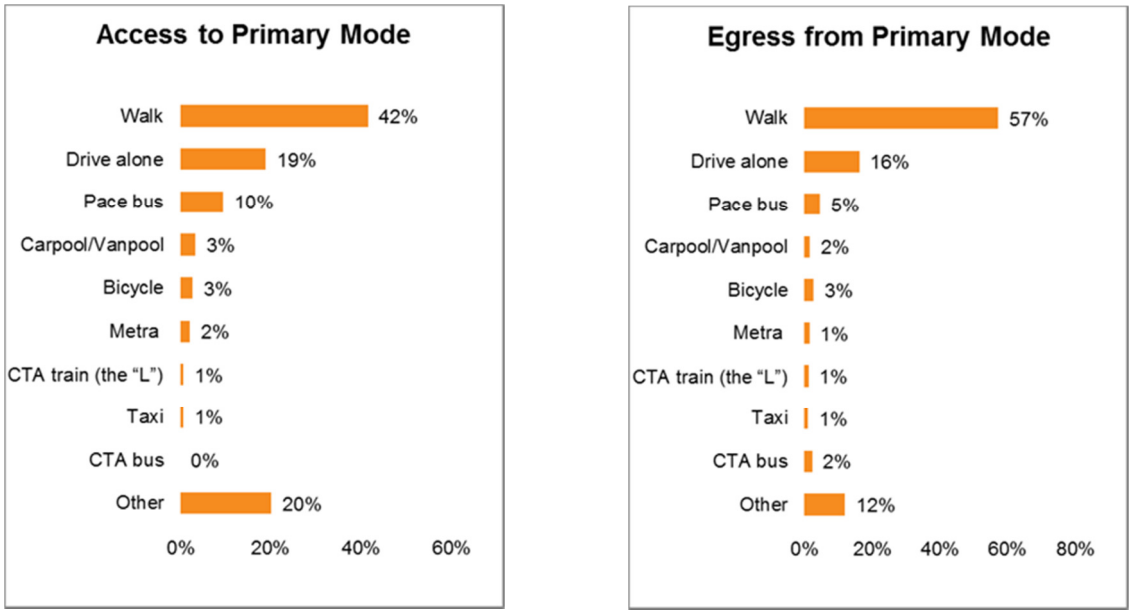
Among those who reported using transit for their trip, 58% reported using Pace bus and 42% reported using Metra (Figure 40).

FIGURE 41: TRANSIT LINE USED FOR PRIMARY MODE



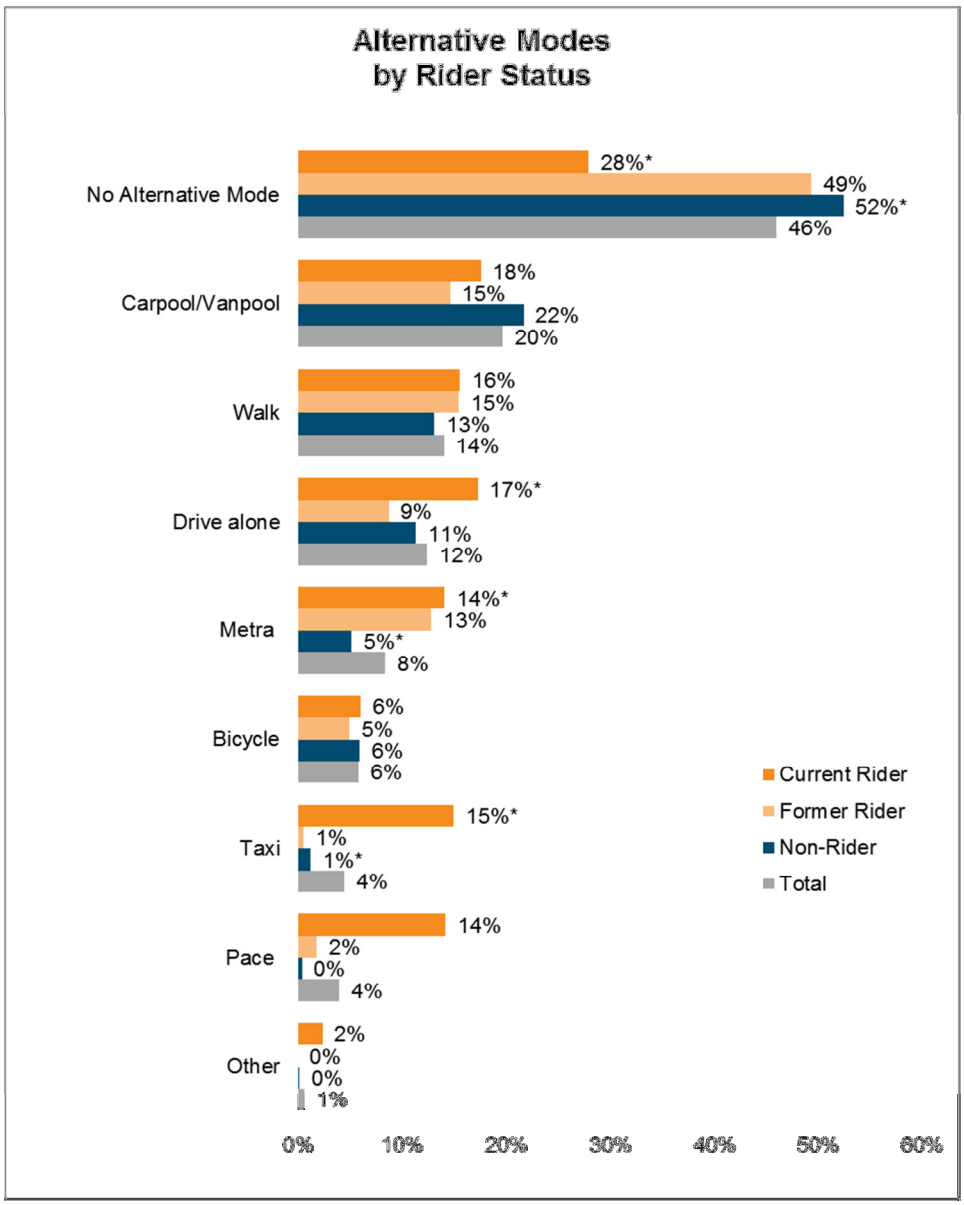
A further breakdown of which lines were used for these transit trips can be seen above, which shows that Pace bus route 530 and the BNSF line were the most used routes/lines.

FIGURE 42: ACCESS AND EGRESS MODES



Respondents who selected some form of transit for their primary mode of travel were also asked about their access and egress modes. Walking and driving were most common access and egress modes, followed by "other" (which was reported at a slightly higher rate than "drive alone" for the access trip).

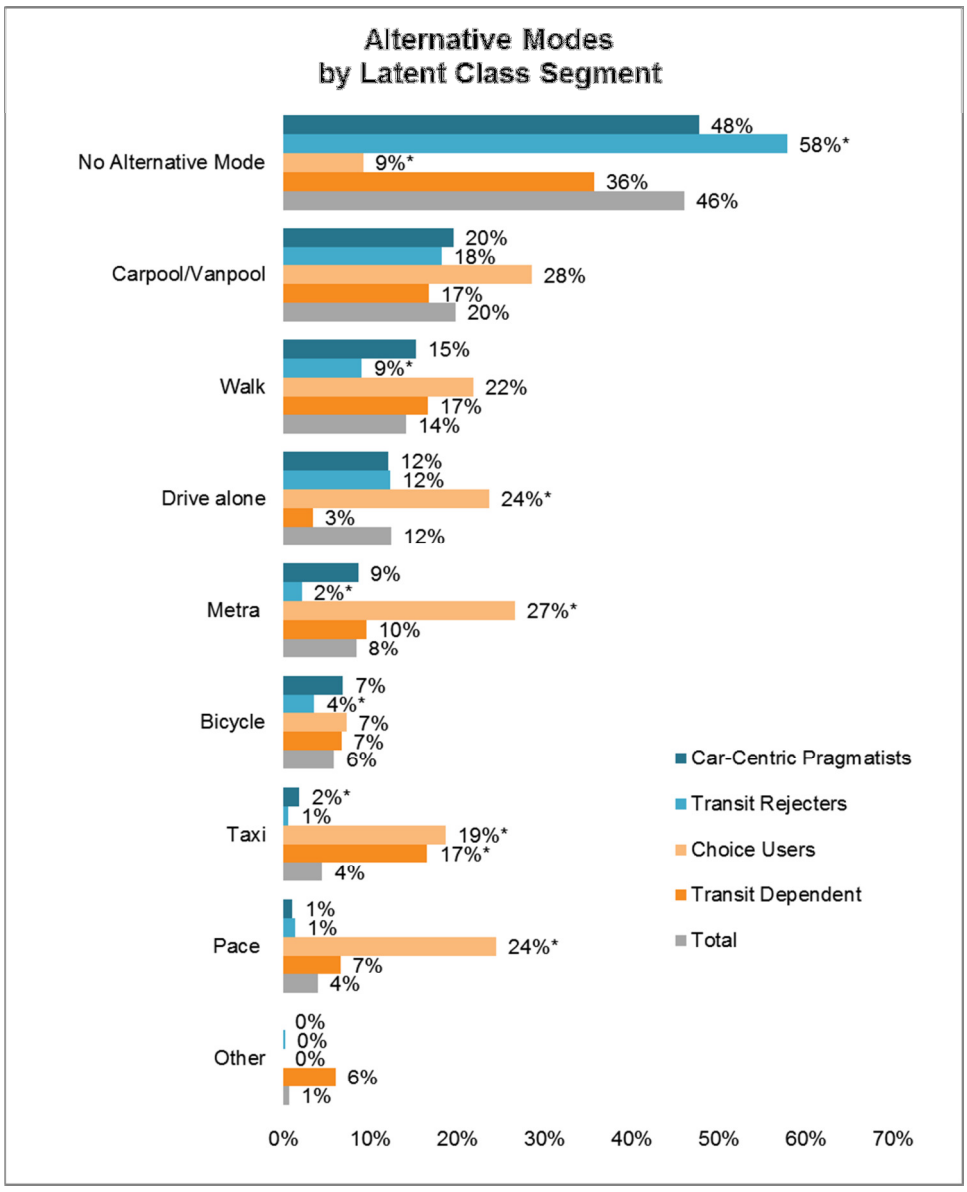
FIGURE 43: ALTERNATIVE MODES BY RIDER STATUS



Note: Bars may not add up to 100% due to multiple responses per record.

Respondents were also asked which alternative primary mode they take, on days they do not take their typical mode. Even though most indicated that they only make the trip with one mode (46%), a sizeable minority indicated using different modes. In particular Current Riders indicated that they use different modes, including carpooling, driving alone, and taking a taxi.

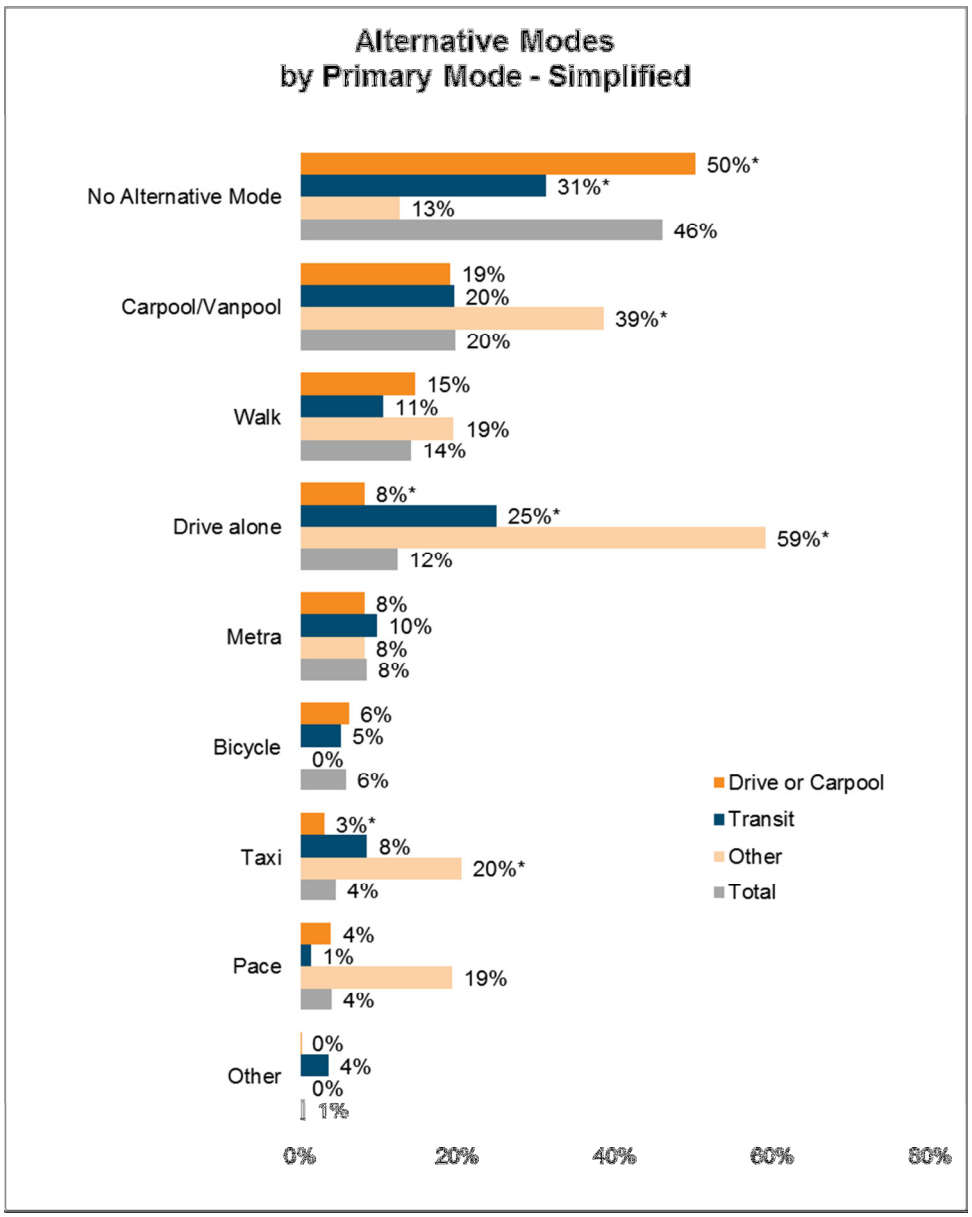
FIGURE 44: ALTERNATIVE MODES BY LATENT CLASS SEGMENT



Note: Bars may not add up to 100% due to multiple responses per record.

When broken out by Latent Class Segments, interesting patterns with regards to alternative mode choice emerge. As might be expected, Choice Users show by far the greatest willingness to try different types of modes. In fact, only a small minority of Choice Users (9%) indicate that they only take one mode. Carpooling, using Metra, Pace, and driving alone are all viable alternative options for this segment.

FIGURE 45: ALTERNATIVE MODES BY PRIMARY MODE - SIMPLIFIED



Note: Bars may not add up to 100% due to multiple responses per record.

When broken out by the primary mode, those who drive or carpool are most likely to indicate that they do not use an alternative mode for their trip (50%).

TABLE 14: ALTERNATIVE MODES BY PRIMARY MODE

		Primary Mode								
		Drive alone	Pace	Metra	Carpool/ Vanpool	Taxi	Bicycle	Walk	Other	Total
Alternative Mode	No Alternative Mode	55%	23%	42%	23%	0%	0%	11%	26%	46%
	Carpool/Vanpool	22%	31%	5%	0%	100%	6%	34%	61%	20%
	Walk	15%	13%	8%	12%	0%	59%	0%	0%	14%
	Drive alone	0%	10%	45%	57%	100%	66%	28%	65%	12%
	Metra	9%	17%	0%	2%	0%	6%	28%	0%	8%
	Bicycle	7%	4%	6%	2%	0%	0%	0%	0%	6%
	Taxi	3%	15%	0%	2%	0%	0%	0%	52%	4%
	Pace	3%	0%	3%	8%	0%	17%	62%	0%	4%
	Other	0%	6%	0%	0%	0%	0%	0%	0%	1%

Note: Cells outlined in black indicate that a particular segment is significantly different from the group of all other segments. Column numbers may not add up to 100% due to multiple responses per record.

Twenty-three percent of respondents who use Pace as their primary mode report that they do not use an alternative mode for their trip. Thirty-one percent of those who used Pace for their primary mode indicate that they carpool or vanpool, and only 10% report that they drive alone as an alternative. Very few respondents indicated Pace as an alternative mode, with those who use Bicycle or Walk for their primary mode most likely to indicate Pace as an alternative.

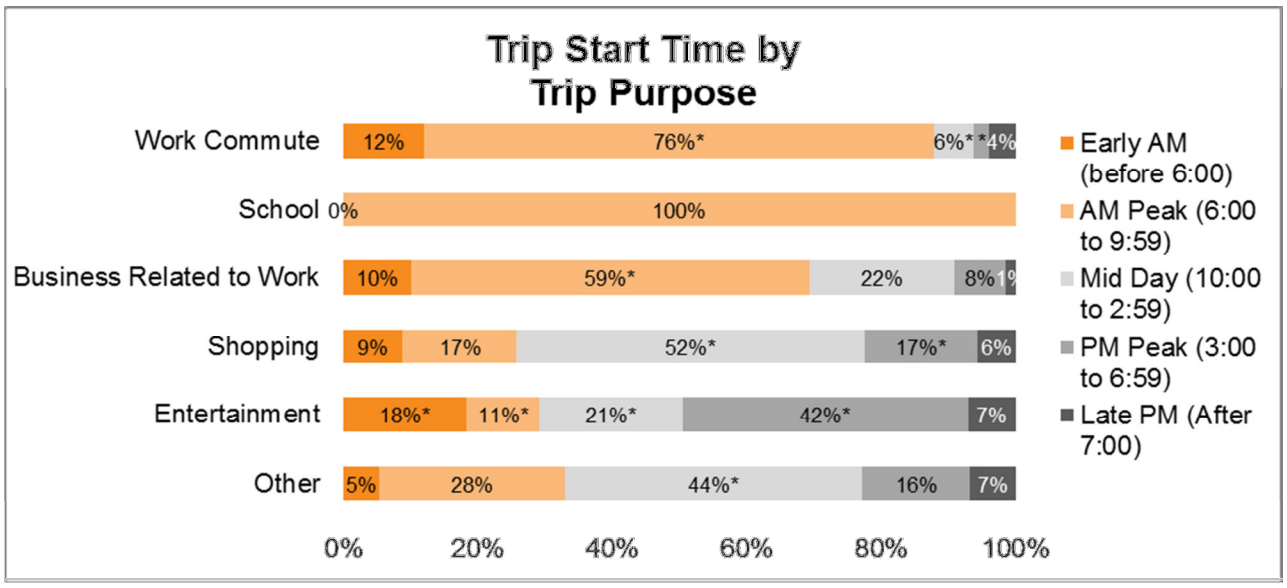
TABLE 15: ALTERNATIVE MODES BY TRIP PURPOSE

		Purpose of Primary Trip					
		Work	Business Related to Work	Shopping	Entertainment/ Recreation/ Eating Out	Other Personal Activity	Total
Alternative Mode	No Alternative Mode	56%	51%	49%	37%	35%	46%
	Carpool/Vanpool	15%	24%	19%	13%	30%	20%
	Walk	9%	6%	20%	17%	17%	14%
	Drive alone	12%	4%	10%	17%	12%	12%
	Metra	6%	18%	4%	9%	14%	8%
	Bicycle	5%	6%	7%	7%	4%	6%
	Taxi	3%	4%	3%	6%	6%	4%
	Pace	2%	5%	2%	9%	5%	4%
	Other	0%	0%	3%	0%	0%	1%

Note: Column numbers may not add up to 100% due to multiple responses per record.

Breaking out the alternative mode choices by trip purpose shows that respondents who are making an entertainment trip are more likely to select Pace as an alternative mode (9%) than respondents traveling for other purposes. Those making work trips were most likely to report using no alternative modes for their trip.

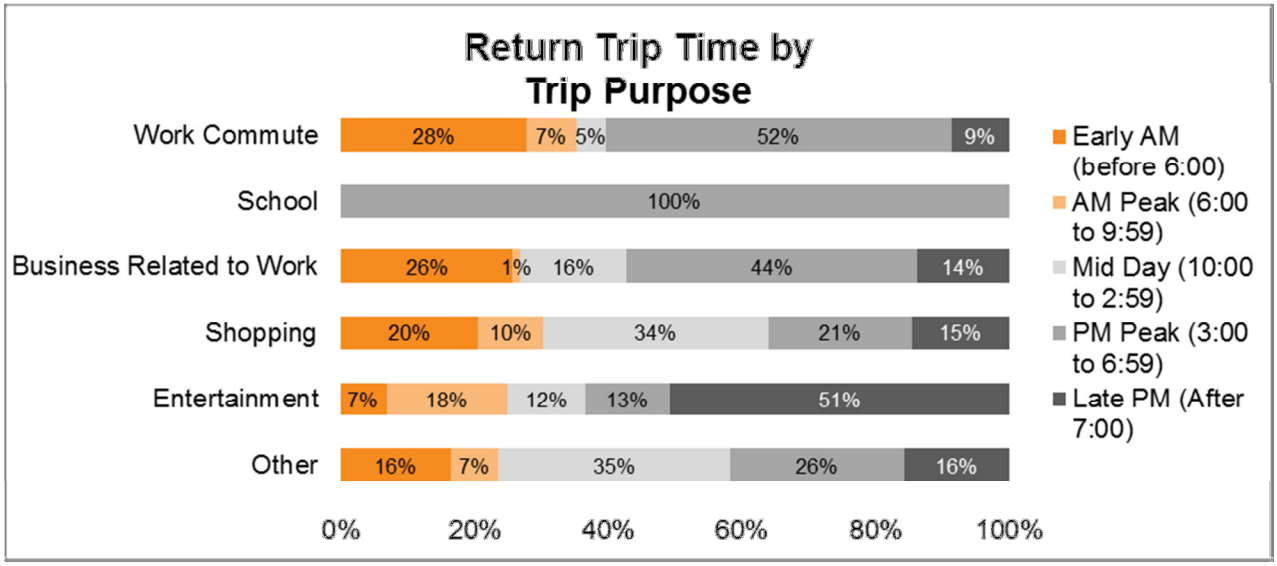
FIGURE 46: TRIP START TIME BY TRIP PURPOSE



Note: School trips represent a small number of trips, which may explain the homogeneity of responses.

When examining trip start times, we see that most commute and business-related-to-work trips start sometime in the morning, before 10:00 AM. In contrast, other trip types are more widely distributed throughout the day, with entertainment trips tending to occur in the PM Peak or after 7:00 PM.

FIGURE 47: REVERSE TRIP START TIME BY TRIP PURPOSE

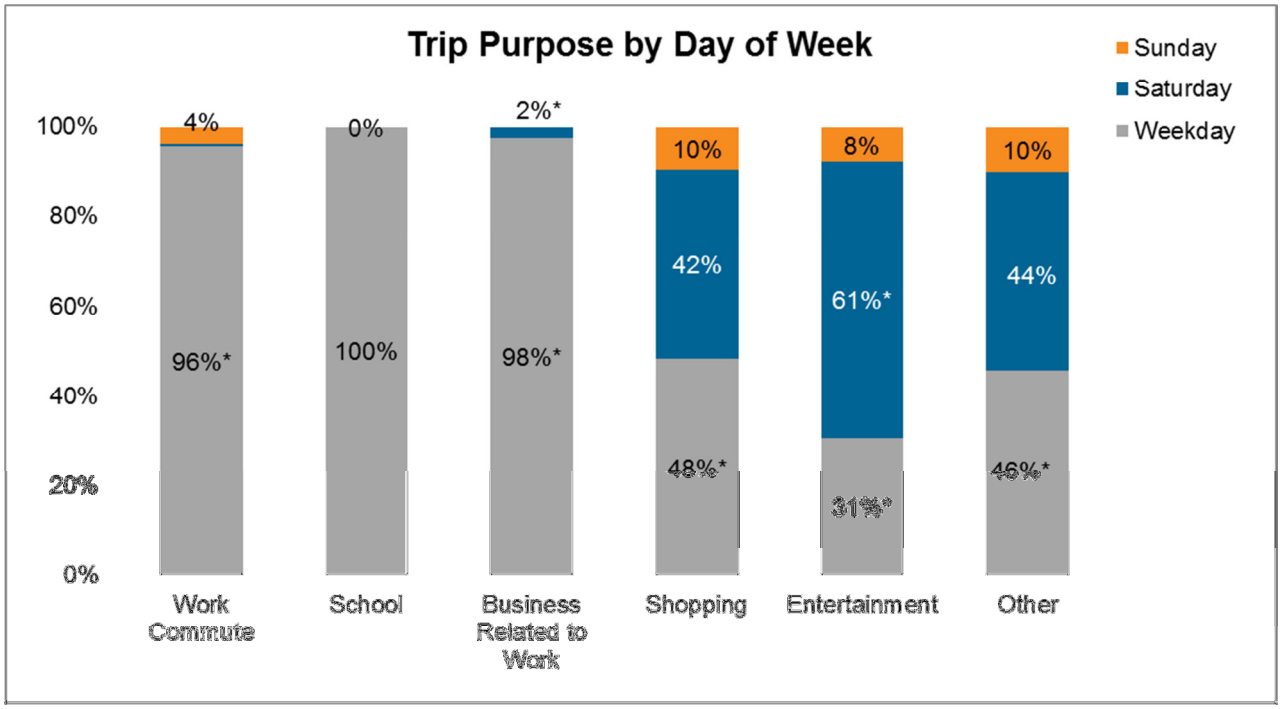


Note: School trips represent a small number of trips, which may explain the homogeneity of responses.

Start time for return trips show a mirror image for commute-type trips, and a similar distribution of trips for non-commute and that are not business-related-to-work trips. On the whole, reverse trips are made later than the main trips, which is to be expected for trips made in the course of a single day. For non-commute trips, those making entertainment trips tended to return after 7:00 PM. Given that Pace currently has a limited

evening schedule in the Fox Valley division, the majority of entertainment trips simply cannot be made by Pace buses. This is also implied by the low transit use for entertainment trips as indicated in Figure 39.

FIGURE 48: TRIP PURPOSE BY DAY OF WEEK

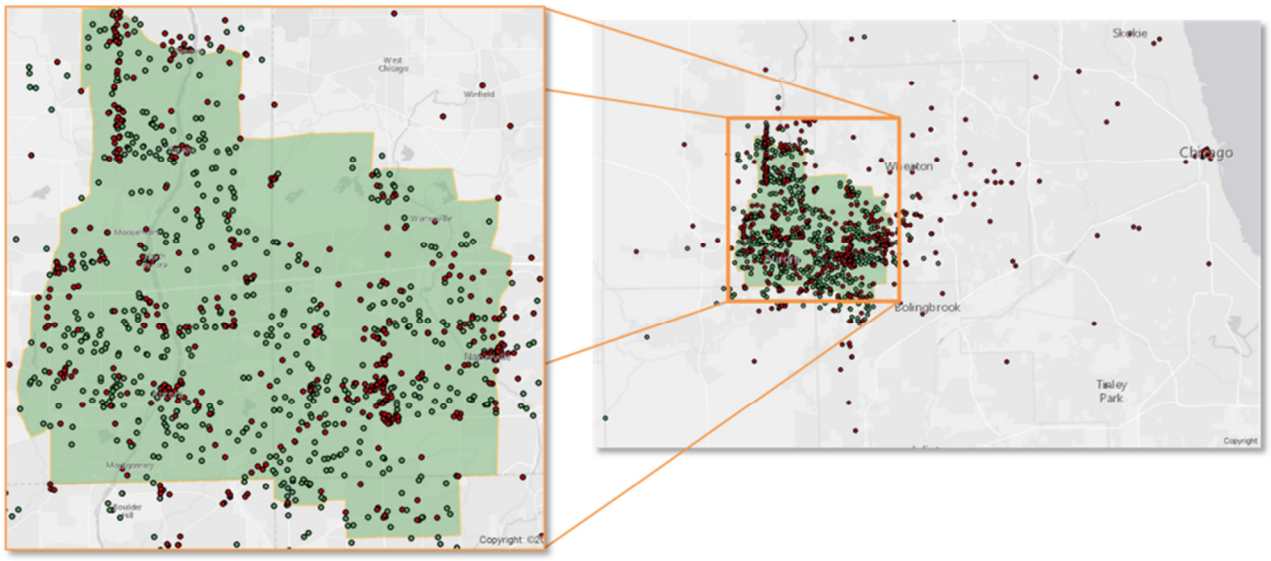


Understanding when people are likely to make different types of trips can help understand how to optimize bus schedules and frequency of bus service to meet riders' needs. Work, school and non-commute work trips are heavily concentrated on weekdays, or during the business week. In contrast, respondents balanced their shopping and other trip types between the weekend and weekdays, and make significantly more entertainment trips on the weekend. Weekend travel for all types of trips was much more likely to occur on Saturday than on Sunday.

OD MAPPING

The following maps help visualize the travel patterns from the OD trip data that was collected by the survey.

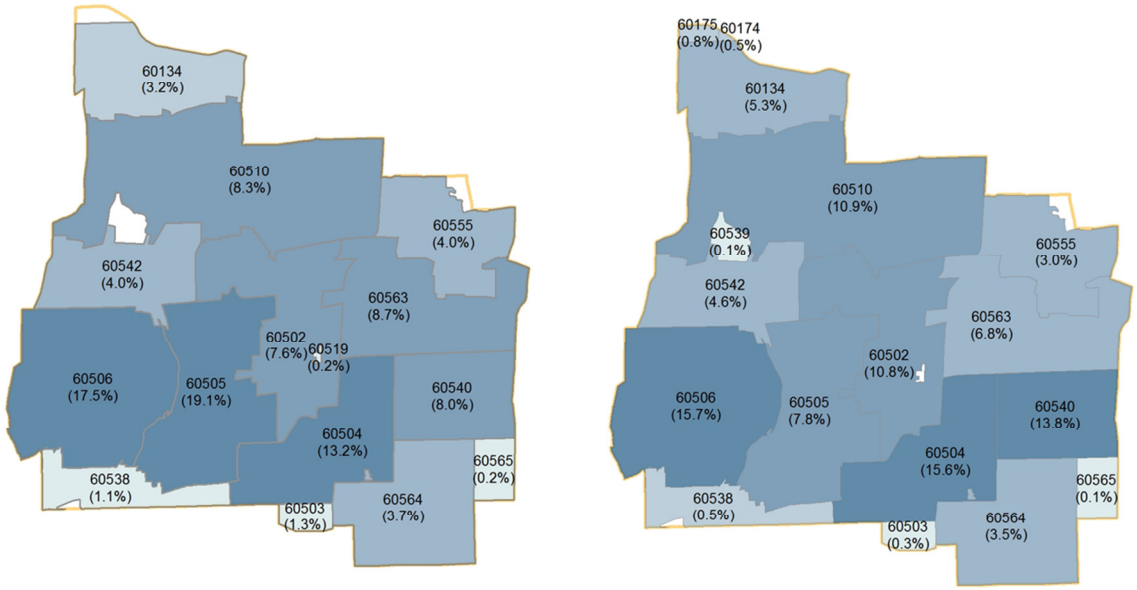
FIGURE 49: ORIGINS AND DESTINATIONS OF TRIPS MADE IN THE FOX VALLEY REGION



Note: This map displays trip origins as green dots, and destinations as red dots.

The above map shows the distribution of trips that were collected during this study. Each dot represents the endpoint of a valid trip, with the origin colored green and the destination colored red. The mapped points show a good distribution of trips throughout the Fox Valley region, as well as revealing some of the more heavily traveled areas, such as the shopping belt in the north of the study area, the Westfield Fox Valley mall in the southwest, as well as the downtowns of Aurora, North Aurora, Batavia and Naperville, among others. Furthermore, the origins appear more spread out throughout the study area, suggesting that many trips are originating in residential areas, and are destined for more concentrated downtowns.

FIGURE 50: TRIPS MADE WITHIN THE FOX VALLEY REGION – ORIGINS AND DESTINATIONS

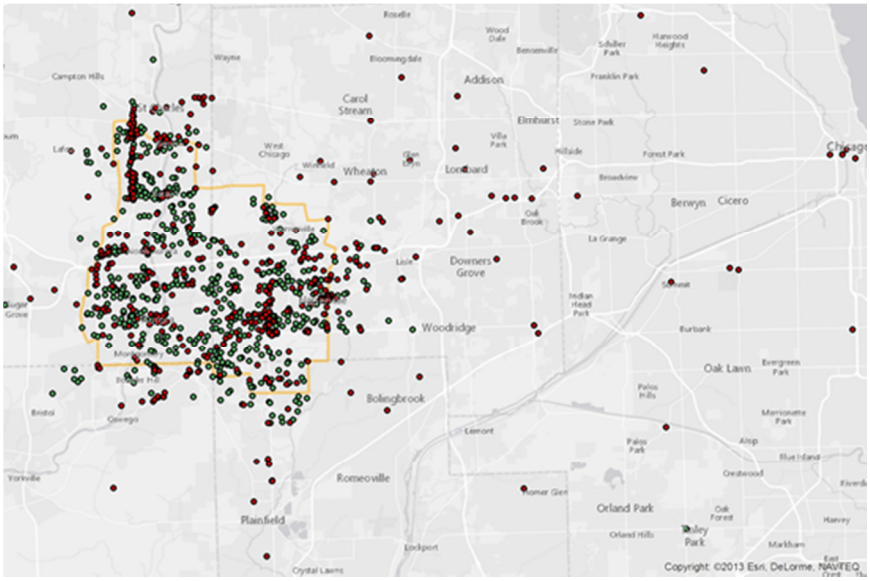


Looking just at trips that occur within the Fox Valley Region, we can see that there are some patterns of trip origins and destinations by ZIP Code: Many trips originate in the 60506, 60605, and 60504 ZIP Codes, and most trips end in either the 60506, 60504, and 60540 ZIP Codes.

OD Distribution by Mode Choice

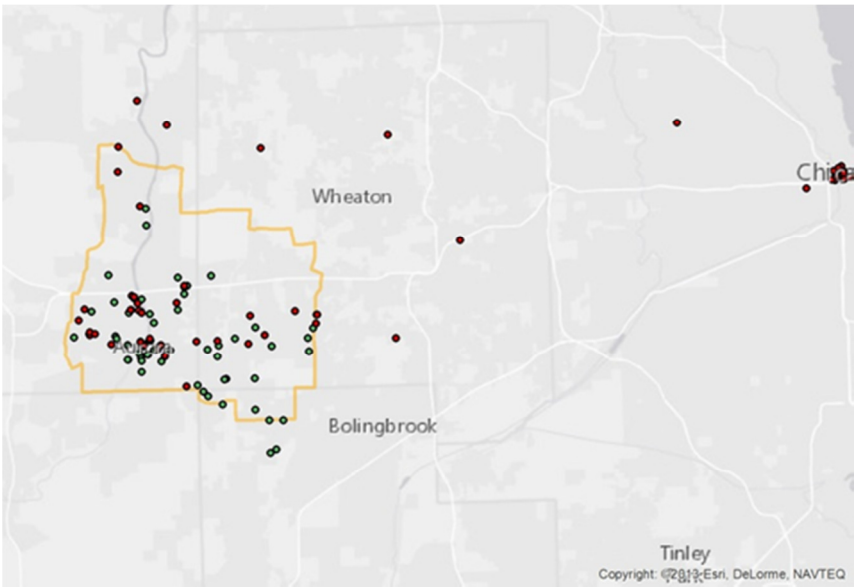
The next three maps reveal the distributions of trip endpoints by travel mode.

FIGURE 51: TRIP DISTRIBUTION - DRIVE TRIPS



This map shows the distribution of driving trips. These endpoints are clustered in downtown and shopping areas, but also distributed into the surrounding region. Note that the destination points tend to be more strongly clustered than the origin points.

FIGURE 52: TRIP DISTRIBUTION - TRANSIT TRIPS



This map shows that transit trips are concentrated in the Fox Valley region, with a few trips terminating outside the Fox Valley region. In addition, there is a cluster of endpoints in downtown Chicago, which are likely commuter trips. This is confirmed in Figure 53, which shows the endpoint distributions for commuter trips.

OD Distribution by Trip Purpose

The following series of maps shows the distribution of trip endpoints for trips of different purposes.

FIGURE 53: TRIP DISTRIBUTION - COMMUTE TRIPS

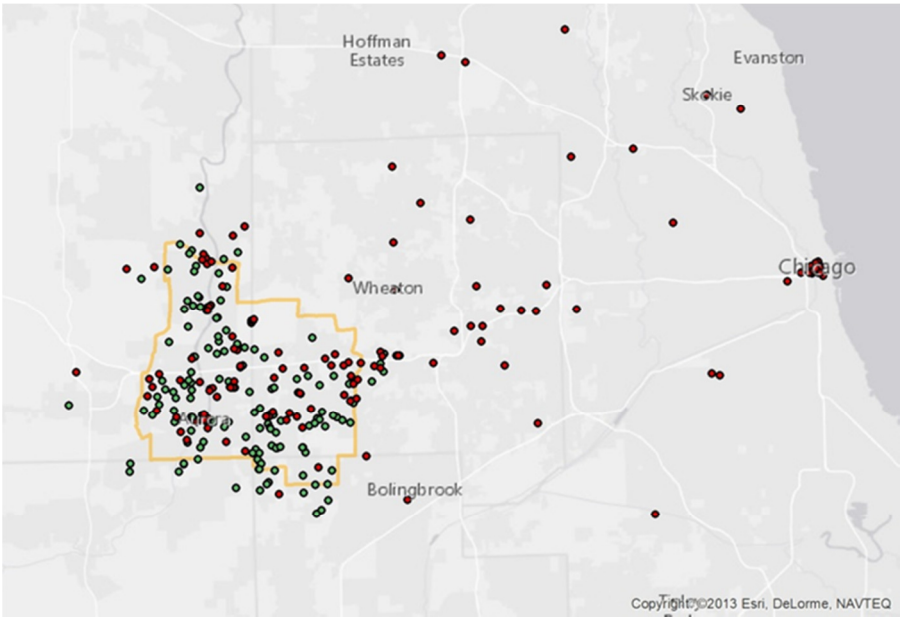
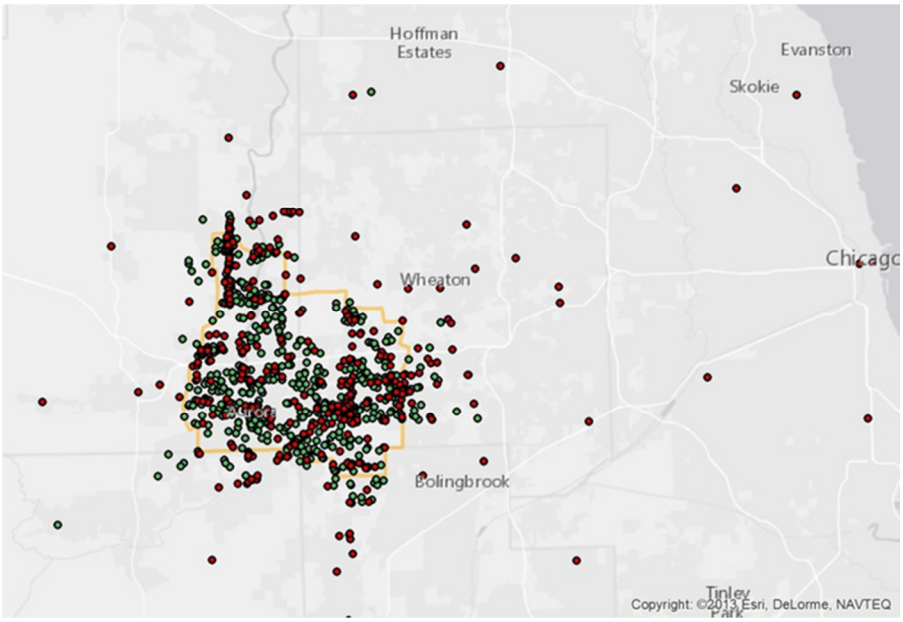


Figure 53 reveals endpoints for commuter behavior. Again, trips are fairly well distributed throughout the Fox Valley Region, with clusters developing around some major employers, such as Fermilabs, as well as in the City of Chicago. As suggested, many of the trips traveling by transit to Chicago are commute trips.

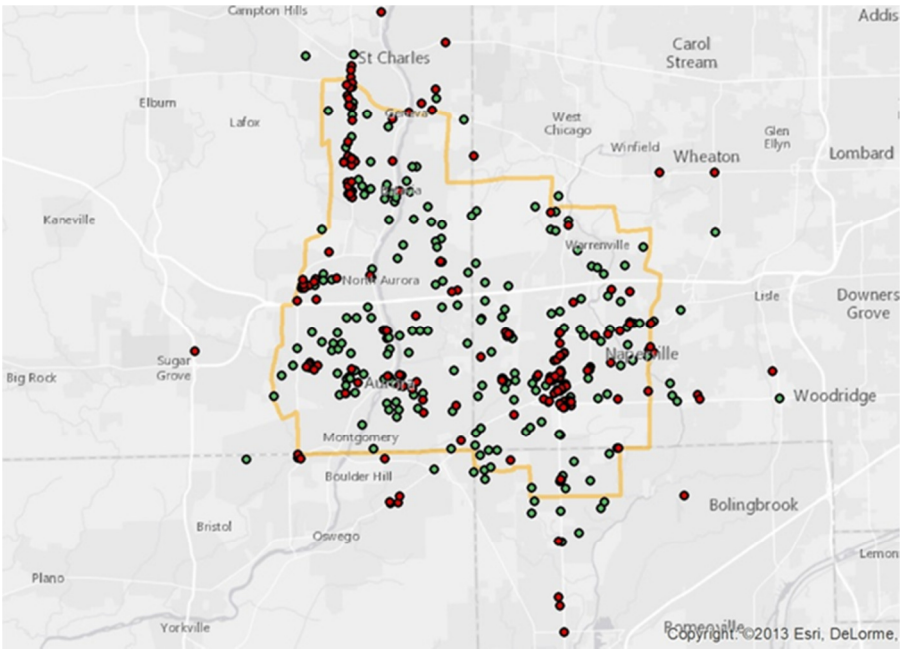
FIGURE 54: TRIP DISTRIBUTION – ALL NON-COMMUTE TRIPS



Most non-commute trip endpoints are concentrated in the Fox Valley region, and show strong groupings in the north and the southeast, with highest concentrations of trip endpoints in major shopping centers.

These non-commute trips can be further broken down into shopping trips, entertainment trips, and trips relating to other personal business. This breakdown is shown in the following three maps.

FIGURE 55: TRIP DISTRIBUTION - SHOPPING TRIPS



Shopping trip endpoints are clearly concentrated in the major shopping districts in the region. In the southeast, there is a large concentration of trip endpoints at the Westfield Fox Valley shopping center, and in the north, the shopping corridor in North and South Randall is a popular destination.

FIGURE 56: TRIP DISTRIBUTION - OTHER PERSONAL BUSINESS

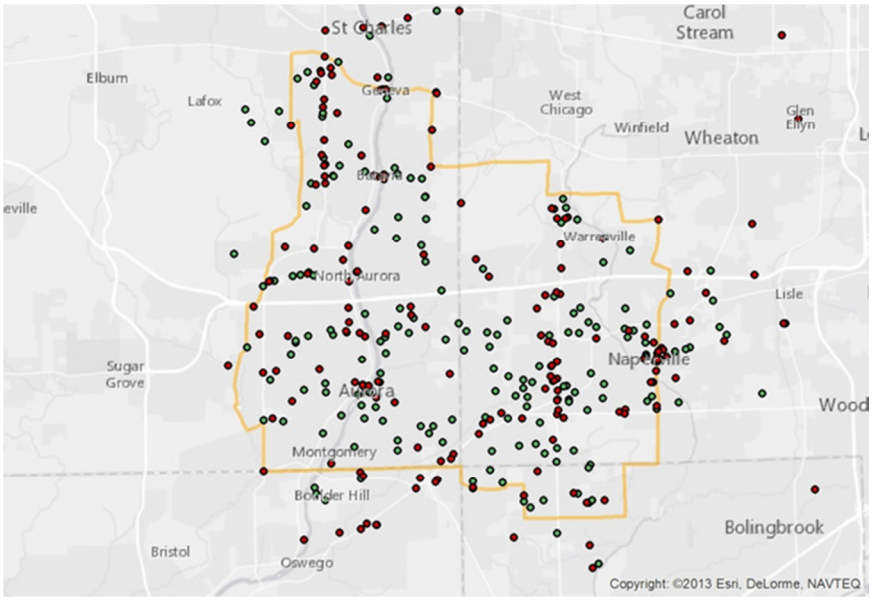
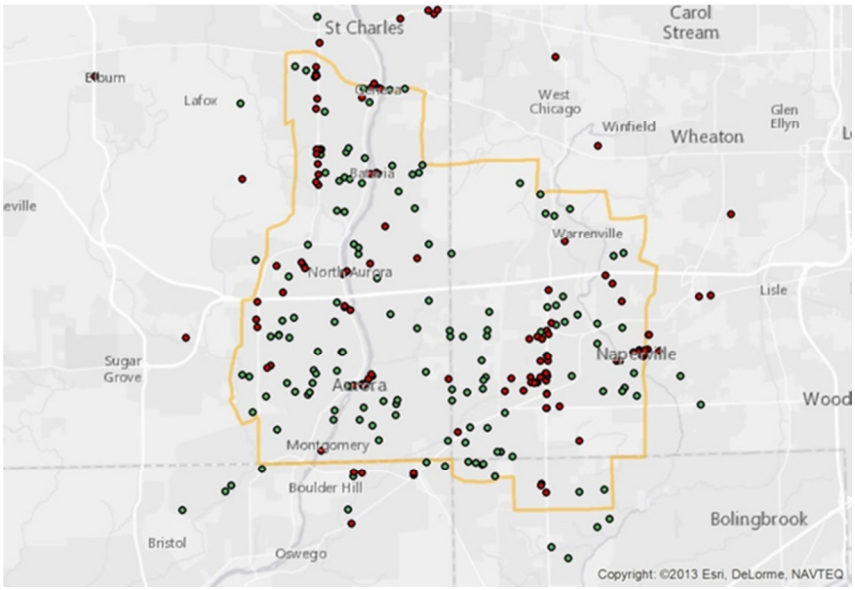


FIGURE 57: TRIP DISTRIBUTION – ENTERTAINMENT



The trip distributions for other personal business and entertainment follow similar patterns to shopping trips – origins that are well distributed throughout the region, and some concentrations of trip destinations in key shopping and business areas.

OD ZONE ANALYSES

Pace identified 14 Zones to investigate in an OD Analysis. There were insufficient Zone-to-Zone trips to yield meaningful Zone-to-Zone analysis. Instead, a Zone-to-ZIP Code analysis was performed. This analysis was broken into two parts. The first used the OD Zone as the origin, and assessed the relative number of trips traveling to each of the ZIP codes within the defined study area. The second part used the OD Zone as

a destination, and assessed the relative number of trips originating from each ZIP code and ending in that OD Zone.

Overall Zone Analyses

For the following maps, OD Zones in green indicate that the zones are the trip origins, and OD Zones in red are the trip destinations. Further, only zones with an unweighted sample size greater than 15 trips were included to ensure more meaningful results.

FIGURE 58: OD ZONES - DOWNTOWN AURORA

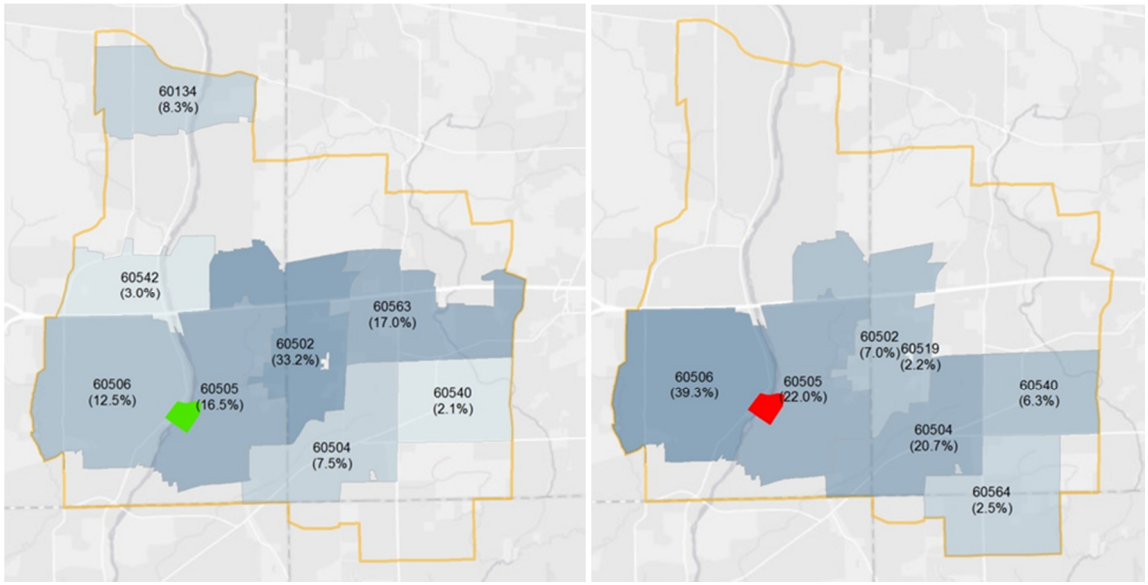


FIGURE 59: OD ZONES - ORCHARD

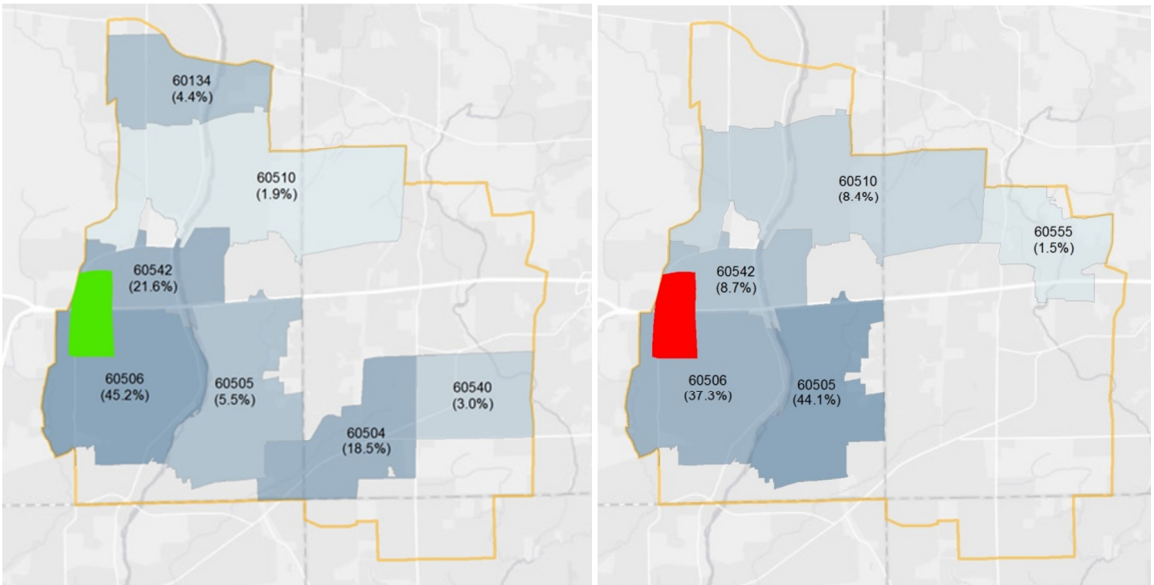


FIGURE 60: OD ZONES - WESTFIELD & ROUTE 59

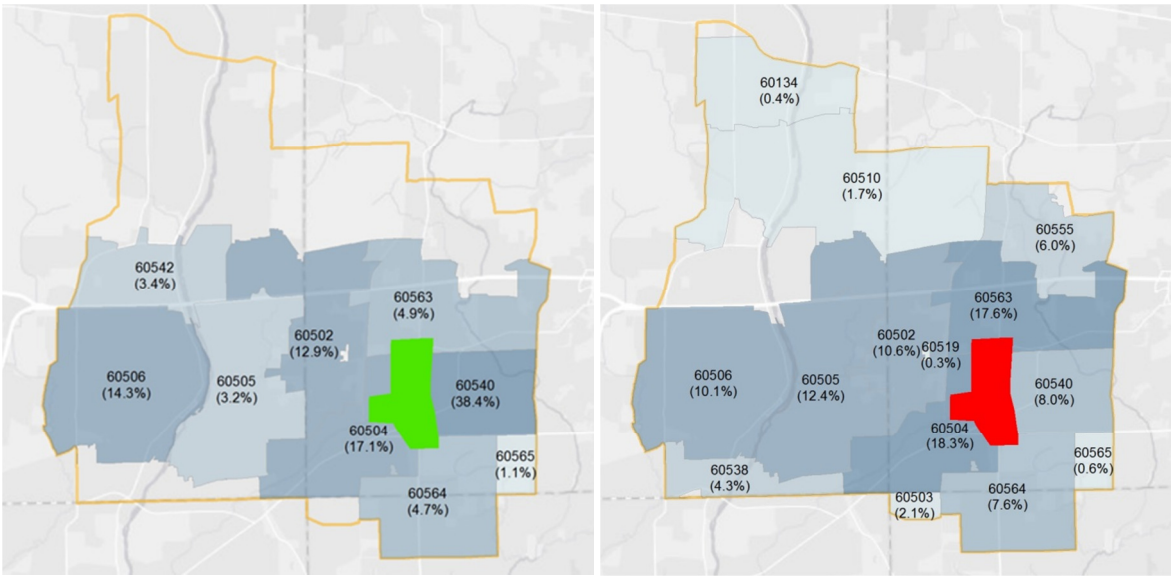


FIGURE 61: OD ZONES - SOUTHWEST AURORA

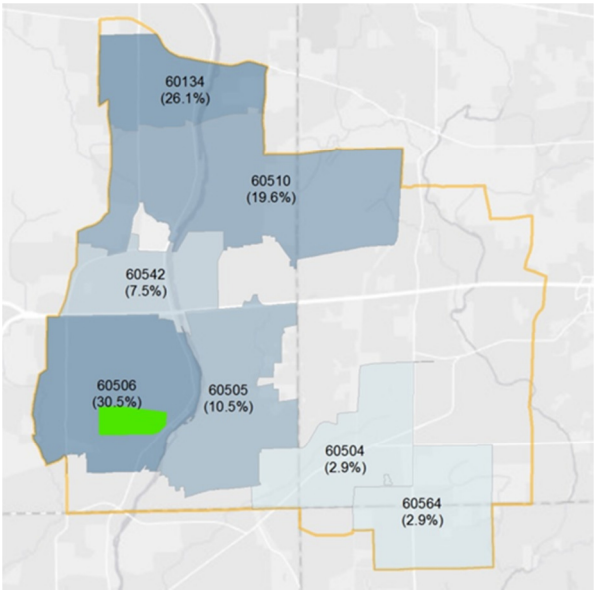


FIGURE 62: OD ZONES – DOWNTOWN BATAVIA

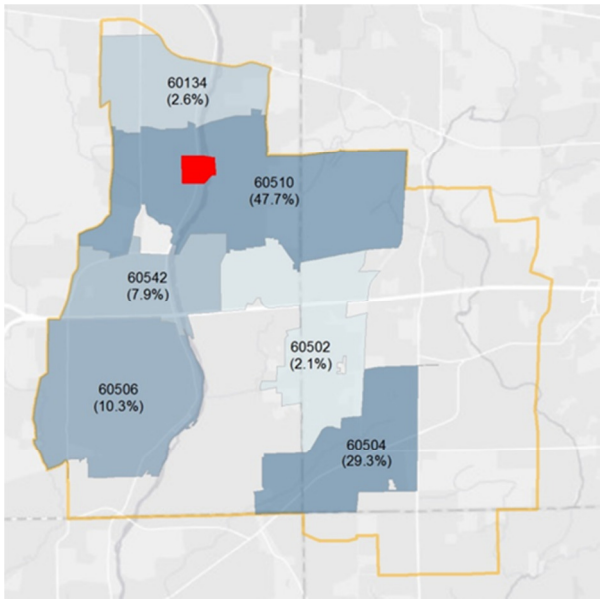


FIGURE 63: OD ZONES - NORTH RANDALL

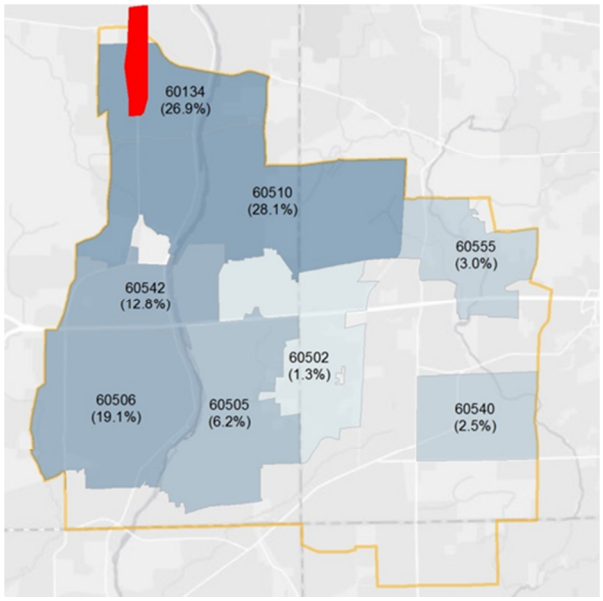
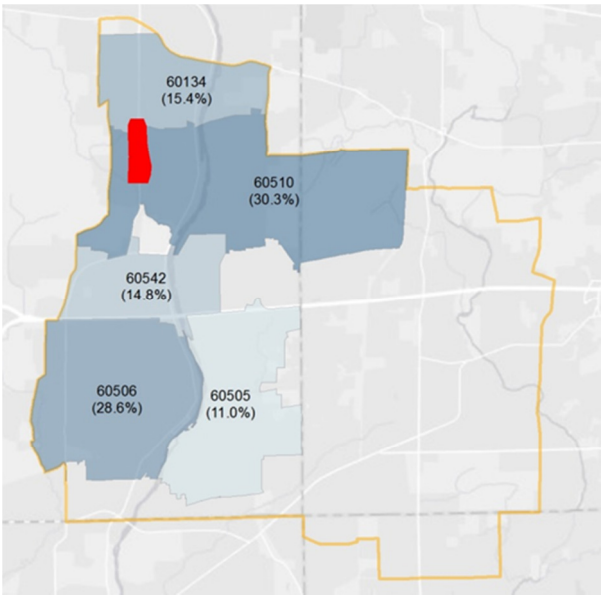


FIGURE 64: OD ZONES - SOUTH RANDALL



The results presented in Figure 63 and Figure 64 indicate some support for Randall Road service, but it is unclear whether new service is supported as opposed to improving existing service levels on Pace route #529. Figure 63 and Figure 64 show the ZIP Codes with the highest origin locations for destinations along Randall Road. ZIP Code 60506 located south of the tollway produces about 29% of the origins for the South Randall Road zone. However, it is not clear whether direct service into this zone is possible along Randall Road as the character of the street changes to a small residential collector in this ZIP Code. Perhaps through-routing routes 529 and 524 is an option.

Zone Analyses by Income

The following tables show which zones that were identified by Pace are common origins and destinations for respondents of different HH income levels (< $40,000, $40,000-$99,999, >$100,000). Please note some of the smaller sample sizes and interpret with caution.

TABLE 16: INCOME BY OD ZONE – TRIP ORIGINS

OD Zones		Income - Simplified					
		Less than $40,000		$40,000 to $99,999		$100,000 or more	
		Count	%	Count	%	Count	%
Origin - OD Site	(Other areas)	72	51%	247	74%	232	86%
	Downtown Aurora	16	11%	7	2%	2	1%
	Downtown Batavia	1	1%	1	0%	2	1%
	Downtown Geneva	0	0%	1	0%	1	1%
	Downtown Naperville	2	1%	2	1%	0	0%
	Fermilab	0	0%	5	2%	2	1%
	I-88 Warrenville	1	0%	1	0%	4	2%
	North Farnsworth	6	4%	3	1%	0	0%
	North Randall	2	1%	3	1%	4	1%
	Orchard	1	1%	16	5%	3	1%
	Provena Mercy Medical	9	6%	2	1%	0	0%
	South Randall	0	0%	3	1%	1	0%
	Southeast Aurora	23	16%	11	3%	1	0%
	Southwest Aurora	2	2%	8	2%	4	1%
	Westfield & Route 59	9	6%	25	8%	11	4%

TABLE 17: INCOME BY OD ZONE- TRIP DESTINATION

OD Zones		Income - Simplified					
		Less than $40,000		$40,000 to $99,999		$100,000 or more	
		Count	%	Count	%	Count	%
Destination - OD Site	(Other areas)	73	51%	158	47%	124	46%
	Downtown Aurora	7	5%	8	2%	5	2%
	Downtown Batavia	0	0%	8	2%	2	1%
	Downtown Geneva	0	0%	3	1%	11	4%
	Downtown Naperville	4	3%	14	4%	4	2%
	Fermilab	2	1%	18	5%	15	5%
	I-88 Warrenville	5	3%	8	2%	22	8%
	North Farnsworth	2	1%	15	4%	8	3%
	North Randall	5	3%	8	2%	12	4%
	Orchard	14	10%	11	3%	13	5%
	Provena Mercy Medical	10	7%	4	1%	2	1%
	South Randall	1	0%	9	3%	9	3%
	Southeast Aurora	0	0%	3	1%	1	1%
	Southwest Aurora	0	0%	4	1%	1	0%
	Westfield & Route 59	20	14%	65	19%	39	15%

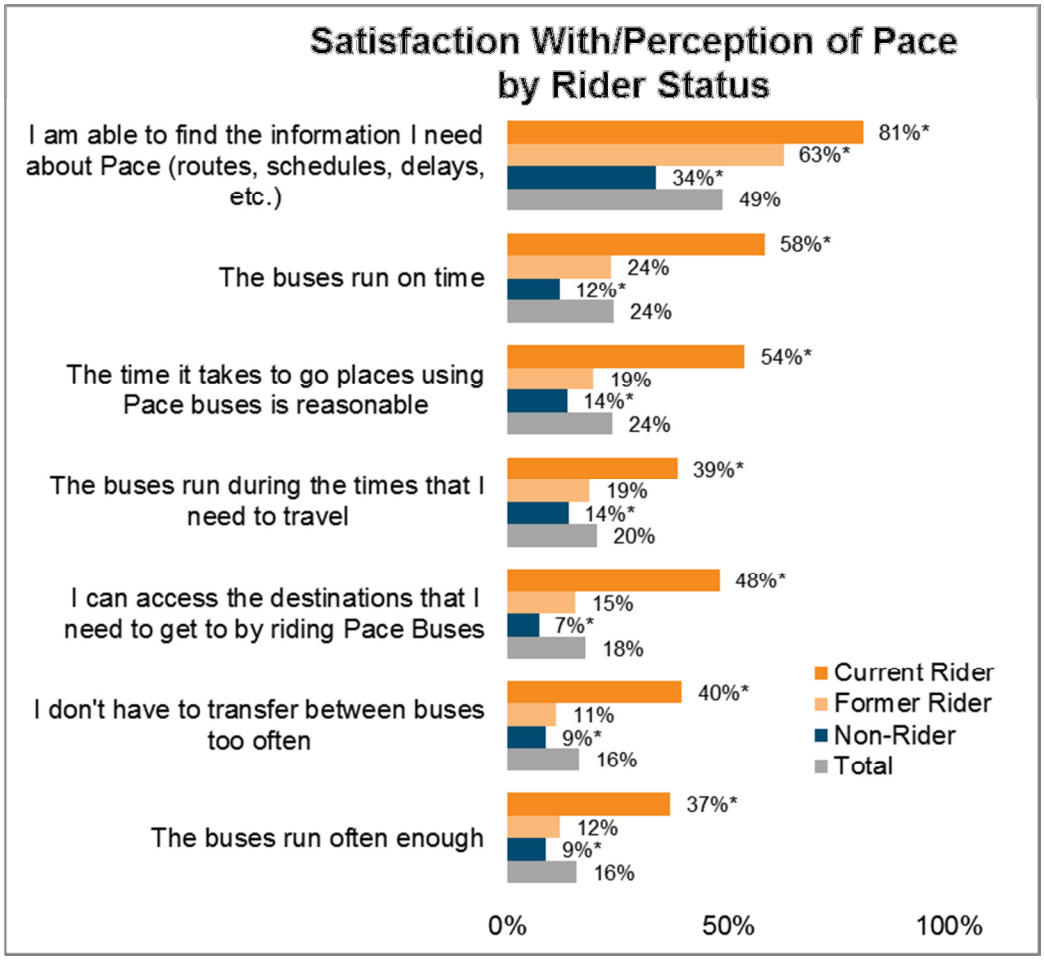
6.4 | SATISFACTION WITH/PERCEPTION OF PACE

SATISFACTION WITH/PERCEPTION OF PACE BY RIDER STATUS

The following section presents ratings about different Pace service attributes. Given that Current Riders and Former Riders have taken Pace buses in the past and therefore have firsthand experience with Pace, these respondents were asked to rate their *experience* with Pace. Meanwhile, since Non-Riders presumably have little

firsthand experience with Pace, these respondents were asked to rate their *perception* of the same service attributes. While these are fundamentally different questions, they are able to point to discrepancies between people's *assumptions* about Pace and the actual *experience* that people report when riding Pace buses, which might help correct misguided assumptions Non-Riders might hold. In addition, comparing Former Riders' and Current Riders' experience can help clarify why some individuals abandoned Pace for other modes of transportation.

FIGURE 65: SATISFACTION WITH/PERCEPTION OF PACE BY RIDER STATUS



The three service attributes that, overall, received the highest endorsements are:

- I am able to find the information I need about Pace (49%)
- The buses running on time (24%)
- The time it takes to go places using Pace buses is reasonable (24%)

Perhaps not surprisingly, Current Riders evaluate all service attributes more positively compared to Former and Non-Riders, whereas Non-Riders rate all attributes significantly lower. When comparing Current Riders and Non-Riders, the following statements showed the largest discrepancies between Current Riders' and Non-Riders' evaluation:

- I am able to find the information I need about Pace (47% difference)

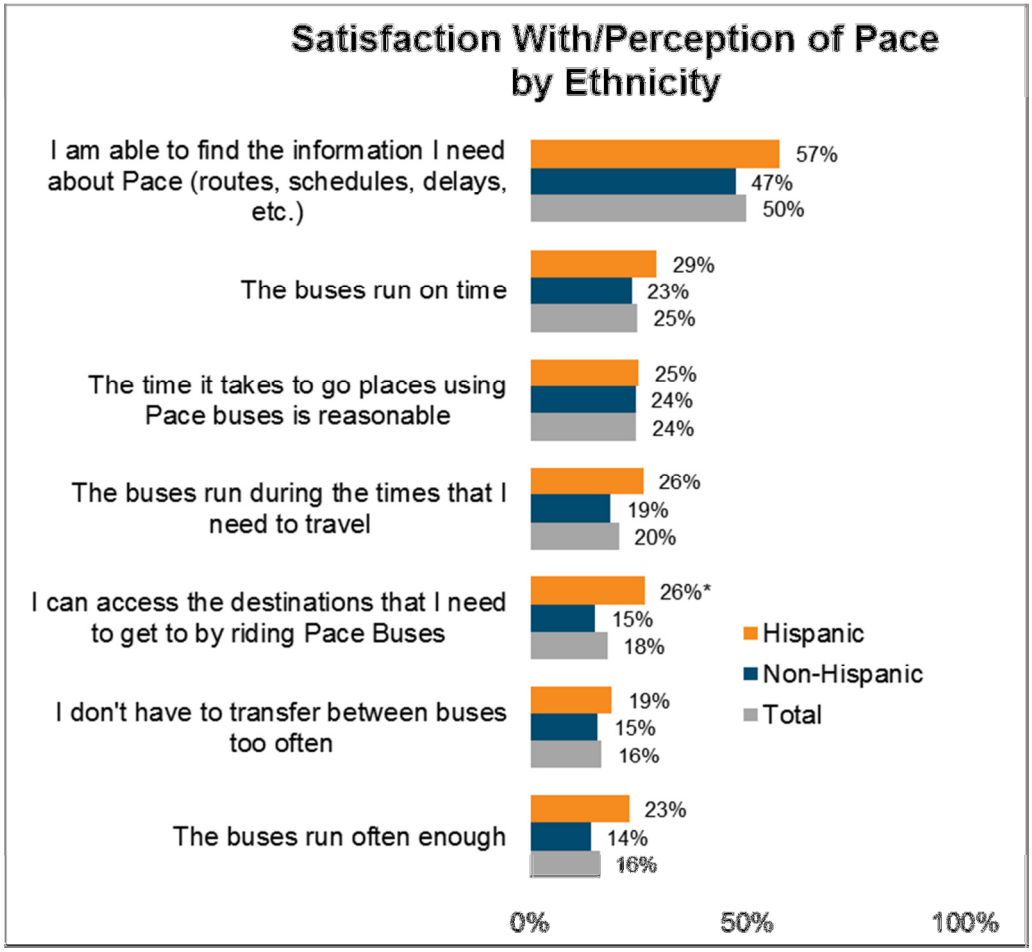
- The buses run on time (46% difference)
- I can access the destinations that I need to get to by riding Pace Bus (41% difference)

This suggests that Pace might want to consider public outreach among Non-Riders that emphasizes how to obtain more information about its services, and that counteracts the misperception about lack of punctuality and ability to reach important destinations.

Similarly, differences in service attribute ratings between Current Riders and Former Riders might help identify areas of dissatisfaction among Former Riders that led these Formers Riders to abandon Pace for other modes of transportation in the first place. The biggest difference in ratings between Current Riders and Former Riders is the statements "The time it takes to go places using Pace buses is reasonable" (35% difference), suggesting that retaining Current Riders depends first and foremost on decreasing the perceived duration of trips with Pace.

SATISFACTION WITH/PERCEPTION OF PACE BY ETHNICITY

FIGURE 66: SATISFACTION WITH/PERCEPTION OF PACE BY ETHNICITY

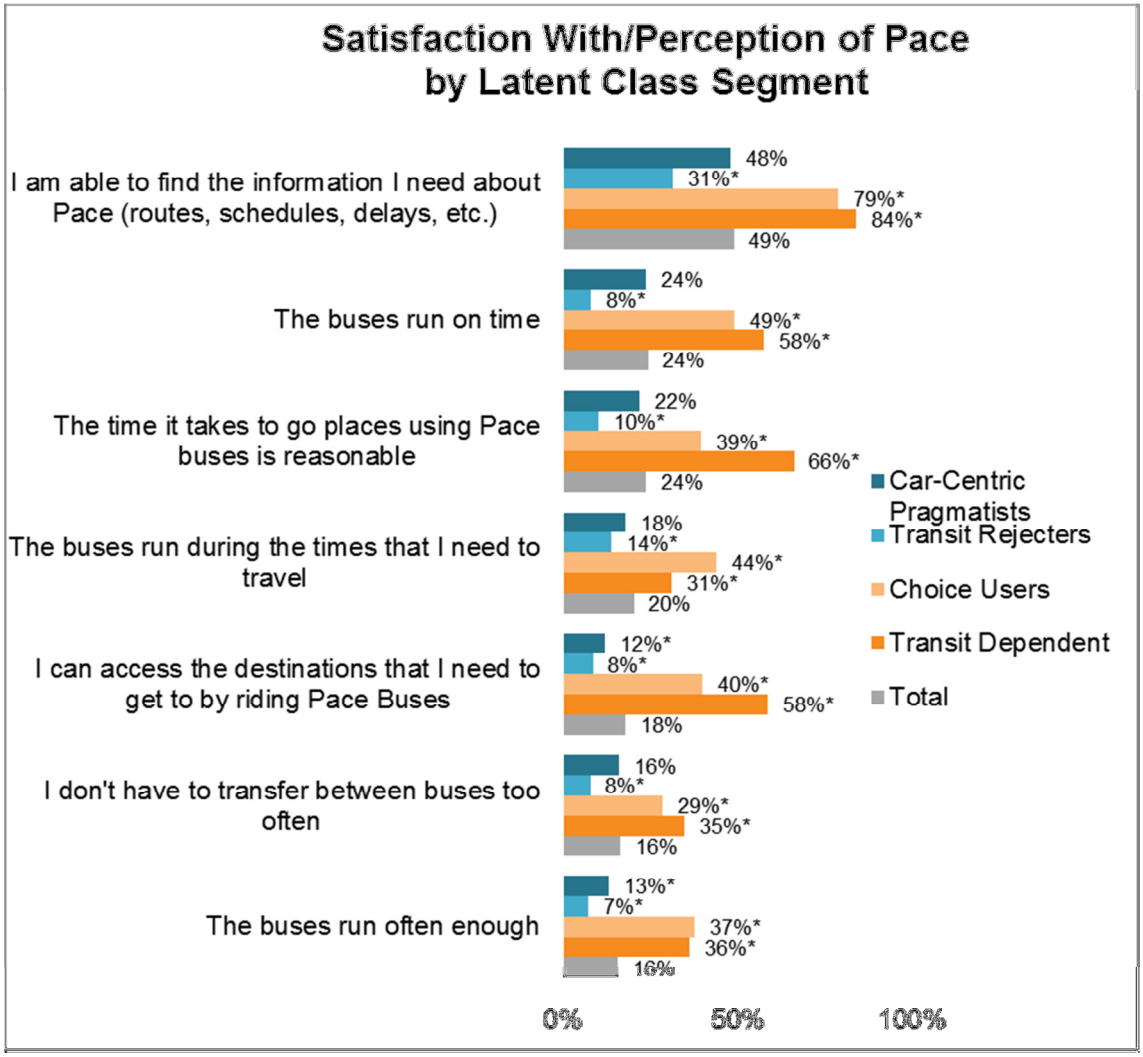


For most of the attributes, there are no statistically significant differences in the ratings by Hispanic and Non-Hispanic respondents. One exception is the item "I can access the destinations that I need to get to by riding Pace Buses," which was endorsed by more Hispanic respondents (26%) compared to Non-Hispanic respondents (15%). The service attribute that shows the least difference in experience/perception between

Hispanic and Non-Hispanic respondents is "the time it takes to go places using Pace buses is reasonable," which is endorse by approximately an equal percentage of Hispanic and Non-Hispanic respondents (25% and 24%, respectively).

SATISFACTION WITH/PERCEPTION OF PACE BY LATENT CLASS SEGMENT

FIGURE 67: SATISFACTION WITH/PERCEPTION OF PACE BY LATENT CLASS SEGMENT



In the Latent Class segmentation, Transit Dependent respondents and Choice Users rated their satisfaction and expectations of Pace much higher than the Car-Centric Pragmatists and Transit-Rejecters. Also, Transit Dependents respondents generally rated their satisfaction with Pace higher than Choice Users did, except on the measures of ("The busses run during the times that I need to travel") and ("The busses run often enough"). Since it is important to retain Transit Dependents as Choice Riders when their circumstances improve, it is important to focus Pace service improvements on these two attributes.

6.5 | TRANSIT ATTITUDES

Respondents were asked about their attitudes towards a variety of issues related to transportation and transit needs. Responses to these questions can help identify preferences about transit, and were used in the Latent Class Segmentation analyses mentioned before. In the following tables, results are shown by the percentage of respondents who "agree" or "strongly agree" with a particular attitudinal statement. Segments that are significantly different from the group of other segments are indicated by a border around the cell. The color gradients in the tables correspond to the proportion of respondents who agree with each attitudinal statement, ranging from green (high proportion of respondents agree) to yellow (moderate proportion of respondents agree) to red (low proportion of respondents agree).

TRANSIT ATTITUDES BY RIDER STATUS

TABLE 18: TRANSIT ATTITUDES BY RIDER STATUS

Attitudinal Statement	Current Rider	Former Rider	Non-Rider	Total
I like to make productive use of my time when I travel	82%	78%	69%	74%
I use a cell phone or other digital device very frequently	79%	67%	73%	73%
Riding public transportation is less stressful than driving on congested highways	76%	70%	58%	64%
If it would save time, I would change my form of travel	59%	70%	60%	61%
I like the idea of doing something good for the environment when I ride public transportation	74%	59%	52%	58%
Public transportation does not go where I need to go	46%	61%	61%	58%
During the day, I often make trips to a wide variety of locations	54%	56%	52%	53%
I feel safe when riding public transportation	74%	47%	42%	50%
I sometimes take public transportation to avoid traffic congestion	64%	46%	37%	44%
I often need to change my daily travel plans at a moment's notice	28%	48%	44%	41%
During bad weather, riding public transportation is more reliable	49%	38%	30%	35%
I worry about crime or other disturbing behavior on public transportation	23%	33%	31%	30%
I am not sure I know how to take a trip on public transportation	13%	19%	34%	27%
My family and friends typically use public transportation	34%	10%	13%	18%
I dislike traveling with people I do not know, and therefore use public transportation less	9%	15%	18%	16%
Driving a car shows you are successful	11%	9%	8%	9%

As might be expected, compared to Current Riders, Non-Riders indicated less favorable attitudes towards a wide variety of statements on public transportation. For instance, Non-Riders are much *more* likely to endorse statements such as:

- Public transportation does not go where I need to go

- I often need to change my daily travel plans at a moment's notice
- I am not sure I know how to take a trip on public transportation
- I dislike traveling with people I do not know, and therefore use public transportation less

They are also much *less* likely to endorse statements such as:

- I like to make productive use of my time when I travel
- Riding public transportation is less stressful than driving on congested highways
- I like the idea of doing something good for the environment when I ride public transportation
- I feel safe when riding public transportation
- I sometimes take public transportation to avoid traffic congestion
- During bad weather, riding public transportation is more reliable
- My family and friends typically use public transportation

This suggests that differences in how Current Riders and Non-Riders perceive public transit is not limited to one or two areas, but that Non-Riders have a fundamentally different perception of public transportation that influences a whole range of attitudes towards transit. One of the more striking and important differences in perception and actual experience between Current Riders and Former/Non-Riders is safety. Only 42% of Non-Riders and 47% of Former Riders agree with the statement "I feel safe when riding public transportation," suggesting that perhaps the misperception of public transit as unsafe is an impactful deterrent to using it.

Profile of Current Riders Who Feel Unsafe (vs. Safe) Riding Public Transportation

Although more Former- and Non-Riders than Current Riders state that they feel unsafe on public transportation, 26% of Current Riders do disagreed with the statement "I feel safe when riding public transportation." In order to investigate the demographics and characteristics of those Current Riders who feel unsafe (vs. those who feel safe), follow-up analyses were conducted for Current Riders. Compared to those Current Riders who feel safe, Current Riders who feel unsafe are more likely to be female (71% unsafe vs. 48% safe), more likely to have a household income of under $40,000 (43% unsafe vs. 35% safe), are more likely to be African-American (33% unsafe vs. 11% safe), single (52% unsafe vs. 35% safe), and part-time employed (28% unsafe vs. 6% safe).

TRANSIT ATTITUDES BY ETHNICITY

TABLE 19: TRANSIT ATTITUDES BY ETHNICITY

Attitudinal Statements	Hispanic	Non-Hispanic	Total
I like to make productive use of my time when I travel	76%	75%	75%
I use a cell phone or other digital device very frequently	79%	72%	74%
Riding public transportation is less stressful than driving on congested highways	75%	62%	65%
If it would save time, I would change my form of travel	64%	63%	63%
I like the idea of doing something good for the environment when I ride public transportation	72%	57%	60%
Public transportation does not go where I need to go	43%	62%	57%
During the day, I often make trips to a wide variety of locations	54%	52%	52%
I feel safe when riding public transportation	53%	51%	51%
I sometimes take public transportation to avoid traffic congestion	55%	44%	46%
I often need to change my daily travel plans at a moment's notice	38%	40%	40%
During bad weather, riding public transportation is more reliable	41%	36%	37%
I worry about crime or other disturbing behavior on public transportation	27%	30%	29%
I am not sure I know how to take a trip on public transportation	24%	27%	26%
My family and friends typically use public transportation	22%	17%	18%
I dislike traveling with people I do not know, and therefore use public transportation less	14%	16%	15%
Driving a car shows you are successful	11%	8%	9%

Results of the attitudinal analyses indicate that Hispanic and Non-Hispanic respondents, generally speaking, differ little in their attitudes toward public transportation. However, some differences did emerge, such that Hispanic respondents are more likely to endorse the statement "Riding public transportation is less stressful than driving on congested highways" and "I like the idea of doing something good for the environment when I ride public transportation." On the other hand, Hispanic respondents were *less* likely to agree with the statement "Public transportation does not go where I need to go."

TABLE 20: TRANSIT ATTITUDES BY CAR AVAILABILITY

Attitudinal Statements	Car Available	Not Available	Total
I like to make productive use of my time when I travel*	74%	87%	75%
I use a cell phone or other digital device very frequently	73%	79%	74%
Riding public transportation is less stressful than driving on congested highways*	63%	80%	65%
If it would save time, I would change my form of travel	64%	53%	63%
I like the idea of doing something good for the environment when I ride public transportation*	59%	72%	60%
Public transportation does not go where I need to go	58%	50%	58%
During the day, I often make trips to a wide variety of locations	53%	42%	52%
I feel safe when riding public transportation*	48%	76%	51%
I sometimes take public transportation to avoid traffic congestion	47%	38%	46%
I often need to change my daily travel plans at a moment's notice	41%	30%	40%
During bad weather, riding public transportation is more reliable*	34%	59%	37%
I worry about crime or other disturbing behavior on public transportation	30%	22%	29%
I am not sure I know how to take a trip on public transportation	27%	18%	26%
My family and friends typically use public transportation*	16%	40%	18%
I dislike traveling with people I do not know, and therefore use public transportation less*	16%	4%	15%
Driving a car shows you are successful	9%	8%	9%

Attitudes toward public transit differs sharply by car availability. Across a variety of attitudinal statements on public transportation, respondents with no car available for their personal use show more positive attitudes towards public transit, especially with regards to the following statements:

- I feel safe when riding public transportation
- During bad weather, riding public transportation is more reliable
- Riding public transportation is less stressful than driving on congested highways
- My family and friends typically use public transportation

TRANSIT ATTITUDES BY AGE

TABLE 21: TRANSIT ATTITUDES BY AGE

Attitudinal Statements	Under 35	35 - 54	55+ years	Total
I like to make productive use of my time when I travel	71%	79%	68%	74%
I use a cell phone or other digital device very frequently	85%	75%	57%	73%
Riding public transportation is less stressful than driving on congested highways	65%	64%	61%	64%
If it would save time, I would change my form of travel	70%	61%	52%	61%
I like the idea of doing something good for the environment when I ride public transportation	67%	58%	49%	58%
Public transportation does not go where I need to go	53%	59%	61%	58%
During the day, I often make trips to a wide variety of locations	50%	51%	58%	53%
I feel safe when riding public transportation	55%	50%	44%	50%
I sometimes take public transportation to avoid traffic congestion	58%	43%	30%	44%
I often need to change my daily travel plans at a moment's notice	38%	41%	43%	41%
During bad weather, riding public transportation is more reliable	32%	40%	32%	35%
I worry about crime or other disturbing behavior on public transportation	32%	28%	30%	30%
I am not sure I know how to take a trip on public transportation	29%	25%	28%	27%
My family and friends typically use public transportation	25%	15%	14%	18%
I dislike traveling with people I do not know, and therefore use public transportation less	18%	15%	14%	16%
Driving a car shows you are successful	14%	7%	4%	9%

Generally speaking, younger respondents (i.e., those under the age of 35) have more positive attitudes towards public transit compared to older respondents. Younger respondents are for instance more likely to state that they like riding public transportation because of the environment, and because they can avoid congestion.

TRANSIT ATTITUDES BY LATENT CLASS SEGMENTS

TABLE 22: TRANSIT ATTITUDES BY LATENT CLASS SEGMENTS

Attitudinal Statements	Car-Centric Pragmatists	Transit Rejecters	Choice Users	Transit Dependent	Total
I like to make productive use of my time when I travel	84%	52%	80%	91%	74%
I use a cell phone or other digital device very frequently	78%	64%	76%	82%	73%
Riding public transportation is less stressful than driving on congested highways	86%	22%	80%	81%	64%
If it would save time, I would change my form of travel	82%	34%	63%	48%	61%
I like the idea of doing something good for the environment when I ride public transportation	76%	21%	82%	73%	58%
Public transportation does not go where I need to go	64%	53%	47%	53%	58%
During the day, I often make trips to a wide variety of locations	51%	53%	66%	47%	53%
I feel safe when riding public transportation	64%	13%	70%	84%	50%
I sometimes take public transportation to avoid traffic congestion	60%	10%	95%	36%	44%
I often need to change my daily travel plans at a moment's notice	41%	46%	33%	28%	41%
During bad weather, riding public transportation is more reliable	48%	8%	43%	58%	35%
I worry about crime or other disturbing behavior on public transportation	28%	37%	24%	21%	30%
I am not sure I know how to take a trip on public transportation	27%	35%	12%	17%	27%
My family and friends typically use public transportation	17%	4%	46%	44%	18%
I dislike traveling with people I do not know, and therefore use public transportation less	13%	24%	13%	4%	16%
Driving a car shows you are successful	8%	7%	19%	5%	9%

Across a wide section of attitudinal statements on transit use, Transit Dependent users hold the most positive attitudes. As for Choice Users, an indication that this is a growth segment is that they are the least likely to say that public transportation does not go where they need to go. As a group that already uses a variety of different modes of transportation in a week (see mode usage Table 13), they may choose their transit mode depending on the destination, context, and perceived advantage. A competitive advantage that Pace enjoys with this segment is the fact they overwhelmingly agree with the statement that they sometimes take public transportation to avoid traffic congestion. This suggests that this segment may be especially interested in express bus service or dedicated bus lanes, or any other amenity that allows them to circumvent traffic congestion during rush hour. In terms of marketing, for this segment a "green" marketing message that emphasizes the environmental advantages of transit use and simultaneously portrays riding transit as being consistent with what their friends and family members do might resonate the most. Car-Centric Pragmatists

are also open to the idea of increased transit use, which is reflected in their agreement with statements such as "during bad weather riding public transportation is more reliable" and "public transit is less stressful than driving on congested highways." However, this segment might be more difficult to convert than Choice Users in that it has to overcome the perception that transit does not go where they need to go, and is only likely to switch in those instance when it perceive a time advantage to taking transit.

6.6 | IMPROVEMENT RANKINGS

GLOBAL PRIORITIES – FREQUENCY MOST IMPORTANT

Participants were asked to rank six broad, global service improvements from most to least beneficial. This ranking exercise was meant to assess global priorities respondents have when it comes to Pace's services, and included statements such as "Routes take more direct paths" or "Routes provide access to more destinations." The results below are based on the number of times a global service improvement was selected first, that is, the number of times it was selected as the most important.

TABLE 23: GLOBAL PRIORITIES BY RIDER STATUS

Improvement	Current Rider (Rank)	Former Rider (Rank)	Non-Rider (Rank)	Total (Rank)
Routes provide access to more destinations	2	1	1	1
Service is available for more hours of the day	1	2	3	2
Routes take more direct paths	3	4	2	3
Service is more frequent on the major routes	4	3	4	4
The bus network remains similar to how it is today	5	6	5	5
Riders need to transfer between routes less often	6	5	6	6

Overall, the following three global improvement statements rose to the top:

1. Routes provide access to more destinations
2. Service is available for more hours of the day
3. Routes take more direct paths

However, looking at rankings by Rider Status reveals some differences in perceived importance. Whereas Former Riders and Non-Riders agree "Routes provide access to more destinations" is the most important priority, Current Riders perceive "Service is available for more hours of the day" as being more important.

TABLE 24: GLOBAL PRIORITIES BY ETHNICITY

Improvement	Hispanic	Non-Hispanic	Total
Routes provide access to more destinations	1	1	1
Service is available for more hours of the day	2	2	2
Routes take more direct paths	3	3	3
Service is more frequent on the major routes	4	4	4
The bus network remains similar to how it is today	5	5	5
Riders need to transfer between routes less often	6	6	6

Hispanic and Non-Hispanic respondents agree on the relative importance of all improvement priorities and do not differ in their rating.

GLOBAL PRIORITIES – MEAN RANKING

To determine the overall ranking of each priority and to investigate how the rankings differed from each another, mean rankings were also computed. The mean ranking showed similar patterns to the global priority ranking, with the only difference being that the statement "The bus network remains similar to how it is today" had the lowest mean ranking, but was selected second-to-last for the most important improvement.

TABLE 25: IMPROVEMENT PRIORITY BY DETAILED RIDER STATUS - MEAN RANK

Improvement	Frequent Rider (Mean Rank)	Infrequent Rider (Mean Rank)	Former Rider (Mean Rank)	Non-Rider (Mean Rank)	Total (Mean Rank)
Routes provide access to more destinations	2.6	3.1	2.3	2.2	2.4
Service is available for more hours of the day	2.4	2.3	3.0	3.4	3.1
Routes take more direct paths	3.6	3.1	3.2	3.0	3.1
Service is more frequent on the major routes	3.1	3.1	3.1	3.3	3.2
Riders need to transfer between routes less often	4.6	4.0	3.9	3.9	4.0
The bus network remains similar to how it is today	4.6	5.3	5.5	5.2	5.2

When comparing the ranking by Rider Status, both Frequent and Infrequent Riders prioritized "Service is available for more hours of the day" as the most important improvement, followed by "Routes provide access to more destinations. The lowest ranked item for both was "The bus network remains similar to how it is today", although the mean rank of this improvement was much lower for Infrequent Riders than for Frequent Riders.

Additionally, Non-Riders would prefer that "Routes take more direct paths" above "Service is available for more hours of the day," suggesting that travel time is more of an impediment for Non-Riders than Current Riders.

TABLE 26: IMPROVEMENT PRIORITY BY SIMPLIFIED RIDER STATUS - MEAN RANK

Improvement	Current Rider (Mean Rank)	Former Rider (Mean Rank)	Non-Rider (Mean Rank)	Total (Mean Rank)
Routes provide access to more destinations	2.8	2.3	2.2	2.4
Service is available for more hours of the day	2.4	3.0	3.4	3.1
Routes take more direct paths	3.5	3.2	3.0	3.1
Service is more frequent on the major routes	3.1	3.1	3.3	3.2
Riders need to transfer between routes less often	4.4	3.9	3.9	4.0
The bus network remains similar to how it is today	4.8	5.5	5.2	5.2

TABLE 27: IMPROVEMENT PRIORITY BY ETHNICITY - MEAN RANK

Improvement	Hispanic (Mean Rank)	Non-Hispanic (Mean Rank)	Total (Mean Rank)
Routes provide access to more destinations	2.5	2.3	2.3
Service is available for more hours of the day	2.6	3.2	3.1
Routes take more direct paths	3.4	3.1	3.1
Service is more frequent on the major routes	3.1	3.3	3.2
Riders need to transfer between routes less often	3.9	4.1	4.0
The bus network remains similar to how it is today	5.4	5.1	5.2

Non-Hispanic respondents rank "Routes take more direct paths" higher than "Service is available for more hours of the day", and rank "Service is available for more hours of the day" very similarly to "Service is more frequent on major routes". Both Hispanic and Non-Hispanic riders ranked "Riders need to transfer between routes less often" and "The bus network remains similar to how it is today" as the second-to-last and last priority, respectively.

TABLE 28: IMPROVEMENT PRIORITY BY LATENT CLASS CLUSTER - MEAN RANK

Improvement	Car-Centric Pragmatists (Mean Rank)	Transit Rejecters (Mean Rank)	Choice Users (Mean Rank)	Transit Dependent (Mean Rank)	Total (Mean Rank)
Routes provide access to more destinations	2.2	2.5	2.8	2.4	2.4
Service is available for more hours of the day	3.1	3.4	2.7	2.3	3.1
Routes take more direct paths	3.1	3.0	3.3	3.7	3.1
Service is more frequent on the major routes	3.2	3.3	3.2	3.0	3.2
Riders need to transfer between routes less often	4.0	3.9	3.7	4.8	4.0
The bus network remains similar to how it is today	5.3	4.9	5.3	4.8	5.2

Latent Class Clusters showed a relatively high degree of variability between the different clusters, and revealed some interesting preferences. Car-Centric Pragmatists ranked "Routes provide access to more destinations" much more highly than the second-ranked item ("Routes take more direct paths"). Both Transit Dependent and Choice Users ranked "Service is available for more hours of the day" as the first priority, slightly more important than "Routes provide access to more destinations", although the ranking of these items fort both groups were fairly close. "The bus network remains similar to how it is today" was ranked lowest by both the Car-Centric Pragmatists and the Choice Users.

TABLE 29: IMPROVEMENT PRIORITY BY CAR ACCESS - MEAN RANK

Improvement	Car Access (Mean Rank)	No Car Access (Mean Rank)	Total (Mean Rank)
Routes provide access to more destinations	2.3	2.4	2.3
Service is available for more hours of the day	3.2	2.4	3.1
Routes take more direct paths	3.1	3.7	3.1
Service is more frequent on the major routes	3.2	3.1	3.2
Riders need to transfer between routes less often	4.0	4.5	4.0
The bus network remains similar to how it is today	5.2	4.8	5.2

Those with no car access were almost equally interested in having "Routes provide access to more destinations" and "Service is available for more hours of the day". Those with access to a car were less interested in "Service is available for more hours of the day", but were more interested in having "Routes take more direct paths".

TABLE 30: IMPROVEMENT PRIORITY BY AGE - MEAN RANK

Improvement	Under 35 (Mean Rank)	35 - 54 (Mean Rank)	55+ years (Mean Rank)	Total (Mean Rank)
Routes provide access to more destinations	2.4	2.3	2.4	2.4
Service is available for more hours of the day	2.8	3.2	3.3	3.1
Routes take more direct paths	3.2	3.1	3.2	3.1
Service is more frequent on the major routes	3.2	3.4	3.0	3.2
Riders need to transfer between routes less often	4.1	4.0	4.1	4.0
The bus network remains similar to how it is today	5.4	5.1	5.0	5.2

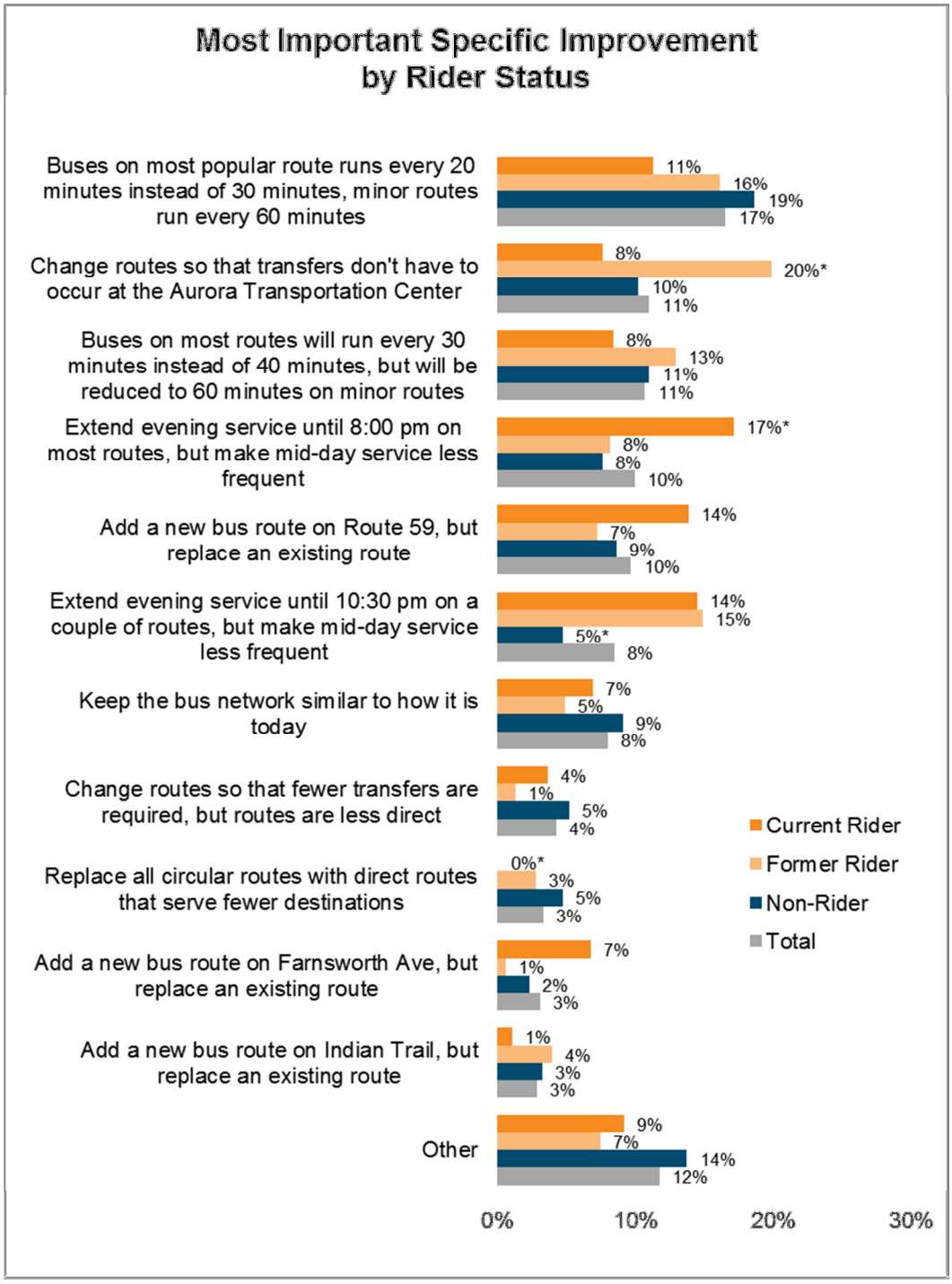
There were not any great differences in improvement rankings between different age groups. Those 55 years and older would slightly prefer "Service is more frequent on the major routes" over "Service is available for more hours of the day" and "Routes take more direct paths", but not by much. Similarly, those 35-54 and those 55 and older would slightly prefer "Routes take more direct paths" to "Service is available for more hours of the day," but these preferences are also slight.

SPECIFIC IMPROVEMENT PRIORITIES

In addition to these global service improvements mentioned above, respondents were subsequently asked to select one specific change to service (out of a list of 11 changes) that they would like to see implemented

most. These changes were stated in the form of a trade-off, such that any improvement ("Buses on most routes will run every 30 minutes instead of 40 minutes") was combined with a decrease in service ("but will be reduced to 60 minutes on minor routes"). These trade-offs required respondents to contemplate the positive and negative implications of service changes, and mirror realistic trade-offs to service that Pace might be confronted with when deciding to change service in the region.

FIGURE 68: MOST IMPORTANT SPECIFIC IMPROVEMENT BY RIDER STATUS



With regards to specific improvement trade-offs, for all respondents combined, the following changes rose to the top:

1. Buses on the most popular route will run every 20 minutes instead of 30 minutes, but will be reduced to 60 minutes on minor routes
2. Change routes so that transfers don't have to occur at the Aurora Transportation Center
3. Buses on most routes will run every 30 minutes instead of 40 minutes, but will be reduced to 60 minutes on minor routes

Current Riders perceived the following changes to be most important:

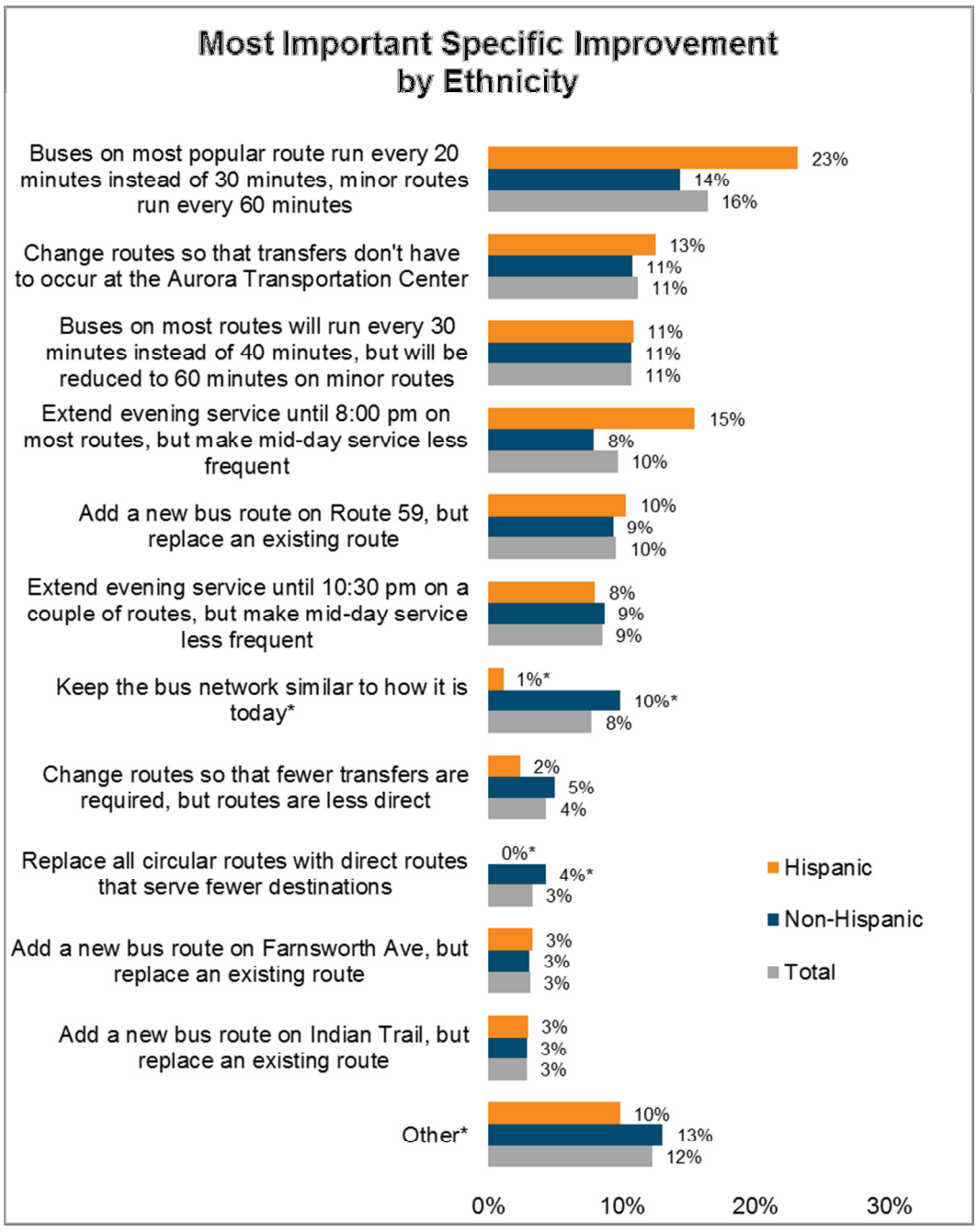
1. Extend evening service until 8:00 pm on most routes, but make mid-day service less frequent
2. Extend evening service until 10:30 pm on a couple of routes, but make mid-day service less frequent
3. Add a new bus route on Route 59, but replace an existing route

This suggests that Current Riders place a greater emphasis on extending span of service, in particular in the evening, rather increasing the frequency of service. These results are also consistent with the global priority ranking of Current Riders who, unlike Former Riders or Non-Riders, value "extending the hours of service operation" more than any other potential change. For Former Riders, the following two changes rose to the top:

1. Change routes so that transfers don't have to occur at the Aurora Transportation Center
2. Buses on the most popular route will run every 20 minutes instead of 30 minutes, but will be reduced to 60 minutes on minor routes

This suggests that one reason for Former Riders to abandon Pace might have been the fact that transfers at the ATC may be perceived as inefficient or have some other issue.

FIGURE 69: MOST IMPORTANT SPECIFIC IMPROVEMENT BY ETHNICITY



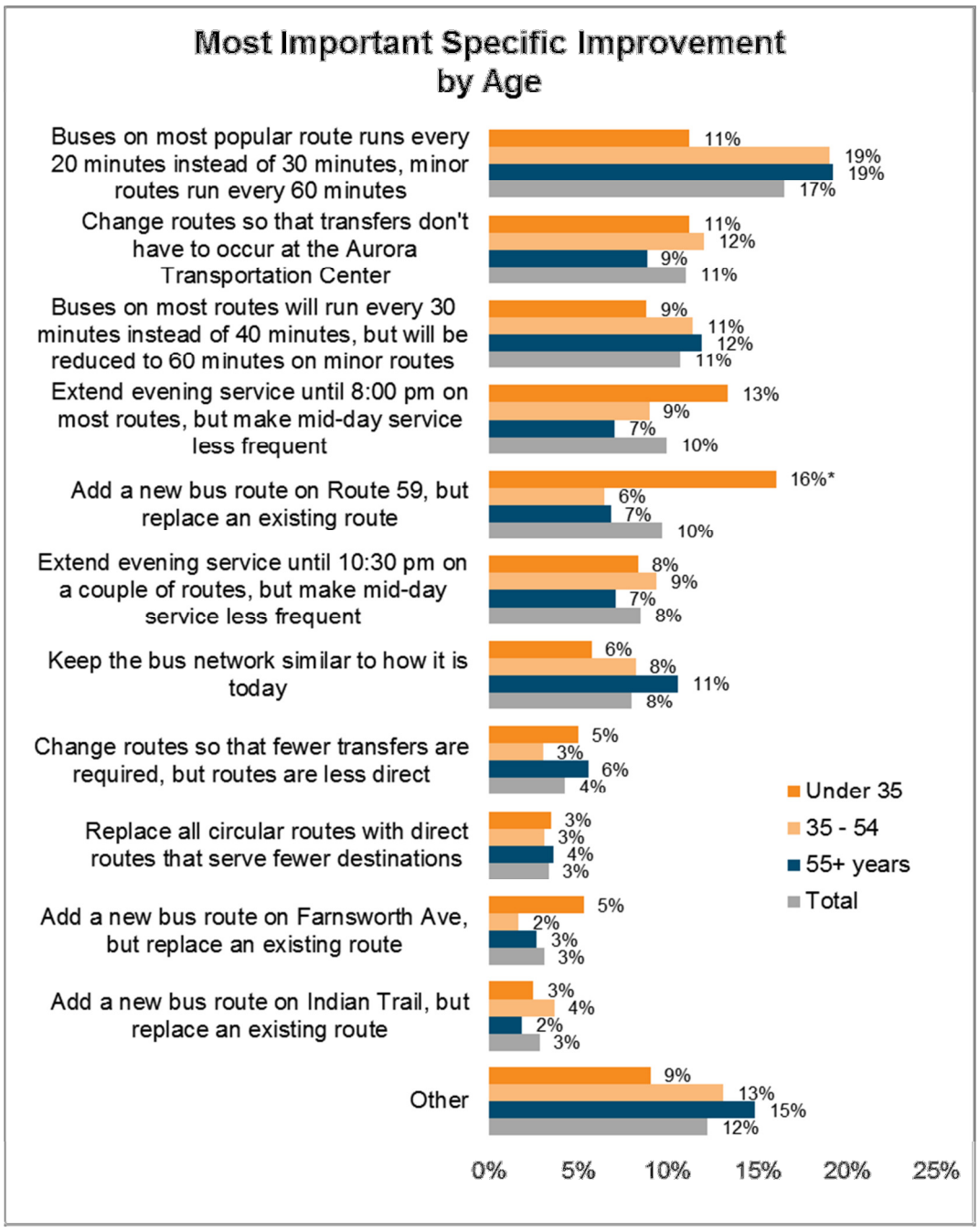
Even though Hispanic and Non-Hispanic respondents agree on the most important specific improvement ("Buses on most popular route run every 20 minutes instead of 30 minutes, minor routes run every 60 minutes"), they differ on the second most important improvement: Hispanic respondents perceive: "Extend evening service until 8:00 pm on most routes, but make mid-day service less frequent" as more important whereas Non-Hispanic respondents prefer "Change routes so that transfers don't have to occur at the Aurora Transportation Center."

TABLE 31: MOST IMPORTANT SPECIFIC IMPROVEMENT BY LATENT CLASS SEGMENT

Specific Improvements	Car-Centric Pragmatists	Transit Rejecters	Choice Users	Transit Dependent	Total
Buses on most popular route run every 20 minutes instead of 30 minutes, minor routes run every 60 minutes	21%	13%	14%	8%	17%
Change routes so that transfers don't have to occur at the Aurora Transportation Center	11%	12%	17%	1%	11%
Buses on most routes will run every 30 minutes instead of 40 minutes, but will be reduced to 60 minutes on minor routes	11%	12%	8%	5%	11%
Extend evening service until 8:00 pm on most routes, but make mid-day service less frequent	9%	6%	13%	21%	10%
Add a new bus route on Route 59, but replace an existing route	11%	4%	23%	6%	10%
Extend evening service until 10:30 pm on a couple of routes, but make mid-day service less frequent	7%	6%	12%	19%	8%
Keep the bus network similar to how it is today	7%	12%	3%	7%	8%
Change routes so that fewer transfers are required, but routes are less direct	3%	7%	2%	5%	4%
Replace all circular routes with direct routes that serve fewer destinations	3%	6%	1%	0%	3%
Add a new bus route on Farnsworth Ave, but replace an existing route	3%	2%	1%	8%	3%
Add a new bus route on Indian Trail, but replace an existing route	4%	2%	1%	1%	3%
Other	9%	18%	6%	20%	12%

"Buses on most popular route run every 20 minutes instead of 30 minutes, minor routes run every 60 minutes" is the improvement that is preferred by both Car-Centric Pragmatists and Transit Rejecters. To the contrary, Transit Dependent riders would most like to see evening service extended to 8:00 pm, and Choice Users would most like to see a new bus route on Route 59. Given that Choice Users are most amenable to increasing transit and given this segment's propensity to use a variety of transit types depending on needs, it might be worth paying special attention to this segment's preferences. It should be noted that Choice Users are also most likely to use Metra out of all segments, making Pace and Metra integration most likely important for this segment.

FIGURE 70: MOST IMPORTANT SPECIFIC IMPROVEMENT BY AGE

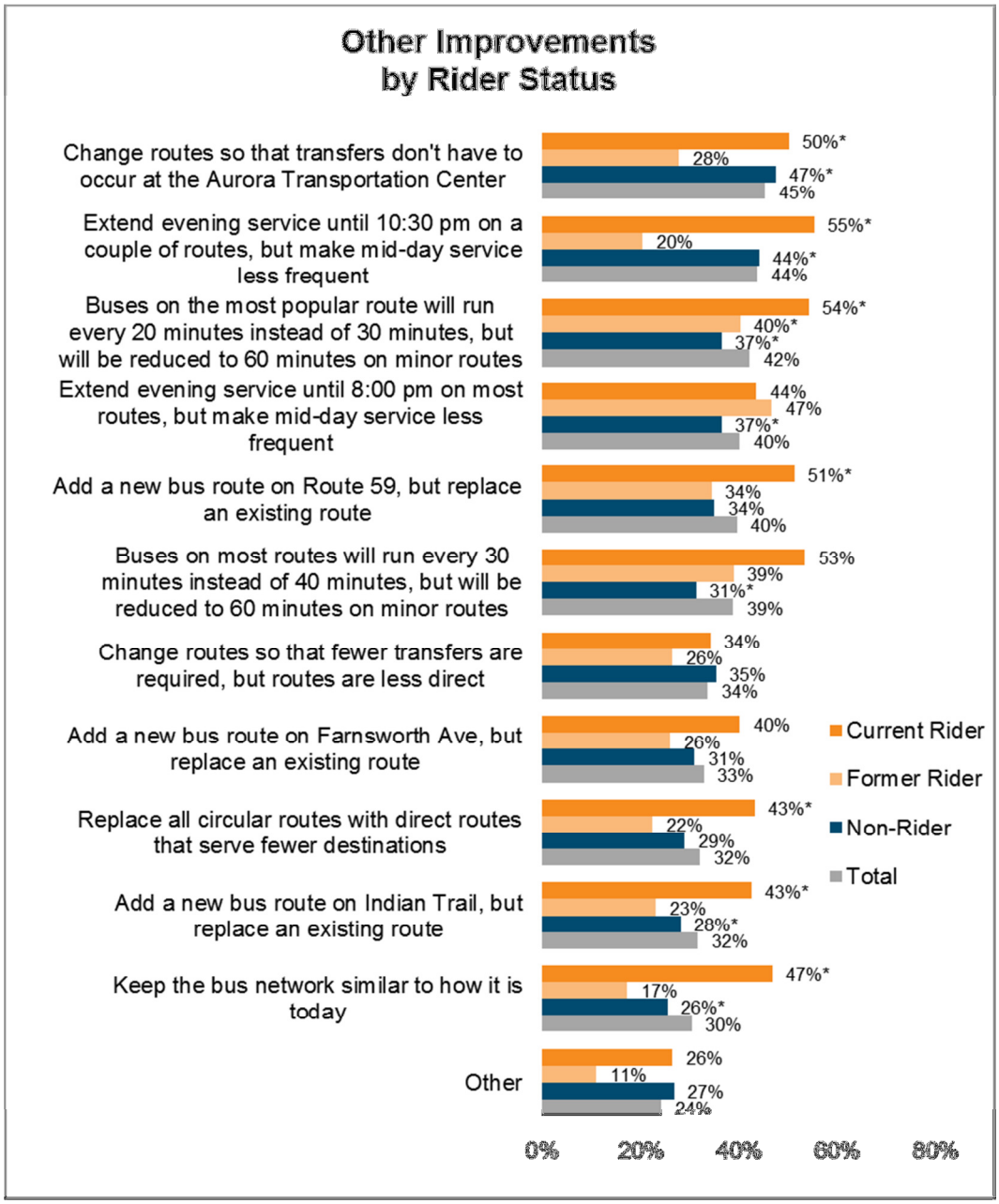


Respondents younger than 35 would most like to see "Add a new bus route on Route 59, but replace an existing route", and would also like to see evening service extended, more than they would like to have "Buses on most popular route runs every 20 minutes instead of 30 minutes, minor routes run every 60 minutes." Respondents between 35 and 54 years of age, and 55 years and older, tended to have similar priorities for the specific improvements listed.

OTHER IMPROVEMENTS

In addition to the primary improvement that they would like to see, respondents were also asked which other improvements from the list they would like to see. This allowed for a broader background assessment of which additional attributes respondents considered important for improving the Pace Fox Valley system.

FIGURE 71: OTHER IMPROVEMENTS BY RIDER STATUS

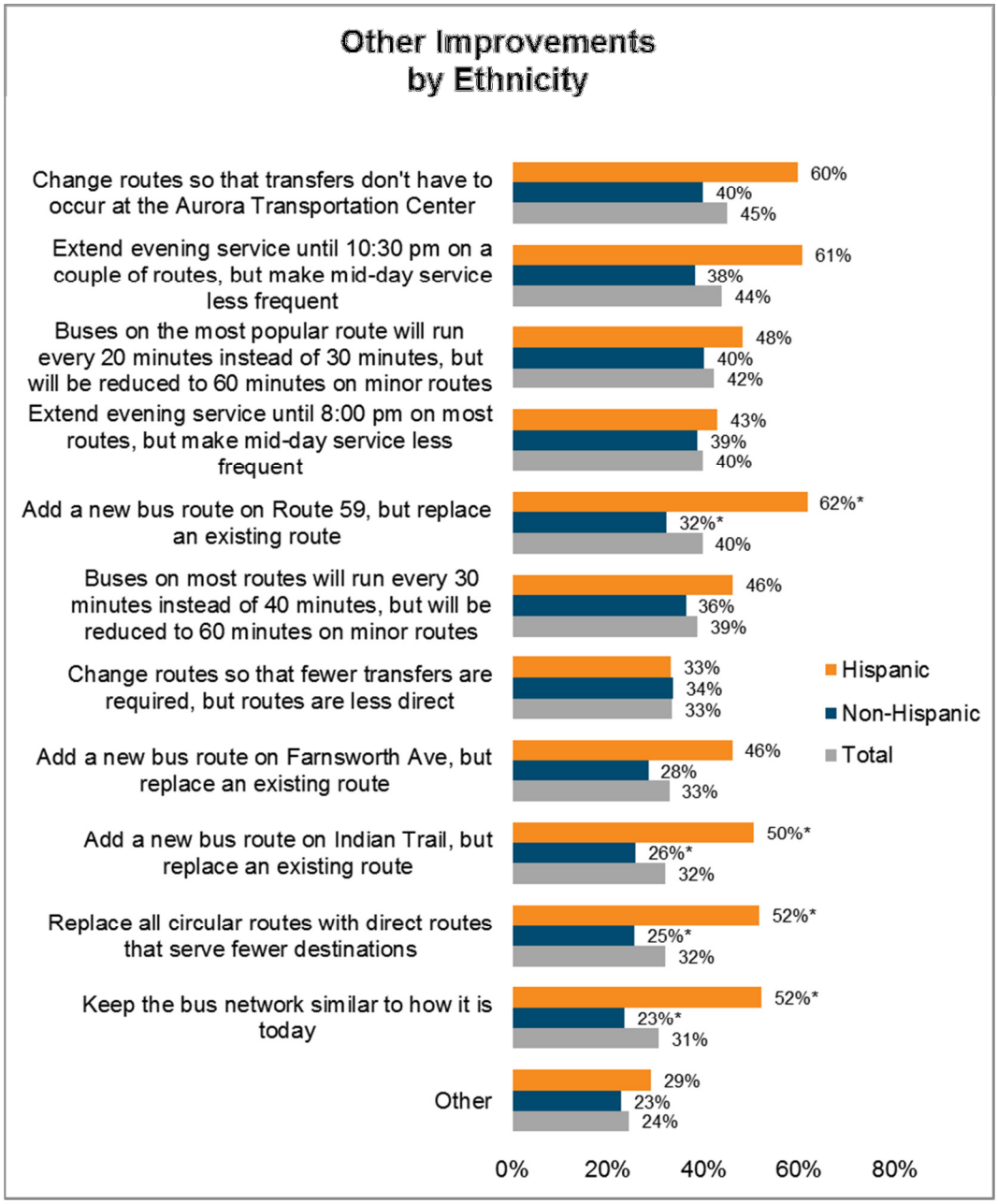


Note: Bars may not add up to 100% due to multiple responses per record.

Current riders were more likely to select almost all options than either former riders or non-riders. Current riders were most likely to select "buses on the most popular route will run every 20 minutes…". Former riders were most likely to select "Extend evening service until 8:00 pm on most routes, but make mid-day

service less frequent". The least popular improvement was to "keep the bus network similar to how it is today", although current riders were more likely to select this option than many of the other improvement options.

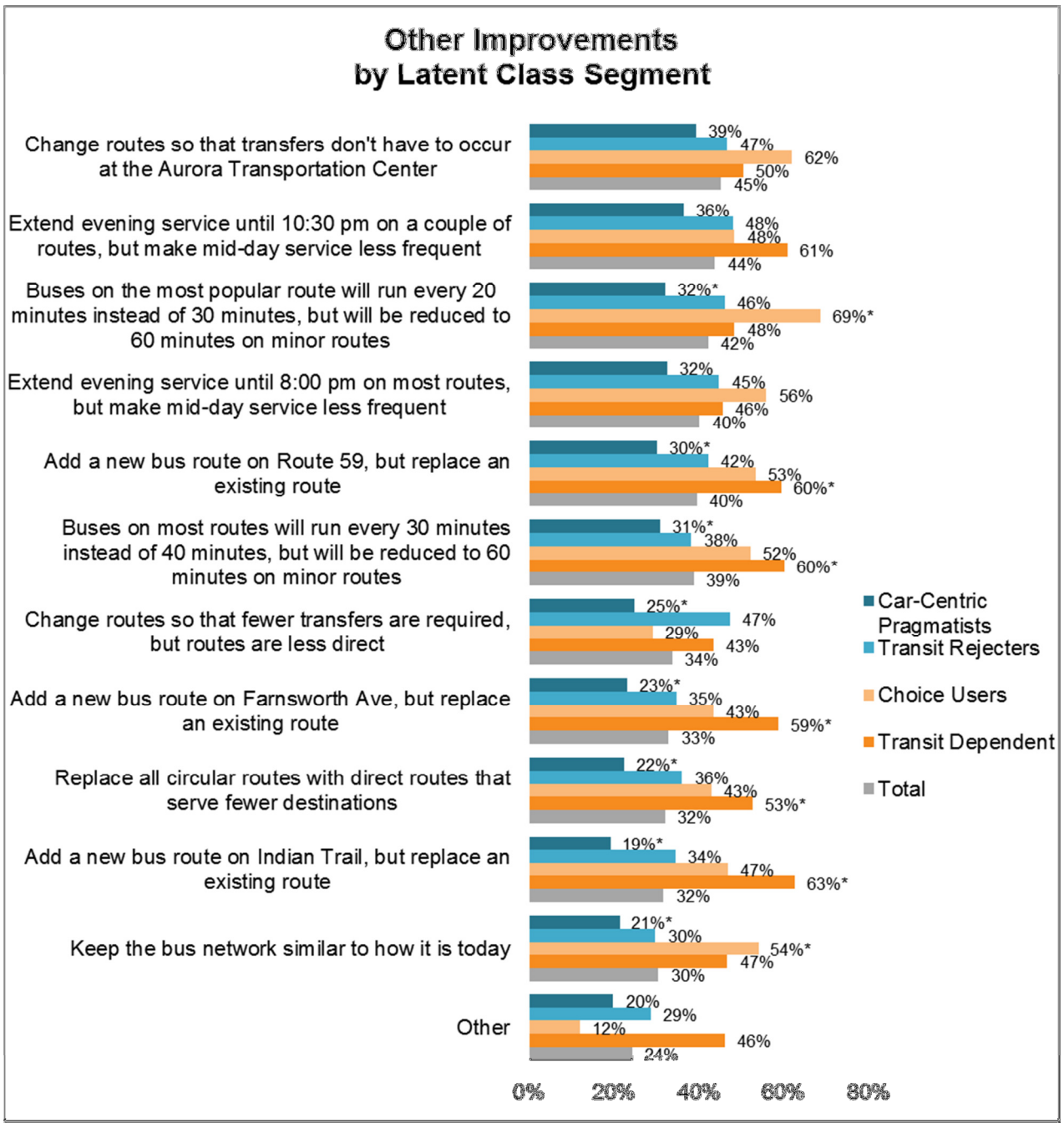
FIGURE 72: OTHER IMPROVEMENTS BY ETHNICITY



Note: Bars may not add up to 100% due to multiple responses per record.

Hispanic respondents were most likely to select "add a new bus route on Route 59, but replace an existing route" as another improvement that they would like to see. In general, Hispanic respondents were more likely to select any improvement over non-Hispanic respondents.

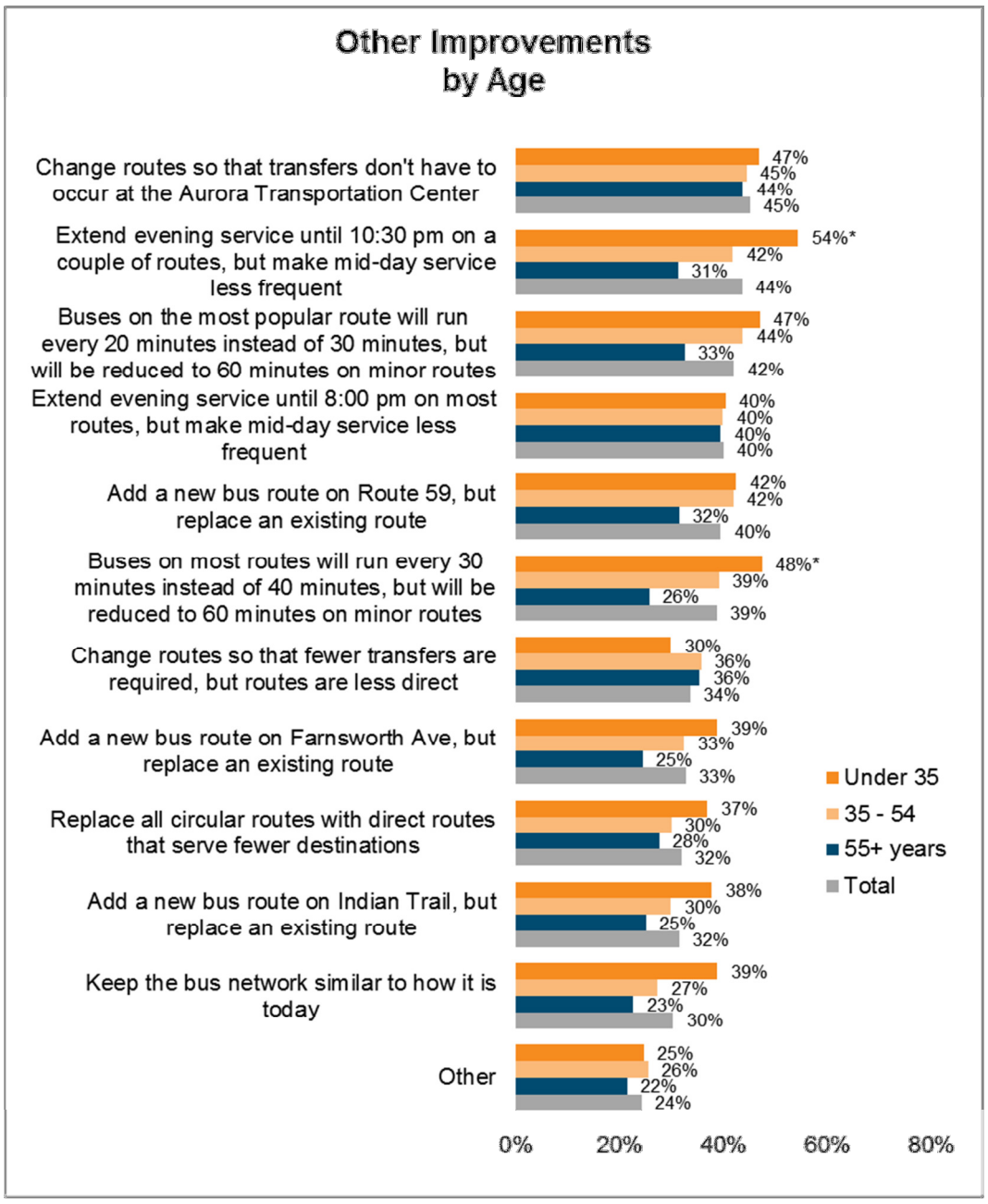
FIGURE 73: OTHER IMPROVEMENTS BY LATENT CLASS SEGMENT



Note: Bars may not add up to 100% due to multiple responses per record.

There is a fairly high degree of variability between the different latent class clusters' preferences for other improvements they would like to see. Car-Centric Pragmatists were least likely to choose any of the improvements as another improvement they would like to see. Choice Users and Transit Dependent respondents were more likely to select an improvement. Interestingly, transit-dependent respondents were most likely to select "add a new bus route on Indian trail, but replace an existing route", an option which was ranked last overall in the primary improvements question.

FIGURE 74: OTHER IMPROVEMENTS BY AGE



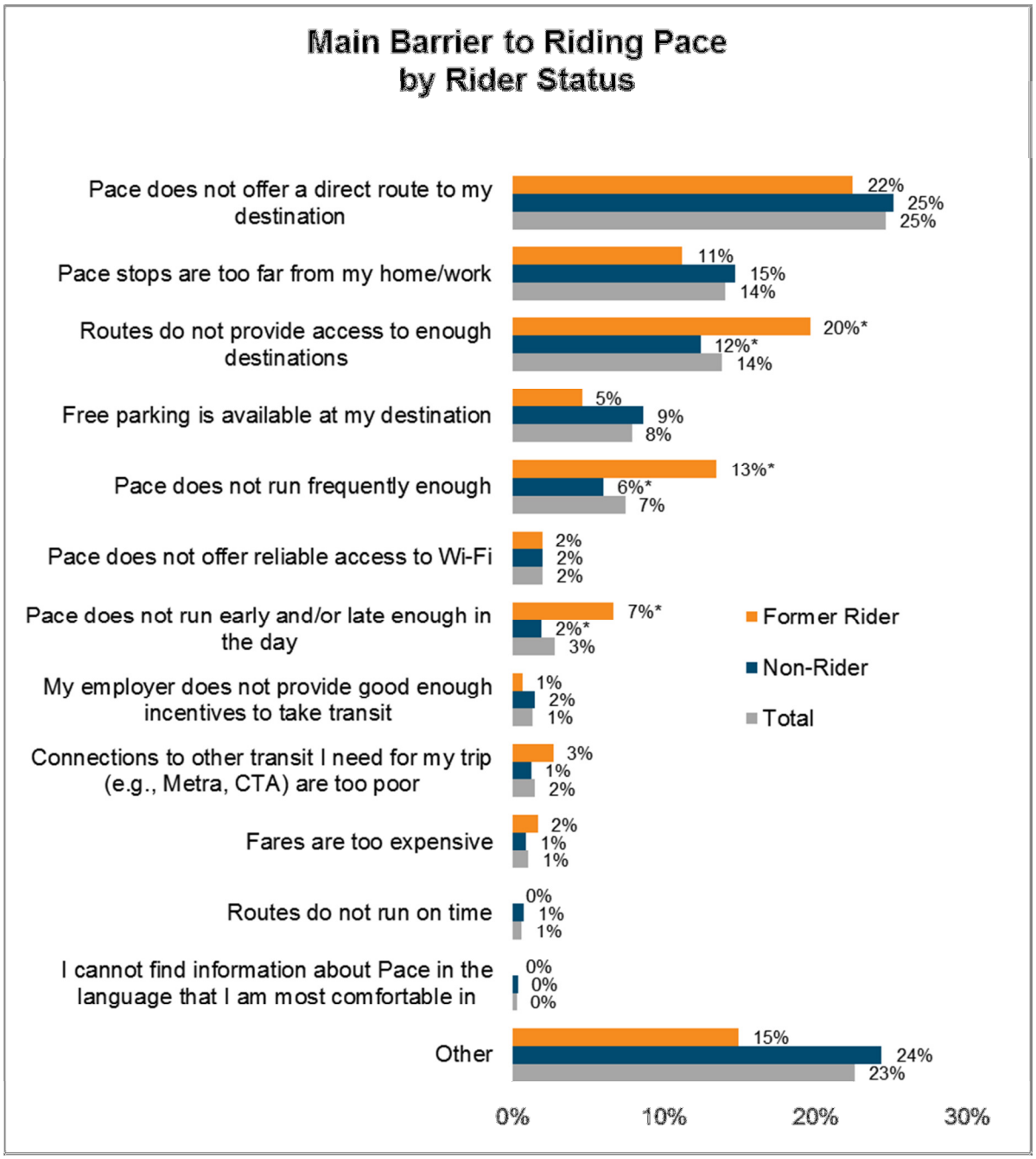
Note: Bars may not add up to 100% due to multiple responses per record.

Those under 35 were most likely to select "extend evening service until 10:30 pm on most routes, but make mid-day service less frequent", and were much more likely to select this option than the other two age groups. Those under 35 were least likely to select "change routes so that fewer transfers are required, but routes are less direct".

6.7 | BARRIERS TO USING PACE

An important first step in increasing ridership is to understand why some people in the region chose not to ride Pace. Respondents were asked to indicate the primary reason they did not ride Pace, and were given an open-ended question to describe why they did not ride Pace. The answers to these questions are explored below. Since Current Riders already use Pace, these questions were only seen by Former Riders or Non-Riders.

FIGURE 75: BARRIERS TO USING PACE BY RIDER STATUS

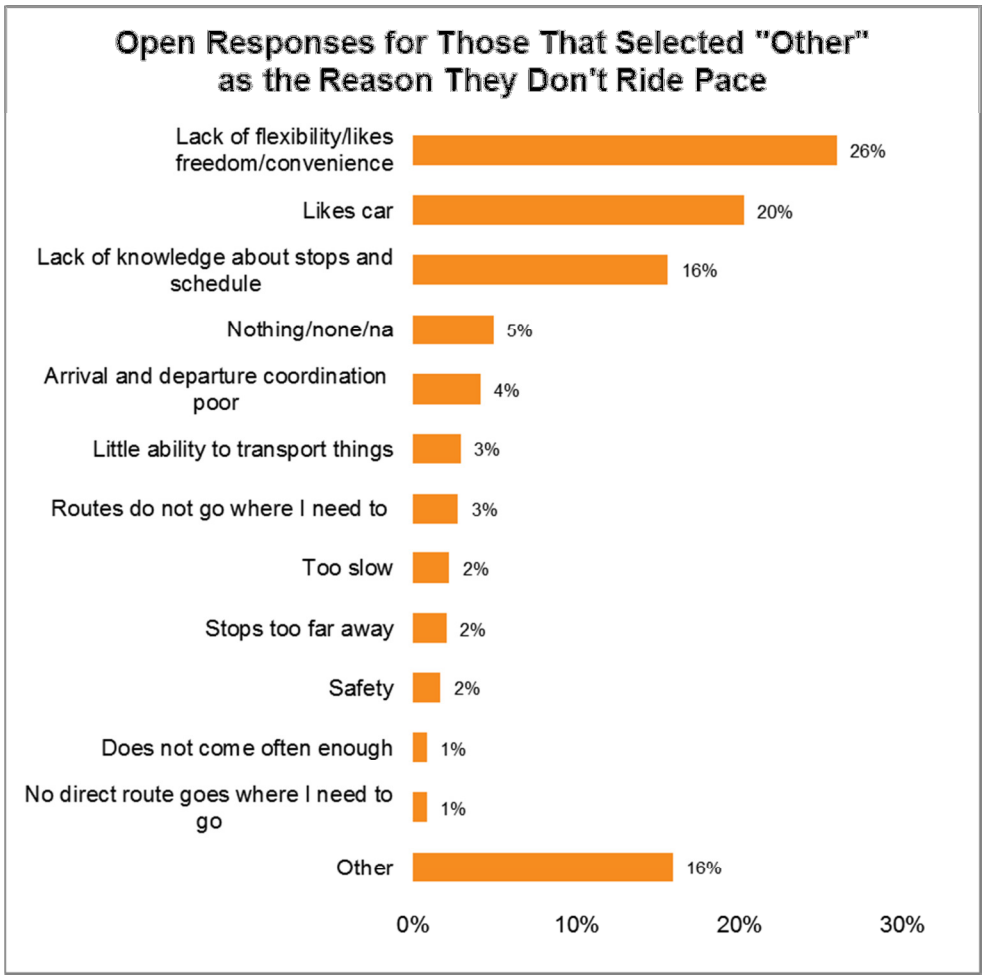


Independent of Rider Status (i.e., Former vs. Non-Riders), the following were named as the biggest barriers:

1. Pace does not offer a direct route to my destination (25%)
2. Routes do not provide access to enough destinations (14%)
3. Pace stops are too far from my home/work (14%)

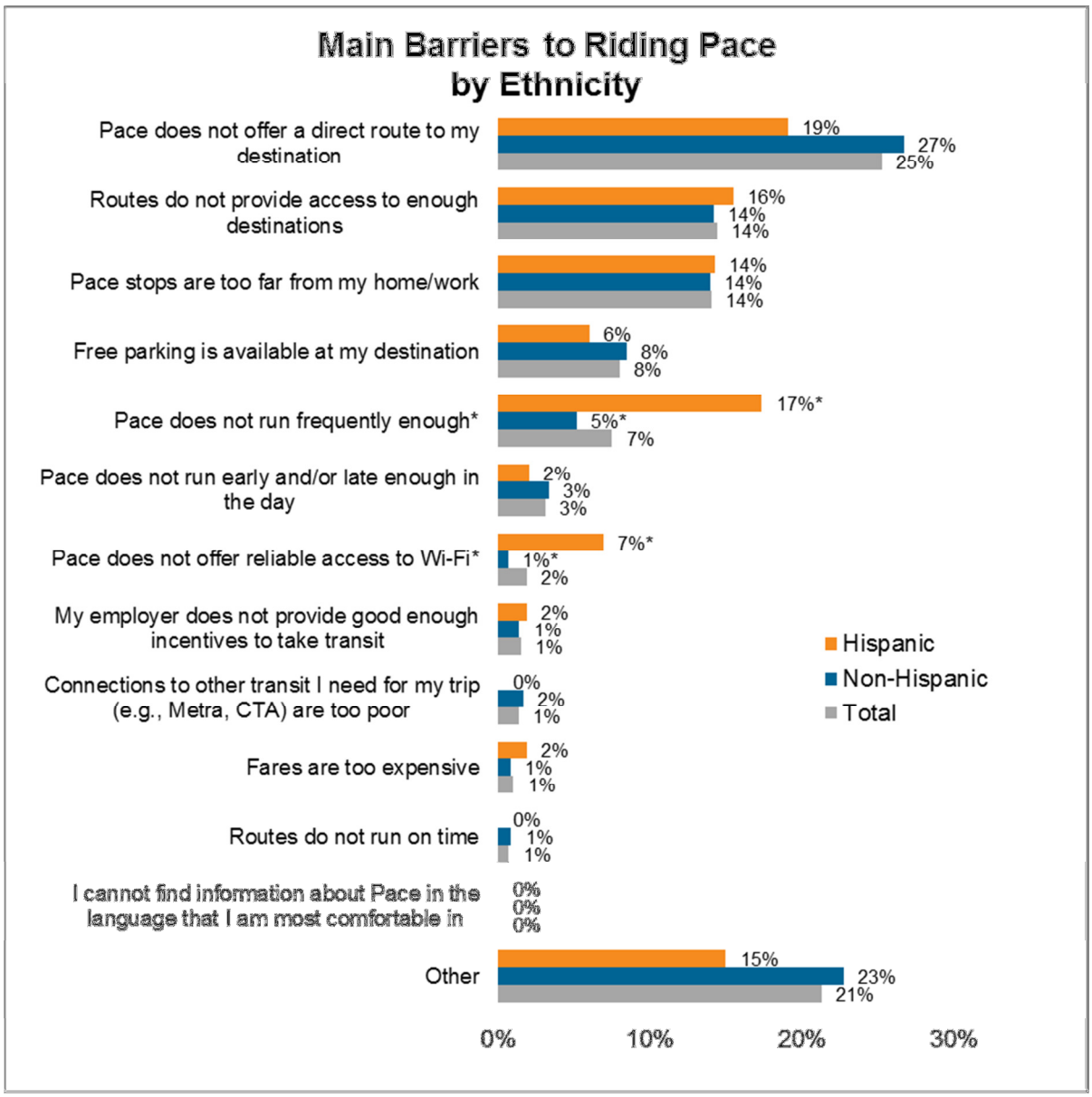
Comparing Former Riders and Non-Riders, both groups generally voice the same barriers, with the exception of Former Riders agreeing more with the statements "Routes do not provide access to enough destinations" (8% difference) and "Pace does not run frequently enough" (7% difference).

FIGURE 76: IDENTIFYING OTHER BARRIERS TO USING PACE



Further, the open-response values for those that selected "Other" as their main barrier cited lack of flexibility (27%), that they like using their car (18%), and lack of knowledge about stops and schedules (17%).

FIGURE 77: BARRIERS TO USING PACE BY ETHNICITY



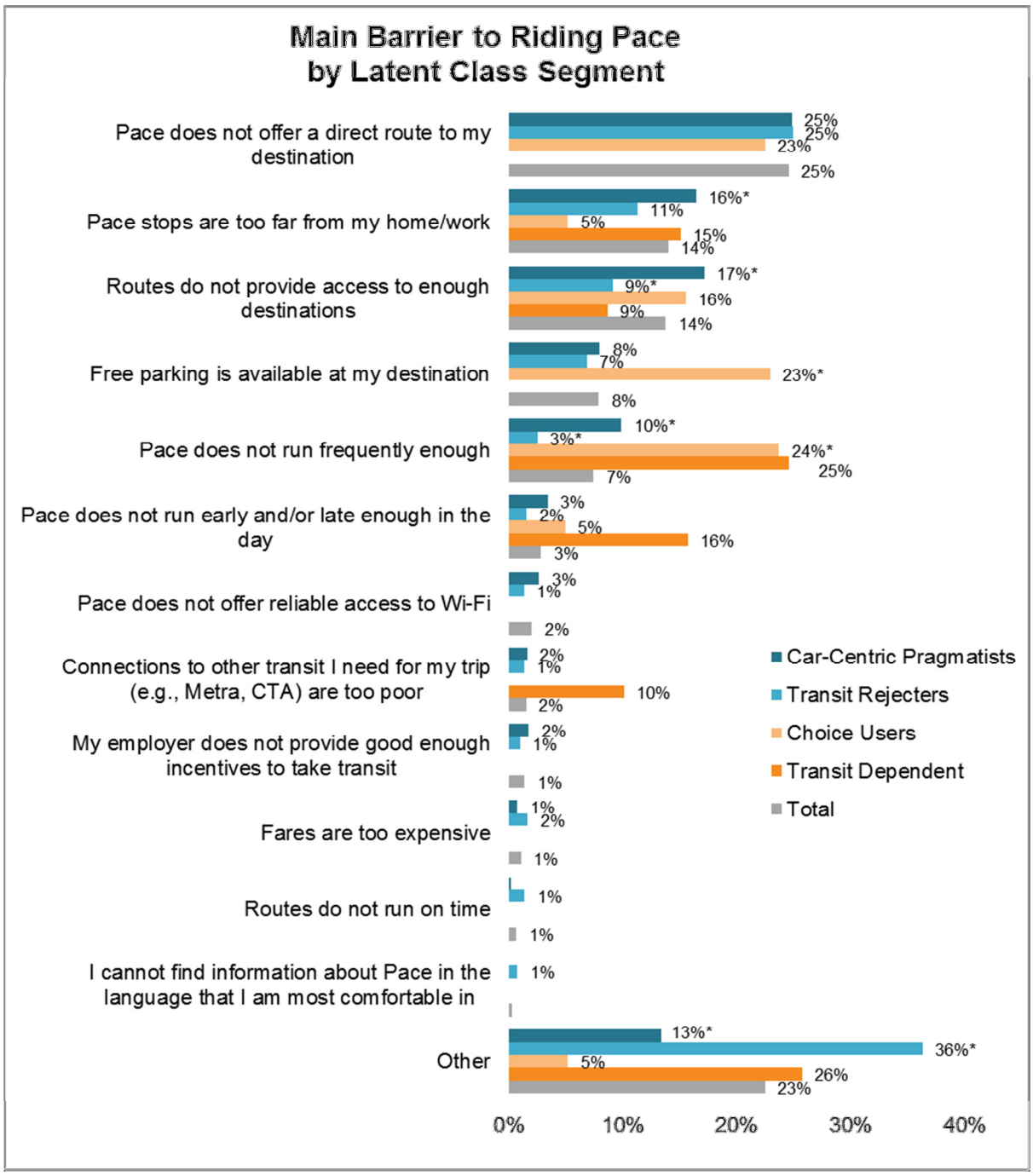
When investigating only those barriers for which Hispanic and Non-Hispanic respondents differed in their perceptions, Hispanic respondents were more likely to endorse the following items:

- Pace does not run frequently enough (12% difference)
- Pace does not offer reliable access to Wi-Fi (6% difference)

Hispanic respondents were less likely to endorse the following item:

- Pace does not offer a direct route to my destination (8% difference)

FIGURE 78: MAIN BARRIER TO RIDING PACE BY LATENT CLASS SEGMENT



Note: The sample sizes for the Transit Dependent (N = 7) and Choice Rider segments (N = 19) are small. Interpret with caution.

The main barrier to riding Pace for Car-Centric Pragmatists and Transit Rejecters was that Pace does not offer a direct route to their destination. This was also important for Choice Users, but they reported that having free parking at their destination was equally a barrier, and "Pace does not run frequently enough" was the most frequently indicated barrier to riding Pace.

6.8 | FAMILIARITY WITH PACE

FIGURE 79: INFORMED ABOUT PACE BY RIDER STATUS

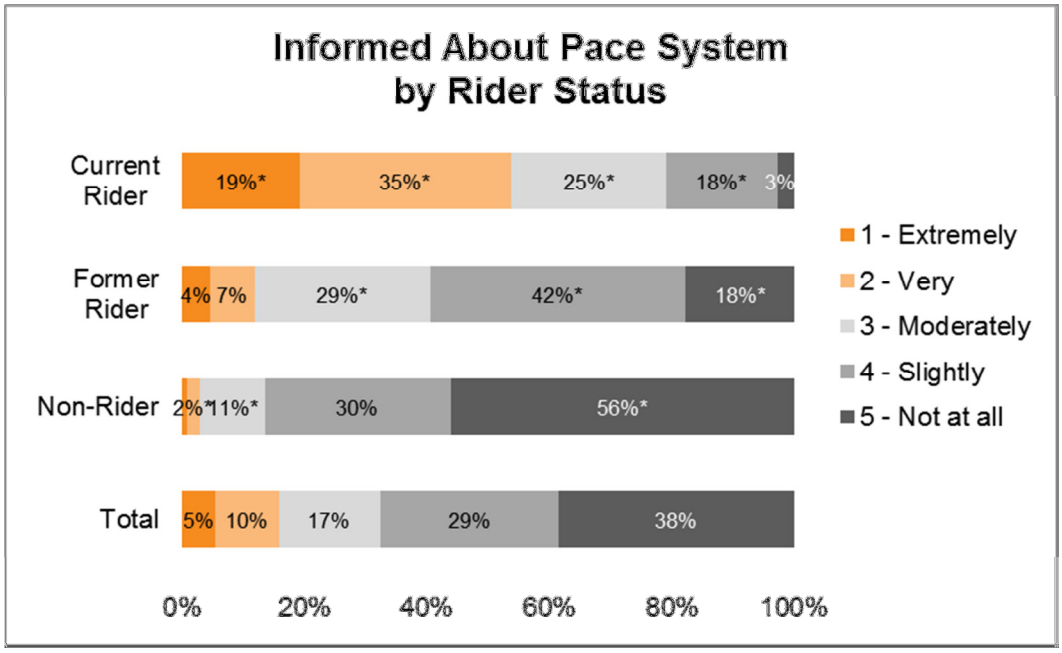
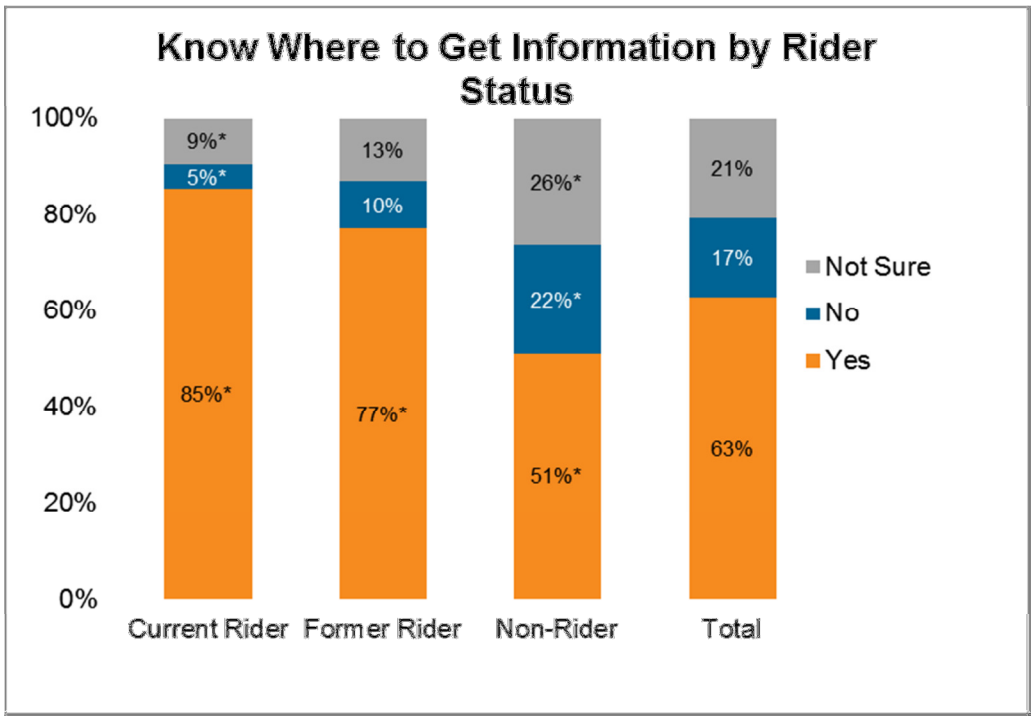


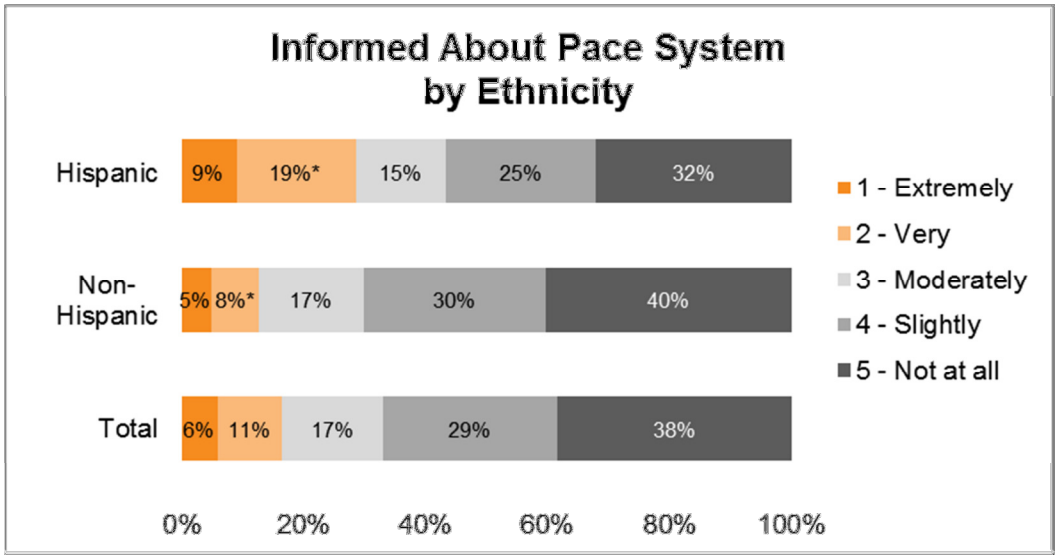
FIGURE 80: KNOW WHERE TO GET MORE INFORMATION BY RIDER STATUS



Eighty-five percent of Current Riders and about three-quarters of Former Riders (77%) know where they can obtain information about Pace. Only about half of Non-Riders state that they know where they can get

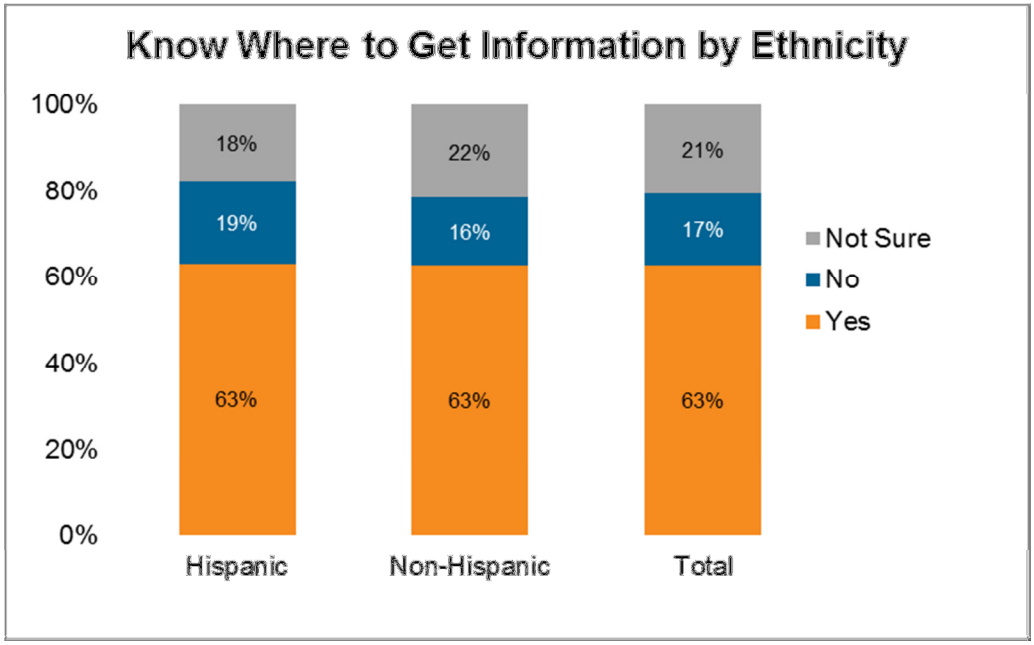
information on Pace buses. Whereas over half of Current Riders (54%) state that they are "Extremely" or "Very informed" about Pace's service, 56% of Non-Riders state that they are "Not at all" informed or familiar with Pace's services, perhaps suggesting that public outreach about the benefits of Pace service may be advisable.

FIGURE 81: INFORMED ABOUT PACE BY ETHNICITY



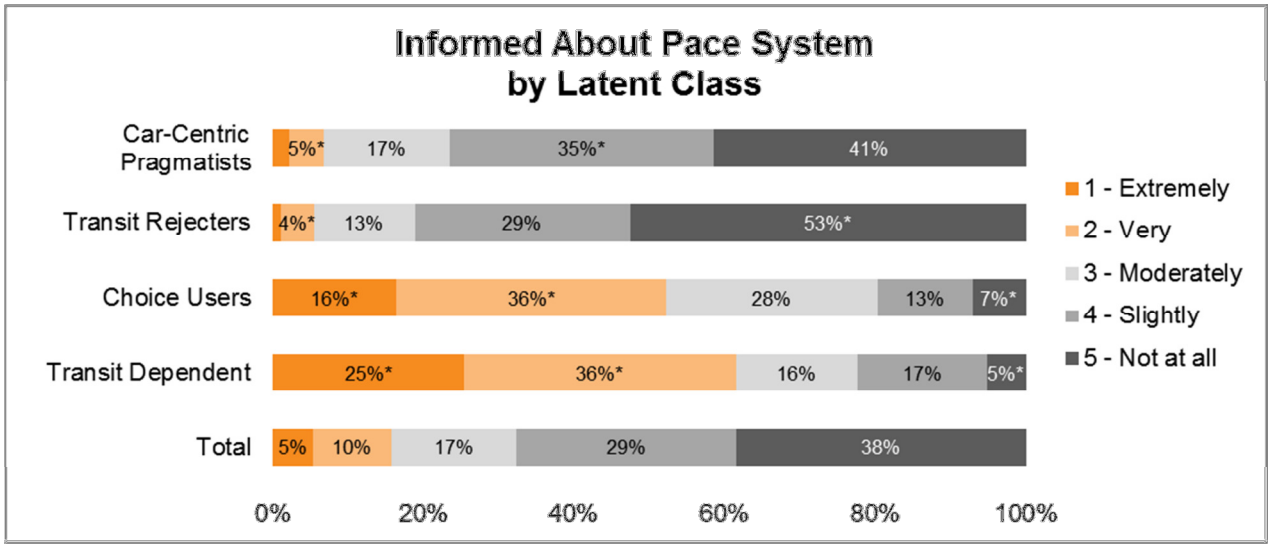
Comparing how informed respondents are by ethnicity, we see that Hispanic respondents are slightly more likely to be familiar with the Pace system, with 28% of Hispanic respondents report being either "Extremely" or "Very" familiar with the Pace system, compared to only 13% of Non-Hispanic respondents. Between 30% and 40% of respondents reported being "Not at all" familiar with the Pace system.

FIGURE 82: KNOW WHERE TO GET MORE INFORMATION BY ETHNICITY



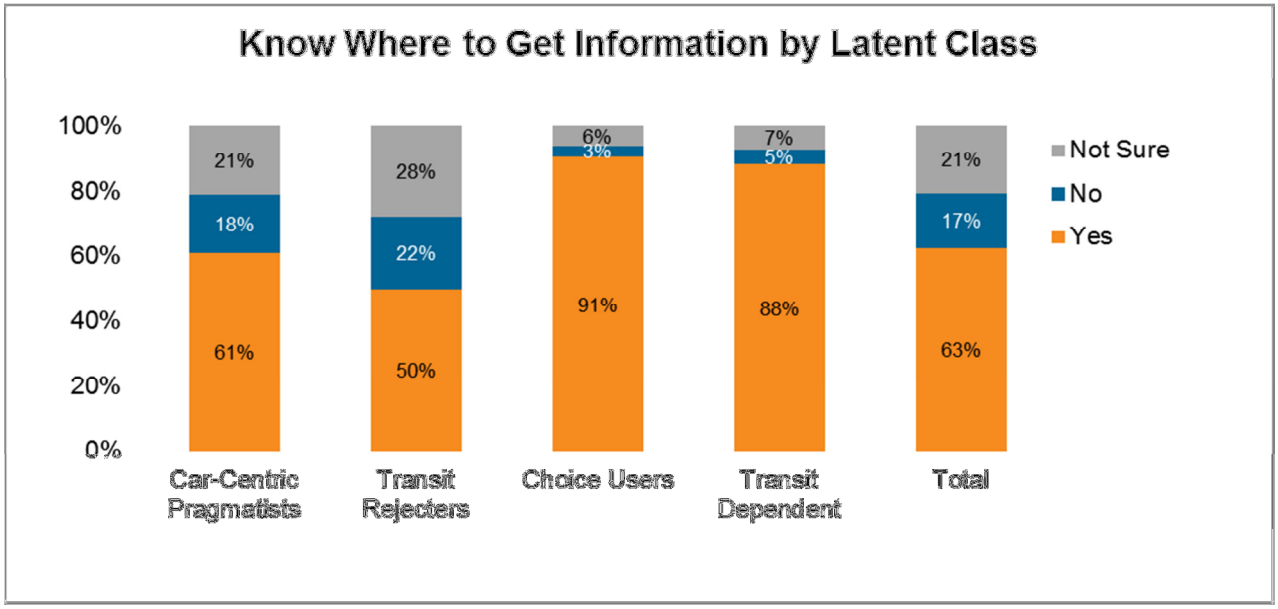
Just under 40% of both Hispanic and Non-Hispanic respondents reported that they were either unsure or did not know where to get more information about the Pace system.

FIGURE 83: INFORMED ABOUT PACE SYSTEM BY LATENT CLASS



Choice Users and Transit Dependent respondents were most likely to be informed about the Pace system. Transit rejecters were overall the least informed about the Pace system.

FIGURE 84: KNOW WHERE TO GET INFORMATION BY LATENT CLASS



Choice Users and Transit Dependent respondents were much more likely to know where to get information about the Pace System. Transit rejecters were least likely to know where to get information about the Pace system.

7.0 CONCLUSIONS AND RECOMMENDATIONS

The results presented in this report point to clear differences in characteristics, attitudes, and behaviors among different segments and sub-markets of residents in the Fox Valley region. Understanding these differences can help identify strategies and service changes that may be most successful in attracting new segments, and in retaining current customers. For segments that are similar in their attitudes and behaviors, the same strategy may be applied to all. In instances in which they differ, tailoring marketing strategies to address the unique preferences and needs of a specific segment will result in more successful outcomes. Based on the presented results, we make four recommendations.

First, the results from the Market Analysis Study clearly suggest that Choice Users are an important growth segment for Pace, and that focusing on this segment would be a logical decision. Many members of this segment are already accustomed to riding Pace, yet at the same time, this segment still has considerable growth potential with regards to frequency of usage. In order to attract members of this segment, addressing the perceived disadvantages that Pace has is particularly important. This segment is flexible, and has proven that they are willing to use Pace. However, since they are likely to have access to a car (i.e., are less dependent on transit than Transit Dependent riders), are willing to try other modes depending on the circumstance, and have many mode options for their trips, it is important to make Pace as appealing of an option as possible. As a result, Pace should address attributes that Choice Users rate poorly, such as "The time it takes to go places using Pace buses is reasonable."

Second, the results repeatedly show that the needs and wants of Hispanic respondents generally do not differ from those of Non-Hispanic respondents. For instance, the global improvement priorities and the specific service attribute improvements were either identical or very similar for Hispanic and Non-Hispanic respondents. This implies that tailoring changes to meet the preferences and transit needs of the Hispanic population in the Fox Valley region is unnecessary. However, this does *not* imply that the Hispanic population should not be targeted. In fact, targeting Hispanic travelers in the region might have two advantages. First, it obviously has the potential to increase ridership among Hispanic residents, which is one of Pace's stated goals. Second, targeting Hispanic residents has the unique advantage of simultaneously speaking to Choice Users and Hispanic residents, since about 62% of Choice Users are Hispanic. Taken together, we recommend tailoring service changes to the needs, wants, and preferences of *Choice Users* -- but to make any accompanying marketing material and public outreach readily available in Spanish. Again, this will allow for concurrently targeting Hispanic resident and Choice Users given the great overlap between these two segments.

Third, we recommend addressing any issues that may prevent Car-Centric Pragmatists from riding Pace. As a large segment of the overall population (48%) that might be open to using transit under some circumstances, Car-Centric Pragmatists are a secondary growth segment. Converting Car-Centric Pragmatists might be somewhat more challenging than Choice Users, because this segment does not believe that Pace operates in areas they need to go. However, a targeted marketing effort directed at study area residents detailing Pace routes, frequency of service, and travel times may be worthwhile for this segment -- in particular since results confirm that this segment is largely uninformed about Pace's service.

Forth, results indicate that Former Riders and Non-Riders evaluate transit fundamentally different than Current Riders. One of the most discrepant perception is with regards to perceived safety of using transit such that Former and Non-Riders perceive transit to be much less safe than Current Riders. As one of the

most basic human needs (e.g., Maslow's hierarchy of needs), perceived safety concerns when riding transit could act as a strong deterrent to using it. These safety concerns regarding public transit, in particular among Former Riders, might have lingered from a time when they used to take transit and when crime was indeed a problem in the study area. However, given the low crime rate in the area and on public transit in the Fox Valley region, these concerns can be considered outdated. Pace should make every effort to correct these misperceptions to regain the trust of residents, in particular those of Former Riders.