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CENTER for URBAN TRANSPORTATION RESEARCH

Commuter Assistance Program Evaluation

October 2012

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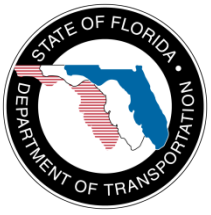

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Commuter Assistance Program Evaluation

BDK84 943-34

Prepared for:

Florida Department of Transportation

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Final Report

October 2012

Disclaimer

The opinions, findings, and conclusions expressed in this publication are those of the authors and not necessarily those of the State of Florida Department of Transportation.

Metric Conversion Table

SYMBOL	WHEN YOU KNOW	MULTIPLY BY	TO FIND	SYMBOL
LENGTH				
in	inches	25.4	millimeters	mm
ft	feet	0.305	Meters	m
yd	yards	0.914	Meters	m
mi	miles	1.61	kilometers	km
VOLUME				
fl oz	fluid ounces	29.57	milliliters	mL
gal	gallons	3.785	Liters	L
ft^3	cubic feet	0.028	cubic meters	m^3
yd^3	cubic yards	0.765	cubic meters	m^3
NOTE: volumes greater than 1000 L shall be shown in m^3				
MASS				
oz	ounces	28.35	Grams	g
lb	pounds	0.454	kilograms	kg
T	short tons (2000 lb)	0.907	megagrams (or "metric ton")	Mg (or "t")
TEMPERATURE (exact degrees)				
^oF	Fahrenheit	5 (F-32)/9 or (F-32)/1.8	Celsius	^oC

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16. Abstract

Florida faces growing challenges for meeting the mobility needs of travelers and businesses. The 2060 Florida Transportation Plan forecasts a near doubling of both population and employment over 2010. At the same time, the Florida Department of Transportation (FDOT) acknowledges that available funding will not be sufficient to pay for necessary improvements to the transportation system with the funding gap expected to widen. Such a formidable challenge means that Florida's commuter assistance programs (CAPs) like other transportation programs, will need to make continual improvements. To that end, FDOT has committed to review and update processes and guidelines to make sure Florida is achieving the desired results. Two types of surveys were conducted for six of seven CAPs in Florida to assess the impacts of ridematching services on behavior and estimate the outcomes such as reduction of vehicle miles of travel (VMT). The general population survey measures advertising and promotion efforts of the CAPs overall and commute habits. The customer survey estimates the effects that the CAPs have had on commuting behavior. CAPs reduced over 28,000,000 in vehicle miles of travel and 847,000 vehicle trips while providing over 35,000,000 person miles of travel and 1,145,000 person trips in carpools and vanpools. Recommendations were made to improve the evaluation process and the performance of the CAPs.

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Executive Summary

Florida faces growing challenges for meeting the mobility needs of travelers and businesses. The 2060 Florida Transportation Plan forecasts a near doubling of both population and employment over 2010. At the same time, the Florida Department of Transportation (FDOT) acknowledges that available funding will not be sufficient to pay for necessary improvements to the transportation system with the funding gap expected to widen. FDOT has developed several goals to help bridge the gap between transportation demands and funding. For example, FDOT recognizes the goal for enhancing livable communities means "providing more choices for where Floridians can live requires more effective transportation options" (Florida Department of Transportation, 2010). Such a formidable challenge means, Florida's commuter assistance programs (CAPs) like other transportation programs, will need to make continual improvements. To that end, FDOT has committed to review and update processes and guidelines to make sure Florida is achieving the desired results. This project aligns itself with those goals and objectives. Table 1 summarizes the key performance measures for the statewide CAP effort.

This project is the first statewide look at Florida CAPs to help establish a basis for showing future progress. The project's goal is to provide a statewide view of the CAP programs' TDM efforts to measure many of the performance measures identified in the 2008 "Florida Commuter Assistance Program – Performance Measures" report. Six of the seven CAPs were evaluated. At the time of the data collection, the CAP programs in District 5, which includes Orlando, Daytona Beach, and Space Coast areas, were reorganizing into a single organization managed by a consultant to the District, and thus the District 5 CAP was excluded from the data collection.

The expectation is that the FDOT Districts and CAPs will find value in the following data to help improve performance, including communicating with their peers about ways to continue to deliver more value to their communities. This analysis was based on representative samples from general population living in the areas served by the CAP and another sample drawn from persons who have registered with the programs to receive ride-matching or other services. The general population survey helps assess public awareness of the programs and of program advertising messages, and to assess use of different commute options by the general public. The survey of customers is used to estimate the effects that the programs have had on commuting, measure customer satisfaction, and understand how customers hear about the programs and what services they use.

The following table highlights many of the outputs and outcomes from statewide effort.

Table 1 Summary of Key Performance Measures

Performance Measure	Results	
Vehicle miles of travel reduced	28,289,200	Miles
Vehicle trips reduced	847,800	Trips
Percent of Drive-alone Customers Switching to a Commute Alternative (the most restrictive definition)	3% to 16%	Net values of customers
Percent of Drive-alone Customers Switching to a Commute Alternative (a more generous definition)	13% to 35%	Gross values for all customers influenced by program
Annual current carpool and vanpool person miles of travel	35,152,948	Person Miles
Annual currrent carpool and vanpool person trips	1,145,385	Person Trips
Customer Round-Trip Commutes Avoided By Use of Telework (For reasons explained in the report, changes in telework have not been included in estimates of program impacts on emissions, etc.)	601,061	Trips
Customer Round-Trip Commutes Avoided By Use of Alternative Work Schedules	721,537	Trips
Gasoline consumption reduced	1,243,400	gallons
Carbon Dioxide	11,050	Metric tons
Carbon Footprint (CO2 Equivalent)	11,390	Metric tons
Cost Savings to Commuters (saving based on only fuel, tire, maintenance and reduced depreciation costs)	$9,847,000	Per year
Customer Satisfaction (1 = Not At All Satisfied and 10 = Very Satisfied)	5.6 to 7.2	
Customer Satisfaction – Would Recommend	Depending on the CAP: 54 to 84 percent would definitely or probably recommend	
Share of customers receiving names of potential ridematches who contacted others	37%	
Share of customers receiving names to pool and contacted other who actually formed a pool	45%	
Overall share of customers who were successful in forming a pool with assistance of CAP	8%	

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List of Acronyms

ACS	American Community Survey
CAP	Commuter Assistance Program
CATI	computer-assisted telephone interviewing
CUTR	Center for Urban Transportation Research
ERH	Emergency Ride Home
FDOT	Florida Department of Transportation
HART	Hillsborough Area Regional Transit
NTD	National Transit Database
PMT	Person-miles traveled
PUMS	Public Use Microsample
TDM	Transportation Demand Management
TRIMMS	Trip Reduction Impacts of Mobility Management Strategies
VMT	Vehicle-miles traveled

Introduction

With a near doubling of both population and employment by 2060, Florida faces growing challenges for meeting the mobility needs of travelers and businesses. Under its 2060 Florida Transportation Plan, the Florida Department of Transportation (FDOT) acknowledges that available funding will be insufficient to pay for all needed improvements to the transportation system, and the funding gap is expected to widen further. At the same time, one of the FTP's goals is to support and enhance livable communities by "providing more choices for where Floridans can live requires more effective transportation options." Consistent with the need for providing more effective transportation options, FDOT has committed to review and update processes and guidelines to make sure Florida is achieving desired results. This project aligns itself with those goals and objectives with a review of the ridesharing aspects of Florida's commuter assistance program (CAP).

As stated in the Florida Department of Transportation's procedures (Topic No. 725-030-008-g), regarding CAPs, a "coordinated use of existing transportation resources can provide a responsive, low cost alternative for alleviating urban highway congestion, improving air quality and by that reducing the need for costly highway improvements."

A large portion but not a complete set of CAP services are focused on encouraging the use of transportation demand management (TDM) strategies including: fostering the switch to travel options other than driving alone in the peak periods via ridematching programs and vanpooling, stimulating the adoption of telework and alternative work schedules, and encouraging the substitute of private vehicle travel by riding transit, bicycling and walking. This evaluation focuses on these services provided by regional commuter services programs. Other services offered at the district level under the CAP program such as the management of state park and ride facilities are beyond the scope of this project.

This project is the first statewide comprehensive look at Florida CAPs. The project's goal is to provide statewide level information of the CAP programs' TDM efforts by collecting data on the performance measures identified in the 2008 "Florida Commuter Assistance Program – Performance Measures" report. The expectation is that the FDOT Districts and CAPs will find value in the following data to help improve performance, including communicating with their peers about ways to continue to deliver more value to their communities.

It is equally important to note that FDOT Central Office staff does not view the purpose of this report as the basis for allocating funding to Districts or CAPs. CAPs operate in different environments and, as a result, each District may have set different priorities. For example, some CAPs may focus on peak hour congestion relief while others may focus on providing greater access to jobs. Some CAPs may be seeking changes to local policies and land use plans that would yield changes in travel behavior over the long term whereas other CAPs may be focused on handling the demands of today. This report passes no judgment on the appropriate balance for any specific district; those judgments are reserved for the FDOT, FDOT Districts, and CAPs. While there can be

value to benchmarking performance with their peers in the state, this report is best reviewed by the CAP and District with an understanding of their own context and as a basis for measuring changes in the future.

The core elements of most of the Florida commuter assistance programs are the ridematching and vanpool services designed to attract customers who have at least two different motivations and needs. Some customers have been driving alone to work at the time they contact the programs and, for whatever reasons, are looking for an alternative or are at least open to the possibility of using one. Others have been using alternatives to driving alone and are looking for support to continue using them; their carpool or vanpool has broken up, or their bus service has changed, or perhaps a change in their life or work circumstances makes their current commute more difficult.

This study's objective was to document the baseline conditions of performance of Florida's ridematching programs using a wide range of measures. Historically, evaluations, if conducted at all, have focused on conventional measures such as recognition of the program, success in helping people to start carpooling or vanpooling, and the estimated impacts of the program's success in ridematching on vehicle travel, emissions, and cost savings to program customers. For the CAPs that did conduct an evaluation, the same definitions, methods, and calculations were inconsistent. This means that evaluation results were unable to be summarized to the statewide level. This project allows for such a statewide summary to be produced.

A previous review of performance measures also suggested considering a wider range of measures to capture the effects of program efforts that support program goals through means other than ridematching. For example, the CAP evaluation should help assess the outcomes from:

- Helping customers who are carpooling shift into vanpools, which carry more people, or helping carpoolers or vanpoolers begin riding public transportation, or helping anyone who is driving alone to begin using any other way of getting to work.
- Assisting customers who drive alone three days a week and carpools the other two, to find a new carpool or other alternatives to reduce the need to drive all of those three days.
- Providing information or other support for customers who can begin to telework, or use alternative schedules, thereby avoiding some commute trips altogether or shifting a single occupant vehicle (SOV) outside the peak period.

Finally, on the issue of cost-effectiveness, it must be noted that CAPs may receive funding for a variety of activities that are generally supportive of the overall missions of the CAPs (e.g., promoting Safe Routes to School) but are outside the scope of this evaluation. CAPs were unable to fully allocate costs to the related activities measured being evaluated. Future evaluations would benefit from CAPs using methods for allocating costs to specific activities conducted by the CAPs. Therefore, the reader is cautioned in drawing conclusions about the relative cost-effectiveness of the individual program activities.

Methodology

CUTR's past evaluations of Florida's ridematching programs have conducted two sample surveys by telephone: one of the general population living in the area served by the program, and one of the persons who have registered with the program to receive ridematching or other services. The general population survey has been used to assess public awareness of the programs and of program advertising messages, and to assess use of different commute options by the general public. The survey of customers has been used to estimate the effects that the programs have had on commuting, and to understand how customers hear about the programs and what services they use.

Although CUTR had planned to survey both the general population and the program customers by telephone, changes in communication technology and in individual preferences and lifestyles have increased the difficulty and expense of conducting telephone surveys to the point that this was not feasible within the project budget. These changes include:

- A continuing increase in the percentage of households that have cell-phone but no land-line phone service (estimated at 27.1 percent of Florida households in 2009–10)[1]; such households have been found to be less likely than land-line households to respond to telephone surveys, and to have different patterns of non-response bias; Federal law also requires that cell phone numbers be dialed manually rather than with automated equipment, and this increases the cost of contacting their owners.
- Increasing prevalence of answering machines (land-line), voice-mail service (standard with cell phones), and caller-ID (both land-line and cell phones). This makes it easier for persons to screen calls and decline to participate.
- Increasing use of faxes, pagers, and other equipment with unique telephone numbers. This reduces the probability that dialing a phone number will reach a personal phone and, again, increases the cost of conducting the survey. This affects surveys of the general population, which are conducted by selecting a random set of telephone numbers, but should have a smaller effect on surveys of customers who have provided their telephone numbers to the organization with whom they are interacting.
- An apparent long-term decrease in willingness to participate in a survey if actually contacted [2].

CUTR was aware of these trends when it first proposed the analysis to FDOT, and proposed two approaches to managing the cost of the surveys.

1. CUTR suggested using smaller samples than in previous evaluations.

    - Where CUTR had surveyed 600 individuals from the general public in its 2004 evaluation of the South Florida Commuter Services in Districts 4 and 6 program (200 in each of the three counties that the program serves), it proposed surveying 309 individuals per program in the current evaluation. This would allow detecting a 10-percentage-point difference in the percentage of respondents in different service areas,

with a 90% confidence interval, for a sampling error of 5 percent. These criteria apply to values computed from the entire sample; values computed from a portion of the sample (for example, asking just those persons who heard about a ridematching program how they heard about it) would have different difference and confidence criteria.

- For the survey of program customers, CUTR proposed surveying 375 individuals from each program, compared to the 600 surveyed in the 2004 evaluation of the Districts 4 and 6 program. This would allow detecting a 10% difference in average VMT per customer, with a 90% confidence interval, for a sampling error of 5%. Because of its large variance, VMT is the worst case for sampling design, and the 375 responses would allow measurement of smaller differences in other variables and in percentages. These criteria apply to values computed from the entire sample; values computed from a portion of the sample (for example, asking just those persons who carpool how long they have been carpooling) would have different difference and confidence criteria.

2. CUTR staff considered a sequential mixed Internet and telephone survey of the program customers. This would begin by using e-mail to contact those customers who had provided an e-mail address, and asking them to complete the survey using the Internet. In the event that this did not yield enough responses, those who did not respond, plus those who did not have e-mail addresses, would be surveyed by telephone. This approach could not be used for the general population survey, because there was no way to contact a random subset of the population by e-mail. And the approach would be of limited use in several of the ridematching programs, because they had not received e-mail addresses from most of their customers. However, any completions of the Internet version would reduce the number that would need to be completed using the more expensive telephone option.

Even using these strategies, prospective survey contractors projected that the cost of surveying for all nine programs would exceed the available budget. Because the three programs supported through FDOT District 5 were being reorganized into a single program under a different contractor, CUTR suggested dropping these three from the evaluation, because the results from the discontinued programs would not be comparable with those from the new one. FDOT concurred with this recommendation. The surveys for the remaining six programs could be conducted within the available budget, using a telephone survey for the general population and the mixed Internet and telephone survey for the program customers. Districts 4 and 6 opted only for the telephone survey.

General Population Survey

The general population survey was based on ones that CUTR had used in previous evaluations. Questions were added to estimate the extent of paid parking; the length of time that people used commute modes other than driving alone, such as carpooling, or vanpooling; and whether they worked compressed workweeks (working the same number of hours in fewer days, thereby allowing the employee to avoid a commute trip every week or two). Other questions were modified to ask when a person's work begins or ends, rather than when their commute begins; and to

improve the quality of information collected about telework. Questions about the availability of employer benefits (such as subsidized or pre-tax fares) were dropped from the survey, partly because of the survey length, partly because of the very low availability of such benefits among the general public (less than 4 percent did when last asked in 2004 in the Districts 4 and 6 program); and partly because some benefits, such as pre-tax or qualified parking benefits, are difficult to describe without jargon or technical language. Wording and response categories for several demographic questions were modified to increase consistency with the U.S. Census and thereby facilitate weighting of the results. Finally, the question on type of employer was modified to use categories consistent with the requirements of the TRIMMS ™ model for estimation of the societal benefits.

Three portions of the survey instrument were modified for administration in each program's service area:

1. Questions asking respondents about their awareness of the ridematching programs were customized to ask about the specific program name, phone number, website, and other program-specific brand information. CUTR requested this information from each program, and allowed each program to submit as many as three names or brands for use in assessing unaided and aided awareness.
2. CUTR allowed staff from each program to suggest up to three questions that they wanted to ask, beyond the questions that CUTR had already planned. The Districts 4 and 6 program, which has worked with carpooling and tolled express lanes in its service area, asked people whether and why they had used these lanes. The District 3 - Tallahassee commuter assistance program in the Tallahassee area, Commuter Services of North Florida, asked about whether the respondents' employers had been promoting alternative commute modes; the District 7 commuter assistance program, Tampa Bay Area Regional Transportation Authority (TBARTA) asked aided awareness questions about organizations with which it partners. Several of the programs asked about awareness of their ERH services.
3. The demographic questions at the end of the survey were augmented to request the respondent's ZIP code and approximate work location. Where large cities were named for the latter, these were followed up to ask whether the respondent worked in specific districts such as downtown or other specific concentrations of employment. These districts were identified in collaboration with staff from each of the programs.

Aided and unaided awareness

There are two ways to ask about someone's awareness of a ridematching program. One is to ask whether the person knows of any organization that provides ridematching and, if the answer is "Yes", to ask them to name the organization(s) that they are familiar with; this is termed *aided* awareness. The second is to ask whether the person knows of a specific organization such as Cool to Pool (Jacksonville) in the Jacksonville area (note: Jacksonville operates with funding from North Florida Transportation Planning Organization and does not receive any statewide CAP funding. Throughout this report we use the Jacksonville notation so as not to imply funding via District 2 or South Florida Commuter Services; this is termed *unaided* awareness. Brands identified through

unaided awareness are considered to have achieved greater awareness than those recognized in the second approach, and it is considered more valuable than those identified through aided awareness. In a telephone survey, it is possible to ask both unaided and aided awareness questions. For example, if someone mentions an organization such as South Florida Commuter Services in an unaided awareness question, then there is no need to ask whether that person has heard of it. On the other hand, if the person does not mention South Florida Commuter Services, then it is possible to follow up and ask the aided-awareness question, "Have you heard of South Florida Commuter Services?" In an Internet survey, this pattern of questioning must be approximated.

The survey contractor programmed the survey for computer-assisted telephone interviewing (CATI), and suggested some small changes based on its experience or its discovery of problems while doing the programming. CUTR checked the survey logic and wording, and suggested changes to correct some problems that it discovered. CUTR provided the survey contractor (the Bureau of Economic and Business Research (BEBR) at the University of Florida) with a list of the counties served by each of the six programs. The survey contractor acquired lists of random land-line telephone numbers for each of the program service areas and conducted the survey. The objective was to complete 309 surveys from individuals who were at least 18 years old and working outside the home at least 30 hours per week drawn from the counties served by each program. Where a program does not serve all of the counties in an FDOT district, the survey was limited to just those counties served. The original screening criteria were to include people 18 years and older, working at least 35 hours per week, but when the survey was begun in spring 2010, the survey contractor reported much greater difficulty than anticipated in finding eligible respondents. At the time, the unemployment rate in Florida was above 11 percent, with approximately another 8 percent under-employed. In response, CUTR revised the eligibility criterion downward to require at least 30 hours worked per week outside the home.

Depending on which region of the state was being surveyed, it proved necessary to dial between 16 and 37 phone numbers (and to make multiple efforts with many of these) to obtain each complete survey. Populations served by the two programs in District 3 required the fewest phone numbers per completion; those served by the program in Districts 4/6 required the most, and the survey contractor advised that the Miami-Dade area is one of the most difficult metropolitan areas in the entire U.S. to survey by telephone. For the entire survey, 21 percent of the numbers had been disconnected; another 21 percent reached a phone that never was answered; 14 percent of the numbers reached only an answering machine; another 14 percent reached a household where there was no eligible respondent (at least one person 18 years or older working at least 30 hours a week).

Customer Database Survey

For the customer survey, CUTR again began with a similar survey used in previous evaluations. Questions were added to assess use of the programs' websites for purposes other than ridematching (e.g., Emergency Ride Home service, or ERH); to ask about telework and compressed workweek schedules before and after contacting the program; and to ascertain whether or not the employer charges for parking. Wording and response categories for several demographic questions were modified to increase consistency with the U.S. Census and thereby facilitate weighting of the

results. Finally, the question on type of employer was modified to use categories consistent with the requirements of the TRIMMS™ model.

Two portions of the survey were modified for administration to each program's customers:

1. Questions asking respondents about their awareness of and referral to the ridematching programs were customized to ask about the specific program name, phone number, website, and other program-specific brand information. CUTR requested this information from each program, and allowed each program to submit as many as three names or brands for use in assessing unaided and aided awareness.
2. Questions asking about use of different program services were customized to match the services that each program actually provides. Thus, for example, the questions for customers of the Districts 4 and 6 program included registration of carpools and hybrid vehicles for the 95 Express lanes, while those for customers of the other programs did not.

BEBR programmed the surveys for CATI and for the Internet. CUTR worked with BEBR to modify the surveys as needed for Internet administration.

- The most significant changes involved the unaided/aided awareness questions. Because the purpose of these questions is to measure awareness, and secondarily to determine whether it was unaided or aided, CUTR decided that the best way to administer these on the Internet was to replace the open-ended unaided awareness question of the telephone version with a list of program and names provided by each program. The entire list was displayed in random order for each customer, but the three brand names suggested by each program appeared randomly among the first eight on the list. Respondents were instructed to select as many as were appropriate to the question. If they selected one of the three target brands, this was considered unaided awareness, and the survey logic skipped the follow-up aided awareness question. Failure to select one of the three target brands led to the follow-up aided-awareness question for that brand, and recognition of the brand in that follow-up was considered aided response. Although this approach could only approximate the results of the telephone survey, among the District 1 program's customers who completed the survey on the Internet, aided awareness accounted for more than one half of the awareness of two of the program's brands; among the District 7 program's customers who completed the Internet survey, aided awareness accounted for more than one third of the awareness of each of the program's three brands.
- This same approach was taken for a question that asked customers what types of information they had received from the program, targeting match lists, notifications of no available ride-share match, and ERH for unaided/aided recognition.
- Several questions asked customers to identify the communications media through which they heard about programs or services. In the telephone version of the survey, these were open-ended, asked as "How did you hear about . . .?" and the telephone interviewer matched the responses to a list of media that CUTR provided as part of the survey. In the Internet version, the same question was asked but the survey displayed the full list of media for the customer to choose from.

- Most questions in the telephone version allowed the interviewer to record "don't know" as a response if this is how the customer responded to the question. BEBR recommended omitting this option from the Internet version of the survey, because including it would make it too easy for the person completing the survey to choose this and click through the question without stopping to think about the answer.

CUTR requested and received a copy of the customer contact information from each program except for Districts 4 and 6, and provided it to BEBR; the Districts 4 and 6 program provided its list directly to the contractor. Several of the ridematching programs expressed concern about surveying their customers, indicating that they had told customers that their contact information would be used solely for the ridematching service, and only by the ridematching program. To allay these concerns, BEBR and CUTR arranged with the programs to e-mail an invitation to participate in the survey to each customer who had an e-mail address in the customer database. The message was sent from an e-mail address associated with the program to increase the likelihood that the recipient would recognize the sender and be willing to complete the survey. The message contained a unique link for each customer, allowing BEBR to check off who had completed the survey and determine who needed to be reminded. Messages that could not be delivered were bounced to special e-mail accounts set up by the programs. Reminder messages were sent to nonrespondents one week after the initial invitation, and again a week later. BEBR then began the telephone phase of the survey, contacting customers who did not have e-mail addresses and those with e-mail addresses who had not completed the Internet version of the survey. The opening script for the telephone survey noted the link between the survey and the ridematching program. Telephone surveying continued until either 375 customers had completed the survey, or unsuccessful attempts had been made to reach or engage all of the unsurveyed customers in the database.

For the customer survey, successful completion of the mixed-media strategy proved challenging. Table 2 shows the number of persons in each program database in early 2011 when the survey was conducted, the number with e-mail addresses, and the number contacted by phone (many had both e-mail and phone contact information). Except for the Districts 4 and 6 program, the number of customers in each program database was too small to enable sampling, (given the expected response rate), so it was necessary to contact every customer who had an e-mail address, and most of those who had telephone numbers; even then, it was not possible to obtain the desired 375 responses among the small numbers of customers served by the programs of the Jacksonville, District 3 - Tallahassee, and District 3 – Pensacola, known as RideOn. The completion rates for the e-mail/Internet survey ranged from 3.1 to 8.7 percent. The Commuter Services of Southwest Florida program in District 1 was in the process of cleaning up its customer database at the time CUTR requested a copy of the e-mail addresses and phone numbers, and program staff accelerated the work to provide as current a set of information as possible. However, this program's customers had the lowest rate for completing the Internet survey, less than half the next-lowest completion rate. It is not known why the completion rate was so low for this group of customers, given the recent cleanup effort.

With the exception of the Districts 4 and 6 program, the customer databases of the ridematching services had too few customers to permit stratified surveying of just portions of their customers. It

would have been preferable to survey the customers who registered most recently with the programs, to focus on recent performance. However, the customer survey results include responses from long-time customers mixed in with very recent ones. Consideration was given to asking customers how long ago they had registered with the ridematching program, but this was decided against in the interest of managing the length and cost of the survey. In future surveys of program customers, any information a program has on when its customers registered should be included with the contact information provided to the survey contractor, so that it can be merged with the survey responses as a variable for analysis.

Table 2 Contacts and Completions for Customer Database Surveys

Program	District 1	Jackson-ville	District 3 - Pensacola	District 3 - Tallahassee	Districts 4 and 6	District 7
Customers in database	6,647	572	1,172	1,711	42,059	5,864
E-mails sent	6,647	537	167	1,351	N/A	3,274
Number bounced, undeliverable, caught in spam filters, or similar	unknown	unknown	unknown	unknown	N/A	Unknown
Customers who clicked on the link but did not advance past the first screen	55	2	1	27	N/A	116
Partially completed web surveys	207	46	11	86	N/A	284
Completed web surveys	229	48	50	39	N/A	289
Number remaining to be completed by phone	146	327	325	336	375	86
Completed by phone	146	55	65	186	375	86
Contacted by phone	1,132	491	977	1,563	5,855	745
Attempts by phone per completed phone survey	7.8	8.9	15.0	8.4	15.6	8.7
Total complete (web plus phone)	375	103	115	225	375	375

In the telephone phase of the customer survey, it proved necessary to dial between 8 and 16 phone numbers (and to make multiple efforts with many) to obtain each complete survey. The District 1 program's customers required the fewest phone numbers per completion, and the Districts 4 and 6 program again required the most, followed closely by the District 3 - Pensacola program. Between 33 (Districts 4 and 6) and 73 percent (District 3 - Tallahassee) of the persons actually reached by the telephone interviewers reported that they had not contacted the ridematching program for carpool or vanpool information, and that they had not registered with a ridematching service. As a result, these persons were considered ineligible to complete the survey.

Open-ended questions

Most of the questions on both surveys were closed-ended, meaning that the respondent was given a set of alternatives (often, just yes or no) from which to choose. In the telephone version of the surveys, a few questions, including the unaided-awareness questions, were open-ended. This means that the respondent was allowed to give whatever answer he or she thought appropriate. For the telephone version of the survey, the person interviewing the respondent would then assign these answers to categories. Most questions seeking more than a simple yes or no answer also allowed the respondent to report other, and to describe briefly what that meant.

Based on discussions of results with staff of the ridematching programs, future customer surveys, and their eligibility criteria, should be structured to focus on services other than just carpool and vanpool matching. Such services may include provision of ERH to all registrants who use any commute mode other than driving; the Districts 4 and 6 program's provision of information and registration services for use of the 95 Express lanes; and the provision of information and other assistance to promote use of transit and other alternatives to driving, carpooling, or vanpooling.

Unexplained Results from the Customer Survey

As noted earlier in this section, the customer survey was based heavily on a survey instrument that had been used in previous evaluations of some of the ridematching programs. Some of the results therefore were surprising, and they limit the ability to do some kinds of analysis of the results.

Telework

Although the questions added about telework were new to the customer survey, these questions used the language and placement of existing questions about the use of vanpooling, transit, and non-motorized modes. The wording referred to telecommuting and indicated that the questions were being asked about days in which the person worked a full day from home and did not go to his or her regular workplace that day. Respondents for both the general population survey and the customer survey were asked how often they teleworked, and given options ranging between 1 and 7 days per week; once every other week; once a month; and once in a while, sorted from most frequent to less frequent. Those surveyed by telephone were read the list of response options; those surveyed by Internet were presented the list and asked to select from it.

Because the response options included three categories for infrequent telework, the percentage of respondents to the general population survey who telework should be consistent with other studies

(cited in [9]) that reported 14 to 15 percent of employees telework. The general population survey found that between 14 and 19 percent telework (Table 3), which is a bit higher. Between 4 and 14 percent of customers reported teleworking since contacting their ridematching services, which is much lower, but this is a sharp reduction from the 16 to 27 percent of customers who reported teleworking before they contacted the programs. Of those customers who reported teleworking, the proportion who reported teleworking full time (defined here as a number of telework days equal to the number of days reported as worked) ranged between 11 and 22 percent in the general population survey; between 40 and 60 percent for customers after contacting the ridematching program; and between 50 and 82 percent for customers before contacting the ridematching programs.

The high proportion of telework, and especially of full-time telework, prior to contacting the programs seems unrealistic, as does the reduction in telework after contact since research [9] has found a tendency for telework to increase rather than decrease in employer-based TDM programs. One possible explanation is that some customers misinterpreted the context of the questions about how they got to work before contacting the programs, and reported whether they had *ever* teleworked instead of that they were teleworking *at the time they registered*. However, there may be other explanations.

Given that the data on customer telework seems questionable, it has not been used in analysis beyond simple summaries. Future evaluations should remove the ambiguity. A more reliable way of measuring pre-contact telework in future evaluations would be to begin asking new customers about their current use of telework at the time they register with a ridematching program, rather than asking them later about what they were doing when they registered.

Table 3 Differences in Amount of Telework Reported

	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	Districts 4 and 6	District 7
General Population						
No telework	83.4%	81.7%	85.7%	83.8%	80.5%	80.9%
Any telework	16.6%	18.3%	14.3%	16.2%	19.5%	19.1%
Full time telework	3.4%	4.0%	2.2%	1.9%	2.2%	3.8%
Full time as % of any	20.3%	21.9%	15.1%	11.6%	11.1%	20.1%
Customers, Pre-contact						
No telework	76.1%	83.5%	82.5%	83.9%	74.3%	72.9%
Any telework	23.9%	16.5%	17.5%	16.1%	25.7%	27.1%
Full time telework	16.9%	13.6%	13.2%	9.8%	13.0%	20.4%
Full time	70.8%	82.4%	75.0%	61.1%	50.5%	75.2%

as % of any						
Customers post-contact						
No telework	91.9%	89.9%	95.5%	92.2%	85.6%	88.2%
Any telework	8.1%	10.1%	4.5%	7.8%	14.4%	11.8%
Full time telework	4.7%	4.0%	2.7%	4.1%	5.9%	5.9%
Full time as % of any	58.6%	40.0%	60.0%	52.9%	41.2%	50.0%

Use of transportation modes

The customer survey begins with a question asking how many days the respondent commutes to work. A later section asks how the person got to work before contacting the ridematching program, and how many days the person used each mode of commuting. Another section then asks about commute modes and days after contacting the program, structured to prioritize accurate recording of carpooling and vanpooling that resulted from contacting the program. This design, along with most of the wording of these questions, was used in CUTR's previous evaluation surveys for the Districts 4 and 6 program's customers [3].

A substantial proportion of customers reported different numbers of days that they commuted than days that they worked. As in the case of the telework data, there are pronounced differences before and after registering with the ridematching programs. Of 1,568 completed customer surveys, 1,522 completed the section reporting how often they used different commute modes before they contacted the program, 1,531 have complete data for mode-use frequency after contact, and 1,496 have it for both periods.

However, complete does not mean that their data are internally consistent. Only 922 respondents report the same number of mode-use days as the number of days they reported working, both before and after contacting the ridematching program. If telework days are included in the calculations for those customers who reported teleworking one or more days per week, the number of respondents whose mode-use-plus-telework days matches their commute days drops from 922 to 792.

Of the customers who completed the section on how they commuted prior to contacting the program, 24 percent reported at least 2 more mode-use days per week than the total number of days they reported at the beginning of the survey (Figure 1); in contrast, this is under 5 percent in comparison to how they commuted after contacting the program. On the other hand, well under 1 percent of customers reported fewer mode-use days than total commute days before contacting the program, while 5 percent did so for their commuting after contact. Customers who completed the survey on the Internet were less likely to over-report mode-use days than those who completed the survey by telephone (Figure 2).

There are two plausible explanations for why so many customers reported more mode-use days than work days before contacting the ridematching programs:

- They may use more than one mode on a given day, such as driving to a park-and-ride lot and taking a vanpool or bus from that location for the rest of the trip to work. The survey design did not ask whether they use multiple commute modes on a given day, just how many days they used each mode.
- They may have reported the modes they were using not just at the time they contacted the ridematching program, but at any time prior to doing so. The wording of the survey would have allowed for this, and some of the open-ended explanations of "other" in response to some questions suggest that at least a few customers interpreted the question this way.

In either case, the frequent reporting of more mode-use days than commute days indicates a need to revise the structure of the mode-use questions in future evaluations, particularly when collecting information about pre-contact commuting. As with telework, one way to improve the quality of information is to ask customers, at the time they register with the ridematching program, how they commuted to work the previous week. Although the programs do request information about commute modes at time of registration, the six CAPs whose customers were surveyed for this evaluation do so in ways that would not record whether a person drove some days and took transit on others, or whether a person used more than one mode on any of those days (again, for example, using a park-and-ride lot).

It would be best to ask the customer how they got to work on each of the separate days of the previous week, and to structure this in a way that either captures multimodal commute trips or makes it clear how to report the information. When new customers register online, this should not be a great burden for most new registrants, because most people do use just one mode, and for those who do use multiple modes, the additional detail will provide information that the ridematching program can use to provide better service. When new customers register using a paper form (for example, at an on-site health or commuter fair), this might be more burdensome for a few, but this can be eased if someone from the ridematching program asks for the information in a quick interview format.

The information collected should be preserved for use in future evaluations. At the time this evaluation was begun, not all of the programs preserved the information they did collect about prior commuting; thus, when a program learned that one of its customers had begun carpooling, it might change the customer's commuting information from "driving alone" to "carpooling," rather than storing the new mode in a separate data field.

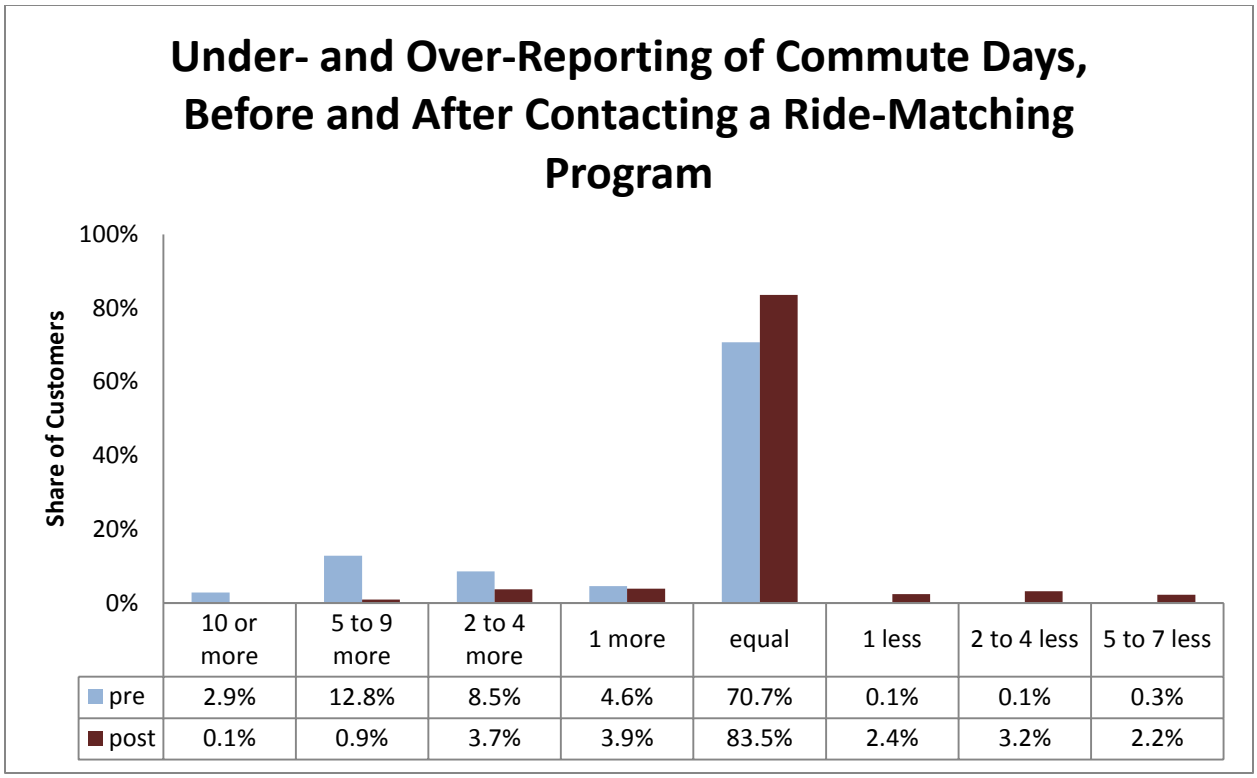
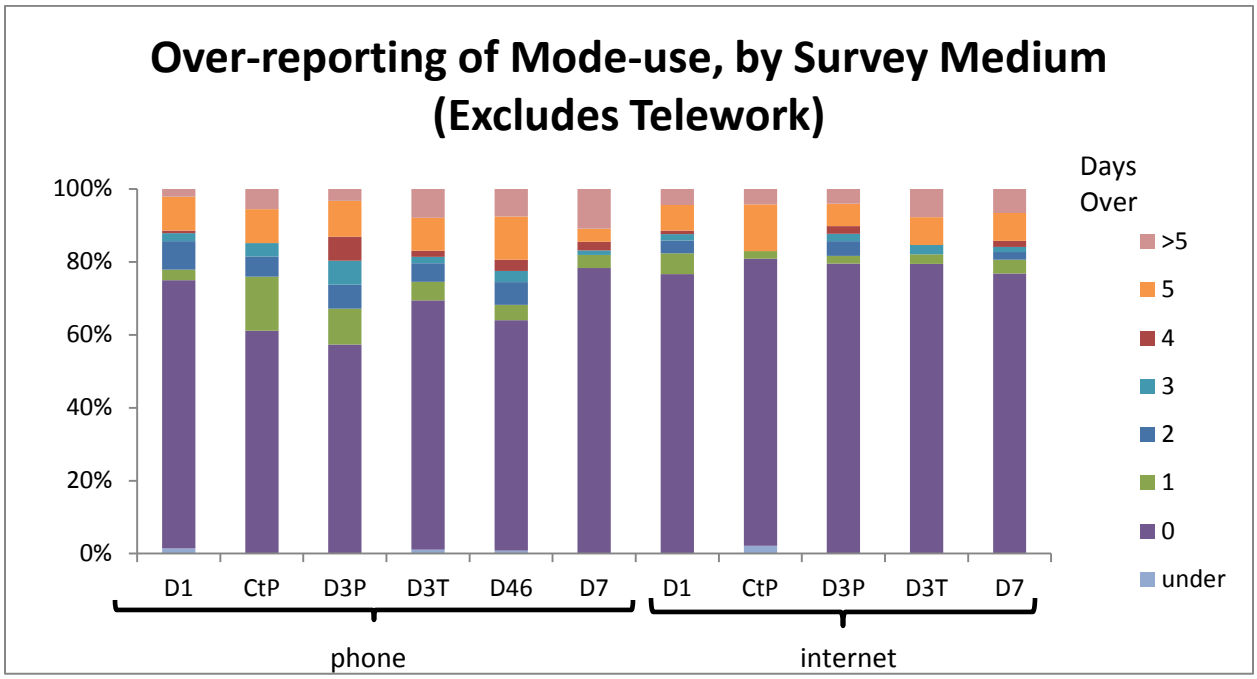


Figure 1 Under- and Over-Reporting of Commute Days



Legend: D1 = District 1 | CtP = Jacksonville | D3P = District 3 – Pensacola | D3T = District 3 – Tallahasse | D46 = District 4 and District 6 | D7 = District 7

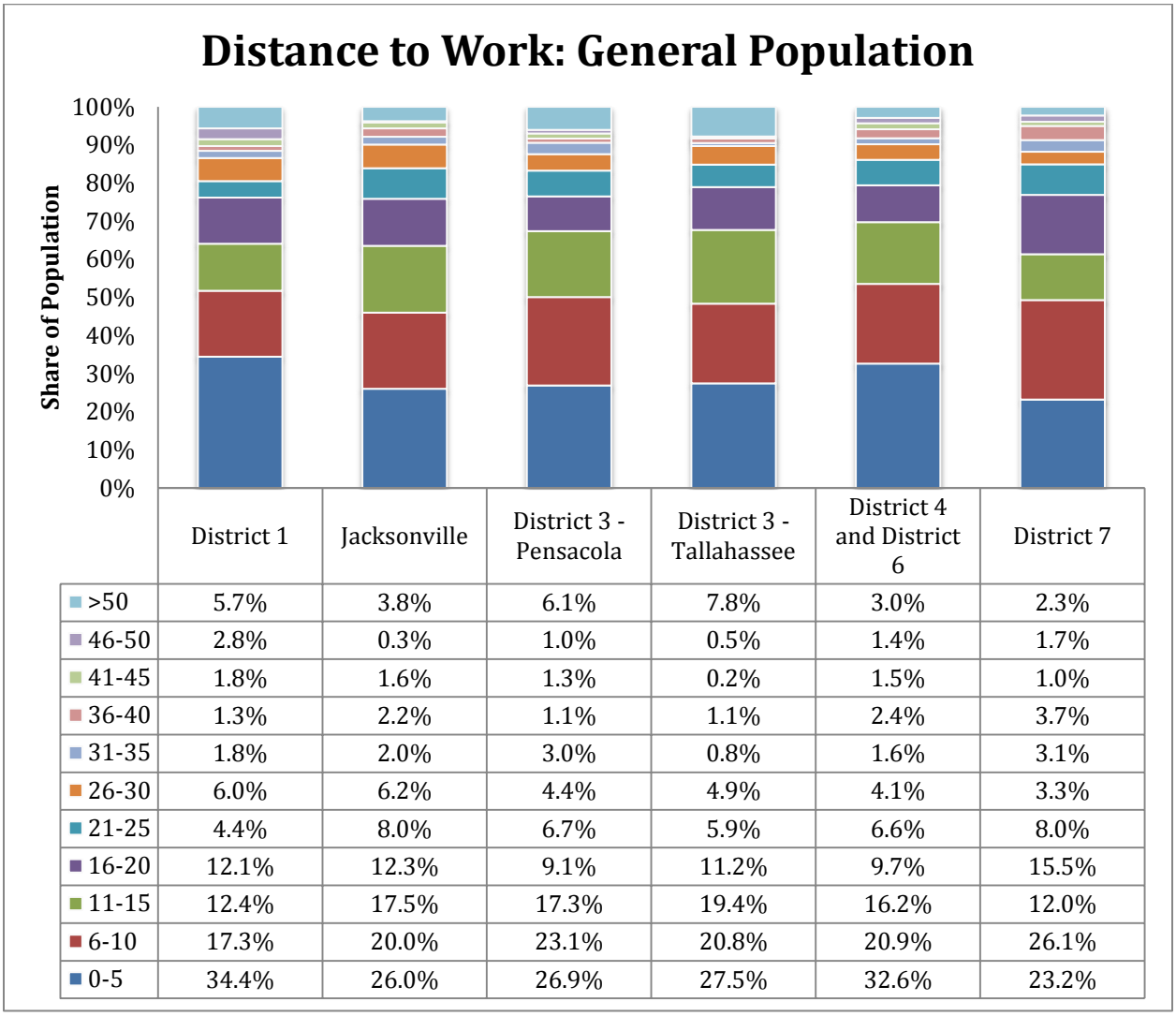
Figure 2 Over-reporting of Mode-Use Days, by Survey Medium

Customer Profiles

This section looks at the socio-economic profiles of the CAP customers relative to the general population. It also compares current commuting behaviors of customers to the general public. This information should improve the understanding of the current customer base and identify potential new markets for the CAPs.

Commuting Conditions and Behavior

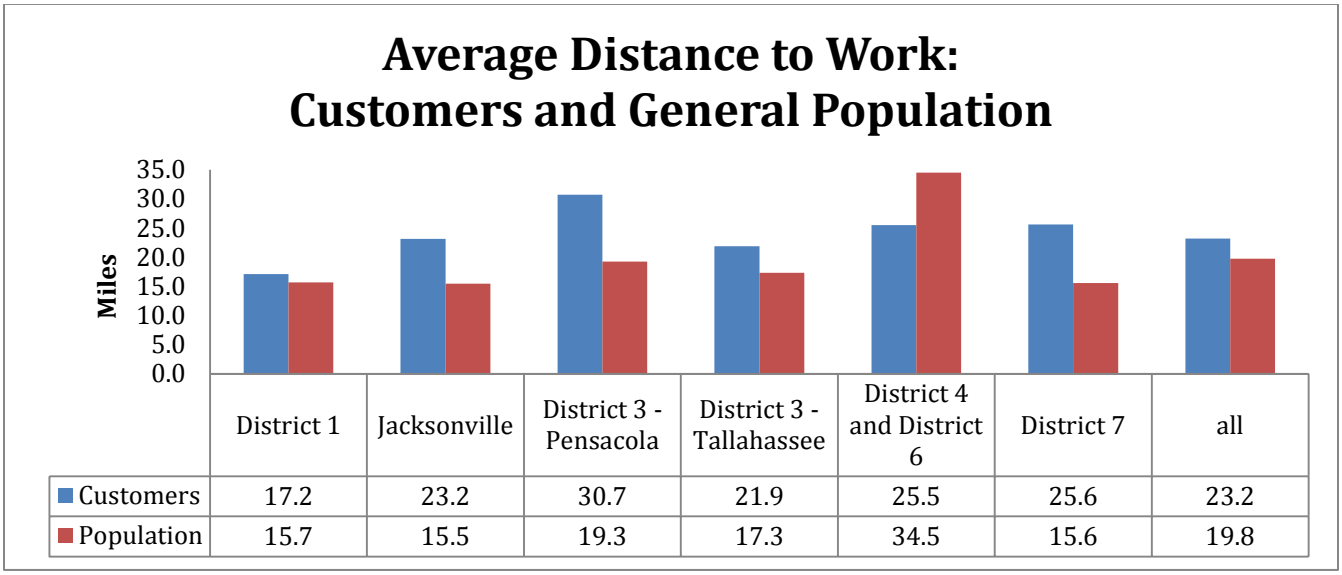
Roughly half of the general population in each district reported commute distances of 10 miles or less. Depending on the district, between one half and two-thirds of these persons reported commute distances of 5 miles or less (Figure 3).



	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7
>50	5.7%	3.8%	6.1%	7.8%	3.0%	2.3%
46-50	2.8%	0.3%	1.0%	0.5%	1.4%	1.7%
41-45	1.8%	1.6%	1.3%	0.2%	1.5%	1.0%
36-40	1.3%	2.2%	1.1%	1.1%	2.4%	3.7%
31-35	1.8%	2.0%	3.0%	0.8%	1.6%	3.1%
26-30	6.0%	6.2%	4.4%	4.9%	4.1%	3.3%
21-25	4.4%	8.0%	6.7%	5.9%	6.6%	8.0%
16-20	12.1%	12.3%	9.1%	11.2%	9.7%	15.5%
11-15	12.4%	17.5%	17.3%	19.4%	16.2%	12.0%
6-10	17.3%	20.0%	23.1%	20.8%	20.9%	26.1%
0-5	34.4%	26.0%	26.9%	27.5%	32.6%	23.2%

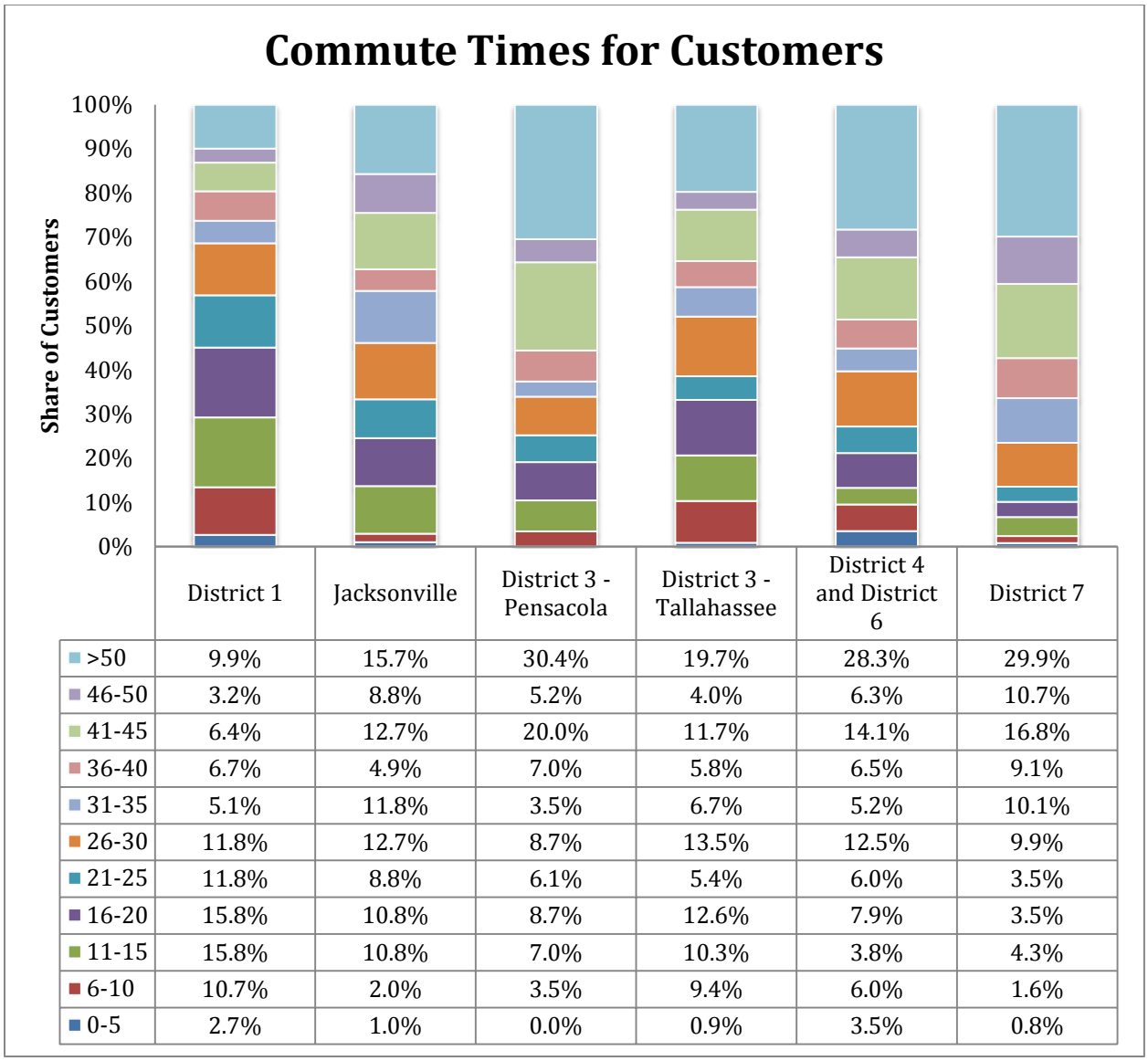
Figure 3 Distance to Work: General Public Survey

Except for the Districts 4 and 6 program, customers of the programs tend to live farther from work than do members of the general population (Figure 4). Historically, this is also true of the Districts 4 and 6 program [3], but in 2010 and 2011, the program's customers lived closer to work than the average employee in the area served by the program. At 30.7 miles, the customers of the District 3 - Pensacola program had the longest average commute distance of any of the programs surveyed, while customers of the District 1 program had the shortest distance, at 17.2 miles.



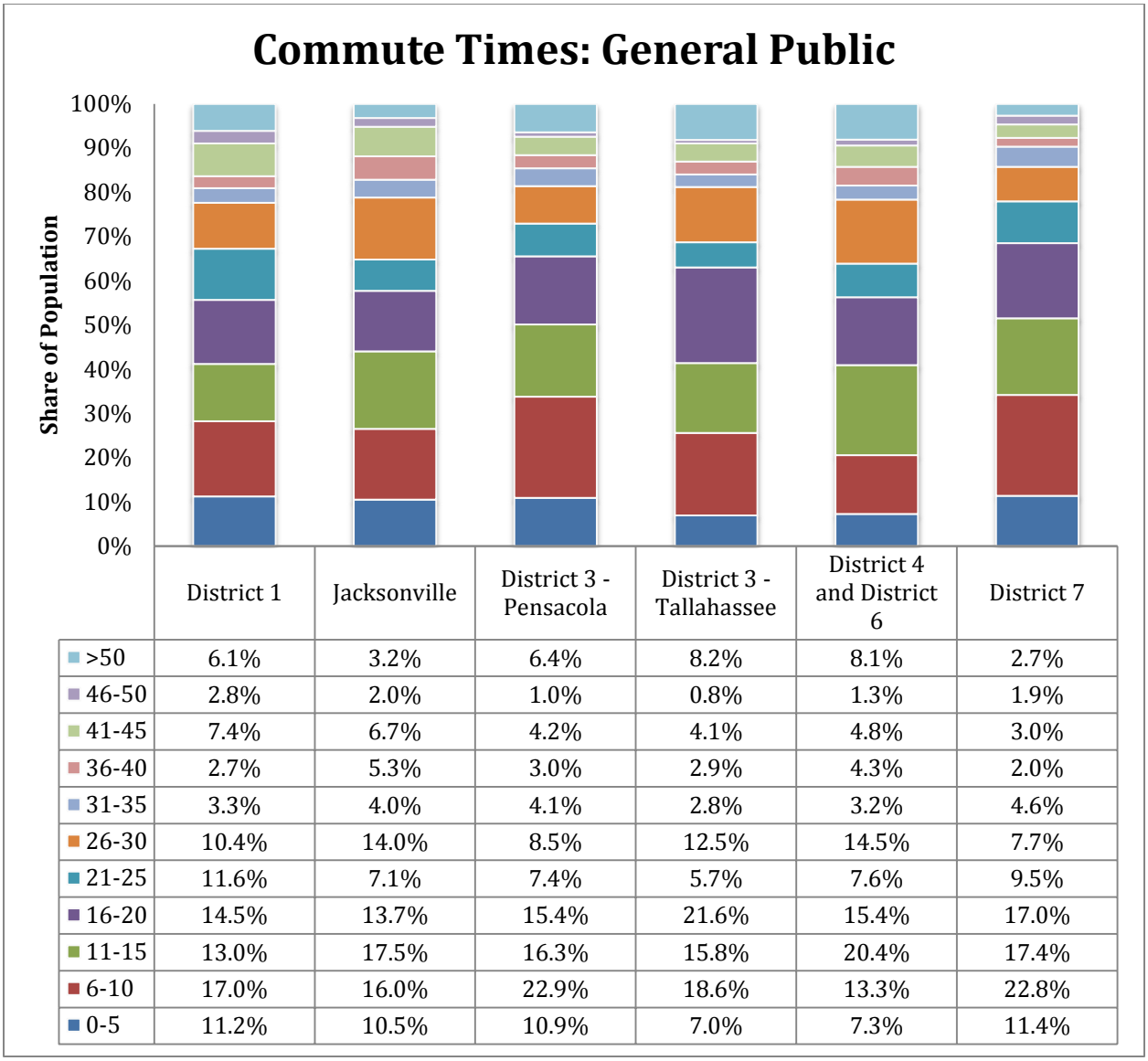
	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7	all
Customers	17.2	23.2	30.7	21.9	25.5	25.6	23.2
Population	15.7	15.5	19.3	17.3	34.5	15.6	19.8

Figure 4 Commute Distances of Program Customers and General Public



	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7
>50	9.9%	15.7%	30.4%	19.7%	28.3%	29.9%
46-50	3.2%	8.8%	5.2%	4.0%	6.3%	10.7%
41-45	6.4%	12.7%	20.0%	11.7%	14.1%	16.8%
36-40	6.7%	4.9%	7.0%	5.8%	6.5%	9.1%
31-35	5.1%	11.8%	3.5%	6.7%	5.2%	10.1%
26-30	11.8%	12.7%	8.7%	13.5%	12.5%	9.9%
21-25	11.8%	8.8%	6.1%	5.4%	6.0%	3.5%
16-20	15.8%	10.8%	8.7%	12.6%	7.9%	3.5%
11-15	15.8%	10.8%	7.0%	10.3%	3.8%	4.3%
6-10	10.7%	2.0%	3.5%	9.4%	6.0%	1.6%
0-5	2.7%	1.0%	0.0%	0.9%	3.5%	0.8%

Figure 5 Commute Times for Customers



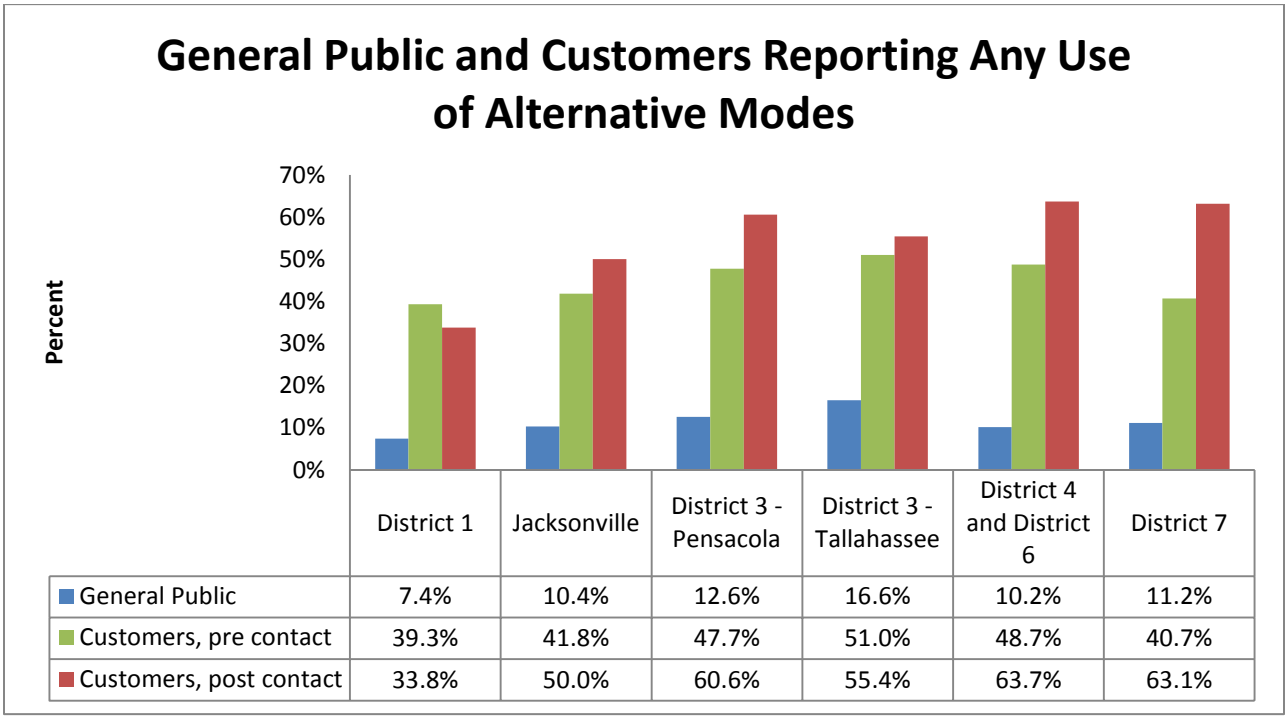
	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7
>50	6.1%	3.2%	6.4%	8.2%	8.1%	2.7%
46-50	2.8%	2.0%	1.0%	0.8%	1.3%	1.9%
41-45	7.4%	6.7%	4.2%	4.1%	4.8%	3.0%
36-40	2.7%	5.3%	3.0%	2.9%	4.3%	2.0%
31-35	3.3%	4.0%	4.1%	2.8%	3.2%	4.6%
26-30	10.4%	14.0%	8.5%	12.5%	14.5%	7.7%
21-25	11.6%	7.1%	7.4%	5.7%	7.6%	9.5%
16-20	14.5%	13.7%	15.4%	21.6%	15.4%	17.0%
11-15	13.0%	17.5%	16.3%	15.8%	20.4%	17.4%
6-10	17.0%	16.0%	22.9%	18.6%	13.3%	22.8%
0-5	11.2%	10.5%	10.9%	7.0%	7.3%	11.4%

Figure 6 Commute Times: General Public

Commute times for the general population (Figure 6) show much more variation across districts than do commute distances (Figure 3). Approximately two-thirds of the employed population in the areas served by the District 1 and District 3 - Tallahassee programs can get to work in 15 minutes or less, while only about 45% of the population in the District 3 - Pensacola, Districts 4 and 6, and District 7 program service areas can do so. The average commute time reported by the customers of each of the programs is between 11 and 88 percent greater than that reported by the general population. The longer commute times for customers reflect in part their longer average commuting distances, (Figure 4).

Customers are much more likely than the general population to be using alternatives to driving alone, both before and after contacting the ridematching program (Figure 7). Depending on the district, between 7 and 17 percent of the general population reported using an alternative mode at

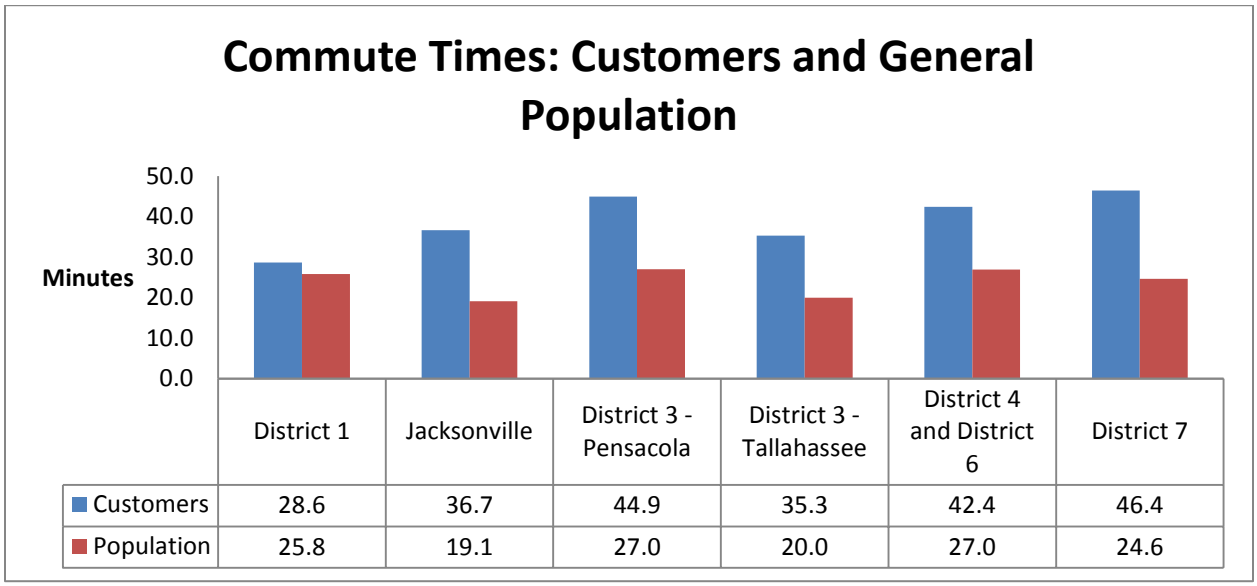
least once per week, while between 40 and 51 percent of customers of ridematching programs reported that they had been using alternatives prior to contacting the program, and between 33 and 64 percent reported doing so afterward. These results suggest that the programs play an important role not only in helping customers find alternatives to driving, but also in helping those who are using alternatives to continue to do so (when, for example, an existing carpool or vanpool ceases, or when transit service changes, or an employer relocates). Customers who used alternative modes tended to report longer commute times (Figure 8), especially for public transportation and vanpooling, and this accounts for some of the longer commute times as well. The customer survey asked how long the current commute takes; respondents might have reported different commute times if they had been using other modes for the same commute.



	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7
General Public	7.4%	10.4%	12.6%	16.6%	10.2%	11.2%
Customers, pre contact	39.3%	41.8%	47.7%	51.0%	48.7%	40.7%
Customers, post contact	33.8%	50.0%	60.6%	55.4%	63.7%	63.1%

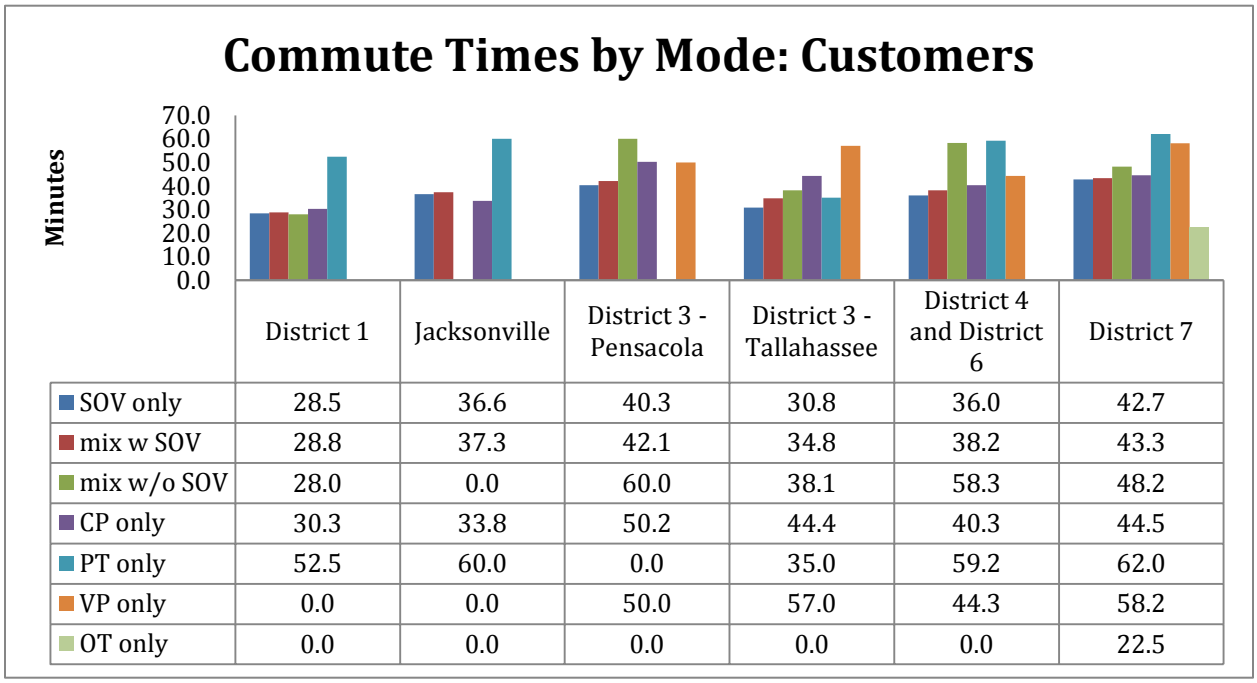
Figure 7 Percent of General Public and Customers Reporting Any Use of Alternative Modes

What constitutes use of an alternative mode? Some persons commute the same way—for example, driving alone, or carpooling, or riding the bus—every day. Others use different modes on different days—for example, carpooling 3 days a week, and driving alone the other two days. The surveys can distinguish between these two types of commuters. A person also can use more than one mode on a single day, perhaps driving to a park-and-ride lot and then taking a bus or vanpool from there, or riding a bicycle to a bus stop and riding the bus from there to work. The surveys do not attempt to measure the extent of this third type of commuting. Instead, they ask a person who uses more than one mode on a commute trip to report the mode used for the largest percentage of the distance. This is done to keep the length of the surveys short enough that people will complete them, and to keep the cost of the surveys within budget.



	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7
Customers	28.6	36.7	44.9	35.3	42.4	46.4
Population	25.8	19.1	27.0	20.0	27.0	24.6

Figure 8 Commute Times of Program Customers and General Public

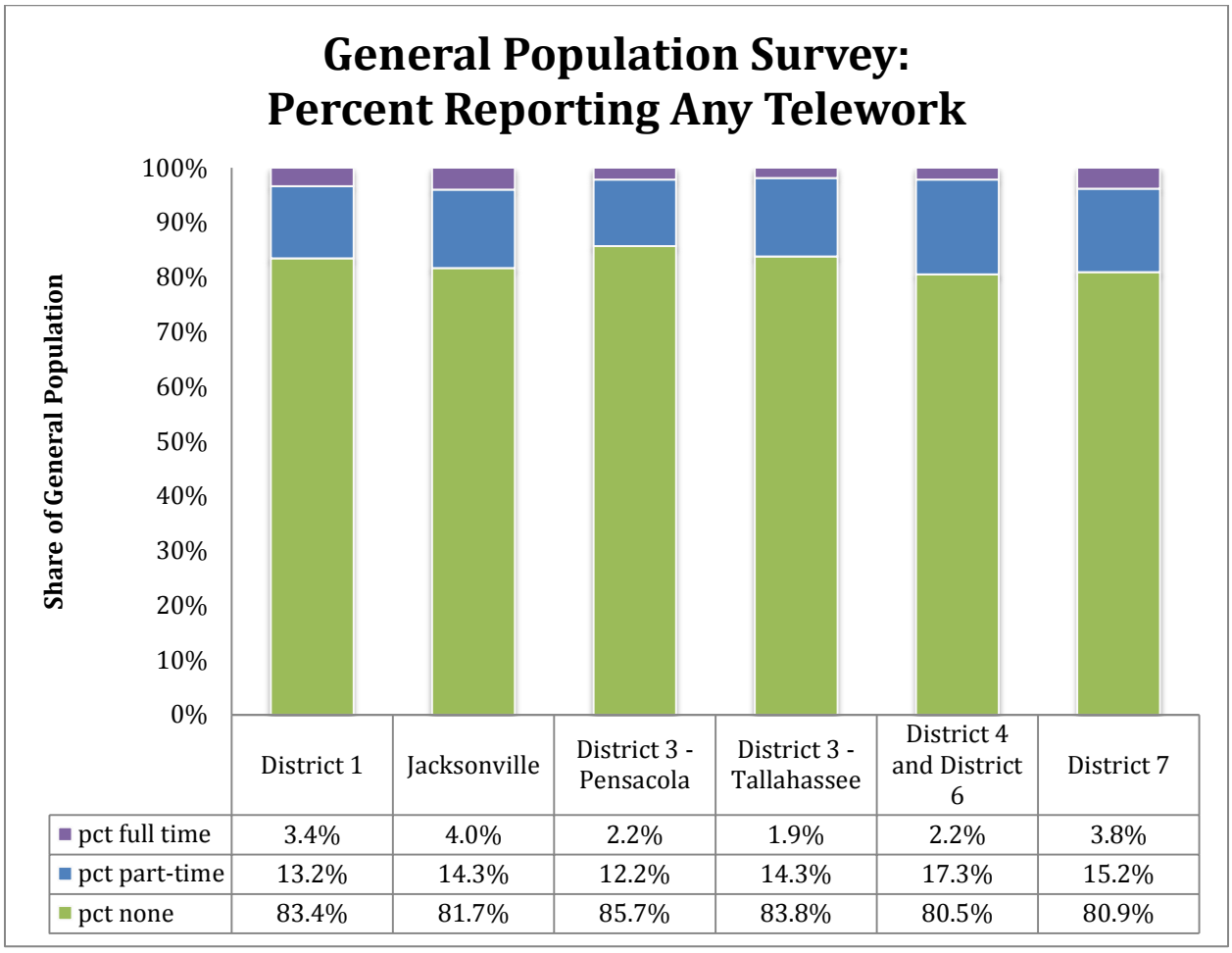


	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7
SOV only	28.5	36.6	40.3	30.8	36.0	42.7
mix w SOV	28.8	37.3	42.1	34.8	38.2	43.3
mix w/o SOV	28.0	0.0	60.0	38.1	58.3	48.2
CP only	30.3	33.8	50.2	44.4	40.3	44.5
PT only	52.5	60.0	0.0	35.0	59.2	62.0
VP only	0.0	0.0	50.0	57.0	44.3	58.2
OT only	0.0	0.0	0.0	0.0	0.0	22.5

Figure 9 Commute Times by Mode: Customers

Use of Telework and Alternative Work Schedules

Depending on the district, between 14 and 20 percent of the general population reported any teleworking, and between 7 and 13 percent reported teleworking at least once a week (Figure 10). Among customers of the ridematching programs, the program customers, the rates of telework after contacting the program were lower, with between 4 and 14 percent reporting any telework at all, and between 3 and 11 percent reporting teleworking at least once a week. As noted in the Methodology section, the rates of telework, and particularly of full-time telework, reported before contacting the ridematching services seem unrealistic and may reflect a flaw in the survey; they are not included here, and changes in telework have not been included in estimates of program impacts.



	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7
pct full time	3.4%	4.0%	2.2%	1.9%	2.2%	3.8%
pct part-time	13.2%	14.3%	12.2%	14.3%	17.3%	15.2%
pct none	83.4%	81.7%	85.7%	83.8%	80.5%	80.9%

Figure 10 Telework among General Population

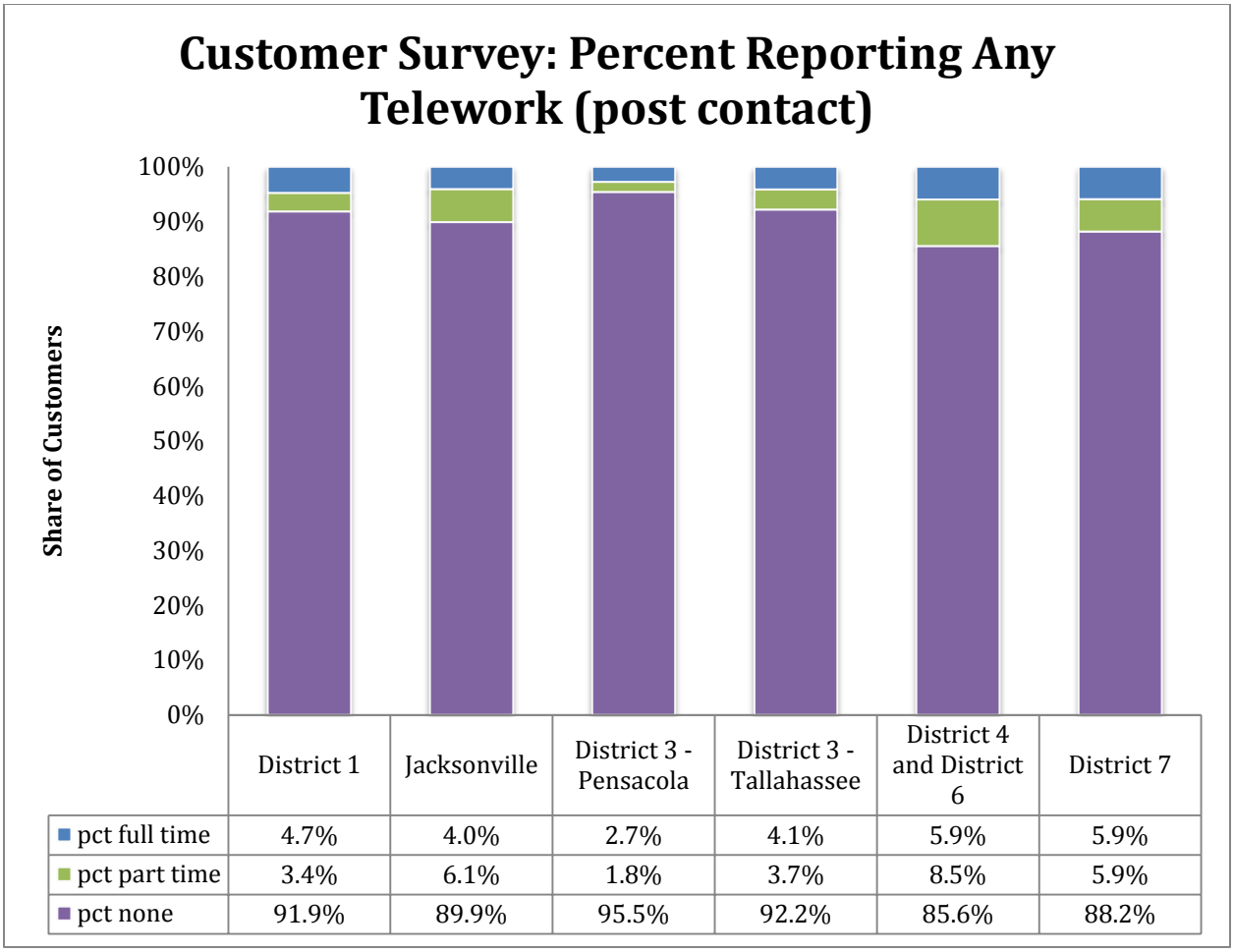


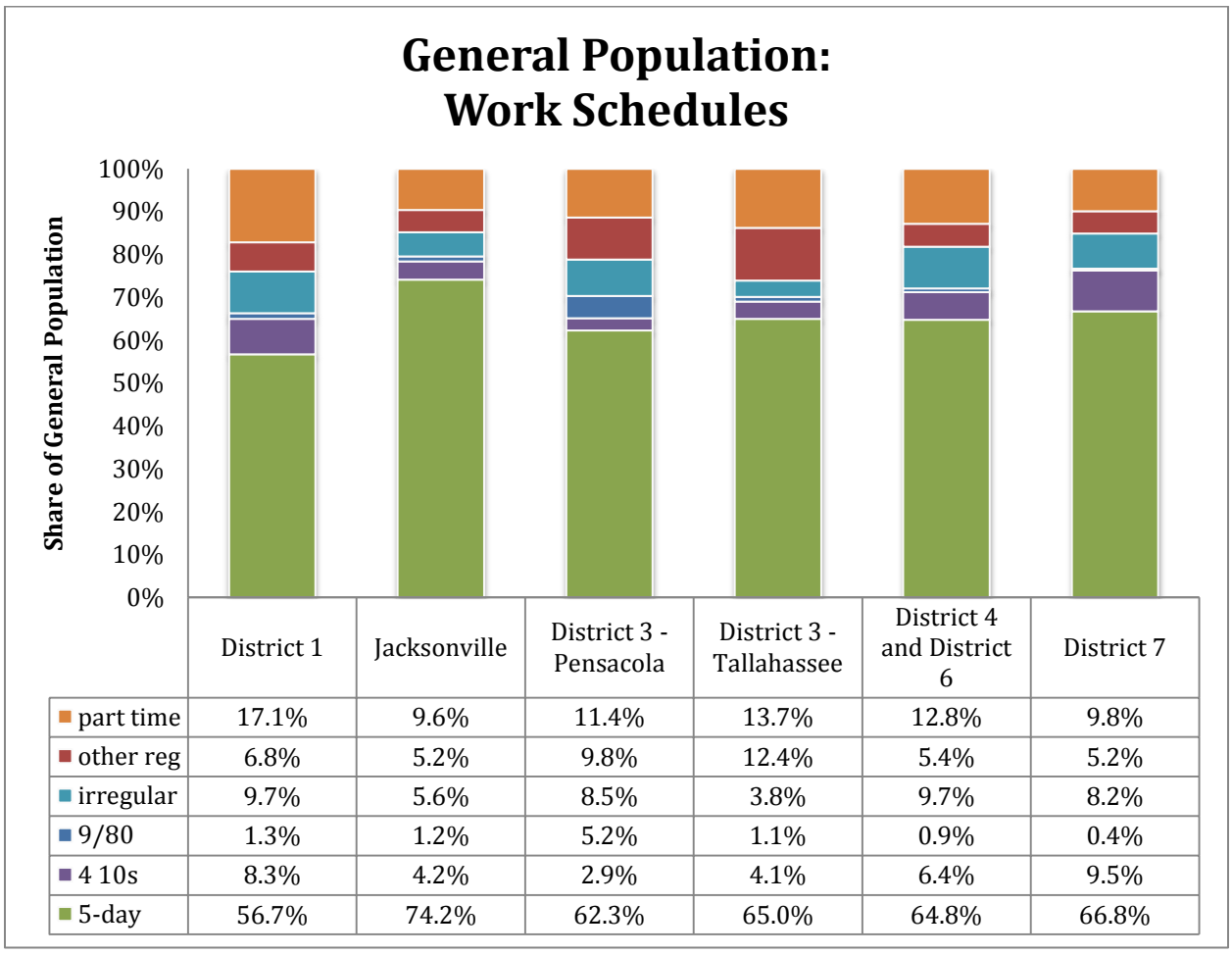
Figure 11 Telework among Program Customers

Table 4 Performance Measure: Customer Round-Trip Commutes Avoided by Use of Telework

Program	Trips Avoided	
	Per Day	Per Year
District 1	128	30,757
Jacksonville	11	2,576
District 3 - Pensacola	19	4,544
District 3 - Tallahassee	41	9,805
Districts 4 and 6	2,156	519,650
District 7	140	33,729
Total	**2,494**	**601,061**

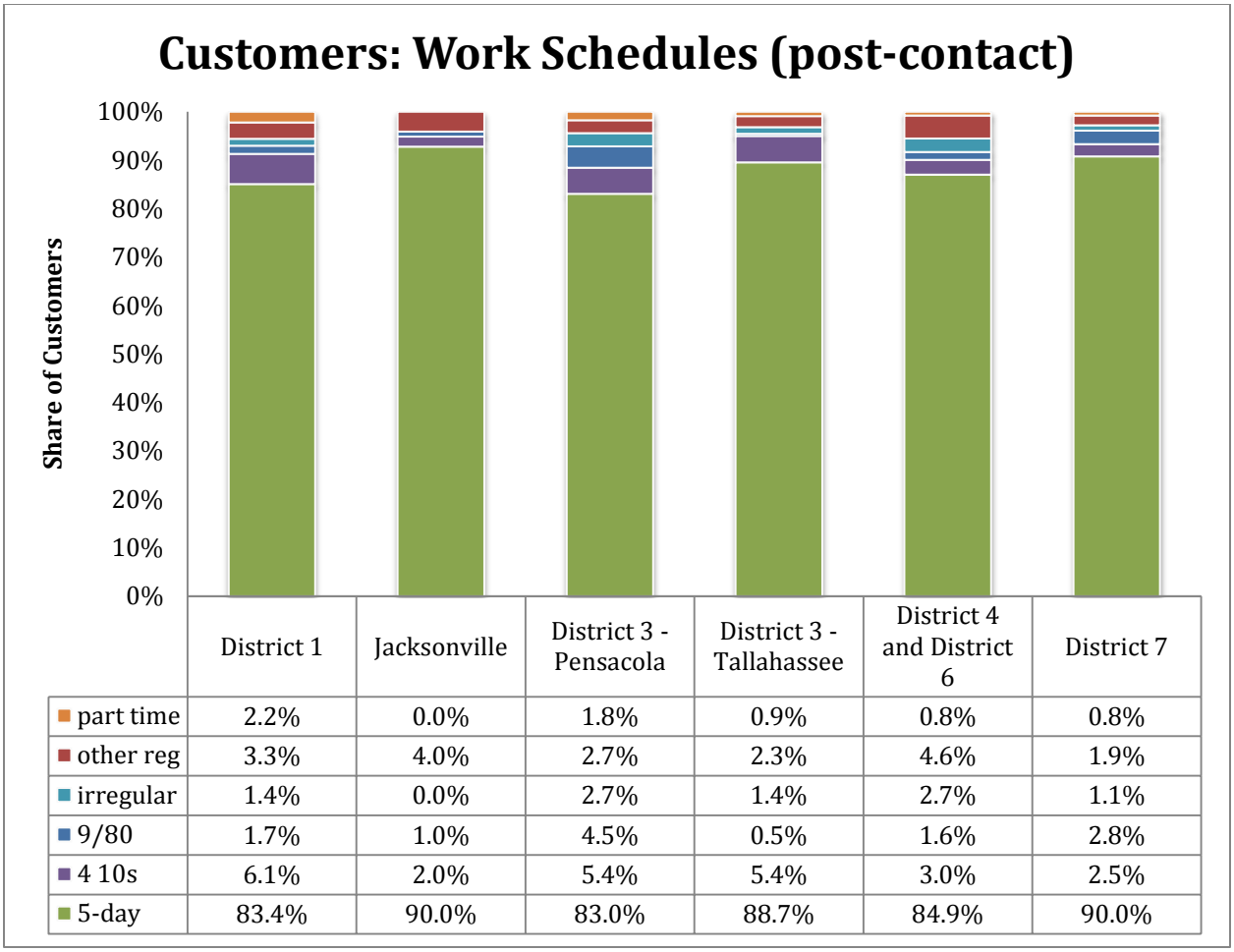
The surveys revealed that customers of the ridematching programs are much less likely than the general population to be using alternative work schedules. Among the general population, 57 to 74 percent work a 5-day schedule; 11 to 18 percent work a compressed workweek (40-hours in fewer than 5 days); and 15 to 27 percent either work irregular hours or work part-time (Figure 12). In

contrast, 82 to 93 percent of customers of the ridematching programs work a 5-day schedule; 7 to 13 percent work a compressed workweek; and 0 to 5 percent work irregular or part-time schedules (Figure 13). Zero to 5 percent more customers reported using compressed workweeks after contacting the ridematching programs than they did before. Across all six programs, only 14 respondents shifted from a 5-day schedule to either a 4-day or a "9-80" schedule (one day off every other week), but 15 shifted from their 4-day schedules to 5-day schedules. Shifts between these schedules and other schedules were similarly uncommon.



	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7
part time	17.1%	9.6%	11.4%	13.7%	12.8%	9.8%
other reg	6.8%	5.2%	9.8%	12.4%	5.4%	5.2%
irregular	9.7%	5.6%	8.5%	3.8%	9.7%	8.2%
9/80	1.3%	1.2%	5.2%	1.1%	0.9%	0.4%
4 10s	8.3%	4.2%	2.9%	4.1%	6.4%	9.5%
5-day	56.7%	74.2%	62.3%	65.0%	64.8%	66.8%

Figure 12 General Population: Work Schedules



	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7
part time	2.2%	0.0%	1.8%	0.9%	0.8%	0.8%
other reg	3.3%	4.0%	2.7%	2.3%	4.6%	1.9%
irregular	1.4%	0.0%	2.7%	1.4%	2.7%	1.1%
9/80	1.7%	1.0%	4.5%	0.5%	1.6%	2.8%
4 10s	6.1%	2.0%	5.4%	5.4%	3.0%	2.5%
5-day	83.4%	90.0%	83.0%	88.7%	84.9%	90.0%

Figure 13 Customers: Work Schedules Post-Contact

Diverse work schedules can make it harder to match customers who would like to carpool or vanpool, so from that perspective the high rates of working 5-day weeks would support ridematching. However, switching from a 5-day week to a compressed workweek also eliminates a commute trip and supports broader TDM objectives, and it was suggested that a performance measure be based on the number of commute days avoided as a result of using alternative work schedules. For each respondent working any of the three most common alternative work schedules (40 hours over 4 days per week, avoiding one commute per week); 80 hours in 9 days over a two-week period, avoiding one commute every two weeks; and 3 twelve-hour days, avoiding two commutes per week), the avoided days were tabulated and summed for each program (Table 5).

Table 5 Performance Measure: Customer Round-Trip Commutes Avoided by Alternative Work Schedules

Program	Number of Customers				Average Commute Round Trips Avoided Per year			
	Working 4/40	Working 9/80	Working 3/12	Total	From 4/40	From 9/80	From 3/12	Total Per Year
District 1	390	106	0	496	93,980	25,631	0	119,611
Jacksonville	11	6	17	33	2,677	1,338	4,015	8,030
District 3 - Pensacola	61	51	10	122	14,737	12,281	2,456	29,473
District 3 - Tallahassee	91	8	0	99	21,992	1,833	0	23,825
Districts 4 and 6	1,234	673	336	2,243	297,329	162,180	81,090	540,598
District 7	141	156	16	313	33,917	37,686	3,769	75,372
Total	**1,928**	**1,000**	**379**	**3,306**	**464,632**	**240,949**	**91,330**	**721,537**

Although the annual totals shown for some programs in Table 5 are large and rival the numbers of trips reduced by matching customers into carpools and vanpools, the results for alternative work schedules have been calculated for all customers who work them, and not just those who reported that they had receive information about them from the CAPs. The customer survey asked only unaided recall of whether customers received information about alternative work schedules, and 0 to 4 percent of them recalled that they had. Only 4 of these customers reported changing work schedules, however, and three of them gave up a compressed workweek to return to a 5-day schedule. For these reasons, compressed workweeks have not been included in calculations of program impacts, although they could be if it were possible to attribute their use more clearly to actions by the CAPs.

Data on Work Schedules

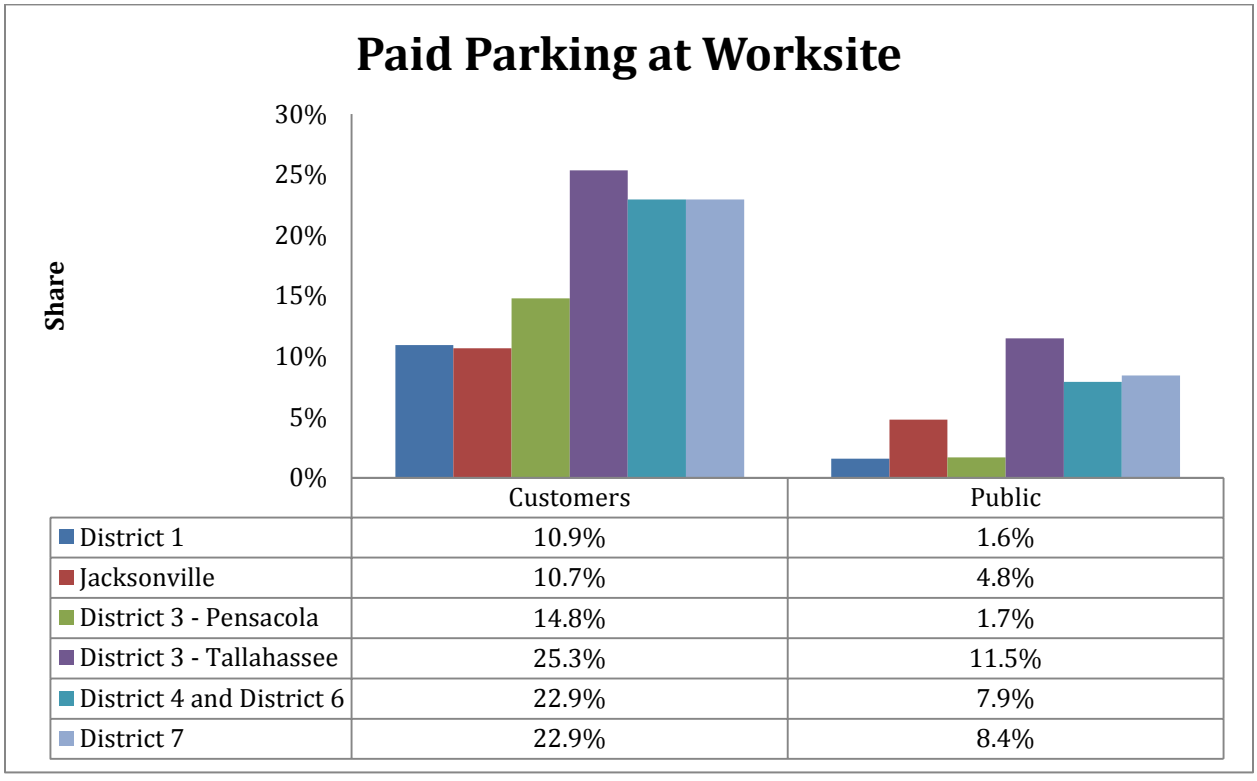
Shifting from 5-day schedules to compressed workweeks ("4 10s" or "9/80" schedules) reduces a commute trip every week, or every two weeks, and some employers permit or encourage these kinds of shifts to support TDM. Others do so to attract or retain employees by providing options and flexibility. In addition, many persons work part-time, and some work irregular schedules or are "on call" to work whenever their employer needs them. Program customers who work compressed workweeks, part-time or irregular work schedules may find it more difficult to find persons who share their work schedules that they could share rides with. Programs may want to make such customers aware of commute options such as transit, bicycling, or telework, in addition to ride-sharing.

The Florida CAPs do not appear to be actively promoting compressed workweeks despite its potential to reduce the total number of trips, commute miles driven per week, and potentially shift some demand to off-peak periods.

The question about prior work schedules needs to be revised to capture schedule at the time the customer contacted the CAP, and not leave open the possibility of reporting an alternative schedule that had changed by the time of contact. The most accurate way to collect this pre-contact data about whether customers used alternative work schedule would be to request it as part of the process of registering a new customer with the program, and then retain it for later use. Having this information at time of registration also would help the program provide better service and communications to the customer.

Parking

Both the general population survey and customer surveys asked whether employees had to pay for parking at the work-end of their commute trip. On each survey, the question was structured to be meaningful based on how the respondent commuted to work. Customers who reported paid parking where they work ranged from 11-25%. About 25% of those at the other programs did (Figure 15). The general public is much less likely to work where there is a charge for parking: only 2 to 11% reported paid parking.

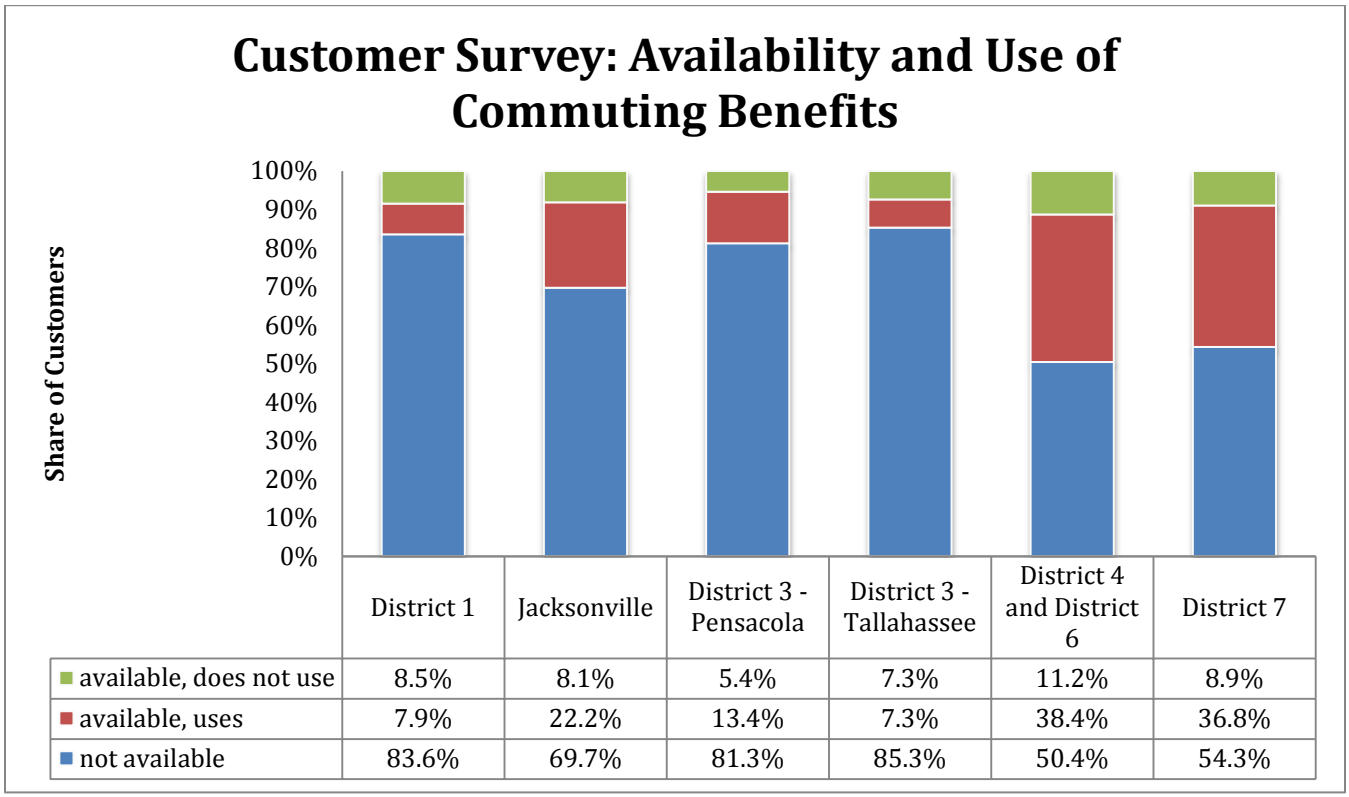


	Customers	Public
District 1	10.9%	1.6%
Jacksonville	10.7%	4.8%
District 3 - Pensacola	14.8%	1.7%
District 3 - Tallahassee	25.3%	11.5%
District 4 and District 6	22.9%	7.9%
District 7	22.9%	8.4%

Figure 14 Prevalence of Paid Parking

Commute incentives

As noted in the Methodology chapter, the general public survey did not ask whether respondents' employers provide any commuter benefits (preferential parking, subsidies, discounts, reimbursement, or pre-tax payment for commuting costs, including parking). However, the customer survey did ask about commuter benefits. Between 16 and 49 percent of the respondents worked for employers that offer commuter benefits (Figure 15); for the Districts 4 and 6 program, this was an increase from, from the 31 percent that reported commuter benefits in 2004. Between 48 and 80 percent of the employees who reported that their employer provides commuter benefits also reported using them. Except for the District 3 - Pensacola program, the most common benefit reported as being available was the provision of preferential parking for vehicles used in carpools or vanpools; the most common benefit reported among the District 3 - Pensacola customers was some form of discount in the cost of using vanpooling and/or public transportation. Within each program's customers, the benefits most frequently reported as being used were preferential parking for car/vanpools and discounted transit/rail passes. However, employees did report using a diverse range of benefits.



	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7
available, does not use	8.5%	8.1%	5.4%	7.3%	11.2%	8.9%
available, uses	7.9%	22.2%	13.4%	7.3%	38.4%	36.8%
not available	83.6%	69.7%	81.3%	85.3%	50.4%	54.3%

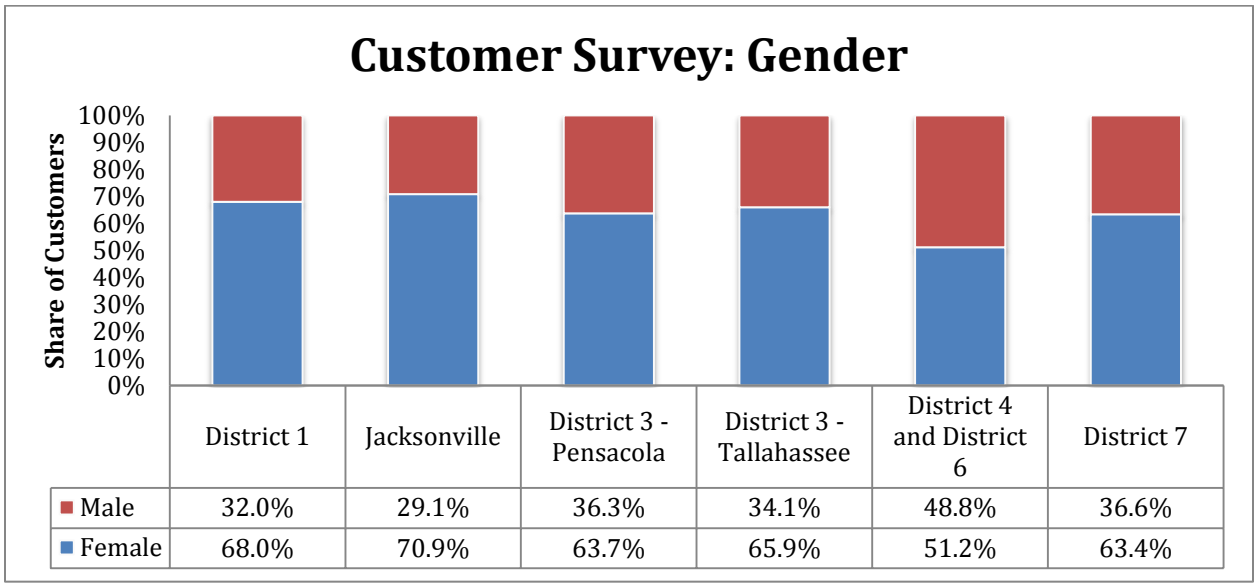
Figure 15 Availability and Use of Commuter Benefits Demographic Information

Customers who responded to the customer database survey differ from the general population. In some cases, the demographics of telephone respondents differ from those of Internet respondents, although we have not checked these exhaustively. It is not possible to determine whether some groups are overrepresented among customers, or are overrepresented among those who could be

contacted via e-mail vs. telephone, or whether it is because some groups were more likely than others to respond to the survey. Some differences should be expected between Census data and the two surveys conducted for this evaluation, because the general population survey required that respondents be at least 18 years of age and working at least 30 hours a week. For the most part, those surveyed in the customer surveys also would be at least 18 years of age, and although there was no minimum for the number of hours they work, they were excluded if they did not commute at least one day per week.

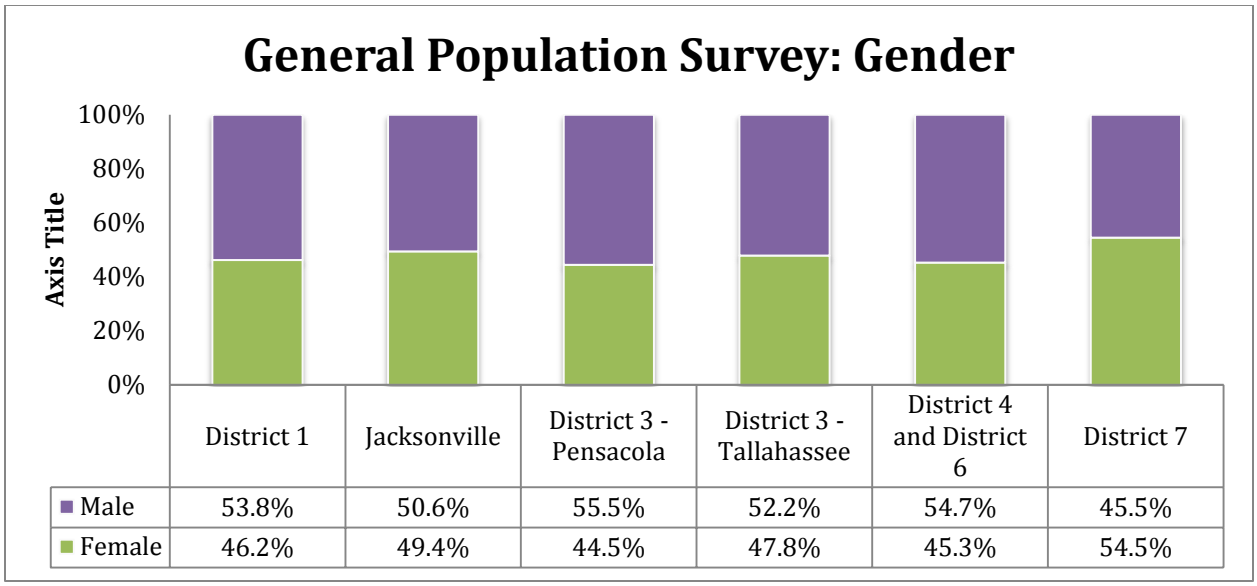
Gender

For all programs, female respondents outnumber male respondents (Figure 16). Between 51 and 71 percent of respondents were female; between 63 and 77 percent of those who completed the web version of the customer database survey were women. In contrast, between 44 and 55 percent of those who responded to the general population survey were female (Figure 17), and the Census Public Use Microsample (PUMS) data (http://sda.usa.ipums.org/cgi-bin/sdaweb/hsda?harcsda+all_usa_samples shows 51.7 percent of Florida's population aged 18–85 to be female.



	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7
Male	32.0%	29.1%	36.3%	34.1%	48.8%	36.6%
Female	68.0%	70.9%	63.7%	65.9%	51.2%	63.4%

Figure 16 Customer Survey: Gender

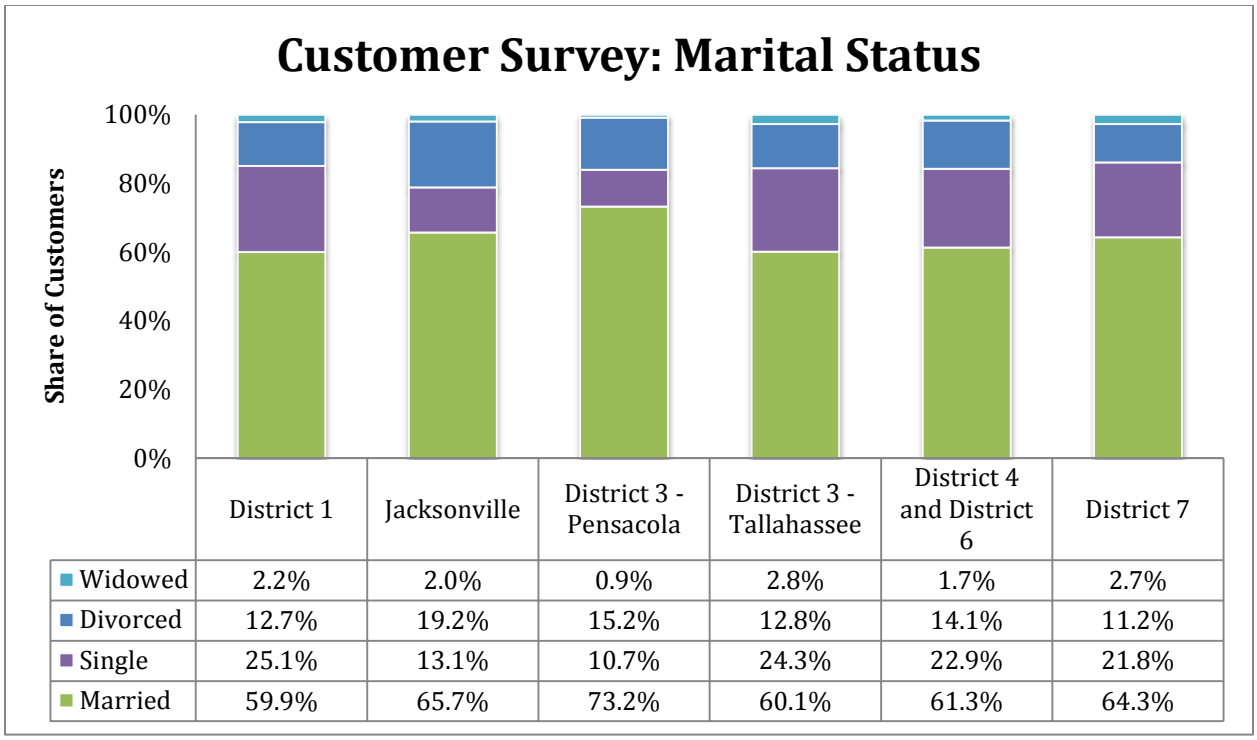


	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7
Male	53.8%	50.6%	55.5%	52.2%	54.7%	45.5%
Female	46.2%	49.4%	44.5%	47.8%	45.3%	54.5%

Figure 17 General Population Survey: Gender

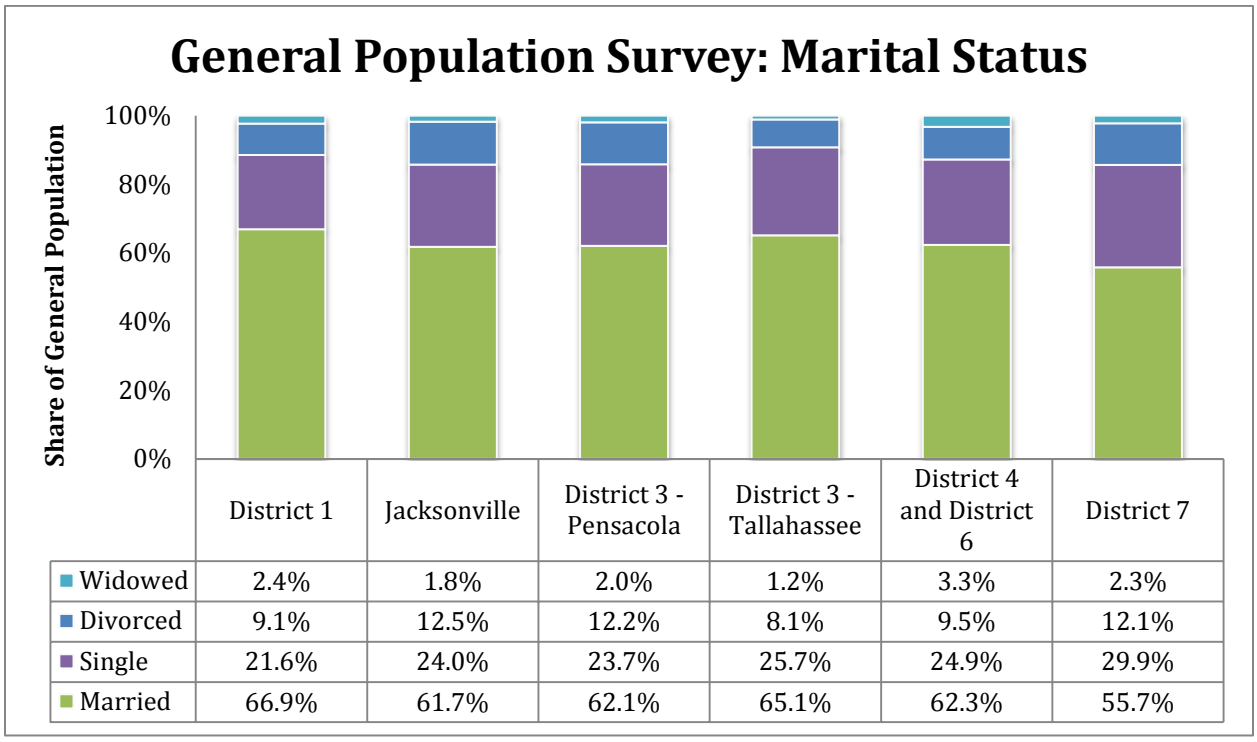
Marital status

Customers in all of the programs are slightly more likely to be married than the average Floridian. Rates of marriage range from 60 to 75 percent (Figure 18), compared to 44 percent among all Floridians aged 15-65 calculated from ACS, 2010, table ACS_10_1YR_S1201 for Florida). Respondents to the general population survey reported slightly lower rates of marriage (64 to 72 percent) than those who responded to the customer survey (Figure 19). Program customers are also more likely to be divorced or separated than the general population (11 to 19 percent, compared to 10 to 15 percent) Although some research [4] has found that persons who have separated are less likely to respond to some surveys, if this effect appears in the CAP survey results, it would not be large enough to account for their higher percentages of married respondents.



	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7
Widowed	2.2%	2.0%	0.9%	2.8%	1.7%	2.7%
Divorced	12.7%	19.2%	15.2%	12.8%	14.1%	11.2%
Single	25.1%	13.1%	10.7%	24.3%	22.9%	21.8%
Married	59.9%	65.7%	73.2%	60.1%	61.3%	64.3%

Figure 18 Customer Survey: Marital Status



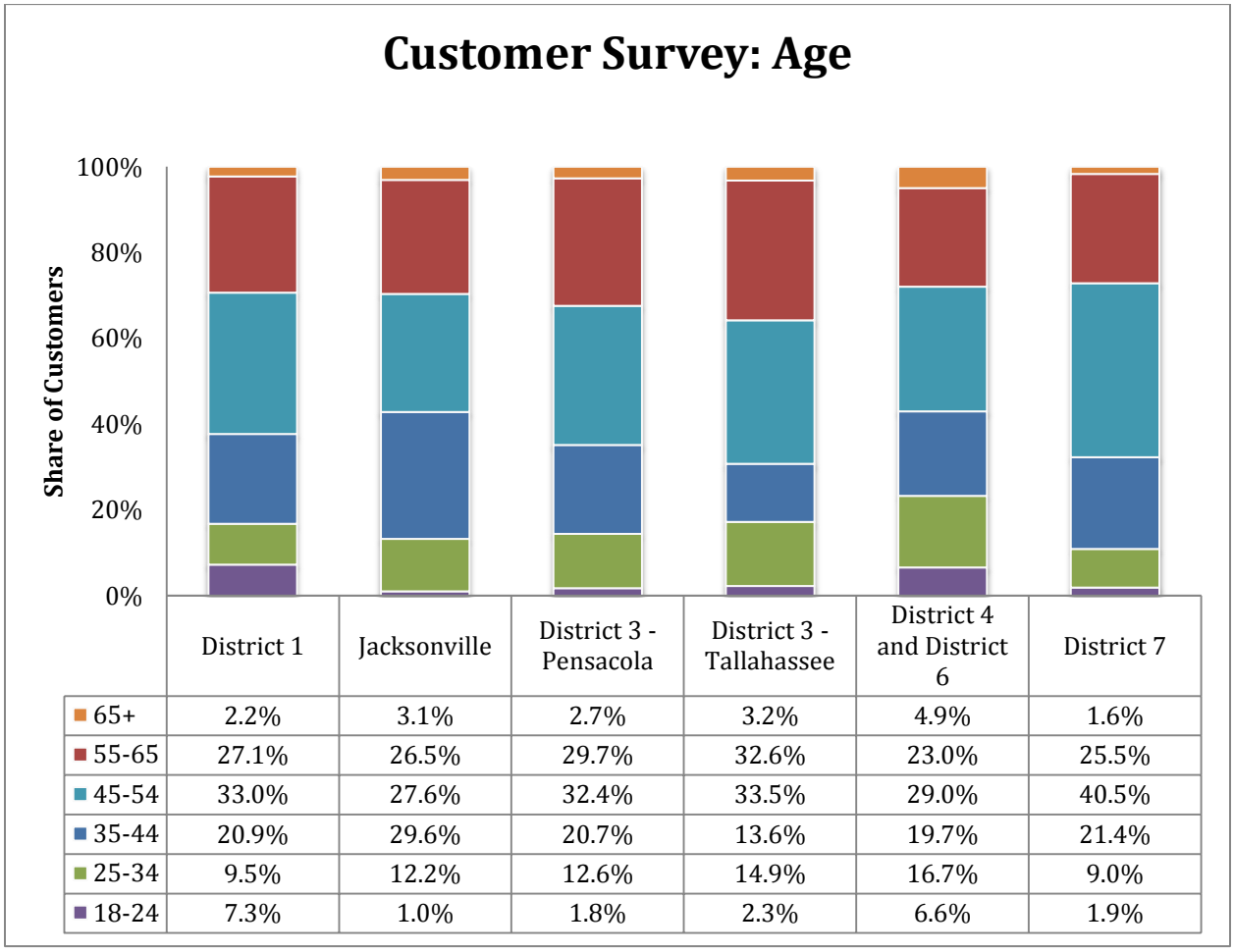
	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7
Widowed	2.4%	1.8%	2.0%	1.2%	3.3%	2.3%
Divorced	9.1%	12.5%	12.2%	8.1%	9.5%	12.1%
Single	21.6%	24.0%	23.7%	25.7%	24.9%	29.9%
Married	66.9%	61.7%	62.1%	65.1%	62.3%	55.7%

Figure 19 General Population Survey: Marital Status

Age

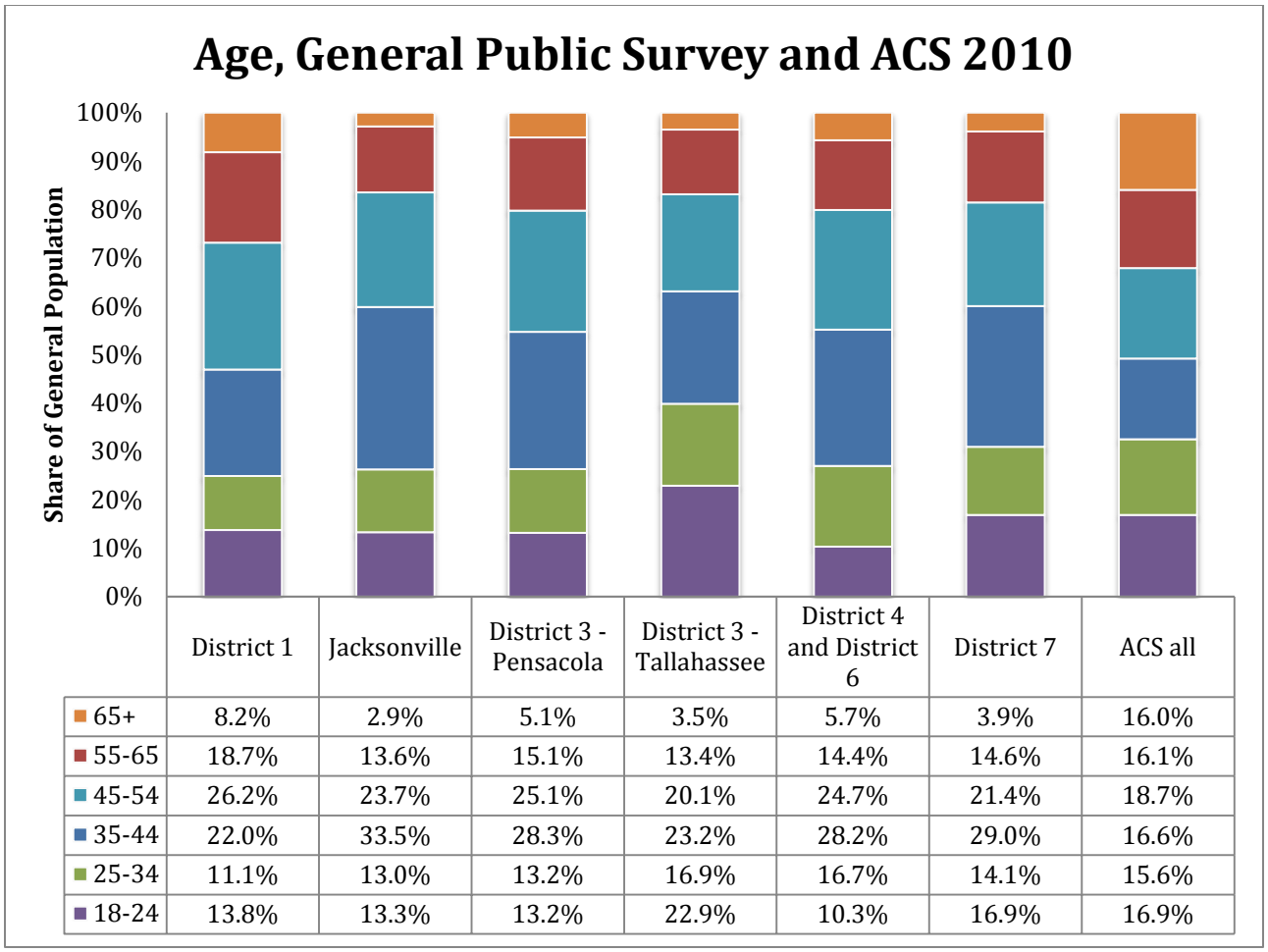
Statewide, 18.7 percent of the population between 15 and 85 is between 45 and 54 years old, and 9.7 percent is between 55 and 65 years old (calculated from the ACS, 2010, table ACS_10_1YR_S101 for Florida). Compared to the ACS data (Figure 21), respondents to the general population survey tended to overrepresent persons between 35 and 44, and underrepresent those who are older than 65. The underrepresentation of persons older than 65 is consistent with the survey's focus on employees and commuters.

Customers served by the ridematching programs tend to be older than average for the state. Between 28 percent and 41 percent of customers are between 45 and 54 years old, and between 23 and 33 percent are between 55 and 66 (Figure 20). Persons older than 65 years are underrepresented among customers, which is consistent with a focus on employees and commuters, but this does not account for the great underrepresentation of persons between 18 and 45 years of age. Whether or not the ridematching programs have intended it, they appear to have developed a customer base that is disproportionately middle-aged and older.



	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7
65+	2.2%	3.1%	2.7%	3.2%	4.9%	1.6%
55-65	27.1%	26.5%	29.7%	32.6%	23.0%	25.5%
45-54	33.0%	27.6%	32.4%	33.5%	29.0%	40.5%
35-44	20.9%	29.6%	20.7%	13.6%	19.7%	21.4%
25-34	9.5%	12.2%	12.6%	14.9%	16.7%	9.0%
18-24	7.3%	1.0%	1.8%	2.3%	6.6%	1.9%

Figure 20 Customer Survey: Age

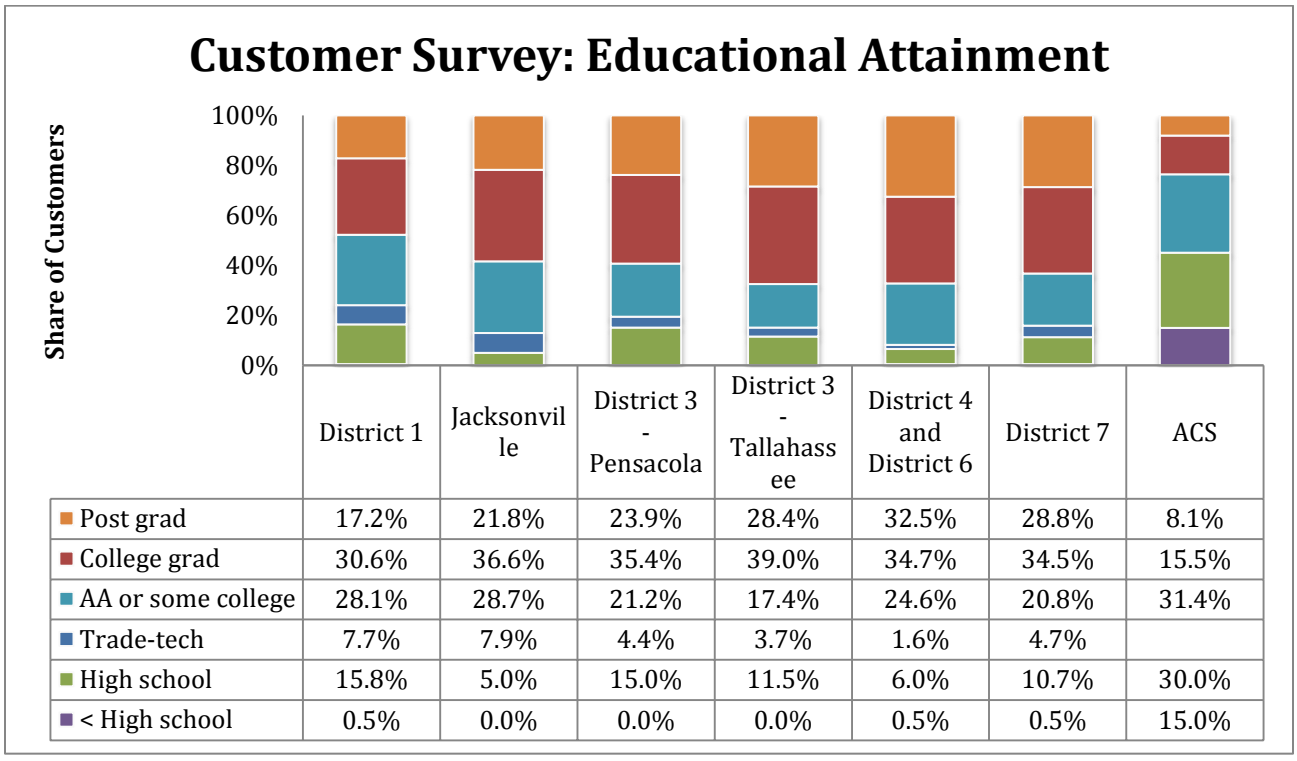


	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7	ACS all
65+	8.2%	2.9%	5.1%	3.5%	5.7%	3.9%	16.0%
55-65	18.7%	13.6%	15.1%	13.4%	14.4%	14.6%	16.1%
45-54	26.2%	23.7%	25.1%	20.1%	24.7%	21.4%	18.7%
35-44	22.0%	33.5%	28.3%	23.2%	28.2%	29.0%	16.6%
25-34	11.1%	13.0%	13.2%	16.9%	16.7%	14.1%	15.6%
18-24	13.8%	13.3%	13.2%	22.9%	10.3%	16.9%	16.9%

Figure 21 Age: General Population Survey and American Community Survey (2010)

Educational attainment

Whether by intent or accident, it also appears that the programs have been recruiting customers with higher levels of educational attainment than the general population. Although the general population survey did not ask about educational attainment, data from the ACS (Figure 23), calculated from ACS, 2010, table ACS_10_1YR_S1501 for Florida) show that statewide, 15.5 percent of persons 18 years old or older have bachelor's degrees, and 8.1 percent have graduate or professional degrees. Among the customers of the ridematching services, between 31 and 39 percent have bachelor's degrees, and between 17 and 33 percent have graduate or professional degrees. Persons with high levels of education may be more interested than others in the services that the ridematching programs provide, or be easier to reach via the marketing methods that the programs use, or be more likely to work for employers that have these interests and ease of access. Some research suggests that, for some types of surveys, persons with lower levels of education are less likely to take and complete surveys [4]; however, the differences reported in that research seem too small to account for much of the differences between the ACS and the customer survey.

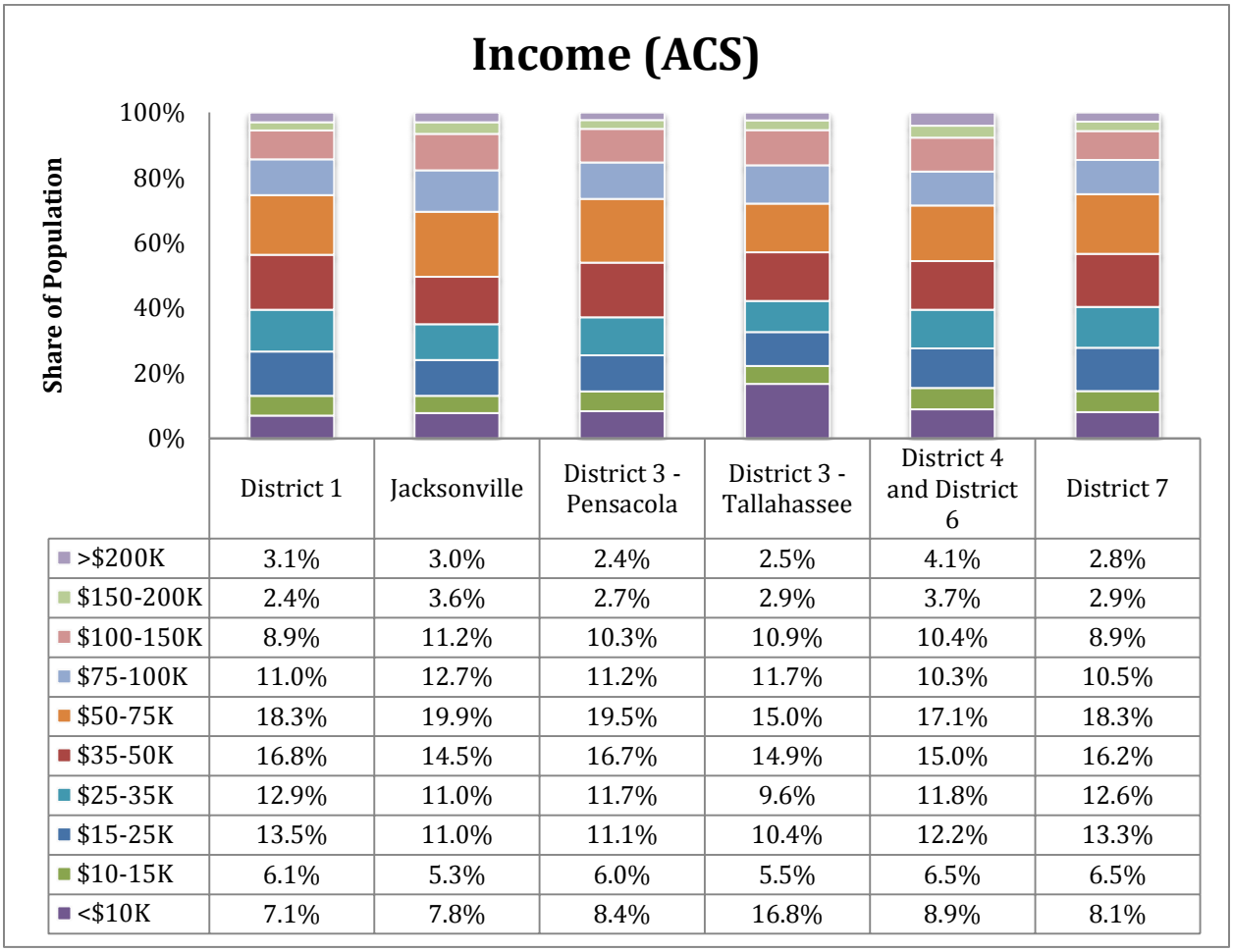


	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7	ACS
Post grad	17.2%	21.8%	23.9%	28.4%	32.5%	28.8%	8.1%
College grad	30.6%	36.6%	35.4%	39.0%	34.7%	34.5%	15.5%
AA or some college	28.1%	28.7%	21.2%	17.4%	24.6%	20.8%	31.4%
Trade-tech	7.7%	7.9%	4.4%	3.7%	1.6%	4.7%	
High school	15.8%	5.0%	15.0%	11.5%	6.0%	10.7%	30.0%
< High school	0.5%	0.0%	0.0%	0.0%	0.5%	0.5%	15.0%

Figure 22 Customer Survey: Educational Attainment

Income

Compared to the American Community Survey (Figure 246, calculated from ACS, 2010, table ACS_10_1YR_S1901 for Florida and Florida counties), household incomes for customers of all of the programs are more likely to be above $50,000 than for the service area populations, and less likely to be under $25,000 or over $200,000. For the service area populations, between 24.1 and 32.7 percent of households have an annual income of $25,000 or less. Between 3 and 10 percent of ridematching customers reported household incomes in this range (Figure 24). The patterns of higher representation of middle and upper-middle income households among the program customers vary by program, although most programs have higher representation in all categories between $50,000 and $200,000. The Districts 4 and 6 program and, to a lesser extent, the District 7 program, serve disproportionately higher shares of persons with household incomes above $100,000, and the District 1 and District 3 - Tallahassee programs serve disproportionately higher shares of persons with household incomes between $25,000 and $75,000.

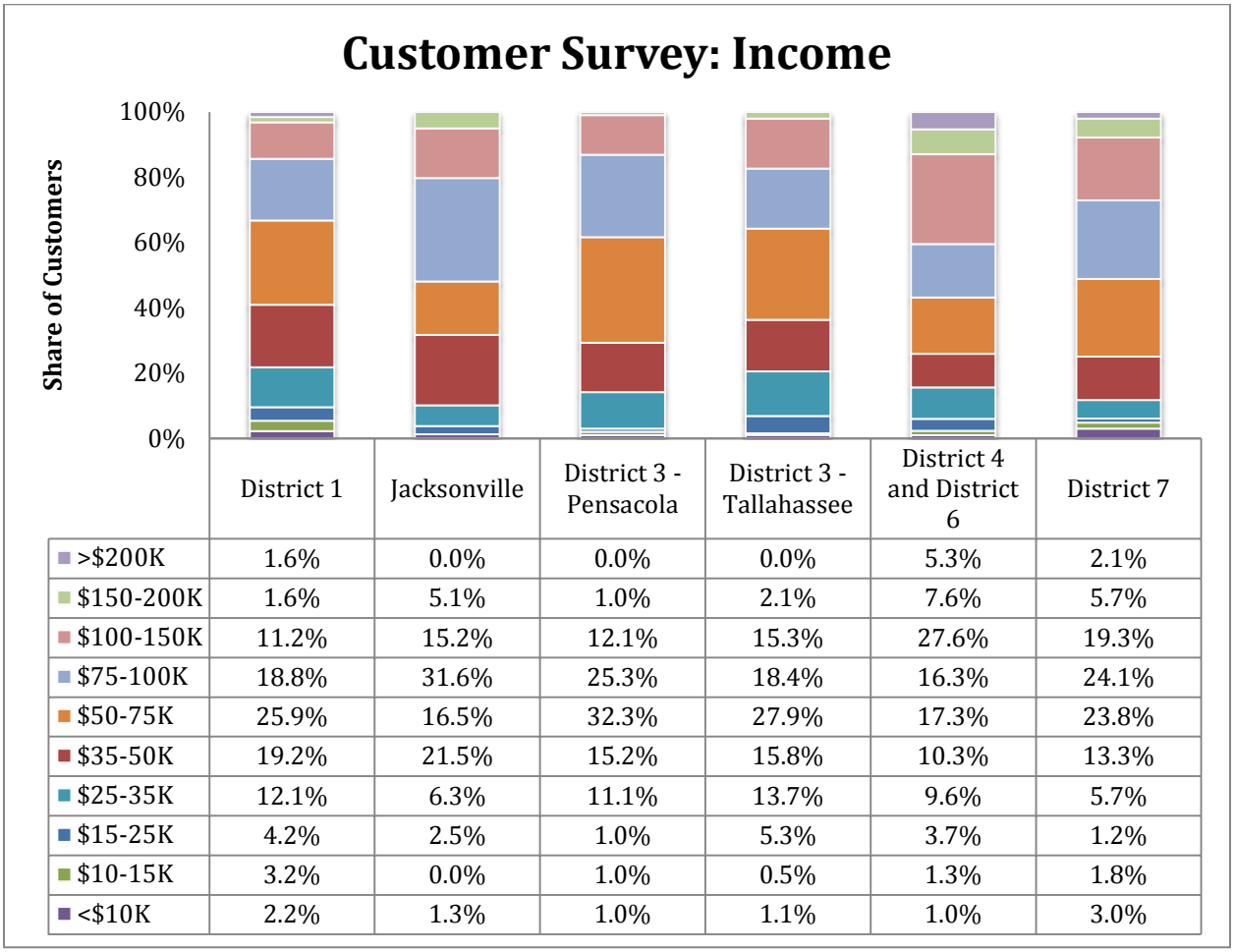


	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7
>$200K	3.1%	3.0%	2.4%	2.5%	4.1%	2.8%
$150-200K	2.4%	3.6%	2.7%	2.9%	3.7%	2.9%
$100-150K	8.9%	11.2%	10.3%	10.9%	10.4%	8.9%
$75-100K	11.0%	12.7%	11.2%	11.7%	10.3%	10.5%
$50-75K	18.3%	19.9%	19.5%	15.0%	17.1%	18.3%
$35-50K	16.8%	14.5%	16.7%	14.9%	15.0%	16.2%
$25-35K	12.9%	11.0%	11.7%	9.6%	11.8%	12.6%
$15-25K	13.5%	11.0%	11.1%	10.4%	12.2%	13.3%
$10-15K	6.1%	5.3%	6.0%	5.5%	6.5%	6.5%
<$10K	7.1%	7.8%	8.4%	16.8%	8.9%	8.1%

Figure 23 Income (ACS 2010)

Nonresponse Bias

The results of the general public survey show a similar but much less pronounced pattern of overrepresentation among middle and upper-middle income households, and underrepresentation among lower-income households. Between 14 and 34 percent of respondents lived in households with incomes less than $25,000, and between 2 and 6 percent lived in households with incomes above $150,000 (compared to between 5 and 8 percent in the American Community Survey). This suggests that a portion of the overrepresentation of middle and upper-middle incomes in the customer survey may result from nonresponse bias—the likelihood that different groups of people will respond to a survey at different rates. However, the amount of nonresponse bias for income found in research on other surveys seems too small to account for the differences seen in the customer survey.

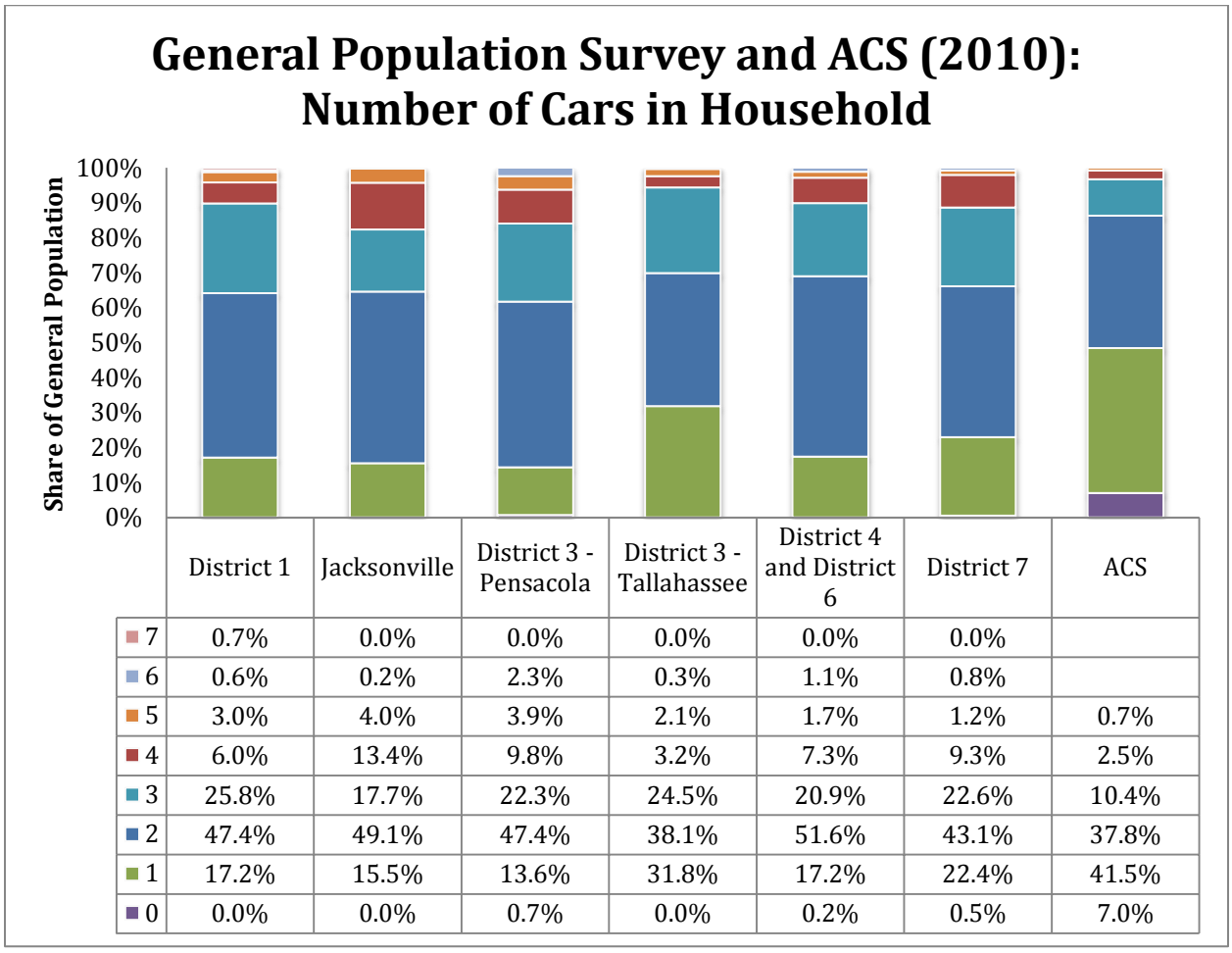


	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7
>$200K	1.6%	0.0%	0.0%	0.0%	5.3%	2.1%
$150-200K	1.6%	5.1%	1.0%	2.1%	7.6%	5.7%
$100-150K	11.2%	15.2%	12.1%	15.3%	27.6%	19.3%
$75-100K	18.8%	31.6%	25.3%	18.4%	16.3%	24.1%
$50-75K	25.9%	16.5%	32.3%	27.9%	17.3%	23.8%
$35-50K	19.2%	21.5%	15.2%	15.8%	10.3%	13.3%
$25-35K	12.1%	6.3%	11.1%	13.7%	9.6%	5.7%
$15-25K	4.2%	2.5%	1.0%	5.3%	3.7%	1.2%
$10-15K	3.2%	0.0%	1.0%	0.5%	1.3%	1.8%
<$10K	2.2%	1.3%	1.0%	1.1%	1.0%	3.0%

Figure 24 Customer Survey: Income

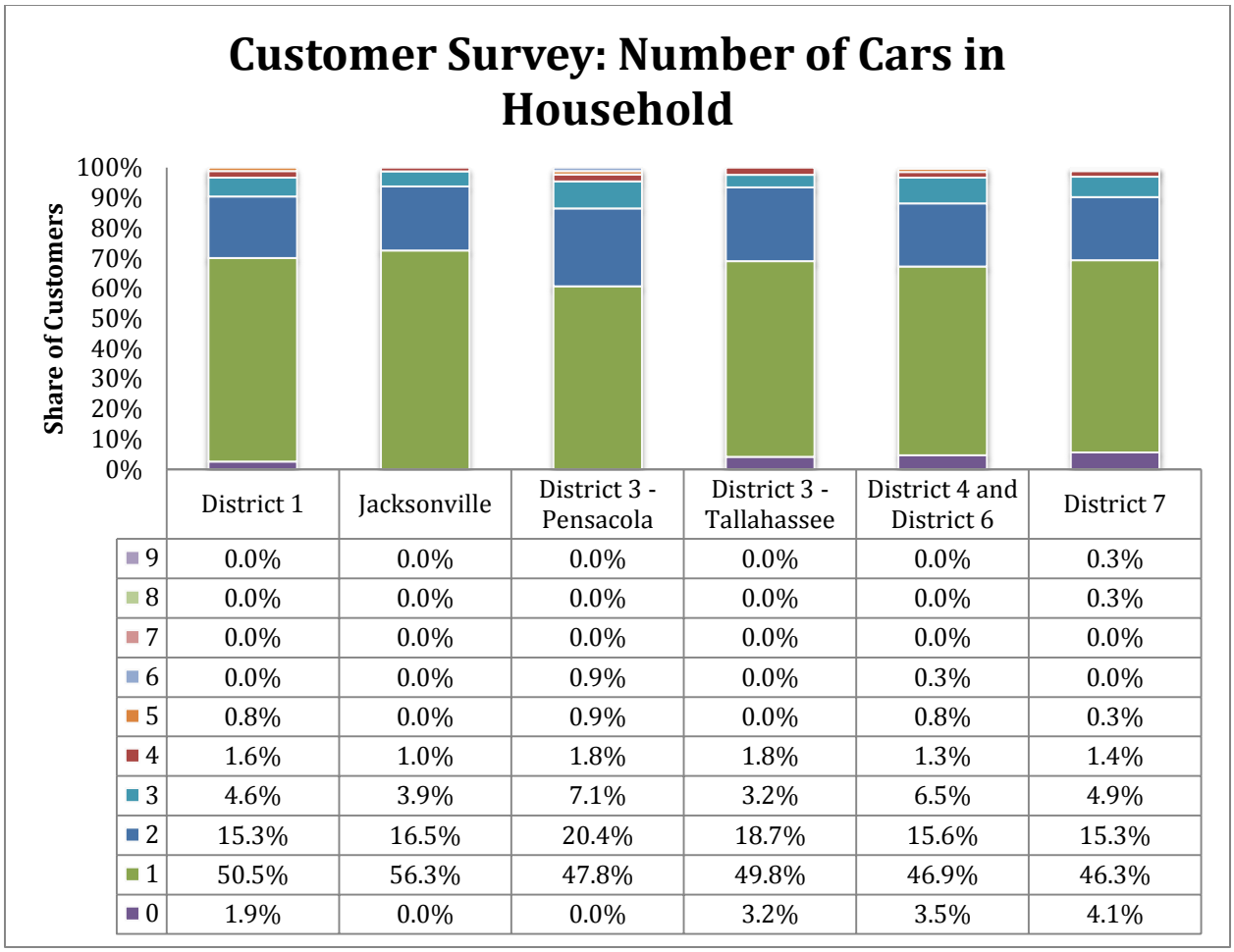
Availability of motor vehicles

Despite the higher educational attainment (and income that usually accompanies it), customers of the ridematching services are more likely than the average Floridian to have only one car in their household, and they are less likely to have two or more cars. Statewide, 41.5 percent of households have only one car available (ACS, 2010, table ACS_10_1YR_B25044 for Florida), and in the general population survey, 14 to 32 percent reported having only one car (Figure 25). However, 46 to 56 percent of the ridematching customers live in households with only one car (Figure 26). 37.9 percent of the state's households have two cars available, while only 15 to 19 percent of ridematching customers live in such households. Seven percent of the state's households have no car available, but 0 to 4 percent of the customers live in households without cars.



	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7	ACS
7	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	
6	0.6%	0.2%	2.3%	0.3%	1.1%	0.8%	
5	3.0%	4.0%	3.9%	2.1%	1.7%	1.2%	0.7%
4	6.0%	13.4%	9.8%	3.2%	7.3%	9.3%	2.5%
3	25.8%	17.7%	22.3%	24.5%	20.9%	22.6%	10.4%
2	47.4%	49.1%	47.4%	38.1%	51.6%	43.1%	37.8%
1	17.2%	15.5%	13.6%	31.8%	17.2%	22.4%	41.5%
0	0.0%	0.0%	0.7%	0.0%	0.2%	0.5%	7.0%

Figure 25 General Population Survey and ACS: Number of Cars in Household



	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7
9	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%
8	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%
7	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
6	0.0%	0.0%	0.9%	0.0%	0.3%	0.0%
5	0.8%	0.0%	0.9%	0.0%	0.8%	0.3%
4	1.6%	1.0%	1.8%	1.8%	1.3%	1.4%
3	4.6%	3.9%	7.1%	3.2%	6.5%	4.9%
2	15.3%	16.5%	20.4%	18.7%	15.6%	15.3%
1	50.5%	56.3%	47.8%	49.8%	46.9%	46.3%
0	1.9%	0.0%	0.0%	3.2%	3.5%	4.1%

Figure 26 Customer Survey: Number of Cars in Household

The customer survey did not ask information to ascertain whether this pattern arises because the programs attract persons who have fewer cars available, or whether because success in ridematching has enabled customers to give up a car and the associated expenses of maintainence operation.

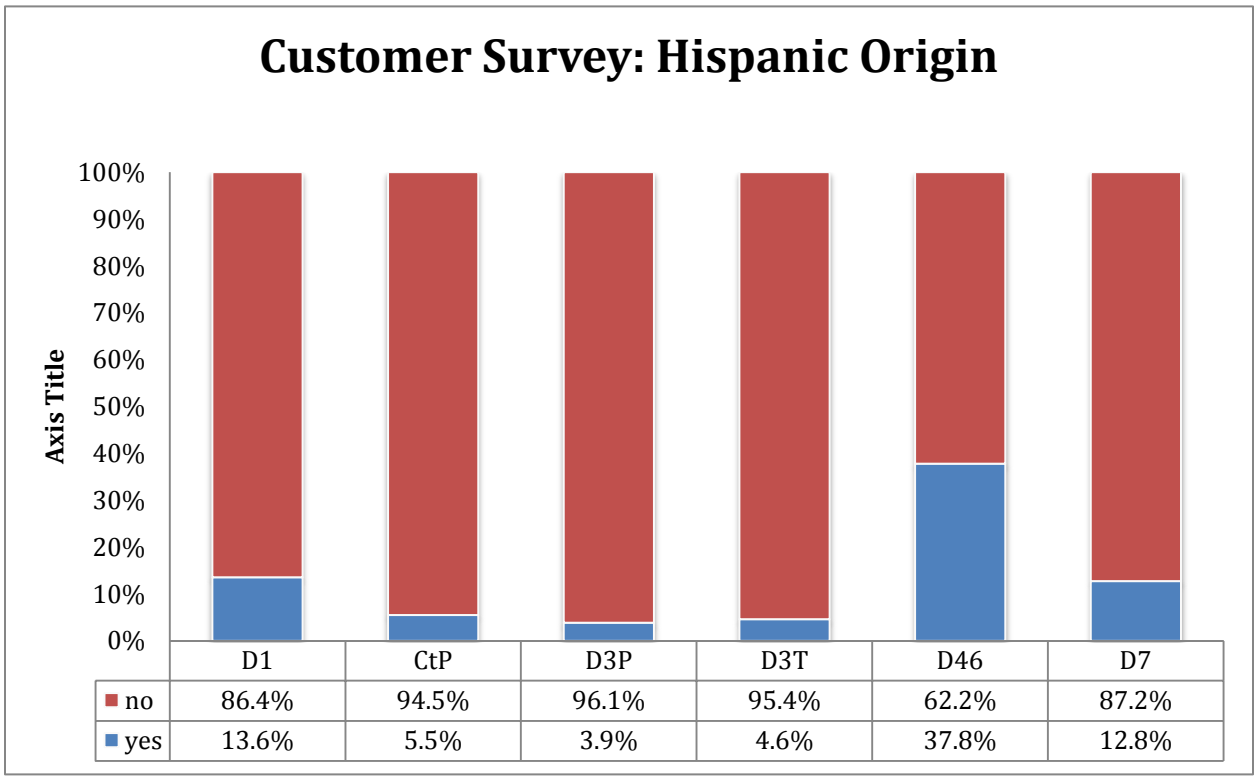
In contrast to the customer survey, persons who completed the general population survey were about half as likely to have just one vehicle than were the respondents to the ACS; about as likely to have two vehicles; and about twice as likely to have three or four vehicles. Because this pattern of car ownership, relative to the ACS, is the opposite of that found in the customer survey, it seems unlikely that the pattern of car ownership seen in the customer survey is the result of nonresponse bias, and likely that it reflects genuine differences between customers and the general population

Hispanic origin

The percentage of population of Hispanic origin in the regions served by the ridematching services ranges between 4 and 38 percent (Figure 27), with the Districts 4 and 6 service area having the highest percentage (calculated from Census Population Estimates, http://www.census.gov/popest/data/counties/asrh/2009/files/cc-est2009-alldata-12.csv). The

percentage of ridematching customers who are of Hispanic origin ranges between 4 and 21 percent The D2, District 3 - Pensacola, and District 3 - Tallahassee programs have Hispanic customers in proportion to their share of the service area populations. The customers of the other three programs are less likely to be Hispanic than the service area populations. Except for the Districts 4 and 6 program, the customer percentages are only a few percentage points different from the service area percentages.

The respondents to the general public survey were about half as likely to be of Hispanic origin as reported by the Census, ranging between 3 and 21 percent (Figure 28). This suggests that the underrepresentation of Hispanic persons in the customer survey might result from nonresponse bias.



	D1	CtP	D3P	D3T	D46	D7
no	86.4%	94.5%	96.1%	95.4%	62.2%	87.2%
yes	13.6%	5.5%	3.9%	4.6%	37.8%	12.8%

Figure 27 Customer Survey: Hispanic Origin

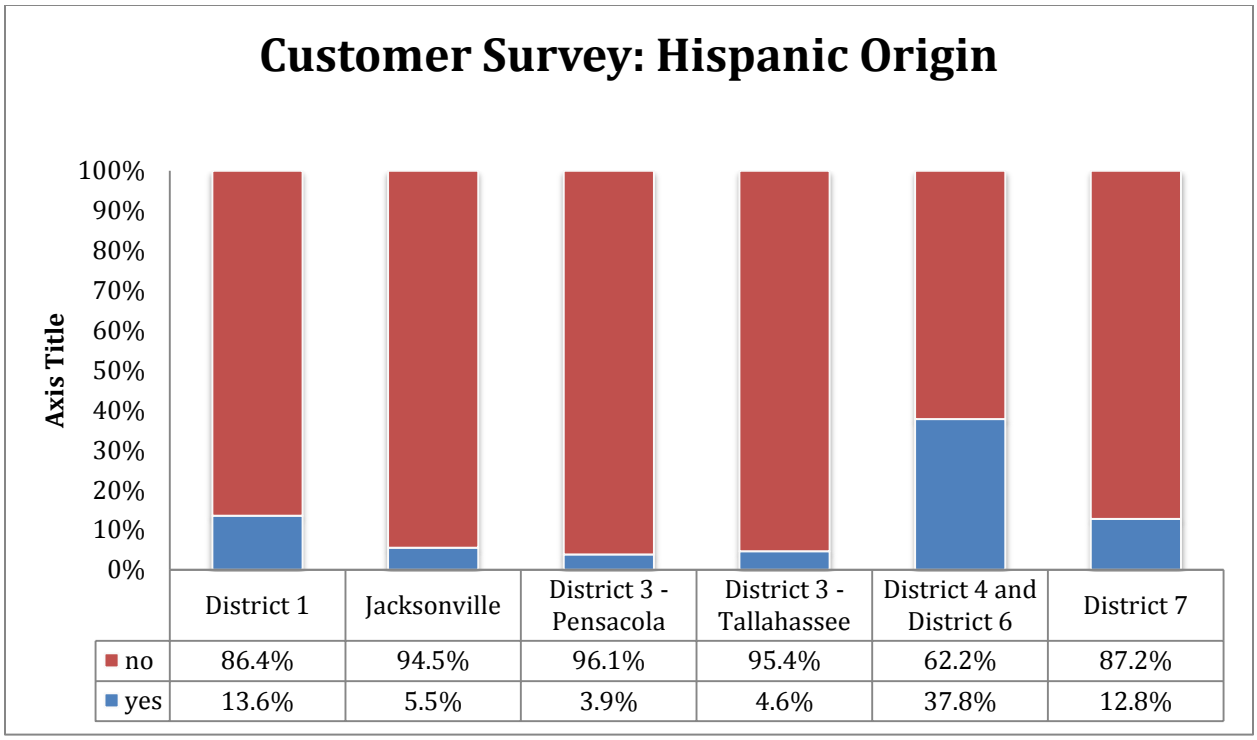


Figure 28 Hispanic Origin: Census Population Estimates

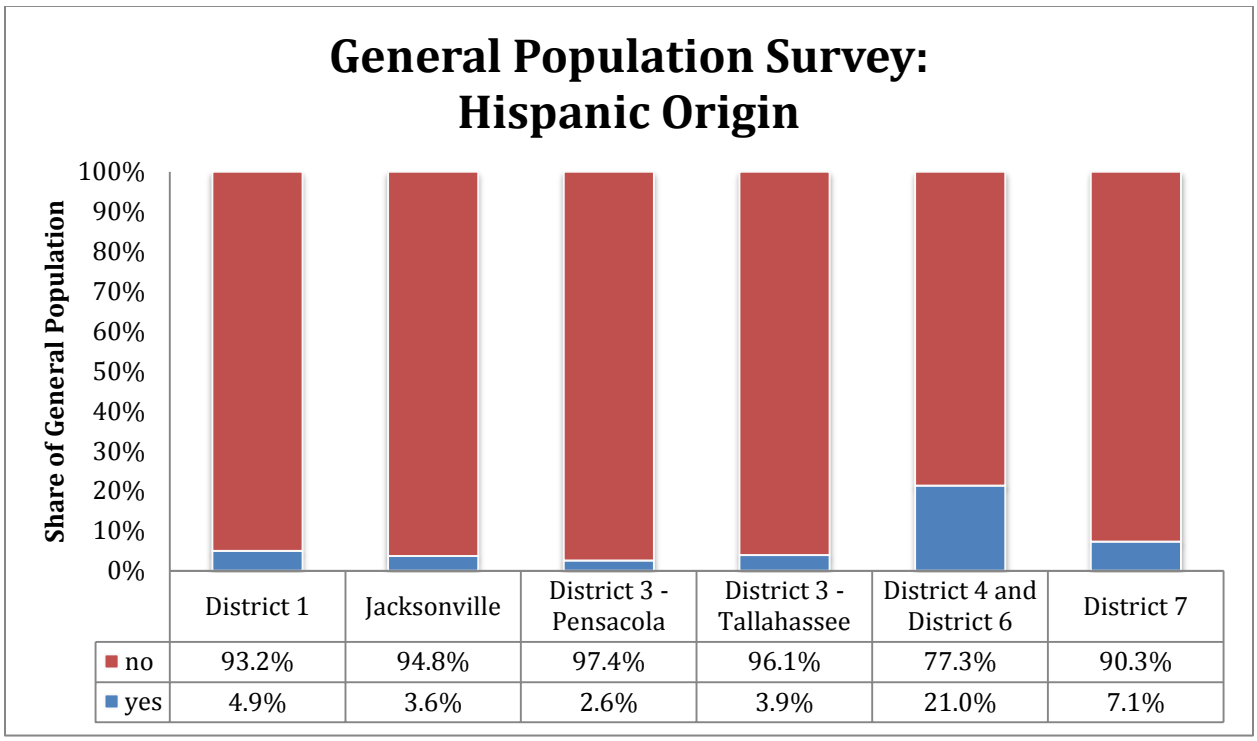
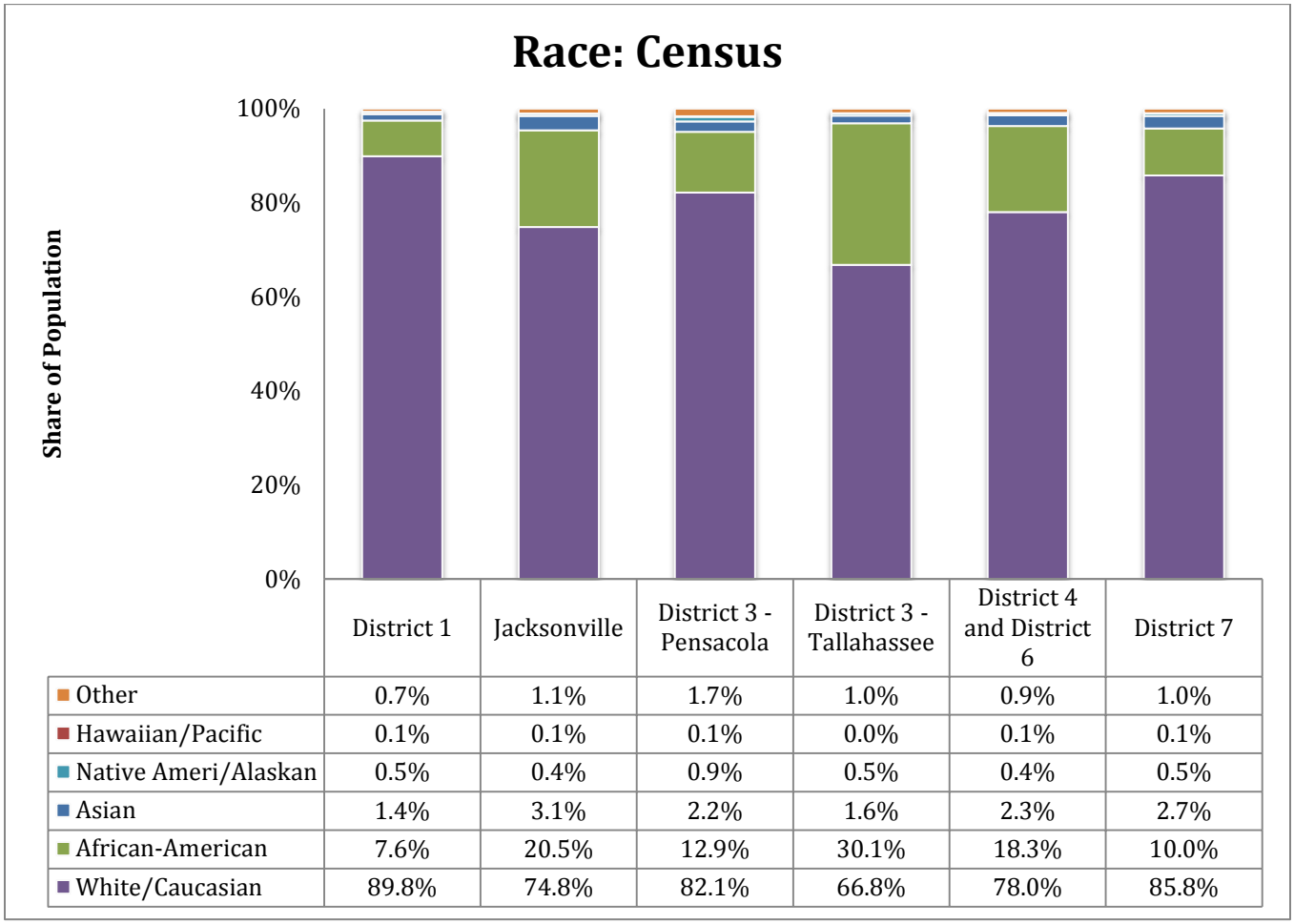


Figure 29 General Population Survey: Hispanic Origin

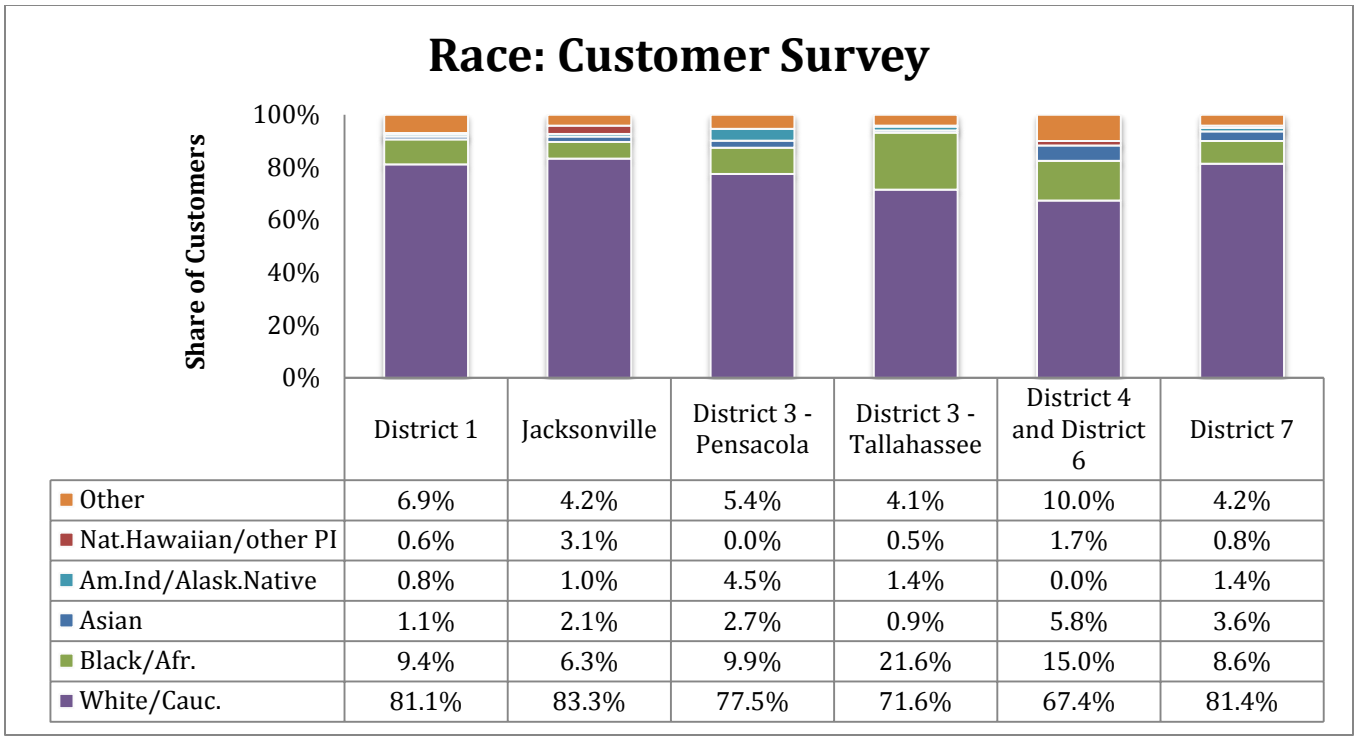
Race

Relative to their proportion in the general population measured by the Census (Census Population Estimates, http://www.census.gov/popest/data/counties/asrh/2009/files/cc-est2009-alldata-12.csv) (Figure 30), African-Americans are underrepresented among the customers of all of the ridematching programs except for District 1 (Figure 31). Results from the general population survey (Figure 32) show similar under-representations of African Americans. In both the customer and general public surveys, higher proportions (between 4 and 11 percent) of customers reported "other" (including mixes) than did persons reporting to the Census (1 to 2 percent).



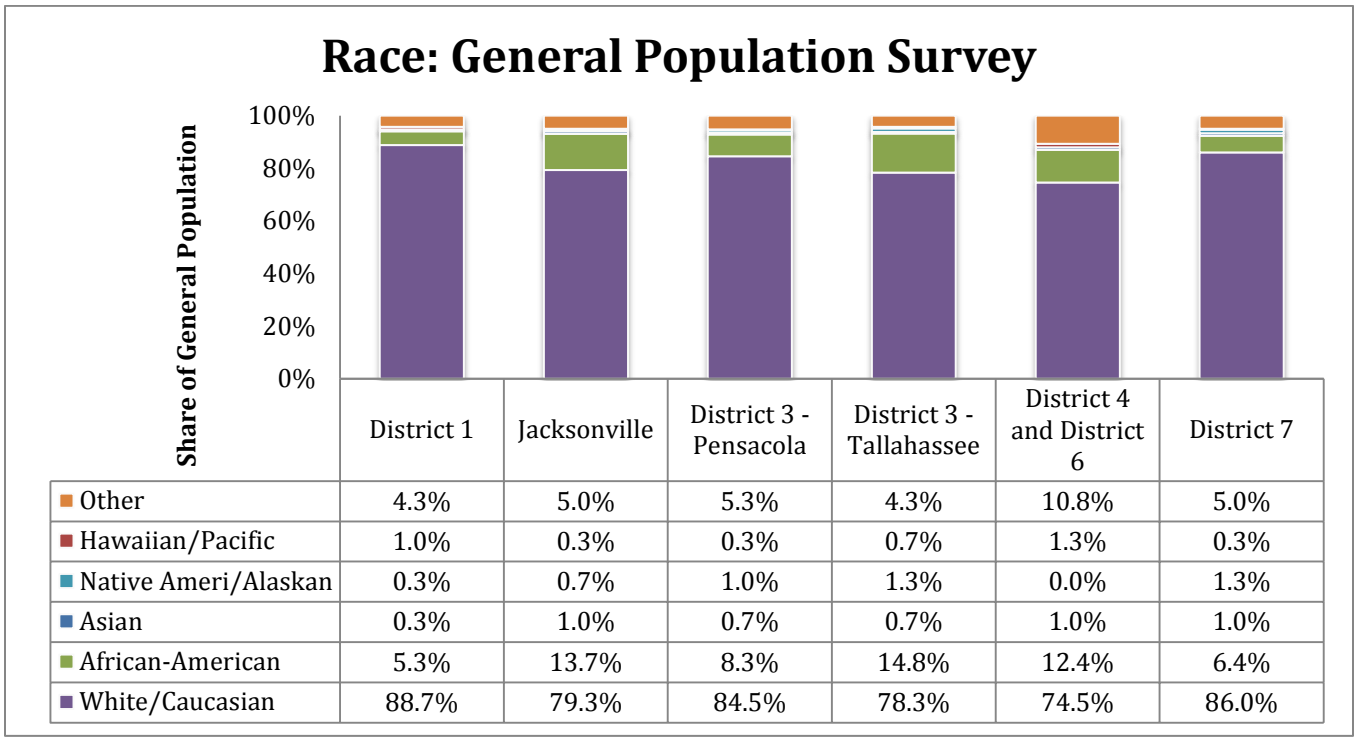
	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7
Other	0.7%	1.1%	1.7%	1.0%	0.9%	1.0%
Hawaiian/Pacific	0.1%	0.1%	0.1%	0.0%	0.1%	0.1%
Native Ameri/Alaskan	0.5%	0.4%	0.9%	0.5%	0.4%	0.5%
Asian	1.4%	3.1%	2.2%	1.6%	2.3%	2.7%
African-American	7.6%	20.5%	12.9%	30.1%	18.3%	10.0%
White/Caucasian	89.8%	74.8%	82.1%	66.8%	78.0%	85.8%

Figure 30 Census: Race



	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7
Other	6.9%	4.2%	5.4%	4.1%	10.0%	4.2%
Nat.Hawaiian/other PI	0.6%	3.1%	0.0%	0.5%	1.7%	0.8%
Am.Ind/Alask.Native	0.8%	1.0%	4.5%	1.4%	0.0%	1.4%
Asian	1.1%	2.1%	2.7%	0.9%	5.8%	3.6%
Black/Afr.	9.4%	6.3%	9.9%	21.6%	15.0%	8.6%
White/Cauc.	81.1%	83.3%	77.5%	71.6%	67.4%	81.4%

Figure 31 Customer Survey: Race

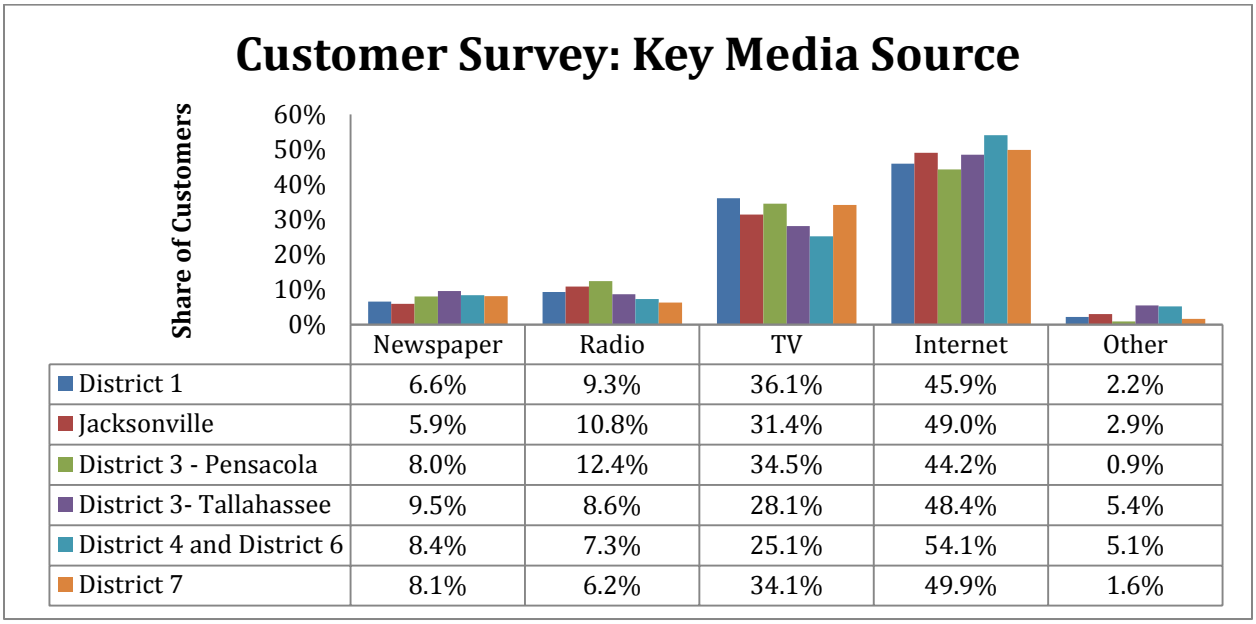


	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7
Other	4.3%	5.0%	5.3%	4.3%	10.8%	5.0%
Hawaiian/Pacific	1.0%	0.3%	0.3%	0.7%	1.3%	0.3%
Native Ameri/Alaskan	0.3%	0.7%	1.0%	1.3%	0.0%	1.3%
Asian	0.3%	1.0%	0.7%	0.7%	1.0%	1.0%
African-American	5.3%	13.7%	8.3%	14.8%	12.4%	6.4%
White/Caucasian	88.7%	79.3%	84.5%	78.3%	74.5%	86.0%

Figure 32 General Population Survey: Race

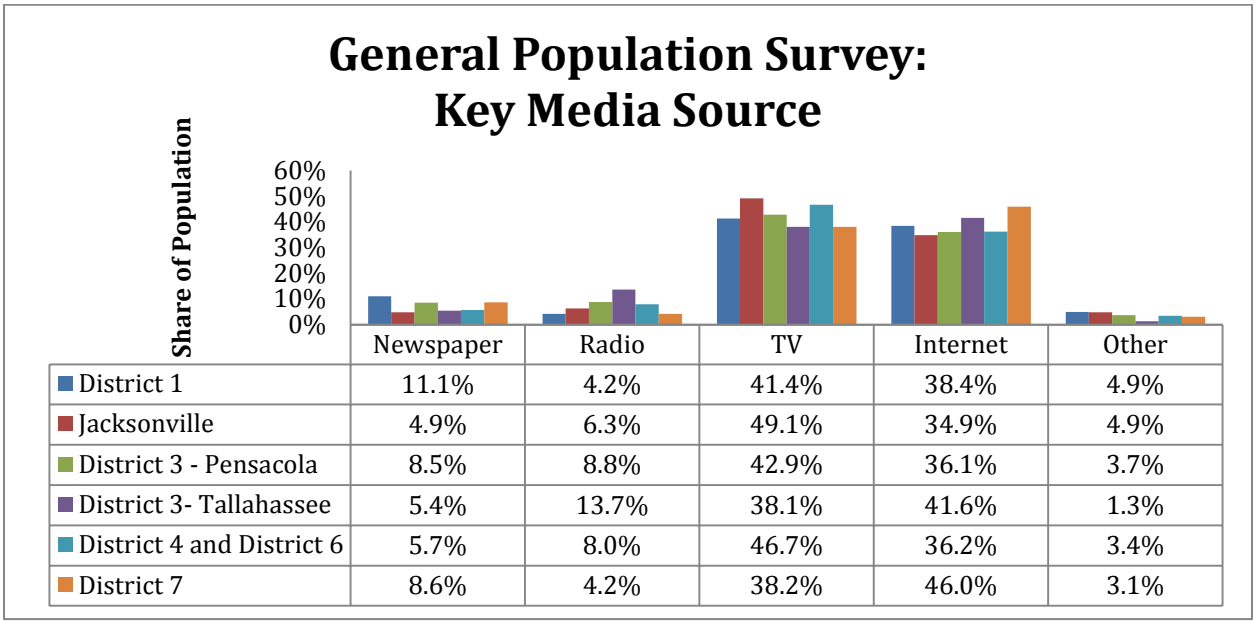
Key media sources

Approximately half of customers reported the Internet as their key media source (44 to 54 percent)(Figure 33). Roughly one third reported television as their key source (25 to 36 percent). The remainder reported newspaper and radio approximately evenly. Among respondents to the general population survey (Figure 34), people reported television more often than Internet in four of the service areas (between 41 percent in District 1 and 49 percent in D2), and less frequently than Internet in the other two (38 percent in both District 3 - Tallahassee and District 7).



	Newspaper	Radio	TV	Internet	Other
District 1	6.6%	9.3%	36.1%	45.9%	2.2%
Jacksonville	5.9%	10.8%	31.4%	49.0%	2.9%
District 3 - Pensacola	8.0%	12.4%	34.5%	44.2%	0.9%
District 3- Tallahassee	9.5%	8.6%	28.1%	48.4%	5.4%
District 4 and District 6	8.4%	7.3%	25.1%	54.1%	5.1%
District 7	8.1%	6.2%	34.1%	49.9%	1.6%

Figure 33 Customer Survey: Key Media Source



	Newspaper	Radio	TV	Internet	Other
District 1	11.1%	4.2%	41.4%	38.4%	4.9%
Jacksonville	4.9%	6.3%	49.1%	34.9%	4.9%
District 3 - Pensacola	8.5%	8.8%	42.9%	36.1%	3.7%
District 3- Tallahassee	5.4%	13.7%	38.1%	41.6%	1.3%
District 4 and District 6	5.7%	8.0%	46.7%	36.2%	3.4%
District 7	8.6%	4.2%	38.2%	46.0%	3.1%

Figure 34 General Population Survey: Key Media Source

Type of Employer

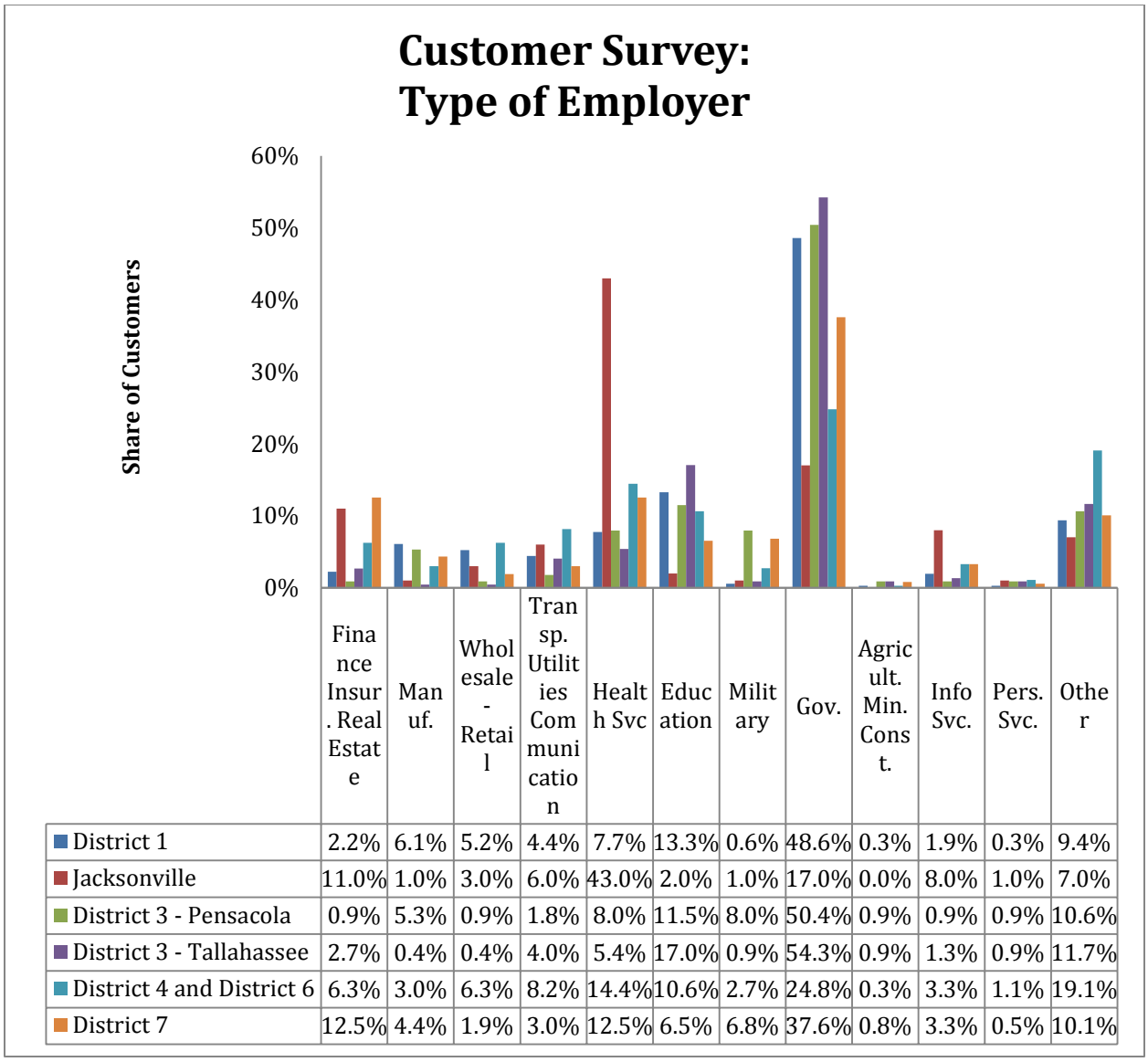
The Jacksonville program has a close working relationship with a large medical employer, and 43 percent of its customers reported working in health services (Figure 35). "Government" was the type of employer reported most frequently by customers of all of the other ridematching, from a low of 25 percent in the Districts 4 and 6 program, to a minimum of 37 percent in the others. "Other," education (often higher education), and health services were the next most commonly reported types of employer.

In the general public survey (Figure 36), 30 percent of respondents in the District 3 - Tallahassee region reported government as an employer, with less than 12 percent doing so in each of the other program service areas. The types of employers were much more evenly reported among each of the service area populations than among the program customers, although 23 to 29 percent reported "Other."

The employer types listed are those used by the TRIMMS™ model, and are based on those used by federal agencies to collect data from and about employers.

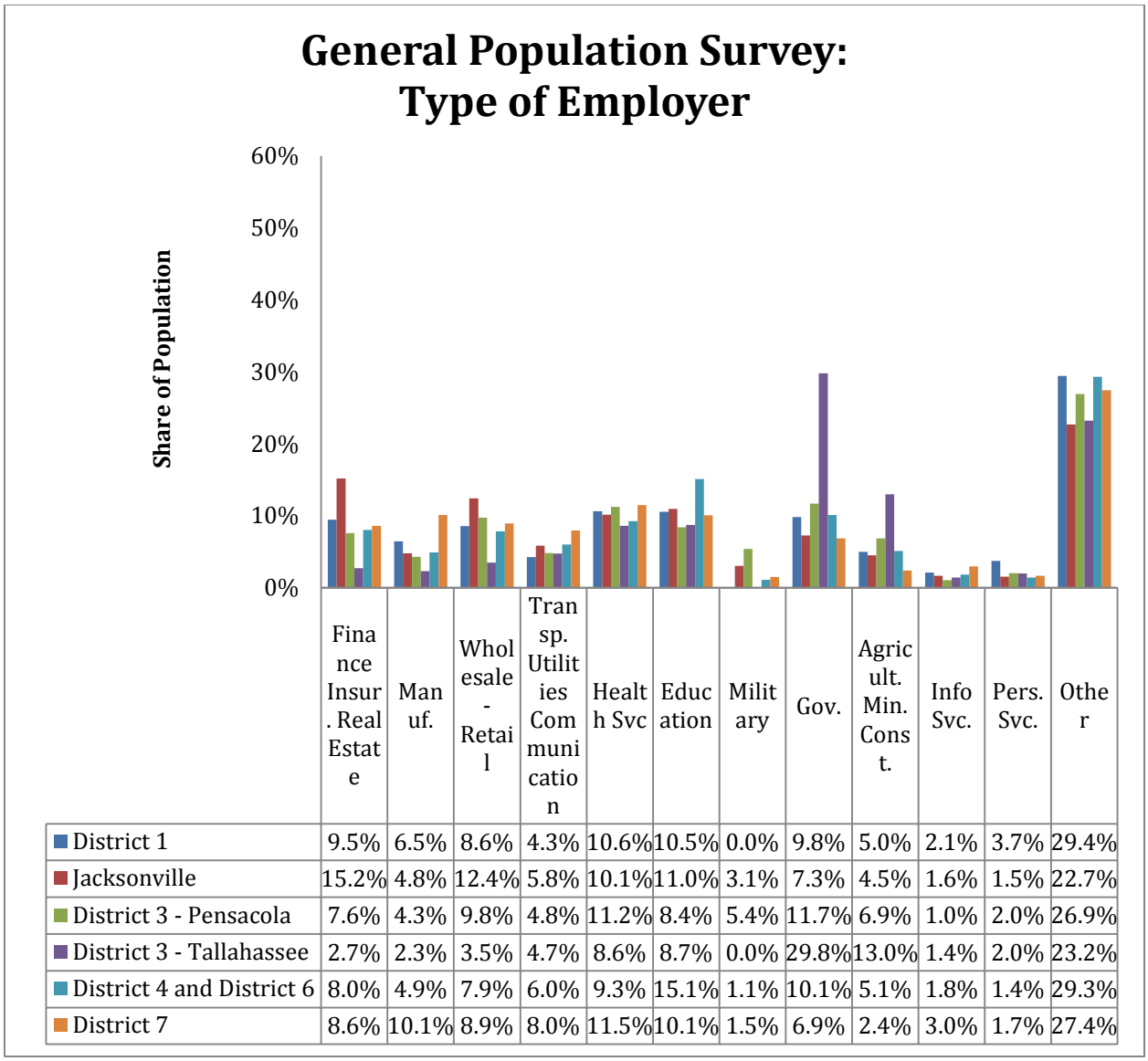
The results shown for type of employer in the customer survey reflect the results of reading the descriptions that survey respondents provided when they replied "Other" and then, where possible, re-categorizing them. This reduced the "other" by just under 10%. Similar recategorization was not done for the general population survey, given the low rate of success in recategorizing the "other" in the customer surveys.

Many of the "other" responses by customers of the ridematching programs appear to be the respondent's occupation (type of work done—accountant, receptionist, or teacher, for example) rather than type of employer (type of organization in which the accountant or receptionist works). With some occupations, such as teacher or correctional-facility guard, it is possible to re-categorize the occupation into an employer type with some confidence. In most cases, however, it is not possible. Future evaluations will need to weigh the value of requesting employer type or occupation.



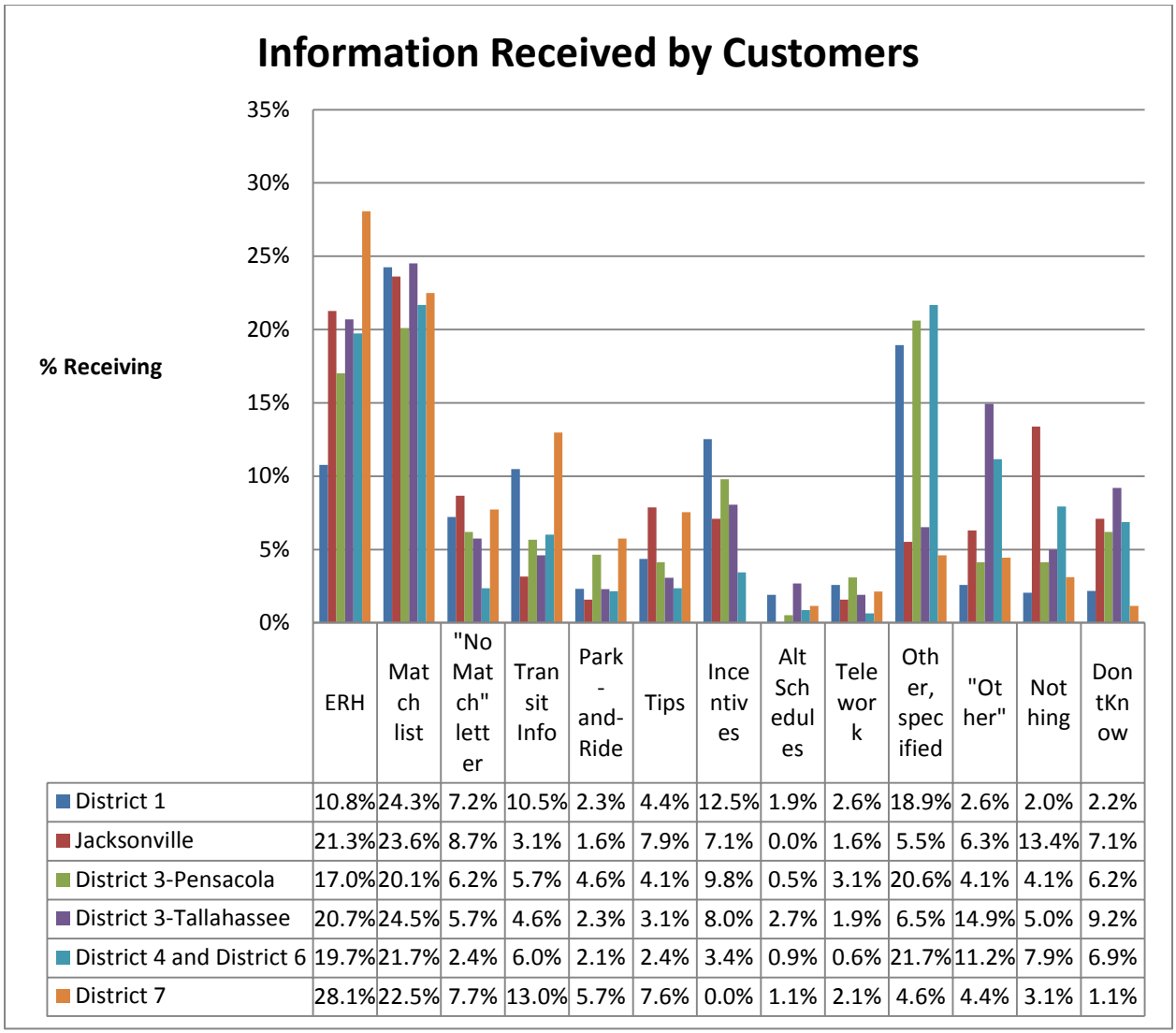
	Finance Insur. Real Estate	Manuf.	Wholesale - Retail	Transp. Utilities Communication	Health Svc	Education	Military	Gov.	Agricult. Min. Const.	Info Svc.	Pers. Svc.	Other
District 1	2.2%	6.1%	5.2%	4.4%	7.7%	13.3%	0.6%	48.6%	0.3%	1.9%	0.3%	9.4%
Jacksonville	11.0%	1.0%	3.0%	6.0%	43.0%	2.0%	1.0%	17.0%	0.0%	8.0%	1.0%	7.0%
District 3 - Pensacola	0.9%	5.3%	0.9%	1.8%	8.0%	11.5%	8.0%	50.4%	0.9%	0.9%	0.9%	10.6%
District 3 - Tallahassee	2.7%	0.4%	0.4%	4.0%	5.4%	17.0%	0.9%	54.3%	0.9%	1.3%	0.9%	11.7%
District 4 and District 6	6.3%	3.0%	6.3%	8.2%	14.4%	10.6%	2.7%	24.8%	0.3%	3.3%	1.1%	19.1%
District 7	12.5%	4.4%	1.9%	3.0%	12.5%	6.5%	6.8%	37.6%	0.8%	3.3%	0.5%	10.1%

Figure 35 Customer Survey: Employer Type



	Finance Insur. Real Estate	Manuf.	Wholesale - Retail	Transp. Utilities Communication	Health Svc	Education	Military	Gov.	Agricult. Min. Const.	Info Svc.	Pers. Svc.	Other
District 1	9.5%	6.5%	8.6%	4.3%	10.6%	10.5%	0.0%	9.8%	5.0%	2.1%	3.7%	29.4%
Jacksonville	15.2%	4.8%	12.4%	5.8%	10.1%	11.0%	3.1%	7.3%	4.5%	1.6%	1.5%	22.7%
District 3 - Pensacola	7.6%	4.3%	9.8%	4.8%	11.2%	8.4%	5.4%	11.7%	6.9%	1.0%	2.0%	26.9%
District 3 - Tallahassee	2.7%	2.3%	3.5%	4.7%	8.6%	8.7%	0.0%	29.8%	13.0%	1.4%	2.0%	23.2%
District 4 and District 6	8.0%	4.9%	7.9%	6.0%	9.3%	15.1%	1.1%	10.1%	5.1%	1.8%	1.4%	29.3%
District 7	8.6%	10.1%	8.9%	8.0%	11.5%	10.1%	1.5%	6.9%	2.4%	3.0%	1.7%	27.4%

Figure 36 General Population Survey: Employer Type

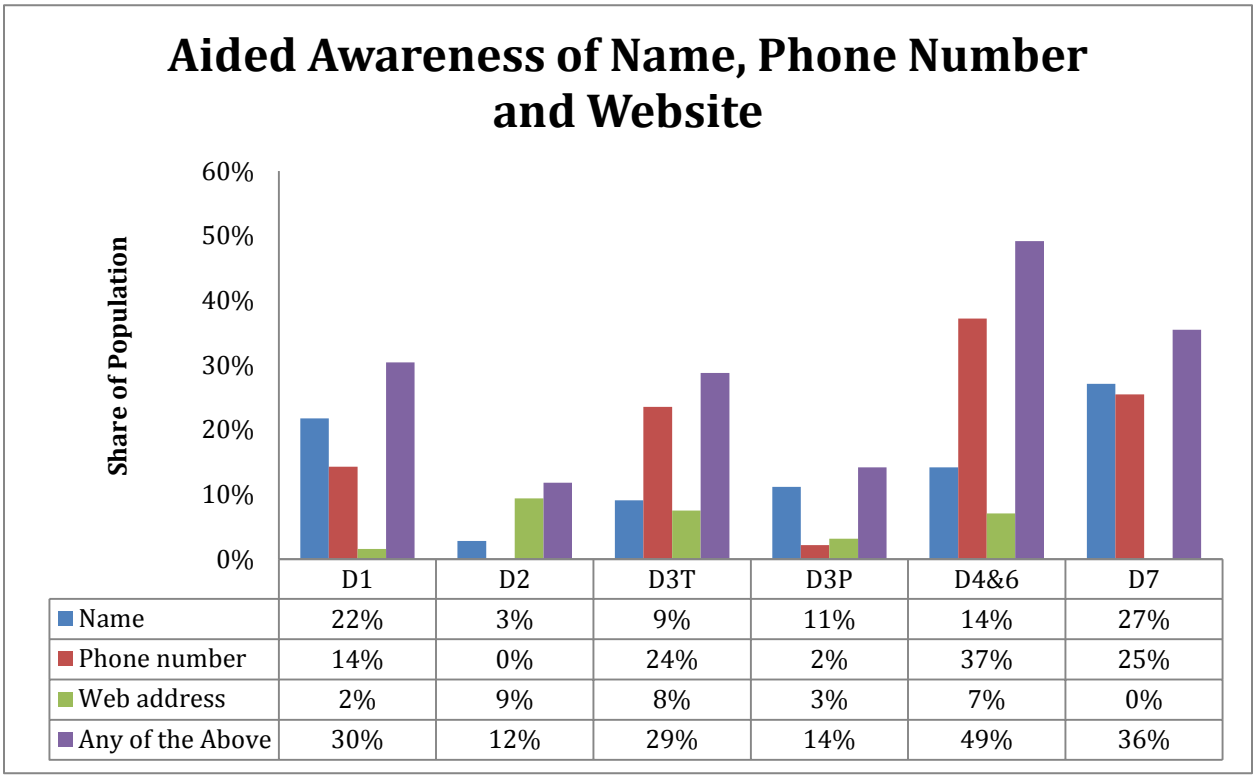


	ERH	Match list	"No Match" letter	Transit Info	Park-and-Ride	Tips	Incentives	Alt Schedules	Telework	Other, specified	"Other"	Nothing	DontKnow
District 1	10.8%	24.3%	7.2%	10.5%	2.3%	4.4%	12.5%	1.9%	2.6%	18.9%	2.6%	2.0%	2.2%
Jacksonville	21.3%	23.6%	8.7%	3.1%	1.6%	7.9%	7.1%	0.0%	1.6%	5.5%	6.3%	13.4%	7.1%
District 3-Pensacola	17.0%	20.1%	6.2%	5.7%	4.6%	4.1%	9.8%	0.5%	3.1%	20.6%	4.1%	4.1%	6.2%
District 3-Tallahassee	20.7%	24.5%	5.7%	4.6%	2.3%	3.1%	8.0%	2.7%	1.9%	6.5%	14.9%	5.0%	9.2%
District 4 and District 6	19.7%	21.7%	2.4%	6.0%	2.1%	2.4%	3.4%	0.9%	0.6%	21.7%	11.2%	7.9%	6.9%
District 7	28.1%	22.5%	7.7%	13.0%	5.7%	7.6%	0.0%	1.1%	2.1%	4.6%	4.4%	3.1%	1.1%

Figure 37 Customer Survey: Information received by customers

Awareness of program

When the general population survey was being prepared, each of the ridematching programs was asked to list the "brands" that it was using in its marketing of the program, the program website, and the program telephone number, along with any lesser brands or campaigns that they might be using. These were used in unaided/aided awareness questions in the survey. The Jacksonville program which was not marketing its phone number at that time, and the District 7 program was not marketing its website, so these were not tested. None of the brands had as much as 1 percent unaided awareness, but aided awareness was much higher for many brands (Figure 38).



	D1	D2	D3T	D3P	D4&6	D7
Name	22%	3%	9%	11%	14%	27%
Phone number	14%	0%	24%	2%	37%	25%
Web address	2%	9%	8%	3%	7%	0%
Any of the Above	30%	12%	29%	14%	49%	36%

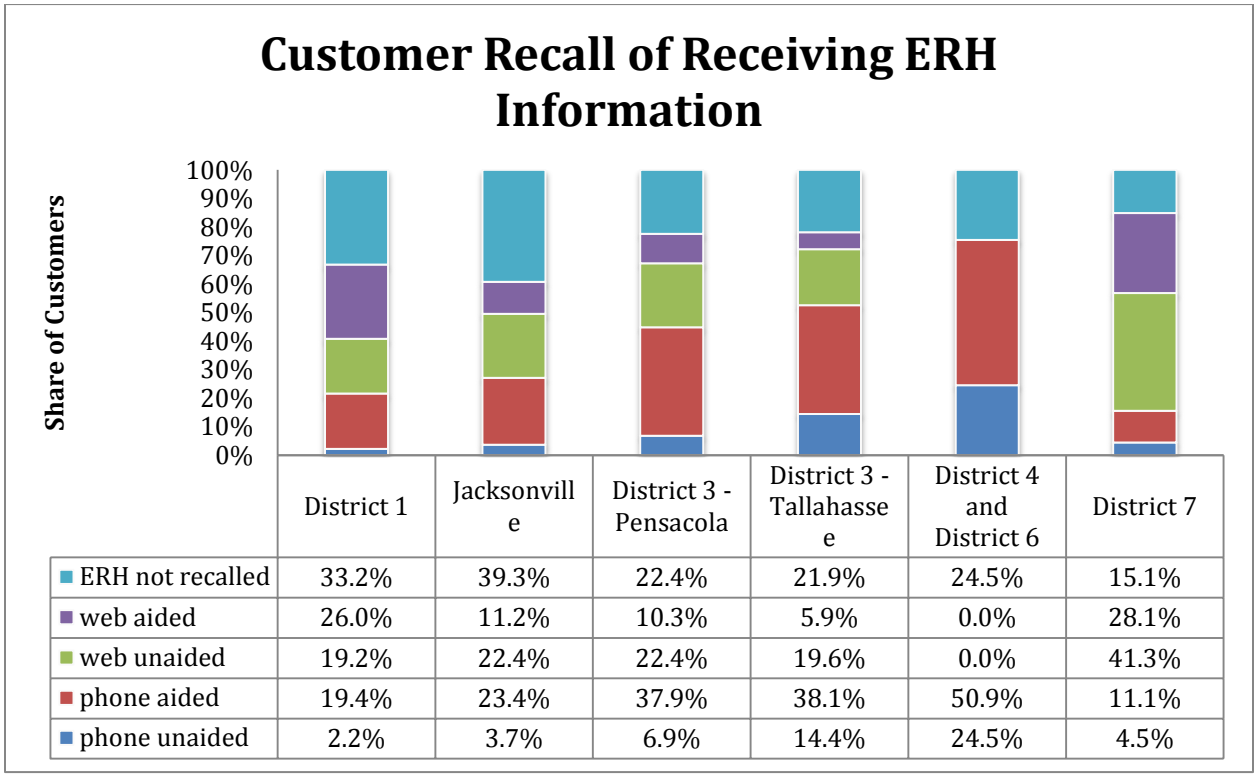
Figure 38 General Population: Aided Awareness of Program Brands

Program Services, Ridematching, Mode-Switching, and Impacts

Customers of the ridematching services receive a variety of information from the programs. Some of this focuses directly on carpooling or vanpooling, while some types (such as emergency ride home (ERH) also provide support for other commute alternatives (i.e., transit, bicycling, telework). Figure 37 shows the results of an unaided awareness question that asked customers what types of information they had received from the ridematching services. ERH, and lists of potential carpool or vanpool matches, were the types of information reported most frequently by most program customers, followed by notifications that there were no matches available for ride-sharing, and information on public transportation and park-and-ride lots, incentives for using alternatives to driving, and tips for forming carpools or vanpools. Fewer than 3 percent of customers recalled receiving information about telework or compressed workweek schedules. The "Other, specified"

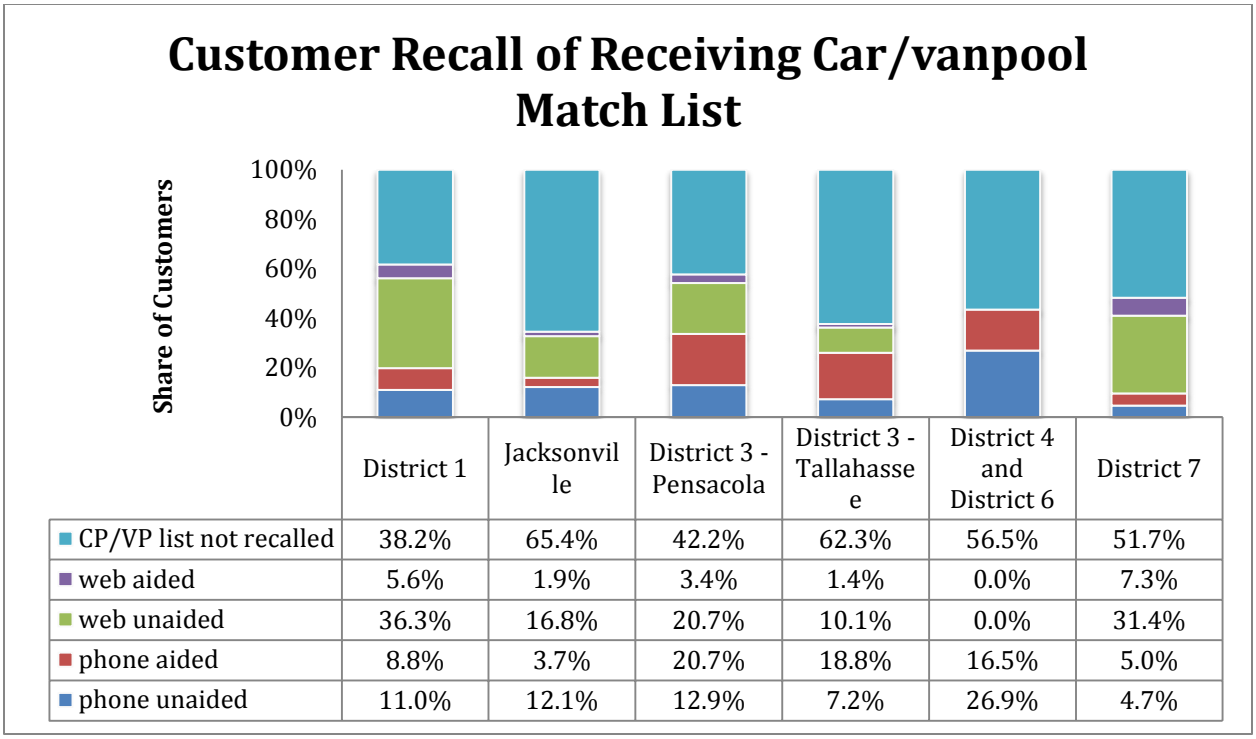
category in the Figure includes three program-specific services (a newsletter in the District 1 program, information about vanpool driver training in the District 3 - Pensacola program, and registration for the "95 Express" managed lanes in the Districts 4 and 6 program), along with other less-common types of information that the customers of all programs reported receiving. The "Other" category in the figure includes individual responses that could not be grouped into larger categories, or web respondents who checked "Other" and provided no additional detail. Between 4 and 20 percent of the customers either said they received no information, or did not recall what information they had received.

Aided recall was used to follow up the unaided recall of ERH, matchlists, and and "No Match" letters (Figures 39-42). Between 61 and 85 percent of customers had some form of recall of receiving information about ERH. Between 35 and 62 percent of customers recalled receiving a list of potential carpool or vanpool matches, and between 14 and 28 percent recalled receiving a communication that there were no matches in the program matching system (These totals are not additive, because a customer could receive a "No Match" letter when first signing up, and then receive a match list after additional persons had registered with the ridematching service). Only 61 to 80 percent recalled receiving either a match list or a "No Match" communication



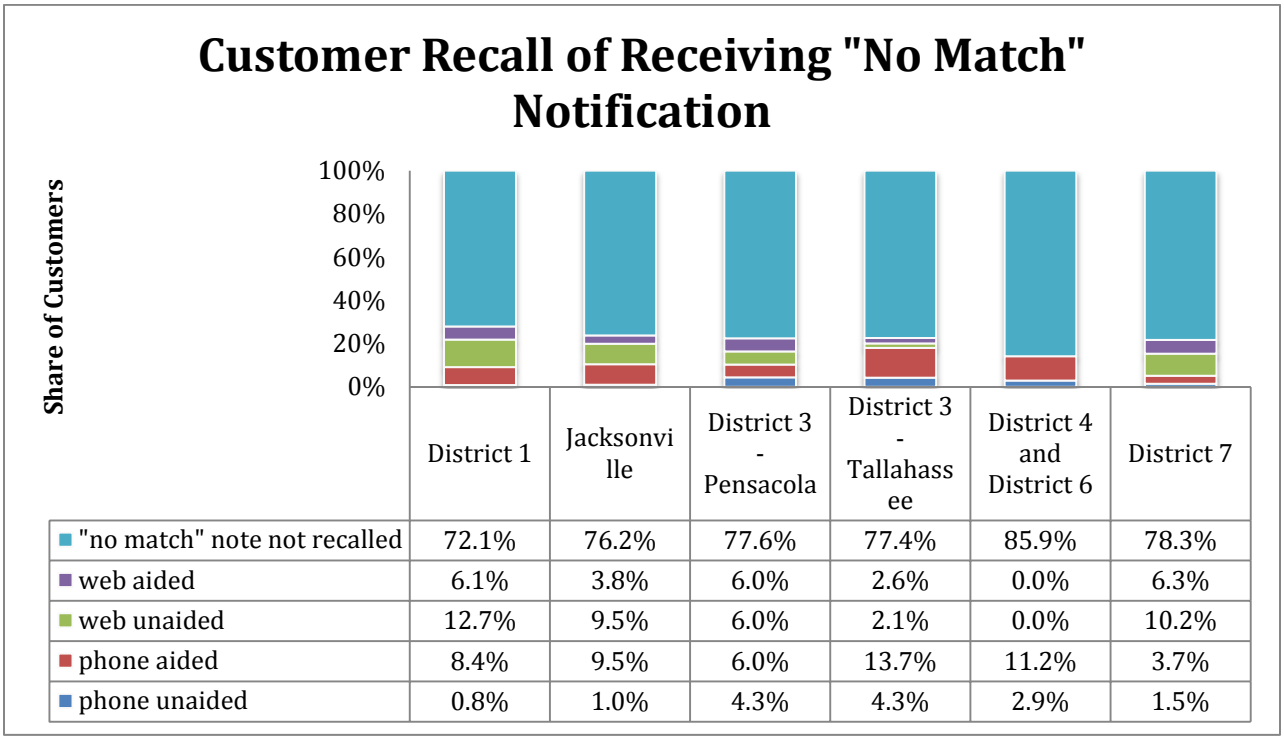
	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7
ERH not recalled	33.2%	39.3%	22.4%	21.9%	24.5%	15.1%
web aided	26.0%	11.2%	10.3%	5.9%	0.0%	28.1%
web unaided	19.2%	22.4%	22.4%	19.6%	0.0%	41.3%
phone aided	19.4%	23.4%	37.9%	38.1%	50.9%	11.1%
phone unaided	2.2%	3.7%	6.9%	14.4%	24.5%	4.5%

Figure 39 Customer Recall of Receiving Information about ERH



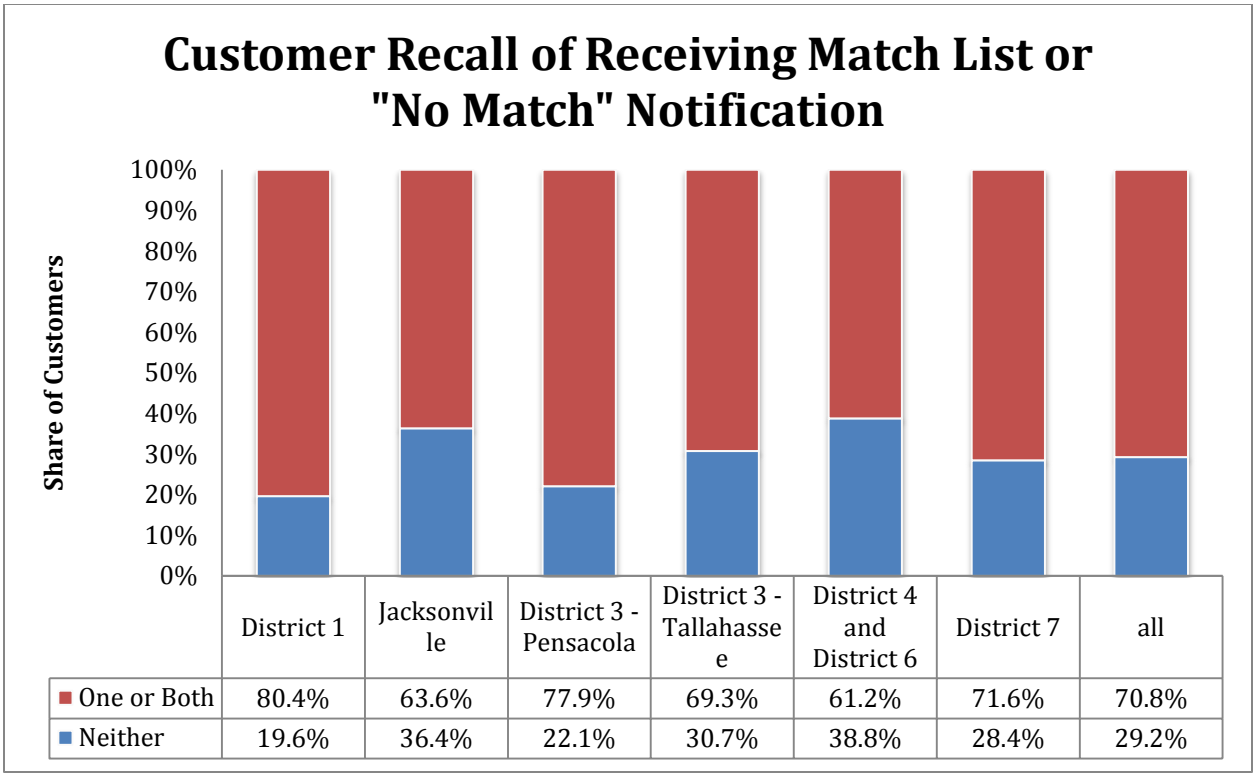
	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7
CP/VP list not recalled	38.2%	65.4%	42.2%	62.3%	56.5%	51.7%
web aided	5.6%	1.9%	3.4%	1.4%	0.0%	7.3%
web unaided	36.3%	16.8%	20.7%	10.1%	0.0%	31.4%
phone aided	8.8%	3.7%	20.7%	18.8%	16.5%	5.0%
phone unaided	11.0%	12.1%	12.9%	7.2%	26.9%	4.7%

Figure 40 Customer Recall of Receiving Match List



	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7
"no match" note not recalled	72.1%	76.2%	77.6%	77.4%	85.9%	78.3%
web aided	6.1%	3.8%	6.0%	2.6%	0.0%	6.3%
web unaided	12.7%	9.5%	6.0%	2.1%	0.0%	10.2%
phone aided	8.4%	9.5%	6.0%	13.7%	11.2%	3.7%
phone unaided	0.8%	1.0%	4.3%	4.3%	2.9%	1.5%

Figure 41 Customer Recall of Being Told No Matches Were Available



	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7	all
One or Both	80.4%	63.6%	77.9%	69.3%	61.2%	71.6%	70.8%
Neither	19.6%	36.4%	22.1%	30.7%	38.8%	28.4%	29.2%

Figure 42 Customer Recall of Receiving Either a Match List or a "No Match" Communication

CAPs Are Diversifying

The present customer survey focuses on ridematching. Some of the ridematching programs allow customers to register for services other than ridematching and not request a match list. This may explain why so many customers did not recall receiving either a match list or a "No Match" communication. Future evaluations may want to get a better understanding of why people register with a CAP, which services they register to use, and how well the program provides any non-ridematching services.

Ridematching

Matching a customer into a carpool or vanpool is a multi-step process. The customer must first register with the ridematching service and request a match. The service must then look for other customers that would be good matches and provide the customer with enough information to contact the potential matches, and work out whether a carpool or vanpool would be mutually acceptable. The customer must then follow up and contact people on the list of matches; sometimes customers don't follow up, and sometimes they attempt to but cannot actually contact persons on the list. Finally, the persons who are matched must agree to share rides and begin to do so. Failure in any one of these steps can prevent someone from ride-sharing. On the other hand, customers

who are interested in carpooling may find a way to do so even without being matched by a ridematching service. Customers may be resourceful, or lucky, in finding someone to carpool with, or they may use other information from the service to help make the carpool possible. One example, is agreeing to meet someone at a park-and-ride lot and share the ride from there rather than from home.

For those customers who said that they recalled receiving a carpool or vanpool match list, the customer survey asked whether they had tried to contact someone on it. Between 22 and 48 percent said that they had attempted to contact someone on the match list (Figure 43). For those customers who said they attempted to contact someone on the list, the survey then asked whether they succeeded in joining a carpool or vanpool with someone on the list. Between 26 and 66 percent said that they had been successful (Figure 44).

When customers reported that they did not succeed in using the list to join a carpool or vanpool, the survey did not ask for an explanation. Thus, the survey results do not indicate whether, or how frequently,

1) the contact information on the match list was no longer current,
2) the customer left messages that received no reply, or
3) the persons actually communicated but concluded that they were not the right matches for one other (smoking, schedules, etc.).

If the information not being current is a frequent issue, the CAP might improve the effectiveness of its match list by better maintenance of the current contact information in the customer database. If the quality of the matches was found wanting frequently, the CAP might adjust or seek improvements to the software used to match the customers. One method would be to solicit customer feedback via social media and other methods of monitoring customer satisfaction.

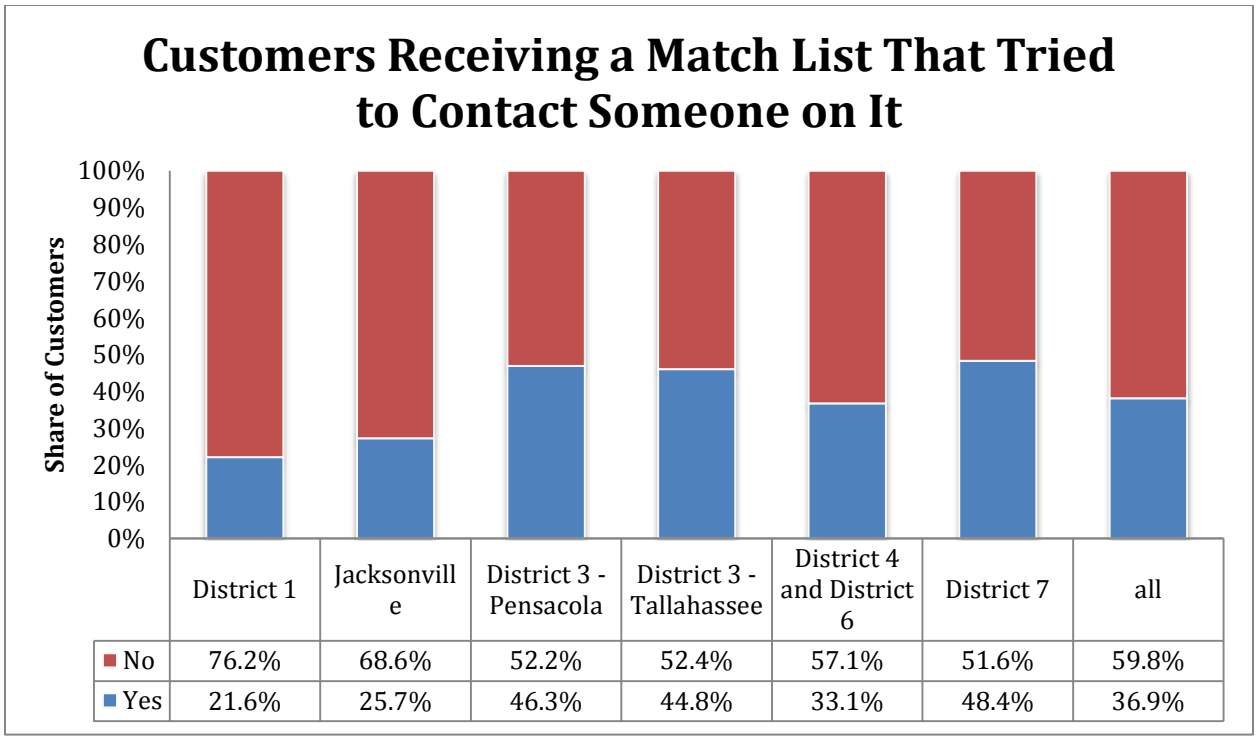


Figure 43 Customers Who Tried to Contact Persons on a Match List

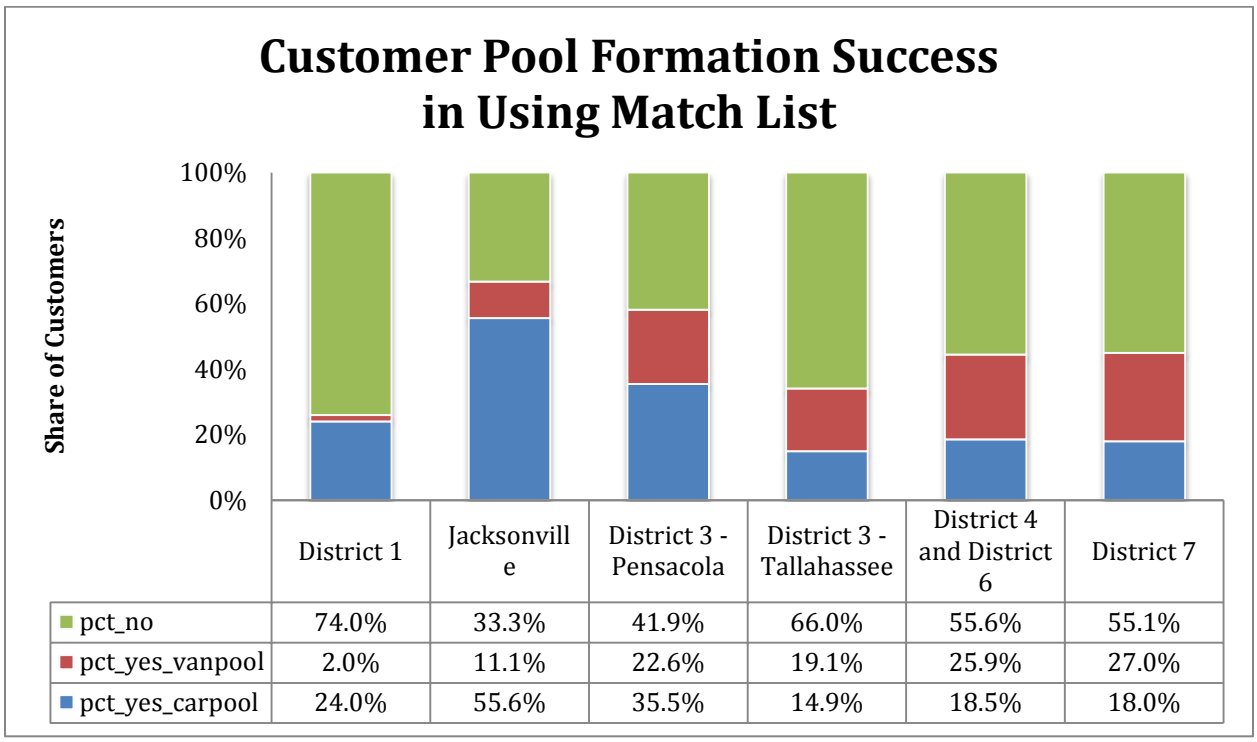
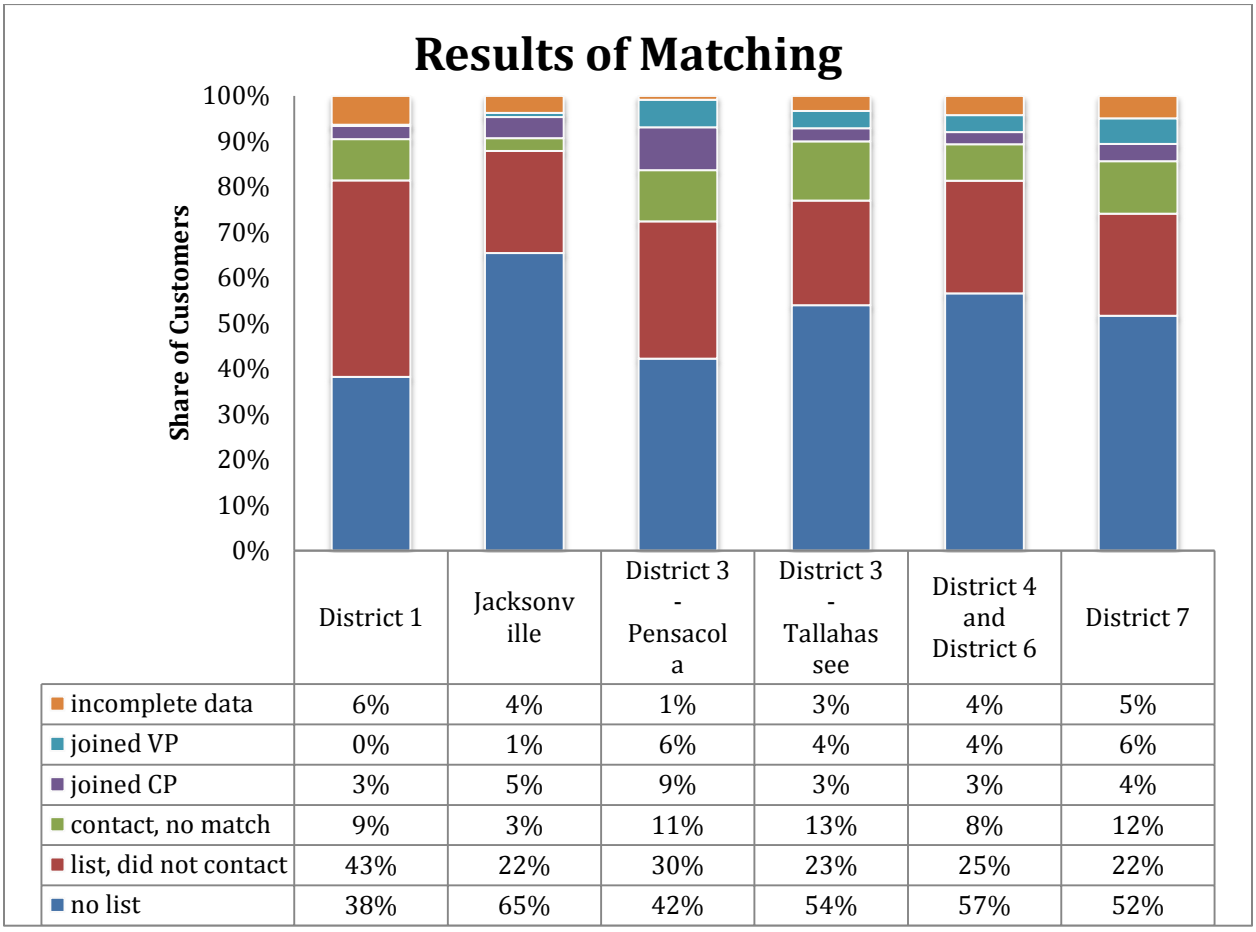


Figure 44 Results of Using Match List

Figure 45 presents the net effect of the sequence of ridematching steps for each ridematching service. The dark bar at the bottom shows the percent of persons who did not receive a match list. The light bar at the top shows persons who declined to answer one or more of the questions about the sequence of ridematching steps; these have incomplete data. All of the customers represented by the remaining bars received a match list. Those represented by the second bar from the bottom of the chart did not try to contact anyone on their match lists; those above (excluding those with missing data) did. Those represented by the third bar from the bottom did not succeed in joining a carpool or vanpool with anyone on the match list. Those above (again excluding the missing data) succeeded in joining a carpool or a vanpool. The overall success rates of the ridematching programs ranged between 3 and 16 percent. The District 1 ridematching program is relatively new, and the area it serves includes a number of small cities (Bradenton, Sarasota, Fort Myers, Cape Coral, Lakeland) distributed across different counties, rather than a single large core city as most of the other programs serve. These circumstances could account for some of its lower match rate, despite its having the highest success rate among all of the ridematching programs in getting match lists to its customers.



	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7
incomplete data	6%	4%	1%	3%	4%	5%
joined VP	0%	1%	6%	4%	4%	6%
joined CP	3%	5%	9%	3%	3%	4%
contact, no match	9%	3%	11%	13%	8%	12%
list, did not contact	43%	22%	30%	23%	25%	22%
no list	38%	65%	42%	54%	57%	52%

Figure 45 Customers Who Tried to Contact Persons on a Match List

Expanding the match successes from the sampled customers to the entire ridematching databases, on an average workday, an estimated 1,147 round trips are being made to and from work by persons matched by one of the ridematching services, along with an estimated 1,278 vanpool trips (Table 6). Carpoolers matched by the programs have been carpooling for an average of just under 4 years, and vanpoolers have been vanpooling for an average of 45 months. An estimated 425 other persons were matched by the ridematching services and carpooled for an average of just over 15 months before stopping. An estimated 130 other persons were matched into vanpools and vanpooled for an average of 22 months before stopping.

Table 6 Average Daily Carpool and Vanpool Person-Round-Trips Matched by Programs

Program	Average Daily Person-Round-Trips					
	Currently Ridesharing			Matched but not Currently Ride-Sharing		
	Carpool	Vanpool	Total	Carpool	Vanpool	Total
District 1	83	0	83	85	0	85
Jacksonville	21	0	21	4	0	4
District 3 - Pensacola	67	43	110	33	10	43
District 3 - Tallahassee	36	40	76	12	8	20
Districts 4 and 6	839	820	1,659	179	112	291
District 7	102	376	478	112	0	112
Total	**1,147**	**1,278**	**2,425**	**425**	**130**	**555**

Changes in Mode Use: Other Ridesharing

Some customers changed the ways they get to work even without being matched into a carpool or vanpool by the ridematching program. Figure 46 shows percentages of each program's customers who switched from or continued to use driving alone, or alternative modes, for commuting. Between 26 and 53 percent of programs' customers indicated that the only mode they used for commuting, both before and after contacting their program, was driving alone. Between 8 and 27 percent of programs' customers indicated at least some prior use of using alternative commute modes prior to contacting the ridematching program, but then reported that since contacting the program the only way they have commuted to work was to drive alone; it is possible that some of these had been driving alone to work on at least some days at the time they contacted their program. Between 0 and 10 percent of customers reported that they had been commuting using alternative modes at least some days before contacting their program, and that they had joined a carpool afterward through the program's efforts; an additional 2 to 6 percent reported no use of alternative modes prior to contact, but reported joining a carpool or vanpool through the program's efforts. Between 15 and 28 percent of customers reported using alternative modes prior to contacting the program, and also afterward, but not in carpooling or vanpooling through their program. Finally, between 3 and 19 percent of customers reported only driving alone before contact, but at least some use of alternative modes afterward.

In addition to the 3 to 10 percent of customers who were matched into carpools and vanpools as a result of direct efforts by the ridematching programs (Figure 45), the survey also asked those who had started carpooling or vanpooling through other resources since registering with the program to indicate how they had started ride sharing. These answers were read and, where possible, assigned to categories of similar sources. In answering this question, another 1 to 6 percent of customers responded in ways that indicated that the programs *might* have had a possible role in the match, often by being approached by someone in an established vanpool, or in response to some action taken by the employer (Figure 46). Between 12 and 19 percent of customers reported that they found a co-worker to carpool or vanpool with, but did not provide information suggesting any possible link to the ridematching program. Another 2 to 11 percent of customers said they started carpooling with another family member; a few of these may be persons living in different households. Another 8 to 19 percent reported sources of carpool matches that have not been categorized. And 45 to 69 percent of customers did not start carpooling or vanpooling after contacting the ridematching program.

Changes in Mode Use: Upshifting

One of FDOT's objectives in supporting the ridematching programs is reduce the amount of vehicle travel during periods of peak use of the state's highway system, as a way of ameliorating traffic congestion, reducing the need to add lanes to existing roads, and reducing the environmental impact of vehicle transportation. Two people who begin carpooling use one vehicle instead of two. Ten who form a vanpool can use one van instead of ten cars. Twenty people who ride public transportation substitute a bus for their twenty-five cars. A person who shifts from a carpool into a vanpool or bus would also reduce vehicle trips, albeit at a lower rate. This study refers to shifts from any alternative to driving alone, into any mode with higher vehicle occupancy, as "upshifting."

Although the definition of this performance measure in [11] ("Percent of commuters who currently use a commute alternative shifting to another alternative mode (e.g., from carpool to transit)") does not specify a direction, its intent ("Effectiveness of commuter services in increasing higher occupancy customers") does. This performance measure can be reported as gross or as net impact, the latter including cases where a customer shifted from vanpooling to carpooling (in other words, to a mode with lower vehicle occupancy). Between 0 and 4 percent of ridematching customers reported upshifting, depending on whether upshifting is calculated as net or gross, and on the level of influence that customers said their program has had on their commuting.

Influence of Ridematching Program

Near the end of the customer survey, respondents were asked to indicate how much influence the ridematching program has had on how they get to work, offering possible responses of "great influence," "moderate influence," "small influence," or "none." Customers who responded "great influence", plus those who had successfully joined a carpool or vanpool using a match list, or who had joined a carpool or vanpool without a match list but in a way suggesting that the program might have had some influence in the process, were considered as "strongly" influenced. These were grouped with those who reported "moderate" or "small" influence, to reflect "any" influence.

In addition, some customers did not answer the question about the program's influence; these along with those who reported no influence, are included in values computed for all customers.

Table 7 Performance Measure: Percent of Commuters who Currently Use a Commute Alternative Shifting to Another Alternative Mode (Upshifting)

Program	Program Role				All Customers (Including No Influence)	
	Strong		Any			
	Net	Gross	Net	Gross	Net	Gross
District 1	0.0%	0.0%	0.3%	0.3%	0.3%	0.3%
Jacksonville	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
District 3 - Pensacola	1.8%	2.8%	2.8%	3.7%	2.8%	3.7%
District 3 - Tallahassee	1.0%	1.5%	1.0%	1.5%	1.5%	2.5%
Districts 4 and 6	1.5%	1.7%	1.7%	2.0%	1.2%	2.0%
District 7	2.2%	2.2%	3.5%	3.8%	4.1%	4.3%

Gross vs. net effects

As noted in the previous section, customers of the ridematching programs may change their commuting behavior without direct support from the program that can be measured by the customer survey. Some of these changes will be consistent with the objectives of reduced vehicle travel. Others may not be; for example, a customer who is carpooling may be riding with someone who changes jobs, and if the customer is unable to find someone else to carpool with, he or she may return to driving alone. In this case, the question arises whether to consider only the desired changes when measuring performance, or whether the undesired ones should be considered as well to measure the *net* effect of the program's efforts. On one hand, the program did not cause the carpool to break up, and if the customer had approached the program for help after beginning to drive alone, he or she might be counted as someone driving alone who was never matched by the program. On the other hand, the ridematching programs do attract people who have a history of using alternatives to driving alone, and in this example one of those persons sought assistance and did not get the desired result. In some types of programs, such as education, the program is given enough responsibility and control that net change is appropriate when measuring performance. In others, the *gross* impact of the program's efforts may be more appropriate, with only those outcomes consistent with objectives being counted.

Strict v. generous measurement

Some of the performance measures proposed in [11] for use in this study appear very simple and clear to use, until it becomes necessary to use survey data to actually calculate them. For example, one of the measures is "Percent of drive alone commuters shifting to a commute alternative," which is intended to measure "Effectiveness of commuter services in changing travel behavior." A strict interpretation of this measure would identify all customers who were only driving alone, and calculate the percent who switched to never driving alone. However, the survey data show some customers who had been using a mix of commute modes (including driving alone) prior to contacting the ridematching program, who increased their use of alternative modes afterward and, in some cases, ceased driving alone for commuting. This behavior is clearly consistent with the intent of performance measure, but it is not quite what the definition of the measure says because the shift, although partial, happened before the ridematching program became involved, and then progressed afterward; there might be more agreement on including someone who ceased driving alone than someone who shifted a few more days from driving alone to an alternative but continued driving alone one day a week. Similarly, if the only way a customer got to work before contacting a program was by driving alone, and then started carpooling 2 days a week (not as the result of a match list provided by the program), the person is still driving alone to work, but not as often. Does this person count toward the performance measure or not?

Where the survey data present such ambiguities, the performance measures have been calculated using a strict definition, and using one that is more generous. The question of strict vs. generous also interacts with the question of whether to report net or gross outcomes.

Percent of Drive-alone Commuters Shifting to Other Modes

"Percent of drive alone commuters shifting to a commute alternative" is intended to measure "Effectiveness of commuter services in changing travel behavior."A strict definition of this performance measure includes any customers who:

- Only drove alone before contacting the program who afterward switches entirely to one or more alternatives, and does not drive alone at all, or
- Used several modes prior to contact, one of which was driving alone, and then quit driving alone (the other modes may have changed)

A generous definition includes these customers, plus any who:

- Upshifted, as described elsewhere in this section, or
- Maintained use of alternate modes but changed them or were re-matched by the program

Net values also subtract customers who had only been using commute alternatives before contacting the program, but who switched one or more commute days to driving alone.

Using the strict definition and net values for customers whom the programs strongly influenced, (the most restrictive definition), between 3 and 16 percent of program customers switched from driving alone to a commute alternative (Table 8). For the generous definition, and gross values for all customers influenced by the program, between 13 and 35 percent of programs switched. Even

among those customers who said the program had no influence on their commuting behavior, the net measure, and therefore the gross, shows that some customers switched to commute alternatives.

Table 8 Performance Measure: Percent of Drive-alone Customers Switching to a Commute Alternative

Program Role			District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	Districts 4 and 6	District 7
Strong	Strict	Net	2.8%	10.2%	11.0%	5.5%	15.5%	14.4%
		Gross	3.1%	10.2%	11.0%	5.5%	15.7%	14.4%
	Generous	Net	5.3%	11.2%	14.7%	10.0%	20.1%	17.9%
		Gross	5.6%	11.2%	14.7%	10.4%	20.7%	18.5%
Any	Strict	Net	6.4%	12.2%	15.6%	7.5%	24.8%	22.8%
		Gross	7.2%	12.2%	15.6%	9.5%	25.9%	23.1%
	Generous	Net	11.7%	18.4%	28.4%	14.9%	33.5%	30.4%
		Gross	12.5%	18.4%	25.7%	17.4%	35.3%	31.5%
All Customers (Including No Influence)	Strict	Net	6.9%	18.4%	21.1%	11.9%	27.1%	26.9%
		Gross	8.9%	18.4%	22.0%	14.4%	29.7%	27.4%
	Generous	Net	15.0%	28.6%	40.4%	23.4%	38.2%	38.0%
		Gross	16.9%	28.6%	37.6%	27.4%	41.7%	39.9%

A subset of the net version of this performance measure was also planned for this study, the percentage of customers who had not been driving alone, who have reverted to driving alone. For this measure, lower percentages indicate greater success than higher ones. Because of its overlap with the measure of those who switch to commute alternatives, it was decided not to define and compute a gross version of the reversion measure, but a generous version was calculated, to include customers who had not been doing any driving alone who added driving alone to their mix of commute alternatives. It is to be expected, as seen in Table 9, that reversion rates are lowest among those customers on whom the ridematching programs had the greatest influence on commuting (0 to 3 percent), and greatest among those on whom they had no influence (0 to 14 percent).

Table 9 Performance Measure: Percent of Non-Drive-Alone Customers Reverting to Driving Alone

Program	Program Role					
	Strong		Any		All Customers (Including No Influence)	
	Strict	Generous	Strict	Generous	Strict	Generous
District 1	0.6%	0.6%	5.8%	5.8%	13.6%	13.6%
Jacksonville	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
District 3 - Pensacola	0.9%	2.8%	2.8%	4.6%	2.8%	4.6%
District 3 - Tallahassee	0.0%	0.5%	4.0%	4.5%	4.0%	4.5%
Districts 4 and 6	1.7%	2.0%	5.5%	6.1%	5.5%	6.1%
District 7	0.3%	0.5%	1.4%	1.9%	1.4%	1.9%

Change in Frequency of Use of Alternative Modes

Another way that ridematching programs can contribute to FDOT's goal for ameliorating traffic congestion is to work with customers who are using a commute alternative a few days a week, to increase the frequency with which they use it, and, correspondingly, to reduce the frequency with which they drive alone. This measure is fairly clear and does not have strict or generous variations. However, a net version subtracts customers who have reduced the frequency with which they use alternative modes. Between 0 and 19 percent of program customers increased their frequency of using alternative commute modes for the net measure, among those customers for which the program had a strong influence on their commute (Table 10). Among those customers for which the program had any influence, between 2 and 30 percent increased frequency on the net measure, and among all program customers, between 2 and 37 percent increased their frequency of alternative commute use. The percentages for the gross measure are, in most cases only slightly higher.

Table 10 Performance Measure: Percent of Commuters who Currently Use a Commute Alternative Increasing Their Weekly Frequency of Commute Alternative Use

Program	Program Role					
	Strong		Any		All Customers (Including No Influence)	
	Net	Gross	Net	Gross	Net	Gross
District 1	0.4%	0.8%	2.4%	4.4%	2.4%	5.6%
Jacksonville	13.1%	13.1%	16.4%	16.4%	26.2%	26.2%
District 3 - Pensacola	9.7%	9.7%	16.1%	16.1%	21.0%	22.6%
District 3 - Tallahassee	1.6%	2.5%	1.6%	5.7%	6.6%	13.9%
Districts 4 and 6	19.0%	20.1%	29.9%	32.6%	37.0%	39.7%
District 7	17.4%	17.4%	25.6%	26.0%	31.0%	32.2%

Duration of ridesharing

A ridematching program that wants to increase its impact on the transportation system, by reducing vehicle travel and emissions, can do so by supporting more people in using commute alternatives, or, as above, by increasing the frequency with which people use them. However, for various reasons, people who are using alternatives face challenges in continuing to use them, and they may stop. Examples include changes in bus service, which no longer makes it convenient enough for some persons to keep riding; retirement of a carpool member; or changes in employment duties, location or schedule. If existing users of alternative modes can be supported to continue using them, then fewer new customers need to be recruited to maintain existing impacts, and serving new customers will increase aggregate performance.

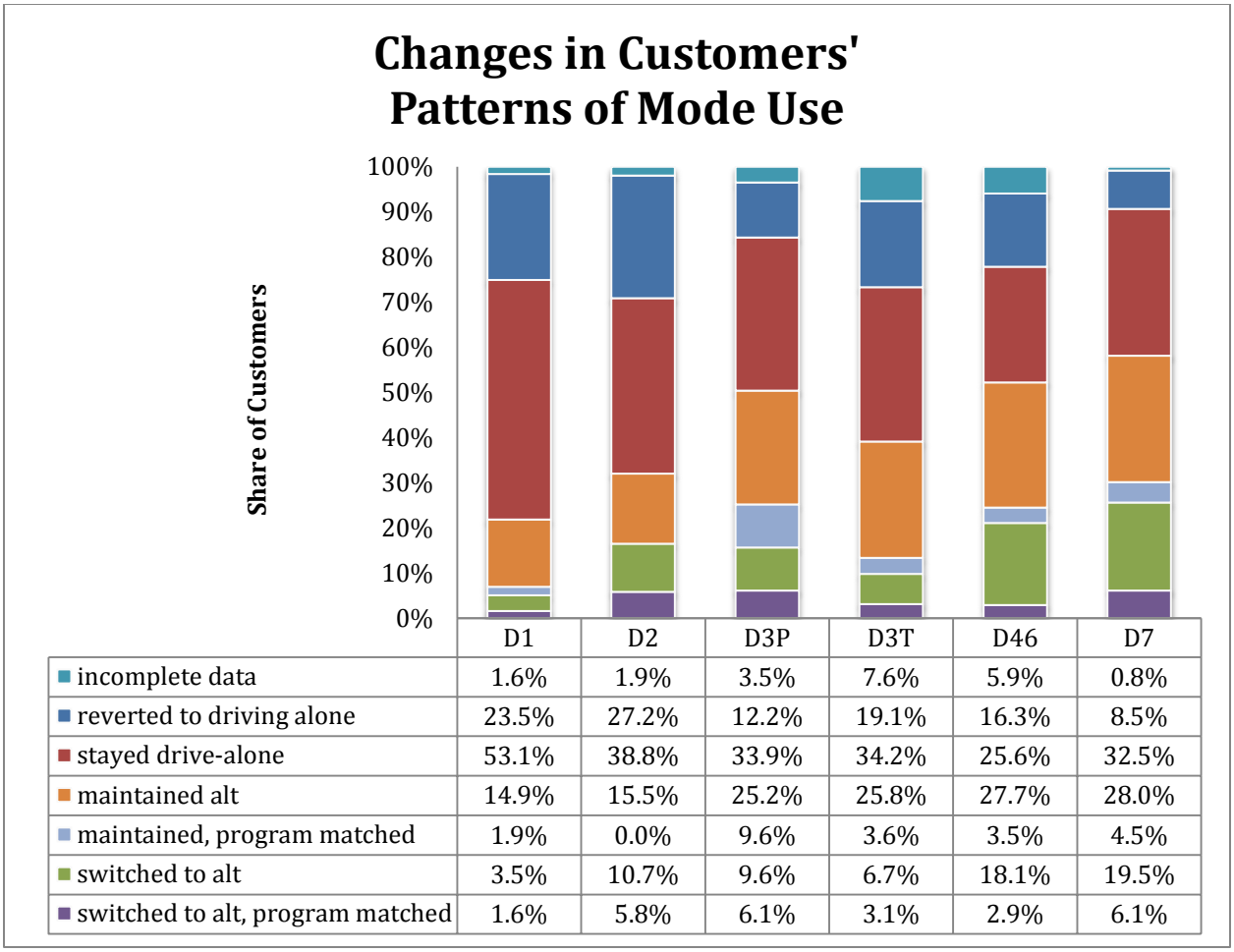
As can be seen in Table 11, for most of the ridematching programs, customers who ride public transportation have done so for shorter periods of time than those who carpool, and those who formerly used transit did so for shorter periods of time than those who formerly used any other commute alternative. This suggests that maintaining impacts from transit presently requires more effort to replace current riders than does maintaining impacts from carpools. Although the reasons for the higher turnover among transit riders served by the ridematching programs is not known, it would be worth endeavoring to understand them, especially in the District 7 program, whose transit riders outnumber users of any other commute alternative (Table 12).

Table 11 Performance Measure: Average Years Using Commute Alternatives by Customers who Reported Use Post-Contact

	Currently Using Mode				No Longer Using Mode			
Program	Carpool	Vanpool	Transit	Other	Carpool	Vanpool	Transit	Other
District 1	3.3	---	5.5	2.7	0.8	0.5	0.3	0.9
Jacksonville	2.4	---	1.0	---	0.8	---	---	---
District 3 - Pensacola	4.1	5.8	2.5	5.1	1.8	0.5	---	0.5
District 3 - Tallahassee	6.6	7.7	3.8	4.5	2.8	10.5	0.7	5.0
Districts 4 and 6	3.3	3.5	4.1	5.7	1.6	4.0	0.9	2.0
District 7	4.1	3.2	5.1	5.1	1.4	3.3	0.8	8.0

Table 12 Numbers of Customer Survey Respondents Using Commute Alternatives Post-Contact

	Currently Using Mode				No Longer Using Mode			
Program	Carpool	Vanpool	Transit	Other	Carpool	Vanpool	Transit	Other
District 1	66	---	11	8	49	2	1	1
Jacksonville	29	---	2	---	18	---	---	---
District 3 - Pensacola	37	9	7	4	18	1	---	1
District 3 - Tallahassee	52	12	23	6	38	2	5	7
Districts 4 and 6	125	20	61	18	34	1	7	1
District 7	69	49	85	30	43	4	6	6



	D1	D2	D3P	D3T	D46	D7
incomplete data	1.6%	1.9%	3.5%	7.6%	5.9%	0.8%
reverted to driving alone	23.5%	27.2%	12.2%	19.1%	16.3%	8.5%
stayed drive-alone	53.1%	38.8%	33.9%	34.2%	25.6%	32.5%
maintained alt	14.9%	15.5%	25.2%	25.8%	27.7%	28.0%
maintained, program matched	1.9%	0.0%	9.6%	3.6%	3.5%	4.5%
switched to alt	3.5%	10.7%	9.6%	6.7%	18.1%	19.5%
switched to alt, program matched	1.6%	5.8%	6.1%	3.1%	2.9%	6.1%

Figure 46 Changes in Customers' Patterns of Mode Use

Changes in Vehicle Trip Rates and Related Performance Measures

The average vehicle trip rate (number of vehicle trips per 100 customers) was proposed as a measure of the programs' effectiveness in reducing congestion by way of reducing vehicles on the road. Success in promoting the use of nonmotorized modes, such as biking or walking, eliminates some vehicle trips. Motorized modes have different vehicle occupancies, and helping customers shift out of driving alone, or upshift from lower-occupancy commute alternatives to higher-occupancy alternatives, reduces the number of vehicle trips used to meet customers' needs. Vehicle trip rates range between 57 and 90 per 100 customers in different programs, and between 56 and 90 for customers who make at least one of their commute trips during peak travel periods.

Table 13 Performance Measures: Changes in Vehicle Trip Rate, VMT, and PMT

Program	Average One-Way Vehicle Trips per 100 Customers		Average One-Way VMT per Customer		Average One-Way PMT per Customer	
	Peak Period	Total	Peak Period	Total	Peak Period	Total
District 1	83.8	84.7	19.5	19.3	23.2	22.8
Jacksonville	69.3	68.5	19.1	19.0	30.5	30.4
District 3 - Pensacola	76.3	76.7	15.8	15.5	22.9	22.3
District 3 - Tallahassee	59.4	61.5	15.2	14.9	25.8	24.8
Districts 4 and 6	56.2	57.0	14.1	14.7	25.4	25.4
District 7	89.7	90.4	15.6	15.7	17.2	17.2

Vanpool program performance

Two performance measures were proposed to measure the effectiveness of programs' support for vanpooling: the number of passenger trips made by vanpool, and the number of vans available for vanpool service. The data for these measures was expected to come from the National Transit Database (NTD). However, much vanpool service is provided by private companies rather than public transit agencies, and the private vanpool providers are not required to report to the NTD. In addition, although ridematching programs promote vanpooling and assist people in joining vanpools, vanpools can form without any involvement by the ridematching program. Even if all vanpooling were reported to the NTD, complete coverage there would not necessarily reflect activities of the ridematching services. The customer survey did collect data that can be used to estimate vanpooling, but only part of the vanpooling recorded was the direct result of program efforts, and it is not possible to estimate how much of the remaining vanpooling might indirectly have resulted from program activities. Given these cautions, Table 14 shows the results of compiling the measures from these sources. The large differences in person-trips between the survey results and NTD give some indication of the amount of vanpooling not being reported to the NTD. For example, VPSI also provides vanpool services via TBARTA in areas served by the District 7 program but only a portion of the fleet associated with Hillsborough Area Regional Transit are reported to NTD.

Table 14 Performance Measures: Vanpool Vans and Person-Trips

Program	Vanpool Person-Trips			Vanpool vehicles		
	Survey (one-way person-trips)	NTD , Table 19, Column T, unlinked trips		NTD , Table 19, Column H		Agencies reporting vanpooling to NTD
		2009	2010	2009	2010	
District 1	0	24,783	18,806	7	6	LeeTran
Jacksonville	0	NA	NA	NA	NA	None
District 3 - Pensacola	46,423	NA	NA	NA	NA	None
District 3 - Tallahassee	46,186	NA	NA	NA	NA	None
Districts 4 and 6	1,135,315	621,268	609,039	219	221	Miami Lakes VPSI
District 7	387,809	83,083	66,446	32	30	HART
Total	1,615,732	729,134	694,291	258	257	

Source: National Transit Database, Table 19, columns H and T, 2009 and 2010; and survey of program customers.

Impacts

As discussed earlier, it is not possible to reliably estimate the mode that each customer was using to commute to work before registering with the ridematching program. Of the 51 survey respondents who reported successfully joining a vanpool from a match list provided by the ridematching programs (3 to 10 percent of program customers, depending on the program), 25 reported only driving alone before contacting their program, and 3 reported only carpooling. However, one reported using a number of alternatives to driving alone, but not driving, and the remaining 22 reported a mix of driving alone and one or more alternative modes; it is unclear what mode or modes were in use at the time these respondents succeeded in joining a vanpool. Of the 66 survey respondents who reported successfully joining a carpool from a match list, 40 reported only driving alone before contacting the ridematching program, and 6 reported that they only carpooled. However, 2 reported using a number of alternatives to driving alone but not driving, and the remaining 18 reported a mix of driving alone and one or more alternatives; the mode or modes that were in use at the time these respondents succeeded in joining a carpool cannot be determined.

Because some customers may have used the ridematching service to continue carpooling or vanpooling when a previous ride-sharing arrangement ended, it is more accurate to describe impacts in terms of what is being avoided rather than what is being reduced. “Reduced” would be appropriate only when the customer switched from driving alone to a ride-sharing mode.

By carpooling or vanpooling instead of driving alone, the persons matched by the ridematching services avoid driving a total of approximately 847,000 vehicle-trips per year, approximately 28.3 million vehicle-miles per year, and the use of approximately 1.25 million gallons of motor fuel per year (Table 15). They also avoided emitting more than 11,000 metric tons of carbon dioxide, and nearly 11,400 metric tons of carbon-dioxide equivalent (including emissions of trace gases and leakage of mobile air-conditioning coolant, which are also greenhouse gases).

Table 15 Performance Measures: Trips, Miles, Fuel, and Carbon Emissions Avoided by Matched Customers

	Annual Avoided:				
Program	Vehicle Trips	VMT	Gasoline Consumption (Gallons)	Carbon dioxide (Metric Tons CO_2)	Carbon footprint (Metric Tons CO_2 Equivalent)
District 1	23,800	620,700	28,800	260	260
Jacksonville	6,000	155,600	6,900	60	60
District 3 - Pensacola	36,400	1,155,900	49,300	440	450
District 3 - Tallahassee	26,300	878,400	37,100	330	340
Districts 4 and 6	573,500	18,922,400	839,200	7,460	7,690
District 7	181,800	6,556,200	282,100	2,510	2,580
Total	**847,800**	**28,289,200**	**1,243,400**	**11,050**	**11,390**

Note: All values for individual ridematching programs are rounded; all "Total" values are rounded from unrounded data. Vehicle trips include two trips per round trip, plus the small amount of one-way ride-sharing trips reported by survey respondents. VMT calculated from average distances reported by carpool and vanpool users in customer survey. Gasoline and carbon-dioxide calculated from VMT using coefficients for fuel use and carbon-dioxide reported in [6]. Other trace gases in carbon footprint calculated using guidance from [8]. All figures include offset for additional vanpool vehicle trips to accommodate increased ridership.

Customers matched by the ridematching programs also avoided emissions of carbon monoxide (CO, volatile hydrocarbons (VOCs), oxides of nitrogen (NO_x), and particulates (PM10 and PM2.5), whose concentration in the air is regulated to protect public health (Table 16). Although Florida meets existing air-quality standards for these pollutants, standards could be made more stringent.

Table 16 Performance Measures: Annual Emissions Avoided by Matched Customers

Program	Annual Avoided Emssions (Metric Tons)				
	Volatile Organic Compounds (VOCs)	Oxides of Nitrogen (NO_x)	Carbon Monoxide (CO)	Particulate Matter (PM10)	Particulate Matter (PM2.5)
District 1	0.0646	0.3518	2.5241	0.0040	0.0037
Jacksonville	0.0136	0.0855	0.5430	0.0012	0.0011
District 3 - Pensacola	0.0959	0.5559	3.8582	0.0087	0.0076
District 3 - Tallahassee	0.0697	0.4100	2.8571	0.0066	0.0057
Districts 4 and 6	1.3073	9.4982	61.3726	0.1226	0.1037
District 7	0.4230	3.0303	19.5869	0.0414	0.0348
Total	**1.9741**	**13.9318**	**90.7419**	**0.1846**	**0.1566**

Calculated from VMT using coefficients reported in [6]. All figures include offset for additional vanpool vehicle trips to accommodate increased ridership.

Savings for Commuters

Table 17 shows estimated annual cost savings of between $9.2 and $9.8 million accruing to those customers who were matched by the programs. The estimates require making a number of assumptions, some of which are conservative (tending to underestimate the savings) and some of which are not. In the conservative direction, the estimates consider only those customers who say that they were matched by the programs into a carpool or vanpool *and* who were still ridesharing when they completed the customer survey. To the extent that the programs provided assistance that encouraged persons to rideshare without being matched by the programs, or to bicycle, walk, or use public transportation, the savings would be larger. To the extent that customers have been able to give up a car, or avoid buying one, as a result of the programs' services, the savings also would be larger. On the other hand, the estimates do assume that every customer switched from driving alone to carpooling or vanpooling. In addition, although the emission estimates do estimate fuel and emissions from additional vanpool vehicle trips, the cost estimates do not include any offsetting costs that might be borne by the customers. Thus, if a customer who is vanpooling must pay the cost of the vanpool, rather than having it reimbursed by an employer, the savings attributable to vanpooling would be smaller than those included in the Table. Similarly, if someone who drove to work using a route without tolls joins a carpool with someone who uses a toll route, and now must share in the toll cost, there is no estimate for this.

A range of gasoline prices ($3.50 to $3.90 per gallon) was used to estimate gasoline savings (Table 17). AAA's "Your Driving Costs" [1] annually reports estimates of the cost of driving, and the average cost per mile for tires and maintenance in late 2011 (reported in 2012) were used to estimate these savings. AAA also reported reductions in depreciation when vehicles are driven 5,000 miles less than their assumed 15,000 mile base; this reduction per mile for an average car was used to estimate reduced depreciation for the carpoolers and vanpoolers matched by the

ridematching programs. AAA also reports other depreciation, financing, license, tax, and insurance costs that are essentially constant regardless of how much a vehicle is driven; AAA averages them over the 15,000 miles the vehicle is driven each year to estimate a cost per mile driven. Although many ridematching and other TDM programs report these additional mileage costs as savings for miles not driven, people who ride-share realize these additional savings only if their ridesharing enables them give up owning the vehicle, or avoid purchasing one. Hence, only the fuel, tire, maintenance, and reduced depreciation costs are used to value the vehicle-miles avoided by customers of the Florida ridematching programs.

Table 17 Performance Measures: Cost Savings to Commuters Matched by Programs (Millions of 2011 Dollars)

	District 1	Jacksonville	District 3 - Pensacola	D3	Districts 4 and 6	District 7	Total
Gas ($3.50/avoided gallon)	$0.101	$0.024	$0.200	$0.155	$3.486	$1.235	$5.200
Gas ($3.90/avoided gallon)	$0.112	$0.027	$0.223	$0.173	$3.884	$1.376	$5.794
Tires ($0.01/avoided mile)	$0.006	$0.002	$0.013	$0.010	$0.214	$0.077	$0.321
Maintenance ($0.0447/avoided mile)	$0.028	$0.007	$0.057	$0.045	$0.956	$0.343	$1.436
Depreciation ($0.05/ avoided mile)	$0.044	$0.011	$0.092	$0.071	$1.528	$0.549	$2.295
Total, low gas cost	$0.179	$0.044	$0.362	$0.281	$6.183	$2.204	$9.252
Total, high gas cost	$0.190	$0.047	$0.385	$0.299	$6.581	$2.345	$9.847

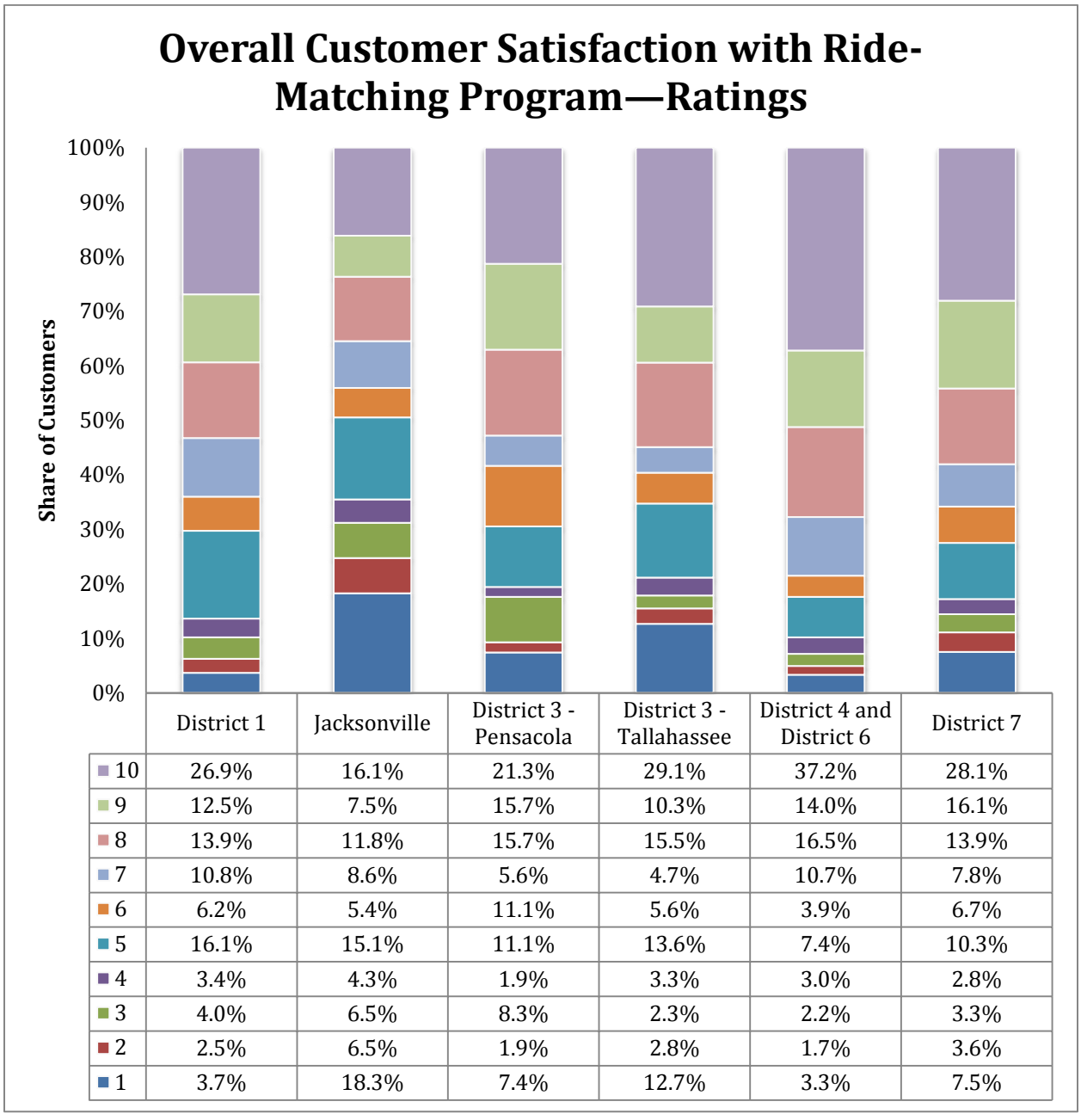
Customer Satisfaction and Willingness to Recommend

The customer survey asked customers to rate their ridematching programs on several criteria:

- The accuracy of the information they provided
- The usefulness of the information they provided
- The promptness with which they provided the information
- Their courtesy and professional attitude
- Their handling of any questions or problems you had
- The quality and usefulness of the list of potential carpoolers or vanpoolers that they sent

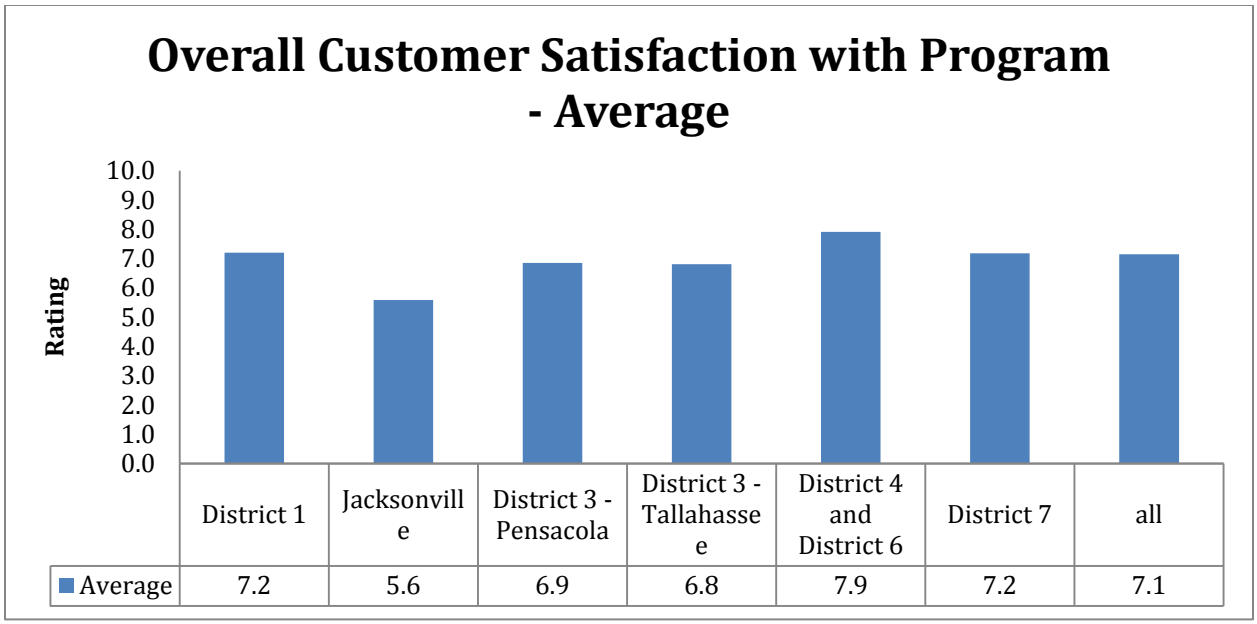
The results of these questions have been provided to the ridematching programs. In addition, the survey asked customers to indicate their overall satisfaction with the program (Figure 47), and how likely they would be to recommend the program to someone else, and whether they had actually recommended it. On the 10-point scale used, overall customer satisfaction was fairly high, ranging between 5.6 and 7.2 (Figure 48). Likelihood of recommending the program to others was also fairly

high, with 54 to 84 percent of customers saying that they definitely or probably would recommend their ridematching program to a friend or relative who asked about it (Figure 49). Of those who said they definitely or probably would recommend the program, between 35 and 70 percent said that they have already done so (Figure 50).



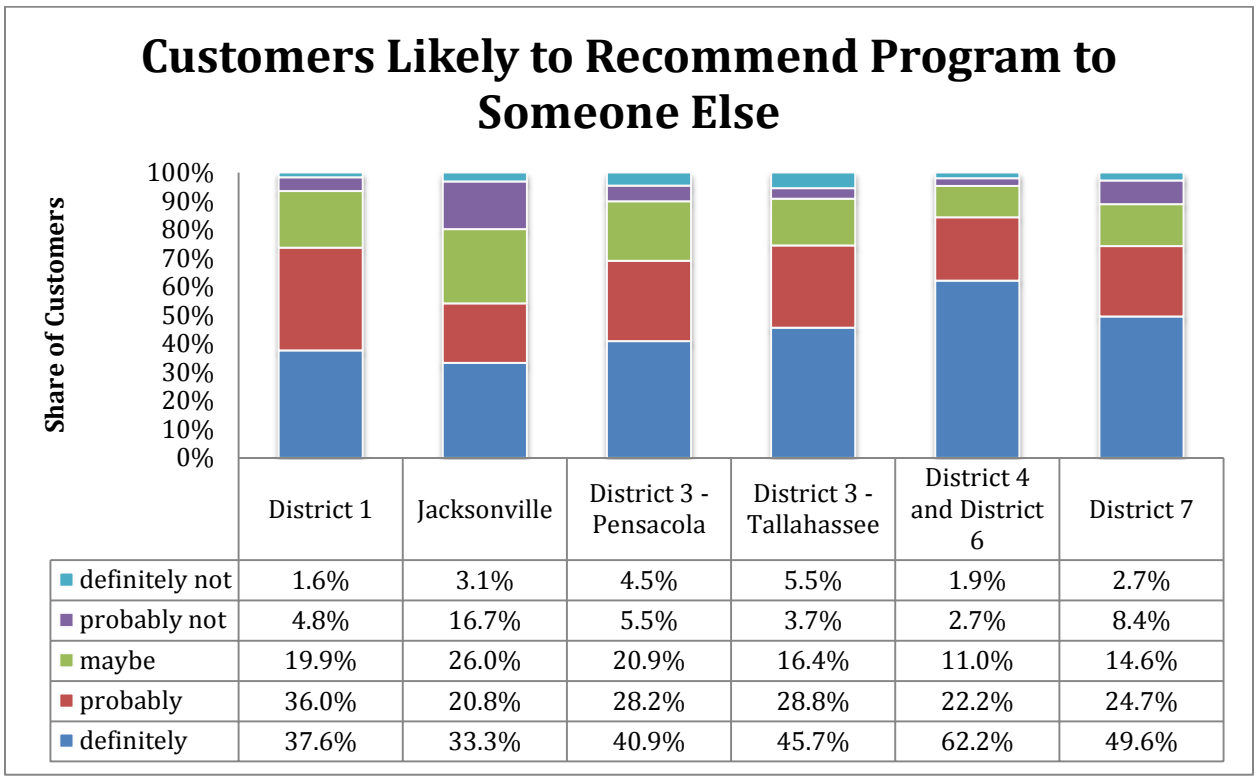
	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7
10	26.9%	16.1%	21.3%	29.1%	37.2%	28.1%
9	12.5%	7.5%	15.7%	10.3%	14.0%	16.1%
8	13.9%	11.8%	15.7%	15.5%	16.5%	13.9%
7	10.8%	8.6%	5.6%	4.7%	10.7%	7.8%
6	6.2%	5.4%	11.1%	5.6%	3.9%	6.7%
5	16.1%	15.1%	11.1%	13.6%	7.4%	10.3%
4	3.4%	4.3%	1.9%	3.3%	3.0%	2.8%
3	4.0%	6.5%	8.3%	2.3%	2.2%	3.3%
2	2.5%	6.5%	1.9%	2.8%	1.7%	3.6%
1	3.7%	18.3%	7.4%	12.7%	3.3%	7.5%

Figure 47 Customer Ratings of Ride Matching Programs



	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7	all
Average	7.2	5.6	6.9	6.8	7.9	7.2	7.1

Figure 48 Performance Measure: Average Overall Customer Satisfaction with Program



	District 1	Jacksonville	District 3 - Pensacola	District 3 - Tallahassee	District 4 and District 6	District 7
definitely not	1.6%	3.1%	4.5%	5.5%	1.9%	2.7%
probably not	4.8%	16.7%	5.5%	3.7%	2.7%	8.4%
maybe	19.9%	26.0%	20.9%	16.4%	11.0%	14.6%
probably	36.0%	20.8%	28.2%	28.8%	22.2%	24.7%
definitely	37.6%	33.3%	40.9%	45.7%	62.2%	49.6%

Figure 49 Performance Measure: Percent of Customers who would Recommend Ridematching Program

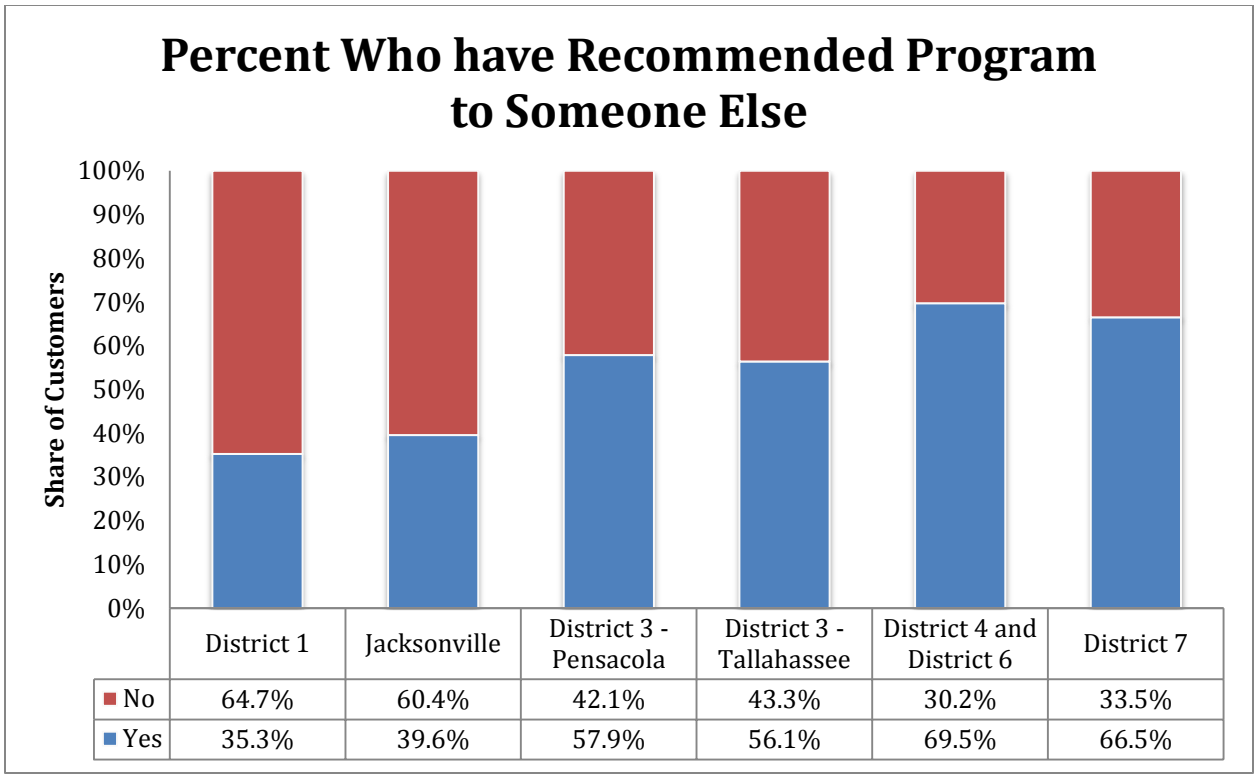


Figure 50 Performance Measure: Percent of Customers who have Recommended Ridematching Program

Conclusions and Recommendations

This project was the first statewide review of the carpool/vanpool formation activities of six Florida commuter service programs in six of the seven districts. As might be expected of a survey of this complexity, the team encountered challenges with data collection and analysis with respect to the quality of the data and the responses received.

The following recommendations are intended to improve future analyses and streamline the length of the survey and, ultimately, assist CAPs in enhancing performance.

Recommendations for Improving the CAP Evaluation Process

1. Produce brief summaries of the evaluation to each CAP and FDOT District. Discuss results, how to communicate the results to others, and obtain feedback for future evaluations.
2. Based on discussions of results with staff of the ridematching programs, future customer surveys, and their eligibility criteria, should be structured to focus on other services, rather than just carpool and vanpool matching. Such services may include provision of ERH to all registrants who use any commute mode other than driving; the Districts 4 and 6 program's provision of information and registration services for use of the 95 Express lanes; and the provision of information and other assistance to promote use of transit and other alternatives to driving, carpooling, or vanpooling.
3. Continue to mine the data to provide more insight into the users of the services and those who change behavior.
4. Fully allocating the benefits to one-year period is understating the benefits. Continue to track the duration of the placements in alternative modes to facilitate life-cycle analysis. This could have a significant effect on the overall assessment of CAPs. This may include a panel survey to track those who have changed behavior.
5. Investigate opportunities for tracking changes in overall travel behavior, not just commuting. For example, an individual who begins riding transit to work may also begin using transit for non-work trips.
6. Continue to assess mixed mode approaches to data collection. The ability to contact people to participate via the web lowered the costs, but resulted in some differences in how aided and unaided awareness questions had to be asked.
7. Expand the benefits to include more societal benefits (e.g., safety) by adapting the TRIMMS™ methodology to off-model calculations of VMT and vehicle trip reductions. CAPs did not have sufficient inventories of employer programs to allow the data to be estimated via TRIMMS™ directly.
8. Consult with the CAPs and districts to devise a means for fully allocating costs to major elements to facilitate better understanding of return on investment in CAP programs and services.

Recommendations to CAPs

1. CAPs should collect email addresses for customers. In addition to the opportunity for more communication with customers, email will facilitate more use of web-based surveys and help offset the challenges of reaching customers via cellphone-only households.
2. If they are not already doing so, CAPs should examine how to use social media such as Facebook and Twitter to foster more two-way communication with customers to build rapport and handle customer problems/questions.
3. CAPs should begin asking new customers about their current mode use and frequency of mode use by day of week. This "mode use at time of registration" data should be collected at the time they register and date stamped. This is in contrast to asking them later about what they were doing when they registered. This baseline mode information should not be modified in the dataset. Separate "current mode" fields should be included in the CAP database. This information would greatly simplify the survey instrument and burden on the respondent.
4. CAPs also should ask customers at the time of registration whether they use multiple commute modes on a given day, not just how many days they used each mode.The six CAPs whose customers were surveyed for this evaluation do so in ways that would not record whether a person drove some days and took transit on others, or whether a person used more than one mode on any of those days (e.g., using a park-and-ride lot).
5. CAPs should capture work schedule at the time the customer contacts the CAP, and not leave open the possibility of reporting an alternative schedule that had changed by the time of contact. The most accurate way to collect this "pre-contact" data about whether customers used an alternative work schedule would be to request it as part of the process of registering a new customer with the program, and then retain it for later use.
6. CAPs may be missing an opportunity to make significant, long lasting reductions by not facilitating the adoption of compressed workweek and telework programs at worksites. These options reduce the total number of trips, decrease commute miles driven per week, and potentially shift some demand to off-peak periods.
7. CAPs should create a database/spreadsheet for tracking employer-provided commute benefits at the employer level. This could facilitate the estimate of societal benefits of those programs at the employer level via TRIMMS™.

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