



**NATIONAL CAPITAL REGION  
TRANSPORTATION PLANNING BOARD  
COMMUTER CONNECTIONS PROGRAM**

**FISCAL YEAR 2015  
APPLICANT DATABASE  
ANNUAL PLACEMENT DRAFT SURVEY REPORT  
APPLICATIONS RECEIVED DURING JULY-SEPTEMBER 2014  
(NOVEMBER 2014 SURVEY)**

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## EXECUTIVE SUMMARY

This report presents results of a survey about commuter transportation assistance services offered by the Commuter Connections program of the National Capital Region Transportation Planning Board (TPB) at the Metropolitan Washington Council of Governments (COG) to commuters in the Washington, DC region.

Commuter Connections' services include: carpool and vanpool matchlists, transit route and schedule information, information on Park & Ride lot locations, bicycling and HOV facilities, and employer transportation demand management (TDM) and telework assistance. Commuters obtain services by submitting information and service requests via the Commuter Connection's website or toll-free telephone number, or through an employer, a local partner assistance program, or a transportation management association (TMA). Additionally, some services are available for immediate download from Commuter Connections' website.

This report estimates transportation and air quality impacts of Commuter Connections' services. Data for this analysis were collected in November 2014 through a survey of 716 applicants randomly selected from the applicant database. The surveys collected data for applicants who received information or assistance between July 1 and September 30, 2014.

### Commuter Connections Program Activity Summary and Overall Participation, Utilization, and Satisfaction Performance Measures Placement Survey, July-September 2014

• Commuter applicants	6,331	
• Applicant placement rates	48.6%	
- Continued placement rate		34.9%
- Occasional placement rate		3.3%
- Temporary placement rate		5.2%
- One-time placement rate		5.2%
• Applicants placed in alternative modes	3,078	
- Continued placements	2,211	
- Occasional placements	209	
- Temporary placements	323	
- One-time placements	329	
• Applicants who received matchlist		21%
• Applicants who received vanpool assistance		5%
• Applicants who received Park & Ride info		11%
• Applicants who received transit information		24%
• Applicants who received GRH information/registration		71%

**Commuter Connections Program  
Program Impact Performance Measures  
Placement Survey, July-September 2014**

• Daily vehicle trips (VT) reduced	<b>961</b>	<b>trips</b>
- Continued placements	949	trips
- Temporary placements (prorated credit)	12	trips
• Daily VMT reduced	<b>27,738</b>	<b>VMT</b>
- Continued placements	27,426	VMT
- Temporary placements (prorated credit)	312	VMT
• Daily tons of Emissions reduced		
- NOx	<b>0.0118</b>	<b>tons</b>
- VOC	<b>0.0046</b>	<b>tons</b>
• Annual tons of Emissions reduced		
- PM 2.5	<b>0.128</b>	<b>tons</b>
- PM 2.5 NOx precursors	<b>2.922</b>	<b>tons</b>
- CO2 / Greenhouse gas	<b>2,929</b>	<b>tons</b>
• Gallons of gasoline saved	<b>1,089</b>	<b>daily gallons of gas</b>
• Commuter costs reduced		
- Annual cost saving per placement	<b>\$489</b>	<b>per year</b>

\* See Appendix C for calculations

## OTHER KEY SURVEY RESULTS

### Demographics

- Slightly over half of the applicants were female (52%). Nearly seven in ten (68%) applicants were white and 84% were between 35 and 64 years old.

### Commute Travel Patterns

- Six in ten (59%) applicants said they used transit at least one day per week. Transit trips accounted for nearly half (48.4%) of applicants' weekly commute trips; 21.0% were made by bus and 18.2% were made by commuter rail. Applicants made 9.2% of weekly trips by Metrorail.
- Slightly more than one-third (35%) of applicants carpooled or vanpooled at least one day per week. Carpool and vanpool trips made up 29.4% of applicants' weekly commute trips.
- Seventeen percent of applicants drove alone one or more days per week, but this was a secondary mode for half of these applicants; drive alone was used for just 9.6% of weekly commute trips.
- The average one-way commute distance was 36.2 miles. The average one-way commute time was 66 minutes.

### **Commute Changes**

- Nearly half (48.6%) of survey respondents made a commute pattern change or tried another method of transportation after receiving assistance from Commuter Connections.
- More than a third (34.9%) of applicants made a change to an alternative mode that they had continued to use at least one day per week. This 34.9% was the “continued placement rate.” The temporary placement rate (percent of applicants who made a change but returned to their original modes) was 5.2%.
- About 5.2% of applicants tried using a new alternative mode a few days (one-time placement rate) and 3.3% made a change to a mode they use occasionally, but less than once per week on average (occasional placement rate).
- One-third (33%) of applicants who made a mode change shifted from driving alone. The remaining 67% shifted from one alternative mode to another.
- The primary reasons that applicants made commute changes were because they changed jobs or work hours (18%), to save money (16%) or save time (7%), moved to a new residence (4%), or were tired of driving (4%).
- About two in ten (21%) applicants who made a commute change indicated that information they received from Commuter Connections influenced or assisted their decision to make the change. About eight percent of respondents cited a carpool or vanpool matching or assistance service and 2% named a transit information service. Four percent named Guaranteed Ride Home and 8% named another type of service. Three in ten (30%) said a service provided by their employer or another commute assistance organizations had influenced their decision.

### **Contact with Commuter Connections**

- Applicants noted four primary sources of making contact with Commuter Connections: word of mouth referrals (27%), employer / employee survey (19%), internet (17%), and radio (11%).
- Almost half (45%) of applicants contacted Commuter Connections to find back-up transportation in case of emergency and 7% wanted to check commute options or a transit schedule or were just curious about the service. Eight percent made the contact to find a carpool or vanpool partner or to get information about these modes.

### **Information and Assistance Requested and Received**

- The top service received overall, by a large majority, was Guaranteed Ride Home; seven in ten (71%) applicants said they received or accessed this service, which is open to any commuter who uses an alternative mode to commute.
- Almost four in ten applicants said they received or accessed a service to help with carpooling or vanpooling; 21% received a matchlist with names of potential carpool/vanpool partners, 10% used the Commuter Connections web site bulletin board, and 8% received a map showing home and work locations of potential carpool/vanpool partners. One in ten applicants (11%) accessed Park & Ride lot information and 12% received general information about carpooling or vanpooling.
- Over half (56%) of applicants who received a matchlist or map with potential rideshare partners tried to contact someone named on the list and 87% who tried to make contact reached someone on the list.

- Nearly one-quarter (24%) of applicants recalled receiving transit route, schedule, or fare information. Thirty-six percent of these applicants said they used the information provided to contact a transit agency and 87% who contacted a transit agency said they used information they received from the transit agency to try transit.
- More than eight in ten (83%) applicants said their employers offer some commute services at the worksite. Half (49%) said their employers offered transit pass discounts and 35% said telework or compressed work schedules were offered. Other common services included carpool/vanpool information (16%), other cash incentive (15%), and preferential parking for carpools/vanpools (15%).

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## SECTION 1 OVERVIEW

### PURPOSE OF THE REPORT

This report presents results of a commuter placement survey of a randomly-selected sample of 716 commuters who applied to the regional rideshare database, administered by the Commuter Connections Program of the National Capital Region Transportation Planning Board (TPB) at the Metropolitan Washington Council of Governments (COG), between July 1 and September 30, 2014.

The primary purpose of conducting this survey was to collect data to document transportation, air quality, energy, and cost impacts of commuter transportation assistance services offered by Commuter Connections to commuters and employers in the Washington, DC metropolitan region. The Commuter Operations Center (COC) provides basic commute information and assistance, such as regional ridematching and transit, bicycling, teleworking, and Park & Ride lot information.

The survey described in this report represents an annual survey. Similar annual surveys were conducted in 2011, 2008, 2005, 2004, 2003, and 2002. Results for these surveys were reported in Fiscal Year 2009, 2006, 2005, 2004, and 2003 Placement Survey Reports, respectively, dated (May 2012, May 2009, May 2006, May 2005, May 2004, and May 2003). Prior to the November 2002 survey, COG conducted a series of eight semi-annual placement surveys between 1997 and 2002. These surveys were documented in two reports. The first report, TDM Analysis Report – Compilation of Four Quarterly Placement Surveys 1997-1998 (January 10, 2000), covered four surveys conducted during 1997 and 1998. The second report, TDM Analysis Report – Compilation of Four Quarterly Placement Surveys 2000-2002 (October 10, 2002), covered surveys conducted during 2000 and 2001.

The results of each of the two four-quarter series were combined to represent two full calendar years. Additionally, the results for individual quarters of the year were examined to identify the quarter most representative of a full calendar year. The third quarter, July through September, was chosen for this purpose for future annual surveys and was used for the 2002, 2003, 2004, 2005, 2008, and 2011 surveys. The survey documented in this report covers applications received between July 1, 2014 and September 30, 2014. These results will represent the performance for all applications received during FY 2015 (July 1, 2014 through June 30, 2015).

### ORGANIZATION OF THE REPORT

The report is divided into three sections following this overview section:

- Section 2 Data Collection Methodology
- Section 3 Commuter Placement survey results
- Section 4 Program performance results

Three appendices follow these sections. Appendix A presents the questionnaire used in the 2014 survey. Appendix B provides comparisons of 2014 survey results with those of previous surveys for key survey questions. Appendix C details the calculations of transportation, air quality, energy, and cost-saving impacts.

## SECTION 2 DATA COLLECTION METHODOLOGY

This section briefly describes the survey methodology used for this analysis.

### SURVEY OVERVIEW

#### Questionnaire

The questionnaire used for the 2014 survey is shown in Appendix A. It was based on the questionnaire used for the 2011 applicant survey, with minor updates to enhance the clarity and flow of questions, addition of two questions, and deletion of two questions. Two forms of the questionnaire were developed for two survey administration methods, based on the type of contact information provided by the applicant in the online system.

One version was programmed by MediaBeef, Inc., Commuter Connections' online TDM software system vendor, for Internet administration for applicants who provided an email address or postal mail address only. The second version was programmed by CIC Research, Inc. (CIC), an independent survey research firm, for telephone administration to applicants who provided only telephone numbers as contact information. These two versions differed only in the phrasing and format of the questions, with Internet questions designed for self-guided visual presentation and telephone questions designed for oral presentation of questions by the interviewer.

CIC subsequently created a third version of the survey for follow-up telephone interviews with a sample of applicants who did not respond to the Internet survey. This version was based on the original telephone questionnaire, with additional questions to inquire why the respondent did not answer the Internet survey. Additionally, several open-ended questions were removed to shorten the length of the interview.

#### Sample Selection and Alert Letters

The survey described in this report was conducted with applicants who received assistance from Commuter Connections between July 1 and September 30, 2014. Potential respondents were identified from the Commuter Connections' database. After duplicate records and records that did not include at least one form of contact information were deleted, 6,331 sample points were available for selection.

For sampling purposes, applicants were divided into four sub-groups, based upon the type of contact information they provided in the database record:

Contact Information	Applicants	Targeted Interviews	Completed Interviews
Email Only	499	45	6
Email & Telephone	5,329	610	652
Telephone Only	404	45	58
Postal Address Only	99	0	0
<b>Total</b>	<b>6,331</b>	<b>700</b>	<b>716</b>

The survey consultants developed alert letters to inform potential respondents of the upcoming survey and request their participation. These letters were based upon the letter distributed to potential respondents during the 2011 study, with tailoring to update the letter to 2014 and reference the appropriate 2014 survey administration method: either Internet or telephone.

Three letters were developed for the four sub-groups described above:

- 1) Email alert letter – sent by email to the Email Only and Email & Telephone groups asking the recipient to take the interview via Internet using their Commuter Connections' accounts
- 2) Postal mail alert letter/telephone only – sent by postal mail to the Telephone Only group alerting the recipient of a possible upcoming telephone interview
- 3) Postal mail/address only – letter sent by postal mail to the Postal Address Only group asking the recipient to complete the interview via Internet through their Commuter Connections' accounts

All 6,331 commuters identified for the survey period were sent an invitation to participate in the survey. For the Telephone Only and Postal Address Only groups, COG/TPB staff sent invitation letters printed on Commuter Connections letterhead to commuters during the first week of November 2014. For Email Only and Email & Telephone groups, COG sent the letter via email to potential respondents a few days after the postal letters were mailed. Members from both the Email Only and Email & Telephone groups were sent two reminder emails after distribution of the initial email letters.

## **Interviews**

***Telephone Interviews – Telephone Only Sample*** – CIC prepared the survey instrument for the Telephone Only sample group. To ensure proper administration of the applicant survey on CIC's CATI system, a pretest was conducted from October 21 - 24, 2014. Output from the pretest also provided information and documentation for the survey team conducting the Internet survey. Following a successful pretest of 24 interviews, interviewing for the Telephone Only group resumed on November 12, 2014 and was completed on November 19, 2014. A total of 58 interviews were completed from this group.

Telephone interview calls to selected commuters were first directed to the respondent's work number. If contact was unsuccessful, the respondent was called at home. A total of 58 interviews were completed with 404 potential respondents. The average length of interview was 19.5 minutes. An average of 28.6 call attempts was made for each completed interview. This was higher than the numbers of dialing attempts made during the 2011 interviewing period (18.7 call attempts) and during the 2008 interviewing period (10.4 call attempts). The increased number of call attempts appears related to an increasing difficulty in reaching respondents via telephone.

***Internet Interviews*** – The Internet survey was hosted through the Commuter Connections' online system, with support from Mediabeef, from November 10 through December 1, 2014. Both Email Only and Email & Telephone groups (5,828) were invited to take the interview via Internet using their Commuter Connections' account.

At the end of the survey period, Mediabeef compiled the total of 725 completed interviews and sent the data to CIC for validity checks and merging with the telephone survey data. Of the 725 completed interviews, 144 were incomplete or could not be retained because respondents did not recall receiving or requesting information from Commuter Connections. This left a total of 581 completed interviews from the Internet, comprised of 6 from the Email Only group and 575 from the Email & Telephone group. The response rate for the Internet method of contact was 10.0% (581 / 5,828). Data received from the Internet method of contact were formatted and merged with the interviews completed by telephone.

***Telephone Interviews – Follow-up to Internet Non-respondents*** – Due to the low response rate by email invitation to potential respondents, Internet respondents who had provided a telephone number were contacted for a follow-up survey to be conducted by telephone interview. A total of 77 interviews were completed from this group of 657 applicants.

The non-response survey was fielded from December 2 - 7, 2014. If both work and home numbers were available from the applicant record, interviews were first directed to a work telephone number. If the interview could not be

completed at the work number, the respondent was called at home. The average length of interview was 17.2 minutes and an average of 16.9 dialing attempts was made for each completed interview.

Reasons for Non-Response – The follow-up telephone survey questionnaire included several questions at the end of the interview to determine why respondents did not reply to the Internet survey invitation. Table 1 summarizes the results for the three key questions: 1) recall getting an email from Commuter Connections, 2) open the email, and 3) try to take the survey.

**Table 1**  
**Awareness of Email Survey Invitation Letter and Actions Taken**

<b>Awareness / Action</b>	<b>Percentage of Respondents</b>
<b>Recalled getting email from Commuter Connections</b>	n = 77
Yes	62%
No	20%
Don't know	18%
<b>Opened the email from Commuter Connections</b>	n = 48
Yes	65%
No	31%
Don't know	4%
<b>Tried to take / complete the survey</b>	n = 31
Yes	32%
No	65%
Don't know	3%

The answers to the follow-up questions revealed that 62% of respondents remembered seeing the invitation. Of the 48 respondents who remembered seeing the invitation, 65% confirmed that they had opened the email invitation. And of the 31 respondents who opened the email, about one-third (32%) said they tried to take the survey, but did not complete it. These 10 respondents represented 13% of the total follow-up survey sample of 77 respondents.

Respondents who did not open the email invitation, did not try to take the survey, or did not complete the survey were asked why they had not taken this next action. The primary reasons that the 45 respondents mentioned included:

- Too busy (20 respondents)
- Couldn't log-in or get the link or password to work or problem with survey (13)
- Thought they had already taken the survey (5)
- Don't like surveys or don't have to do surveys (5)
- Don't need Commuter Connections services or have already used services (3)
- Waiting for the telephone survey (1)

## WEIGHTING OF SURVEY DATA

Respondent survey data were weighted to align survey results with the total group of applicants defined during the analysis period. The criterion used to weight the survey data was “type of contact available” which denoted applicants as either:

- 1) Applicant who had provided only email or both email and telephone number
- 2) Applicant who had provided only a telephone number

Because none of the 99 applicants who included only a postal address in the Commuter Connections’ database record completed an interview via the Internet and they could not be contacted by telephone, this sample group was eliminated from the weighting scheme.

Additionally, 99 applicants were removed from the email group because their email bounced back as not delivered in the Commuter Connections’ computer system. This left a final total of 6,133 commuter applicants who were included in the calculation of weights for the survey data.

The following table shows the relationship between the completed interviews and the total applicant group with respect to the weighting variable, “method used to complete the interview.”

<b>Type of Contact by Group</b>	<b>Completed Interviews</b>	<b>Total Applicant Group</b>
Applicants with either email or telephone	91.9%	93.4%
Applicants with only telephone	8.1%	6.6%

## STATISTICAL DISTRIBUTION COMPARISON BETWEEN COMPLETED INTERVIEWS AND TOTAL APPLICANT POPULATION

A total of 716 interviews were completed from the total of 6,133 commuter applicants. This represented an overall response rate of 11.7%. The low response rate increases the potential for non-response bias, meaning that it is possible that those responding to the survey could be different from the total applicant population.

The level of confidence for the study was calculated using the finite population correction factor. Completion of 716 interviews from a population of 6,133 resulted in a level of confidence of 95%  $\pm$  3.4 for the 2014 COG Placement Rate Survey.

## SECTION 3 COMMUTER PLACEMENT SURVEY RESULTS

This section presents the results of the November 2014 placement survey. This survey was conducted to define travel patterns of commuters who applied to the Commuter Connections program to obtain information and assistance with alternative modes and to collect data needed to estimate transportation and air quality benefits of travel changes made by these commuters.

A primary goal of the Commuter Connections program is to reduce commute vehicle trips, commute vehicle miles traveled, and emissions from commute travel by:

- Encouraging and assisting drive alone commuters to shift to commute alternative arrangements
- Assisting current commute alternative users to maintain their use of alternative modes or increase the number of days per week they use alternative modes

With these goals in mind, the commuter placement survey collected data in the following primary topic areas, related to commuters' travel patterns and influences on these patterns:

- Current commute patterns (commute mode, distance, time)
- Alternative mode characteristics (carpool and vanpool occupancy, rideshare/transit meeting points, distance to meeting point)
- Recent commute pattern changes (mode/frequency, occupancy)
- Information and assistance services received
- Influences of services on change (Commuter Connections services, employer/other services)
- Demographics (age, income, ethnic group, sex, employer type and size)

Following are summaries of key results from each section of the survey. Percentages presented in the results tables show percentages weighted to the total applicant population for the survey quarter, but each table shows the raw number of respondents (e.g., n=\_\_ ) who answered the question. Where possible, results from the survey are compared for sub-groups of survey respondents and/or compared with corresponding available data for the general public. Finally, comparisons are made for some questions with results from surveys conducted in 2002, 2003, 2004, 2005, 2008, and 2011. Appendix B presents more complete results for these comparisons.

The commute pattern data from the survey were used in Section 4 to calculate estimated transportation, air quality, energy, and consumer impacts of Commuter Connections services.

### CHARACTERISTICS AND DEMOGRAPHICS OF THE SAMPLE

#### Work and Home Locations

Table 2 shows the percentage of applicants by home and work states. The majority of applicants lived in Virginia (60%) or Maryland (36%). Top home locations included: Prince William County, VA (16%), Fairfax County, VA (11%), Stafford County, VA (11%), Montgomery County, MD (10%), Spotsylvania County, VA (7%), and Loudoun County, VA (6%). Other jurisdictions each accounted for 4% or less of applicants.

Work locations were distributed much differently. More than half (54%) of applicants worked in the District of Columbia. About one-quarter (27%) worked in a Virginia jurisdiction within the COG region and 15% worked in one of the three Maryland jurisdictions in the COG region. Top work locations outside the District of Columbia included: Arlington County, VA (11%), Montgomery County, MD (11%), and Fairfax County, VA (9%). About five percent of respondents worked outside the COG region.

**Table 2**  
**Distribution by Home and Work Locations**

<b>State/County</b>	<b>Home Location (n = 714)</b>	<b>Work Location* (n = 687)</b>
District of Columbia	2%	54%
Maryland – Counties within COG region	36%	15%
Virginia – Counties within COG region	60%	27%
Other**	2%	5%

\* Work location percentages for Maryland and Virginia include only jurisdictions located in the COG region (District of Columbia; Maryland – Calvert, Charles, Frederick, Montgomery, and Prince George’s counties; and Virginia – City of Alexandria and Arlington, Fairfax, Loudoun, and Prince William counties). Maryland and Virginia locations outside this area are counted as “other.”

\*\* Each response in the “Other” category was mentioned by less than two percent of respondents.

### **Demographics**

The survey asked demographic classification questions for sex, ethnic group, and age. Slightly more than half (52%) of the applicants were female and 48% were male. The remaining demographic categories are summarized in Table 3 and Figure 1.

**Ethnic Background** –As illustrated in Table 3, Caucasians and African-Americans represented the two largest ethnic group categories of survey applicants, 68% and 18%, respectively. Asians/Pacific Islanders represented five percent of the sample and Hispanics accounted for about six percent of respondents.

**Table 3**  
**Distribution by Ethnic Background**

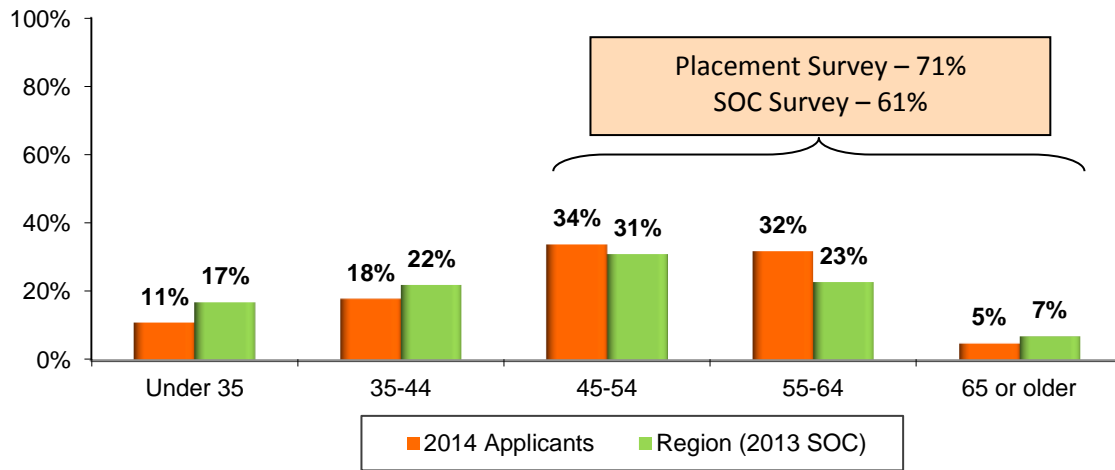
(n = 768)

<b>Ethnic Group</b>	<b>Percentage</b>
White	68%
African-American	18%
Asian/Pacific Islander	5%
Hispanic	6%
Other	3%

**Age** – Placement survey respondents were slightly older than the average worker in the Washington region. As shown in Figure 1, seven in ten (71%) applicants were older than 44, compared with 61% of all Washington area commuters, as estimated in the 2013 State of the Commute Survey.

**Figure 1**  
**Distribution by Age**

(2014 Placement Survey n = 630, 2013 SOC Survey n = 6,165)



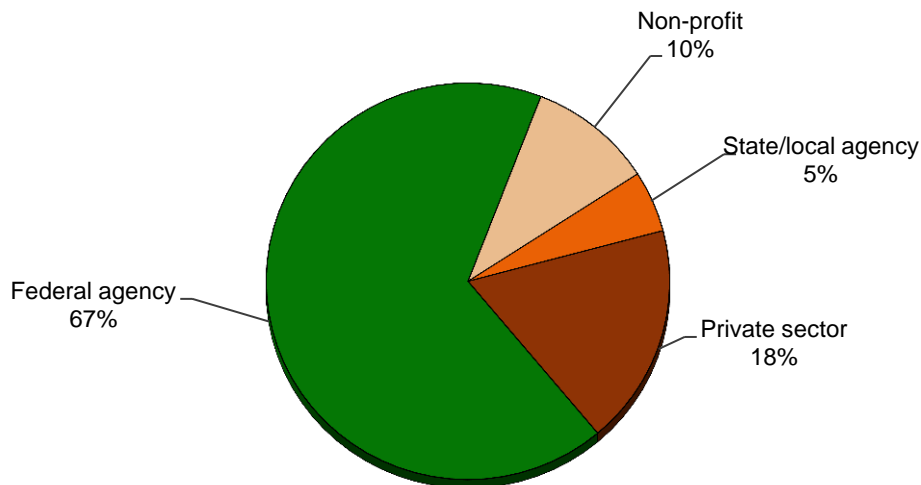
**Employment Characteristics**

Respondents were asked about type of employer for which they worked and the number of employees at their worksite. These results are shown in Figure 2 and Table 4, respectively.

**Employer Type** – Two-thirds of the applicants (67%) said they worked for a federal agency (Figure 2). Two in ten (18%) worked for a private sector employer. State and local government agencies employed 5% and 10% worked for a non-profit organization. The distribution of employer type in the 2014 survey was similar to that from the 2011 survey, in which 67% of applicants worked for Federal agencies, 20% worked for private sector firms, and 10% worked for non-profits.

**Figure 2**  
**Distribution by Employer Type**

(n = 624)





**Employer Size** – As shown in Table 4, the majority of applicants (80%) worked for employers with more than 100 employees. More than four in ten (45%) worked for employers with at least 1,000 employees. About two in ten (20%) said they work for organizations with 100 or fewer employees.

**Table 4**  
**Distribution by Employer Size**

(n = 635)

Number of Employees	Percentage	Number of Employees	Percentage
1-25	9%	101-250	11%
26-50	6%	251-999	24%
51-100	5%	1,000+	45%

**Occupations** – Respondents represented many occupations (Table 5). The most common occupations were business/financial operations (25%), computer/engineering/science (23%), management (17%), and office administration (12%).

**Table 5**  
**Distribution by Occupation**

(n = 595)

Occupation	Percentage
Business, financial operations	25%
Computer, engineering, science	23%
Management occupations	17%
Office administrative support	12%
Healthcare practitioners/technical	5%
Protective services	3%
Military	3%
Service	3%
Education, training, library	2%
Legal, community services	2%
Other*	5%

\* Each response in Other category was mentioned by fewer than 2% of respondents.

## CURRENT COMMUTE PATTERNS

One section of the survey examined current commute patterns of applicants: commute mode, distance, travel time, and use of telecommute and alternative work schedules.

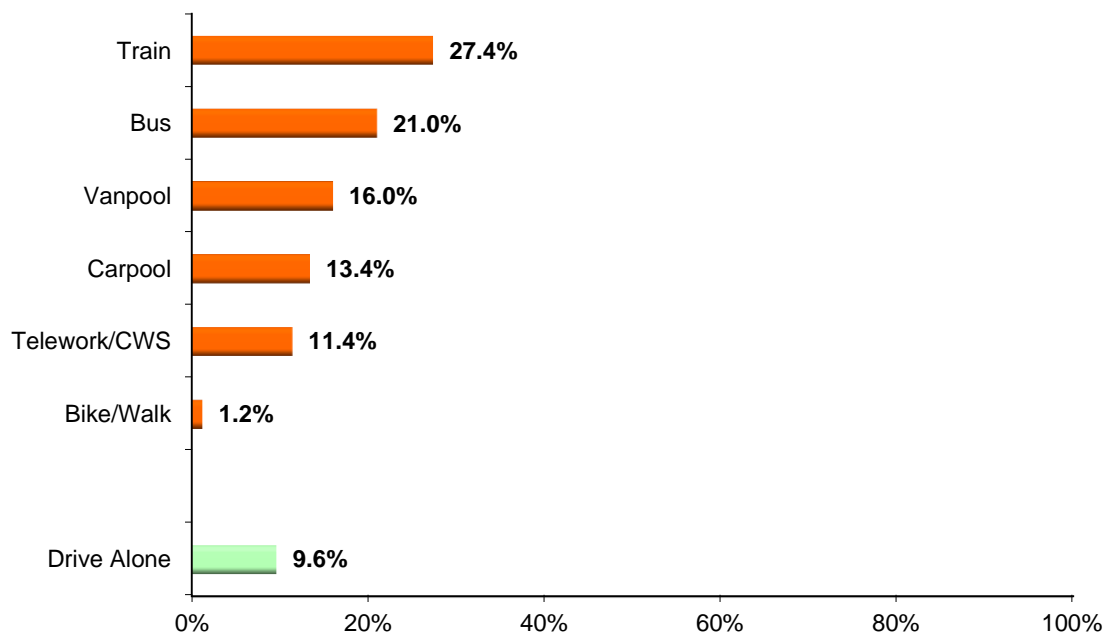
### Current Commute Mode

Applicants were asked how many days in a typical week they used each of a variety of transportation modes. Figures 3 and 4 present several different views of modal distribution.

**Percentage of Weekly Trips** – Figure 3 presents mode shares as a percentage of weekly commute trips. The figure includes six traditional “on the road” mode groups for travel to job locations outside the home: train (subway/commuter rail), bus, vanpool, carpool, bike/walk, and drive alone.

The figure also includes the mode share for telework and compressed work schedule (CWS). These are not actually travel modes, but this figure includes them to show the percentage of weekly work trips that were eliminated through use of these work schedule options.

**Figure 3**  
**Weekly Commute Trips by Modes**  
(n = 690)



Transit accounted for nearly half of weekly trips; 27.4% of trips were made by train and 21.0% by bus. Vanpool and carpool accounted for 16.0% and 13.4% of trips, respectively. Applicants made a very small share of trips by bicycling or walking (1.2%) and made only 9.6% of weekly commute trips by driving alone.

Applicants eliminated 11.4% of weekly commute trips through telework days and compressed work schedule days offs. As noted earlier, these “trips” actually were not made, but they were officially assigned as part of the work week, so were included in this distribution.

If the telework and compressed schedule days off are excluded, to estimate the “on the road” mode share, the percentage use of each of the six travel modes increases. Without telework and CWS, the transit share would rise to 54.7% of weekly commute trips. The weekly commute trip distribution would be:

- Train 31.0%
- Bus 23.7%
- Vanpool 18.0%
- Carpool 15.1%
- Bike/walk 1.4%
- Drive alone 10.8%

Distribution of Modes within Carpool/Vanpool and Transit Mode Groups – Table 6 presents use of individual modes within the carpool/vanpool and transit mode groups. Vanpooling accounted for slightly more than half of the carpool / vanpool group. Among carpools, about two-thirds used a traditional carpool with the same partner(s) all the time. Casual carpools or “slug,” carpools, which pick up riders at established meeting points but with different partners each day, made up about one in three carpool/vanpool riders.

Bus use comprised slightly more than four in ten transit trips (total transit 48.6%; bus – 21%; train – 27.5%). More than one-third of all transit riders rode a commuter train (MARC, VRE, or Amtrak). Only about two in ten transit riders rode Metrorail.

**Table 6**  
**Weekly Commute Trips by Modes – Distribution of Carpool/Vanpool and Transit Mode Categories**

Commute Mode	Percentage (n = 690)
<b>Carpool / Vanpool</b>	<b>29.4%</b>
- Vanpool	16.0%
- Regular carpool	8.6%
- Casual carpool (slug)	4.8%
<b>Transit</b>	<b>48.6%</b>
- Ride a bus/shuttle	21.0%
- Commuter rail	18.3%
- Metrorail	9.2%

Applicant Mode Split Compared to All Regional Travel – Table 7 compares applicants’ commute modes with those of the general commuting population in the Washington metropolitan region, as determined from the 2013 State of the Commute survey. The percentage of weekly trips made by driving alone was dramatically lower for applicant survey respondents (9.6%) than for all regional commuter (65.8%). Applicants’ use of transit and carpool/vanpool was much higher than use in the general population. But applicants used bike/walk less than did the general commuting population.

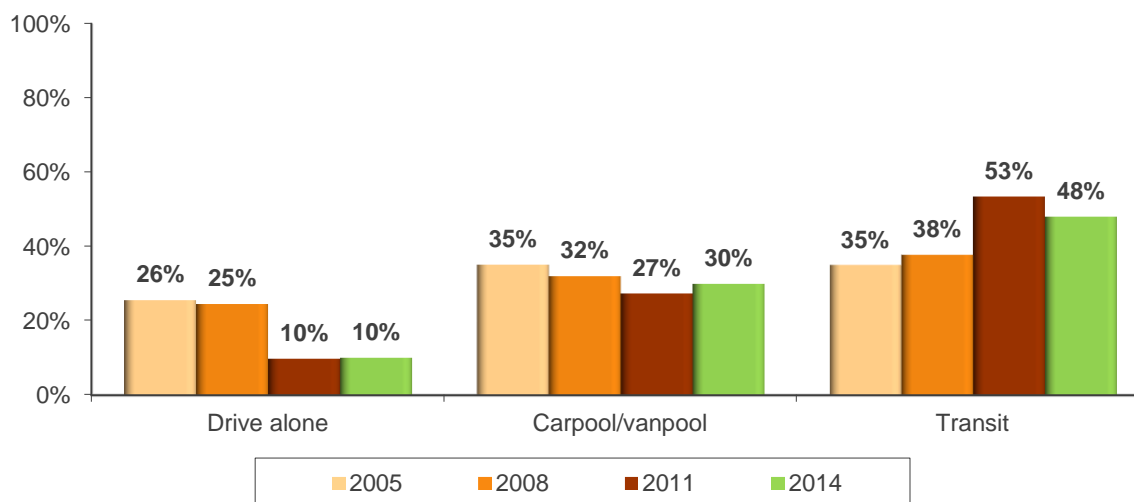
**Table 7**  
**Weekly Commute Trips by Modes**  
**Comparison of 2014 Applicant Survey to 2013 State of the Commute Survey**

Commute Mode	2014 Applicant Survey (n = 690)	2013SOC Survey (n = 5,882)
Transit	48.4%	17.3%
Carpool/vanpool	29.4%	6.7%
Drive alone	9.6%	65.8%
Telework / compressed schedules	11.4%	8.0%
Bike/walk	1.2%	2.2%

Mode Split Trends 2005 to 2014 – Figure 4 presents the mode split distribution (percent of weekly trips by mode) for 2014 and for the three preceding surveys.

**Figure 4**  
**Weekly Commute Trips by Modes – 2014 Compared with 2005, 2008, and 2011**

(2005 n = 701, 2008 n = 703, 2011 n = 863, 2014 n = 690)



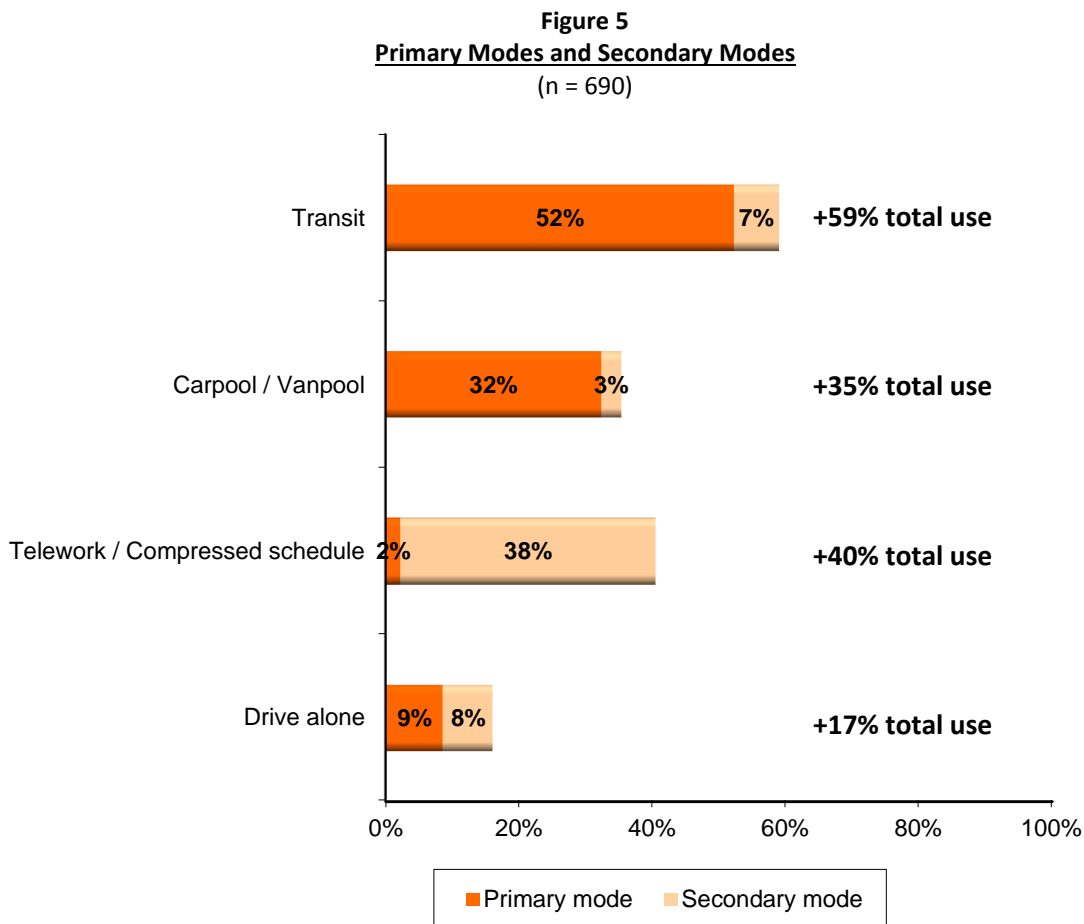
The drive alone mode split fell dramatically in 2011, from 25% in 2005 and 2008 to 10%. Carpool/vanpool also fell between 2005 and 2011, with a corresponding large increase in transit mode share, from 35% in 2005 to 53% in 2011. The results for 2014 showed the same drive alone mode split of 10%, but a slightly different distribution between alternative modes, with carpool/vanpool increasing slightly from 27% to 30% and transit use falling from 53% to 48%. Bike/walk and telework are not shown on the figure, but each gained about one percentage point in 2014 when compared with the 2011 survey results.

Even accounting for the drop in transit share between 2011 and 2014, transit use showed a significant growth since 2005, likely reflecting several factors. First, prior to the 2008 transition to the current online Commuter Con-

nections TDM software system, the applicant database primarily included commuters who registered to receive a carpool or vanpool ridematch. By contrast, the new online system offers a wider range of services, such as telework and bicycle information and the regional Guaranteed Ride Home program, programs that might be of interest to commuters who are not interested in carpooling or vanpooling. Second, several of the regional and local transit operators have been active promoters of the online system, thus, train and bus riders might be using the service at higher rates than in the past.

Another factor that could have encouraged more commuters to seek transit information in 2011 was the increase in the federal transit benefit from \$120 per month to \$230 per month, which was in effect between 2010 and 2012. This benefit has since been reduced to its earlier level, reducing the incentive to use transit for commuting.

**Primary vs Secondary Mode** – Figure 5 shows mode split as the percentage of applicants who used each mode as their “primary” mode, defined as the mode used most days per week. The figure also shows the percentages of applicants who used each mode one or more days per week, that is, either as a primary mode or as a secondary mode that they used occasionally.



\* Percentages for Primary or Secondary Modes add to more than 100% because some respondents had both a Primary and Secondary mode

**Primary Mode** – Since most applicants worked five or more days per week, primary mode generally equated to use three or more days per week. But for a small percentage of applicants who worked fewer than five days or who used more than two modes, the primary mode could be used just two days per week.

As with mode split by weekly trips, the most common primary mode was transit, used by 52% of applicants. A third (32%) of applicants said they primarily carpooled or vanpooled, 9% primarily drove alone, and 2% primarily teleworked.

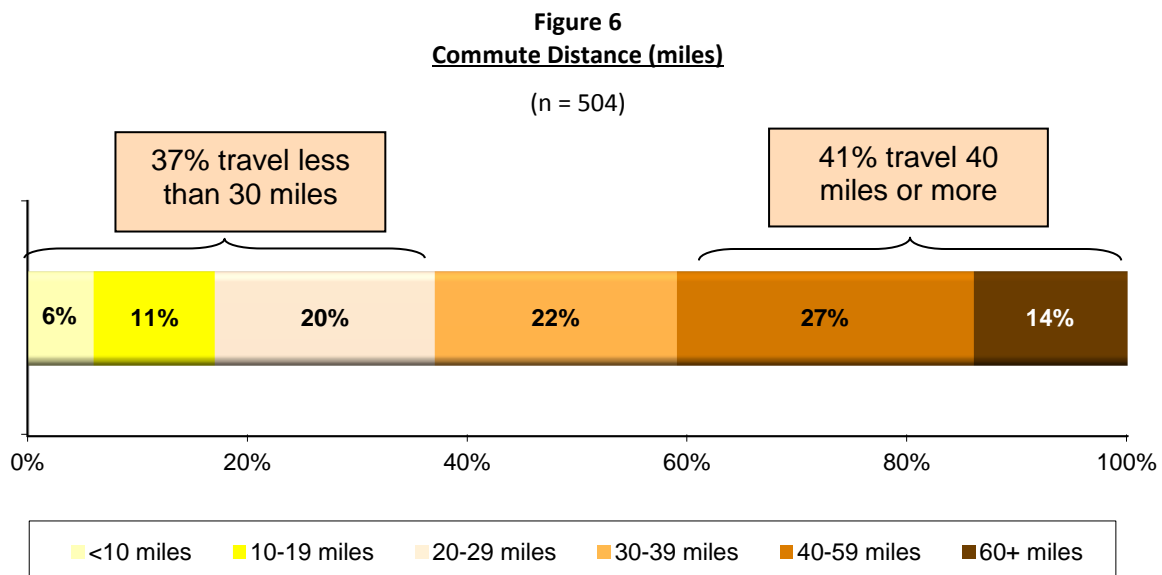
**Secondary Use of Modes** – Figure 5 also shows the percentage of applicants who used the mode group as a secondary mode, typically one or two days per week. The total of primary and secondary together is the percentage of applicants who used the modes at least one day per week.

Seven percent of respondents said they used transit as a secondary mode and 3% said they carpooled/vanpooled as a secondary mode. Eight percent of applicants said they drove alone one or two days per week, equal to the share of applicants who primarily drove alone. The greatest difference between the primary mode and the overall use of a mode was in the percentage of applicants who teleworked or worked a compressed schedule. Two percent said they primarily teleworked but an additional 38% teleworked one or two days per week or had one or two compressed schedule days off (secondary mode), so a total of 40% of applicants used one of these schedule options, at least one day per week.

### **Commute Distance**

Applicants had a wide range of commute distances, ranging from two miles to 160 miles. The average one-way distance was 36.2 miles, essentially the same as the 36.2 mile distance reported in the 2011 survey, but more than double the 16.0 mile average travel distance of all regional commuters, as estimated in the 2013 State of the Commute survey.

Figure 6 presents the distribution of applicants by distance categories. Six percent of applicants traveled fewer than 10 miles to work. Three in ten (31%) commuted between 10 and 29 miles. Just over four in ten (41%) commuted 40 or more miles.



**Distance by Mode** – Commute distances differed by commute mode (Table 8). Vanpoolers traveled the farthest, an average of 46.4 miles one-way. Applicants who rode Metrorail traveled the shortest distance (19.3 miles), but other transit riders had longer distances; commuter rail riders traveled 39.6 miles one way and bus riders traveled 32.9 miles. Carpoolers traveled an average of 36.8 miles and drive-alone commuters traveled 29.5 miles.

Table 8 also presents the average commute distances by mode as measured in the 2013 regional State of the Commute survey. For all modes, the SOC average one-way distance was much shorter than the applicant survey average, indicating that even within individual modes, commuters who traveled longer distances were most interested in Commuter Connection' services.

**Table 8**  
**Average Commute Distance (miles) by Travel Mode**  
**2014 Applicant Survey vs 2013 State of Commute Survey**

Mode	2014 Applicant Survey		2013 SOC Survey	
	n =	Average Distance	n =	Average Distance
Vanpool	98	46.4 mi		NA *
Commuter rail	114	39.6 mi	56	32.0 mi.
Carpool	92	36.8 mi	351	17.5 mi.
Bus	142	32.9 mi	235	14.2 mi.
Drive alone	87	29.5 mi	3,812	16.3 mi.
Metrorail	48	19.3 mi	479	13.3 mi.

\* Vanpool distance was not calculated for SOC due to very small sample size.

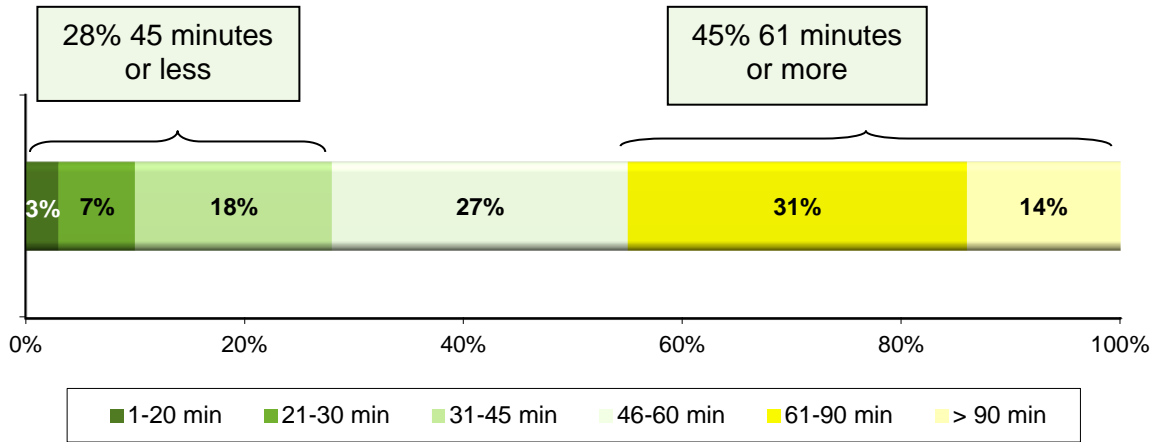
### **Commuter Travel Time**

One-way commute travel time of applicants ranged from five minutes to more than two hours, with an average of 66 minutes, slightly longer than the time as observed in the 2011 survey (63 minutes). As illustrated in Figure 7, 45% traveled more than an hour and more than seven in ten (72%) traveled more than 45 minutes one-way.

Commuter time for survey applicants was longer than that for the general public. The average commute time for all commuters in the region was 36 minutes, as reported in the 2013 State of the Commute survey. From that survey, only 22% of commuters in the region traveled more than 45 minutes.

**Figure 7**  
**Commute Distance (minutes)**

(n = 536)

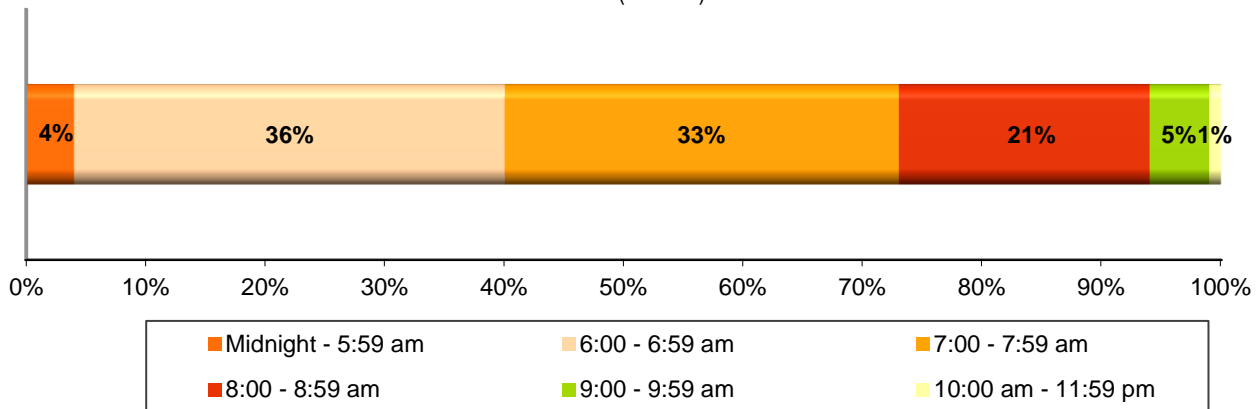


**Work Arrival Time**

Survey respondents typically arrived at work quite early in the day (Figure 8). Nearly three-quarters (73%) typically arrived at work before 8:00 a.m. and four in ten arrived before 7:00 a.m. Two in ten arrived between 8:00 and 8:59 a.m. The remaining 6% arrived at 9:00 or later.

**Figure 8**  
**Arrival Time at Work**

(n = 714)



**Primary Roads Used on the Trip to Work**

The survey included a new question in 2014 to identify the major roadways that commuters used to get to work. Because transit riders were not driving in a personal vehicle, they were asked what roads they would use on a day they drove to work. These questions will primarily be used for MWCOCG planning purposes, but the results are briefly summarized in Table 9 for placement survey commuters and for all commuters in the region, as estimated by the 2013 State of Commute survey.



**Table 9**  
**Primary Roadways Used to Get To Work – Placement Survey Applicants and All Regional Commuters**

Shows only roads used by at least 5% of placement survey applicants)

Primary Roadway	2014 Placement Survey Applicants (n = 716)	All Region (2013 SOC) (n = 5,718)
<b>Maryland / District of Columbia)</b>		
I-495 - Capital Beltway (MD)	<b>15%</b>	13%
I-295 (MD/DC)	<b>12%</b>	5%
I-95 (MD)	<b>9%</b>	5%
I-270 (MD)	9%	9%
US Route 50 – John Hanson Highway (MD)	<b>6%</b>	3%
US Route 29 – Colesville Road (MD)	<b>6%</b>	<1%
Baltimore-Washington Parkway	<b>6%</b>	1%
<b>Virginia</b>		
I-95 (VA)	<b>32%</b>	6%
I-395 Shirley Highway (VA)	<b>23%</b>	7%
US Route 1 (VA – Richmond Highway))	<b>12%</b>	2%
I-66 Outside the Beltway (VA)	<b>11%</b>	6%
Capital Beltway (I-495)	11%	11%
I-66 Inside the Beltway (VA)	<b>9%</b>	5%
Dulles Toll Road (VA)	<b>8%</b>	5%
George Washington Parkway (VA)	5%	3%

\* Statistically higher percentages are highlighted.

Commuters who obtained commute information services from Commuter Connections were much more likely to have used most of the major Interstate and US/state routes than were the average commuters in the region. Use of four roads in Virginia: I-95, I-395, US Route 1, and I-66 outside the Capital Beltway, was particularly notable for placement survey respondents, when compared with use generally across the region. All four of these routes have HOV lanes available during commuting hours. Similar, although less pronounced, differences were noted for several Maryland highways.

### **Telework and Compressed Work Schedules**

**Telework** – More than four in ten (46%) applicants said they teleworked, at least occasionally. Two in ten applicants teleworked infrequently; 11% of all respondents teleworked less than once per month/only in emergencies and 10% teleworked a few times each month. One-quarter (23%) of applicants teleworked one or two days per week and 2% teleworked three or more days per week.

- Never telework 54%
- Telework at least occasionally 46%
  - Less than once per month/emergency 11%
  - 1 – 3 times per month 10%
  - 1 day per week 14%
  - 2 days per week 9%
  - 3 or more days per week 2%

**Compressed Work Schedule** – About one-quarter (24%) of applicants reported working a compressed work schedule (CWS), in which they worked a full work week (35-40 hours) in fewer than five days per week. The most common CWS arrangement was a 9/80 schedule (21%), in which employees worked nine days for a total of 80 hours over two weeks. Three percent of applicants worked a 4/40 arrangement, that is, four ten-hour days in one week.

## **CURRENT ALTERNATIVE MODE CHARACTERISTICS**

The second part of the survey collected data on occupancy and composition of carpools and vanpools and explored how carpoolers, vanpoolers, and transit riders accessed these commute modes.

### **Carpool and Vanpool Size**

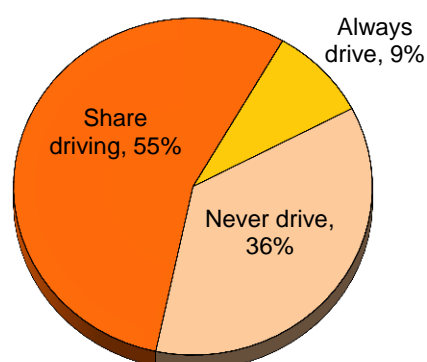
About a third (35%) of survey respondents said they ride in a carpool or vanpool at least one day per week. Carpools had an average size of 3.1 occupants, including the driver. Vanpool occupancy was on average 9.0, including the driver. This represented a decline from the average 2011 occupancy of 9.9 riders. In 2014, vanpools ranged in size from 6 to 15 occupants; only about 13% of vanpools had 12 or more occupants.

### **Carpool Members**

Carpoolers and vanpoolers in the survey sample tended to carpool more with co-workers than with family members. More than half (56%) of the applicants who carpooled or vanpooled traveled with a co-worker. By contrast, only 10% said they rode with a family or household member. This is not unexpected, as commuters who can carpool with family members are less likely to need Commuter Connections to find a carpool partner. One percent of carpool/vanpool applicants said they had counted children under the age of 16 as a carpool/vanpool rider.

More than half (55%) of carpoolers and vanpoolers shared driving with their pool partners, for example alternating days or weeks of driving the carpool (Figure 9). Slightly more than one-third (36%) said they never drove. This was primarily the response among vanpoolers and casual carpoolers. The remaining 9% said they always drove.

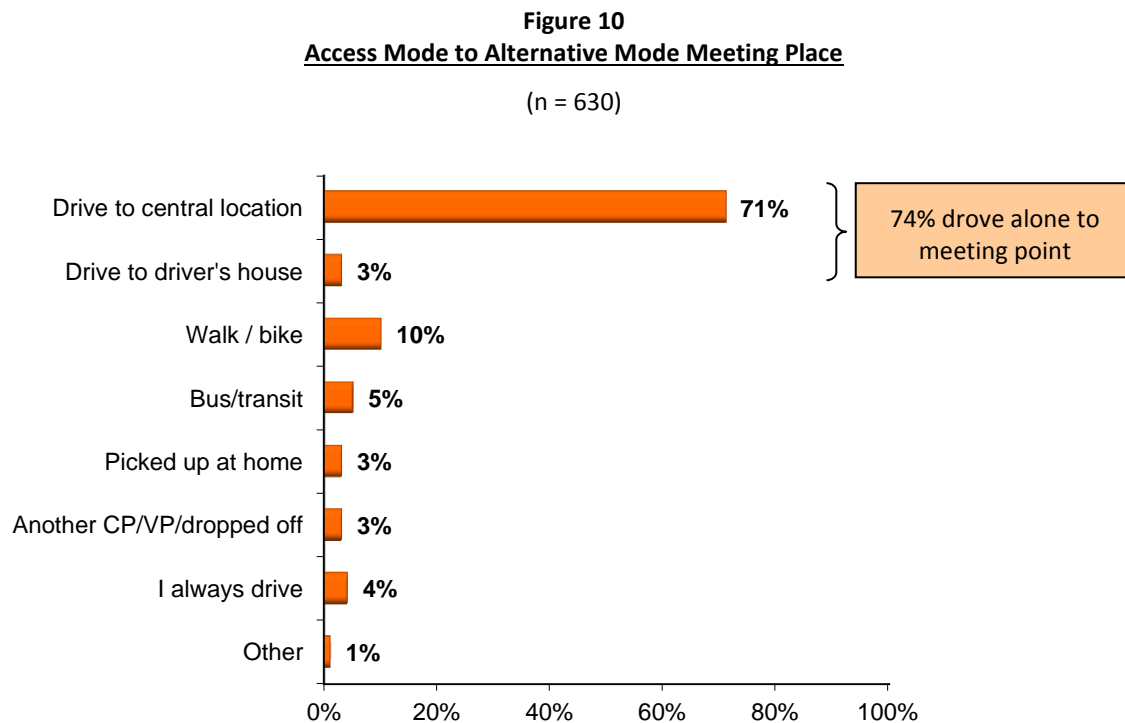
**Figure 9**  
**Driving Frequency of**  
**ers/Vanpoolers**  
(n = 245)



**Carpool-**

### Access to Carpools, Vanpools, and Transit

Figure 10 presents the types of transportation carpoolers, vanpoolers, and transit riders used to travel to where they met their pool partners or where they started their transit trip.



One in ten (10%) said they walked to the meeting point, but three-quarters drove to either a central meeting location (71%) or to the driver's home (3%), and left their cars at this location for the day. This is significant to the calculation of air quality impacts, because a large proportion of auto emissions are produced during the first few miles of a vehicle trip, when the engine is cold. (For details on calculating emissions reductions, refer to "Transportation Emission Reduction Measures (TERMs) Revised Evaluation Framework – July 2011 – June 2014" (May 21, 2013). Even though these trips tend to be short, an average of just 6.8 miles, these trips must be accounted for in an air quality analysis.

## RECENT COMMUTE PATTERN CHANGES

The third survey section asked applicants about commute pattern changes they made since receiving assistance from Commuter Connections. Data were collected on: types of changes made, “permanence” of change, reasons for changes, and details of commute patterns before the changes occurred. To ensure that all shifts were captured, the survey asked applicants a series of questions about various mode changes they might have made:

- Started using a new alternative mode (carpool, vanpool, bus, Metrorail, commuter rail, bicycle, walk, telework, CWS)
- Increased the number of days using any alternative modes
- Try an alternative mode, even if only once
- Add or replace a person in an existing carpool or vanpool

Applicants who made any of these changes were considered to have been “placed” in alternative modes. These shifts are measured by the placement rate, defined as the percentage of respondents who made an alternative mode change after they received assistance, divided by the total number of respondents surveyed.

Four types of alternative mode changes were measured:

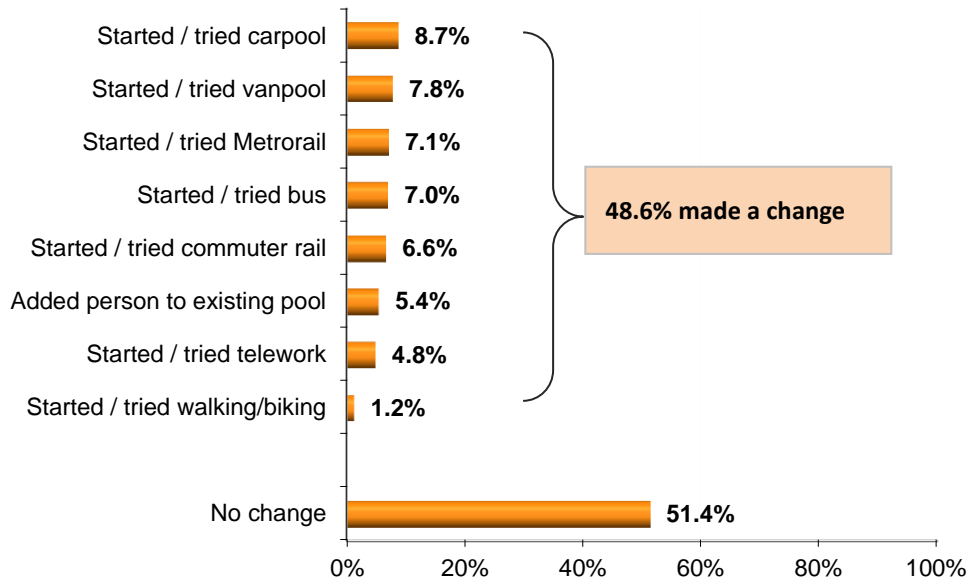
- Continued – applicant made a change and was still using the new mode at the time the survey was conducted
- Occasional – applicant made a change and was still using the new mode, but used the alternative mode less than one time per week
- Temporary – applicant made a change, but stopped using the new mode before the survey was conducted
- One-time – applicant briefly tried an alternative mode, but used it less than one week

Temporary shifts are reported separately from continued shifts, because they cannot be counted toward long-term reduction in vehicle trips, VMT, or emissions. Occasional and one-time shifts also are reported separately because their contribution to vehicle trips, VMT, and emissions is very minor.

### Types of Changes Made

Nearly half (48.6%) of the applicants reported some type of alternative mode change after receiving Commuter Connections’ assistance (Figure 11). The largest segments started or tried carpooling (8.7%) or vanpooling (7.8%). Two in ten applicants made a change to a transit mode (Metrorail – 7.1%, Bus – 7.0%, Commuter rail – 6.6%). About 4.8% started or tried telework and 1.2% noted a change to bike or walk. About 5.4% said they were carpooling or vanpooling before requesting information from Commuter Connections, but added another person to their existing pools.

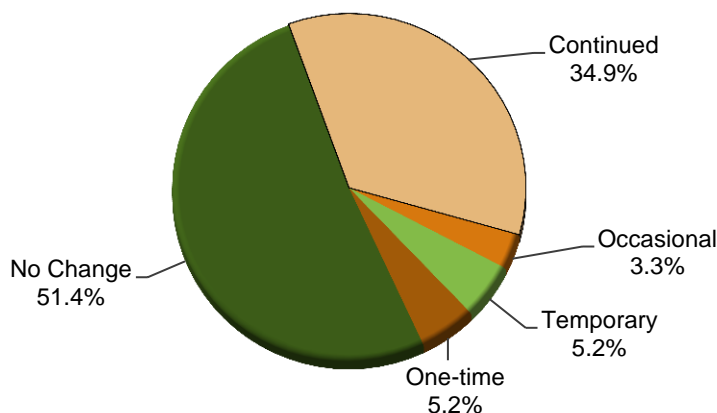
**Figure 11**  
**All Commute Changes Made**  
(n = 716)



**Continued, Occasional, Temporary, and One-time Placement Rates**

Applicants who made a change to a mode they were using at least once per week at the time of the survey were classified as having made a “continued change.” Applicants who made a change to a mode they did not report using during a typical week at the time of the survey were asked if they still used the mode occasionally or if they had stopped using it. Applicants who had stopped using the mode were asked how long they had used the new mode after the change. Then, applicants were classified as “occasional,” “temporary,” or “one-time” by the duration of their change. Figure 12 summarizes these results.

**Figure 12**  
**Distribution of Continued, Occasional, Temporary, and One-time Changes**  
**“Placement Rates”**  
(n = 716)



More than a third (34.9%) of applicants made a change to a mode they were still using at least one day per week; these applicants made continued changes. About 3.3% made a change to a mode they were using, but using only occasionally, defined as less than once per week. One in twenty (5.2%) respondents made a temporary change, that is, they had already stopped using the new alternative mode by the time of the survey. On average, they had used the new mode for 6.7 weeks. Finally, 5.2% of applicants tried a new mode for less than one week. These applicants were classified as one-time changes.

The delineation of change duration is important because occasional, temporary, and one-time changes do not produce the ongoing travel and air quality impacts of the continued changes. Impacts from temporary changes are discounted to credit only the time the new mode was used. This discounting is described further in Section 4. Occasional and one-time changes are not included in the impact calculation.

**Placement Rates by Home and Work Location in the Ozone Non-attainment Area** – Placement rates were estimated also for two sub-groups of applicants. The first sub-group included applicants who lived and worked within the MWCOC ozone non-attainment area, MWCOC’s 11-jurisdiction region. The second sub-group included applicants who either lived in the area and worked outside or worked in the area and lived outside it, that is, one end point of their commute trip was outside the area. Approximately 44% of the total participants either lived or worked outside the ozone non-attainment area.

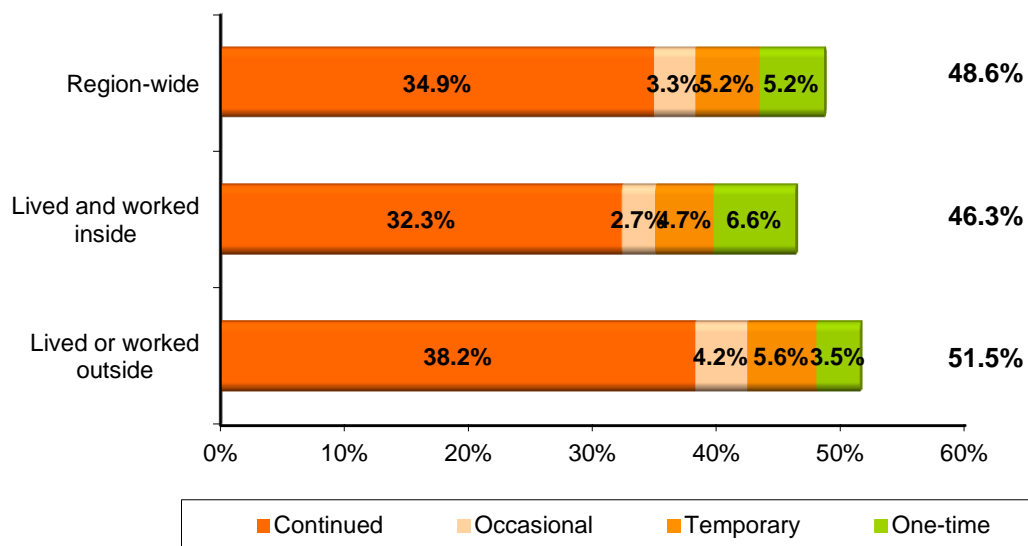
This distinction was made because applicants who lived or worked outside the ozone non-attainment area traveled a portion of their VMT outside the area. The VMT for these “out of area” applicants was discounted to credit VMT reduction only for the portion that occurred within the area.

Figure 13 presents the continued and temporary placement rates for the three groups of applicants: all applicants, applicants who lived and work within the region, and applicants who lived or worked outside the ozone non-attainment area.

**Figure 13**  
**Placement Rates: All Applicants Region-Wide, Applicants who Live and Work Inside Ozone Non-Attainment Area, and Applicants who Live or Work Outside Ozone Non-Attainment Area**

(Note: scale extends only to 60% to highlight differences)

(Region-wide n = 690, Live and work in Area n = 399, Live or work outside area n = 317)



As shown, applicants who lived or worked outside the area had a slightly higher overall placement rate (51.5%) than did applicants who lived and worked in the area (46.3%). The difference was slightly greater for continued placement rate; applicants who lived or worked outside had a continued rate of 38.2%, compared to the 32.3% rate for applicants who lived and worked in the area.

### **Change by Demographic and Employment Characteristics**

The survey examined demographic and employment characteristics of applicants who had made continued or temporary changes and applicants who did not make any changes, to see if the groups were different in fundamental ways. A larger share (38.5%) of male respondents made continued changes than female respondents (30.0%), but review of the survey data showed no differences in the incidence of travel changes by other demographic characteristics. Similarly, there were no statistical differences in the percentage of respondents who made travel changes either by the size or type of their employer.

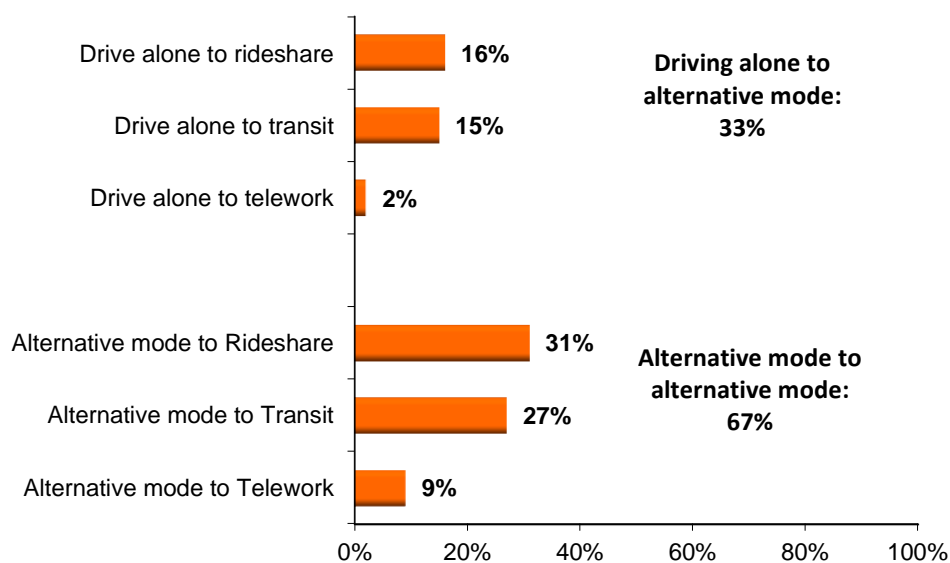
The average commute distance of applicants who made a continued change (39.2) was essentially the same as for commuters who made occasional changes (39.2 miles) and not statistically different than the 41.3 miles distance of respondents who made temporary changes. But the distance of respondents who made any change (38.2 miles) was higher than the distance of applicants who did not make any changes (35.1 miles).

### **Previous Mode of Commuter Who Changed Mode**

Some applicants who made a mode change shifted from driving alone, but others shifted from one alternative mode to another. One-third (33%) of applicants who made a change shifted from driving alone to an alternative mode (Figure 14). These applicants were divided between shifts to rideshare (carpool or vanpool) and shifts to transit and non-motorized modes (bike and walk). The remaining 67% of applicants were previously using an alternative mode, but made a change from one alternative mode to another, for example, from carpool to vanpool, from bus to train, or from vanpool to train.

**Figure 14**  
**Types of Mode Changes of Respondents who Made Mode Changes**

(n = 302)



The percentages of shifts between alternative modes is noted because commuters who made these shifts reduced vehicle trips only if they shifted to a higher occupancy mode (carpool to vanpool or vanpool to transit, for example) or increased the number of days they used the alternative. Some of these shifts, such as from transit to rideshare, actually increased the number of vehicle trips the applicant made during the week. This is not to say these were not desirable shifts from the perspective of the commuter, but these shifts must be accounted for in determining the transportation and air quality benefits of the services.

### **Reasons for Changes**

Applicants who said they had made a commute change were asked the reasons for their changes. Table 10 summarizes the responses. Many applicants made the change for commute-related reasons: save money (16%), save time (7%), or carpool broke up (5%). Small percentages of respondents named gas prices too high (3%), to reduce congestion or pollution (2%), or because the employer permitted telework (2%). Some applicants mentioned a personal factor, such as changing jobs or work hours (18%) or being tired of driving (4%) as influencing the decision to make a change. Four percent said they moved to a different residence. This emphasizes the potential for Commuter Connections, its regional partners, and its employer clients to market alternative modes through new employee orientations and through direct mail to those moving to new residences.

**Table 10**  
**Reasons for Commute Change**  
(n = 282, multiple responses permitted)

<b>Commute related reasons</b>	<b>Percentage</b>	<b>Personal related reasons</b>	<b>Percentage</b>
- Save money	16%	- Changed job/work hours	18%
- Save time	7%	- Tired of driving, reduce stress	4%
- Carpool broke up/didn't work	5%	- Moved residence	4%
- Gas prices too high	3%		
- Employer permitted telework	2%		
- Reduce congestion/pollution	2%		

***Importance of Commute Services on Decision to Make Change*** – Applicants who made a change also were asked if their decision to make the change was influenced or assisted by any information or service they received from Commuter Connections, from another commute service organization, or from their employer.

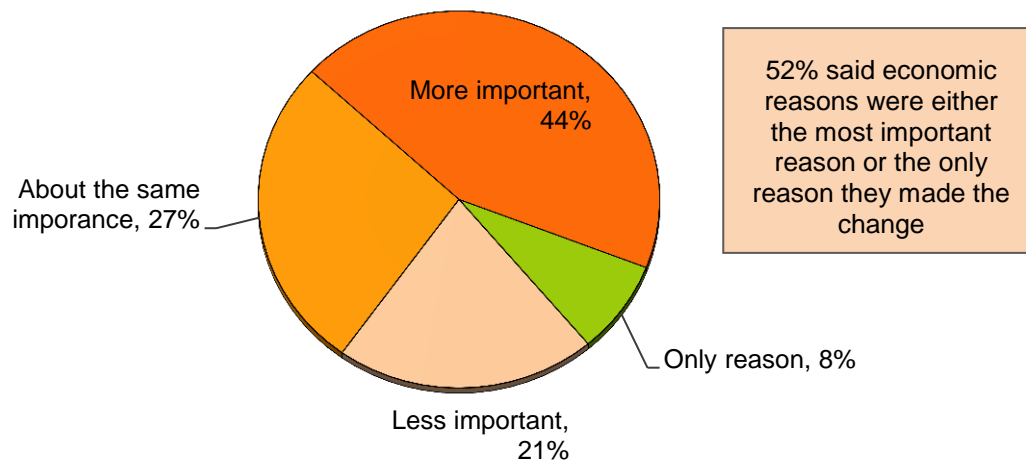
Twenty-one percent of applicants who made a change cited a Commuter Connections service that had influenced or assisted them. About 8% of respondents cited a carpool or vanpool matching or assistance service, 4% named Guaranteed Ride Home, and 2% named a transit information service. Eight percent named another type of service.

Three in ten (30%) applicants said a service from their employer or another commute service organization influenced or assisted their change. The most commonly noted services were financial incentives, cited by 7% of applicants who made a change, and vanpool assistance, named by 3%.



**Importance of Economic Reasons to Make Change** – Applicants who made a change were asked how important economic reasons, such as saving money or reducing gas expense, were in motivating the change. About one in ten (8%) applicants who made a change said economic reasons were the only reason they made the change and 44% said economic reasons were more important than other reasons (Figure 15). Just over a quarter (27%) said economic reasons were about the same importance as other motivating influences.

**Figure 15**  
**Importance of Economic Reasons in Motivating Travel Changes**  
(Economic reasons n = 269)



## CONTACT WITH COMMUTER CONNECTIONS AND SERVICES RECEIVED

The survey asked applicants several questions related to the details of their contact with Commuter Connections and what services they received. The following section of the report presents results to these questions, including the following:

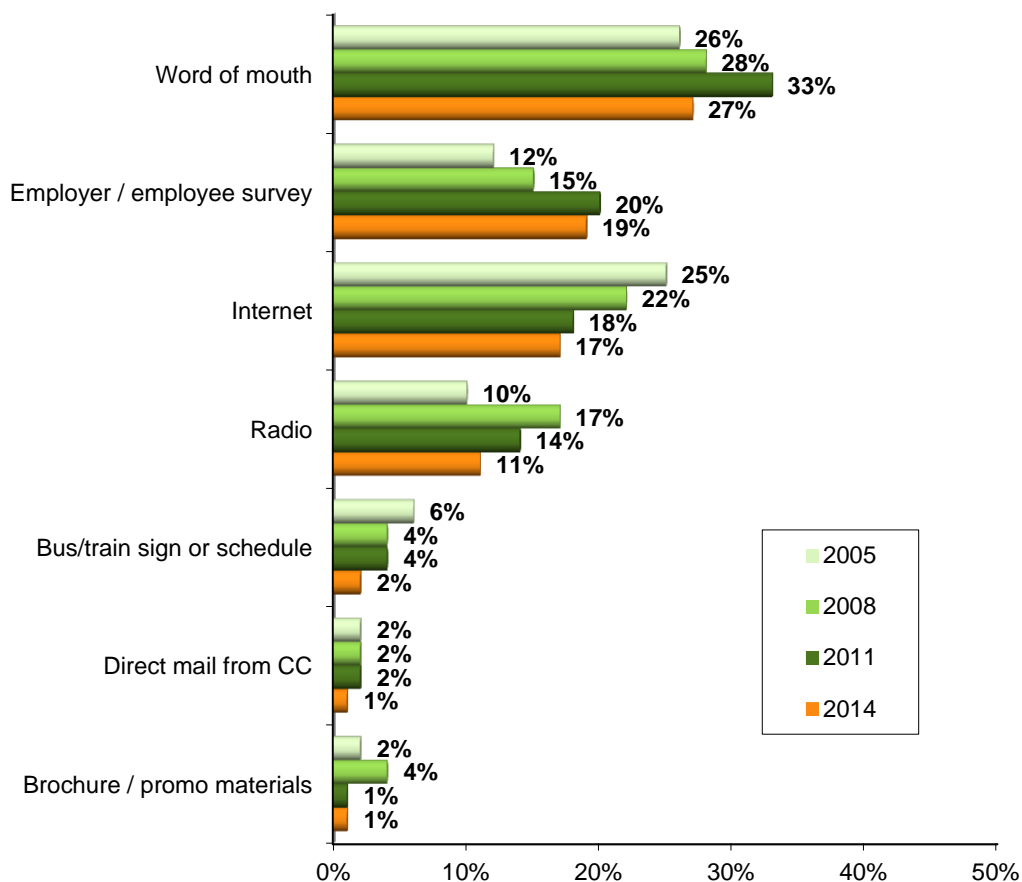
- Sources of information about Commuter Connections
- Method of accessing Commuter Connections
- Reason for requesting information or assistance
- Types of information/assistance received from Commuter Connections
- Commute assistance received from other sources

### Sources of Information about Commuter Connections

Commuters have a variety of sources through which they can learn of Commuter Connections. Figure 16 presents the primary sources of information cited by applicants in 2014. Results for the three previous applicant surveys also are shown for comparison. Four sources dominated in 2014: word of mouth referrals (27%), employer/employee survey (19%), internet (17%), and radio (11%).

These also were the top reasons in 2005, 2008, and 2011, although the relative use of the sources has changed since 2005. Employer/employee survey has grown as a source, while the Internet as a source has fallen. Reliance on the radio as an information source also has fallen since 2008, when it was named by 17% of applicants.

**Figure 16**  
**How Applicants Learned of Commuter Connections**  
 (Note: scale extends only to 50% to highlight differences)  
 (2005 n = 701, 2008 n = 703, 2011 n = 892, 2014 n = 600)



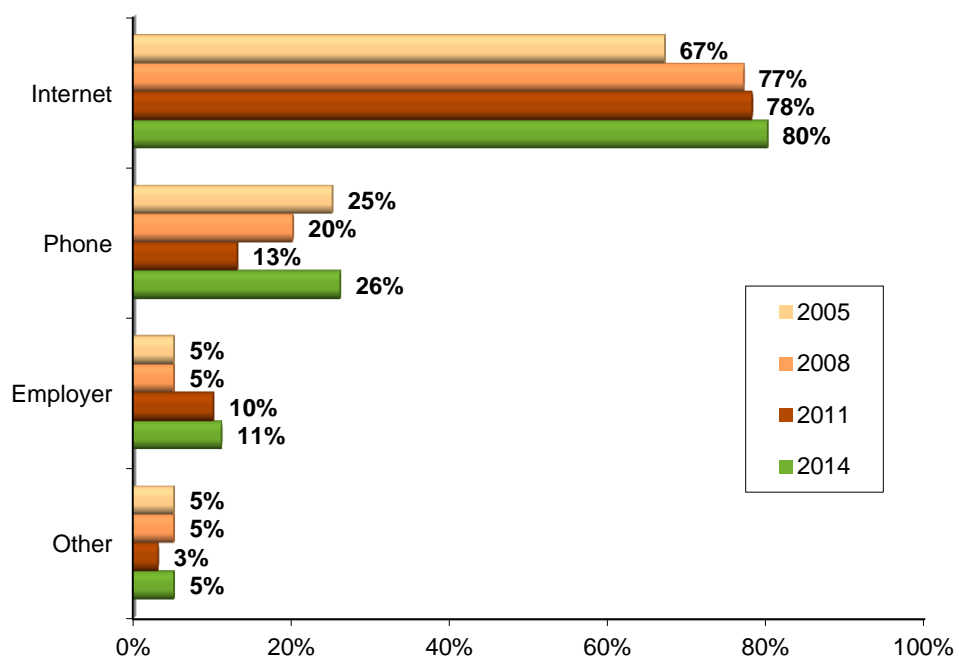
### **Methods Used to Contact Commuter Connections**

Commuters can contact Commuter Connections in a variety of methods. In 2014, 80% of applicants said they made this contact through the Commuter Connections web page or another web site on the Internet (Figure 17). This was essentially the same percentage as reported this method in 2011 and 2008, but was statistically higher than the 67% who used the Internet for their contact in 2005.

Use of the telephone as the contact method increased substantially from 2011 to 2014, a notable change from the steady decline that had occurred between 2005 (25%) to 2011 (13%). In 2014, 11% of applicants contacted Commuter Connections through their employers or through work, essentially the same share as noted this contact method in 2011 (10%), but twice the percentage who reported this source in both 2008 (5%) and 2005 (5%).

**Figure 17****How Applicants Contacted Commuter Connections – 2014, 2011, 2008, and 2005**

(2005 n = 701, 2008 n = 703, 2011 n = 872, 2014 n = 688, multiple responses permitted)

**Reasons for Seeking Assistance**

Applicants were asked what prompted them to seek information or assistance from Commuter Connections at that time. Table 11 details the responses.

**Table 11**  
**Reasons for Seeking Information**

Reasons	Percentage (n = 579)
In case of emergencies / wanted back up transportation, GRH	45%
Wanted to carpool or vanpool, get carpool/vanpool information	8%
Check commute options / schedule, curiosity	7%
Save money	5%
Changed jobs/work schedule, moved to new residence	3%
Advertising	2%
Save time	2%
Didn't want to drive, tired of driving	2%
Employer program or service	2%
Other*	25%

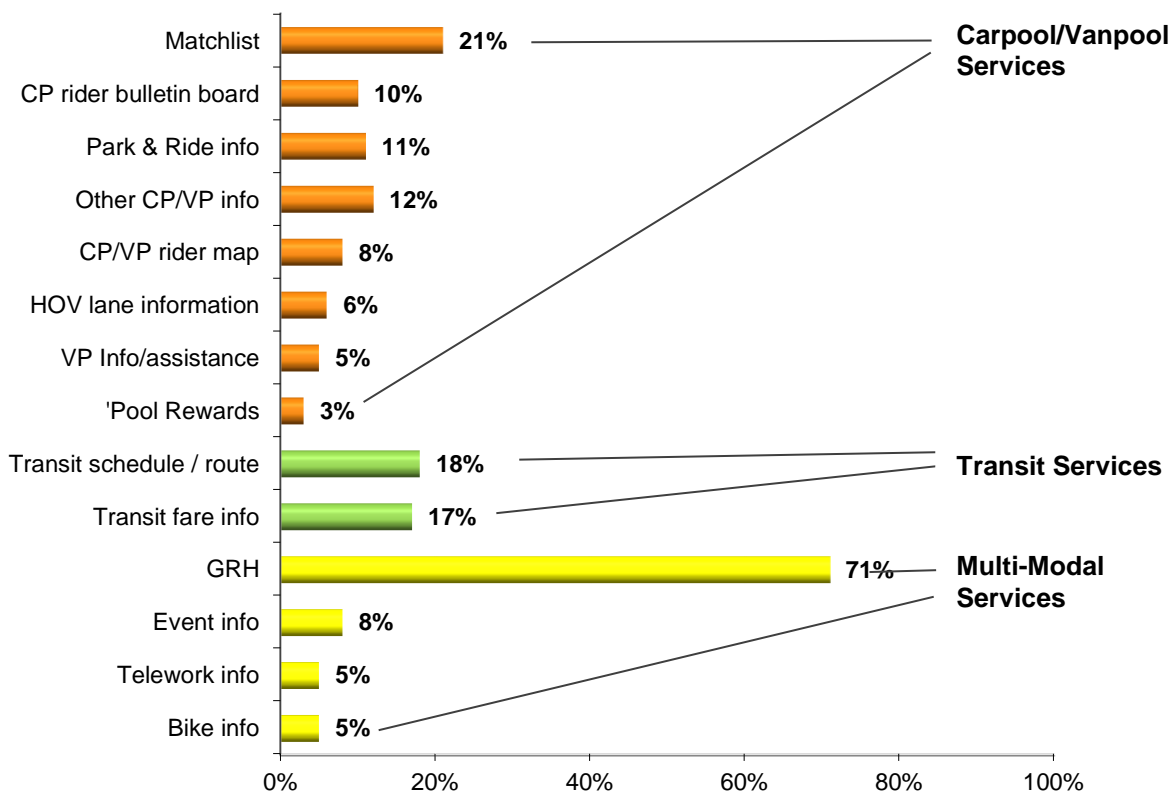
\*Other responses were each mentioned by fewer than two percent of respondents

Almost half (45%) wanted to find back-up transportation in case of emergency. Eight percent made the contact to find a carpool or vanpool partner or to get information about these modes and 7% wanted to check commute options or a transit schedule or were just curious about the service. Smaller shares of applicants cited other reasons, such as wanting to save money, save time, because they changed job or home locations or were tired of driving.

**Information Received from Commuter Connections**

When commuters contact Commuter Connections, they have the option to request or access various types of assistance and information. In the 2014 survey, respondents were shown a list of services offered by Commuter Connections and were asked to check all that they remembered receiving or accessing. Figure 18 displays the percentages of applicants who said they received or accessed each service, with services grouped into three categories by the types of alternative modes they support: Carpool/Vanpool Services, Transit-Related Services, and Other / Multi-Mode Services.

**Figure 18**  
**Information Received or Accessed from Commuter Connections**  
 (n = 892, multiple responses permitted)



**Carpool/Vanpool Services** – A total of about four in ten applicants received or accessed one or more Carpool/Vanpool services; some of these respondents received more than one of these services. Twenty-one percent received a matchlist with names and contact information for potential carpool/vanpool partners, 10% used the carpool rider bulletin board, and 8% received a map showing home and work locations of potential car-

pool/vanpool partners. One in ten (11%) applicants accessed Park & Ride lot information and 12% received general information about carpooling or vanpooling.

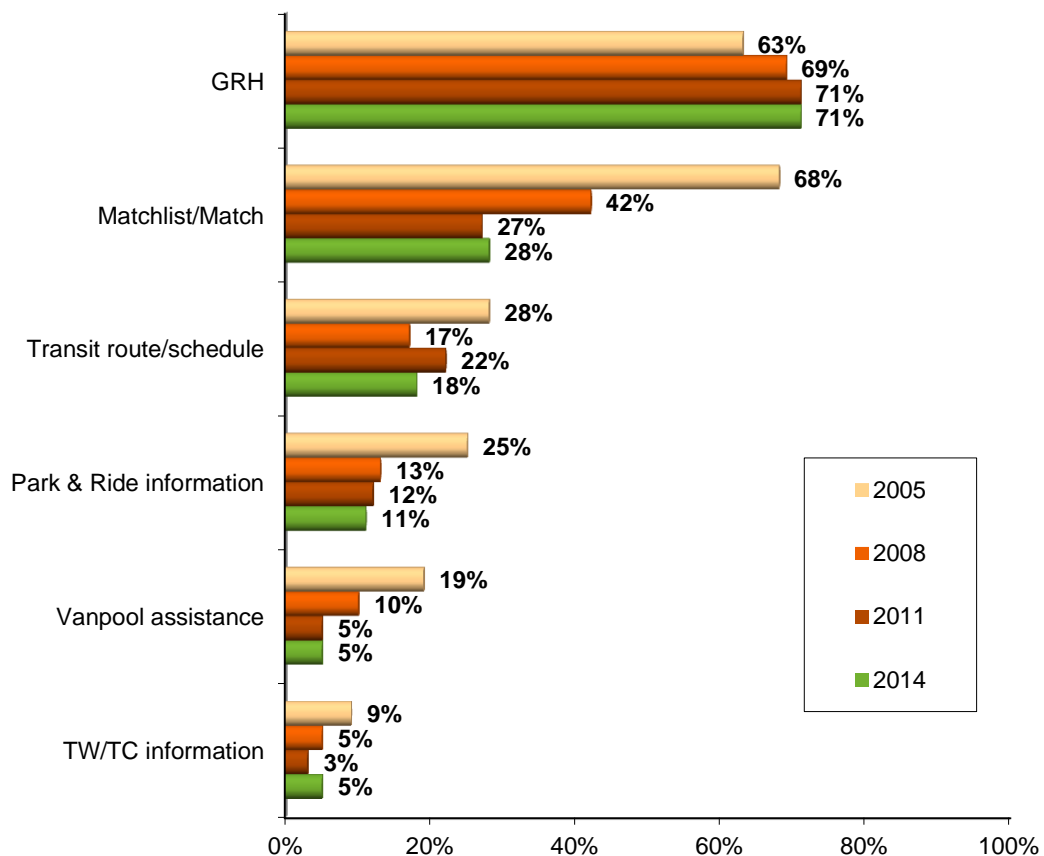
**Transit-Related Services** – One-quarter (24%) of applicants received some type of information about transit from Commuter Connections. Eighteen percent received route/schedule information and 17% received information about transit fares or the SmarTrip fare payment system. Nearly all of the respondents who received transit information got both fare and route / schedule information.

**Other/Multi-Modal Services** – The top service received overall, by a large majority, was Guaranteed Ride Home; seven in ten (71%) applicants said they received or accessed this “Multi-Modal” service, which is open to any commuter who uses an alternative mode to commute. Eight percent received information about one of the regional special events, such as Bike to Work Day or Car Free Day. These services are promoted regionally, in partnership with other organizations, but Commuter Connections offers information and registration through the online system. Finally, small shares of applicants received bicycle or telework information.

**Comparison of Services Received in 2014 to Services Received in 2011, 2008, and 2005** – Figure 19 shows the percentages of applicants who received various services in 2014 compared to the percentages noted in the 2011, 2008, and 2005 applicant surveys. These results show a distinct shift in service delivery over the nine-year period, in nearly all services.

**Figure 19**  
**Information Received or Accessed from Commuter Connections – 2014, 2011, 2008, and 2005**

(2005 n = 701, 2008 n = 703, 2011 n = 892, 2014 n = 697, multiple responses permitted)



*Guaranteed Ride Home* – Guaranteed Ride Home continued to be a popular Commuter Connections service. In 2005, 63% of applicants received this service. In 2008, the share increased to 69%, and remained approximately the same in 2011 (71%) and 2014 (71%).

*Carpool/Vanpool Assistance* – The share of applicants who received information related to carpooling/vanpooling has exhibited an unquestionable downward trend since 2005. In 2014, 28% of applicants received a matchlist, about the same share as in 2011, but a much lower percentage than in 2008 (42%) and 2005 (68%). The shares of applicants who received vanpool assistance also declined dramatically, from 19% in 2005 to 5% in 2011 and 2014. And use of Park & Ride services, received by 25% in 2005, was cut in half in 2008, then remained at the approximately the same level in 2011 and 2014.

*Transit Route and Schedule Information* – In 2014, 18% of applicants received transit route and schedule information. This was a slightly smaller share than in 2011, about the same percentage as in 2008, and a much smaller share than noted receiving this service in 2005 (28%). However, the 2005 and 2008 results overestimated the share of applicants who requested transit information; according to the Commuter Connections database for those years, only 11% of applicants requested transit information in 2005 and 5% requested it in 2008.

The difference in the percentages who requested and who recalled receiving this information reflects Commuter Connections' "Integrated Rideshare" program, in which applicants who request matchlists and those who use the online ridematch map also receive information about transit options for the commute origin and destination, even if the applicants didn't specifically request transit information. Applicants who received a matchlist in 2014 also would have received transit information, however the online system offered self-service access to a wider range of transit information in 2011 and 2014 than had been available in 2005 and 2008, thus it is likely that a larger share of the "received transit information" actually reflects a specific formal request for this service. The slight increase noted in 2011 also could have been due, in part, to the higher federal transit benefit offered in 2010 and 2011, compared with previous years. In 2013, the benefit amount returned to the lower level.

*Telework* – Finally, the percentage of applicants who receive telework information has dropped from 9% in 2005 to 5% in 2014. The change from 2005 to 2014 is a statistically significant change, perhaps related to the reduced level of telework promotion sponsored by Commuter Connections in 2008, 2011, and 2014, compared with 2005. It also could be related to greater promotion of telework by employers. In the 2013 regional State of Commute (SOC) survey, 73% of teleworkers said they learned of telework from their employers. This was similar to the 71% who noted this source in 2011, but a substantial increase over the 55% who reported their employer as the source of telework information in the 2007 SOC survey. Thus, applicants might have less need to seek telework information from Commuter Connections now than in 2008 and 2005.

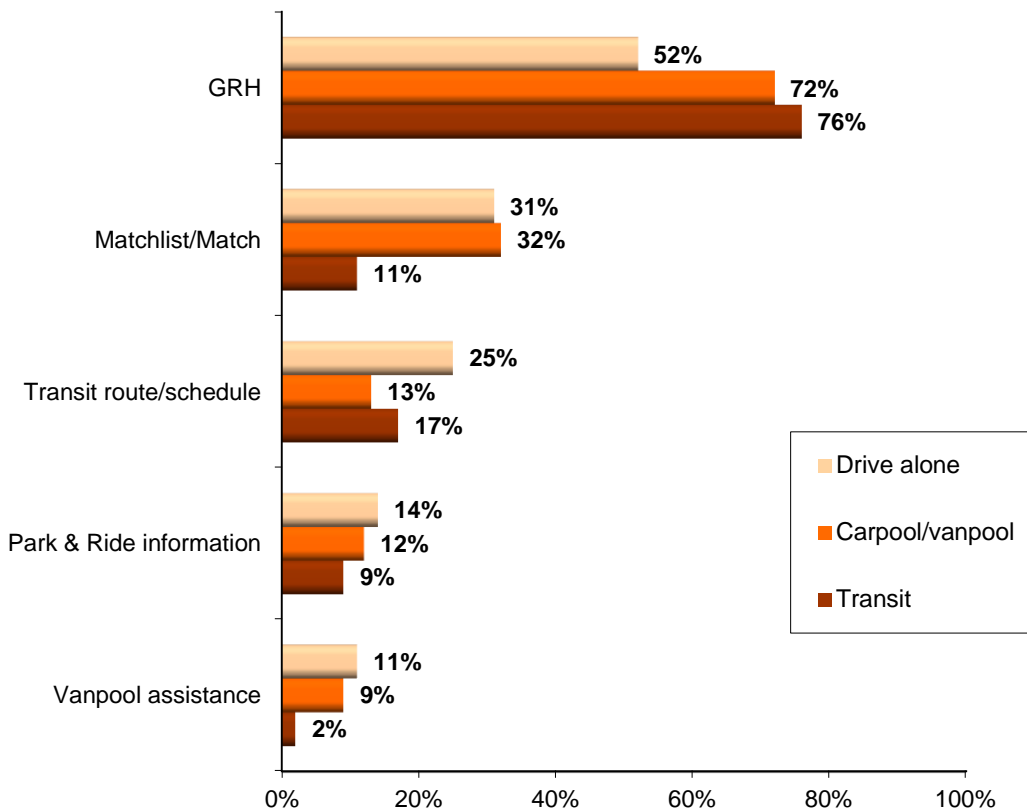
***Comparison of Services Received by Mode Before Seeking Services*** – Figure 20 presents the percentages of applicants who received various services in 2014 by the type of mode they were using at the time they sought the services: drive alone, carpool/vanpool, or transit. These results show different service user patterns.

*Drive Alone Commuters* – Applicants who were driving alone to work had strong interest in matchlists, vanpool assistance, and transit route / schedule information. They also sought Park & Ride lot information at about the same rate (14%) as did applicants who already were carpooling/vanpooling (12%), but a higher rate than did applicants who were using transit (9%) when they sought information.

*Carpoolers / Vanpoolers and Transit Riders* – Applicants who carpooled, vanpooled, or used transit at the time they sought information were equally likely to have sought information on Guaranteed Ride Home and were much more likely than were drive alone commuters to have sought this information. This is likely related to the fact that GRH is only available to commuters who use an alternative mode, but heavy promotion of GRH by some transit agencies to their riders also could have contributed to this result.

**Figure 20**  
**Information Received or Accessed from Commuter Connections by Mode**

(Drive alone n = 144, Carpool / vanpool n = 185, Transit n = 352, multiple responses permitted)  
 (Significant differences noted)



Carpoolers / vanpoolers sought matchlists and vanpool assistance at the same rate as did drive alone applicants, but at a much higher rate than did transit riders. The high matchlist use resulted in part from vanpoolers seeking additional or replacement riders, but the demand for matchlists among existing ridesharers indicates the role this service plays in retaining carpools and vanpools by finding replacement riders.

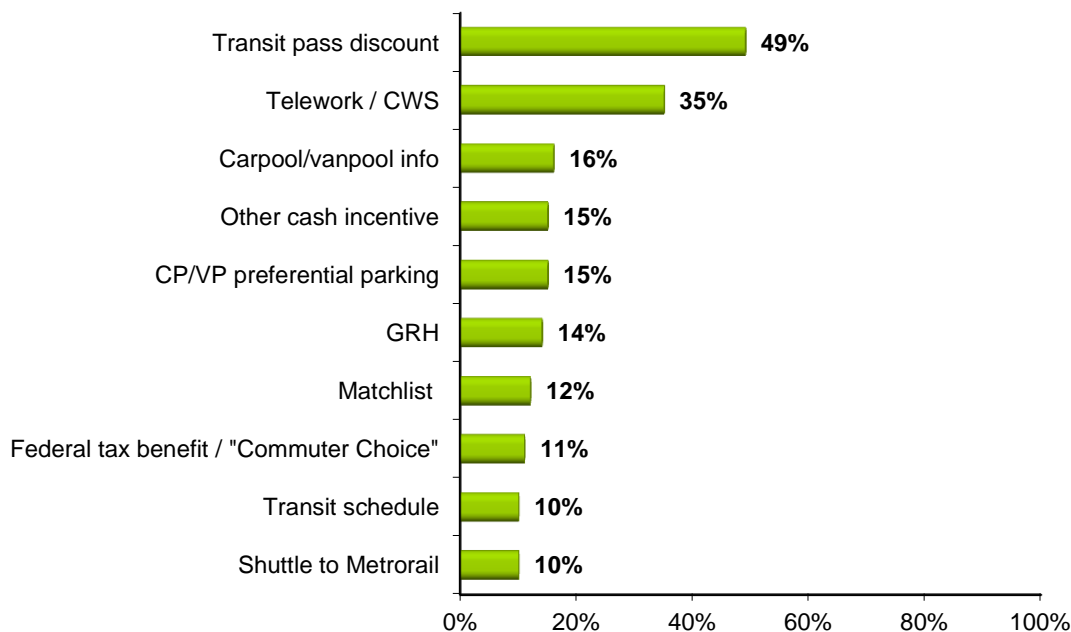
Applicants who were using transit when they sought information also sought transit information at a slightly higher rate than did carpoolers/vanpoolers, but at a lower rate than did drive alone commuters. Applicants' tendency to seek more information on modes they already were using suggests they were either satisfied with the modes or that they were using the only modes, other than driving alone, that were feasible for their commute needs.

### **Assistance Offered by Employers**

Applicants also were asked if their employers offered commute assistance services and if these services had influenced their commute decisions. More than eight in ten (83%) applicants said their employers did offer some services. Figure 21 lists individual services noted by applicants.

**Figure 21**  
**Commuter Assistance Services Offered by Employers**

(n = 697, multiple responses permitted)



The most common employer services were transit pass discounts, noted by 49% of applicants, and telework or compressed work schedule, offered by 35% of employers. Eight other services were mentioned by at least one in ten respondents: carpool/vanpool information (16%), other cash incentive (15%), preferential parking for carpools/vanpools (15%), GRH (14%), matchlist (12%), Federal "Commuter Choice" tax benefit incentive (11%), transit schedules (10%), and shuttle to Metrorail (10%).

#### **Assistance Offered by Other Commute Assistance Groups**

Applicants did not rely substantially on other organizations for commuter information or assistance; only about 2% of applicants indicated they received information from another organization. Most of these applicants received either transit route/schedule information or transit fare information.

### **USE OF COMMUTER CONNECTIONS SERVICES**

Applicants who received any of the following services were asked additional questions related to how they used information:

- Matchlist
- Carpool rider bulletin board
- Transit information
- Park & Ride information
- Bicycle / walking information
- Telework information
- Guaranteed Ride Home



### Use of Matchlist Information

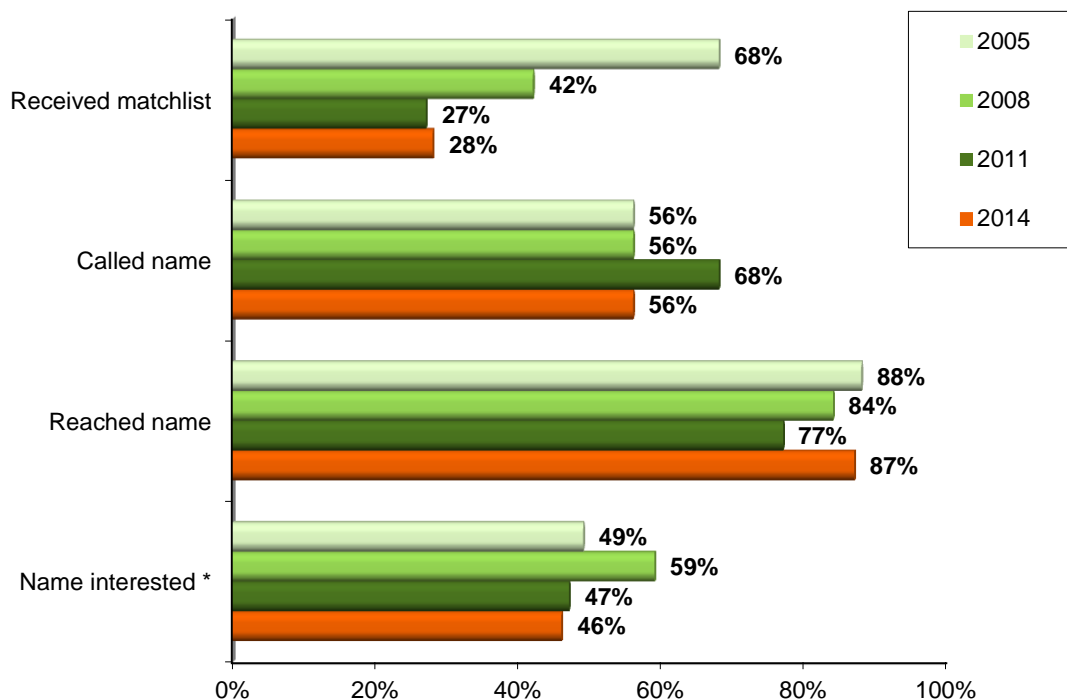
Applicants who said they received a matchlist of potential rideshare partners or a map with home and work locations of potential carpool/vanpool partners were asked about their use of matchlist information. Their responses are displayed in Figure 22. As noted earlier, the share of applicants who received matchnames dropped substantially from 2005 (68%) to 2014 (28%), but applicants who received a matchlist in 2014 were about equally likely to use the list as were applicants surveyed in 2005 and 2008.

**Tried to Make Contact** – About 56% of the applicants who received a matchlist in 2014 tried to contact one or more of the people named, a decrease from the 68% who tried in 2011 to reach a matchlist name, but the same percentage as attempted to make contact in 2005 and 2008.

The remaining 44% of applicants did not try to make contact. A primary reason for not trying to reach people on the list was that people named on the matchlist were not considered compatible partners; they either had “work hours not compatible with mine” (18%) or “work or home location not compatible with mine” (15%). But two in ten (21%) applicants who did not try to make contact said they already had found an alternative mode arrangement by the time they received the list and 22% decided they didn’t want to carpool or vanpool. Eight percent said they “haven’t gotten around to it.”

**Figure 22**  
**Actions Taken by Applicants who Received Matchnames**

(Received matchlist: 2005 n = 701, 2008 n = 703, 2011 n = 892, 2014 n = 716, multiple responses permitted)



\* In 2014, an additional 36% of respondents who reached a ridematch list name said people were interested but their schedules/destinations weren’t compatible

**Success in Reaching Someone Named on the Matchlist** – In 2014, 87% of applicants who did try to make contact were successful in reaching someone named on the list. This was about the same result as was observed in the 2005 and 2008 surveys, and an increase from the 2011 result of 77%. This suggests that the information provided on the matchlists was generally current and accurate.

**Interest in Ridesharing** – About half (46%) of applicants who reached someone said that person was interested in ridesharing, about the same share as was estimated in 2011 and 2005, but lower than the 2008 percentage (59%). It is possible the higher 2008 result was due to the motivation of higher gas prices. In 2014, another 36% said the people they reached were interested, but their schedules or destinations were not compatible. Twelve percent of applicants said the people they reached were not interested in carpooling.

To some extent, compatibility is an individual standard. One applicant might be willing to drive out of his way or arrive at work 30 minutes earlier than scheduled to take advantage of carpooling benefits, while another applicant would feel these accommodations were too inconvenient. But this result suggests the software might not match applicants with as much precision as some commuters would like.

### **Carpool Rider Bulletin Board**

Ten percent of applicants used the Carpool Rider Bulletin Board, on which commuters can post messages looking for a carpool partner or respond to messages posted by other commuters. These applicants were asked about their use of this service (Table 12).

**Table 12**  
**Use of Carpool Rider Bulletin Board**  
(n = 71)

<b>Bulletin Board Actions</b>	<b>Percentage</b>
<b>No action taken / don't remember</b>	<b>38%</b>
Looked at site – did not post or respond	35%
Don't remember	3%
<b>Actions Taken</b>	<b>62%</b>
Posted a message	33%
Responded to other commuters' messages	18%
Posted a message AND responded to messages	11%
<b>Results of Actions</b>	
Reached an interested commuter	54%
Reached interested commuter with incompatible commute	38%
Reached commuter who was not interested in carpooling	4%
Did not reach any commuters	4%

More than six in ten of the applicants who said they used the bulletin board noted that they posted a message or responded to a message from another commuter; 11% both posted and responded to messages. Over one-third said they looked at the postings on the bulletin board but did not take any further action. The remaining 3% of applicants said they did not remember if they had taken any action. The bulletin board has been in place for more

than 13 years, on the Commuter Connections website that preceded the online system, so it is possible that some of these applicants had used the bulletin board several years ago and did not recall their action at that time.

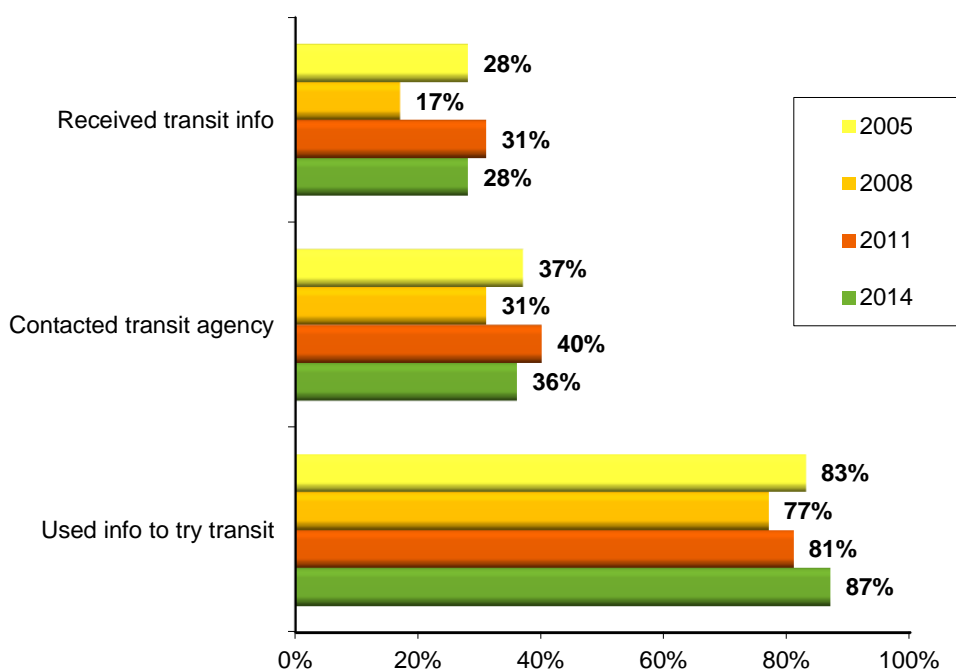
Among applicants who posted a message, 43% said another commuter had responded to their messages. Three in ten (30%) said one or two commuters responded and the remaining 13% said three or more commuters responded.

More than half (54%) of bulletin board users who tried to make contact with another commuter reached a commuter who was interested in carpooling. An additional 38% said they reached an interested commuter but their schedules or destinations were not compatible. Four percent were unable to reach any commuter and the remaining 4% said they reached only commuters who were not interested in carpooling.

### **Transit Information**

Slightly under three in ten (28%) applicants said they received transit information (Figure 23). As noted earlier, Commuter Connections includes on the matchlist and on the online ridematch map information on transit organizations that offer transit service that might meet the applicant's travel needs. This information is provided to all ridematch recipients, even if they did not request information. Commuter Connections staff also notify transit agencies to send transit information directly to applicants who make a formal request for the information. But the online system also offers direct links to websites of local and regional transit services, so the website has become an excellent self-service portal to access transit information directly.

**Figure 23**  
**Actions Taken by Applicants who Received Transit Information**  
 (Received transit info: 2014 n = 716, 2011 n = 892, 2008 n = 703, 2005 n = 701)



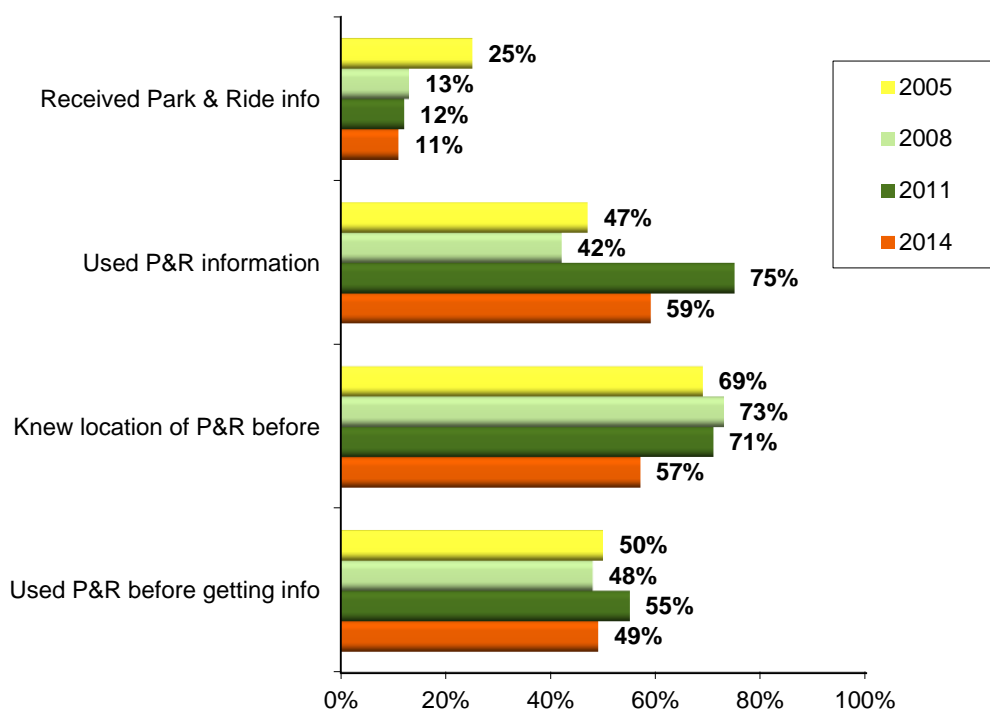
Slightly more than one-third (36%) of the applicants who received transit information used the information to contact a transit agency. This was not statistically different from the percentages estimated in the three previous surveys (2011 - 40%, 2008 - 31%, 2005 – 37%). Almost nine in ten (87%) of those who contacted a transit agency said they used information they received to try transit, the highest percentage of all surveys since 2005.

**Reasons for Not Contacting Transit Agency** – About half (53%) of the applicants who received transit information said they did not contact a transit agency. They gave a variety of reasons for not calling for transit schedule or route information. Two in ten (21%) said they “didn’t need more information.” This response could have several meanings, however, such as the applicant was not interested in using transit. It also could mean that the applicant already had as much transit information as needed, either from Commuter Connections’ online system or from another source. Six percent of respondents said they preferred to use another mode.

### **Park & Ride Information**

Commuter Connections also provides Park & Ride lot location information on matchlists and on the website. About 11% of applicants remembered receiving or accessing Park & Ride information in 2014 (Figure 24).

**Figure 24**  
**Actions Taken by Applicants who Received Park & Ride Lot Information**  
 (Received Park & Ride info: 2005 n = 701, 2008 n = 703, 2011 n = 892, 2014 n = 716)



Six in ten (59%) applicants who received Park & Ride information used the information provided, considerably less than the 75% noted in 2011, but still well above the percentages in 2008 (42%) and 2005 (47%). This suggests a larger share of commuters deliberately sought out the information in 2011 and 2014.

Additionally, in 2014, the share of applicants who knew the location of the lots before they received the information from Commuter Connections was lower than in previous years. But the percentage who had used the lot

before getting the information was essentially the same in 2014 as in 2008 and 2005 and only slightly lower than in 2011. Seven in ten (72%) applicants who used a Park & Ride lot listed on the matchlist said that using the lot was a factor in their decision to try using a new type of transportation.

### **Bicycle Information**

Five percent of applicants reported receiving bicycle information. One-third of these applicants made a bicycle travel change and six in ten of these applicants said the information was a factor in their decision to make the change. Two in ten started bicycling to work or increased how often they bicycle to work (Table 13). One-third said they started riding a bicycle or ride more often for non-work trips.

**Table 13**  
**Actions Taken After Receiving Bicycle Information**

(n = 29, multiple responses permitted)

<b>Bicycle Actions</b>	<b>Percentage</b>
Started bicycling to work	11%
Bicycle to work more often	11%
Started bicycling for non-work trips	18%
Bicycle more often for non-work trips	18%
Did not take any bicycle action	65%

### **Telework Information**

Five percent of applicants said they had received information from Commuter Connections about telework. About one-quarter (24%) of the applicants used the information to talk to their employers about telework and 34% said they used the information to start teleworking or to telework more often. Six in ten (59%) said they took no action with the information.

### **Guaranteed Ride Home**

Finally, the survey included questions about applicants' use of the Guaranteed Ride Home (GRH) program. Seven in ten (71%) applicants received or accessed information on GRH. Nearly all (97%) of these applicants subsequently registered for GRH.

As illustrated in Table 14, about 7% of applicants who received GRH information were driving alone to work at the time they requested the information. The remaining 93% were using an alternative mode; six in ten (60%) were riding transit, 18% vanpooled, and 13% carpooled.

**Table 14**  
**Modes Used When Requesting GRH Information**

(n = 491, multiple responses permitted)

<b>Modes Used</b>	<b>Percentage</b>
<b>Drive alone</b>	<b>7%</b>
<b>Alternative modes</b>	<b>93%</b>
- Bus, Metrorail, commuter rail	60%
- Vanpool	18%
- Carpool	13%
-Bike/walk	2%

## SECTION 4      PROGRESS ON PERFORMANCE MEASURES AND GOALS

### PERFORMANCE INDICATORS

One purpose of the evaluation was to document transportation and air quality impacts of the Commuter Operations Center. This report also documents Commuter Connections' progress on participation, utilization, and satisfaction performance measures.

**Participation, utilization, and satisfaction measures** can include, for example, the number of commuter assistance requests, number of matchlists provided, and users' satisfaction with the assistance. These measures are important primarily for tracking purposes, but also are used to assess **program impact measures**, the ultimate measures of results or benefits, such as transportation, air quality, and energy benefits. Program impact measures include, for example, the number of vehicle trips reduced.

The Commuter Operations Center's basic services include: carpool and vanpool matchlists, information on transit routes and schedules, information on Park & Ride lot locations, bicycling, telework, and information on HOV lanes and other HOV facilities. Commuters obtain services by submitting information and service requests via the Commuter Connection's website or toll-free telephone number, or through an employer, a local partner assistance program, or a transportation management association (TMA). Additionally, some services are available for immediate download from Commuter Connections' website.

The placement survey documented in this report collected data to calculate transportation and air quality impacts for Commuter Connections' services provided to commuters through the Commuter Operations Center. Impacts for other Commuter Connections TERMS, including: GRH, Telework, Employer Outreach, and Marketing are calculated primarily using data collected through other means. The results of these other impact analyses will be reported in June 2017, as part of the FY 2015-2017 TERM analysis.

### PARTICIPATION, UTILIZATION, AND SATISFACTION

The results of six participation, utilization, and satisfaction measures are presented in Table 15 below for the Commuter Connections Program overall. These data were drawn from the Commuter Connections database and from the commuter placement survey conducted for this project.

**Table 15**  
**Commuter Connections Program Activity Summary and**  
**Overall Participation, Utilization, and Satisfaction Performance Measures**  
**Placement Survey, July-September 2014**

• Commuter applicants	6,331	
• Applicant placement rates	48.6%	
- Continued placement rate		34.9%
- Occasional placement rate		3.3%
- Temporary placement rate		5.2%
- One-time placement rate		5.2%
• Applicants placed in alternative modes	3,078	
- Continued placements	2,211	
- Occasional placements	209	
- Temporary placements	323	
- One-time placements	329	
• Applicants who received matchlist		21%
• Applicants who received vanpool assistance		5%
• Applicants who received Park & Ride info		11%
• Applicants who received transit information		24%
• Applicants who received GRH information/registration		71%

## PROGRAM IMPACT MEASURES

COG also established five program impact performance measures to assess the impacts of Commuter Connections' commuter assistance services. These measures are:

- Vehicle trips (VT) reduced
- Vehicle miles traveled (VMT) reduced
- Emissions reduced
  - Tons of Nitrogen Oxides – NOx
  - Tons of Volatile Organic Compounds – VOC
  - Tons of Particulate Matter (2.5 microns) – PM 2.5
  - Tons of PM 2.5 NOx precursors
  - Tons of Carbon Dioxide (CO<sub>2</sub>, Greenhouse gas)
- Gallons of gasoline saved
- Commuter travel costs reduced

The results for these measures, calculated from the survey data and other data provided by Commuter Connections are shown in Table 16.



**Table 16**  
**Commuter Connections Program**  
**Program Impact Performance Measures**  
**Placement Survey, July-September 2014**

• Daily vehicle trips (VT) reduced	<b>961</b>	<b>trips</b>
- Continued placements	949	trips
- Temporary placements (prorated credit)	12	trips
• Daily VMT reduced	<b>27,738</b>	<b>VMT</b>
- Continued placements	27,426	VMT
- Temporary placements (prorated credit)	312	VMT
• Daily tons of Emissions reduced		
- NOx	<b>0.0118</b>	<b>tons</b>
- VOC	<b>0.0046</b>	<b>tons</b>
• Annual tons of Emissions reduced		
- PM 2.5	<b>0.128</b>	<b>tons</b>
- PM 2.5 NOx precursors	<b>2.922</b>	<b>tons</b>
- CO2 / Greenhouse gas	<b>2,929</b>	<b>tons</b>
• Gallons of gasoline saved	<b>1,089</b>	<b>daily gallons of gas</b>
• Commuter costs reduced		
- Annual cost saving per placement	<b>\$489</b>	<b>per year</b>

\* See Appendix C for calculations

Calculations of these impacts are briefly described below. Appendix C in this report provides a summary worksheet of the impact calculations. For further detail on the methodology used to calculate impacts, refer to the “Transportation Emission Reduction Measures (TERMs) Revised Evaluation Framework – FY2011 - FY2014,” May 21, 2013. The report is available from Commuter Connections.

### **Vehicle Trips Reduced**

Vehicle trip reduction (VTR) measures the number of vehicle trips no longer made as a result of commuters increasing their use of high occupancy modes. Vehicle trip reduction can occur from shifts from driving alone to an alternative mode, shifts within alternative modes to HIGHER occupancy alternatives, and increases in the number of days per week commuters use alternatives. The calculation of trip reduction must also account, however, for shifts that do not reduce, and indeed may increase, vehicle trips. These shifts include shifts within alternative modes to LOWER occupancy alternatives, and decreases in the number of days per week commuters use alternatives.

To simplify measuring the impacts of these various shifts, a “VTR factor” is used, combining the impacts of various changes into one number and equal to the average number of vehicle trips reduced by a new commuter “placement.” This factor is multiplied by the number of placements to estimate the vehicle trip reduction of all commuters placed in alternative modes.

VTR factors were derived from detailed examination of the types of changes reported by survey respondents for continued changes and temporary changes. Additionally, as was done for placement rates, the VTR multipliers were estimated for applicants who both lived and worked within the MWCOG Ozone Non-Attainment Area (Area) and those who either lived or worked outside it.

	<u>Within Area</u>	<u>Outside Area</u>
• Continued VTR =	0.40	0.46
• Temporary VTR =	0.18	0.38

The calculation of vehicle trip reduction for each change group was performed by multiplying the within Area VTR factor for that change group by the number of within Area placements for the group, multiplying the outside Area VTR factor by the outside Area placements, and adding these products together.

This calculation for continued changes resulted in **949 daily trips reduced by continued changes**. The calculation of vehicle trip reduction for temporary placements was handled similarly to that for continued placements except that an additional calculation was needed to discount these trip reductions, because these placements lasted only 6.7 weeks on average. Thus only about 13% of the temporary trip reduction was allocated to the placements, representing the portion of a year (6.7 / 52 weeks) when the mode was used. This resulted in **12 daily trips reduced by temporary changes**.

**All Placements VT Reduction** – The total vehicle trip reductions from continued and temporary commute changes of all applicants were then added to obtain a total trip reduction for all applicants.

This sum, 949 + 12, equaled **961 daily vehicle trips reduced**.

### **Vehicle Miles Traveled (VMT) Reduced**

The reduction in vehicle miles traveled, or VMT, is the second travel impact measure. It was calculated by multiplying the number of vehicle trips reduced by the average commute distance for respondents who made a commute change. The one-way trip distance for the within Area applicants was 28.9 miles for respondents with continued changes and 26.0 miles for respondents with temporary changes.

The actual one-way distance for the outside-Area applicants was considerably higher; 51.1 miles for continued changes and 73.6 miles for temporary changes. But many of these miles would have occurred outside the Ozone Non-attainment Area. Thus, to better represent the miles reduced for their travel within the Area, one-way travel distances for outside-Area applicants were set equal to the distances for the within-Area respondents. This resulted in a loss of 22.2 one-way miles per trip for outside-Area applicants who made continued changes and 44.7 miles per trip for outside-Area applicants who made a temporary change. The VMT calculation thus was as follows, resulting in 27,738 VMT reduced daily:

$$(949 \text{ continued trips reduced} \times 28.9 \text{ miles}) + (12 \text{ temporary trips reduced} \times 26.0 \text{ miles})$$

$$= \mathbf{27,738 \text{ VMT reduced}}$$

## Emissions Reduced

The calculation of emissions benefits, defined as tons of pollutants reduced, applied one regional emission factor to the number of vehicle trips or “trip ends” and another factor to VMT to determine the pollutants reduced as a result of the program. This analysis calculated emission reduction for five pollutants: Oxides of Nitrogen (NOx), Volatile Organic Compounds (VOC), Particulate Matter, 2.5 Microns (PM 2.5), PM 2.5 NOx precursors, and Carbon Dioxide (CO<sub>2</sub>, greenhouse gas).

For 2015, the emission factors are:

NOx:

Trip end (cold start)	=	1.5408 grams per one-way vehicle trip reduced
VMT (running)	=	0.3737 grams per vehicle mile reduced

VOC:

Trip end (cold start + hot soak)	=	2.8573 grams per one-way vehicle trip reduced
VMT (running)	=	0.0915 grams per vehicle mile reduced

PM 2.5:

Trip end (cold start + hot soak)	=	0.367 grams per one-way vehicle trip reduced
VMT (running)	=	0.0170 grams per vehicle mile reduced

PM 2.5, NOx precursor:

Trip end (cold start + hot soak)	=	1.7510 grams per one-way vehicle trip reduced
VMT (running)	=	0.3663 grams per vehicle mile reduced

CO<sub>2</sub> (Greenhouse gas):

Trip end (cold start + hot soak)	=	239.26 grams per one-way vehicle trip reduced
VMT (running)	=	404.17 grams per vehicle mile reduced

The trip end emission factor, estimating emissions from starting a cold-engine vehicle and the emissions from evaporation as a hot engine is cooling down, is multiplied by the estimated vehicle trips reduced, adjusted to remove commuters who make a drive alone trip to a rideshare or transit meeting point. The VMT (running) factor, which estimates emissions from running a warm-engine vehicle, is multiplied by the vehicle miles reduced, adjusted to account for the length of drive alone trips to rideshare and transit meeting points. The sum of the products of these two calculations determines daily emission reductions.

The emission reduction calculation is shown in Appendix C. The emissions reduced by all placements equaled **0.0118 daily tons of NOx and 0.0046 daily tons of VOC. PM 2.5 and CO<sub>2</sub> emissions were calculated on an annual basis. They totaled as follows: PM 2.5 – 0.128 annual tons, PM 2.5 NOx precursors – 2.922 annual tons, and CO<sub>2</sub> – 2,929 annual tons.**

### **Gallons of Gasoline Saved**

The fourth performance measure assesses the number of gallons of gasoline saved by increased use of alternative modes. This performance measure is calculated by dividing the number of daily VMT reduced by an average miles per gallon fuel efficiency of the mix of vehicles in the region. The calculation for this measure is shown in Appendix C. As shown, **1,089 gallons of gasoline were saved daily** from increased use of alternative modes by Commuter Connections applicants.

### **Commuter Travel Costs Reduced**

The fifth program impact performance measure is commuter travel costs reduced. This performance measure, which assesses benefits to commuters, was calculated by multiplying the number of daily VMT reduced by an average travel cost per mile for the mix of types of vehicles in the region.

This calculation, also presented in Appendix C indicates that new Commuter Connections **placements saved a total of \$1.1 million annually** by beginning or increasing their use of alternative modes. Dividing the annual overall saving by the number of commuter placements (continued plus prorated temporary placements), equals a saving of **\$489 per commuter per year**.

## **LIST OF APPENDICES**

**Appendix A** – Questionnaire for November 2014 Applicant Survey

**Appendix B** – Comparison of 2014 Survey Results with Results for 2011, 2008, 2005, 2004, 2003, and 2002 Surveys

**Appendix C** – Commuter Connections Impact Calculations, All Placements – July-September 2014

## Appendix A

### Questionnaire for December 2014 Applicant Survey

#### INTRODUCTION – SHOW ONLY ON THE FIRST PAGE OF THE SURVEY

Commuter Connections is conducting this online survey of people who received commute information or assistance from the Commuter Connections program or website. Your answers will be confidential. It will take about 10 minutes.

Please complete the survey and click on the “SUBMIT” button at the end. If you need to stop before you have finished the survey, your answers will be saved and you may come back and complete the remaining questions at a later time. Thank you for your participation.

Please click on the “NEXT” button below to begin the survey.

#### **START Q1 on NEW PAGE**

**Show QS1 and QS2 on the same page**

#### SCREENING FOR SERVICES USED

S1 Which of the following carpool and vanpool services have you accessed or received from Commuter Connections? You could have received them from the Commuter Connections website or through a letter, email, or phone call. Please check all that apply.

#### **ACCEPT MULTIPLES FOR 1-7, DO NOT ALLOW MULTIPLES WITH 90**

- 1 Names and contact information for people you could contact to form a carpool or vanpool (matchlist)
- 2 Map showing home and work locations of people you could contact to form a carpool or vanpool
- 3 Carpool / Vanpool rider wanted bulletin board
- 4 Other carpool / vanpool information
- 5 Vanpooling assistance
- 6 HOV lane information
- 7 'Pool Rewards carpool financial incentive
- 90 Did not receive any of these services from Commuter Connections (**PROGRAMMER: GREY OUT THIS BOX IF ANY OTHER RESPONSE IS CHECKED**)
- 99 *Question left blank*

- S2 Commuter Connections also offers information on telework, transit, and bicycling around the Washington metropolitan region. Which of the following services have you accessed or received from Commuter Connections? Please check all that apply.

**ACCEPT MULTIPLES FOR 1-9, DO NOT ALLOW MULTIPLES WITH 90**

- 1 Transit schedule or route information
  - 2 Transit fare information, SmarTrip
  - 3 Park & Ride lot information
  - 4 Telework information, telework center information
  - 5 Bicycle to Work Guide, bicycling information
  - 6 Online bicycle route planning
  - 7 Guaranteed Ride Home information or trip
  - 8 Special events information (e.g., Bike to Work Day, Car Free Day)
  - 9 Other (specify)
- 90 Did not receive any of these services from Commuter Connections (**PROGRAMMER: GREY OUT THIS BOX IF ANY OTHER RESPONSE IS CHECKED**)
- 99 *Question left blank*

**IF Q\_S1 = ANY RESPONSE 1-7 OR Q\_S2 = ANY RESPONSE 1-9, SKIP TO DEFINE USER**

**IF Q\_S1 = 90 OR 99 AND Q\_S2 = 90 OR 99, CONTINUE**

- S3 Do you recall **requesting or seeking** any of the following commute information or assistance from Commuter Connections, from a state or county commuter services organization, from a commute information website, or from your employer, even if you did not receive the information?

**ROTATE RESPONSES 1-15, SHOW “90-no services” AT THE END OF THE LIST. ACCEPT MULTIPLES FOR 1-15, DO NOT ALLOW MULTIPLES WITH 90**

- 1 Names and contact information for people you could contact to form a carpool or vanpool (matchlist)
  - 2 Map showing home and work locations of people you could contact to form a carpool or vanpool
  - 3 Carpool / vanpool rider bulletin board
  - 4 Other carpool / vanpool information
  - 5 Vanpooling assistance
  - 6 HOV lane information
  - 7 'Pool Rewards carpool financial incentive
  - 8 Transit schedule or route information
  - 9 Transit fare information, SmarTrip
  - 10 Park & Ride lot information
  - 11 Telework information, telework center information
  - 12 Bicycle to Work Guide, bicycling information
  - 13 Online bicycle route planning
  - 14 Guaranteed Ride Home information or trip
  - 15 Special events information (e.g., Bike to Work Day, Car Free Day)
- 90 Did not request or seek any of these services (**PROGRAMMER: GREY OUT THIS BOX IF ANY OTHER RESPONSE IS CHECKED**)
- 99 *Question left blank*

**IF Q\_S3 = 90 or 99 ONLY, SKIP TO DEFINE USER**

**IF Q\_S3 = ANY RESPONSE 1 – 15, CONTINUE TO Q\_S4**

S4 Are you still interested in receiving this information?

- 1 Yes (**CONTINUE TO Q\_S5**)
- 2 No (**SKIP TO DEFINE USER**)
- 9 *Question left blank* (**SKIP TO DEFINE USER**)

S5 Please provide your name and a phone number or email address below, to receive a follow-up contact from Commuter Connections.

---

**DEFUSER - DEFINE USER – FOR LATER BRANCHING**

Codes: 1 – Received, 2 – Requested, 3 – BB only (Bulletin board), 4 - Unknown

**CLASSIFY IN THE FOLLOWING ORDER:**

**IF Q\_S1 = ANY RESPONSE 1, 2, OR 4 – 7, DEFUSER = 1 (RECEIVED)**

**IF Q\_S2 = ANY RESPONSE 1 – 9, DEFUSER = 1 (RECEIVED)**

**IF Q\_S1 = 90 OR 99 AND Q\_S2 = 90 OR 99 AND Q\_S3 = ANY RESPONSE 1, 2 OR 4 – 15, DEFUSER = 2 (REQUESTED)**

**IF Q\_S1 = ONLY 3 AND Q\_S2 = 90 OR 99 AND Q\_S3 = 90 OR 99, DEFUSER = 3 (BB ONLY)**

**IF Q\_S1 = 90 OR 99 AND Q\_S2 = 90 OR 99 AND Q\_S3 = ONLY 3, DEFUSER = 3 (BB ONLY)**

**IF Q\_S1 = 90 OR 99 AND Q\_S2 = 90 OR 99 AND Q\_S3 = 90 OR 99, DEFUSER = 4 (UNKNOWN)**

**IF DEFUSER = 1, 2, OR 3, CONTINUE TO Q1**

**IF DEFUSER = 4, THANK AND TERMINATE – SHOW MESSAGE “That is all the questions we have. Thank you for participating in the Commuter Connections survey.”**

**HOW THEY GET TO WORK**

1 Next, please answer a few questions about your travel to and from work. In a TYPICAL week, how many weekdays (Monday-Friday) are you assigned to work?

- 1 1 day per week
- 2 2 days per week
- 3 3 days per week
- 4 4 days per week
- 5 5 days per week
- \_\_\_\_\_ Not currently working (**THANK AND TERMINATE**)



- 2 Which of the following best represents your work schedule?
- 1 Part-time schedule, less than 35 hours per week
  - 2 Full-time, 5 or more days per week, 35 or more hours per week
  - 3 4/40 compressed schedule (four 10-hour days per week, 40 hours)
  - 4 9/80 compressed schedule (9 days every 2 weeks, 80 hours)
  - 5 3/36 compressed schedule (three 12-hour days per week, 36 hours)
  - 6 Other (**SPECIFY**) \_\_\_\_\_
  - 9 Question left blank
- 3 Do you telecommute or telework? For purposes of this survey, “telecommuters” are defined as “wage and salary employees who at least occasionally work at home or at a telework or satellite center during an entire work day, instead of traveling to their regular work place.” Based on this definition, are you a telecommuter?
1. yes
  2. no
  - 8 Don’t know
  - 9 Question left blank

**IF Q3 = 2, 8, OR 9, SKIP TO Q4a**

- 4 How often do you usually telecommute?
- 1 Less than 1 time per month / only in emergencies (e.g., sick child, snowstorm)
  - 2 1 to 3 times a month
  - 3 1 day a week
  - 4 2 days a week
  - 5 3 days a week
  - 6 4 days a week
  - 7 5 days a week
  - 8 other (**SPECIFY**) \_\_\_\_\_
  - 9 Question left blank
- 4a How often are you away from your usual work location **for an entire day** for business or work travel (e.g., meetings / visits to clients or customers)?
- 1 Never, I don’t ever travel for work
  - 2 Occasionally, but less than 1 day per week
  - 3 Regularly, 1 or more days per week
  - 9 Question left blank

**Current Travel Grid (Typical week)**

- 5 Thinking about a TYPICAL week, Monday through Friday, how do you get to work? In the table below, enter the number of days you typically use each of the listed types of transportation. If you use more than one type on a single day (e.g., walk to the bus stop, then ride the bus), count only the type you use for the **longest distance part** of your trip to work.

**IF Q4a = 3, ALSO SHOW:** “For days that you are on business / work travel, please report the type of transportation you would use to get to work if you worked at your usual work location.”

**SHOW TO ALL RESPONDENTS:** Indicate also how many weekdays (if any) you do NOT typically travel to your usual work location and the reasons for not traveling to work (e.g., regular day off, telecommute, compressed work schedule day off).

**PROGRAMMER NOTES:**

**CHECK SUM OF DAYS. IF TOTAL OF 1-18 IS LESS THAN 5, SHOW MESSAGE:** “Please report for all days Monday – Friday, including telework days, compressed schedule days, and days you do not work.” **IF TOTAL OF 1-18 IS GREATER THAN 5, SHOW MESSAGE:** “You’ve reported more than five days. Please report only for Monday – Friday.”

**IF Q2 = 3, 4, OR 5 AND RESPONDENT DOES NOT CHECK "CWS day off" (RESPONSE 1), SHOW MESSAGE:** “You said you typically work a compressed work schedule. How many compressed schedule days do you typically have off in a week?” **(ACCEPT 0 AS A RESPONSE)**

**IF Q4 = 3, 4, 5, 6, OR 7 AND RESPONDENT DOES NOT CHECK "Telecommute" (RESPONSE 2), SHOW MESSAGE:** “You said you typically telework. How many days do you telework in a typical week? **(ACCEPT 0 AS A RESPONSE)**

Type of Transportation	Number of Days Used (0 to 5)
<b>Days you travel to your usual work location</b>	
3 Drive alone in a car, truck, van, or SUV	
4 Motorcycle	
5 Carpool, including carpool w/family member, dropped off (ride or drive with others in a car, truck, van, or SUV)	
6 Casual carpool (slugging)	
7 Vanpool	
8 N/A – don’t show on screen	
9 Bus (public bus, shuttle, buspool, express bus)	
10 Metrorail	
11 MARC (MD Commuter Rail)	
12 VRE	
13 AMTRAK / other train	
14 Bicycle (entire trip or longest distance part of trip from home to work)	
15 Walk (entire trip or longest distance part of trip from home to work)	
16 Taxi	
<b>Days you DO NOT travel to your usual work location</b>	
1 Compressed work schedule day off	
2 Telecommute / telework all day	
17 Regular day off	
18 Other (describe) _____	
<b>Total Days (DO NOT SHOW THIS LINE ON SCREEN)</b>	Sum of 1-18

**DEFINE Q5 MODES USED (ALLOW MULTIPLE MODES)**

AUTOCODE ONLY: don't show any messages or codes on the screen

CWDAYS = SUM OF Q5, RESPONSE 1  
 TWDAYS = SUM OF Q5, RESPONSE 2  
 DADAYS = SUM OF Q5, RESPONSE 3, 4, 16  
 CPDAYS = SUM OF Q5, RESPONSE 5, 6  
 VPDAYS = SUM OF Q5, RESPONSE 7  
 BUDAYS = SUM OF Q5, RESPONSE 9  
 MRDAYS = SUM OF Q5, RESPONSE 10  
 CRDAYS = SUM OF Q5, RESPONSE 11, 12, 13  
 BKDAYS = SUM OF Q5, RESPONSE 14  
 WKDAYS = SUM OF Q5, RESPONSE 15

IF CWDAYS > 0, Q5 MODE = 1 COMPRESSED SCHEDULE  
 IF TWDAYS > 0, Q5 MODE = 2 TELEWORK  
 IF DADAYS > 0, Q5 MODE = 3 DRIVE ALONE  
 IF CPDAYS > 0, Q5 MODE = 4 CARPOOL  
 IF VPDAYS > 0, Q5 MODE = 5 VANPOOL  
 IF BUDAYS > 0, Q5 MODE = 6 BUS  
 IF MRDAYS > 0, Q5 MODE = 7 METRORAIL  
 IF CRDAYS > 0, Q5 MODE = 8 COMMUTER TRAIN  
 IF BKDAYS > 0, Q5 MODE = 9 BICYCLE  
 IF WKDAYS > 0, Q5 MODE = 10 WALKING

**DEFINE PRIMARY MODE (mode used most days of week)**

SET PR\_MODE = Q5 MODE WITH HIGHEST NUMBER OF DAYS. IF TIE FOR HIGHEST NUMBER, CHOOSE PRIMARY MODE IN THIS PRIORITY ORDER:  
 5 (VANPOOL), 4 (CARPOOL), 7 (METRORAIL), 6 (BUS), 8 (COMMUTER TRAIN), 9 (BICYCLE), 10 (WALKING),  
 2 (TELEWORK), 3 (DRIVE ALONE)  
 DO NOT SELECT COMPRESSED SCHEDULE (1) AS PRIMARY MODE

**DEFINE CALTDAYS (days currently using alternative modes)**

CALTDAYS = TOTAL Q5 DAYS USING MODES 5, 6, 7, 9, 10, 11, 12, 13, 14, 15 (= CPDAYS + VPDAYS + BUDAYS + MRDAYS + CRDAYS+ BKDAYS + WKDAYS)

- 8 About how many miles do you usually travel from home to work one way?  
 \_\_\_\_\_ miles one way  
 999 Question left blank
- 9 And about how many minutes does it take you to get to work?  
 \_\_\_\_\_ minutes  
 999 Question left blank

9a At what time do you typically arrive at work?

- 1 12:00 am (midnight) – 5:59 am
- 2 6:00 am – 6:59 am
- 3 7:00 am – 7:59 am
- 5 8:00 am – 8:59 am
- 7 9:00 am – 9:59 am
- 9 10:00 am – 2:59 pm
- 10 3:00 pm – 6:59 pm
- 11 7:00 pm – 11:59 pm
- 99 Don't know
- 999 Question left blank

Check sum of days using Personal vehicle (DA/MC/Taxi, CP, VP) – Show different form of Q9b question depending on sum of vehicle days

**IF SUM OF (DADAYS + CPDAYS + VPDAYS) = 4 OR 5, INSERT V1 “What major roads do you use on your trip to work?”**

**IF SUM OF (DADAYS + CPDAYS + VPDAYS) = 1, 2, OR 3, INSERT V2, “On days that you drive or ride to work in a personal vehicle, what major roads do you use?”**

**IF SUM OF (DADAYS + CPDAYS + VPDAYS) = 0, INSERT V3, “If you were to drive to work, what major roads would you use?”**

9b **V1** – “What major roads do you use on your trip to work?”

**V2** – “On days that you drive or ride to work in a personal vehicle, what major roads do you use?”

**V3** – “If you were to drive to work, what major roads would you use?”

**THEN SHOW FOR ALL RESPONDENTS:**

“What Interstate highways or major U.S. or state roads?”

**DROP DOWN BOX FOR INTERSTATES**

“What major state or US routes?”

**DROP DOWN BOX FOR MAJOR STATE / US ROUTES**

“Any other major county or city roads?”

**OPEN-ENDED WRITE-IN BOX FOR OTHER ROADS**

**DROP DOWN BOX FOR Interstates**

- 1 Capital Beltway (I-495) (MD)
- 2 Capital Beltway (I-495) (VA)
- 3 I-66 OUTSIDE the Beltway (VA)
- 4 I-66 INSIDE the Beltway (VA)
- 5 I-95 (MD)
- 6 I-95 (VA)
- 7 I-270 (MD)
- 8 I-295 (DC / MD)
- 9 I-395 (VA)
- 10 I-695 (DC - Southeast-Southwest Freeway)

**DROP DOWN BOX FOR Major State / US Routes**

- 11 BW Parkway (US 295, Baltimore-Washington Parkway - MD)
- 12 Dulles Toll Road (Dulles Greenway, Route 267)
- 13 GW Parkway (George Washington Parkway)
- 14 ICC (Inter-County Connector, Route 200)
- 15 US Route 1 (MD)
- 16 US Route 1 (VA - Richmond Highway, Jefferson Davis Highway)
- 17 US Route 29 (MD - Colesville Road, Columbia Pike)
- 18 US Route 29 (VA – Lee Highway)
- 19 US Route 50 (MD – John Hanson Highway)
- 20 US Route 50 (VA – Lee Jackson Highway, Arlington Blvd, Fairfax Blvd)
- 21 US Route 301 (MD)

## Major Co/City roads – Open-ended – Coded in post-processing

- 22 Braddock Road (Route 620 - VA)
- 23 Branch Avenue (Route 5 - MD)
- 24 Canal Road, Cabin John Parkway (DC)
- 25 Central Avenue (Route 214 - MD)
- 26 Chain Bridge Road (VA Route 123)
- 27 Clara Barton Parkway (MD)
- 28 Columbia Pike (Route 244 - VA)
- 29 Connecticut Avenue (Route 185 – DC / MD)
- 30 Dolley Madison Blvd (Route 123 - VA)
- 31 Fairfax County Parkway (Route 7100, State Route 641 Route 286- VA)
- 32 Georgia Avenue (Route 97 - DC / MD)
- 33 Indian Head Highway (Route 210 - MD)
- 34 Leesburg Pike (Route 7 - VA)
- 35 Little River Turnpike (Route 236 - VA)
- 36 MacArthur Blvd (DC / MD)
- 37 New York Avenue (US Route 50 - DC)
- 38 North Capitol St (DC)
- 39 Pennsylvania Avenue (Route 4 – DC / MD)
- 40 Reston Parkway (VA)
- 41 Rhode Island Avenue (Route 1 - DC)
- 42 River Road (Route 190 – DC / MD)
- 43 Rockville Pike (Route 355 - MD)
- 44 Route 28 (Sully Road - VA)
- 45 Route 28 (MD)
- 46 Suitland Parkway (MD – MD 337)
- 47 Wisconsin Avenue (DC / MD)
- 48 16<sup>th</sup> Street (DC)

99 Other (specify) \_\_\_\_\_

999 Question left blank

**POOL MAKE-UP**

**IF CPDAYS = 0 AND VPDAYS = 0, SKIP TO INSTRUCTIONS BEFORE Q15**  
**IF CPDAYS > VPDAYS, ASK Q10-Q14, INSERT “carpool” AS Q5 MODE**  
**IF VPDAYS > CPDAYS, ASK Q10-Q14, INSERT “vanpool” AS Q5 MODE**  
**IF CPDAYS = VPDAYS, ASK Q10-Q14, INSERT “vanpool” AS Q5 MODE**

- 10 Including yourself, how many people usually ride in your [Q5 MODE, carpool, vanpool]?  
 \_\_\_\_\_ total people in pool  
 999 Question left blank
- 11 How many of the other people in your [Q5 MODE, carpool, vanpool], excluding yourself, are members of your family or members of your household?  
 \_\_\_\_\_ people are family/household members  
 999 Question left blank
- 12 How many are children under age 16?  
 \_\_\_\_\_ children under age 16  
 999 Question left blank
- 13 How many are co-workers?  
 \_\_\_\_\_ co-workers  
 999 Question left blank
- 14 How often are you the driver of your [Q5 MODE, carpool, vanpool]?  
 1 I always drive (AUTOCODE Q15 = 9, THEN SKIP TO Q20)  
 2 I sometimes drive or share driving, such as driving on alternate days or weeks  
 3 I never drive

**INSTRUCTIONS BEFORE Q15**

**IF Q5 MODE = 5 (VANPOOL), 4 (CARPOOL), 8 (COMMUTER TRAIN), 7 (METRORAIL TRAIN), OR 6 (BUS), ASK Q15-Q16**

**IF CPDAYS = 0 AND VPDAYS = 0 AND BUDAYS = 0 AND MRDAYS = 0 AND CRDAYS = 0, SKIP TO Q20**

**IF CPDAYS > 0 AND (CPDAYS > VPDAYS), ASK Q15-Q16, INSERTING “carpool” AS Q5 MODE**

**IF VPDAYS > 0 AND (VPDAYS > CPDAYS), ASK Q15-Q16, INSERTING “vanpool” AS Q5 MODE**

**IF (CPDAYS > 0 AND VPDAYS > 0) AND (CPDAYS = VPDAYS), ASK Q15-Q16, INSERTING “vanpool” AS Q5 MODE**

**IF (CPDAYS = 0 AND VPDAYS = 0) AND (BUDAYS > 0 OR MRDAYS > 0 OR CRDAYS > 0), ASK Q15 / Q16,**

**INSERTING <Q5 MODE> NAME DEFINED BY Q5 MOST DAYS USED AS FOLLOWS:**

- BUDAYS = bus
- MRDAYS = Metrorail train
- CRDAYS = commuter train

**IF Q5 MODE = bus, Metrorail train, or commuter train, DO NOT SHOW RESPONSES 1, 2 OR 9 ON THE SCREEN – SHOW ONLY 3, 4, 5, 6, 7, 8, 19**

**IF MORE THAN ONE OF THESE Q5 MODES, SELECT MODE WITH GREATEST NUMBER OF DAYS FOR Q15-Q16. IF TIE, SELECT MODE IN THIS PRIORITY ORDER: 5 (VANPOOL), 4 (CARPOOL), 8 (COMMUTER TRAIN), 7 (METRORAIL), 6 (BUS). (NOTE, DO NOT SELECT DRIVE ALONE, TELEWORK, COMPRESSED SCHEDULE, BICYCLE, OR WALKING FOR Q15-Q16).**

**IF Q14 = 2, ASK BEFORE Q15, “On days you are not the driver of the carpool or vanpool, ...”**

15 How do you get from home to where you meet your [Q5 MODE: vanpool, carpool, bus, Metrorail train, commuter train]?

- 1 Picked up at home by car/vanpool (or car/vanpool leaves from my home) (SKIP TO Q20)
- 2 Drive alone to driver's home or drive alone to passenger's home
- 3 Drive to a central location, like park & ride
- 4 Dropped off (including by household member)
- 5 Bicycle (personal bike or Capital Bikeshare bike)
- 6 Walk
- 7 Bus/transit
- 8 Taxi
- 9 I am always the driver of carpool/vanpool (SKIP TO Q20)
- 19 other (SPECIFY) \_\_\_\_\_

16 How many miles is it one way from your home to where you meet your [Q5 MODE: vanpool, carpool, commuter train, Metrorail train, bus]?

\_\_\_\_\_ miles (ALLOW ONE DECIMAL)

999 Question left blank

#### **CHANGES**

**[PROGRAMMER NOTE: Tests for travel changes applicants might have made. Changes are examined hierarchically (mode changes first, frequency changes next, then occupancy changes)]**

20 The next few questions ask about changes you might have made in your travel to work since you requested or obtained commute information or assistance. Since that time, did you make any of the following changes in how you travel to or from work, even if the change was only temporary? (ALLOW MULTIPLES FOR 1-9, DON'T ALLOW MULTIPLES WITH 90)

- 1 Started carpooling, joined or created a new carpool, started slugging
- 2 Started vanpooling, joined or created a new vanpool
- 3 Started riding a bus
- 4 Started riding Metrorail
- 5 Started riding MARC, VRE, or Amtrak
- 6 Started bicycling to work (entire trip or longest distance part of trip)
- 7 Started walking to work (entire trip or longest distance part of trip)
- 8 Started teleworking at least one day per week
- 9 Started working a compressed work schedule
- 90 Did not make any of these changes

- 21 Since you requested or obtained assistance, did you **increase** the number of days per week that you used any of the following types of transportation for your trip to work, again, even if only temporarily? **(ALLOW MULTIPLES FOR 1-8, DON'T ALLOW MULTIPLES WITH 90)**
- 1 Carpool, slug / casual carpool
  - 2 Vanpool
  - 3 Bus
  - 4 Metrorail
  - 5 MARC, VRE, or Amtrak
  - 6 Bicycle (entire trip or longest distance part of trip)
  - 7 Walking (entire trip or longest distance part of trip)
  - 8 Telework days
  - 90 No, didn't increase days using these types of transportation
- 22 Did you try any other type of transportation to get to work, even if only once, since you requested or obtained assistance from Commuter Connections? **(ALLOW MULTIPLES FOR 1-9, DON'T ALLOW MULTIPLES WITH 90)**
- 1 Tried carpooling, slugging / casual carpooling
  - 2 Tried vanpooling
  - 3 Tried bus
  - 4 Tried Metrorail
  - 5 Tried MARC, VRE, AMTRAK
  - 6 Tried bicycling
  - 7 Tried walking
  - 8 Tried teleworking
  - 9 Tried driving alone, started driving alone
  - 90 No, did not make any of these changes

### **Q23 - DEFINE INITIAL MODE CHANGES – AUTOCODE ONLY – MULTIPLE RESPONSE**

**REVIEW Q20, Q21, Q22, CODE ALL CHANGES AS FOLLOWS:**

**IF Q20 = 90 AND Q21 = 90 AND (Q22 = ONLY 9 OR 90), AUTOCODE Q23 = 90**

**IF Q20 = 1 OR Q21 = 1 OR Q22 = 1 AND CPDAYS > 0, Q23 = 1 (Continued carpool)**

**IF Q20 = 2 OR Q21 = 2 OR Q22 = 2 AND VPDAYS > 0, Q23 = 2 (Continued vanpool)**

**IF Q20 = 3 OR Q21 = 3 OR Q22 = 3 AND BUDAYS > 0, Q23 = 3 (Continued bus)**

**IF Q20 = 4 OR Q21 = 4 OR Q22 = 4 AND MRDAYS > 0, Q23 = 4 (Continued Metrorail)**

**IF Q20 = 5 OR Q21 = 5 OR Q22 = 5 AND CRDAYS > 0, Q23 = 5 (Continued commuter train)**

**IF Q20 = 6 OR Q21 = 6 OR Q22 = 6 AND BKDAYS > 0, Q23 = 6 (Continued bicycle)**

**IF Q20 = 7 OR Q21 = 7 OR Q22 = 7 AND WKDAYS > 0, Q23 = 7 (Continued walking)**

**IF Q20 = 8 OR Q21 = 8 OR Q22 = 8 AND TWDAYS > 0, Q23 = 8 (Continued telework)**

**IF Q20 = 1 OR Q21 = 1 OR Q22 = 1 AND CPDAYS = 0, Q23 = 11 (Temporary carpool)**

**IF Q20 = 2 OR Q21 = 2 OR Q22 = 2 AND VPDAYS = 0, Q23 = 12 (Temporary vanpool)**

**IF Q20 = 3 OR Q21 = 3 OR Q22 = 3 AND BUDAYS = 0, Q23 = 13 (Temporary bus)**

**IF Q20 = 4 OR Q21 = 4 OR Q22 = 4 AND MRDAYS = 0, Q23 = 14 (Temporary Metrorail)**

**IF Q20 = 5 OR Q21 = 5 OR Q22 = 5 AND CRDAYS = 0, Q23 = 15 (Temporary commuter train)**

**IF Q20 = 6 OR Q21 = 6 OR Q22 = 6 AND BKDAYS = 0, Q23 = 16 (Temporary bicycle)**

**IF Q20 = 7 OR Q21 = 7 OR Q22 = 7 AND WKDAYS = 0, Q23 = 17 (Temporary walking)**

**IF Q20 = 8 OR Q21 = 8 OR Q22 = 8 AND TWDAYS = 0, Q23 = 18 (Temporary telework)**



- 1 Continued carpool
- 2 Continued vanpool
- 3 Continued bus
- 4 Continued Metrorail
- 5 Continued commuter train
- 6 Continued bicycle
- 7 Continued walking
- 8 Continued telework
  
- 11 Temporary carpool
- 12 Temporary vanpool
- 13 Temporary bus
- 14 Temporary Metrorail
- 15 Temporary commuter train
- 16 Temporary bicycle
- 17 Temporary walking
- 18 Temporary telework
  
- 90 No mode change

**BRANCHING INSTRUCTIONS**

**IF Q23 = 90 (NO MODE CHANGE), SKIP TO Q26**

**IF Q23 = ONLY RESPONSES 1-8 (continued mode change), SKIP TO Q26**

**IF Q23 = ANY OF 11-18 (temporary mode change), CONTINUE WITH Q24. ASK Q24 FOR EACH TEMPORARY MODES 11-18 CODED IN Q23.**

**NOTE: IF THEY APPLY TO THE RESPONDENT Q24 – Q25 ARE MANDATORY QUESTIONS; “Left blank” is no longer a valid option for these questions.**

- 24 You indicated you made a change to a new type of transportation that you don’t typically use now to get to work. Was this a temporary change or do you still use it for your commute now, even if only occasionally?

**LIST ALL TEMPORARY MODES (11-18) CHECKED/CODED IN Q23 – DO NOT INCLUDE ANY CONTINUED MODE CHECKED IN Q23 (responses 1-8)**

<b>Type of Transportation</b>	<b>(1) Temporary Change</b>	<b>(2) Still use - less than 1 day per week</b>	<b>(3) Still use - 1 or more days per week</b>
1 Carpool	_____	_____	_____
2 Vanpool	_____	_____	_____
3 Bus	_____	_____	_____
4 Metrorail	_____	_____	_____
5 Commuter train (MARC, VRE, Amtrak)	_____	_____	_____
6 Bicycle	_____	_____	_____
7 Walking	_____	_____	_____
8 Telework	_____	_____	_____

**IF Q24 = RESPONSE 1 (temporary change) FOR ANY MODE, ASK Q25. REPEAT Q25 FOR EACH TEMPORARY MODE**  
**IF Q24 = ONLY RESPONSES 2 OR 3 (still use) SKIP TO Q26**

- 25 How long did this temporary change to [Q24 MODE: carpool, vanpool, bus, Metrorail, commuter train, bicycle, walking, telework] last?
- 1 Less than one week
  - 2 1 to 3 weeks
  - 3 4 to 7 weeks
  - 4 8 to 11 weeks
  - 5 12 weeks or more (3 or more months)
  - 9 Don't recall

**NOTE: Q26 IS MANDATORY QUESTION; "Left blank" is no longer a valid option.**

- 26 Finally, did you add another person or replace a person in an existing carpool or vanpool?
- 1 Yes, added or replaced person in a carpool
  - 2 Yes, added or replaced person in a vanpool
  - 90 No

**Q27 CHECK FOR OCCUPANCY CHANGES FROM Q26 – AUTOCODE ONLY-ONE RESPONSE ONLY**

**IF Q26 = 1 AND CPDAYS > 0, Q27 = 1 (Continued carpool)**

**IF Q26 = 2 AND VPDAYS > 0, Q27 = 2 (Continued vanpool)**

**IF Q26 = 1 AND CPDAYS = 0, Q27 = 3 (Temporary carpool)**

**IF Q26 = 2 AND VPDAYS = 0, Q27 = 4 (Temporary vanpool)**

**IF Q26 = 90, Q27 = 9 (No occupancy change)**

- 1 Continued carpool occupancy
- 2 Continued vanpool occupancy
- 3 Temporary carpool occupancy
- 4 Temporary vanpool occupancy
- 9 No occupancy change

**28 ALL CHANGES – AUTOCODE ONLY – ALLOW MULTIPLE RESPONSE**

**REVIEW Q23, Q24, Q25, Q27, CODE ALL CHANGES AS FOLLOWS:**

**IF Q23 = 90 AND Q27 = 9, AUTOCODE Q28 = 90**

**IF Q23 = 1, Q28 = 1 (Continued carpool)  
 IF Q23 = 2, Q28 = 2 (Continued vanpool)  
 IF Q23 = 3, Q28 = 3 (Continued bus)  
 IF Q23 = 4, Q28 = 4 (Continued Metrorail)  
 IF Q23 = 5, Q28 = 5 (Continued commuter train)  
 IF Q23 = 6, Q28 = 6 (Continued bicycle)  
 IF Q23 = 7, Q28 = 7 (Continued walking)  
 IF Q23 = 8, Q28 = 8 (Continued telework)**

**IF Q24 = 1 FOR carpool AND Q25 = 2-5 OR 9 FOR carpool, Q28 = 11 (Temporary carpool)  
 IF Q24 = 1 FOR vanpool AND Q25 = 2-5 OR 9 FOR vanpool, Q28 = 12 (Temporary vanpool)  
 IF Q24 = 1 FOR bus AND Q25 = 2-5 OR 9 FOR bus, Q28 = 13 (Temporary bus)  
 IF Q24 = 1 FOR Metrorail AND Q25 = 2-5 OR 9 FOR Metrorail, Q28 = 14 (Temporary Metrorail)  
 IF Q24 = 1 FOR commuter rail AND Q25 = 2-5 OR 9 FOR commuter rail, Q28 = 15 (Temporary commuter train)  
 IF Q24 = 1 FOR bicycle AND Q25 = 2-5 OR 9 FOR bicycle, Q28 = 16 (Temporary bicycle)  
 IF Q24 = 1 FOR walking AND Q25 = 2-5 OR 9 FOR walking, Q28 = 17 (Temporary walking)  
 IF Q24 = 1 FOR telework AND Q25 = 2-5 OR 9 FOR telework, Q28 = 18 (Temporary telework)**

**IF Q24 = 2 or 3 FOR carpool, Q28 = 21 (Occasional carpool)  
 IF Q24 = 2 or 3 FOR vanpool, Q28 = 22 (Occasional vanpool)  
 IF Q24 = 2 or 3 FOR bus, Q28 = 23 (Occasional bus)  
 IF Q24 = 2 or 3 FOR Metrorail, Q28 = 24 (Occasional Metrorail)  
 IF Q24 = 2 or 3 FOR commuter rail, Q28 = 25 (Occasional commuter train)  
 IF Q24 = 2 or 3 FOR bicycle, Q28 = 26 (Occasional bicycle)  
 IF Q24 = 2 or 3 FOR walking, Q28 = 27 (Occasional walking)  
 IF Q24 = 2 or 3 FOR telework, Q28 = 28 (Occasional telework)**

**IF Q24 = 1 FOR carpool AND Q25 = 1 FOR carpool, Q28 = 31 (One-time carpool)  
 IF Q24 = 1 FOR vanpool AND Q25 = 1 FOR vanpool, Q28 = 32 (One-time vanpool)  
 IF Q24 = 1 FOR bus AND Q25 = 1 FOR bus, Q28 = 33 (One-time bus)  
 IF Q24 = 1 FOR Metrorail AND Q25 = 1 FOR Metrorail, Q28 = 34 (One-time Metrorail)  
 IF Q24 = 1 FOR commuter rail AND Q25 = 1 FOR commuter rail, Q28 = 35 (One-time commuter train)  
 IF Q24 = 1 FOR bicycle AND Q25 = 1 FOR bicycle, Q28 = 36 (One-time bicycle)  
 IF Q24 = 1 FOR walking AND Q25 = 1 FOR walking, Q28 = 37 (One-time walking)  
 IF Q24 = 1 FOR telework AND Q25 = 1 FOR telework, Q28 = 38 (One-time telework)**

**IF Q27 = 1 OR 2, Q28 = 9 (Continued occupancy)  
 IF Q27 = 3 OR 4, Q28 = 19 (Temporary occupancy)**

- 1 Continued carpool
- 2 Continued vanpool
- 3 Continued bus
- 4 Continued Metrorail
- 5 Continued commuter train
- 6 Continued bicycle
- 7 Continued walking
- 8 Continued telework
- 9 Continued occupancy
  
- 11 Temporary carpool
- 12 Temporary vanpool
- 13 Temporary bus
- 14 Temporary Metrorail
- 15 Temporary commuter train
- 16 Temporary bicycle
- 17 Temporary walking
- 18 Temporary telework
- 19 Temporary occupancy
  
- 21 Occasional carpool
- 22 Occasional vanpool
- 23 Occasional bus
- 24 Occasional Metrorail
- 25 Occasional commuter train
- 26 Occasional bicycle
- 27 Occasional walking
- 28 Occasional telework
  
- 31 One-time carpool
- 32 One-time vanpool
- 33 One-time bus
- 34 One-time Metrorail
- 35 One-time commuter train
- 36 One-time bicycle
- 37 One-time walking
- 38 One-time telework
  
- 90 No change

**Q30 – DEFINE FINAL CHANGE – AUTOCODE ONLY – ONE RESPONSE ONLY****SELECT ONE CHANGE FROM Q28 LIST AS FINAL CHANGE: SET WITH THIS PRIORITY****Continued Mode Change**

IF Q28 = ANY OF 1-8 (Continued mode change), SET Q30 = Q28 CHANGE 1-8 WITH MOST Q5 DAYS. IF TIE FOR MOST DAYS, SELECT CHANGE USING THE FOLLOWING HIERARCHY: 2 (Continued vanpool), 1 (Continued carpool), 4 (Continued Metrorail), 3 (Continued bus), 5 (Continued commuter rail), 6 (Continued bicycle), 7 (Continued walking), 8 (Continued telework)

**Continued Occupancy Change**

IF Q28 NE ANY OF 1-8, BUT Q28 = 9 (Continued occupancy), SET Q30 = 9

**Temporary Change**

IF Q28 NE ANY OF 1-9, BUT Q28 = ANY OF 11-18 (Temporary mode change), SET Q30 = Q28 CHANGE 11-18 WITH LONGEST Q25 DURATION. IF TIE FOR LONGEST DURATION, SELECT CHANGE USING THE FOLLOWING HIERARCHY: 12 (Temporary vanpool), 11 (Temporary carpool), 14 (Temporary Metrorail), 13 (Temporary bus), 15 (Temporary commuter rail), 16 (Temporary bicycle), 17 (Temporary walking), 18 (Temporary telework)

**Temporary Occupancy Change**

IF Q28 NE ANY OF 1-18, BUT Q28 = 19 (Temp occupancy), SET Q30 = 19

**Occasional Change**

IF Q28 NE ANY OF 1-19 BUT Q28 = ANY OF 21-28, SET Q30 = Q28 CHANGE 21-28 USING THE FOLLOWING HIERARCHY: 22 (Occasional vanpool), 21 (Occasional carpool), 24 (Occasional Metrorail), 23 (Occasional bus), 25 (Occasional commuter rail), 26 (Occasional bicycle), 27 (Occasional walking), 28 (Occasional telework)

**One-time Change**

IF Q28 NE ANY OF 1-28 BUT Q28 = ANY OF 31-38, SET Q30 = Q28 CHANGE 31-38 USING THE FOLLOWING HIERARCHY: 32 (OT vanpool), 31 (OT carpool), 34 (OT Metrorail), 33 (OT bus), 35 (OT commuter rail), 36 (OT bicycle), 37 (OT walking), 38 (OT telework).

IF Q28 = 90, SET Q30 = 90

- 1 Continued carpool
- 2 Continued vanpool
- 3 Continued bus
- 4 Continued Metrorail
- 5 Continued commuter train
- 6 Continued bicycle
- 7 Continued walking
- 8 Continued telework
- 9 Continued occupancy

- 11 Temporary carpool
- 12 Temporary vanpool
- 13 Temporary bus
- 14 Temporary Metrorail
- 15 Temporary commuter train
- 16 Temporary bicycle
- 17 Temporary walking
- 18 Temporary telework
- 19 Temporary occupancy

- 21 Occasional carpool
- 22 Occasional vanpool
- 23 Occasional bus
- 24 Occasional Metrorail
- 25 Occasional commuter train
- 26 Occasional bicycle
- 27 Occasional walking
- 28 Occasional telework

- 31 One-time carpool
- 32 One-time vanpool
- 33 One-time bus
- 34 One-time Metrorail
- 35 One-time commuter train
- 36 One-time bicycle
- 37 One-time walking
- 38 One-time telework

- 90 No change

**Q30 MODE – DEFINE MODE TO INSERT IN NEXT SECTION – AUTOCODE ONLY – ONE RESPONSE ONLY**

SELECT ONE MODE FROM Q30 LIST: SET WITH THIS PRIORITY

IF Q30 = 1, 11, 21, OR 31, Q30 MODE = 1 carpool

IF Q30 = 2, 12, 22, OR 32, Q30 MODE = 2 vanpool

IF Q30 = 3, 13, 23, OR 33, Q30 MODE = 3 bus

IF Q30 = 4, 14, 24, OR 34, Q30 MODE = 4 Metrorail

IF Q30 = 5, 15, 25, OR 35, Q30 MODE = 5 commuter train

IF Q30 = 6, 16, 26, OR 36, Q30 MODE = 6 bicycle

IF Q30 = 7, 17, 27, OR 37, Q30 MODE = 7 walking

IF Q30 = 8, 18, 28, OR 38, Q30 MODE = 8 telework

IF Q30 = 9, 19, AND Q27 = 1 OR 3, Q30 MODE = 1 carpool

IF Q30 = 9, 19, AND Q27 = 2 OR 4, Q30 MODE = 2 vanpool

IF Q30 = 90, Q30 MODE = 9 None

- 1 Carpool
- 2 Vanpool
- 3 Bus
- 4 Metrorail
- 5 Commuter train
- 6 Bicycle
- 7 Walking
- 8 Telework
- 9 None

**Q31 CHANGE TYPE – AUTOCODE ONLY**

IF Q30 = ANY OF 1 – 9, Q31 = 1 (Continued change)

IF Q30 = ANY OF 11 – 19, Q31 = 2 (Temporary change)

IF Q30 = ANY OF 21 – 28, Q31 = 3 (Occasional change)

IF Q30 = ANY OF 31 – 38, Q31 = 4 (One-time change)

IF Q30 = 90, Q31 = 9 (No change)

- 1 Continued change
- 2 Temporary change
- 3 Occasional change
- 4 One-time change
- 9 No change

BRANCHING INSTRUCTIONS – QUESTIONS REGARDING MODE BEFORE CHANGE

**IF Q31 = 9 (no change), SKIP TO Q60**

**IF Q31 = 1 (continued change), SKIP TO INSTRUCTIONS BEFORE Q50**

**IF Q31 = 3 (occasional change), SKIP TO INSTRUCTIONS BEFORE Q50**

**IF Q31 = 4 (one-time change), SKIP TO Q60**

Autofill temporary travel grid for temporary changers who did not change mode or frequency

**IF Q30 = 19 [occupancy change with no mode change), AUTOFILL Q41 = Q1, AUTOFILL Q43 = Q5, THEN SKIP TO INSTRUCTIONS BEFORE Q46.**

**IF Q30 = 11, CONTINUE WITH Q41, INSERT ‘carpool’ AS Q30 MODE**

**IF Q30 = 12, CONTINUE WITH Q41, INSERT ‘vanpool’ AS Q30 MODE**

**IF Q30 = 13, CONTINUE WITH Q41, INSERT ‘bus’ AS Q30 MODE**

**IF Q30 = 14, CONTINUE WITH Q41, INSERT ‘Metrorail’ AS Q30 MODE**

**IF Q30 = 15, CONTINUE WITH Q41, INSERT ‘commuter train’ AS Q30 MODE**

**IF Q30 = 16, CONTINUE WITH Q41, INSERT ‘bicycle’ AS Q30 MODE**

**IF Q30 = 17, CONTINUE WITH Q41, INSERT ‘walking’ AS Q30 MODE**

**IF Q30 = 18, CONTINUE WITH Q41, INSERT ‘telework’ AS Q30 MODE**

TRAVEL DURING TEMPORARY CHANGE

41 During the time of this temporary change to [Q30 MODE: **carpool, vanpool, bus, Metrorail, commuter train, bicycle, walking, telework**], how many weekdays, Monday through Friday, were you assigned to work in a typical week?

- 1 1 day per week (**SKIP TO Q43**)
- 2 2 days per week (**SKIP TO Q43**)
- 3 3 days per week
- 4 4 days per week
- 5 5 days per week (**SKIP TO Q43**)
- 9 Did not work then (**SKIP TO Q60**)

**IF Q41 = 3 or 4, ASK Q42**

42 At that time, did you work a compressed work schedule, for example, four-ten hour days per week or did you work a part-time schedule?

- 1 Worked compressed work schedule
- 2 Worked part-time
- 3 Other (specify) \_\_\_\_\_
- 9 *Left blank*

43 During the time of your temporary change to [Q30 MODE: **carpool, vanpool, bus, Metrorail, commuter train, bicycle, walking, telework**], how did you get to work? Enter the number of days you typically used each of the listed types of transportation. If you used more than one type on a single day (e.g., walked to the bus stop, then rode the bus), count only the type you used for the **longest distance part** of your trip.

**IF Q4a = 3, ALSO SHOW:** “For days that you were on business / work travel, please report the type of transportation you would use to get to work if you worked at your usual work location.”



**SHOW ALL RESPONDENTS:** Indicate also how many weekdays you did NOT travel to your usual work location and the reasons (e.g., regular day off, telework, compressed work schedule day off) for not traveling to work.

**PROGRAMMER NOTES:**

**CHECK SUM OF DAYS. IF TOTAL OF 1-18 IS LESS THAN 5, SHOW MESSAGE:** “Please report for all days Monday – Friday, including days you did not work.” **IF TOTAL OF 1-18 IS GREATER THAN 5, SHOW MESSAGE:** “You’ve reported more than five days. Please report only for Monday – Friday.”

**IF Q42 = 1 AND RESPONDENT DOES NOT REPORT "CWS day off" (RESPONSE 1), SHOW MESSAGE:** “You said you typically worked a compressed work schedule. How many compressed schedule days did you typically have off during the time of this temporary change.” PERMIT “0” AS THE RESPONSE.

**IF Q4 = 3, 4, 5, 6, OR 7 AND RESPONDENT DOES NOT CHECK "Telecommute" (RESPONSE 2), SHOW MESSAGE:** “You said you typically telework. How many days did you telework during the time of this temporary change.” ACCEPT “0” AS RESPONSE.

Type of Transportation	Number of Days Used (0 to 5)
<b>Days you traveled to your usual work location</b>	
3 Drove alone in a car, truck, van, or SUV	
4 Motorcycle	
5 Carpool, including carpool w/family member, dropped off (ride or drive with others in a car, truck, van, or SUV)	
6 Casual carpool (slugging)	
7 Vanpool	
8 N/A – DO NOT SHOW ON SCREEN	
9 Bus (public bus or shuttle, buspool, express bus)	
10 Metrorail	
11 MARC (MD Commuter Rail)	
12 VRE	
13 AMTRAK / other train	
14 Bicycle (entire trip or longest distance part of trip from home to work)	
15 Walk (entire trip or longest distance part of trip from home to work)	
16 Taxi	
<b>Days you did not travel to your usual work location</b>	
1 Compressed work schedule day off	
2 Telecommute / telework all day	
17 Regular day off	
18 Other (describe) _____	
<b>Total Days (DO NOT SHOW THIS LINE ON SCREEN)</b>	Sum of 1-18

**DEFINE Q43 MODES USED (ALLOW MULTIPLE MODES):**

D\_CWDAYS = SUM OF Q43, RESPONSE 1  
 D\_TWDAYS = SUM OF Q43, RESPONSE 2  
 D\_DADAYS = SUM OF Q43, RESPONSE 3, 4, 16  
 D\_CPDAYS = SUM OF Q43, RESPONSE 5, 6  
 D\_VPDAYS = SUM OF Q43, RESPONSE 7  
 D\_BUDAYS = SUM OF Q43, RESPONSE 9  
 D\_MRDAY = SUM OF Q43, RESPONSE 10  
 D\_CRDAY = SUM OF Q43, RESPONSE 11, 12, 13  
 D\_BKDAY = SUM OF Q43, RESPONSE 14  
 D\_WKDAY = SUM OF Q43, RESPONSE 15

IF D\_CWDAYS > 0, Q43 MODE = COMPRESSED SCHEDULE  
 IF D\_TWDAYS > 0, Q43 MODE = TELEWORK  
 IF D\_DADAYS > 0, Q43 MODE = DRIVE ALONE  
 IF D\_CPDAYS > 0, Q43 MODE = CARPOOL  
 IF D\_VPDAYS > 0, Q43 MODE = VANPOOL  
 IF D\_BUDAYS > 0, Q43 MODE = BUS  
 IF D\_MRDAY > 0, Q43 MODE = METRORAIL  
 IF D\_CRDAY > 0, Q43 MODE = COMMUTER TRAIN  
 IF D\_BKDAY > 0, Q43 MODE = BICYCLE  
 IF D\_WKDAY > 0, Q43 MODE = WALKING

**DEFINE DALTDAYS (days using alternative modes during time of temporary change)**

DEFINE DALTDAYS = TOTAL Q43 DAYS USING MODES 5, 6, 7, 9, 10, 11, 12, 13, 14, 15 (= D\_CPDAYS + D\_VPDAYS + D\_BUDAYS + D\_MRDAY + D\_CRDAY + D\_BKDAY + D\_WKDAY)

**CHECK FOR TEMPORARY USE OF MODES IN TEMPORARY CHANGES**

IF Q30 = 11 AND D\_CPDAYS = 0, ASK Q44, INSERTING "CARPOOL" AS Q43 MODE  
 IF Q30 = 12 AND D\_VPDAYS = 0, ASK Q44, INSERTING "VANPOOL" AS Q43 MODE  
 IF Q30 = 13 AND D\_BUDAYS = 0, ASK Q44, INSERTING "BUS" AS Q43 MODE  
 IF Q30 = 14 AND D\_MRDAY = 0, ASK Q44, INSERTING "METRORAIL" AS Q43 MODE  
 IF Q30 = 15 AND D\_CRDAY = 0, ASK Q44, INSERTING "COMMUTER TRAIN" AS Q43 MODE  
 IF Q30 = 16 AND D\_BKDAY = 0, ASK Q44, INSERTING "BICYCLE" AS Q43 MODE  
 IF Q30 = 17 AND D\_WKDAY = 0, ASK Q44, INSERTING "WALKING" AS Q43 MODE  
 IF Q30 = 18 AND D\_TWDAYS = 0, ASK Q44, INSERTING "TELEWORK" AS Q43 MODE

OTHERWISE, SKIP TO INSTRUCTIONS BEFORE Q46

- 45 Earlier you said you made a temporary change to (Q43 MODE: **carpool, vanpool, bus, Metrorail, commuter train, bicycle, walking, telework**), but you haven't mentioned using this type of transportation for your commute during that time. About how many days per week did you typically use (Q43 MODE: **carpool, vanpool, bus, Metrorail, commuter train, bicycle, walking, telework**) then to commute?

- 0 0  
 1 1  
 2 2  
 3 3  
 4 4  
 5 5  
 8 Only used occasionally, use less than one time per week

**IF Q45 = 0, SKIP TO Q60**

INSTRUCTIONS BEFORE Q46

**IF D\_CPDAYS = 0 AND D\_VPDAYS = 0, SKIP TO INSTRUCTIONS BEFORE Q50**

**IF Q30 = 19 AND Q27 = 3, ASK Q46, INSERT “carpool” AS Q43 MODE**

**IF Q30 = 19 AND Q27 = 4, ASK Q46, INSERT “vanpool” AS Q43 MODE**

**IF Q30 NE 19 AND D\_CPDAYS > D\_VPDAYS, ASK Q46, INSERT “carpool” AS Q43 MODE**

**IF Q30 NE 19 AND D\_VPDAYS > D\_CPDAYS, ASK Q46, INSERT “vanpool” AS Q43 MODE**

**IF Q30 NE 19 AND D\_CPDAYS = D\_VPDAYS, ASK Q46, INSERT “vanpool” AS Q43 MODE**

46 Including yourself, how many people were in your [Q43 MODE, carpool, vanpool] during that time?

\_\_\_\_\_

TRAVEL BEFORE MAKING CHANGE

INSTRUCTIONS BEFORE Q50

**IF Q30 = 9 OR 19 [occupancy change with no mode change), AUTOFILL Q50 = Q1, AUTOFILL Q52 = Q5, THEN SKIP TO INSTRUCTIONS BEFORE Q53**

**IF Q30 = 1, 11, OR 21, CONTINUE WITH Q50, INSERT ‘carpool’ AS Q30 MODE**

**IF Q30 = 2, 12, OR 22, CONTINUE WITH Q50, INSERT ‘vanpool’ AS Q30 MODE**

**IF Q30 = 3, 13, OR 23, CONTINUE WITH Q50, INSERT ‘bus’ AS Q30 MODE**

**IF Q30 = 4, 14, OR 24, CONTINUE WITH Q50, INSERT ‘Metrorail’ AS Q30 MODE**

**IF Q30 = 5, 15, OR 25, CONTINUE WITH Q50, INSERT ‘commuter train’ AS Q30 MODE**

**IF Q30 = 6, 16, OR 26, CONTINUE WITH Q50, INSERT ‘bicycle’ AS Q30 MODE**

**IF Q30 = 7, 17, OR 27, CONTINUE WITH Q50, INSERT ‘walking’ AS Q30 MODE**

**IF Q30 = 8, 18, OR 28, CONTINUE WITH Q50, INSERT ‘telework’ AS Q30 MODE**

50 Think back to the time before you made this change to [Q30 MODE: **carpool, vanpool, bus, Metrorail, commuter train, bicycle, walking, telework**]. At that time, how many weekdays, Monday through Friday, were you assigned to work in a typical week?

1 1 day per week (**SKIP TO Q52**)

2 2 days per week (**SKIP TO Q52**)

3 3 days per week

4 4 days per week

5 5 days per week (**SKIP TO Q52**)

\_\_\_\_\_ Did not work then (**SKIP TO Q60**)

**IF Q50 = 3 or 4, ASK Q51**

51 At that time, did you work a compressed work schedule, for example, four-ten hour days per week, or did you work a part-time schedule?

1 worked compressed work schedule

2 worked part-time

3 Other \_\_\_\_\_

9 *Left blank*

52 Before you made the change to [**Q30 MODE, carpool, vanpool, bus, Metrorail, commuter train, bicycle, walking, telework**], how did you get to work? Enter the number of weekdays, Monday-Friday, that you typically used each of the listed types of transportation. If you used more than one type on a single day (e.g., walked to the bus stop, then rode the bus), count only the type you used for the **longest distance part** of your trip.

**IF Q4a = 3, ALSO SHOW:** “For days that you were on business / work travel, please report the type of transportation you would use to get to work if you worked at your usual work location.”

**SHOW ALL RESPONDENTS:** Indicate also how many weekdays you did NOT travel to your usual work location and the reasons (e.g., regular day off, telework, compressed work schedule day off) for not traveling to work.

**PROGRAMMER NOTES:**

**CHECK SUM OF DAYS. IF TOTAL OF 1-18 IS LESS THAN 5, SHOW MESSAGE:** “Please report for all days Monday – Friday, including days you did not work.” **IF TOTAL OF 1-18 IS GREATER THAN 5, SHOW MESSAGE:** “You’ve reported more than five days. Please report only for Monday – Friday.”

**IF Q51 = 1 AND RESPONDENT DOES NOT REPORT "CWS day off" (RESPONSE 1), SHOW MESSAGE:** “You said you typically worked a compressed work schedule. How many compressed schedule days did you typically have off before you made this change.” PERMIT “0” AS THE RESPONSE.

**IF Q4 = 3, 4, 5, 6, OR 7 AND RESPONDENT DOES NOT CHECK "Telecommute" (RESPONSE 2), SHOW MESSAGE:** “You said you typically telework. How many days per week did you telework before you made this change” PERMIT “0” AS THE RESPONSE.

Type of Transportation	Number of Days Used (0 to 5)
<b>Days you traveled to your usual work location</b>	
3 Drove alone in a car, truck, van, or SUV	
4 Motorcycle	
5 Carpool, including carpool w/family member, dropped off (ride or drive with others in a car, truck, van, or SUV)	
6 Casual carpool (slugging)	
7 Vanpool	
8 NA – DO NOT SHOW ON SCREEN	
9 Bus (public bus or shuttle, buspool, express bus)	
10 Metrorail	
11 MARC (MD Commuter Rail)	
12 VRE	
13 AMTRAK / other train	
14 Bicycle (entire trip or longest distance part of trip from home to work)	
15 Walk (entire trip from home to work)	
16 Taxi	
<b>Days you did not travel to your usual work location</b>	
1 Compressed work schedule day off	
2 Telecommute / telework all day	
17 Regular day off	
18 Other (describe) _____	
Total Days ( <b>DO NOT SHOW THIS LINE ON SCREEN</b> )	Sum of 1-18

**DEFINE Q52 MODES USED (ALLOW MULTIPLE MODES):**

P\_CWDAYS = SUM OF Q52, RESPONSE 1  
 P\_TWDAYS = SUM OF Q52, RESPONSE 2  
 P\_DADAYS = SUM OF Q52, RESPONSE 3, 4, 16  
 P\_CPDAYS = SUM OF Q52, RESPONSE 5, 6  
 P\_VPDAYS = SUM OF Q52, RESPONSE 7  
 P\_BUDAYS = SUM OF Q52, RESPONSE 9  
 P\_MRDAYS = SUM OF Q52, RESPONSE 10  
 P\_CRDAYS = SUM OF Q52, RESPONSE 11, 12, 13  
 P\_BKDAY = SUM OF Q52, RESPONSE 14  
 P\_WKDAY = SUM OF Q52, RESPONSE 15

IF P\_CWDAYS > 0, Q52 MODE = COMPRESSED SCHEDULE  
 IF P\_TWDAYS > 0, Q52 MODE = TELEWORK  
 IF P\_DADAYS > 0, Q52 MODE = DRIVE ALONE  
 IF P\_CPDAYS > 0, Q52 MODE = CARPOOL  
 IF P\_VPDAYS > 0, Q52 MODE = VANPOOL  
 IF P\_BUDAYS > 0, Q52 MODE = BUS  
 IF P\_MRDAYS > 0, Q52 MODE = METRORAIL  
 IF P\_CRDAYS > 0, Q52 MODE = COMMUTER TRAIN  
 IF P\_BKDAY > 0, Q52 MODE = BICYCLE  
 IF P\_WKDAY > 0, Q52 MODE = WALKING

**DEFINE PALTDAYS (days using alternative modes before change)**

DEFINE PALTDAYS = TOTAL Q52 DAYS USING MODES 5, 6, 7, 9, 10, 11, 12, 13, 14, 15 (= P\_CPDAYS + P\_VPDAYS + P\_BUDAYS + P\_MRDAYS + P\_CRDAYS + P\_BKDAY + P\_WKDAY)

**INSTRUCTIONS BEFORE Q53**

IF P\_CPDAYS = 0 AND P\_VPDAYS = 0, SKIP TO Q54

IF Q30 = 9 AND Q27 = 1, ASK Q53, INSERT "carpool" AS Q52 MODE  
 IF Q30 = 9 AND Q27 = 2, ASK Q53, INSERT "vanpool" AS Q52 MODE

IF Q30 = 19 AND Q27 = 3, ASK Q53, INSERT "carpool" AS Q52 MODE  
 IF Q30 = 19 AND Q27 = 4, ASK Q53, INSERT "vanpool" AS Q52 MODE

IF Q30 NE 9 OR 19 AND P\_CPDAYS > P\_VPDAYS, ASK Q53, INSERT "carpool" AS Q52 MODE  
 IF Q30 NE 9 OR 19 AND P\_VPDAYS > P\_CPDAYS, ASK Q53, INSERT "vanpool" AS Q52 MODE  
 IF Q30 NE 9 OR 19 AND P\_CPDAYS = P\_VPDAYS, ASK Q53, INSERT "vanpool" AS Q52 MODE

53 Including yourself, how many people were in your [Q52 MODE, carpool, vanpool] at that time?

\_\_\_\_\_

PAGE BREAK – THEN Show Q54, Q55, Q56, and Q57 on the same page

- 54 What were the reasons that you made that change?  
OPEN ENDED \_\_\_\_\_

**(DO NOT SHOW THESE RESPONSES ON SCREEN) CODE OPEN-ENDED RESPONSES INTO THE FOLLOWING CATEGORIES IN POST PROCESSING – ACCEPT MULTIPLES**

Personal changes or preferences

- 1 changed job, work hours, work location
- 2 save money
- 3 parking costs were too high
- 4 gas prices too high, save money on gas
- 5 no parking available at work
- 6 save time
- 7 moved to a different residence
- 8 reduce congestion/pollution
- 9 safety
- 10 no vehicle available, vehicle became unavailable
- 11 tired of driving
- 12 others doing it (friends, coworkers, other people, etc.)
- 13 carpool/vanpool didn't work out
- 14 avoid construction area

Commute program or services

- 15 SmarTrip, or other transit/vanpool discount
- 16 financial incentives
- 17 a new option became available
- 18 advertising
- 19 special program at work
- 20 pressure or encouragement from employer
- 21 use HOV lane
- 22 employer permitted telework

Commuter Connections information or services

- 23 Names and contact information for people you could contact to form a carpool or vanpool (matchlist)
- 24 Map showing home and work locations of people you could contact to form a carpool or vanpool
- 25 Carpool / vanpool rider bulletin board
- 26 Other carpool / vanpool information
- 27 Vanpooling assistance
- 28 HOV lane information
- 29 Pool Rewards carpool financial incentive
- 30 Transit schedule or route information
- 31 Transit fare information, SmarTrip
- 32 Park & Ride lot information
- 33 Telework information, telework center information
- 34 Bicycle to Work Guide, bicycling information
- 35 Online bicycle route planning
- 36 Guaranteed Ride Home information or trip
- 37 Special events information (e.g., Bike to Work Day, Car Free Day)
- 38 Other (specify)

- 55 Did any of the information or assistance from Commuter Connections influence you or assist you to make the change?

**SHOW RESPONSES 91 AND 98 ON SCREEN; ALSO SHOW “YES” WITH TEXT BOX FOR RESPONSE**

- 90 Did not receive any services from Commuter Connections  
 91 No, services did not influence or assist  
 98 Don't know  
 99 Left blank

\* Yes (please specify)

OPEN ENDED \_\_\_\_\_

**(DO NOT SHOW THESE RESPONSES ON SCREEN) CODE OPEN-ENDED RESPONSES INTO THE FOLLOWING CATEGORIES IN POST PROCESSING – ACCEPT MULTIPLES**

- 1 Names and contact information for people you could contact to form a carpool or vanpool (matchlist)
- 2 Map showing home and work locations of people you could contact to form a carpool or vanpool
- 3 Carpool / vanpool rider bulletin board
- 4 Other carpool / vanpool information
- 5 Vanpooling assistance
- 6 Transit schedule or route information
- 7 Transit fare information, SmarTrip
- 8 Park & Ride information
- 9 Guaranteed Ride Home information or trip
- 10 Telework information, telework center information
- 11 Bicycle to Work Guide, bicycling information
- 12 Online bicycle route planning
- 13 HOV lane information
- 14 Pool Rewards financial incentive
- 15 Special events information (e.g., Bike to Work Day, Car Free Day)
- 17 Other (specify)
- 90 Did not receive any services from Commuter Connections
- 99 *Question left blank*

- 56 Did any commute information, assistance, or benefits from your employer or another organization influence or assist you?

**SHOW RESPONSES 90, 91 AND 98 ON SCREEN; ALSO SHOW “YES” WITH TEXT BOX FOR RESPONSE**

90 Did not receive any services from employer or other organization

91 No, services did not influence or assist

98 Don't know

99 Left blank

\* Yes (please specify)

OPEN ENDED \_\_\_\_\_

**(DO NOT SHOW THESE RESPONSES ON SCREEN) CODE OPEN-ENDED RESPONSES INTO THE FOLLOWING CATEGORIES IN POST PROCESSING – ACCEPT MULTIPLES**

- 1 Matchlist, contact info for potential carpool / vanpool partners
- 2 Map showing home and work locations of potential carpool / vanpool partners
- 3 Transit schedule or route information
- 4 Park & Ride information
- 5 Vanpooling assistance
- 6 Guaranteed Ride Home information or registration
- 7 GRH trip
- 8 Telecommuting information, telework center information
- 9 Bicycling map, bicycle route planning, bicycling information
- 10 HOV lane information
- 11 Discount / free transit pass / Smart Trip Card
- 12 Other cash incentive
- 13 Compressed work week/telecommute
- 14 Carpool/vanpool preferential parking
- 15 Parking fees
- 16 Carpool/vanpool discount parking fee
- 17 Smart Tag / E-Z Pass subsidy
- 18 HOV lane info
- 19 Shuttle bus
- 20 Federal Tax Benefit / Commuter Choice Program
- 21 Referral to Commuter Connections
- 22 Telecommuting info
- 23 NuRide-carpool incentive

- 57 How important were economic reasons, such as saving money or reducing your gas expense, in motivating you to make the change, as compared to other reasons you mentioned?

- 1 Economic reasons were more important
- 2 Economic reasons were less important
- 3 Economic reasons were about the same importance
- 4 Economic reasons were my only influence
- 9 Don't know

**IF Q31 = 1 OR 3, SKIP TO Q60**

**IF Q31 = 2, ASK Q58**



58 What were the reasons you did not continue this change?

OPEN ENDED \_\_\_\_\_

**(DO NOT SHOW THESE RESPONSE ON SCREEN) CODE OPEN-ENDED RESPONSES INTO THE FOLLOWING CATEGORIES IN POST PROCESSING – ACCEPT MULTIPLES**

- 1 too inconvenient
- 2 cost too much
- 3 took too much time
- 4 safety concerns
- 5 job changes - job, work site,
- 6 need vehicle during or after work
- 7 vehicle became unavailable/unreliable
- 8 moved home location
- 9 didn't like pool partners
- 10 new/changes in employer program
- 11 bus or rail schedule or route change or schedule
- 12 car became available
- 13 other (Specify)
- 99 *Left blank*

**AWARENESS**

60 How did you learn about Commuter Connections and its programs and services?

OPEN ENDED \_\_\_\_\_

**(DO NOT SHOW THESE RESPONSES ON SCREEN) CODE OPEN-ENDED RESPONSES INTO THE FOLLOWING CATEGORIES IN POST PROCESSING – ACCEPT MULTIPLES**

- 1 Brochure/promo materials
- 2 Bus/train schedule
- 3 Bus/train sign
- 4 Direct mail/postcard from COG/CC
- 5 Employer/employer survey
- 6 Fair/on-site event
- 7 Government office
- 8 Highway sign
- 9 Internet
- 10 Newsletter
- 11 Newspaper (regional or local)
- 12 Other rideshare/transit organization
- 13 Radio
- 14 TV
- 15 Was/Is applicant
- 16 Word of mouth
- 17 Info Kiosk
- 18 Yellow Pages (One Book or Verizon)
- 29 Other
- 99 *Left blank*

61 Which of the following sources did you use to contact Commuter Connections for assistance? **(SHOW RESPONSES 1 – 9; ACCEPT MULTIPLES)**

- 1 Employer
- 2 Commuter Connections website on the Internet
- 3 Another Internet site
- 4 Commuter Connections telephone number (1-800-745-RIDE)
- 5 Commute assistance program operated by county or city
- 6 Transportation Management Association (TMA)
- 9 Other (please describe) \_\_\_\_\_

62 What prompted you to seek commute information or assistance from Commuter Connections at that time?

OPEN ENDED \_\_\_\_\_

**(DO NOT SHOW THESE RESPONSES ON SCREEN) CODE OPEN-ENDED RESPONSES INTO THE FOLLOWING CATEGORIES IN POST PROCESSING – ACCEPT MULTIPLES**

- 1 save gas, gas prices too high, wanted to reduce gas expense
- 2 didn't want to drive anymore/tired of driving
- 3 traffic is bad, has gotten worse
- 4 changed jobs, moved to a new work location
- 5 moved to a new residence
- 6 wanted to save money
- 7 wanted to save time
- 8 didn't have/don't have a place to park
- 9 concerned about the environment
- 10 no vehicle available
- 11 construction along my route to work
- 12 avoid stress
- 13 in case of emergencies, wanted back-up transportation
- 14 could receive financial incentive for transit, vanpool
- 15 advertising, newspaper, billboard, flyer
- 16 employer program or service
- 17 referral from family, friend, co-worker, word of mouth
- 18 save wear and tear, reduce mileage on car
- 29 Other (SPECIFY) \_\_\_\_\_
- 99 *Left blank*

**63 COMMUTER CONNECTIONS SERVICES ACCESSED – AUTOCODE ONLY – ACCEPT MULTIPLE RESPONSES**

IF Q\_S1 = 1, AUTOCODE Q63 = 1  
IF Q\_S1 = 2, AUTOCODE Q63 = 2  
IF Q\_S1 = 3, AUTOCODE Q63 = 3  
IF Q\_S1 = 4, AUTOCODE Q63 = 4  
IF Q\_S1 = 5, AUTOCODE Q63 = 5  
IF Q\_S1 = 6, AUTOCODE Q63 = 6  
IF Q\_S1 = 7, AUTOCODE Q63 = 7

IF Q\_S2 = 1, AUTOCODE Q63 = 8  
IF Q\_S2 = 2, AUTOCODE Q63 = 9  
IF Q\_S2 = 3, AUTOCODE Q63 = 10  
IF Q\_S2 = 4, AUTOCODE Q63 = 11  
IF Q\_S2 = 5, AUTOCODE Q63 = 12  
IF Q\_S2 = 6, AUTOCODE Q63 = 13  
IF Q\_S2 = 7, AUTOCODE Q63 = 14  
IF Q\_S2 = 8, AUTOCODE Q63 = 15

IF QS\_1 = 90 OR 99 AND Q\_S2 = 90 OR 99, AUTOCODE Q63 = 90

- 1 Names and contact information for people you could contact to form a carpool or vanpool (matchlist)
- 2 Map showing home and work locations of people you could contact to form a carpool or vanpool
- 3 Carpool / vanpool rider bulletin board
- 4 Other carpool / vanpool information
- 5 Vanpooling assistance
- 6 HOV lane information
- 7 Pool Rewards carpool financial incentive
- 8 Transit schedule or route information
- 9 Transit fare information, SmarTrip
- 10 Park & Ride lot information
- 11 Telework information, telework center information
- 12 Bicycle to Work Guide, bicycling information
- 13 Online bicycle route planning
- 14 Guaranteed Ride Home information or trip
- 15 Special events information (e.g., Bike to Work Day, Car Free Day)
- 90 Did not receive any services from Commuter Connections

- 64 Does your employer offer any of the following commuter information, assistance, or transportation benefits? Check all that apply. **ALLOW MULTIPLES FOR RESPONSES 1-17. DO NOT ALLOW MULTIPLES WITH RESPONSE 90)**
- 1 Names and contact information (telephone, email, address) for people you could contact to form a carpool or vanpool (matchlist)
  - 2 Carpool or vanpool information
  - 3 Transit route or schedule information
  - 4 Discounted or free transit pass, SmartBenefits
  - 5 Financial incentive for employees who vanpool to work
  - 6 Financial incentive for employees who carpool to work
  - 7 Other cash incentive for commute cost
  - 8 Guaranteed Ride Home in case of emergencies or unscheduled overtime
  - 9 Compressed work schedule or telework
  - 10 Preferential or special parking spaces for carpools or vanpools
  - 11 Free onsite parking
  - 12 Discounted parking fee for carpools and vanpools
  - 13 Smart Tag / E-Z Pass subsidy
  - 14 Shuttle bus to Metrorail or bus stop
  - 15 Federal Tax Benefit/ "Commuter Choice" program
  - 16 Zipcar carshare service account
  - 17 other (SPECIFY)
  - 90 no, employer doesn't offer any of these services
  - 99 *Left blank*

- 65 Did you access or receive any other transportation information, assistance, or benefits from a program or organization, other than from Commuter Connections or your employer?

**SHOW RESPONSES 90 AND 98 ON SCREEN; ALSO SHOW “YES” WITH TEXT BOX FOR RESPONSE**

90 Did not receive any other services

98 Don't know

99 Left blank

\* Yes (please specify)

OPEN ENDED \_\_\_\_\_

**(DO NOT SHOW THESE RESPONSES ON SCREEN) CODE OPEN-ENDED RESPONSES INTO THE FOLLOWING CATEGORIES IN POST PROCESSING – ACCEPT MULTIPLES**

- 1 Names and contact information for people you could contact to form a carpool or vanpool (matchlist)
- 2 Map showing home and work locations of people you could contact to form a carpool or vanpool
- 3 Guaranteed Ride Home
- 4 Transit route or schedule information
- 5 Discounted or free transit pass, SmartBenefits
- 6 Other cash incentives for commute cost
- 7 Telework information
- 8 HOV information
- 9 Park & Ride information
- 10 Vanpool assistance
- 11 Smart Tag / E-Z Pass info
- 12 Bicycle information
- 13 Referral to Commuter Connections
- 14 Carpool incentive
- 15 Other (SPECIFY) \_\_\_\_\_
- 90 Did not receive any services from another organization

**Q66 RESPONDENT RECEIVED MATCHING INFO – AUTOCODE ONLY – ALLOW MULTIPLE RESPONSES**

**IF Q63 = 1, SET Q66 = 1 (Commuter Connections matchlist)**

**IF Q64 = 1, SET Q66 = 2 (other matchlist)**

**IF Q63 = 2, SET Q66 = 3 (map)**

**IF Q63 = 3, SET Q66 = 4 (bulletin board)**

**IF Q63 NE 1, 2, OR 3 AND Q64 NE 1, SET Q66 = 9**

- 1 Commuter Connections matchlist
- 2 Other matchlist
- 3 Map
- 4 Bulletin board
- 9 No matching info

**IF Q66 = 4, ASK Q67. OTHERWISE, SKIP TO INSTRUCTIONS BEFORE Q70**

- 67 You said you used Commuter Connections' online carpool rider bulletin board. Did you post a rider wanted message or respond to a message posted by another commuter? **(ALLOW ONLY ONE RESPONSE)**
- 1 Posted a message
  - 2 Responded to other commuters' messages **(SKIP TO Q69)**
  - 3 Posted a message and responded to other commuters' messages
  - 4 Did not post or respond to any messages **(SKIP TO INSTRUCTIONS BEFORE Q70)**
  - 9 Don't remember **(SKIP TO INSTRUCTIONS BEFORE Q70)**

**IF Q67 = 1 OR 3, ASK Q68**

- 68 How many commuters responded to your rider wanted message?
- 1 None
  - 2 1-2
  - 3 3-5
  - 4 6-10
  - 5 More than 10
  - 9 Don't remember/don't know

**IF Q67 = 1 AND Q68 = 1, SKIP TO INSTRUCTIONS BEFORE Q70**

- 69 Were any of the people you reached interested in forming a carpool or vanpool, if your travel destination and schedule were compatible? **(ALLOW ONE RESPONSE ONLY)**
- 1 Was not able to reach any of the people
  - 2 At least one person was interested
  - 3 At least one person was interested but schedules or destinations were not compatible
  - 4 People were not interested
  - 9 Don't remember/don't know

INSTRUCTIONS BEFORE Q70**IF Q66 = 1 OR 2, ASK Q70, OTHERWISE, SKIP TO INSTRUCTIONS BEFORE Q80**

- 70 You said you obtained names of people you could contact to form a carpool or vanpool. How many names did you receive?
- \_\_\_\_\_
- 99 Don't remember

**IF Q70 = 0, SKIP TO INSTRUCTIONS BEFORE Q80, IF Q70 > 0, CONTINUE TO Q71**

- 71 Did you try to contact any of these people?
- 1 Yes **(CONTINUE WITH Q72)**
  - 2 No **(SKIP TO Q74)**

- 72 Were you able to reach any of the people named?
- 1 Yes
  - 2 No
  - 9 Don't remember/don't know
- 73 Were any of the people you reached interested in forming a carpool or vanpool, if your travel destination and schedule were compatible? **(ALLOW ONE RESPONSE ONLY)**
- 1 Was not able to reach any of the people
  - 2 At least one person was interested
  - 3 At least one person was interested but schedules or destinations were not compatible
  - 4 People were not interested
  - 9 Don't remember/don't know

**SKIP TO INSTRUCTIONS BEFORE Q80**

- 74 Why did you decide not to contact any of the people?
- 1 Haven't gotten around to it
  - 2 Decided I didn't want to carpool/vanpool
  - 3 Moved to a new residence
  - 4 Changed jobs
  - 5 Work hours were not compatible with mine
  - 6 Work or home locations were not compatible with mine
  - 7 Already found rideshare arrangement (carpool, vanpool, transit, bike, walk)
  - 8 other (Specify) \_\_\_\_\_

INSTRUCTIONS BEFORE Q80 – TRANSIT INFO

**IF Q63 = 8 OR 9, RECEIVED TRANSIT INFO FROM COMMUTER CONNECTIONS, CONTINUE.**

**IF Q63 NE 8 OR 9, SKIP TO INSTRUCTIONS BEFORE Q84**

**NOTE: IF THEY APPLY TO RESPONDENT, Q80 AND Q81 ARE MANDATORY QUESTIONS**

- 80 You said that you received information about transit from Commuter Connections. Did you contact a transit agency listed in the information you received?
- 1 Yes
  - 2 No **(SKIP TO Q83)**
  - 9 Don't remember, don't know **(SKIP TO INSTRUCTIONS BEFORE Q84)**
- 81 Did you use the information from the transit agency to try transit?
- 1 Yes **(SKIP TO INSTRUCTIONS BEFORE Q84)**
  - 2 No **(ASK Q82)**
  - 9 Don't remember, don't know **(SKIP TO INSTRUCTIONS BEFORE Q84)**

82 Why did you decide not to try transit?

OPEN ENDED \_\_\_\_\_

**(DO NOT SHOW THESE RESPONSE ON SCREEN) CODE OPEN-ENDED RESPONSES INTO THE FOLLOWING CATEGORIES IN POST PROCESSING – ACCEPT MULTIPLE RESPONSES**

- 1 Never got around to it
- 2 Wouldn't work with my schedule
- 3 Too far from home/work
- 4 Service not available
- 5 Commute too long
- 6 Too expensive
- 7 Prefer other mode
- \* other (SPECIFY)

**SKIP TO INSTRUCTIONS BEFORE Q84**

83 Why did you decide not to contact the transit agency?

OPEN ENDED \_\_\_\_\_

**(DO NOT SHOW THESE RESPONSE ON SCREEN) CODE OPEN-ENDED RESPONSES INTO THE FOLLOWING CATEGORIES IN POST PROCESSING – ACCEPT MULTIPLE RESPONSES**

- 1 Never got around to it
- 2 Don't like transit – wouldn't ever use
- 3 Too far from home/work
- 4 Prefer other mode or current mode
- 5 Wasn't interested, didn't ask for it
- 6 other (SPECIFY)

INSTRUCTIONS BEFORE Q84 – PARK & RIDE

**IF Q63 NE 10 (P&R INFO), SKIP TO INSTRUCTIONS BEFORE Q90**

**IF Q63 = 10, CONTINUE WITH Q84**

84 You said that you received park & ride information from Commuter Connections. Have you used the park & ride lot listed on the information you received?

- 1 Yes **(CONTINUE)**
- 2 No **(SKIP TO Q88)**
- 9 Don't remember, don't know **(SKIP TO INSTRUCTIONS BEFORE Q90)**

85 Were you aware of the lot before you received the information?

- 1 Yes
- 2 No **(SKIP TO Q87)**
- 99 *Left blank*



86 Had you used the lot before you received the information?

- 1 Yes
- 2 No
- 9 Left blank

**IF Q30 = 90, SKIP TO INSTRUCTIONS BEFORE Q90**

**IF Q30 = 6, 7, 8, 9, 16, 17, 18, 19, SKIP TO INSTRUCTIONS BEFORE Q90**

**IF Q30 = ANY OF 31 – 38, SKIP TO INSTRUCTIONS BEFORE Q90**

**IF Q30 = 1, 11, OR 21, ASK Q87, INSERT “carpool” as Q30 MODE**

**IF Q30 = 2, 12, OR 22, ASK Q87, INSERT “vanpool” as Q30 MODE**

**IF Q30 = 3, 13, OR 23, ASK Q87, INSERT “bus” as Q30 MODE**

**IF Q30 = 4, 14, OR 24, ASK Q87, INSERT “Metrorail” as Q30 MODE**

**IF Q30 = 5, 15, OR 25, ASK Q87, INSERT “commuter train” as Q30 MODE**

87 Was using the park & ride lot a factor in your decision to try using (Q5 mode, carpool, vanpool, bus, Metrorail, commuter train) for your trip to work?

- 1 Yes
- 2 No
- 9 Don't know

**SKIP TO Q90**

88 Why did you decide not to use the park & ride lot after getting the information?

OPEN ENDED \_\_\_\_\_

**(DO NOT SHOW THESE RESPONSE ON SCREEN) CODE OPEN-ENDED RESPONSES INTO THE FOLLOWING CATEGORIES IN POST PROCESSING – ACCEPT MULTIPLE RESPONSES**

- 1 Never got around to it
- 2 Didn't want to leave my car
- 3 Not convenient to transit
- 4 Didn't need a park & ride
- 5 Not convenient to HOV
- 6 No slug lines
- 7 No time savings from my previous commute
- \* Other (SPECIFY)
- 99 Left blank

**INSTRUCTIONS BEFORE Q90 – BICYCLE INFO****IF Q63 NE 12 OR 13 (bicycle info), SKIP TO INSTRUCTIONS BEFORE Q95****IF Q63 = 12 OR 13, CONTINUE WITH Q90**

90 You said that you received bicycle information from Commuter Connections. Since you received the information, have you taken any of the following actions? **(PERMIT MULTIPLES FOR 1 – 4. DO NOT PERMIT MULTIPLES FOR 5 OR 9)**

- 1 Started bicycling to work
- 2 Bicycle to work more often
- 3 Started bicycling for non-work trips
- 4 Bicycle more often for non-work trips
- 5 Didn't make any bicycle changes
- 9 Don't remember, don't know
- 99 *Left blank*

**IF Q90 = 1 – 4, ASK Q91****IF Q90 = 5 or 9, SKIP TO INSTRUCTIONS BEFORE Q95**

91 Was receiving this information a factor in your decision to start bicycling or bicycle more often?

- 1 Yes
- 2 No
- 9 Don't know

**INSTRUCTIONS BEFORE Q95 – TELEWORK INFO****IF Q63 NE 11 (telework info), SKIP TO INSTRUCTIONS BEFORE Q100****IF Q63 = 11, CONTINUE WITH Q95**

95 You said you received telework information from Commuter Connections. Since you received the information, have you taken any of the following actions? **(PERMIT MULTIPLE RESPONSES WITH 1 – 5. DO NOT PERMIT MULTIPLE RESPONSES WITH 6 OR 9)**

- 1 Talked to employer about telework
- 2 Called federal employee telework coordinator (GSA)
- 3 Started teleworking
- 4 Started teleworking more often
- 5 Started working at a telework center
- 6 Did not take any actions
- 8 Don't remember

**IF Q95 NE 3, 4, OR 5, SKIP TO INSTRUCTIONS BEFORE Q100****IF Q95 = 3, 4, OR 5, ASK Q96**

- 96 Was receiving this information a factor in your decision to start teleworking or telework more often?
- 1 Yes
  - 2 No
  - 9 Don't know

INSTRUCTIONS BEFORE Q100 – GRH

**IF Q63 = 14, ASK Q100**

**IF Q63 NE 14, SKIP TO Q103**

- 100 You said you received information from Commuter Connections on the Guaranteed Ride Home program. At the time you requested GRH information, what type of transportation were you using regularly (2 or more days per week) for your commute?
- 1 Drive alone
  - 2 Carpool
  - 3 Vanpool
  - 4 Bus, Metrorail, or commuter rail
  - 5 Bicycle / walk
  - \* other (SPECIFY)
- 101 Did you register for the GRH program?
- 1 Yes (**SKIP TO Q103**)
  - 2 No (**ASK Q102**)
  - 3 Tried to register, but did not meet eligibility requirements (**SKIP to Q103**)
- 102 What were the reasons you did not register?

OPEN ENDED \_\_\_\_\_

**(DO NOT SHOW THESE RESPONSE ON SCREEN) CODE OPEN-ENDED RESPONSES INTO THE FOLLOWING CATEGORIES IN POST PROCESSING – ACCEPT MULTIPLE RESPONSES**

- 1 Couldn't use carpool, vanpool, or train 2 or more days per week (didn't meet eligibility requirements)
- 2 Program doesn't cover home or work area
- 3 Program doesn't cover work hours
- 4 Employer has a GRH program
- 5 Didn't want to pre-register
- 6 Too much effort to use the service
- 7 Don't need it
- 8 Haven't gotten around to it
- 9 other (SPECIFY)
- 99 Left blank

**COMMUTER CONNECTIONS IMPROVEMENTS**

103 In what ways could Commuter Connections improve its services?

OPEN ENDED \_\_\_\_\_

**(DO NOT SHOW THESE RESPONSE ON SCREEN) CODE OPEN-ENDED RESPONSES INTO THE FOLLOWING CATEGORIES IN POST PROCESSING – ACCEPT MULTIPLES**

- 88 no improvement needed
- 1 quicker response
- 2 more helpful staff
- 3 more follow-up assistance
- 4 more match names
- 5 matches fit travel better
- 6 matches are more interested in carpoo/vanpool
- 7 better transit information
- 8 more advertising
- 9 more current information
- 10 use Internet
- 11 transit improvements
- 12 VP resources & assistance
- 13 GRH suggestion
- 14 separate driver & rider lists

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**DEMOGRAPHICS**

**(NOTE TO PROGRAMMER: ALLOW RESPONDENTS TO SKIP ANY OR ALL DEMOGRAPHIC QUESTIONS. DO NOT MAKE THEM MANDATORY)**

The last few questions are for classification purposes only.

105 About how many employees work at your worksite?

- 1 1-25
- 2 26-50
- 3 51-100
- 4 101-250
- 5 251-999
- 6 1,000+
- 99 *Left blank*

106 What is your occupation?

\_\_\_\_\_  
99 *Left blank*

- 107 What type of employer do you work for?
- 1 federal agency
  - 2 state or local government agency
  - 3 non-profit organization or association
  - 4 private sector employer
  - 5 self-employed
  - \* other (SPECIFY) \_\_\_\_\_
  - 99 *Left blank*
- 108 Which of the following groups includes your age?
- 1 under 18
  - 2 18 - 24
  - 3 25 - 34
  - 4 35 - 44
  - 5 45 - 54
  - 6 55 - 64
  - 7 65+
  - 99 *Left blank*
- 109 Do you consider yourself to be Latino, Hispanic, or Spanish?
- 1 Yes
  - 2 No
  - 99 *Left blank*
- 110 Which of the following best describes your ethnic background?
- 1 White
  - 2 Black or African-American
  - 3 American Indian or Alaska native
  - 4 Asian
  - 5 Native Hawaiian or other Pacific Islander
  - 6 Other (SPECIFY) \_\_\_\_\_
  - 99 *Left blank*
- 111 Finally, please indicate the category that best represents your household's total annual income.
- 1 less than \$20,000
  - 2 \$20,000 - \$29,999
  - 3 \$30,000 - \$39,999
  - 4 \$40,000 - \$59,999
  - 5 \$60,000 - \$79,999
  - 6 \$80,000 - \$99,999
  - 7 \$100,000 - \$119,999
  - 8 \$120,000 - \$139,999
  - 9 \$140,000 or more
  - 99 *Left blank*

112 Are you male or female?

- 1 Male
- 2 Female
- 99 *Left blank*

Thank you very much for your time and cooperation!

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## Appendix B

### Comparison of November 2014 Survey Results with Results for 2011, 2008, 2005, 2004, 2003, and 2002 Surveys

Unless otherwise indicated, sample sizes are: 2014 n = 716, 2011 n = 892, 2002-2008 n = 700

### Current Travel Information

Table B-1

#### Current Mode Split – Weekly Trips

#### All Modes (including compressed work schedule and telework days)

(2014 n = 690, 2011 n = 863, 2002-2008 n = 700)

	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
<b>CWS</b>	3.7%	<b>3.7%</b>	2.2%	2.4%	2.5%	2.8%	2.6%
<b>Telework</b>	<b>7.7%</b>	<b>5.5%</b>	3.2%	2.3%	1.9%	1.2%	1.2%
<b>DA/Motorcycle</b>	<b>9.6%</b>	<b>9.7%</b>	24.6%	25.6%	27.4%	24.9%	30.0%
<b>CP</b>	<b>13.4%</b>	<b>13.5%</b>	16.9%	21.4%	24.4%	17.9%	23.0%
<b>VP</b>	<b>16.0%</b>	<b>13.9%</b>	15.2%	13.8%	11.6%	9.1%	12.7%
<b>Bus</b>	<b>21.0%</b>	<b>24.7%</b>	17.5%	11.4%	11.8%	9.5%	10.1%
<b>Train</b>	<b>27.4%</b>	<b>28.7%</b>	20.4%	22.8%	20.3%	34.2%	20.0%
Metrorail	9.2%	8.5%	11.3%	12.4%	11.4%	12.8%	12.4%
Commuter rail	18.2%	20.2%	9.1%	10.4%	8.9%	21.4%	7.6%
<b>B/W</b>	<b>1.2%</b>	<b>0.3%</b>	0.1%	0.4%	0.3%	0.2%	0.3%
Bicycle	1.2%	0.3%	0.1%	0.1%	0.1%	0.1%	0.2%
Walk	0.0%	0.0%	0.0%	0.3%	0.2%	0.1%	0.2%

**Table B-2****Current mode split – Percent of Weekly Trips****Mode Groups (excluding CWS and TW days)**

(2014 n = 690, 2011 n = 863, 2002-2008 n = 700)

	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
DA/Motorcycle	10.8%	10.6%	26.0%	26.8%	28.6%	26.0%	31.1%
CP	15.1%	15.3%	17.8%	22.4%	25.5%	18.7%	23.9%
VP	18.0%	14.9%	16.1%	14.5%	12.1%	9.5%	13.2%
Bus	23.7%	27.2%	18.5%	11.9%	12.3%	9.9%	10.5%
Train	31.0%	31.6%	21.5%	24.0%	21.2%	35.7%	20.8%
B/W	1.4%	0.4%	0.1%	0.4%	0.3%	0.2%	0.5%

**Table B-3****Work Compressed Work Schedules**

	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
Yes	24%	26%	23%	18%	18%	15%	17%
4/40	3%	3%	4%	2%	1%	2%	2%
9/80	21%	23%	19%	16%	17%	13%	15%

**Table B-4****Average Length of Commute (Distance and Time)**

	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
Distance	36.2 mi	36.2 mi	36.3 mi	36.5 mi	34.9 mi	35.6 mi	31.6 mi
Time	63 min	63 min	63 min	67 min	62 min	66 min	57 min



**Table B-5**  
**Carpool/Vanpool Occupancy**

	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
(n=____) - carpool	115	147	137	172	191	140	186
(n=____) - vanpool	104	144	115	104	88	71	96
Carpool/slug	3.1	3.1	2.9	3.1	2.9	2.9	2.9
Vanpool	9.1	9.9	10.3	11.0	10.5	10.5	11.4

**Table B-6**  
**Frequency of Driving Among Carpool/Vanpool Respondents**

	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
(n=____)	245	275	252	276	279	211	282
Always drive	9%	7%	8%	12%	11%	9%	12%
Share driving	55%	58%	55%	52%	48%	43%	45%
Never drive	36%	35%	36%	36%	41%	48%	43%

**Table B-7**  
**Access Mode and Distance to Rideshare or Transit Meeting Points**

	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
(n=____)	630	775	508	498	489	511	463
Picked-up at home	3%	5%	7%	9%	8%	7%	8%
Drive to driver's home	3%	13%	6%	13%	10%	2%	4%
Drive to central location	71%	64%	71%	62%	69%	74%	72%
Another pool/drop off	3%	1%	1%	2%	2%	3%	2%
Walk/bike	10%	8%	12%	11%	7%	11%	10%
Always drive CP/VP	4%	2%	1%	1%	<1%	1%	1%
Bus/transit	5%	4%	2%	2%	3%	3%	3%
<b>Ave access distance</b>	6.8 mi	6.9 mi	6.5 mi	6.8 mi	6.0 mi	6.2 mi	5.6 mi

## Travel Changes

**Table B-8**

**Made Travel Change Since Receiving Information/Assistance**

	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
Started CP/tried CP	8.7%	11.9%	9.1%	14.0%	15.4%	10.2%	14.3%
Started VP/tried VP	7.8%	6.8%	4.9%	7.4%	5.8%	5.1%	4.6%
Started transit	20.7%	23.8%	12.3%	15.6%	11.1%	15.0%	18.3%
Started telework	4.8%	6.4%	4.4%	4.4%	3.4%	2.2%	4.1%
Inc days using alt modes**	N/A	N/A	0.0%	0.0%	1.8%	0.0%	1.9%
Started B/W*	1.2%	0.5%	N/A	N/A	N/A	N/A	N/A
Added person to CP/VP	5.4%	3.2%	6.9%	3.1%	3.0%	0.0%	2.5%
<b>TOTAL</b>	<b>48.6%</b>	<b>52.6%</b>	<b>37.7%</b>	<b>44.5%</b>	<b>40.5%</b>	<b>32.5%</b>	<b>45.7%</b>

\* Prior to 2011, Bike/walk changes were grouped with transit changes

\*\* In 2011 survey, changed to increased alt mode were included in mode changes

**Table B-9**

**Did Information Respondent Received from Commuter Connections Influence Decision to Make Travel Change?**

	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
(n=____)	265	263	285	311	268	264	343
Yes, influenced decision	21%	38%	30%	33%	35%	32%	27%

**Table B-10****Reasons for Making Change (multiple response permitted)**

	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
(n=___)	282	238	276	300	256	223	332
Save money	16%	17%	14%	26%	18%	19%	12%
Changed jobs	18%	16%	23%	16%	14%	14%	22%
Save time	7%	13%	12%	23%	18%	22%	17%
Tired of driving	4%	11%	9%	9%	12%	10%	7%
Gas prices too high	3%	9%	18%	N/A	N/A	N/A	N/A
New option available	1%	8%	<1%	<1%	3%	N/A	N/A
Metrochek/financial incentive	1%	6%	<1%	1%	2%	3%	2%
Carpool broke up / didn't work	5%	5%	N/A	N/A	N/A	N/A	N/A
Moved residence	4%	4%	8%	6%	6%	11%	8%
Reduce wear and tear on car	<1%	4%	3%	<1%	4%	2%	2%
Reduce congestion/pollution	2%	2%	3%	6%	3%	5%	4%
Others doing it (e.g., family)	<1%	2%	2%	4%	<1%	<1%	<1%
Circumstances (no vehicle)	NA	N/A	4%	11%	8%	14%	13%
Found new CP/VP rider	NA	N/A	10%	<1%	5%	2%	9%

**Table B-11****Distribution of Changes by Duration of Change?**

	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
(n=___)	346	454	285	306	271	224	332
Continued change	72%	64%	67%	60%	67%	63%	61%
Temporary change	10%	12%	33%	34%	33%	37%	39%
Occasional use change	7%	14%	N/A	6%	N/A	N/A	N/A
One-time change	11%	10%	N/A	N/A	N/A	N/A	N/A

**Table B-12****Continued and Temporary Placement Rates and VTR Factors**

	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
Continued placement rate	34.9%	35.4%	25.4%	26.9%	27.4%	20.4%	28.0%
Temporary placement rate	5.2%	5.1%	12.3%	15.0%	13.2%	12.1%	17.7%
Occasional use placement rate	3.3%	6.1%	N/A	2.6%	N/A	N/A	N/A
One-time use placement rate	5.2%	6.0%	N/A	2.6%	N/A	N/A	N/A
Continued VTR	-0.43	-0.54	-0.37	-0.45	-0.37	-0.44	-0.40
Temporary VTR	-0.27	-0.53	-0.66	-0.57	-0.31	-0.42	-0.57
Average duration of temporary change	6.7 weeks	8.9 weeks	6.5 weeks	5.9 weeks	4.3 weeks	4.2 weeks	

**Information Received****Table B-13****How Contact Was Made with Commuter Connections**

	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
CC page on Internet	78%	76%	73%	62%	56%	64%	52%
Called CC directly	26%	13%	20%	25%	26%	24%	26%
Employer/through work	11%	10%	5%	5%	5%	8%	12%
Another internet site	2%	2%	4%	5%	8%	2%	2%
Local jurisdiction program	3%	1%	N/A	2%	<1%	1%	3%

**Table B-14****Types of Information Received from Commuter Connections (multiple responses permitted)**

	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
GRH info / registration	71%	71%	69%	60%	70%	61%	49%
Transit info	24%	22%	17%	28%	28%	33%	27%
Matchlist	21%	27%	42%	67%	66%	48%	64%
Map with pool partners locations	8%	9%	N/A	N/A	N/A	N/A	N/A
P&R info	11%	12%	13%	25%	26%	21%	20%
Information on special events	8%	6%	N/A	N/A	N/A	N/A	N/A
Vanpool assistance	5%	5%	10%	19%	27%	22%	18%
Bicycle information	5%	4%	N/A	N/A	N/A	N/A	N/A
Telework information	5%	3%	5%	9%	11%	9%	8%
HOV lane info	6%	3%	3%	7%	12%	8%	7%

**Table B-15****Types of Information Offered by Employer (multiple responses permitted)**

	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
CWS / telework	35%	40%	2%	2%	<1%	<1%	<1%
Discount/free transit pass	49%	30%	60%	56%	55%	58%	47%
Other cash incentive	15%	11%	4%	7%	4%	3%	4%
CP/VP information / matchlist	16%	11%	4%	5%	8%	9%	5%
GRH	14%	<2%	0%	0%	0%	0%	0%
Transit information / schedule	10%	3%	4%	3%	2%	4%	2%
Federal tax benefit	11%	3%	3%	3%	2%	3%	3%
Preferential parking	15%	3%	2%	2%	2%	3%	2%
None	17%	5%	27%	30%	30%	30%	37%

**Table B-16**

**Received Information from Other Organization**

	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
Yes	2%	2%	4%	7%	6%	5%	5%

**Use/Influence of Information Received**

**Table B-17**

**Received Match Names?**

	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
Yes, received match info	21%	27%	42%	68%	66%	48%	64%

**Table B-18**

**Try to reach People Named on the List?**

	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
(n=___)	145	133	310	461	448	332	459
Yes, tried to reach people	56%	68%	56%	56%	52%	49%	53%

**Table B-19**

**Able to Reach People on List?**

	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
(n=___)	80	90	176	256	231	161	242
Yes, reached people on list	87%	77%	84%	88%	88%	89%	89%

**Table B-20****Commuters Reached Interested in Ridesharing?**

	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
(n=___)	81	82	146	224	204	141	216
Yes, interested in RS	46%	47%	59%	49%	45%	45%	44%
Interested, but schedule and/or locations not compatible	36%	18%	21%	35%	29%	34%	35%
No, not interested in RS	18%	35%	20%	16%	26%	21%	21%

**Table B-21****Reasons for Not trying to Reach Commuters**

	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
(n=___)	66	47	136	207	114	171	220
Work hours not compatible	18%	26%	25%	28%	29%	25%	24%
Locations not compatible	15%	10%	25%	26%	16%	23%	23%
Didn't want to RS	22%	13%	16%	17%	12%	17%	12%
Already found RS arrangement	21%	22%	19%	12%	23%	15%	25%
Haven't gotten around to it	8%	11%	8%	11%	11%	10%	10%
Changed jobs	2%	2%	<1%	3%	4%	2%	2%
Changed residence	0%	2%	2%	2%	4%	2%	<1%

**Table B-22****Did Respondent Contact Transit Agency?****(Asked of Respondents Who Said They Received Transit Information)**

	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
(n=___)	167	206	117	189	187	229	184
Yes, contacted agency	36%	40%	31%	37%	38%	32%	30%

**Table B-23****Did Respondent Use Information to Try Transit?**

	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
(n=___)	60	68	34	42	36	41	35
Yes, used info to try transit	87%	81%	77%	83%	60%	88%	77%

**Table B-24****Why Did Respondent Decide Not to Contact Transit Agency? (multiple responses permitted)**

	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
(n=___)	52	13	81	125	121	160	129
Didn't need more information	21%	19%	N/A	N/A	N/A	N/A	N/A
Prefer other modes/current mode	6%	9%	20%	25%	24%	18%	28%
Got what I needed from website	NA	7%	N/A	N/A	N/A	N/A	N/A
Too far from home/work	1%	3%	17%	5%	11%	12%	12%
Wasn't interested	1%	3%	23%	30%	21%	34%	15%
Would never use transit	1%	N/A	27%	2%	2%	2%	3%
Already had info, info other source	NA	4%	<1%	17%	20%	16%	13%
Never got around to it	1%	N/A	6%	11%	15%	7%	10%

**Table B-25****Did Respondent Use Park & Ride Information?****(Asked of Respondents Who Said They Received P&R Information)**

	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
(n=___)	76	97	62	134	140	96	91
Yes, used P&R info	59%	75%	42%	54%	57%	47%	44%



**Table B-26****Aware of Park & Ride Lot Before Receiving Information?**

	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
(n=___)	45	71	26	73	78	45	40
Yes, knew of P&R before	57%	71%	73%	69%	63%	69%	65%

**Table B-27****Used Park & Ride Lot Before Receiving Information?**

	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
(n=___)	27	51	26	73	78	45	40
Yes, used P&R lot before	49%	55%	48%	50%	40%	50%	43%

**Table B-28****Mode Used When Requesting GRH Information**

	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
(n=___)	491	560	487	442	492	464	352
DA/Motorcycle	7%	6%	14%	20%	24%	21%	28%
CP	13%	13%	19%	22%	22%	15%	20%
VP	18%	17%	17%	14%	14%	11%	14%
Bus/train	78%	63%	50%	45%	42%	52%	38%

**Table B-29****Register for GRH?**

	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
(n=___)	494	576	478	441	492	464	352
Yes, registered for GRH	97%	96%	86%	76%	73%	74%	63%

**APPENDIX C – CALCULATIONS OF IMPACTS - ALL PLACEMENTS, JULY – SEPTEMBER 2014****Commute Information Requests****Populations of Interest – Commuter Connections Rideshare Applicants****Total assisted commuters** 6,331

Within MSA (56%) 3,525

Outside MSA (44%) 2,806

**COC Placement Rates**

	<b>In MSA</b>	<b>Out MSA</b>
• Continued rate	32.3%	38.1%
• Temporary rate	4.7%	5.6%
• Total	37.0%	43.8%

**Placements**

• Continued	1,139	1,072	(Apps x cont. rate)
• Temporary	166	157	(Apps x temporary rate)

**Total placements** 2,534**Daily Vehicle Trips Reduced****VTR Factors**

• Continued	0.40	0.46
• Temporary	0.18	0.38
• Temporary discount	12.9%	12.9%

• Continued trips reduced	456	493	(Placements x cont. VTR factor)
• Temporary trips reduced	4	8	(Placements x temp VTR factor)

**Total VT reduced** 961**Daily VMT Reduced**

Ave one-way trip distance (mi)

• Continued	28.9	28.9	(Actual Outside dist. 51.1 miles)
• Temporary	26.0	26.0	(Actual Outside dist. 73.6 miles)

• Continued VMT reduced	13,178	14,248	(Vehicle trips x ave distance)
• Temporary VMT reduced	104	208	

**Total VMT Reduced** 27,738

## Appendix C, continued

**Trip and VMT Adjustment for SOV Access to HOV Modes (reduce VT and VMT for AQ analysis)**

	In MSA	Out MSA	
• SOV access % -Continued	72%	0%	(CC placement survey)
• SOV access dist (mi) – Continued	5.5	0.0	(CC placement survey)
• Non-SOV access % - Temporary	45%	0%	(CC placement survey)
• SOV access dist (mi) – Temporary	4.2	0.0	(CC placement survey)
Outside MSA – not applicable – all access outside MSA			

**VT Reduction**

• Continued SOV access VT	328	0	(Cont VT x SOV access)
• Temporary SOV access VT	2	0	(Temp VT x SOV access)
• Continued VT (without SOV access)	128	493	(Total Cont VT – SOV access VT)
• Temporary VT (without SOV access)	2	8	(Total Temp VT- SOV access VT)

**Total VT (net of SOV access) 631**

**VMT Reduction**

• Continued SOV access VMT	1,804	0	(Cont VT x SOV % x access dist)
• Temporary SOV access VMT	8	0	(Cont VT x SOV % x access dist)
• Continued VMT (without SOV access)	11,374	14,248	(Total Temp VMT- SOV access VMT)
• Temporary VMT (without SOV access)	96	208	(Total Temp VMT- SOV access VMT)

**Total VMT (net of SOV access) 25,926**

**Total VT for AQ analysis 631**

**Total VMT for AQ analysis 25,926**

**Daily Emissions Reduced – NOx and VOC**

NOx	15 Emission		15 Emission		Tot gm	Tot ton
	Trips	Factor	VMT	Factor		
• From Starts	631	1.5408			972	0.0011
• From Running			25,926	0.3737	9,689	<u>0.0107</u>
<b>Total NOx reduced (tons)</b>					<b>Daily</b>	<b>0.0118</b>

VOC	15 Emission		15 Emission		Tot gm	Tot ton
	Trips	Factor	VMT	Factor		
• From Starts	631	2.8573			1,803	0.0020
• From Running			25,926	0.0915	2,372	<u>0.0026</u>
<b>Total VOC reduced (tons)</b>					<b>Daily</b>	<b>0.0046</b>

Appendix 5, continued

**Annual Emissions Reduced (cont) – PM 2.5, Precursor NOx, and CO2**

PM 2.5	15 Emission		VMT	15 Emission		Tot gm	Tot ton
	Trips	Factor		Factor			
• From Starts	631	0.0367				23	0.0000
• From Running			25,926	0.0170		441	<u>0.0005</u>
<b>Total PM 2.5 reduced (tons)</b>						<b>Daily</b>	<b>0.0005</b>
						<b>Annual</b>	<b>0.128</b>

PM 2.5 Precursor NOx	11 Emission		VMT	11 Emission		Tot gm	Tot ton
	Trips	Factor		Factor			
• From Starts	631	1.7510				1,105	0.0012
• From Running			25,926	0.3663		9,497	<u>0.0105</u>
<b>Total PM 2.5 Precursor NOx reduced (tons)</b>						<b>Daily</b>	<b>0.0117</b>
						<b>Annual</b>	<b>2.922</b>

CO2	11 Emission		VMT	11 Emission		Tot gm	Tot ton
	Trips	Factor		Factor			
• From Starts	631	239.26				150,973	0.1664
• From Running			25,926	404.17		10,478,511	<u>11.5506</u>
<b>Total CO2 reduced (tons)</b>						<b>Daily</b>	<b>11.7170</b>
						<b>Annual</b>	<b>2,929</b>

**Daily Energy Saving**

<b>Daily Energy Savings</b>	<b>1,089 gal/day</b>
(daily VMT reduced / 23.8 miles/gallons)	
(25,926 / 23.8)	

**Annual Commuter Cost Savings Saving \*\***

<b>Annual Commuter Cost Savings</b>	<b>\$1,101,750 / year</b>
(VMT reduced x \$0.170/mi. x 250 days)	
(25,926 x 0.170 x 250)	

<b>Cost Saving per commuter</b>	<b>\$489 / year</b>
(cost saving / number of placements)**	
(\$1,101,750 / 2,253)	

\*\* Respondents with temporary changes were included in this calculation, but they would receive cost savings for only the percentage of a year that represented the duration of their change. Total placements counted = 2,211 continued placements + 42 discounted temporary placements (12.9% \* 323).