

Fiscal Year 2024

Applicant Database Placement Survey Technical Survey Draft Report

(November-December 2023 Survey)

March 19, 2024

**National Capital Region
Transportation Planning Board
COMMUTER CONNECTIONS PROGRAM**

Fiscal Year 2024
**Applicant Database Placement Survey
Technical Survey Draft Report**
(November-December 2023 Survey)

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Executive Summary

This report presents results of a survey on commute 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 provides basic commute information and assistance, such as regional ridematching and information on transit, bicycling, telework, Park & Ride lots, and HOV/Express lanes, through the Commuter Operations Center. Commuter Connections also administers the regional Guaranteed Ride Home program and several commute incentive programs, such as incenTrip, CarpoolNow, Flextime Rewards, and 'Pool Rewards. Commuters obtain services by submitting information and service requests via the Commuter Connection's website, mobile application, or toll-free telephone number. Commuters also can make requests 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 Operations Center services. Impacts for other Commuter Connections services are estimated through other data sources. Data for the Commuter Operations Center analysis were collected in November-December 2023 through a survey of 279 applicants who received assistance between July 1 and September 30, 2023.

Commuter Connections Program Activity Summary and Participation, Utilization, and Satisfaction Performance Measures Placement Survey, July-September 2023

• Commuter applicants	2,348	
• Applicant placement rates	60.2%	
- Continued placement rate		41.6%
- Occasional placement rate		10.4%
- Temporary placement rate		6.8%
- One-time placement rate		1.4%
• Applicants placed in alternative modes	1,414	
- Continued placements	977	
- Occasional placements	244	
- Temporary placements	160	
- One-time placements	33	
• Applicants who received matchlist from Commuter Connections		24%
• Applicants who received vanpool assistance		7%
• Applicants who received transit information		32%
• Applicants who received GRH information/registration		62%
• Applicants who received Park & Ride info		15%
• Applicants who received commute event information		22%
• Applicants who received bicycle information		14%
• Applicants who received telework information		3%
• Applicants who used incenTrip mobile application		25%
• Applicants who used Flextime Rewards		9%
• Applicants who used CarpoolNow mobile application		8%

**Commuter Connections Program
Program Impact Performance Measures
Placement Survey, July-September 2023**

• Daily vehicle trips (VT) reduced	536	trips
- Continued placements	528	trips
- Temporary placements (prorated credit)	8	trips
• Daily VMT reduced	14,181	VMT
- Continued placements	13,992	VMT
- Temporary placements (prorated credit)	189	VMT
• Daily tons of Emissions reduced		
– NOx	0.0027	tons
– VOC	0.0019	tons
• Annual tons of Emissions reduced		
– CO2 / Greenhouse gas	1,341.3	tons
• Daily gallons of gasoline saved	592	daily gallons of gas
• Commuter costs reduced		
- Annual cost saving per placement	\$1,050	per year

Other Key Survey Results

Demographics

- Respondents were evenly divided between males (48%) and females (52%). Six in ten (60%) respondents were white and 79% were between 35 and 64 years old.

Commute Travel Patterns

- In November 2023, at the time of the survey, 69% of respondents said they were teleworking at least occasionally; 28% teleworked three or more days per week and 7% teleworked full-time. This was a substantial change from the telework findings in the November 2020 placement survey, when 84% of workers teleworked at least some days and 77% teleworked three or more days per week, in response to the coronavirus pandemic. While telework was at a lower level in November 2023 than in November 2020, both the incidence and frequency of telework had increased since February 2020, just before the start of the pandemic. At that time, only 49% teleworked at all and 11% teleworked three or more days per week.
- Telework/work from home days eliminated 22% of respondents weekly commute “trips.” Respondents used transit for nearly six in ten (57%) of the commute trips they made to outside work locations. They drove alone for two in ten (20%) weekly commute trips to outside work locations, vanpooled for 9% of trips, and carpooled for 6%. Respondents bicycled or walked to work for 8% of weekly commute trips.
- The average one-way commute distance was 32.8 miles. The average one-way commute time was 63 minutes.

Commute Changes

- Six in ten (60.2%) survey respondents started, tried, or increased use of alternative modes of transportation after receiving assistance from Commuter Connections. About three in ten made a change to a transit mode; 18.3% made a change to train and 10.8% made a change to bus. About two in ten (17.2%) made carpool or vanpool change.
- More than four in ten (41.6%) respondents made a change to an alternative mode that they had continued to use at least one day per week. This 41.6% was the “continued placement rate.” The temporary placement rate (percent of respondents who made a change but returned to their original modes) was 6.8%.
- About 1.4% of respondents tried using a new alternative mode a few days (one-time placement rate) and 10.4% made a change to a mode they use occasionally, but less than once per week on average (occasional placement rate).
- Three in ten (30%) respondents who made a mode change shifted from driving alone. The remaining 70% shifted from one alternative mode to another.
- Respondents who made a commute change cited both commute-related and personal-related reasons. The top commute reasons were to save money, cited by 20% of respondents who made commute changes. The top personal factors motivating commute changes were changing jobs or work hours (19%) and moving to a new residence (9%).
- One-quarter (26%) of respondents who made a commute change indicated that information they received from Commuter Connections influenced or assisted their decision to make the change. About 8% cited a carpool or vanpool matching or assistance service, 5% named a transit information service, and 4% named Guaranteed Ride Home. Eight percent said the incenTrip mobile app had been influential. One-third (36%) of respondents said a service from their employer or another commute service organization influenced or assisted their change. The most common services were financial incentives, cited by 22% of respondents who made a change, and vanpool assistance, named by 4%.

Contact with Commuter Connections

- Respondents cited three primary sources to learn about Commuter Connections: employer/employee survey (26%), word of mouth referrals (24%), and Internet (17%). Internet was the primary source of contact with Commuter Connections; 74% of respondents cited this method. About two in ten (21%) made a contact by telephone, 14% made their contact through the incenTrip mobile application, and 13% said their contact was through an employer.
- One-third (33%) of respondents contacted Commuter Connections to find back-up transportation in case of emergency, 13% wanted to check commute options or a transit schedule, and 8% wanted rideshare information. Fourteen percent said they were interested in saving money and 7% were tired of driving and wanted to find another travel option.

Information and Assistance Requested and Received

- The top service received overall, by a large majority, was Guaranteed Ride Home; six in ten (62%) respondents said they received or accessed this service, which is open to any commuter who uses an alternative mode to commute.
- Four in ten respondents said they received or accessed a Commuter Connections service to help with carpooling or vanpooling. One-quarter (24%) received a matchlist with names and contact

information for potential carpool/vanpool partners, 15% received a map showing home and work locations of potential carpool/vanpool partner, and 7% obtained vanpool assistance.

- Six in ten (60%) respondents who received a matchlist tried to contact someone named on the list and 75% who tried to make contact reached someone on the list.
- One-third (32%) of respondents received transit schedule and/or fare information from Commuter Connections. Thirty-seven percent of these respondents 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.
- Respondents also reported using the three incentive programs offered by Commuter Connections. One-quarter (25%) had used the incenTrip mobile trip tracking app, 9% participated in the Flextime Rewards program that offered rewards for diverting from congested routes when highway incidents caused unexpected traffic, and 8% had registered for the CarpoolNow real-time rideshare mobile app.
- The final two Commuter Connections services were commuter incentive programs. One-quarter (25%) of respondents mentioned using the incenTrip trip tracking mobile application and 9% said they had accessed or participated in the Flextime Rewards incentive for commuters who delay their commute when notified of a roadway incident along their commute route.
- The most common employer service was a transit pass discount, noted by 50% of respondents but respondents also mentioned other financial incentives that were available: vanpool subsidy (9%), Federal Transit tax benefit (9%) carpool subsidy (6%), or other cash incentive (11%). One-quarter (25%) of respondents mentioned that their employer offers telework or compressed schedules; this was a substantial drop from 2020, when 65% of respondents indicated this service was offered at work.

Table of Contents

Executive Summary	i
Other Key Survey Results	ii
- Demographics	
- Commute Travel Patterns	
- Commute Changes	
- Contact with Commuter Connections	
- Information and Assistance Received	
Section 1 – Overview	1
Purpose of the Report	1
Organization of the Report	2
Section 2 – Data Collection Methodology	3
Survey Overview	3
Weighting of Survey Data	6
Statistical Distribution Comparison Between Completed Interviews and Total Applicant Population	6
Section 3 – Recent Applicants Survey Results	7
Characteristics and Demographics of the Sample	7
- Work and Home Locations	
- Demographics	
- Employment Characteristics	
Current Commute Patterns	12
- Telework – Current, During-pandemic, and Pre-pandemic	
- Current Commute Mode	
- Commute Distance and Time, Arrival Time at Work	
Current Alternative Mode Characteristics	16
- Carpool and Vanpool Size	
- Carpool Members	
- Access to Carpools, Vanpools, and Transit	
Recent Commute Pattern Changes	18
- Types of Changes Made	
- Continued, Occasional, Temporary, and One-time Placement Rates	
- Previous Mode of Commuters Who Changed Mode	
- Reasons for Changes	

Table of Contents (cont.)

Contact with Commuter Connections and Services Received	24
- Sources of Information about Commuter Connections	
- Methods Used to Contact Commuter Connections	
- Reasons for Seeking Assistance	
- Information Received from Commuter Connections	
- Assistance Offered by Employers	
- Assistance Offered by Other Commute Assistance Groups	
Use of Commuter Connections Services	30
- Matchlist Information	
- Transit Information	
- Park & Ride Information	
- Telework Information	
- Bicycle Information	
- Guaranteed Ride Home	
Section 4 – Incentive Applicants Survey Results	36
Characteristics and Demographics of the Sample	36
- Work and Home Locations	
- Demographics	
- Employment Characteristics	
Current Commute Patterns	39
- Telework – Current, During-pandemic, and Pre-pandemic	
- Current Commute Mode	
- Commute Distance and Time, Work Arrival Time	
- Access to Carpools, Vanpools, and Transit	
Recent Commute Pattern Changes	41
- Types of Changes Made	
- Continued, Occasional, Temporary, and One-time Placement Rates	
- Previous Mode of Commuters Who Changed Mode	
- Reasons for Changes	
Contact with Commuter Connections and Services Received	45
- Sources of Information about Commuter Connections	
- Methods Used to Contact Commuter Connections	
- Information Received from Commuter Connections	
- Assistance Offered by Employers	

Table of Contents (cont.)

Use of Commuter Connections Incentives	50
- CarpoolNow Mobile Application	
- Flextime Rewards Incentive Program	
- incenTrip Mobile Application	
Section 5 – Progress on Performance Measures	53
Performance Indicators	53
Participation, Utilization, and Satisfaction	53
Program Impact Measures	54
- Vehicle Trips Reduced	
- Vehicle Miles Traveled (VMT) Reduced	
- Emissions Reduced	
- Gallons of Gasoline Saved	
- Commuter Travel Costs Reduced	
List of Appendices	58
Appendix A – Questionnaire for FY 2024 Applicant Survey	
Appendix B – Comparison of November 2023 Survey Results with Results for Surveys Conducted in 2020, 2017, 2014, 2011, 2008, 2005, and 2004	
Appendix C – Commuter Connections Impact Calculations, Recent Applicants – July-September 2023	

Section 1 Overview

Purpose of the Report

This report presents results of a commuter placement survey of a sample of commuters who used and/or registered for commute assistance services administered by the Commuter Connections Program of the National Capital Region Transportation Planning Board (TPB) at the Metropolitan Washington Council of Governments (COG). Commuter Connections provides basic commute information and assistance, such as regional ridematching and transit, bicycling, teleworking, and Park & Ride lot information through its regional website and mobile application. Commuter Connections also administers the regional Guaranteed Ride Home program and several commute incentive programs, such as incenTrip, CarpoolNow, Flextime Rewards, and 'Pool Rewards. These programs and services are collectively defined as Transportation Demand Management (TDM) Program Elements.

Commuter Connections conducts the applicant placement survey triennially. The primary purpose of the survey is to collect data to document transportation, air quality, energy, and cost impacts of these commuter transportation assistance services. Similar surveys were conducted in 2020, 2017, 2014, 2011, 2008, 2005, 2004, 2003, and 2002. Results for these surveys were reported in Fiscal Year 2021, 2018, 2015, 2012, 2009, 2006, 2005, 2004, and 2003 Placement Survey Reports, respectively, dated (May 2021, May 2018, May 2015, May 2012, May 2009, May 2006, May 2005, May 2004, and May 2003).¹

The survey described in this report was conducted with two populations of Commuter Connections applicants. The first population, referred to as “recent applicants,” included applicants who received assistance from Commuter Connections between July 1 and September 30, 2023. This 3-month assistance timeframe was the same as had been used for previous commuter placement surveys (2020, 2017, 2014, 2011, 2008, and 2005) and the recent applicants were the priority focus for the survey. Data collected from these respondents will be used to estimate impacts of the Commuter Operations Center in the FY 2024-2026 Regional TDM Program Elements evaluation analysis, to be reported in June 2026.

The second population of surveyed applicants included commuters who participated in one of three Commuter Connections incentive programs: CarpoolNow, Flextime Rewards, and incenTrip, regardless of when they had registered or used the programs. These programs were introduced after the 2017 placement survey was conducted so Commuter Connections had not conducted any surveys with applicants in these programs prior to 2020. The “incentive applicants” component was added to the 2020 placement survey to examine use of and travel impacts of these programs. Incentive applicants were again included in the 2023 survey and data collected from these respondents will be used to estimate impacts of the three incentive programs in the FY 2024-2026 TDM Program evaluation analysis, as part of the Mass Marketing TDM Program Element analysis.

¹ 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, 2011, 2014, 2017, 2020, and 2023 surveys.

For consistency with past placement surveys, survey results for these two populations were analyzed separately. But 100 incentive applicants had received Commuter Connections services within the 3-month period for recent applicants. These applicants were included in both the recent applicant and incentive applicant analyses.

Organization of the Report

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

- Section 2 Data collection methodology
- Section 3 Recent applicant survey results
- Section 4 Incentive applicant survey results
- Section 5 Progress on performance measures

Three appendices follow these sections. Appendix A presents the questionnaire used in the 2023 survey. Appendix B provides comparisons of 2023 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 for recent applicants.

Section 2 Data Collection Methodology

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

Survey Overview

Questionnaire

The questionnaire used for the 2023 survey is shown in Appendix A. It was based on the questionnaire used for the 2020 applicant survey, with minor updates to existing questions to enhance the clarity and flow of the interviews.

Separate formats of the questionnaire were developed for Internet and telephone survey administration. The 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.

The Internet version was programmed by MediaBeef, Inc., Commuter Connections' online TDM software system vendor. It was used for applicants who provided an email address as a contact in the registration database. The telephone version was programmed by WBA Research, Inc. (WBA), an independent survey research firm, for applicants who provided only telephone numbers as contact information.

Sample Selection and Alert Letters

The survey described in this report was conducted with two sets of applicants. The first set, "recent applicants," included applicants who received assistance from Commuter Connections between July 1 and September 30, 2023. This assistance timeframe was the same as had been used for previous placement surveys (2020, 2017, 2014, 2011, 2008, and 2005) and recent applicants were the priority focus for the survey.

In surveys prior to 2020, the placement survey completed interviews with a minimum of 700 applicants, from a sample group that typically totaled 5,000 or more applicants. Due to the coronavirus pandemic, requests for Commuter Connections services were dramatically lower in both the 2020 and 2023 surveys, so the targeted number of completed interviews were reduced in these two surveys to approximate the response rate from the most recent survey. Between July through September 2023, fewer than 2,400 applicants had requested/received assistance and the soft target for the number of completed interviews was set at about 300, a total that represented the same percentage of recent applicants (12.4%) as had been interviewed in 2020.

The second set of surveyed applicants was comprised of commuters who were participating in or who had participated in one of three Commuter Connections incentive programs: CarpoolNow, Flextime Rewards, and incenTrip, at any time between November 1, 2020 and September 30, 2023. This "incentive applicants" component was included to examine use of and travel impacts of these programs.

Potential respondents in the two sample groups were identified by Commuter Connections staff from the Commuter Connections' database. Commuters defined in the incentive applicant group could overlap with the recent applicant group, if they used the incentive program, or another Commuter Connections service in July, August, or September 2023. Commuters who were known to be in both groups were initially assigned to the recent applicant group, but ultimately were included in both groups for the individual applicant group analysis.

WBA received separate databases from COG staff for recent applicants and for incentive applicants, combined the databases, and removed duplicate records and records that did not include at least one form of contact information. Following these steps, 2,393 sample points were available in the recent applicant group and 853 in the incentive applicant group. For sampling purposes, applicants were further divided into sub-groups, based on the type of contact information they provided in the database.

Applicants and Completed Interviews by Sample Group

Sample Group (by Contact Information)	Recent Applicants – July-Sept 2023		Incentive Applicants	
	Applicants	Completed Interviews	Applicants	Completed Interviews
Email Only	917	17	250	8
Email & Telephone	1,409	257	601	114
Telephone Only	67	5	2	0
Total	2,393	279	853	123

Alert Letters – The survey consultants developed alert letters to inform potential respondents of the upcoming survey and request their participation. These letters were based on the letter distributed to potential respondents during the 2020 study, with updates for 2023. Each letter referenced the appropriate 2023 survey administration method: either Internet or telephone. Letters were developed for the three 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

An additional 45 commuters provided only a postal mail address in the commuter database. The only option to solicit participation of these commuters was through a postal mail letter that asked the recipient to take the survey via the Internet using their Commuter Connections’ account. In the 2017 survey, none of the postal address only applicants had responded to the survey, thus in 2020 and 2023, the Postal Address Only applicants were excluded from the survey.

All commuters who provided an email address and/or a telephone contact were sent an invitation to participate in the survey. For the Telephone Only group, COG/TPB staff sent invitation letters printed on Commuter Connections letterhead in the early November 2023. For Email Only and Email & Telephone groups, COG sent the letter via email on November 8, 2023, the day the Internet survey was launched.

Commuters in the Email Only and Email & Telephone groups who did not respond to the initial invitation were sent four reminder emails. The final reminder noted that the survey was administered “only once every three years.” A total of 196 commuters participated in the survey via the Internet.

Internet Interviews – The Internet survey was hosted through the Commuter Connections’ online system, with support from Mediabeef, from November 8 through December 13, 2023. Both Email Only and Email & Telephone groups (2,326 recent applicants and 851 incentive applicants) were invited to take the interview via Internet using their Commuter Connections’ account. Some sample points were

removed due to email bounce backs, resulting in a final Internet sample frame of 2,281 for the recent applicant group and 838 for the incentive applicant group.

At the end of the survey period, Commuter Connections sent the data for the 196 completed Internet interviews to WBA for validity checks and merging with the telephone survey data. Forty-four of the 196 initial interviews could not be used because the respondents were not currently employed, did not recall receiving or requesting information from Commuter Connections, or were removed in data cleaning. This left a total of 152 useable Internet interviews. Data received from the Internet method of contact were formatted and merged with the interviews completed by telephone.

Telephone Interviews – Telephone Only and Follow-up to Internet Non-respondents – The Telephone Only sample, which contained 68 potential respondents, resulted in five completed interviews. In December, due to the low response rate by email invitation to potential respondents, Internet respondents who had provided a telephone number were contacted for a telephone interview.

Final Interview Count by Sample Group and Survey Method*

Sample Group (by Contact Information)	Final Sample Applicants ²	Completed Interviews	Internet Interviews	Telephone Interviews
Recent Applicants				
Email Only	897	17	17	0
Email & Telephone	1,384	257	128	129
Telephone Only	67	5	0	5
Total	2,348	279	145	134
Incentive Applicants*				
Email Only	247	8	8	0
Email & Telephone	591	114	53	61
Telephone Only	2	0	0	0
Total	840	122	61	61

* 100 respondents in the recent applicants sample group also had used one of the incentive programs, thus were included in the analysis for both recent applicants and incentive applicants.

The non-response follow-up calls were made from November 22 to December 14, 2023. If both work and home numbers were available from the applicant record, interviews were first directed to a home telephone number. If the interview could not be completed at the home number, the respondent was called at work. The average length of interview was 21.7 minutes and an average of 3.0 dialing attempts was made for each completed interview.

² Final sample counts exclude applicants who could not be contacted because all contact information (email, postal mail, and telephone were inaccurate and/or unavailable).

Weighting of Survey Data

In placement surveys prior to 2020, 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

Due to the small starting sample frames, the high share of applicants with email contact, and the difficulty of reaching commuters by telephone, only five applicants in the Telephone Only group completed an interview in 2023. This count was deemed too small to use as a base for weighting, thus the 2023 results were not differentially weighted by contact method.

However, the completed interview counts for the recent applicant and incentive applicant groups can be expanded to represent the respective sample frames. As noted earlier, some applicants were removed from the sample frame either because their email bounced back as not delivered and/or their telephone number was no longer valid. The final expanded counts of applicants were 2,348 for recent applicants and 840 for incentive applicants.

Statistical Distribution Comparison Between Completed Interviews and Total Applicant Population

A total of 279 interviews were completed from the total of 2,348 recent applicants. This represented an overall response rate of 11.9%, slightly less than the 12.4% response rate from the 2020 placement survey. A total of 122 interviews were completed from among the 840 incentive applicants, for a response rate of 14.5%. The low response rates increase 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 279 interviews from a population of 2,348 resulted in a level of confidence of 95% +/- 5.5 percentage points for the recent applicant group. For the incentive applicant group, 122 completed interviews from a population of 840 resulted in a level of confidence of 95% +/- 8.2 percentage points. For both populations the confidence intervals are comparable to those from the 2020 survey (recent applicants - 95% +/- 5.4, incentive applicants 95% +/- 8.0).

Section 3 Recent Applicant Survey Results

This section presents the results of the survey for the recent applicant sample group, that is, applicants who requested/received/accessed commute information and assistance from Commuter Connections between July and September 2023. 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) at the time of the survey
- 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, race/ethnicity, gender, 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 all regional commuters. Finally, comparisons are made for some questions with results from previous placement surveys. Appendix B presents more complete results for these comparisons and earlier surveys.

The commute pattern data from the survey were used in Section 5 to estimate transportation, air quality, energy, and consumer impacts of Commuter Connections services.

Characteristics and Demographics of the Sample

Work and Home Locations

Table 1 shows the percentage of respondents by home and work states. About four in ten respondents lived in Virginia (43%) and a similar share lived in Maryland (39%); 8% lived in the District of Columbia. One in ten respondents lived in another state or did not provide home location details. Top home locations in Virginia included: Fairfax County (11%), Stafford County (9%), Prince William County (7%), and Spotsylvania (5%). In Maryland, the top home locations were Montgomery County (9%), Baltimore City/County (6%), and Prince George's County (5%). Other jurisdictions each accounted for less than 5% of respondents.

Work locations were distributed much differently. Nearly half (49%) of all respondents worked in the District of Columbia. About one-quarter (23%) worked in a Maryland jurisdiction within the COG region and 19% worked in one of the Virginia jurisdictions in the COG region. Top work locations outside the District of Columbia included: Montgomery County, MD (11%), Arlington County, VA (8%), and Fairfax County, VA (7%). About 7% of respondents worked in Maryland outside the COG region.

Table 1
Distribution by Home and Work Locations

State/County	Home Location (n = 279)	Work Location* (n = 282)
District of Columbia	8%	49%
Maryland		
– MD counties within COG region	23%	16%
– MD counties outside COG region	16%	7%
Virginia		
– VA counties within COG region	24%	19%
– VA counties outside COG region	19%	0%
Other	3%	0%
Unknown	7%	9%

* Work location percentages for Maryland and Virginia within COG region: 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 separately.

Demographics

The survey asked demographic classification questions for gender, race/ethnicity, age, and income. Respondents were nearly evenly divided between males (48%) and females (52%). The remaining demographics are summarized in Table 2 and Figure 1.

Race/Ethnicity – Non-Hispanic Whites and Non-Hispanic Blacks represented the two largest race/ethnicity group categories of survey respondents, 60% and 20%, respectively (Table 2). Asians/Pacific Islanders represented 10% of the sample and Hispanics accounted for 7% of respondents.

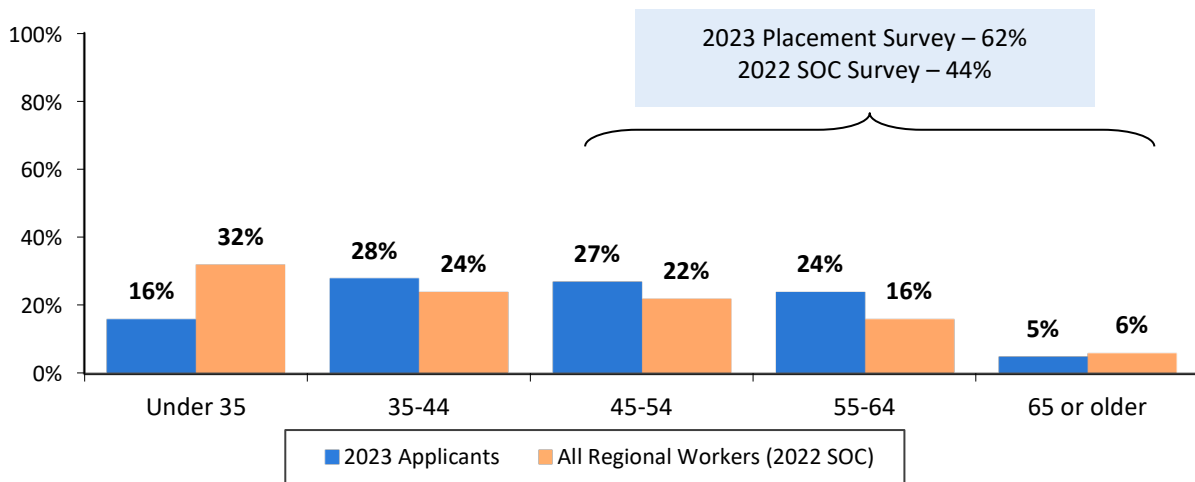
Table 2
Distribution by Race/Ethnicity
(n = 226)

Ethnic Group	Percentage
Non-Hispanic White	60%
Non-Hispanic Black	20%
Asian/Pacific Islander	10%
Hispanic	7%
Other/Mixed	3%

Age – Placement survey respondents were considerably older than the average worker in the Washington region. As shown in Figure 1, 62% of respondents were older than 44 years, compared with 44% of all Washington area commuters, as estimated in the 2022 State of the Commute Survey.

Figure 1
Distribution by Age

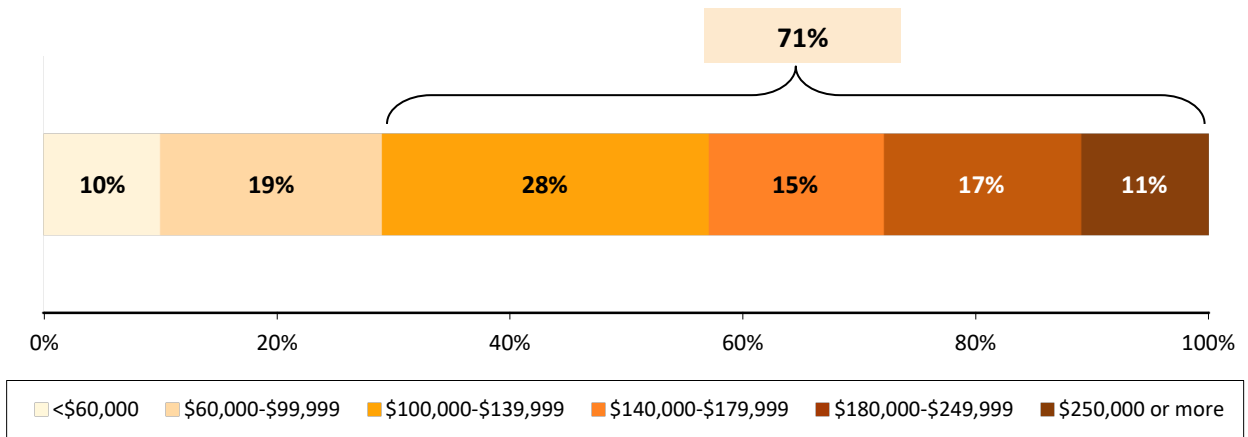
(2023 Placement Survey n = 263, 2022 SOC Survey for All Regional Workers = 8,074)



Income – Figure 2 presents the distribution of respondents’ annual household income. Survey respondents had quite high annual household incomes. Seven in ten (71%) had household incomes of \$100,000 or more and 28% had incomes of \$180,000 or more.

Figure 2
Annual Household Income

(n = 231)



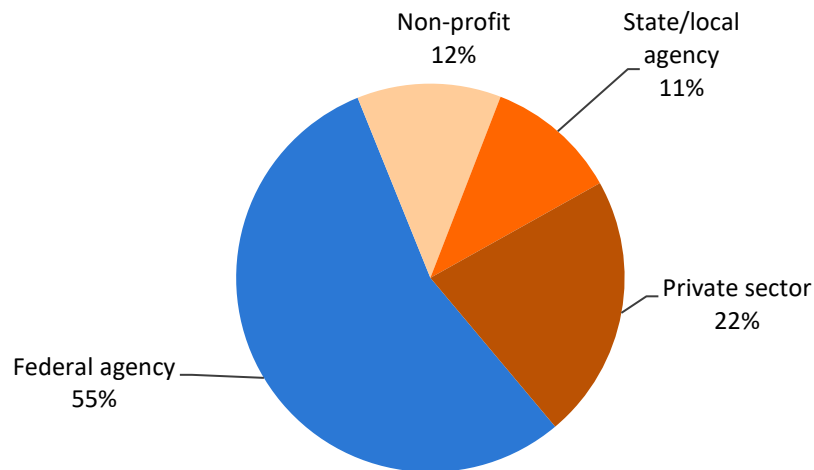
Employment Characteristics

Respondents were asked about the type of employer for which they worked and the number of employees working at their worksite. These results are shown in Figure 3 and Table 3, respectively.

Employer Type – More than half (55%) of respondents worked for a Federal agency (Figure 3). Two in ten (22%) worked for a private sector employer. State and local government agencies employed 11% and 12% worked for a non-profit organization. The distribution of employer type in the 2023 survey differed to that from the 2020 survey; in 2020, a higher percentage (66%) of respondents worked for Federal agencies and only 3% worked for state and local governments. The percentages of private sector and non-profit agency workers were about the same in 2023 as in 2020.

Figure 3
Distribution by Employer Type

(n = 258)



Employer Size – Most respondents (79%) worked for employers with more than 100 employees (Table 3). Four in ten (43%) worked for employers with at least 1,000 employees. Thirteen percent said they worked for organizations with 50 or fewer employees.

Table 3
Distribution by Employer Size

(n = 260)

Number of Employees	Percentage	Number of Employees	Percentage
1-25	8%	101-250	15%
26-50	5%	251-999	21%
51-100	8%	1,000+	43%

Occupations – Respondents represented many occupations. The most common were professional specialty operations (39%), administrative support (18%), executive/management (17%), and technicians/analysts/technical support (11%) (Table 4).

Table 4
Distribution by Occupation

(n = 252)

Occupation	Percentage
Professional/specialty	39%
Administrative support	18%
Executive/managerial	17%
Technicians/analysts/technical support	11%
Government/civil service (not specified)	6%
Military	3%
Other service (excluding protective)	2%
Protective service	1%
Other*	3%

* Each response in Other category was mentioned by less than 1% of respondents.

Current Commute Patterns

One section of the survey examined current commute patterns of respondents: commute mode, distance, travel time, and use of telework and compressed work schedules.

Telework – Current, During-pandemic, and Pre-pandemic

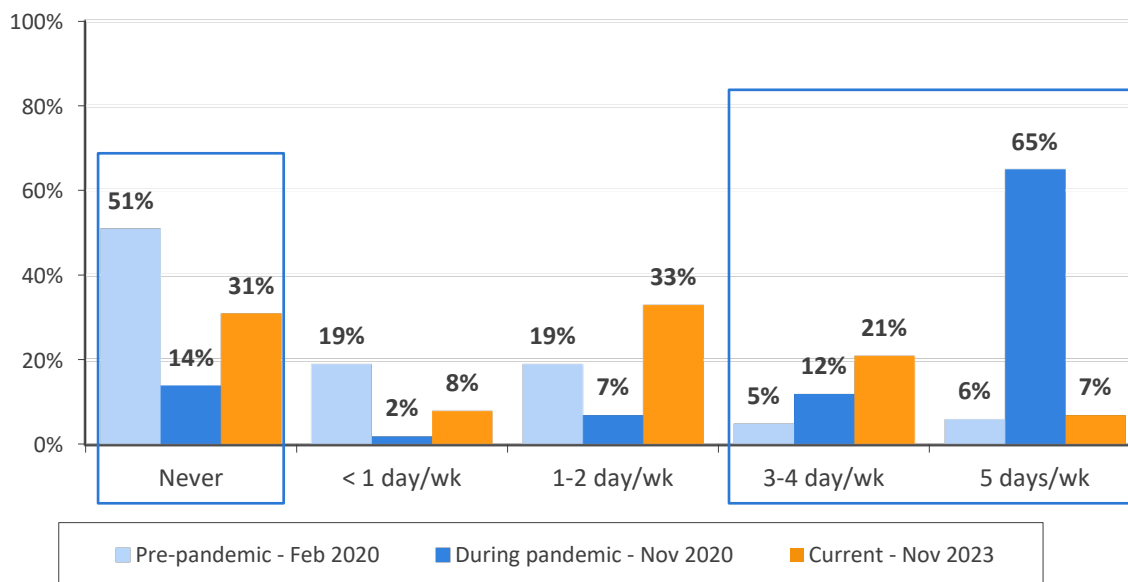
As illustrated in Figure 4, 69% of respondents were teleworking at least occasionally at the time of the survey; 61% teleworked one or more days per week and 28% teleworked three or more days per week. The remaining 31% were not teleworking at all.

This was a substantial change from the telework findings in the 2020 placement survey, when many workers teleworked in response to the coronavirus pandemic. In November 2020, 86% of survey respondents teleworked at least some workdays, 84% teleworked one or more days per week, and 65% teleworked full-time.

Figure 4 also shows the telework distribution in February 2020, before the pandemic began. At that time, only 49% of respondents teleworked at all and only one in ten (11%) teleworked three or more days per week. The comparison of telework during these three time periods shows that both the incidence and frequency of telework has increased since February 2020, before the pandemic. But full-time telework among Commuter Connections applicants, which exploded during the pandemic, has returned to pre-pandemic levels; 7% of respondents teleworked all their workdays in November 2023, about the same percentage (6%) as in November 2020.

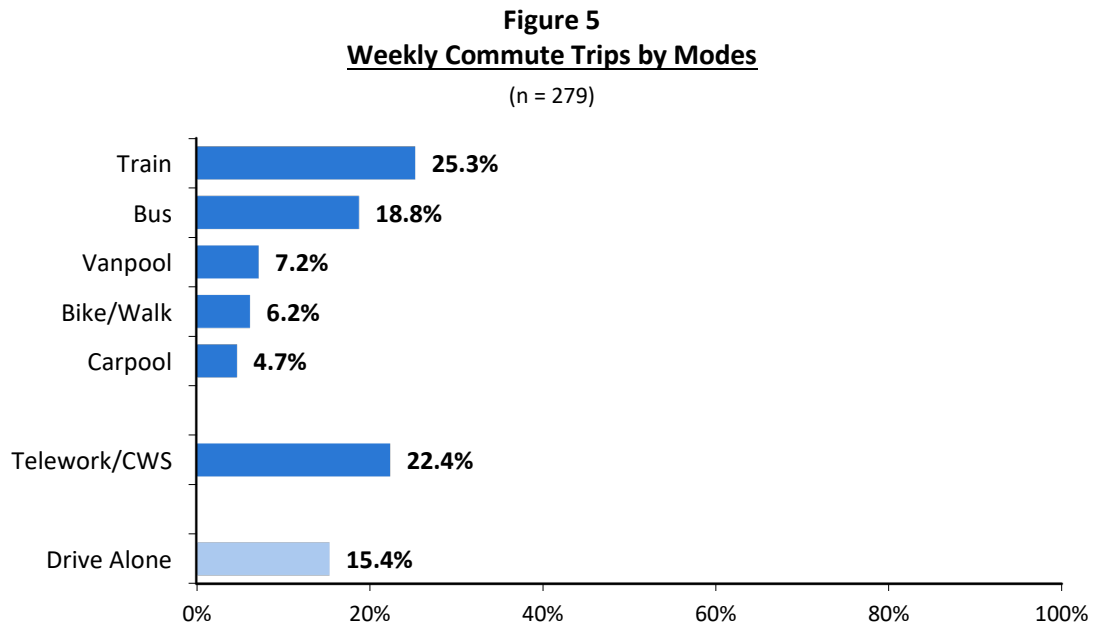
Figure 4
Telework Pre-pandemic, During the Pandemic, and Current

(Pre-pandemic (February 2020) n = 276, During pandemic (November 2020) n = 281, Current (November 2023) n = 279)



Current Commute Mode

Percentage of Weekly Trips – Respondents were asked how many days in a typical week they used each of a variety of transportation modes. Figure 5 present commute 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 are included to show the percentage of weekly work trips eliminated through use of these work schedule options.

Respondents drove alone for just 15.4% of their weekly commute trips. Transit accounted for more than four in ten weekly trips; 25.3% of trips were made by train and 18.8% by bus. Vanpool and carpool accounted for 7.2% and 4.7% of trips, respectively. Respondents made 6.2% of trips by bicycling or walking. Respondents eliminated 22.4% of weekly commute trips through telework days and compressed work schedule days offs. While not actually commute “trips,” they were officially assigned as part of the work week, so were included in this distribution.

If telework and compressed schedule days off are excluded, to estimate the “on the road” mode share, the percentage of the six travel modes increases. Without telework and CWS, the alternative mode share would rise to 80.1% of weekly commute trips. The weekly commute trip distribution would be:

- Train 32.6%
- Bus 24.2%
- Vanpool 9.3%
- Bike/walk 8.0%
- Carpool 6.0%
- Drive alone 19.9%

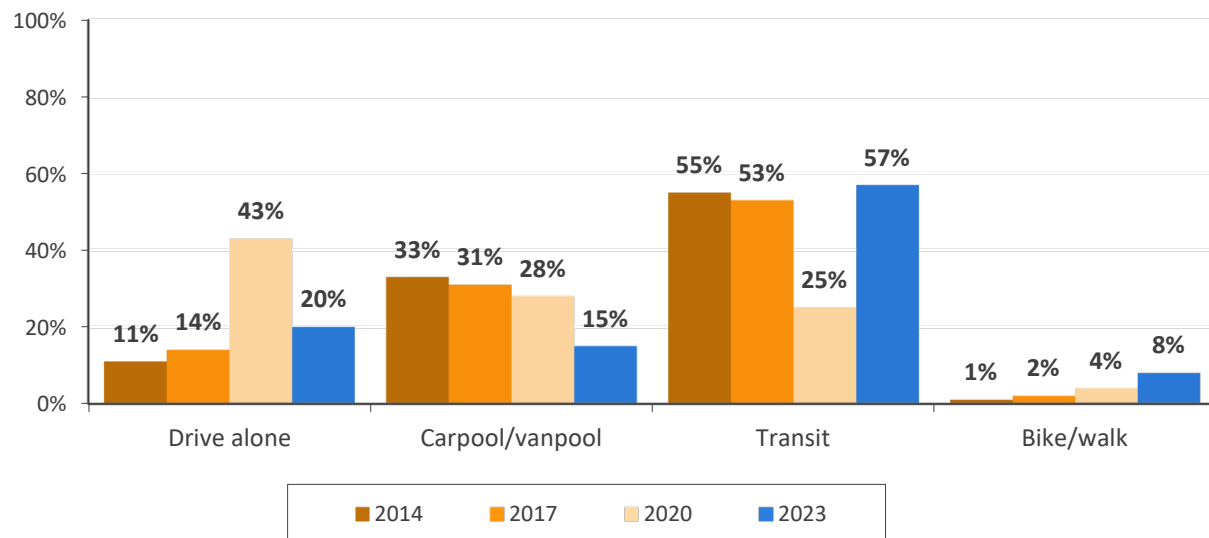
Mode Split Trends 2014 to 2023 – Past placement surveys have shown a steadily increasing share of weekly commute trips that Commuter Connections respondents eliminate by telework, from about 3% of weekly trips in 2008 to nearly 13% in 2017. As noted in Figure 5, the telework share of weekly trips in the 2023 survey was 22%, higher than the 17% pre-pandemic result of 2017, but a marked drop from the 75% percentage observed in the 2020 survey, as workers who shifted to remote work/telework during the coronavirus pandemic returned to their pre-pandemic workplaces.

While telework is, in fact, a component of the travel pattern, it is useful to show mode split distribution trends excluding telework from the base, to illustrate mode use for commute trips that respondents made to worksites outside their homes.

Figure 6 highlights several non-telework mode use trends in 2023. First, transit use, which fell dramatically between 2017 and 2020, due to the pandemic, rebounded to its pre-pandemic level, with more than half of non-telework commute trips made by either train or bus. A second notable finding was the decline of carpool/vanpool; respondents made only 15% of weekly commute trips by either carpool or vanpool in 2023, compared with about three in ten trips during 2014-2020. A third interesting trend is the continued growth of bike/walk, from just 1%-2% of trips in 2014-2017 to 8% in 2023.

Figure 6
Weekly Commute Trips by Modes (Excluding Telework/CWS) – 2014, 2017, 2020, and 2023

(2014 n = 690, 2017 n = 704, 2020 n = 99, 2023 n = 265)



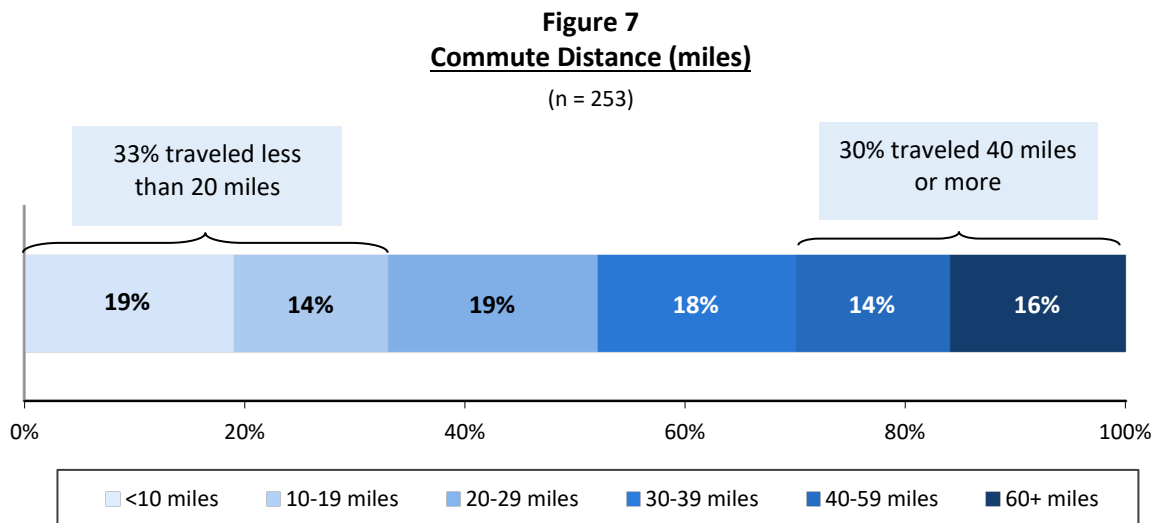
Finally, while the drive alone percentage of trips dropped by half between 2020 and 2023, the 2023 survey indicated continued growth in driving alone (20%), when compared with 2014 (11%) and 2017 (14%). Greater use of driving alone among Commuter Connections applicants and decline in ridesharing could be related to greater use of telework. Applicants who work from home a few days per week might find it more difficult to form carpool or vanpool arrangements and if they live in areas where transit is not available, driving alone could be their only feasible option for commute days.

Commute Distance and Time, Arrival Time at Work

Commute Distance – Respondents reported a wide range of commute distances, ranging from one mile to 127 miles. The average one-way distance was 32.8 miles. This was a substantial decline from the 39.2 mile average reported in the 2020 survey. It also was a drop, although less so, from the 35.1 mile and 36.2 mile distances reported in the 2017 and 2014 surveys, respectively. This could indicate a change in the applicant population, with Commuter Connections attracting more commuters who live near work and/or fewer long-distance commuters. Both the previously noted decline in 2023 rideshare use, which is concentrated among long-distance commuters, and increases in use of transit and bike/walk, which have shorter average travel distances, support both possibilities.

But even with the shift to a shorter average distance, the 32.8 mile average for Commuter Connections applicants is nearly twice the 16.7 mile average travel distance of all regional commuters, as estimated in the 2022 State of the Commute survey.

Figure 7 presents the distribution of respondents by distance categories. Nineteen percent of respondents traveled fewer than 10 miles to work and 33% commuted less than 20 miles. Three in ten (30%) commuted 40 or more miles.

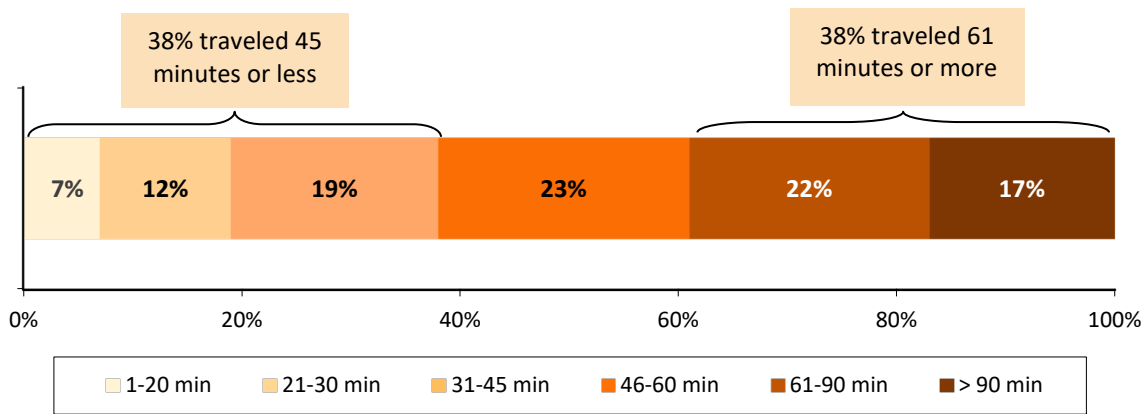


Commute Travel Time – Respondents’ one-way commute travel time ranged from five minutes to more than two hours. In 2023, nearly four in ten (38%) respondents said they traveled 45 minutes or less to work and 38% traveled more than one hour one-way (Figure 8). The average commute time was 63 minutes, well above the 37-minute average for all commuters in the region, as reported in the 2022 State of the Commute survey.

The placement survey average of 63 minutes was nine minutes less than the 54-minute duration in the 2020 survey, but comparable with the 66-minute average observed in the 2017 survey. The faster travel time in the 2020 survey (November 2020), despite a longer average travel distance, certainly was pandemic-related, reflecting the lower volume of traffic during peak periods, as a large share of commuters worked remotely in late 2020. As many workers have returned to pre-pandemic workplaces, traffic on regional roads has resumed.

Figure 8
Commute Time (minutes)

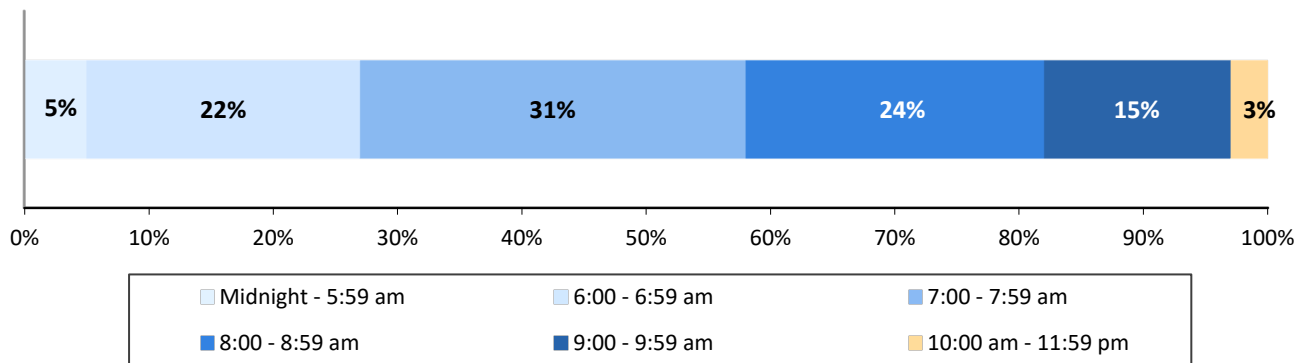
(n = 260)



Arrival Time at Work – Survey respondents typically arrived at work quite early in the day (Figure 9). Fifty-eight percent typically arrived at work before 8:00 am and 27% arrived before 7:00 am. One-quarter (24%) arrived between 8:00 am and 8:59 am and 15% arrived at 9:00 am or later. Three-quarters (77%) were traveling to work during the 6:00 am to 8:59 am peak commuting period.

Figure 9
Arrival Time at Work

(n = 261)



Current Alternative Mode Characteristics

The second part of the survey collected data on carpool/vanpool occupancy and composition and explored how carpoolers, vanpoolers, and transit riders accessed these commute modes. Due to both the low overall sample (279 versus 700 for surveys before 2020), the absolute counts of respondents who were asked follow-up questions on alternative mode use were considerably lower than in most previous placement surveys. Results of these questions are presented but note the small sample sizes and use caution in generalizing from the results.

Carpool and Vanpool Size

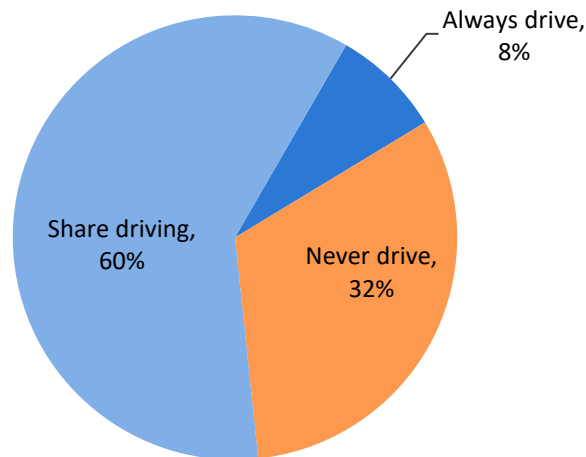
Twenty-four survey respondents said they rode in a carpool and 23 respondents rode in a vanpool at least one day per week. Carpools had an average size of 3.3 occupants, including the driver. Vanpool occupancy was on average 8.6, including the driver. The carpool occupancy was not statistically different from the 3.4 occupant number from the 2020 survey or 3.0 occupancy from the 2017 survey. The vanpool occupancy also was essentially the same as in the 2020 survey (8.1 occupants) and 2017 survey (7.9 occupants).

Carpool Members

As has been found in previous placement surveys, carpoolers and vanpoolers in the survey sample tended to carpool more with co-workers than with family members. Six in ten (59%) respondents who carpooled or vanpooled traveled with at least one co-worker. By contrast, only 17% 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 respondent (2% of the total) said they had counted a child under the age of 16 as a carpool/vanpool rider.

Six in ten (60%) carpoolers and vanpoolers shared driving with their pool partners, for example alternating days or weeks of driving (Figure 10). One-third (32%) said they never drove. This was primarily the response among vanpoolers. The remaining 8% said they always drove.

Figure 10
Driving Frequency of Carpoolers/Vanpoolers
(n = 47)

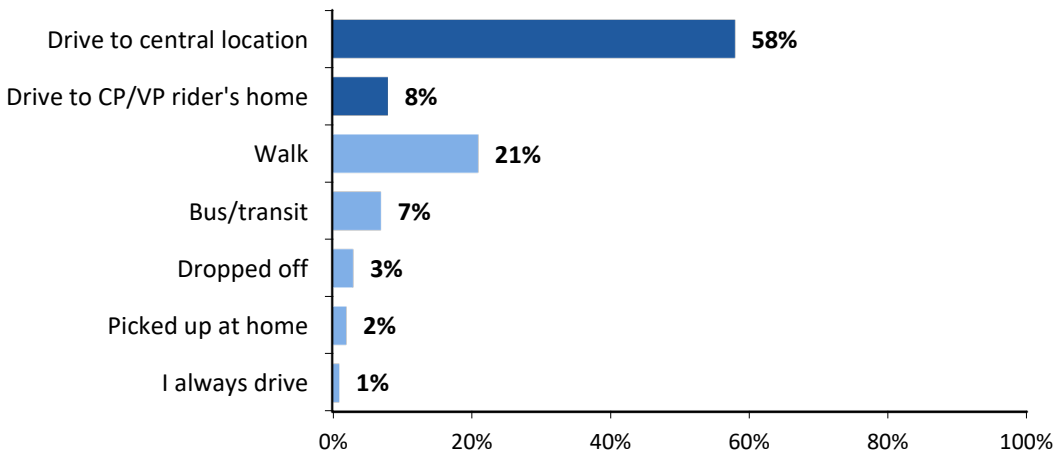


Access to Carpools, Vanpools, and Transit

Two-thirds of respondents used a carpool, vanpool, bus, or train at least one day per week for commuting. Figure 11 presents the types of transportation these respondents used to get to where they met their pool partners or started their transit trip. Two in ten (21%) walked to the meeting point, but two-thirds drove, either to a central meeting location (58%) or to a rideshare partner's home (8%) 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.

Figure 11
Access Mode to Alternative Mode Meeting Place

(n = 189)



For details on calculating emissions reductions, refer to “Transportation Demand Management (TDM) Program Elements Revised Evaluation Framework – FY2021 – FY2023” (March 15, 2022). Even though drive alone access trips tend to be short, an average of just 6.1 miles, they should be deducted in an air quality analysis.

Recent Commute Pattern Changes

The third survey section asked respondents 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 respondents a series of questions about various mode changes they might have made:

- Started an alternative mode - carpool, vanpool, bus, Metrorail, commuter rail, bike, walk, telework
- Increased the number of days using any alternative modes
- Tried an alternative mode, even if only once
- Added or replaced a person in an existing carpool or vanpool

Respondents who made any of these changes were considered to have been “placed” in alternative modes. These shifts were 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 – respondent made a change and was still using the new mode at the time of the survey
- Occasional – respondent made a change and was still using the new alternative mode, but used it less than one time per week
- Temporary – respondent made a change, but stopped using the new mode prior to the survey
- One-time – respondent briefly tried an alternative mode, but used it less than one week

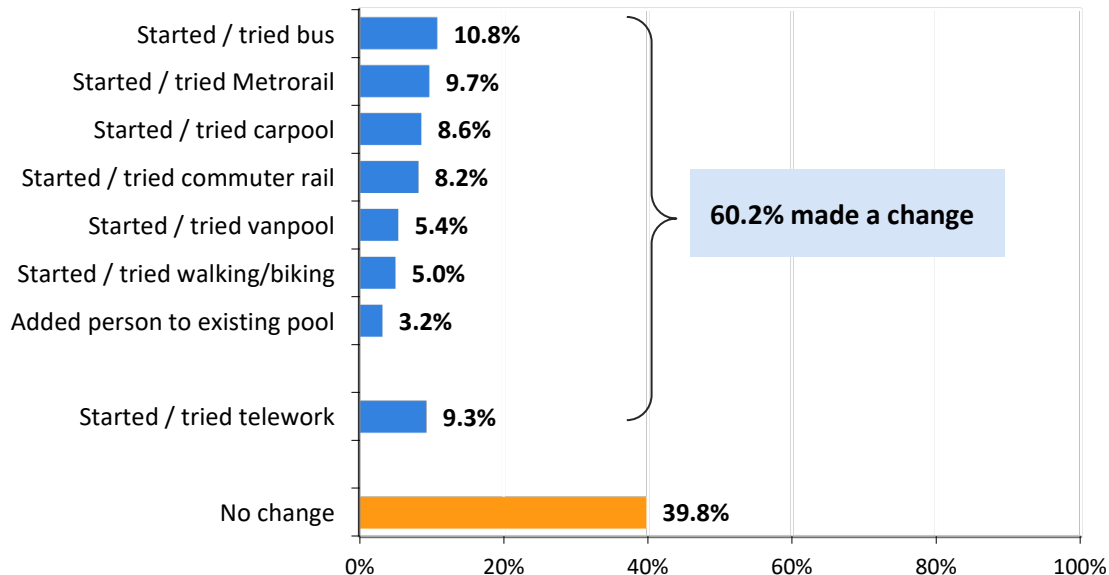
Temporary shifts are reported separately from continued shifts because they do not result in long-term reduction in vehicle trips, VMT, or emissions. Occasional and one-time shifts also are reported separately because their contribution to vehicle trips, VMT, and emissions is very minor.

Types of Changes Made

Six in ten (62.1%) respondents reported an alternative mode change after receiving Commuter Connections' assistance (Figure 12). About three in ten made a change to transit (Bus – 10.8%, Metrorail – 9.7%, Commuter rail – 8.2%). Nearly two in ten made a rideshare change; 8.6% started or tried carpooling, 5.4% started or tried vanpooling, and 3.2% said they were carpooling or vanpooling before requesting information from Commuter Connections but added another person to their existing pools. Five percent indicated a change to bike or walk. One in ten (9.3%) started or tried telework.

Figure 12
Commute Changes Made After Receiving Commuter Connections Services

(n = 279)



The overall percentage of respondents with a commute change was about the same in 2023 (60.2%) as in 2020 (62.1%). But as shown below, the distribution of changes by mode was notably different in 2023 than in 2020, with 2023 telework changes being well below the 2020 level and changes to transit being much higher in 2023 than in 2020. Changes to bike/walk and carpool/vanpool also increased in 2023 but by smaller margins than for transit.

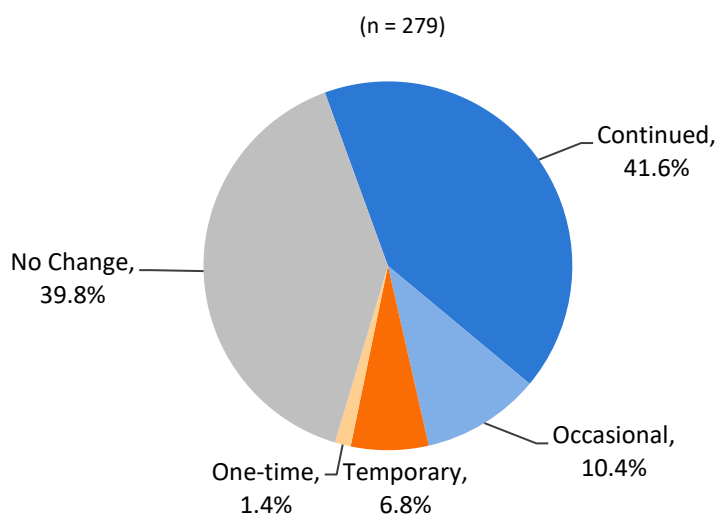
	2023	2020	2023 vs 2020	2017	2023 vs 2017
• Transit change	28.7%	9.6%	+ 19.1%	19.3%	+ 9.4%
• Bike/walk change	5.0%	1.1%	+ 3.9%	1.0%	+ 4.0%
• Carpool/vanpool change	17.2%	14.2%	+ 3.0%	21.8%	- 4.6%
• Telework change	9.3%	37.2%	- 27.9%	7.8%	+ 1.5%
Total changes	60.2%	62.1%	- 1.9%	49.9%	+ 10.3%

The chart above also shows change percentages observed in the 2017 survey. Both 2023 and 2020 showed higher overall change percentages than in 2017 (49.9%). But the 2023 distribution of mode changes was closer to that for 2017 than 2020.

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

Respondents 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.” Respondents who made a change to a mode they did not report using at the time of the survey were asked if they still used the mode occasionally or if they had stopped using it. Respondents who had stopped using the mode were asked how long they had used the new mode after the change; respondents were classified as “occasional,” “temporary,” or “one-time” by the duration of the change. Figure 13 presents the distribution of change types, including “no change” as one change option.

Figure 13
Distribution of Continued, Occasional, Temporary, and One-time Changes - “Placement Rates”



More than four in ten (41.6%) respondents made a change to a mode they were still using at least one day per week; these respondents made **continued changes**. About 10.4% made a change to a mode they were using **occasionally**, defined as less than once per week. Seven percent (6.8%) of 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 8.7 weeks. Finally, 1.4% of respondents tried a new mode for less than one week. These respondents were classified as **one-time changes**. The remaining 39.8% of respondents had no change reported.

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 5. Occasional and one-time changes are not included in the calculation.

Placement Rates by Home and Work Location in the Non-Attainment Area – Placement rates were estimated also for two sub-groups of respondents, defined by respondents’ home and work jurisdictions. The first population included participants who both lived and worked in any of the 15

jurisdictions in the Washington, DC-MD-VA ozone National Ambient Air Quality Standard (NAAQS) nonattainment area (NAA).³

The second population included participants who either lived in the NAA and worked outside it or worked in the NAA and lived outside it, that is, one commute end point was outside the NAA. Fifty-three percent of respondents lived and worked in the NAA; 47% either lived or worked outside the NAA.

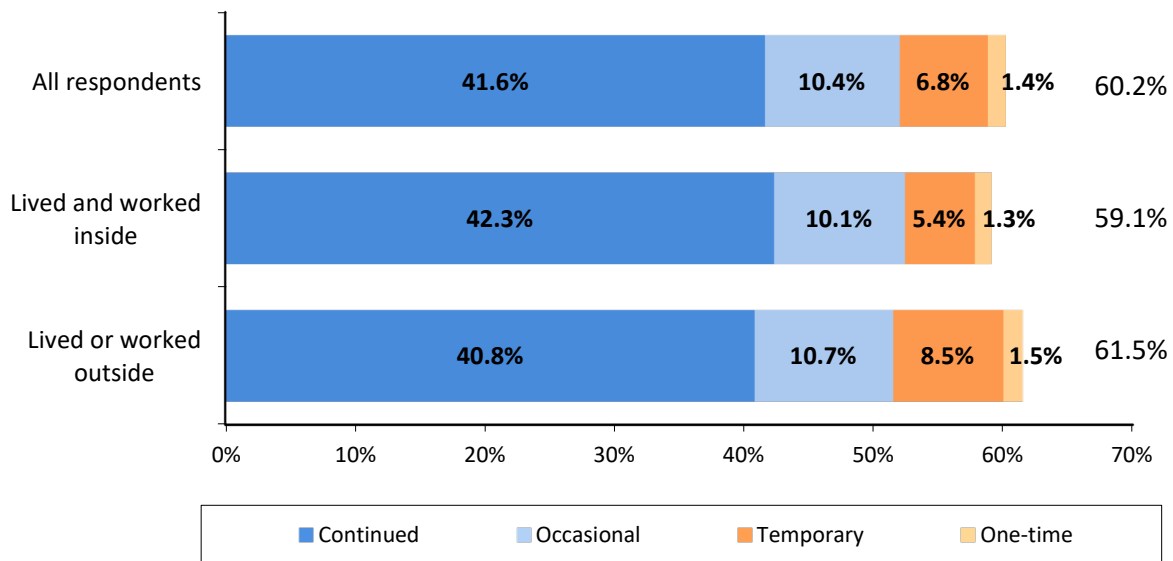
This distinction was made because respondents who lived or worked outside the NAA traveled a portion of their VMT outside the area. The VMT for these “out of area” respondents was discounted to credit VMT reduction only for the portion that occurred within the NAA.

Figure 14 presents the continued and temporary placement rates for all respondents, for respondents who lived and worked within the region (Inside NAA), and respondents who either lived or worked outside the NAA. The overall placement rate was slightly higher for the “out of area” respondents (61.5%) than for respondents who both lived and worked in the NAA (59.1%). But respondents who lived and worked in the NAA were slightly more likely to report a continued placement (42.3%) than were those who lived or worked outside the NAA (40.8%). The higher overall placement rate for respondents who lived or worked outside the NAA resulted from their higher occasional and temporary rates, when compared with those who both lived and worked in the NAA.

Figure 14
Placement Rates: All Respondents, Respondents who Lived and Worked Inside NAA, and Respondents Who Lived or Worked Outside NAA

(Note: scale extends only to 70% to highlight differences)

(All respondents n = 279, Lived and worked inside NAA n = 149, Lived or worked outside NAA n = 130)



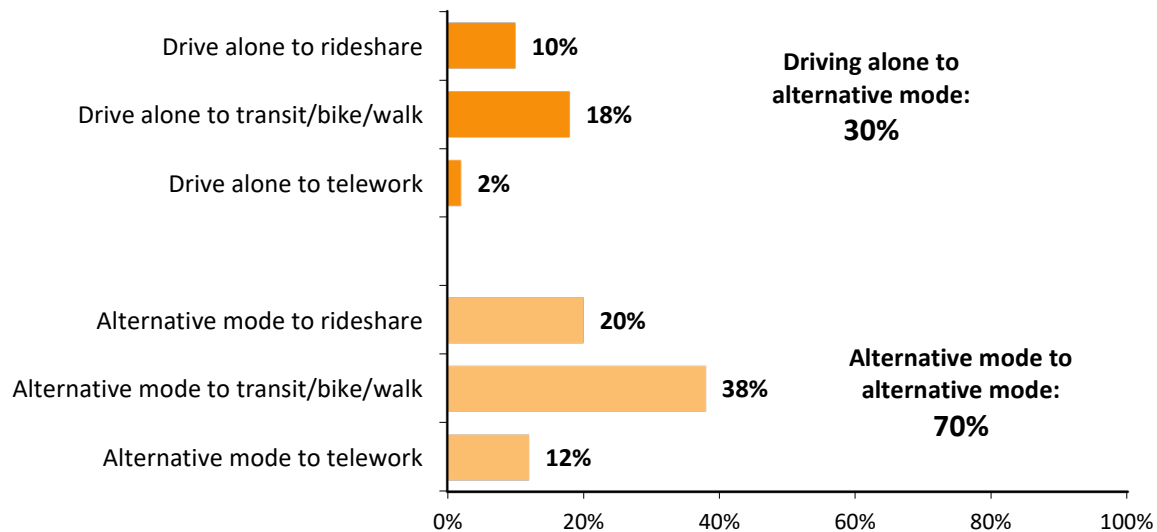
³ The 15 jurisdictions included in the Washington, DC-MD-VA NAAQS nonattainment area (NAA) are: District of Columbia, Calvert County (MD), Charles County (MD), Frederick County (MD), Montgomery County (MD), Prince George’s County (MD), Arlington County (VA), Fairfax County (VA), Loudoun County (VA), Prince William County (VA), City of Alexandria (VA), City of Fairfax (VA), City of Falls Church (VA), City of Manassas (VA), and City of Manassas Park (VA).

Previous Mode of Commuter Who Changed Mode

About three in ten respondents who made a mode change shifted from driving alone to an alternative mode (Figure 15). These respondents were divided between shifts to rideshare (carpool or vanpool), shifts to transit and non-motorized modes (bike and walk), and shifts to telework. The remaining 70% of respondents were previously using an alternative mode and switched to a different alternative mode, for example, from carpool to vanpool, from bus to train, or from vanpool to train.

Figure 15
Types of Mode Changes of Respondents Who Made Mode Changes

(n = 156)



The extent 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 (e.g., carpool to vanpool or vanpool to transit) or increased the number of days they used the alternative. Some of these shifts, such as from transit to rideshare, increased respondents' weekly vehicle trips. 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

Respondents who said they had made a commute change were asked the reasons for their changes (Table 5). Respondents cited both commute-related and personal-related reasons. The top commute reason was to save money, cited by 20% of respondents who made commute changes. Other commute reasons, each named by one in twenty respondents, included save time (6%), employer permitted telework (6%), easy/convenient mode (5%), carpool broke up (5%), to use the HOV or Express lanes (5%), and to help reduce congestion or pollution (5%).

Table 5
Reasons for Commute Change
(n = 129, multiple responses permitted)

Commute related reasons	Percentage	Personal related reasons	Percentage
- Save money	20%	- Changed job/work hours	19%
- Save time	6%	- Moved residence	9%
- Employer permitted telework	6%	- Covid-related	5%
- Easy/convenient mode	5%	- Reduce stress/medical reason	4%
- Carpool broke up/didn't work	5%	- Tired of driving	3%
- Use HOV/Express lane	5%	- No vehicle available	3%
- Reduce congestion/pollution	5%	- Safety	3%
- Received financial incentive	3%	- Save wear and tear on car	2%
- New option became available	3%		
- incenTrip mobile app	2%		
- Found carpool/vanpool partners	2%		

Some applicants were motivated by personal factors. The top reasons in this category were changing jobs or work hours (19%) and moving to a new residence (9%). This emphasizes the potential for Commuter Connections, its regional partners, and its employer clients to market alternative modes through new employee orientations and outreach to new residents. Five percent of respondents cited the coronavirus pandemic as a factor. Other reasons were named by fewer than 5% of respondents

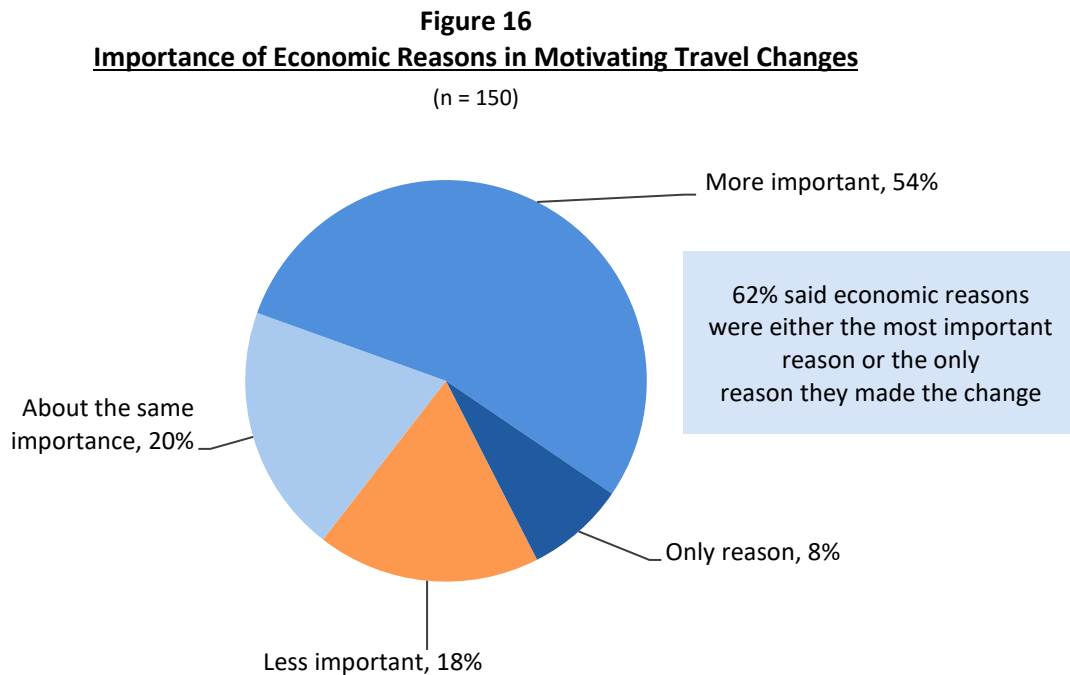
Importance of Commute Services on Decision to Make Change – Respondents who made changes were asked if their change was influenced or assisted by information or service they received from Commuter Connections, from another commute service organization, or from their employer.

One-quarter (26%) of respondents who made a change cited a Commuter Connections service that influenced or assisted them. About 8% of respondents cited a carpool or vanpool matching or assistance service, 5% named a transit information service, and 4% named Guaranteed Ride Home. Eight percent said the incenTrip mobile app had been influential. The overall 26% result reported in 2023 was higher than in 2020 (15%) but the same as in 2017 (26%). The 2020 drop likely was related to the large share of commute changes to telework in 2020; telework change would primarily have been dictated by employers closing the work locations, rather than related to a Commuter Connections service.

Thirty-six percent of respondents said a service from their employer or another commute service organization influenced or assisted their change. This also was about the same as in 2020 (33%) and a slight drop from 2017, when 41% reported receiving a service that assisted them. The services noted most frequently in 2023 were financial incentives, cited by 22% of respondents who made a change, and vanpool assistance, named by 4%.

Importance of Economic Reasons to Make Change – Respondents who made a change were asked how important economic reasons, such as saving money or reducing gas expense, had been in motivating the change. Eight percent of respondents who made a change said economic reasons were the only reason

they made the change and 54% said economic reasons had been more important than other reasons (Figure 16). Twenty percent said economic reasons had been about the same importance as other motivating influences and 18% said they were less important.



Contact with Commuter Connections and Services Received

The survey asked respondents about their contact with Commuter Connections and services they received. The following section of the report presents results to these questions, including:

- 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

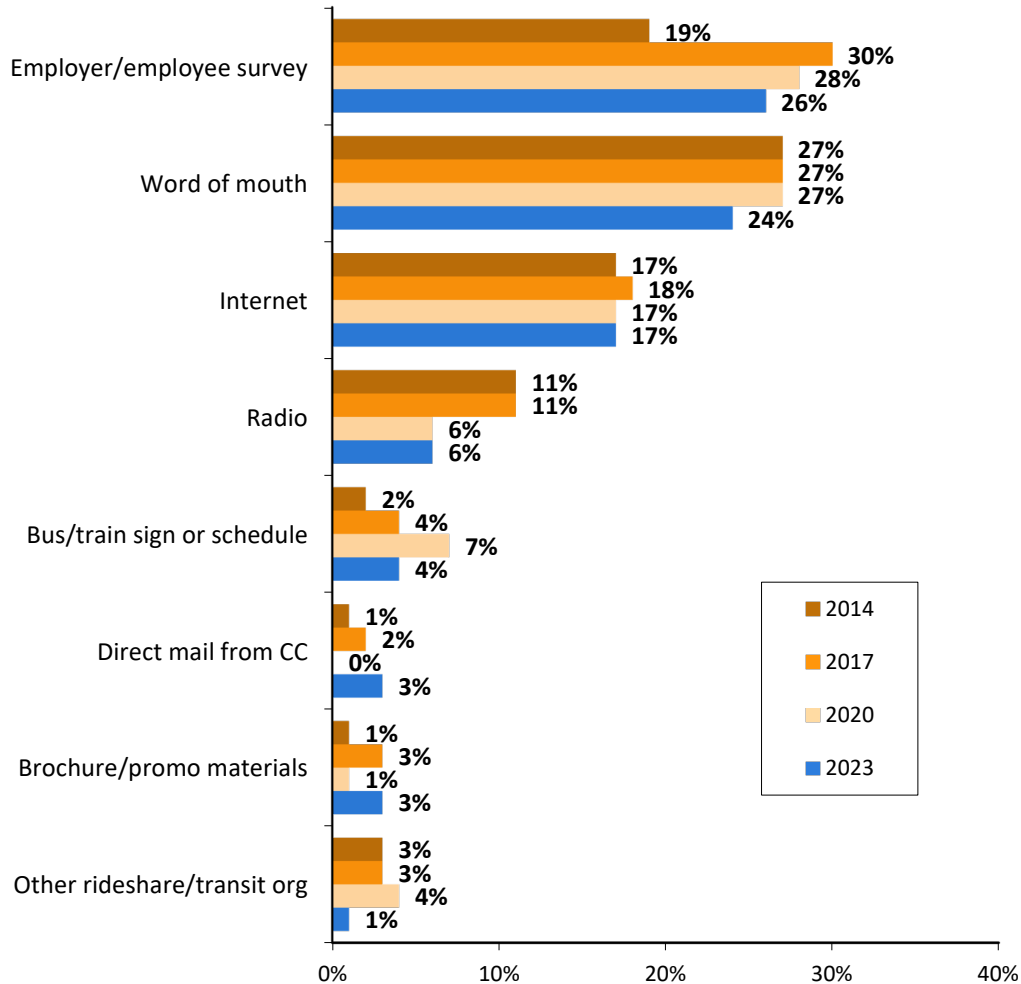
Commuters have a variety of sources through which they can learn of Commuter Connections. Figure 17 presents the primary sources of information cited by respondents in 2023 and the three previous respondent surveys. Three sources dominated in 2023: employer/employee survey (26%), word of mouth referrals (24%), and internet (17%).

These also were the top reasons in previous surveys, although the relative use of the sources has changed. Employer/employee survey has grown as a source, with a particular increase evident in the 2017 survey. Reliance on the radio as an information source has fallen since 2017, when it was named by 11% of respondents, although the steep drop in 2020 likely is due to the cessation of Commuter Connections' radio advertising as the large proportion of commuters started working remotely.

Figure 17
How Respondents Learned of Commuter Connections – 2014, 2017, 2020, and 2023

(Note: scale extends only to 40% to highlight differences)

(2014 n = 600, 2017 n = 537, 2020 n = 254, 2023 n = 232; multiple responses permitted)

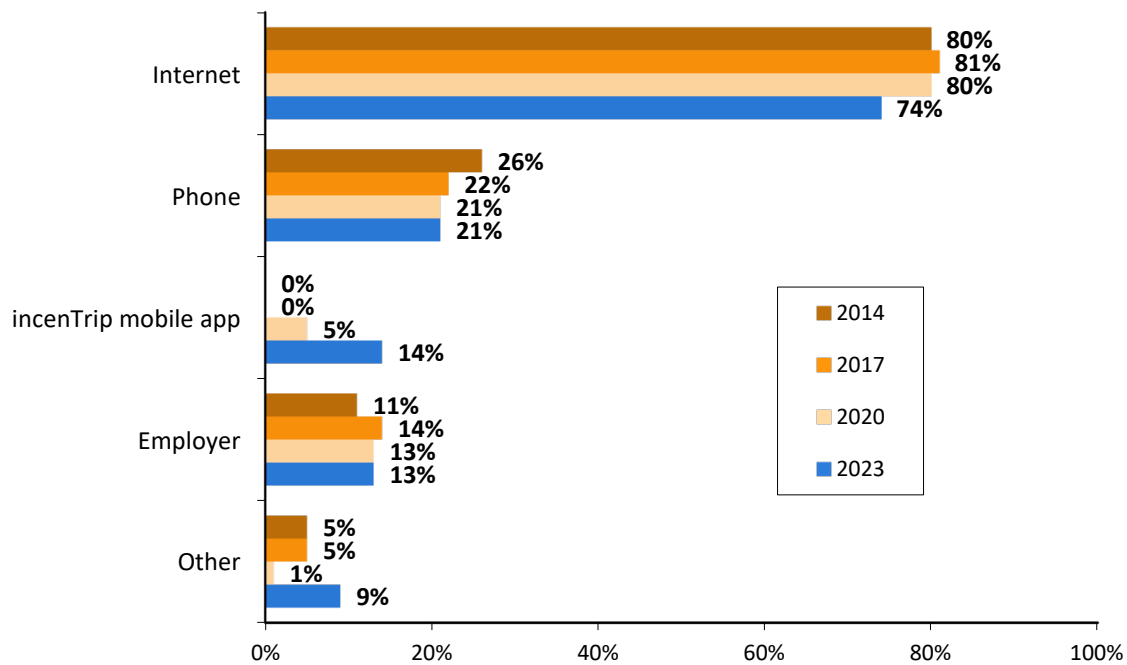


Methods Used to Contact Commuter Connections

Commuters can contact Commuter Connections in a variety of methods. In 2023, 74% of respondents made this contact through the Commuter Connections web page or another web site on the Internet (Figure 18). Two in ten (21%) respondents contacted Commuter Connections by phone and 13% made the contact through their employers or through work. These three sources have shown similar use in the most recent surveys. One new source, which was first cited in 2020, was the incenTrip mobile application; in 2023, 14% of respondents made the contact to Commuter Connections through this source, an increase over the 5% who named it in 2020. This program was introduced in 2018, so 2020 was the first survey year that it was available.

Figure 18**How Respondents Contacted Commuter Connections – 2014, 2017, 2020 and 2023**

(2014 n = 688, 2017 n = 670, 2020 n = 276, 2023 n = 223; multiple responses permitted)

**Reasons for Seeking Assistance**

Respondents were asked what prompted them to seek information or assistance from Commuter Connections at that time. Table 6 presents the results.

Table 6
Reasons for Seeking Information

(n = 223; multiple responses permitted)

Reasons	Percentage
In case of emergencies, wanted back up transportation, GRH	33%
Save money	14%
Check commute options/schedule, get general commute information	13%
Wanted to carpool or vanpool, get carpool/vanpool information	8%
Receive financial incentive for carpool/transit/vanpool	8%
Did not want to drive, tired of driving, traffic is worse	7%
Changed jobs/work schedule, moved to new residence	5%
Referral from family, friend, co-worker	5%
Save time	4%
Other*	15%

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

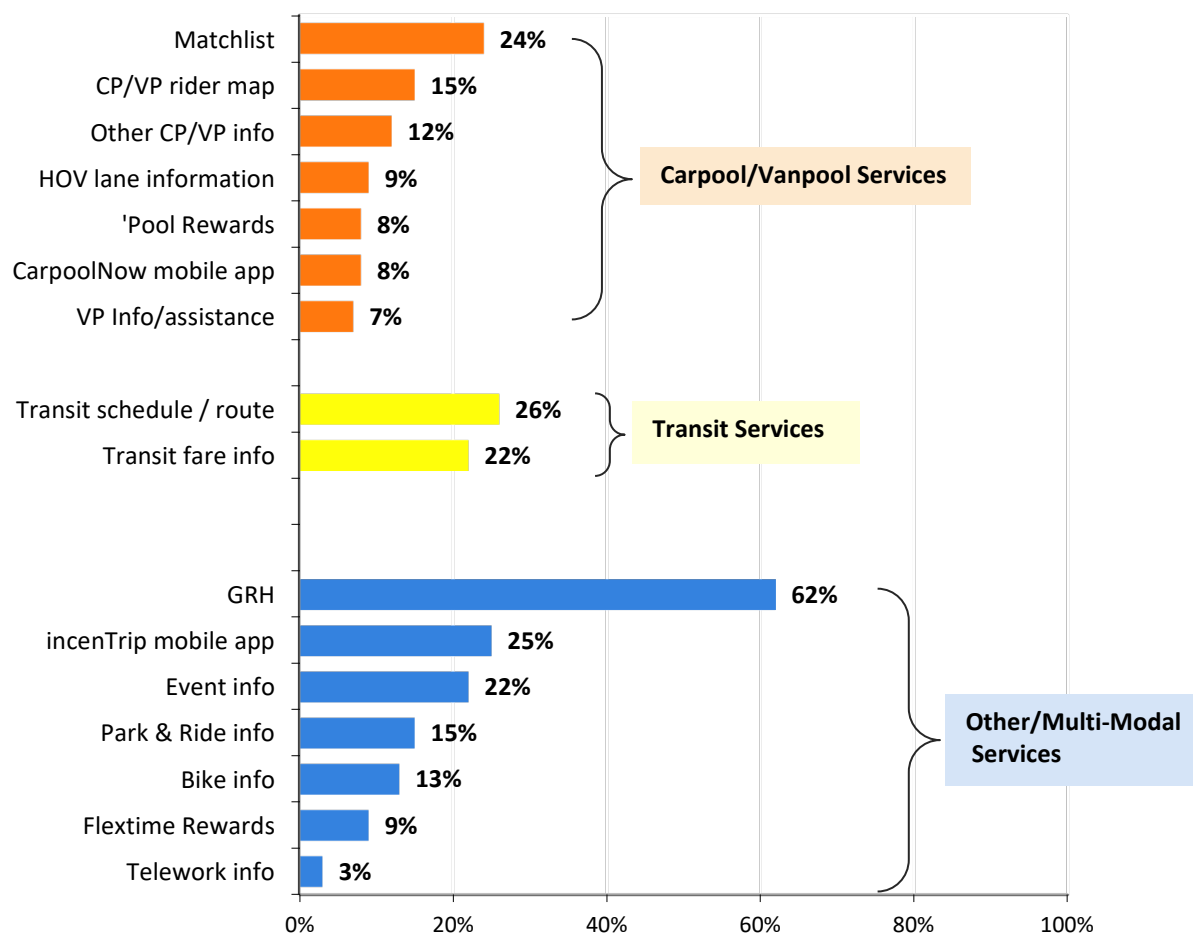
One-third (33%) wanted to find back-up transportation in case of emergency and 13% wanted to check commute options or a transit schedule. Some respondents mentioned a financial motivation; 14% wanted to save money and 8% said they could receive or were interested in information about financial incentives for use of alternative modes. Eight percent made the contact to find a carpool or vanpool partner or get information about these modes and 7% were tired of driving and wanted to find another travel option. Five percent changed jobs, 5% said they were prompted by a referral or request from a friend, family member, or co-worker, and 4% wanted to find an option that would save travel time.

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 2023 survey, respondents were shown a list of services offered by Commuter Connections and were asked to indicate all that they remembered receiving or accessing. Figure 19 displays the percentages of respondents who said they received or accessed each service, with services grouped into three categories by the types of alternative modes they support: Carpool/Vanpool, Transit-Related, and Other/Multi-Modal.

Figure 19
Information Received or Accessed from Commuter Connections

(n = 279; multiple responses permitted)



Carpool/Vanpool Services – Four in ten (40%) respondents received or accessed one or more Carpool/Vanpool services; many of these respondents received more than one of these services. One-quarter (24%) received a matchlist with names and contact information for potential carpool/vanpool partners, 15% received a map showing home and work locations of potential carpool/vanpool partner, and 7% obtained vanpool assistance. One in ten obtained information on HOV lanes (9%), information on the 'Pool Rewards incentive (8%), and the CarpoolNow real-time ridematch mobile application (8%). Twelve percent said they received another type of carpool/vanpool information.

Transit-Related Services – One-third (32%) of respondents received some type of information about transit from Commuter Connections. Twenty-six percent received transit route or schedule information and 22% obtained information about transit fares or the SmarTrip fare payment system. Nearly all respondents who received transit information received both fare and route/schedule information.

Other/Multi-Modal Services – The top service received overall, by a large majority, was Guaranteed Ride Home; 62% of respondents received or accessed this multi-modal service, which is open to any commuter who uses an alternative mode to commute. Two in ten (20%) cited receiving information about one of the regional special events, such as Bike to Work Day or Car Free Day. These events are promoted regionally, in partnership with other organizations, but Commuter Connections offers information and registration. Fifteen percent obtained Park & Ride lot information, 13% accessed bicycle information, and 3% received information on telework.

The final two Commuter Connections services were commuter incentive programs. One-quarter (25%) of respondents mentioned using the incenTrip trip tracking mobile application and 9% said they had accessed or participated in the Flextime Rewards incentive for commuters who delay their commute when notified of a roadway incident along their commute route.

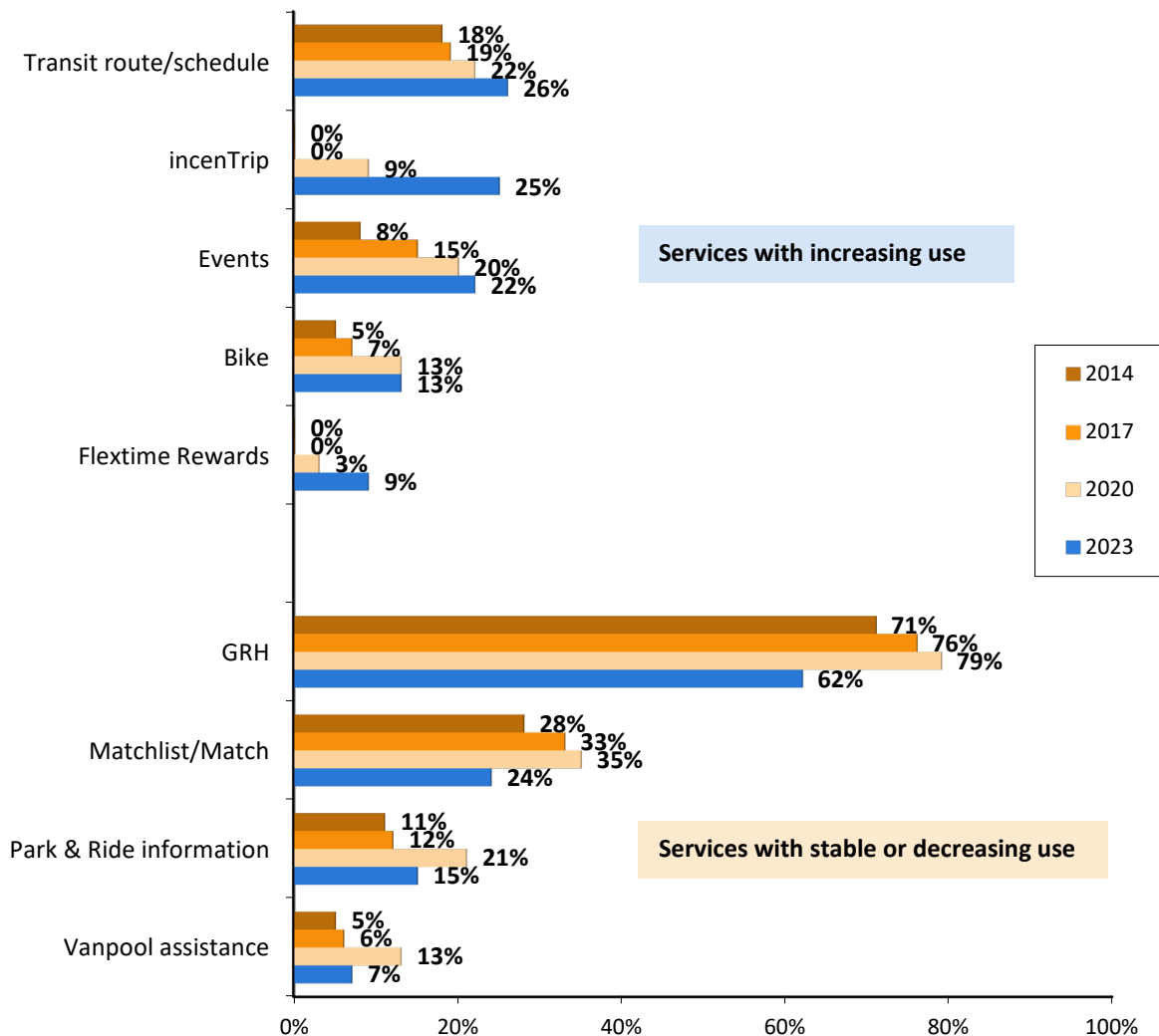
Comparison of Services Received in 2023 to Services Received in Previous Years – Figure 20 shows the percentages of respondents who received various services in 2023 compared to the percentages noted in the three previous applicant surveys.

Several services show increasing trends in use over the nine year period. The share of respondents who received transit route/schedule information grew from 18% in 2014 to 26% in 2023. Use of information on commute events and bike information also have experienced increases. In 2023, 22% of respondents reported accessing information about commute events, compared with just 8% in 2014. Thirteen percent of respondents used bike information in 2023, more than twice the 5% who received bike information in 2014. The 2023 survey also found higher use of the two incentive programs that Commuter Connections introduced in 2018; incenTrip use grew from 9% in 2020 to 25% in 2023 and Flextime Rewards saw a tripling of use from 3% in 2020 to 9% in 2023.

Use of several other services fell in 2023. While Guaranteed Ride Home continued to be a popular Commuter Connections service, service use declined from 79% in 2020 to 62% in 2023. Respondents' interest in Park & Ride lot information, ridematching, and vanpool assistance, which increased notably in 2020, also dropped in 2023. However, this could reflect unique travel needs among the small share of survey respondents who were still traveling to an outside work location in 2020. Thus, the spikes in use in 2020 might not indicate an overall increase in the use of these services among the broader Commuter Connections applicant population. When the 2020 survey findings are excluded, requests for information on Park & Ride lots and vanpool assistance were about the same in 2023 as in 2017 and 2014. But use of GRH and ridematching does appear to have declined from 2014 and 2017 levels.

Figure 20
Information Received or Accessed from Commuter Connections – 2014, 2017, 2020, 2023

(2014 n = 697, 2017 n = 682, 2020 n = 282, 2023 n = 279; multiple responses permitted)



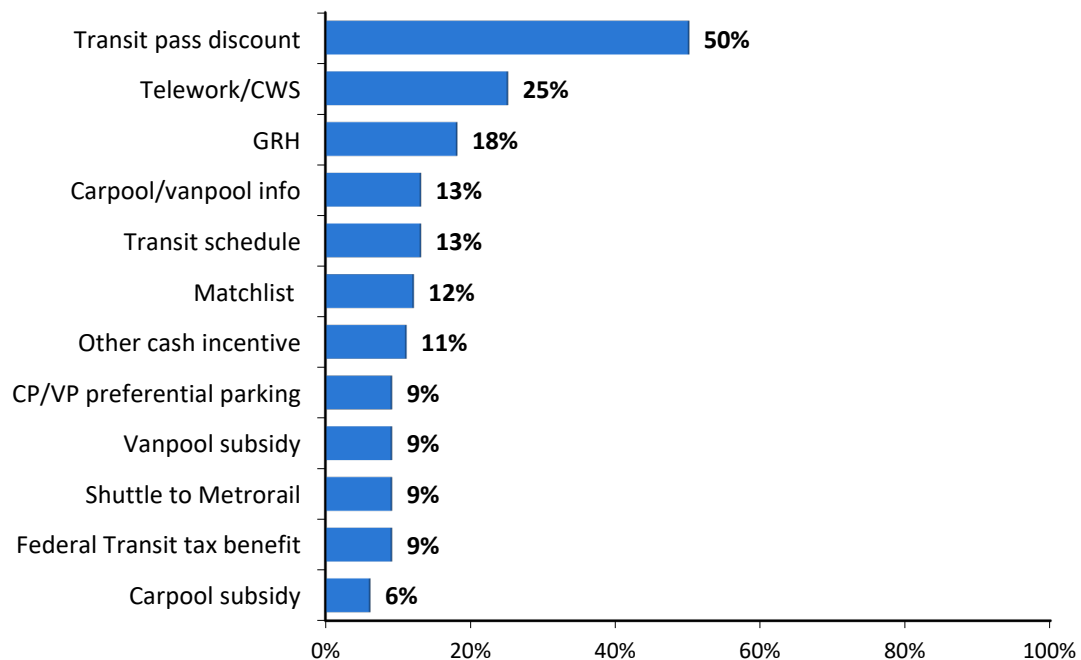
Assistance Offered by Employers

Respondents also were asked if their employers offered commute assistance services. Three-quarters (74%) of respondents said their employers did offer some services. The most common employer service was a transit pass discount, noted by 50% of respondents but respondents also mentioned other financial incentives that were available: vanpool subsidy (9%), Federal Transit tax benefit (9%) carpool subsidy (6%), or other cash incentive (11%) (Figure 21).

One-quarter (25%) of respondents mentioned that their employer offers telework or compressed schedules; this was a substantial drop from 2020, when 65% of respondents indicated this service was offered at work. About two in ten (18%) respondents said their employer provided GRH and about one in ten noted access to carpool/vanpool information (13%), transit schedule information (13%), and ridematching (12%) at work. One in ten respondents mentioned access to carpool/vanpool preferential parking (9%) and a shuttle service to Metrorail (9%).

Figure 21
Commuter Assistance Services Offered by Employers

(n = 265, multiple responses permitted)



Assistance Offered by Other Commute Assistance Groups

Respondents did not rely substantially on other organizations for commuter information or assistance; only about 11% of respondents indicated they received information from another organization. Most of these respondents received either transit route/schedule information, transit fare information, or vanpool assistance.

Use of Commuter Connections Services

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

- Matchlist
- Transit information
- Park & Ride information
- Bicycle/walking information
- Telework information
- Guaranteed Ride Home

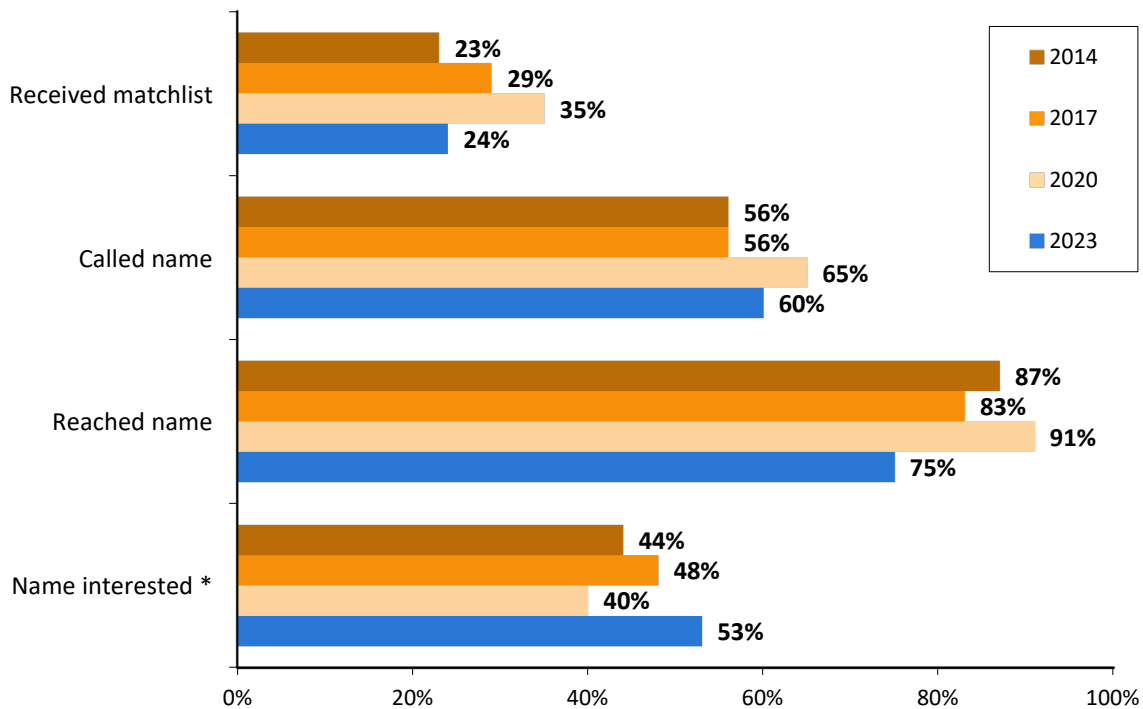
Matchlist Information

Respondents who said they received a matchlist of potential rideshare partners were asked about their use of matchlist information. Their responses are displayed in Figure 22. As noted earlier, the share of respondents who received matchnames has fluctuated since 2014, but respondents who received a matchlist in 2020 were nearly as likely to use the list as were respondents surveyed in previous years.

Making Contact with Potential Rideshare Partners – Six in ten (60%) respondents who received a matchlist in 2023 tried to contact someone on the list, slightly lower than the percentages who tried to make contact in 2020 but about the same percentages as in 2017 and 2014. The remaining 40% of respondents did not try to make contact. About four in ten (38%) said they decided they did not want to carpool or vanpool, but a primary reason for not contacting people on the list was the people were not considered compatible partners; they had “work hours not compatible with mine” (25%). One in ten respondents who did not try to make contact already had found an alternative mode arrangement by the time they received the list (6%) or were slugging/casual carpooling (6%). One in ten (13%) said they “haven’t gotten around to it.”

Figure 22
Actions Taken by Respondents Who Received Matchnames

(Received matchlist: 2014 n = 716, 2017 n = 706, 2020 n = 282, 2023 n = 279)
 (Called name: 2014 n = 145, 2017 n = 172, 2020 n = 99, 2023 n = 43)
 (Reached name: 2014 n = 80, 2017 n = 93, 2020 n = 58, 2023 n = 24)
 (Name interested: 2014 n = 77, 2017 n = 82, 2020 n = 57, 2023 n = 17)



* In 2023, an additional 12% of respondents who reached a ridematch list name said people were interested but their schedules/destinations were not compatible.

Success in Reaching Someone Named on the Matchlist – In 2023, 75% of respondents who tried to make contact were successful in reaching someone named on the list. This high percentage suggests the information provided on the matchlists was generally current and accurate. The 2023 percentage was lower than the results observed in the past three surveys but the sample size for this measure is relatively small.

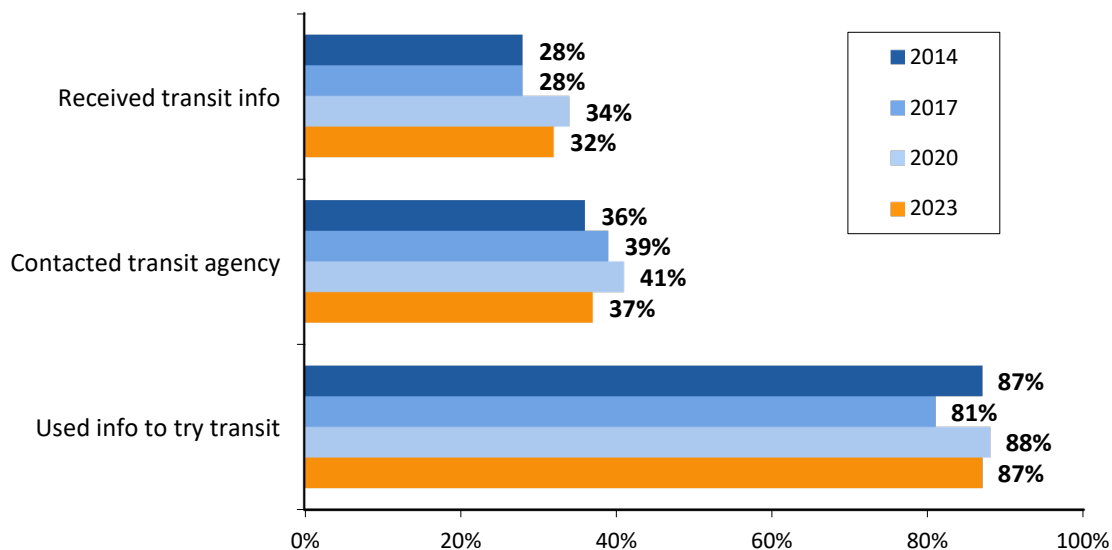
Interest in Ridesharing – More than half (53%) of respondents who reached someone said that person was interested in ridesharing. The percentage of interested commuters was statistically the same as in past survey years. In 2023, an additional 12% said the people they reached were interested, but their schedules or destinations were not compatible.

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.

Transit Information

One-third (32%) of respondents said they received transit information (Figure 23). Commuter Connections includes on matchlists and online ridematch maps 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. The online system also offers direct links to websites of local and regional transit services, so the website is a self-service portal to access transit information directly.

Figure 23
Actions Taken by Respondents Who Received Transit Information
 (Received transit info: 2014 n = 716, 2017 n = 706, 2020 n = 282, 2023 n = 279)
 (Contacted transit agency: 2014 n = 167, 2017 n = 195, 2020 n = 96, 2023 n = 84)
 (Tried transit: 2014 n = 60, 2017 n = 69, 2020 n = 32, 2023 n = 31)



Nearly four in ten (37%) respondents who received transit information used the information to contact a transit agency. This was not statistically different from the percentages in the three previous surveys (2020 – 41%, 2017 – 39%, 2014 – 36%). Nearly nine in ten (87%) of those who contacted a transit agency said they used information they received to try transit; again, this percentage was not statistically different from the three previous survey years.

Reasons for Not Contacting Transit Agency – Respondents who received transit information but who did not contact a transit agency gave a variety of reasons for not calling for transit schedule or route information. More than four in ten gave a response related to not needing the information; 29% said “it was not necessary or not needed,” 11% “had all the information I needed,” and 5% “weren’t interested or didn’t ask for the information.” These responses could have several meanings, however, such as the respondent was not interested in using transit or already had as much transit information as needed, either from Commuter Connections’ online system or from another source.

Three in ten (29%) said they found it easier to use the transit agencies’ websites directly or use a transit app to find the information they needed. Eight percent said they had not gotten around to calling and 5% said they did not like transit or preferred their current mode of travel.

Park & Ride Information

Commuter Connections also provides Park & Ride lot location information on matchlists and on the website. Fifteen percent of respondents recalled receiving or accessing Park & Ride information in 2023 (Figure 24).

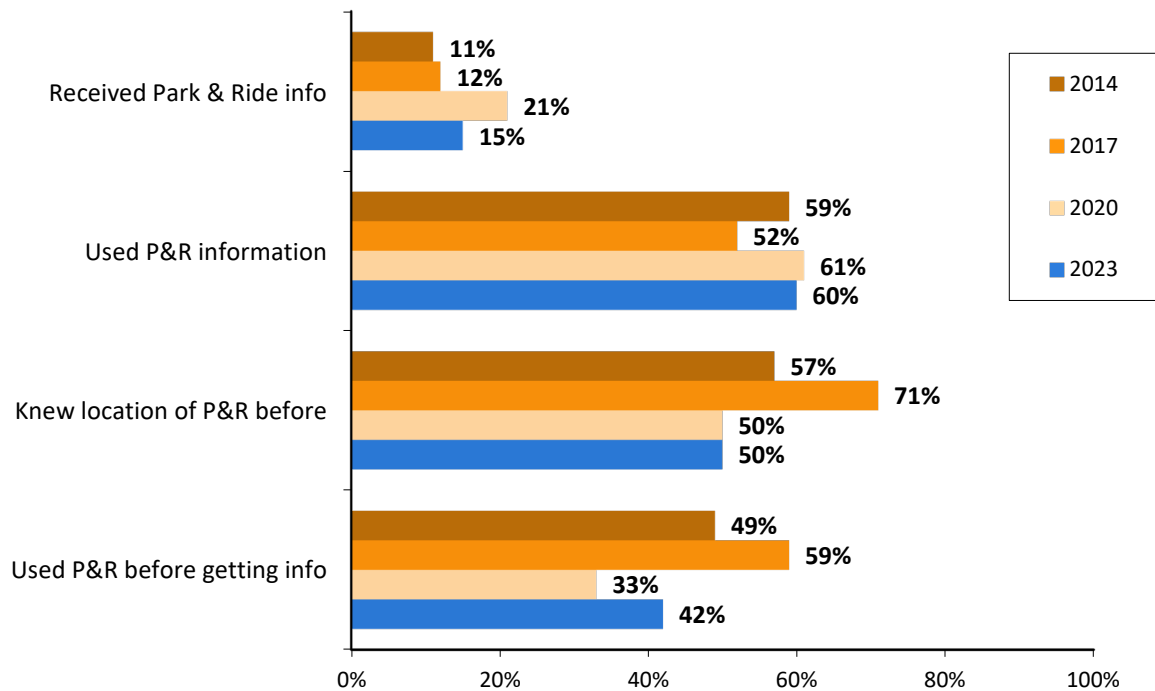
Figure 24
Actions Taken by Respondents Who Received Park & Ride Lot Information

(Received Park & Ride info: 2014 n = 716, 2017 n = 706, 2020 n = 282, 2023 n = 279)

(Used Park & Ride info: 2014 n = 76, 2017 n = 85, 2020 n = 59, 2023 n = 40)

(Knew locations of Park & Ride before: 2014 n = 45, 2017 n = 42, 2020 n = 36, 2023 n = 24)

(Used Park & Ride before: 2014 n = 27, 2017 n = 29, 2020 n = 18, 2023 n = 13)



Sixty percent of respondents who received Park & Ride information used the information provided, the same share as in 2020 and about the same percentage as in 2017 and 2014.

In 2023, 50% of respondents who received Park & Ride information said they knew the location of the lots before they received the information from Commuter Connections. This was the same percentage as in 2020 but a sizeable drop from the 2017 survey. But the sample sizes for this question were very small, so even this apparent difference is not statistically different from the other years.

Four in ten (42%) respondents who were aware of the lot had used the lot before getting the information. This appeared to be an increase from 2020 and notable drop from 2017 (59%), but the question was answered by only 18 respondents in 2020 and 13 in 2023, so these changes were not statistically different from the previous years' results. Seven in ten (69%) of the 13 respondents 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.

Telework Information

Only nine respondents (3% of the total) said they received information from Commuter Connections about telework and one respondent used the information they received to start teleworking. The other respondents did not take any telework actions.

Bicycle Information

Thirteen percent of respondents reported receiving bicycle information. Four in ten of these respondents made a bicycle travel change and seven in ten said the information was a factor in their decision to make the change. Fifteen percent started bicycling to work and 24% increased how often they bicycle to work (Table 7). Nearly half started riding a bicycle or riding more often for non-work trips.

Table 7
Actions Taken After Receiving Bicycle Information

(n = 34, multiple responses permitted)

Bicycle Actions	Percentage
Started bicycling to work	15%
Bicycle to work more often	24%
Started bicycling for non-work trips	21%
Bicycle more often for non-work trips	27%
Did not take any bicycle action	59%

Guaranteed Ride Home

Finally, the survey included questions about respondents' use of the Guaranteed Ride Home (GRH) program. Six in ten (62%) respondents received or accessed information on GRH. Nearly all (88%) of these respondents subsequently registered for GRH. About 16% of respondents who received GRH information were driving alone to work at the time they requested the information (Table 8). The remaining 84% were using an alternative mode; 62% were riding transit, 12% vanpooled, 7% carpooled, and 3% biked/walked to work.

Table 8
Modes Used When Requesting GRH Information

(n = 162, multiple responses permitted)

Modes Used	Percentage
Drive alone	16%
Alternative modes	84%
- Bus, Metrorail, commuter rail	62%
- Vanpool	12%
- Carpool/casual carpool (slug)	7%
- Bike/walk	3%

Section 4 Incentive Applicants Survey Results

The second population of applicants interviewed in the placement survey included commuters who participated in one of three Commuter Connections incentive programs:

- CarpoolNow real-time ridematching mobile application
- Flextime Rewards incentive program
- incenTrip trip tracking and points mobile application

This section presents survey for these respondents, designated as “incentive applicants.” Commuters in this group were eligible to participate in the survey if they were participating in one of the programs at any time between November 1, 2020 and September 30, 2023. The CarpoolNow programs was introduced in 2017; the other two programs were launched in 2018 or 2019, so even past use of the programs would have been relatively recent. Commuters surveyed in this group of applicants also could have used other Commuter Connections services.

The survey administered to incentive applicants was the same as for recent applicants. It was conducted to define incentive applicant travel patterns, collect data to estimate transportation and air quality benefits of travel changes by incentive program users, and examine their use of the programs.

Following are summaries of key survey results for this population. Results tables show percentages weighted to the total applicant population for the survey quarter, but also the raw number of respondents (e.g., n = __) who answered the question. Note that the count of completed interviews was relatively small (122), thus it was not possible to conduct reliable sub-group analysis for some questions.

Characteristics and Demographics of the Sample

Work and Home Locations

Table 9 shows the percentage of incentive applicant respondents by home and work states.

Table 9
Distribution by Home and Work Locations – Incentive Applicants

State/County	Home Location (n = 116)	Work Location* (n = 115)
District of Columbia	22%	54%
Maryland		
– MD counties within COG region	28%	14%
– MD counties outside COG region	15%	11%
Virginia		
– VA counties within COG region	23%	20%
– VA counties outside COG region	12%	0%
Other	0%	1%

* Work location percentages for Maryland and Virginia within COG region: 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 separately.

Most incentive applicant respondents lived in Maryland (41%) or Virginia (35%); 22% lived in the District of Columbia (DC). The distribution was different from that of the recent applicant population described in Section 3, with incentive applicants being more likely to live in the central part of the region. Nearly three in ten (28%) incentive applicants lived in the core jurisdictions of DC, Alexandria, and Arlington, compared with just 11% of recent applicants. By contrast, only 28% of incentive applicants lived outside the MWCOG region, compared with 40% of recent applicants.

Incentive applicant respondents' work locations were distributed much differently than their home locations. More than half (54%) worked in the District of Columbia. One-quarter (25%) worked in a Maryland jurisdiction within the COG region and 20% worked in one of the Virginia jurisdictions in the COG region. This distribution was nearly the same as for recent applicants.

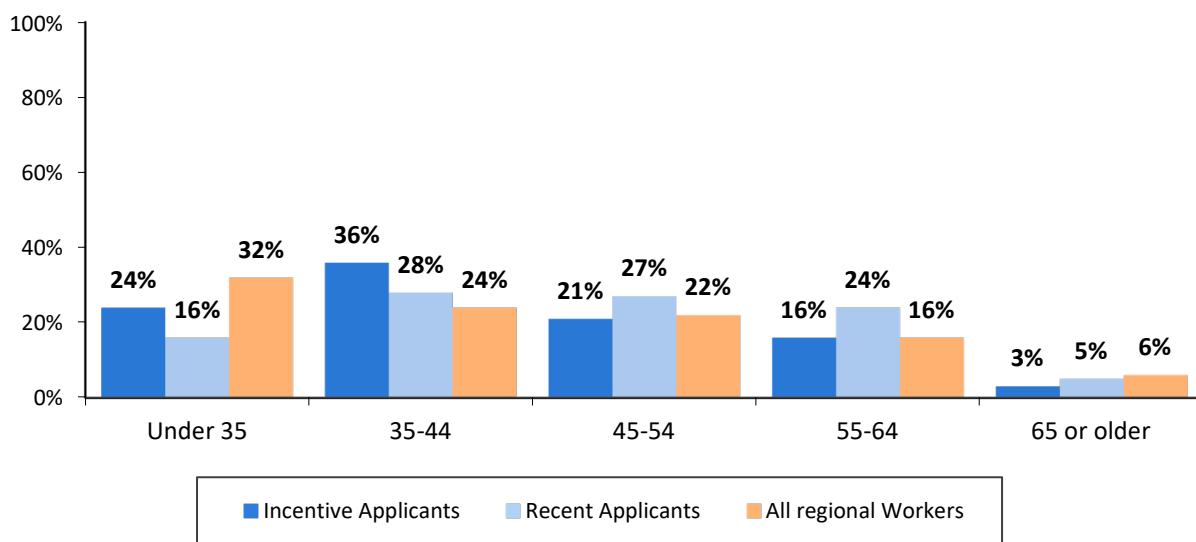
Demographics

The survey asked demographic classification questions for gender, race/ethnicity, age, and income. Incentive applicant respondents had similar demographic profiles in gender, race/ethnicity, and income to those of recent applicants. Incentive applicants were nearly evenly divided between males (52%) and females (48%). Non-Hispanic Whites (60%) represented the largest race/ethnicity group of respondents and Non-Hispanic Blacks and Asians/Pacific Islanders represented 18% and 12% of the sample, respectively. Hispanics accounted for about 7% of respondents and 3% indicated another race/ethnicity. Incomes of incentive applicants were similarly high to those of recent applicants; 69% of incentive applicant respondents had annual household incomes of \$100,000 or more.

Age – Incentive applicants were younger than recent applicants (Figure 25). Six in ten (60%) incentive applicant respondents were younger than 45 years, compared with 42% of recent applicants. Incentive applicant respondents' age profile was much closer to that of the regional worker population; as found in the 2022 State of the Commute Survey, 56% of all regional workers are younger than 45 years of age.

Figure 25
Distribution by Age – Incentive Applicants, Recent Applicants, All Regional Workers (2022 SOC)

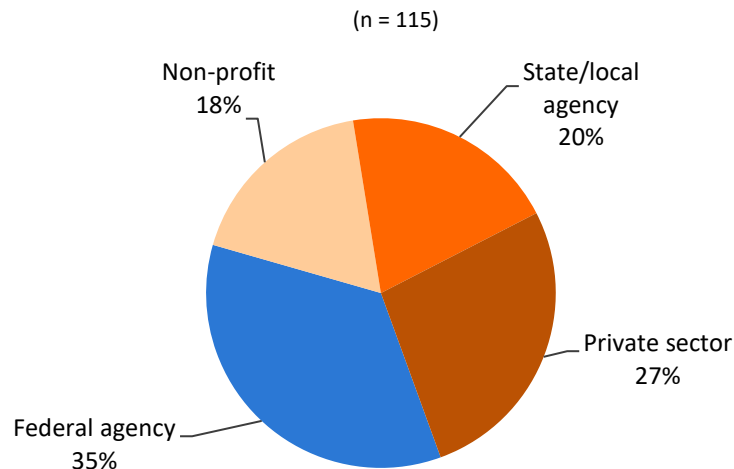
(Incentive Applicants n = 116, Recent Applicants n = 263, All Regional Workers (2022 SOC Survey) n = 8,074)



Employment Characteristics

Employer Type – Incentive applicants had a different employer type distribution than did recent applicants. One-third (35%) of incentive applicant respondents worked for a federal agency, compared with 55% of recent applicants (Figure 26). Incentive applicants were more likely to work for a state/local government (20%) than were recent applicants (11%). Higher shares of incentive applicant respondents also worked for private employers (Incentive – 27%, Recent – 22%) and non-profit organizations (Incentive – 18%, Recent 12%).

Figure 26
Distribution by Employer Type – Incentive Applicants



Employer Size – Three-quarters (75%) of incentive applicant respondents worked for employers with more than 100 employees. Four in ten (38%) worked for employers with at least 1,000 employees. Sixteen percent they worked for organizations with 50 or fewer employees. Large worksites also were most prevalent among recent applicants.

Occupations – The profile of occupations for incentive applicant respondents was very similar to that for recent applicants. The most common were professional specialty operations (46%), administrative support (14%), executive/management (11%), and technicians/analysts/technical support (11%).

Current Commute Patterns

One section of the survey examined current commute patterns of respondents: commute mode, distance, travel time, and use of telework and compressed work schedules.

Telework – Current, During-pandemic, and Pre-pandemic

At the time of the survey, 65% of incentive applicant respondents were teleworking at least occasionally; 58% teleworked one or more days per week and 22% teleworked three or more days per week (Figure 27). The remaining 35% were not teleworking at all. This was a substantial change from the telework findings in the 2020 placement survey, when many workers teleworked in response to the coronavirus pandemic. In November 2020, 94% of incentive applicant respondents teleworked at least some workdays and 74% teleworked full-time.

Figure 27
Telework Pre-pandemic, During the Pandemic, and Current – Incentive Applicants

(Pre-pandemic (February 2020) n = 121, During pandemic (November 2020) n = 145, Current (November 2023) n = 121)

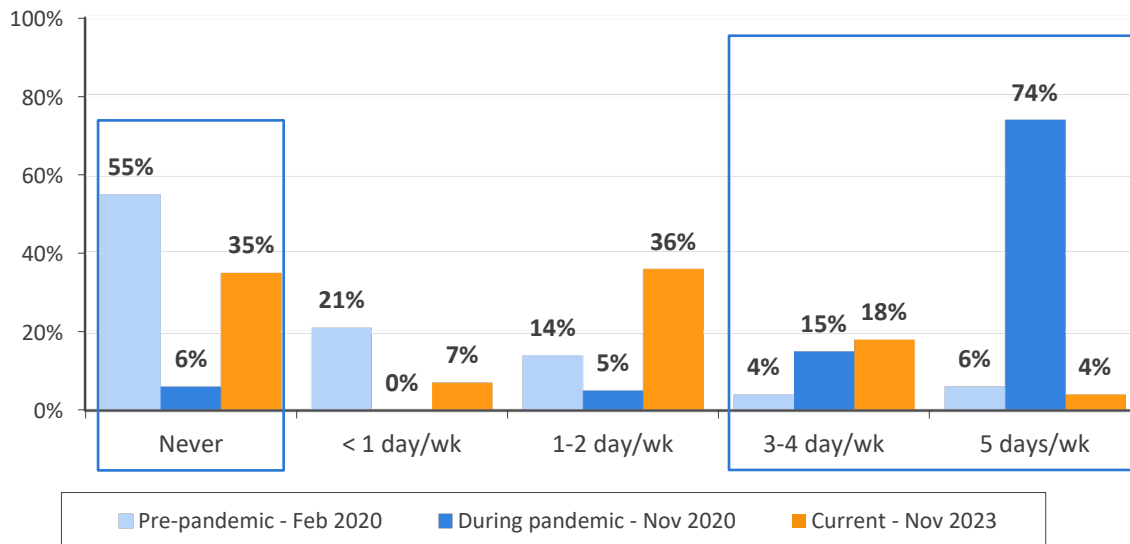


Figure 27 also shows the telework distribution in February 2020, before the pandemic began. At that time, only 45% of incentive applicant respondents teleworked at all and only one in ten (10%) teleworked three or more days per week. The comparison of telework during these three time periods shows that both the incidence and frequency of telework has increased since February 2020, before the pandemic. But full-time telework among Commuter Connections incentive applicants, which exploded during the pandemic, has returned to pre-pandemic levels; 4% of applicants teleworked all their workdays in November 2023, about the same percentage (6%) as in November 2020.

Current Commute Mode

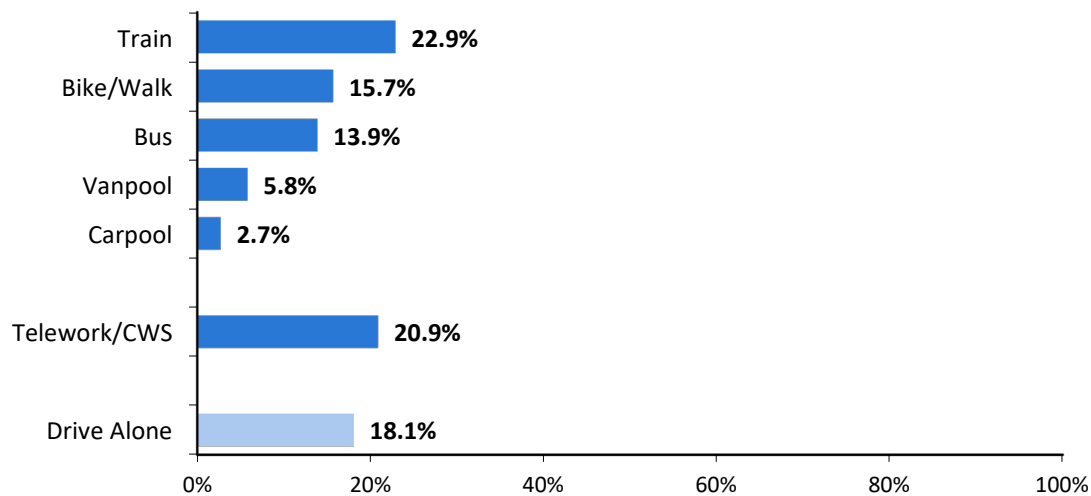
Percentage of Weekly Trips – Respondents were asked how many days in a typical week they used each of a variety of transportation modes. Figure 28 present commute mode shares as a percentage of weekly commute trips for incentive applicant respondents. The figure includes six traditional “on the road” 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 are included them to show the percentage of weekly work trips that were eliminated through use of these work schedule options.

Incentive applicant respondents drove alone for just 18.1% of their weekly commute trips. Transit accounted for nearly four in ten weekly trips; 22.9% of trips were made by train and 13.9% by bus. Applicants made 15.7% of trips by bicycling or walking. Vanpool and carpool accounted for 5.8% and 2.7% of trips, respectively. Applicants eliminated 20.9% of weekly commute trips through telework days and compressed work schedule days offs. While not actually commute “trips,” they were officially assigned as part of the work week, so were included in this distribution.

Figure 28
Weekly Commute Trips by Modes – Incentive Applicants

(n = 122)



If the telework and compressed schedule days off are excluded, to estimate the mode share on days respondents commuted to outside locations, the percentage use of each of the six travel modes increases. Without telework and CWS, the alternative mode share would rise to 77.2% of weekly commute trips. The weekly commute trip distribution would be:

- Train 29.0%
- Bike/walk 19.9%
- Bus 17.5%
- Vanpool 7.4%
- Carpool 3.4%
- Drive alone 22.8%

Commute Distance and Time, Work Arrival Time

Commute Distance – The one-way travel distance for incentive applicant respondents ranged from one mile to 99 miles. The average distance was 23.8 miles, considerably shorter than the 32.8 miles for recent applicants. Forty-one percent of incentive applicant respondents traveled fewer than 10 miles to work and 67% commuted fewer than 30 miles. About two in ten (22%) commuted 40 or more miles.

Commute Travel Time – Incentive applicant respondents' one-way commute travel time ranged from five minutes to more than two hours. The average was 49 minutes, again shorter than for recent applicants, who traveled an average of 63 minutes. Two in ten (20%) incentive applicant respondents traveled 20 minutes or less to work and 59% traveled 45 minutes or less. Two in ten (19%) traveled more than one hour one-way.

Work Arrival Time – Forty percent of incentive applicant respondents arrived at work before 8:00 am. Three in ten (30%) arrived between 8:00 am and 8:59 am and 30% arrived at 9:00 am or later. More than three-quarters (78%) traveled to work during the 6:00 am to 8:59 am peak commuting period.

Access to Carpools, Vanpools, and Transit

Seventy-one incentive applicant respondents used a carpool, vanpool, bus, or train at least one day per week for commuting. About half (49%) of these respondents drove to where they met their pool partners or where they started their transit trip. Drive alone access trips for incentive applicant respondents were an average of 4.6 miles.

Recent Commute Pattern Changes

The third survey section asked respondents 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 respondents a series of questions about various mode changes they might have made:

- Started an alternative mode - carpool, vanpool, bus, Metrorail, commuter rail, bike, walk, telework
- Increased the number of days using any alternative modes
- Tried an alternative mode, even if only once
- Added or replaced a person in an existing carpool or vanpool

Respondents who made any of these changes were considered to have been “placed” in alternative modes. These shifts were 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:

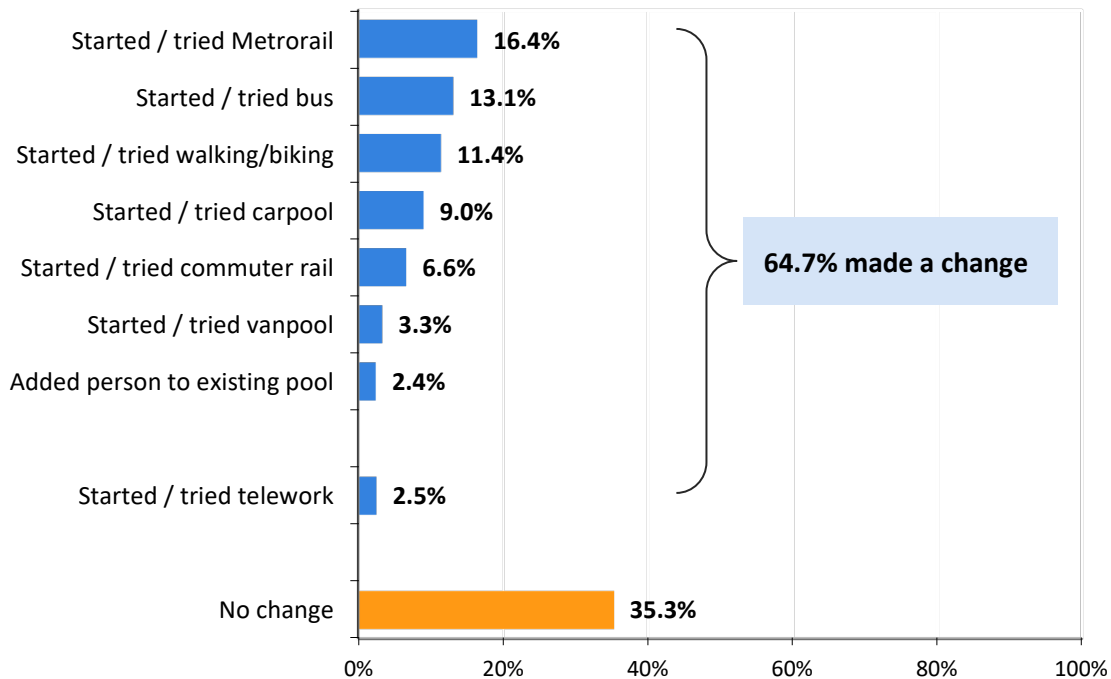
- Continued – respondent made a change and was still using the new mode at the time of the survey
- Occasional – respondent made a change and was still using the new alternative mode, but used it less than one time per week
- Temporary – respondent made a change, but stopped using the new mode prior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

Temporary shifts are reported separately from continued shifts because they do not result in 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 two-thirds (64.7%) of incentive applicant respondents reported some type of alternative mode change after receiving Commuter Connections’ assistance (Figure 29). More than one-third made a change to a transit mode (Metrorail – 16.4%, Bus – 13.1%, Commuter rail – 6.6%). About 15% made a rideshare change; 9.0% started or tried carpooling, 3.3% started or tried vanpooling, and 2.4% said they were carpooling or vanpooling before requesting information from Commuter Connections but added another person to their existing pools. One in ten (11.4%) indicated a change to bike or walk. Just under three percent (2.5%) started or tried telework.

Figure 29
Commuter Changes Made After Receiving Commuter Connections Services – Incentive Applicants
 (n = 122)



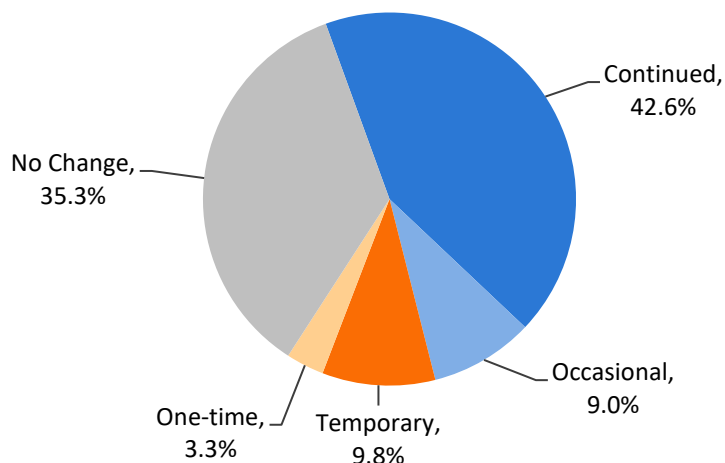
Continued, Occasional, Temporary, and One-time Placement Rates

Respondents 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.” Respondents who made a change to a mode they did not report using at the time of the survey were asked if they still used the mode occasionally or if they had stopped using it. Respondents who had stopped using the mode were asked how long they had used the new mode after the change; respondents were classified as “occasional,” “temporary,” or “one-time” by the duration of the change. Figure 30 presents the distribution of change types, including “no change” as one change option.

Four in ten (42.6%) incentive applicant respondents made a change to a mode they were still using at least one day per week; these applicants made **continued changes**. About 9.0% made a change to a mode they were using **occasionally**, defined as less than once per week. One in ten (9.8%) 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 8.2 weeks. Finally, 3.3% of applicants tried a new mode for less than one week. These applicants were classified as **one-time changes**. About one-third (35.3%) of incentive applicant respondents did not make any change.

Figure 30
Distribution of Continued, Occasional, Temporary, and One-time Changes - “Placement Rates” -
Incentive Applicants

(n = 122)



Placement Rates by Home and Work Location in the Non-Attainment Area – Placement rates were estimated also for two sub-groups of respondents, defined by respondents’ home and work jurisdictions. The first population included participants who both lived and worked in any of the 15 jurisdictions in the Washington, DC-MD-VA ozone National Ambient Air Quality Standard (NAAQS) nonattainment area (NAA).⁴

The second population included participants who either lived in the NAA and worked outside or worked in the NAA and lived outside it, that is, one commute end point was outside the NAA. Two-thirds (64%) of incentive applicant respondents lived and worked in the NAA; 36% either lived or worked outside the NAA. This distinction was made because applicants who lived or worked outside the NAA 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 NAA.

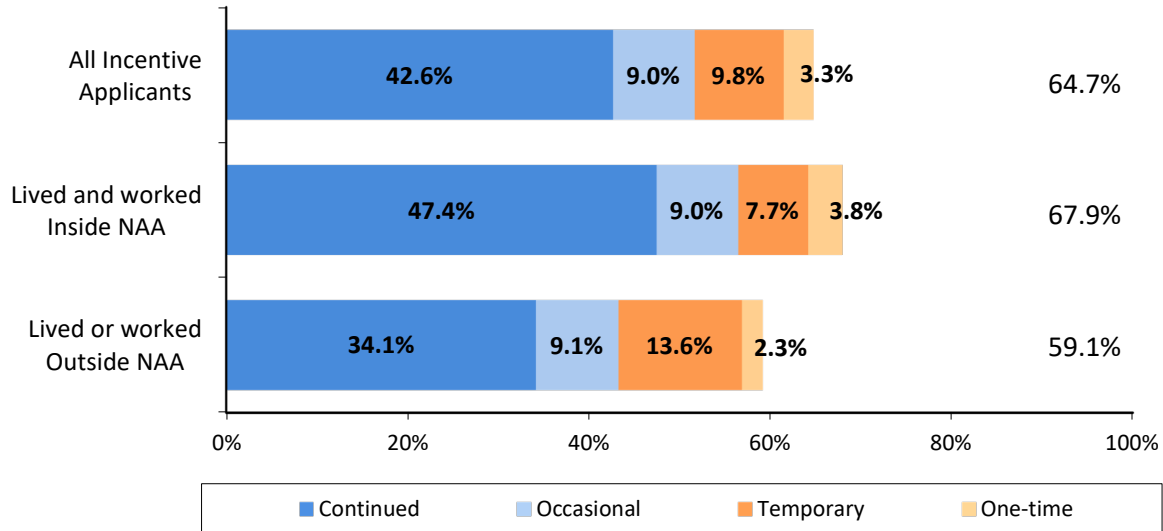
Figure 31 presents the continued and temporary placement rates for all incentive applicant respondents, for applicants who lived and worked within the region (Inside NAA), and applicants who either lived or worked outside the NAA.

The overall placement rate was higher for respondents who both lived and worked in the NAA (67.9%) than for the “out of area” respondents (59.1%). Respondents who lived and worked in the NAA were distinctly more likely to report a continued placement (47.4%) than were those who lived or worked outside the NAA (34.1%). Respondents who lived or worked outside the NAA had a higher temporary rate (13.6%) than did those who both lived and worked in the NAA (7.7%).

⁴ The 15 jurisdictions included in the Washington, DC-MD-VA NAAQS nonattainment area (NAA) are: District of Columbia, Calvert County (MD), Charles County (MD), Frederick County (MD), Montgomery County (MD), Prince George’s County (MD), Arlington County (VA), Fairfax County (VA), Loudoun County (VA), Prince William County (VA), City of Alexandria (VA), City of Fairfax (VA), City of Falls Church (VA), City of Manassas (VA), and City of Manassas Park (VA).

Figure 31
Placement Rates: All Applicants, Applicants who Lived and Worked Inside NAA, and Applicants Who Lived or Worked Outside NAA – Incentive Applicants

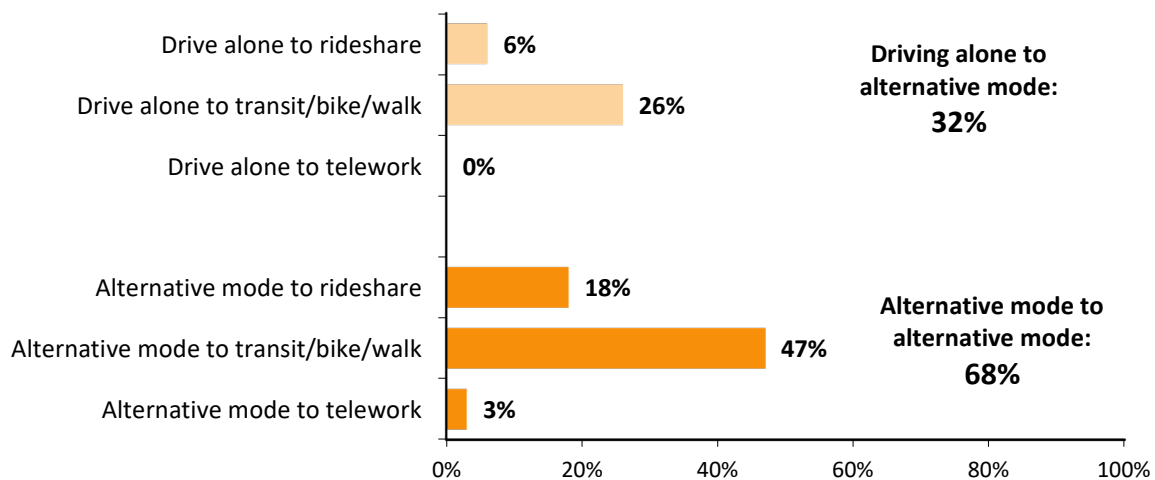
(All applicants n = 122, Lived and worked inside NAA n = 78, Lived or worked outside NAA n = 46)



Previous Mode of Commuter Who Changed Mode

One-third (32%) of applicants who made a change shifted from driving alone to an alternative mode (Figure 32). Most of these respondents made shifts to transit or bike/walk, but some shifted to rideshare modes (carpool or vanpool). The remaining 68% of respondents who had made a change were previously using an alternative mode and made a change to a different alternative mode, for example, from carpool to vanpool, from bus to train, or from vanpool to train.

Figure 32
Types of Mode Changes of Respondents Who Made Mode Changes – Incentive Applicants
 (n = 71)



The extent 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 (e.g., carpool to vanpool or vanpool to transit) or increased the number of days they used the alternative. Some of these shifts, such as from transit to rideshare, increased respondents' weekly vehicle trips. 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

Incentive applicant respondents who said they had made a commute change were asked the reasons for their changes. The reasons were similar to those given by recent applicants. Respondents cited both commute-related and personal-related reasons. The top commute reasons were to save time, cited by 16% of respondents, and to save money, cited by 16% of applicants who made commute changes. Some respondents noted that they had moved to a different residence (8%) or changed jobs or work hours (6%), likely disrupting their previous commute method or opening new options. Other commute reasons, each named by one in twenty respondents, included to help reduce congestion or pollution (6%), to use the HOV or Express lanes (5%), address a safety concern (5%), or because a carpool or vanpool broke up (5%).

Importance of Commute Services on Decision to Make Change – Respondents who made changes were asked if their change was influenced or assisted by information or service they received from Commuter Connections, from another commute service organization, or from their employer. Four in ten (39%) incentive applicant respondents who made a change cited a Commuter Connections service that had influenced or assisted them. The largest share of respondents, 18%, mentioned incenTrip as the influential service; 3% cited the Flextime Rewards incentive program and 3% said an unspecified reward/point program was influential. Other Commuter Connections services noted included Guaranteed Ride Home (5%), transit schedule information (5%), ridematch information (3%), vanpool information (3%), and bicycle information (3%).

Four in ten (41%) incentive applicant respondents said a service from their employer or another commute service organization influenced or assisted their change. The most frequently named services were financial incentives, cited by 30% of applicants who made a change.

Importance of Economic Reasons to Make Change – Finally, incentive applicants who made a change were asked how important economic reasons, such as saving money or reducing gas expense, were in motivating the change. Incentive applicants were equally concerned with economic reasons as were recent applicants. Six in ten incentive applicant respondents who made a change said economic reasons were more important than other reasons (54%) or the only reason they made the change (6%). This was comparable to the 62% of recent applicants reported that economic reasons were of high importance.

Contact with Commuter Connections and Services Received

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

- 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

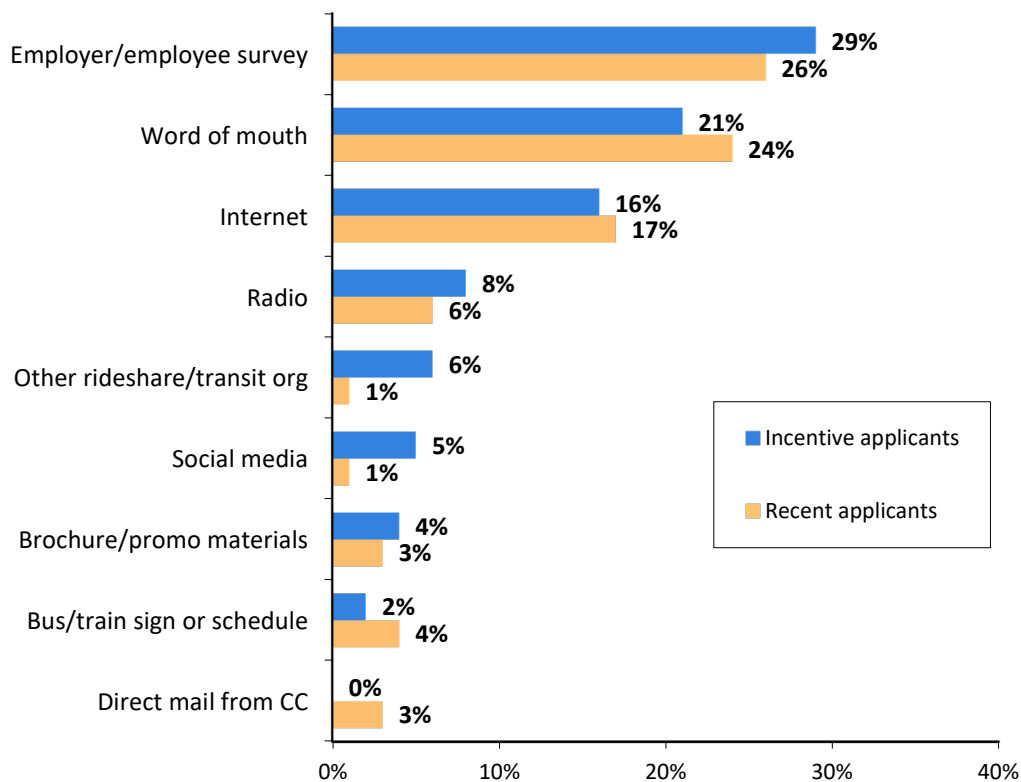
Commuters have a variety of sources through which they can learn of Commuter Connections. Figure 33 presents the primary sources of information cited by incentive applicants and by recent applicants. The top three sources for incentive applicant respondents were employer/employee survey (29%), word of mouth referrals (21%), and Internet (17%). These also were the same primary sources for recent applicants.

Figure 33

How Applicants Learned of Commuter Connections – Incentive Applicants and Recent Applicants

(Note: scale extends only to 40% to highlight differences)

(Incentive applicants n = 105, Recent applicants n = 232; multiple responses permitted)



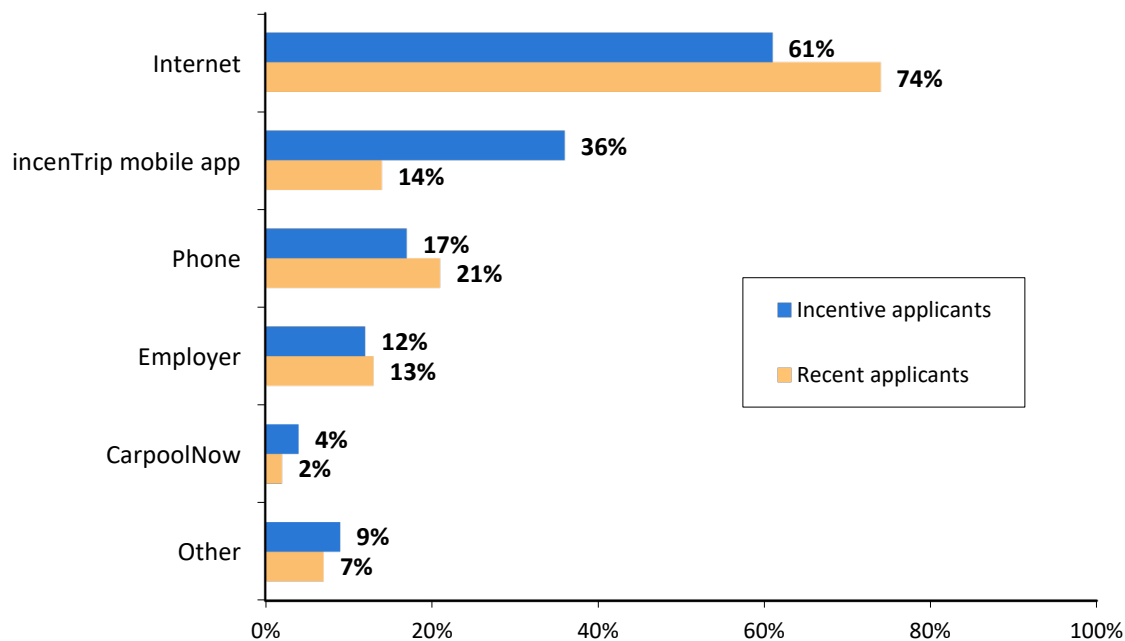
The sources mentioned by incentive applicants were statistically the same as by recent applicants, except that incentive applicant respondents were more likely to cite social media (Facebook, Instagram, Twitter, YouTube, or TikTok) (5%) than were recent applicants (1%).

Methods Used to Contact Commuter Connections

Commuters can contact Commuter Connections in a variety of methods. The largest share (61%) of incentive applicants contacted Commuter Connections through the Commuter Connections web page or another web site on the Internet (Figure 34). This was lower than the 74% share of recent applicants who mentioned this source. The most notable difference in contact was that 36% of incentive applicants said they had made a contact with Commuter Connections through the incenTrip mobile app, a much higher percentage than the 14% of recent applicants who named this method. Incentive applicants made the contact by telephone and through their employer at similar rates as did recent applicants.

Figure 34**How Applicants Contacted Commuter Connections – Incentive Applicants and Recent Applicants**

(Incentive applicants n = 114, Recent applicants = 223; multiple responses permitted)



Reasons for Seeking Assistance – Applicants were asked what prompted them to seek information or assistance from Commuter Connections at that time. Sixteen percent of incentive applicant respondents said they wanted commute information, 14% said they wanted to find back-up transportation in case of emergency, and 14% said they wanted to obtain a financial incentive. Other reasons included wanting to save money (6%) or time (3%), or make a general exploration of commute options (4%). One in ten had either changed jobs (5%) or moved to a new residence (4%) so their commute had changed.

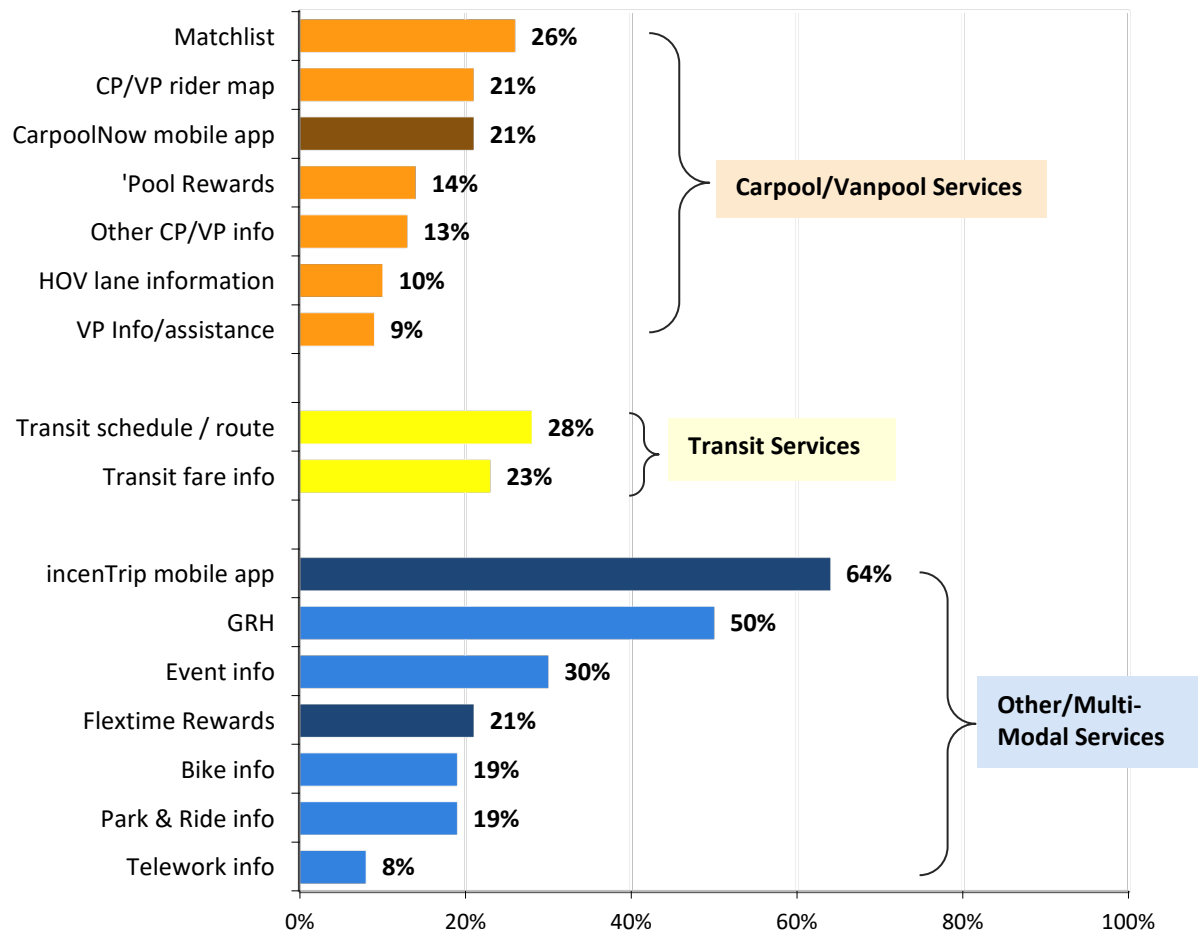
Information Received from Commuter Connections

When commuters contact Commuter Connections, they have the option to request or access various types of assistance and information. Survey respondents were shown a list of services offered by Commuter Connections and were asked to indicate all that they remembered receiving or accessing. Figure 35 displays the percentages of incentive applicant respondents who said they received or accessed each service, with services grouped into three categories by the types of alternative modes they support: Carpool/Vanpool, Transit-Related, and Other/Multi-Modal.

Carpool/Vanpool Services – Four in ten (42%) incentive applicant respondents received or accessed one or more Carpool/ Vanpool services; most of these respondents received more than one of these services. One-quarter (26%) received a matchlist with names and contact information for potential carpool/vanpool partners, 21% received a map showing home and work locations of potential carpool/vanpool partner, 9% obtained vanpool assistance, and 13% received other carpool/vanpool information. Fourteen percent had participated in the 'Pool Rewards carpool/vanpool incentive program and 10% obtained information on HOV lanes. Two in ten (21%) had used the CarpoolNow real-time ridematching mobile application, one of the three Commuter Connections incentive programs.

Figure 35
Information Received or Accessed from Commuter Connections – Incentive Applicants

(n = 122, multiple responses permitted)



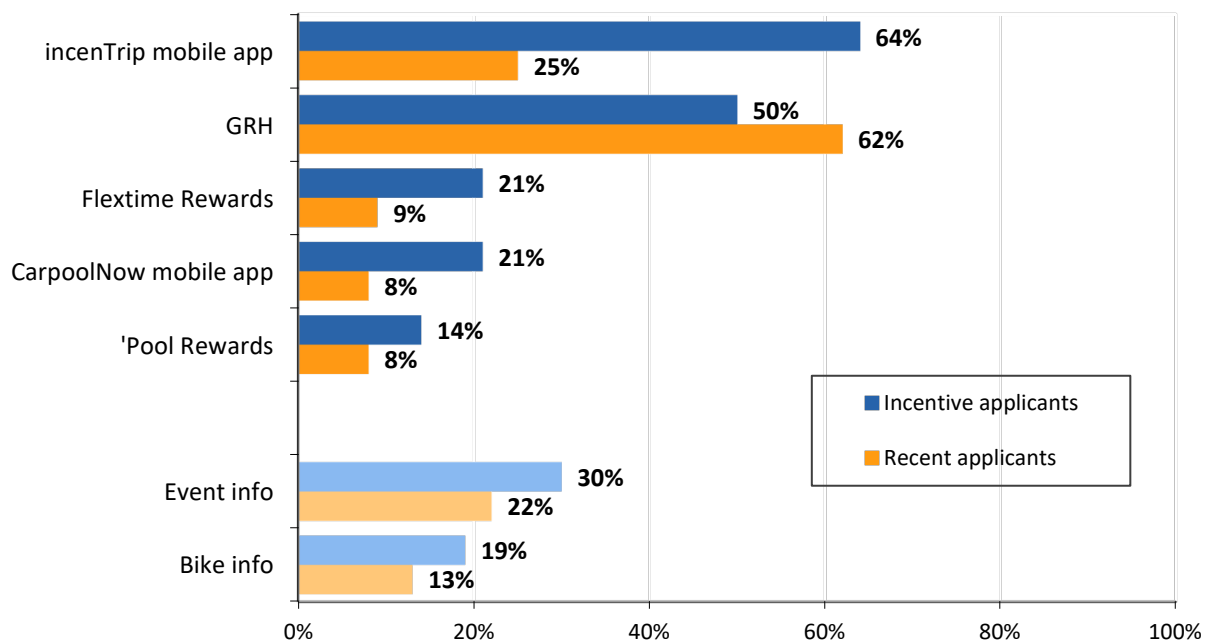
Transit-Related Services – One-third (34%) of incentive applicant respondents received some type of information about transit from Commuter Connections. Twenty-eight percent obtained transit route or schedule information and 22% received information about transit fares or the SmarTrip fare payment system. Nearly all respondents who received transit information received both fare and route/schedule information.

Other/Multi-Modal Services – The top service received overall by incentive applicant respondents was the incenTrip mobile application; 64% received or accessed this multi-modal service. But nearly as many respondents (50%) said they had registered for Guaranteed ride Home. Another widely-used service in the category was information on regional events, such as Car Free Day or Bike to Work Day; 30% of incentive applicant respondents used this information. Two in ten (21%) mentioned participating in the Flextime Rewards incentive program and similar shares of incentive applicant respondents obtained bike information (19%) and Park & Ride lot information (19%). Eight percent received telework information.

Comparison of Services Received by Incentive Applicants and Recent Applicants – Incentive applicants reported using most Commuter Connections services at about the same rate as did recent applicants. However, incentive applicant respondents used some services at higher rates (Figure 36). The only Commuter Connections service used at a notably lower rate by incentive applicants was Guaranteed Ride Home; GRH was a common service, even for incentive applicants (50%), but was less common than for recent applicants (62%). Figure 36 excludes services that were used by the two applicant populations at statistically similar rates.

Figure 36
Information Received or Accessed from Commuter Connections –
Incentive Applicants and Recent Applicants

(Incentive applicants n = 122, Recent applicants n = 279; multiple responses permitted)



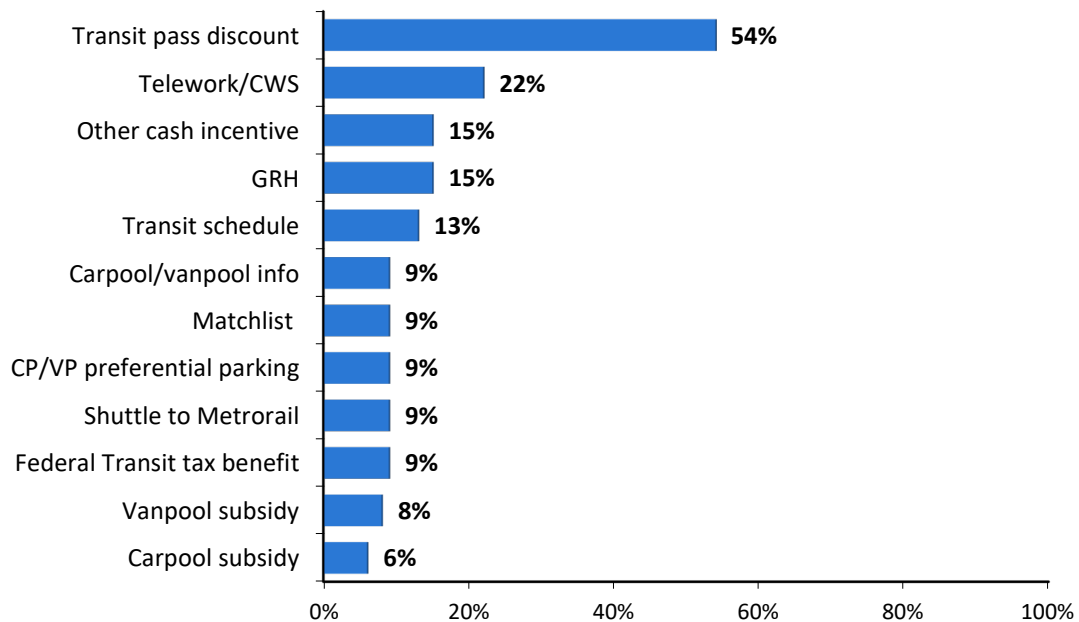
Not surprisingly, incentive applicants reported higher use than did recent applicants of each of the three incentive programs. Two-thirds (64%) of incentive applicants used incenTrip, compared with 25% of recent applicant respondents. Fewer respondents had used either CarpoolNow or Flextime Rewards, but incentive applicants used them at distinctly higher rates than did recent applicants. Incentive applicants also used event information and bike information at slightly higher rates than did recent applicants.

Assistance Offered by Employers

As was the case for recent applicants, most incentive applicant respondents (81%) reported access to commute assistance services at work. Figure 37 lists individual services noted by incentive applicants. The most common employer service was a transit pass discount, noted by 54% of respondents but respondents also mentioned other financial incentives that were available: Federal Transit tax benefit (9%), vanpool subsidy (8%), carpool subsidy (6%), or other cash incentive (15%).

Figure 37
Commuter Assistance Services Offered by Employers – Incentive Applicants

(n = 117, multiple responses permitted)



Two in ten (22%) respondents mentioned that their employer offers telework or compressed schedules; this was a substantial drop from 2020, when 52% of respondents indicated this service was offered at work. Fifteen percent of respondents said their employer provided GRH and about one in ten noted they had access to transit schedule information (13%), carpool/vanpool information (9%), and ridematching/matchlists (9%) at work. One in ten respondents mentioned access to carpool/vanpool preferential parking (9%) and a shuttle service to Metrorail (9%).

Use of Commuter Connections Incentives

Section 3 described use of the non-incentive Commuter Connections services. Similar series of questions were added to the 2020 placement survey to ask applicants who had registered for or used any of the incentive programs about their use of these services. These questions were retained in the 2023 survey. Following are the results of these questions.

CarpoolNow Mobile Application

Twenty-five incentive applicant respondents (21%) reported participating in the CarpoolNow mobile application that allows commuters to request or provide carpool rides in real-time, for a single, immediate trip. Fourteen respondents (58%) had used the app at least once. Seven used it between one and four times and seven used it five or more times. The other 11 respondents had not used the app yet for any trips. Twelve respondents used the app at least once to try to share a ride to work.

Commuters were more likely to be asking for rides than offering them; five of the 14 respondents who used the app said they were always requesting a ride and two were always offering to drive. Four respondents both offered to drive and requested a ride. The remaining three respondents said they were just trying out the app so didn't offer to drive or request a ride.

The 11 respondents who had posted to the app were asked about their success in finding a driver or rider. Six respondents said they had a response to their offer/request and three said they shared a ride at least one time. The remaining five respondents did not receive any response from another app user. The three respondents who shared a ride did so for a commute trip and two of the three formed an ongoing carpool arrangement with someone they met through the app.

Flextime Rewards Incentive Program

Twenty-five incentive applicant respondents (21% of total respondents) said they had registered for the Flextime Rewards program. In this program, commuters register for text/email alerts about roadway incidents that occur on the major roadways that they use to get to and from work. If, after receiving an alert, they delay their departure and are using one of the program-eligible routes on their commute, they can receive an incentive payment. Fifteen of the respondents who had registered for Flextime Rewards reported using one or more of the incentive-eligible routes.

Of the respondents who had used the app, only two reported having received an alert. Fifteen said they had not received any alerts yet and eight did not recall if they had received alerts. One of the two respondents who received an alert had delayed his/her departure and logged a Flextime trip.

incenTrip Mobile Application

Seventy-eight incentive applicant respondents (64%) said they had registered for the incenTrip mobile trip tracking app. These respondents were asked how often they had used the app, the types of trips they logged, and the modes they used for those trips.

Trip Purposes – Nearly all (92%) respondents who used incenTrip had logged a commute trip to work or to school and 15% logged a trip for a work-related purpose, such as going to a meeting or a work-related errand (Table 10). Respondents had logged trips for non-work purposes as well; 15% logged a personal appointment trip and 14% logged a trip for an entertainment, social, or recreation trip.

Table 10
Types of Trips Logged Through incenTrip Mobile App – Incentive Applicants

(n = 73, multiple responses permitted)

Types of Trips Logged	Percentage
Get to or from work or school (commute)	92%
Other work-related trip (e.g., meeting, errand)	15%
Personal appointment or errand	15%
Entertainment, social, recreation	14%
Don't recall	6%

Logging Frequency – Respondents reported logging frequently (Table 11). Two-thirds of respondents reported logging three or more trips per week; 29% logged between three and five and 35% logged six or more. Table 11 also shows the logging frequency for logging trips for commute trip purposes. Commute trip logging was also frequent; 60% logged three or more commute trips per week and 36% typically logged six or more commute trips in a week.

Table 11
Number of Weekly Trips Logged – All Trip Purposes and Commute Purposes

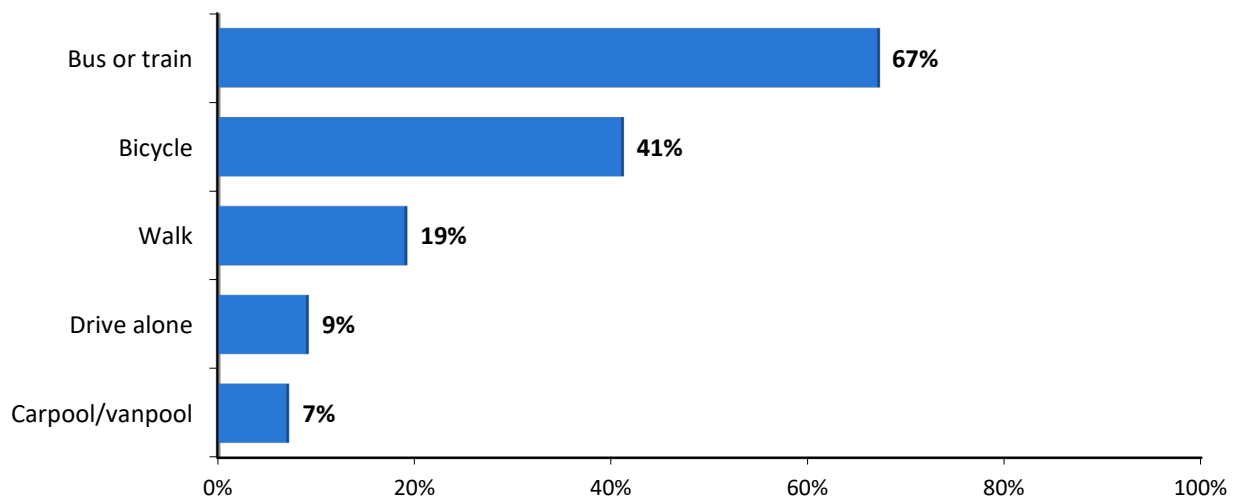
(n = 77, multiple responses permitted)

Number of Trips Logged per Week	All Trip Purposes	Commute Purpose
Have not logged any trips yet (or no commute trips)	18%	28%
Log occasionally but less than one per week	6%	3%
1 to 2 trips per week	12%	9%
3 to 5 trips per week	29%	24%
6 to 9 trips per week	18%	23%
10 or more trips per week	17%	13%

Modes Used When Logging Commute Trips – Two-thirds (67%) of respondents who logged trips on incenTrip for a commute purpose made the commute trip by transit (Figure 38). Four in ten (41%) respondents had logged a bicycle commute trip and 19% logged a walk trip. One in ten (9%) said at least one of their logged trips had been made by driving alone. The least common mode to log was ridesharing; only 7% said they had logged a carpool or vanpool trip.

Figure 38
Modes Logged on incenTrip for Commute Trips

(n = 54; multiple responses permitted)



All commuters who log commute trips can accumulate points that they can redeem for rewards. Eight in ten (80%) incenTrip users who logged a commute trips had redeemed points. These users represented 55% of the total respondents who participated in incenTrip.

Section 5 Progress on Performance Measures

Performance Indicators

One purpose of the placement survey is to collect data to document transportation and air quality impacts of the Commuter Operations Center (COC) for the triennial Commuter Connections evaluation. The survey 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 and support services, and information on transit routes and schedules, Park & Ride lot locations, bicycling routes and services, telework, and HOV/Express lanes. Commuters obtain services by submitting information and service requests via the Commuter Connection's website, mobile app, or toll-free telephone number. Commuters also can request services 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 or through links to websites of other service providers in the region.

The placement survey described in this report collected data to calculate transportation and air quality impacts for Commuter Connections' services provided through the Commuter Operations Center. The performance measure results that follow in this report section represent a snapshot for the recent applicants sample of commuters who received assistance between July 1 and September 30, 2020. In June 2023, these performance results will be expanded to report impacts for the larger population of commuters who received assistance at any time during the three-year evaluation period covered by the FY 2024 – FY 2026 Regional TDM Program Elements evaluation analysis (July 2023-June 2026).

Data collected from the incentive applicants surveyed in the placement survey also will be used in the FY 2024 – FY 2026 evaluation analysis to estimate impacts for the three incentive programs, as a component of the Mass Marketing TDM Program Element. Impacts for other Commuter Connections TDM Program Elements, including: GRH, Telework, Employer Outreach, and several additional Mass Marketing components are calculated primarily using data collected through other means. The results of these other impact analyses also will be reported in the FY 2024 – FY 2026 Regional TDM Program Elements evaluation analysis.

Participation, Utilization, and Satisfaction

The results of six participation, utilization, and satisfaction measures are presented in Table 12 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 12
Commuter Connections Program Activity Summary and
Participation, Utilization, and Satisfaction Performance Measures
Placement Survey, July-September 2023

• Commuter applicants	2,348	
• Applicant placement rates	60.2%	
- Continued placement rate		41.6%
- Occasional placement rate		10.4%
- Temporary placement rate		6.8%
- One-time placement rate		1.4%
• Applicants placed in alternative modes	1,414	
- Continued placements	977	
- Occasional placements	244	
- Temporary placements	160	
- One-time placements	33	
• Applicants who received matchlist from Commuter Connections		24%
• Applicants who received vanpool assistance		7%
• Applicants who received transit information		32%
• Applicants who received GRH information/registration		62%
• Applicants who received Park & Ride info		15%
• Applicants who received commute event information		22%
• Applicants who received bicycle information		14%
• Applicants who received telework information		3%
• Applicants who used incenTrip mobile application		25%
• Applicants who used Flextime Rewards		9%
• Applicants who used CarpoolNow mobile application		8%

Program Impact Measures

MWCOG 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 – NO_x
 - Tons of Volatile Organic Compounds – VOC
 - Tons of Carbon Dioxide (CO₂, 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 13.

Table 13
Commuter Connections Program Impact Performance Measures
Placement Survey, July-September 2023

• Daily vehicle trips (VT) reduced	536 trips
- Continued placements	528 trips
- Temporary placements (prorated credit)	8 trips
• Daily VMT reduced	14,181 VMT
- Continued placements	13,992 VMT
- Temporary placements (prorated credit)	189 VMT
• Daily tons of Emissions reduced	
– NOx	0.0027 tons
– VOC	0.0019 tons
• Annual tons of Emissions reduced	
– CO2 / Greenhouse gas	1,341.3 tons
• Daily gallons of gasoline saved	592 daily gallons of gas
• Commuter costs reduced	
- Annual cost saving per placement	\$1,050 per year

** 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 Demand Management (TDM) Program Elements Revised Evaluation Framework – FY2021 - FY2024,” March 16, 2022. The report is available from Commuter Connections.

Vehicle Trips Reduced

Vehicle trip reduction (VTR) measures the number of vehicle trips no longer made when commuters increase 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 also accounts for some 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 TPB Ozone Non-Attainment Area (NAA) and those who either lived or worked outside it.

	<u>Within NAA</u>	<u>Outside NAA</u>
• Continued VTR =	0.49	0.60
• Temporary VTR =	0.58	0.04

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

This calculation for continued changes resulted in **528 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 8.7 weeks on average. Thus, only about 17% of the temporary trip reduction was allocated to the placements, representing the portion of a year (8.7 / 52 weeks) when the mode was used. This resulted in **8 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.

This sum, 528 + 8, equaled **536 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 NAA group was 26.5 for applicants who made continued changes and 23.5 for applicants who made temporary changes.

The actual one-way distance for the outside NAA applicants was considerably higher; 41.4 miles for continued change applicants and 32.3 miles for temporary change applicants. But many of these miles would have occurred outside the NAA. Thus, to better represent the miles reduced for their travel within the NAA, one-way travel distances for outside-NAA applicants were set equal to the distances for the within-NAA respondents. This resulted in a loss of 14.9 one-way miles per trip for outside-NAA applicants who made continued changes and 8.8 one-way miles for temporary change applicants. The VMT calculation thus was as follows, resulting in 14,181 VMT reduced daily:

$$(528 \text{ continued trips reduced} \times 26.5 \text{ miles}) + (8 \text{ temporary trips reduced} \times 23.5 \text{ miles})$$

$$= \mathbf{14,181 \text{ VMT reduced}}$$

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 through the program. This analysis calculated emission reduction for three pollutants: Oxides of Nitrogen (NOx), Volatile Organic Compounds (VOC), and Carbon Dioxide (CO₂, greenhouse gas).

For 2023, the emission factors are:

NOx:

Trip end (cold start)	=	0.9596 grams per one-way vehicle trip reduced
VMT (running)	=	0.1501 grams per vehicle mile reduced

VOC:

Trip end (cold start + hot soak)	=	2.1585 grams per one-way vehicle trip reduced
VMT (running)	=	0.0575 grams per vehicle mile reduced

CO₂ (Greenhouse gas):

Trip end (cold start + hot soak)	=	208.68 grams per one-way vehicle trip reduced
VMT (running)	=	348.43 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 **0.0027 daily tons of NOx and 0.0019 daily tons of VOC**. CO₂ emissions were calculated on an annual basis. They totaled **1,341.3 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, **592 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 \$1,053,500 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 **\$1,050 per commuter per year**.

List of Appendices

Appendix A – Questionnaire for FY 2024 Applicant Survey

Appendix B – Comparison of November 2023 Survey Results with Results for 2020, 2017, 2014, 2011, 2008, 2005, and 2004 Surveys

Appendix C – Commuter Connections Impact Calculations, Recent Applicants – July-September 2023

Appendix A

Questionnaire for FY 2024 Applicant Survey

INTRODUCTION

Commuter Connections is conducting this online survey of people who received commute information or assistance from the Commuter Connections program. Your answers will be confidential. It will take about 10 minutes. Please complete the survey and click on the “SUBMIT” button at the end. Please click on the “NEXT” button below to begin the survey.

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 mobile applications, or through a letter, email, or phone call. Please check all that apply.

ACCEPT MULTIPLES FOR 1-8, 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 NA
- 4 Other carpool / vanpool information
- 5 Vanpooling assistance
- 6 HOV/Express lane information
- 7 'Pool Rewards carpool / vanpool financial incentive
- 8 CarpoolNow mobile application (real-time ridematching)
- 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, Park & Ride, and bicycling around the Washington metropolitan region, and incentive programs for commuters in the region. Which of the following services have you accessed or received from Commuter Connections? Please check all that apply.

ACCEPT MULTIPLES FOR 1-19, 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 incenTrip mobile application (trip tracking/points application)
- 10 Flextime Rewards incentive program
- 19 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 1-8 OR Q_S2 = ANY RESPONSE 1-19, 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 1-18, SHOW “90-no services” AT THE END OF THE LIST. ACCEPT MULTIPLES FOR 1-18, 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 NA
- 4 Other carpool / vanpool information
- 5 Vanpooling assistance
- 6 HOV/Express lane information
- 7 'Pool Rewards carpool/vanpool financial incentive
- 8 CarpoolNow mobile application (real-time ridematching)
- 9 Transit schedule or route information
- 10 Transit fare information, SmarTrip
- 11 Park & Ride lot information
- 12 Telework information, telework center information
- 13 Bicycle to Work Guide, bicycling information
- 14 Online bicycle route planning
- 15 Guaranteed Ride Home information or trip
- 16 Special events information (e.g., Bike to Work Day, Car Free Day)
- 17 incenTrip mobile app (trip tracking/points application)
- 18 Flextime Rewards incentive program
- 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 1-18, 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 – NA, 4 – Unknown, 5 – NA

CLASSIFY IN THE FOLLOWING ORDER:

IF Q_S1 = ANY RESPONSE 1, 2, OR 4-8, DEFUSER = 1 (RECEIVED)

IF Q_S2 = ANY RESPONSE 1-19, DEFUSER = 1 (RECEIVED)

IF Q_S1 = 90 OR 99 AND Q_S2 = 90 OR 99 AND Q_S3 = ANY RESPONSE 1, 2 OR 4-8, OR 9-18, DEFUSER = 2 (REQUESTED)

IF Q_S1 = 90 OR 99 AND Q_S2 = 90 OR 99 AND Q_S3 = 90 OR 99, DEFUSER = 4 (UNKNOWN)

IF DEFUSER = 1 OR 2 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? Please include days you work from home/work remotely all day as assigned work days. And if your schedule varies from week to week, select the response that is most typical.

- 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
- 90 Not currently working (**THANK AND TERMINATE**)

2 Which of the following best represents your work schedule?

- 1 Part-time
- 2 Full-time, 5 or more days 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

Q3 Do you currently telecommute or work from home some or all of your workdays? You might refer to this as teleworking, working remotely, or working a hybrid schedule. For purposes of this survey, “telecommuters” are defined as “wage and salary employees who at least occasionally work at home or at a telework, satellite, or co-working center during **an entire work day**, instead of traveling to their regular work place.” Based on this definition, do you telecommute some or all of your workdays at the PRESENT TIME?

- 1 Yes, telecommute/work from home **all** of my workdays
- 2 Yes, telecommute/work from home **some** of my workdays
- 3 No, do not telecommute any workdays now
- 9 Don't know
- 99 Left blank

IF Q3 = 1, AUTOCODE Q4 = 7 (all workdays), THEN SKIP TO Q4a1

IF Q3 = 3, AUTOCODE Q4 = 8 (no current TW), THEN SKIP TO Q4a1

IF Q3 = 2, 9, OR 99, ASK Q4

4 How often do you usually telecommute or work from home now? Please include only days you work from home for a full day on a regular workday.

- 1 Less than 1 time per month / only in emergencies (e.g., sick child, snowstorm)
- 2 1 to 3 times per month
- 3 1 day per week
- 4 2 days per week
- 5 3 days per week
- 6 4 days per week
- 7 All of my workdays (or 5 or more days per week)
- 8 **AUTOCODE** - Never, don't telecommute now
- 95 other (SPECIFY) _____
- 99 Question left blank

4a1 How often did you usually telecommute or work from home in February 2020, before the coronavirus pandemic started?

- 1 Less than 1 time per month / only in emergencies (e.g., sick child, snowstorm)
- 2 1 to 3 times per month
- 3 1 day per week
- 4 2 days per week
- 5 3 days per week
- 6 4 days per week
- 7 All of my workdays (or 5 or more days a week **(SKIP TO INSTRUCTIONS BEFORE Q5)**)
- 8 Never, I did not telecommute/work from home before the coronavirus pandemic
- 95 other (SPECIFY) _____
- 99 Question left blank

IF Q4 = 7 (all workdays at home now), SKIP TO INSTRUCTIONS BEFORE Q5

4a In a typical week, how often are you away from your usual work location now **for an entire day** for business or work travel (e.g., meetings / visits to clients or customers)?

- 1 Never, I do not travel for work now at all
- 2 Occasionally, but less than 1 day per week
- 3 Regularly, 1 or more days per week
- 9 Question left blank

INSTRUCTIONS BEFORE Q5

IF Q4 = 7 (All workdays are TW), AUTOCODE Q5, RESPONSE 2 (telework) = Q1 number of days worked. IF Q1 < 5, AUTOCODE REMAINING WORKDAYS (5 - Q1) AS Q5, RESPONSE 17 (regular days off), THEN SKIP TO DEFINE Q5 MODES

IF QUESTION IS AUTOCODED, DO NOT SHOW ON THE SCREEN

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 telecommute/work from home or have a regular day off or compressed work schedule day off.

PROGRAMMER NOTES:

CHECK SUM OF DAYS. IF TOTAL OF 1-19 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 1-19 IS GREATER THAN 5, SHOW MESSAGE:** "You've reported more than five days. Please report only for Monday – Friday and only one type of transportation per day."

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/work from home. 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)
Days you travel to your usual work location	
3 Drive alone in a car, truck, van, or SUV	
4 Motorcycle	
5 Carpool, including carpool w/family member, dropped off, UberXShare	
6 Casual carpool (slugging)	
7 Vanpool	
8 N/A – don't show on screen	
9 Bus (public or private bus, shuttle, buspool, commuter bus, express bus, Via)	
10 Metrorail	
11 MARC (MD commuter rail)	
12 VRE (Virginia Commuter rail)	
13 AMTRAK / other train	
14 Bicycle/scooter/e-scooter (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	
19 Uber, Lyft (riding alone with driver)	
Days you DO NOT travel to your usual work location	
1 Compressed work schedule day off	
2 Telecommute / telework / work from home all day	
17 Regular day off	
18 Other (describe) _____	
Total Days (DO NOT SHOW THIS LINE ON SCREEN)	Sum of 1-19

DEFINE Q5 MODES USED (ALLOW MULTIPLE MODES) - AUTOCODE ONLY: don't show messages/codes on screen

- CWDAYS = SUM OF Q5, RESPONSE 1
- TWDAYS = SUM OF Q5, RESPONSE 2
- DADAYS = SUM OF Q5, RESPONSE 3, 4, 16, 19
- 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
- BKDAY = 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)

IF Q5 = ONLY 1, 2, AND 17 (all M-F days are only CWS, TW, and regular day off), SKIP TO Q20

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 Interstate highways or major U.S. or state routes do you use on your trip to work? Select all that apply”

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 Interstate highways or major U.S. or state routes do you use? Select all that apply”

IF SUM OF (DADAYS + CPDAYS + VPDAYS) = 0, INSERT V3, “If you were to drive to work, what Interstate highways or major U.S. or state routes would you use? Select all that apply”

9b **V1** – “What Interstate highways or major U.S. or state routes do you use on your trip to work? Select all that apply”

V2 – “On days that you drive or ride to work in a personal vehicle, what Interstate highways or major U.S. or state routes do you use? Select all that apply”

V3 – “If you were to drive to work, what Interstate highways or major U.S. or state routes would you use? Select all that apply”

THEN SHOW LIST BELOW TO ALL RESPONDENTS. ACCEPT MULTIPLES FOR 1 – 21 AND 99, DO NOT ALLOW MULTIPLES WITH 98

Interstate Highways

- 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)

Major U.S./State 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)

98 No Interstate or U.S. or state routes

99 Other (specify) _____

999 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 Q5 MODES 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 or bus stop/train station
 - 4 Dropped off (including by household member, UberPool, Waze Carpool)
 - 5 Bicycle (personal bike or Capital Bikeshare bike), scooter or e-scooter
 - 6 Walk
 - 7 Bus/transit (including shuttle, Via)
 - 8 Taxi
 - 9 I am always the driver of carpool/vanpool **(SKIP TO Q20)**
 - 10 Uber, Lyft (riding alone with driver)
 - 19 other (SPECIFY) _____
- 999 Question left blank

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: Test for travel changes applicants might have made. Changes are examined hierarchically (mode changes first, frequency changes next, then occupancy changes)]

NOTE: Q20 – Q22 ARE MANDATORY QUESTIONS; “Left blank” is not a valid option for these questions.

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, started using UberXShare
- 2 Started vanpooling, joined or created a new vanpool
- 3 Started riding a bus (including shuttle, Via)
- 4 Started riding Metrorail
- 5 Started riding MARC, VRE, or Amtrak
- 6 Started bicycling/using scooter or e-scooter 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/working from home 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, UberXShare
 - 2 Vanpool
 - 3 Bus, shuttle, Via
 - 4 Metrorail
 - 5 MARC, VRE, or Amtrak
 - 6 Bicycle/scooter or e-scooter (entire trip or longest distance part of trip)
 - 7 Walking (entire trip or longest distance part of trip)
 - 8 Telework/work from home
 - 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, UberXShare
 - 2 Tried vanpooling
 - 3 Tried bus, shuttle, Via
 - 4 Tried Metrorail
 - 5 Tried MARC, VRE, AMTRAK
 - 6 Tried bicycling/using scooter or e-scooter
 - 7 Tried walking
 - 8 Tried teleworking/working from home
 - 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 = ONLY 9 OR 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/scooter)

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/scooter)

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/scooter
- 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/scooter
- 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 not 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)

Type of Transportation	(1) Temporary Change	(2) Still use - less than 1 day per week	(3) Still use - 1 or more days per week
1 Carpool	_____	_____	_____
2 Vanpool	_____	_____	_____
3 Bus	_____	_____	_____
4 Metrorail	_____	_____	_____
5 Commuter train (MARC, VRE, Amtrak)	_____	_____	_____
6 Bicycle/scooter	_____	_____	_____
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/scooter, 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 not 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/scooter)

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/scooter)

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/scooter)

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/scooter)
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/scooter
- 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/scooter
- 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/scooter
- 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/scooter
- 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/scooter), 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 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/scooter), 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/scooter), 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/scooter), 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/scooter
- 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/scooter
- 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/scooter
- 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/scooter
- 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/scooter

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/scooter
- 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/scooter' 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/scooter, 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 10-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/scooter, 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 (if any) you telecommuted or had a regular day off or compressed work schedule day off.

PROGRAMMER NOTES:

CHECK SUM OF DAYS. IF TOTAL OF 1-19 IS LESS THAN 5, SHOW MESSAGE: “Please report for all days Monday – Friday, including days you did not work.” **IF TOTAL OF 1-19 IS GREATER THAN 5, SHOW MESSAGE:** “You’ve reported more than five days. Please report only for Monday – Friday and only one type of transportation per day.”

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.” **ACCEPT “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/work remotely. 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)
Days you traveled to your usual work location	
3 Drove alone in a car, truck, van, or SUV	
4 Motorcycle	
5 Carpool, including carpool w/family member, dropped off, UberXShare	
6 Casual carpool (slugging)	
7 Vanpool	
8 N/A – DO NOT SHOW ON SCREEN	
9 Bus (public or private bus, shuttle, buspool, commuter bus, express bus, Via)	
10 Metrorail	
11 MARC (MD commuter rail)	
12 VRE (Virginia commuter rail)	
13 AMTRAK / other train	
14 Bicycle/scooter/e-scooter (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	
19 Uber, Lyft (riding alone with driver)	
Days you did not travel to your usual work location	
1 Compressed work schedule day off	
2 Telecommute / telework / work from home all day	
17 Regular day off	
18 Other (describe) _____	
Total Days (DO NOT SHOW THIS LINE ON SCREEN)	Sum of 1-19

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, 19
- 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/SCOOTER
- 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 Q45, INSERTING "CARPOOL" AS Q45 MODE

IF Q30 = 12 AND D_VPDAYS = 0, ASK Q45, INSERTING "VANPOOL" AS Q45 MODE

IF Q30 = 13 AND D_BUDAYS = 0, ASK Q45, INSERTING "BUS" AS Q45 MODE

IF Q30 = 14 AND D_MRDAY = 0, ASK Q45, INSERTING "METRORAIL" AS Q45 MODE

IF Q30 = 15 AND D_CRDAY = 0, ASK Q45, INSERTING "COMMUTER TRAIN" AS Q45 MODE

IF Q30 = 16 AND D_BKDAY = 0, ASK Q45, INSERTING "BICYCLE/SCOOTER" AS Q45 MODE

IF Q30 = 17 AND D_WKDAY = 0, ASK Q45, INSERTING "WALKING" AS Q45 MODE

IF Q30 = 18 AND D_TWDAYS = 0, ASK Q45, INSERTING "TELEWORK" AS Q45 MODE

OTHERWISE, SKIP TO INSTRUCTIONS BEFORE Q46

- 45 Earlier you said you made a temporary change to (**Q45 MODE: carpool, vanpool, bus, Metrorail, commuter train, bicycle/scooter, 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 (**Q45 MODE: carpool, vanpool, bus, Metrorail, commuter train, bicycle/scooter, walking, telework**) then to commute?

0 0

1 1

2 2

3 3

4 4

5 5

8 Only used occasionally, used 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 CHANGEINSTRUCTIONS 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/scooter' 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/scooter, 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**)
- 98 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 10-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/scooter, 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 (if any) you teleworked or had a regular day off or compressed work schedule day off.

PROGRAMMER NOTES:

CHECK SUM OF DAYS. IF TOTAL OF 1-19 IS LESS THAN 5, SHOW MESSAGE: "Please report for all days Monday – Friday, including days you did not work." **IF TOTAL OF 1-19 IS GREATER THAN 5, SHOW MESSAGE:** "You've reported more than five days. Please report only for Monday – Friday and only one type of transportation per day."

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.” **ACCEPT “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/work remotely. How many days per week did you telework before you made this change. If you had no telework days then, please type 0 in the Telecommute/telework field.” **ACCEPT “0” AS THE RESPONSE.**

Type of Transportation	Number of Days Used (0 to 5)
Days you traveled to your usual work location	
3 Drove alone in a car, truck, van, or SUV	
4 Motorcycle	
5 Carpool, including carpool w/family member, dropped off, UberXShare	
6 Casual carpool (slugging)	
7 Vanpool	
8 NA – DO NOT SHOW ON SCREEN	
9 Bus (public or private bus, shuttle, buspool, commuter bus, express bus, Via)	
10 Metrorail	
11 MARC (MD commuter rail)	
12 VRE (Virginia commuter rail)	
13 AMTRAK / other train	
14 Bicycle/scooter/e-scooter (entire trip or longest distance part of trip from home to work)	
15 Walk (entire trip from home to work)	
16 Taxi	
19 Uber, Lyft (riding alone with driver)	
Days you did not travel to your usual work location	
1 Compressed work schedule day off	
2 Telecommute / telework / work from home all day	
17 Regular day off	
18 Other (describe) _____	
Total Days (DO NOT SHOW THIS LINE ON SCREEN)	Sum of 1-19

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, 19
 P_CPDAYS = SUM OF Q52, RESPONSE 5, 6
 P_VPDAYS = SUM OF Q52, RESPONSE 7
 P_BUDAYS = SUM OF Q52, RESPONSE 9
 P_MRDAY = SUM OF Q52, RESPONSE 10
 P_CRDAY = 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_MRDAY > 0, Q52 MODE = METRORAIL
 IF P_CRDAY > 0, Q52 MODE = COMMUTER TRAIN
 IF P_BKDAY > 0, Q52 MODE = BICYCLE/SCOOTER
 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_MRDAY + P_CRDAY + 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?

- 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
- 41 Coronavirus pandemic, work location closed

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 NA
- 26 Other carpool / vanpool information
- 27 Vanpooling assistance
- 28 HOV/Express lane information
- 29 'Pool Rewards carpool/vanpool 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 CarpoolNow mobile application (real-time ridematching)
- 39 incenTrip mobile app (trip tracking/points application)
- 40 Flextime Rewards incentive program
- 49 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

92 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 NA
- 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/Express lane information
- 14 'Pool Rewards carpool/vanpool financial incentive
- 15 Special events information (e.g., Bike to Work Day, Car Free Day)
- 16 CarpoolNow mobile application (real-time ridematching)
- 17 incenTrip mobile app (trip tracking/points application)
- 18 Flextime Rewards incentive program
- 20 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*

92 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, co-working, telework center information
 - 9 Bicycling map, bicycle route planning, bicycling information
 - 10 HOV/Express lane information
 - 11 Discount / free transit pass / Smart Trip Card
 - 12 Other cash incentive
 - 13 Compressed work week/telecommute/flextime/staggered work hours
 - 14 Carpool/vanpool preferential parking
 - 15 Parking fees
 - 16 Carpool/vanpool discount parking fee
 - 17 E-Z Pass subsidy
 - 18 NA
 - 19 Shuttle bus
 - 20 Federal Tax Benefit / Commuter Choice Program
 - 21 Referral to Commuter Connections
 - 22 Telecommuting info
 - 23 NA
- 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)
- 19 Coronavirus pandemic, work location closed
- 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)
- 19 Social media, Twitter, Facebook, Instagram, YouTube
- 29 Other
- 99 *Left blank*

61 Which of the following sources did you use to contact Commuter Connections for assistance? **(SHOW RESPONSES 1-19; ACCEPT MULTIPLES)**

- 1 Employer
- 2 Commuter Connections website
- 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)
- 7 Social media (Facebook, Twitter, Instagram, YouTube, TikTok)
- 8 incenTrip mobile app
- 9 CarpoolNow mobile app
- 10 Other mobile app (please specify) _____
- 19 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, social media
- 16 Employer program or service
- 17 Referral from family, friend, co-worker, word of mouth
- 18 Save wear and tear, reduce mileage on car
- 19 Coronavirus pandemic, work location closed
- 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 = 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_S1 = 8, AUTOCODE Q63 = 16

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 Q_S2 = 9, AUTOCODE Q63 = 17
IF Q_S2 = 10, AUTOCODE Q63 = 18

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 NA
- 4 Other carpool / vanpool information
- 5 Vanpooling assistance
- 6 HOV lane information
- 7 'Pool Rewards carpool/vanpool 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)
- 16 CarpoolNow mobile application (real-time ridematching)
- 17 incenTrip mobile app (trip tracking/points application)
- 18 Flextime Rewards incentive program
- 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 E-Z Pass subsidy
- 14 Shuttle bus to Metrorail or bus stop
- 15 Federal Tax Benefit/ "Commuter Choice" program
- 16 Zipcar carshare service account
- 20 Bikeshare 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 the service you received) 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/Express lane information
- 9 Park & Ride information
- 10 Vanpool assistance
- 11 E-Z Pass info
- 12 Bicycle information
- 13 Referral to Commuter Connections
- 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 Q63 = 2, SET Q66 = 3 (map)****IF Q63 = 16, SET Q66 = 5 (CarpoolNow mobile app)****IF Q63 NE 1, 2, SET Q66 = 9**

- 1 Commuter Connections matchlist
- 2 Other matchlist
- 3 Map
- 4 NA
- 5 CarpoolNow mobile app
- 9 No matching info

INSTRUCTIONS BEFORE Q70 - RIDEMATCH**IF Q66 = 1 (RECEIVED COG RIDEMATCH), ASK Q70, OTHERWISE, SKIP TO INSTRUCTIONS BEFORE Q75**

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 Q75, 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 Q75

74 Why did you decide not to contact any of the people? (**ALLOW MULTIPLE RESPONSES**)

- 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 Coronavirus pandemic
- 9 other (Specify) _____

INSTRUCTIONS BEFORE Q75 – CARPOOLNOW MOBILE APP**IF Q66 = 5 (USED CARPOOLNOW MOBILE APP), ASK Q75. OTHERWISE, SKIP TO INSTRUCTIONS BEFORE Q80**

75 You said you used or registered for the Commuter Connections' CapoolNow mobile application. How many times have you used the app?

- 1 1 time
- 2 2 to 4 times
- 3 5 to 9 times
- 4 10 to 19 times
- 5 20 or more times
- 6 Have not used the app yet for any trips **(SKIP TO INSTRUCTIONS BEFORE Q80)**
- 9 Don't remember

75a What types of trips have you tried to share through the app? Select all that apply. **(ALLOW MULTIPLE RESPONSES FOR 1-5)**

- 1 Get to or from work or school (commute trip)
- 2 Other work-related trip (e.g., go to meeting, appointment, errand)
- 3 Personal appointment or errand trip
- 4 Entertainment, social, or recreation trip
- 5 Other trip purpose (please specify) _____
- 9 Don't remember

76 Were you offering to drive or requesting a ride? **(ALLOW ONLY ONE RESPONSE)**

- 1 Sometimes offering to drive, sometimes requesting a ride
- 2 Always offering to drive
- 3 Always requesting a ride
- 4 Just trying it out, did not offer to drive or request a ride **(SKIP TO INSTRUCTIONS BEFORE Q80)**
- 9 Don't remember **(SKIP TO INSTRUCTIONS BEFORE Q80)**

77 Did you share a ride with any of the people who responded? **(ALLOW ONE RESPONSE ONLY)**

- 1 Yes, shared a ride at least one time
- 2 No, did not ever share a ride with people who responded **(SKIP TO INSTRUCTIONS BEFORE Q80)**
- 3 No one ever responded **(SKIP TO INSTRUCTIONS BEFORE Q80)**
- 9 Don't remember/don't know **(SKIP TO INSTRUCTIONS BEFORE Q80)**

IF Q77 = 2, 3, OR 9, SKIP TO INSTRUCTIONS BEFORE Q80**IF Q77 = 1 AND Q75a = ONLY 2, 3, 4, 5, OR 9 (no commute trips), SKIP TO INSTRUCTIONS BEFORE Q80****IF Q77 = 1 AND Q75a = 1 (commute trip), ASK Q78**

78 How many of the trips that you shared were to go to or from work or school? **(ALLOW ONE RESPONSE ONLY)**

- 1 1 trip
- 2 2 to 4 trips
- 3 5 to 9 trips
- 4 10 to 19 trips
- 5 20 or more trips
- 6 None, shared only non-work trips **(SKIP TO INSTRUCTIONS BEFORE Q80)**
- 9 Don't remember/don't know **(SKIP TO INSTRUCTIONS BEFORE Q80)**
- 99 Left blank

- 79 After using CarpoolNow to share a work or school trip, did you try to arrange an ongoing work or school carpool, either with someone you met through the app or with a person not through the app? **(ALLOW ONE RESPONSE ONLY)**
- 1 Arranged an ongoing carpool with someone I met through the app
 - 2 Arranged an ongoing carpool with a person I did NOT meet through the app
 - 3 Tried to arrange an ongoing carpool, but have not found carpool partners yet
 - 4 No, did not try to arrange an ongoing carpool
 - 9 Don't remember/don't know
 - 99 *Left blank*

INSTRUCTIONS BEFORE Q80 – TRANSIT INFO

IF Q63 NE 8 OR 9 (DID NOT RECEIVE TRANSIT INFO), SKIP TO INSTRUCTIONS BEFORE Q84

IF Q63 = 8 OR 9 (RECEIVED TRANSIT INFO) CONTINUE.

- 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)**
 - 99 *Left blank (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)**
 - 99 *Left blank (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
- 8 Coronavirus pandemic, not commuting, didn't want to ride transit during pandemic
- * 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 Coronavirus pandemic, not commuting, didn't want to ride transit during pandemic
- 9 other (SPECIFY)

INSTRUCTIONS BEFORE Q84 – PARK & RIDE

IF Q63 NE 10 (DID NOT RECEIVE P&R INFO), SKIP TO INSTRUCTIONS BEFORE Q90

IF Q63 = 10 (RECEIVED P&R INFO), 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)**
- 9 Don't remember, don't know **(SKIP TO INSTRUCTIONS BEFORE Q90)**
- 99 *Left blank* **(SKIP TO INSTRUCTIONS BEFORE Q90)**

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

- 1 Yes
- 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, 26, 27, 28, 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 **(Q30 mode, carpool, vanpool, bus, Metrorail, commuter train)** for your trip to work?
- 1 Yes
 - 2 No
 - 9 Don't know
 - 99 *Left blank*

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
- 8 Coronavirus pandemic, not commuting
- 99 *Left blank*

INSTRUCTIONS BEFORE Q90 – BICYCLE INFO

IF Q63 NE 12 OR 13 (DID NOT RECEIVE BICYCLE INFO), SKIP TO INSTRUCTIONS BEFORE Q95

IF Q63 = 12 OR 13 (RECEIVED BICYCLE INFO), 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
 - 9 Don't remember, don't know
 - 99 *Left blank*

IF Q90 = 1 – 4, ASK Q91

IF Q90 = 5 or 9 OR 99, 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 (DID NOT RECEIVE TELEWORK INFO), SKIP TO INSTRUCTIONS BEFORE Q97**

95 You said you received telework information from Commuter Connections. Since you received the information, have you taken any of the following actions? **(SHOW RESPONSES 1-8. PERMIT MULTIPLE RESPONSES WITH 1 – 5. DO NOT PERMIT MULTIPLE RESPONSES WITH 6 OR 8)**

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

IF Q95 NE 3, 4, OR 5, SKIP TO INSTRUCTIONS BEFORE Q97**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 Q97 – INCENTRIP APP**IF Q63 NE 17 (DID NOT USE INCENTRIP), SKIP TO INSTRUCTIONS BEFORE Q98****IF Q63 = 17 (USED INCENTRIP) CONTINUE WITH Q97**

97 You said you have used or registered for Commuter Connections' incentTrip mobile trip tracking application. What types of trips have you logged through the app? Select all that apply. **(ALLOW MULTIPLE RESPONSES FOR 1-5)**

- 1 Get to or from work or school (commute trip)
- 2 Other work-related trip (e.g., go to meeting, appointment, errand)
- 3 Personal appointment or errand trip
- 4 Entertainment, social, or recreation trip
- 5 Other trip purpose (please specify) _____
- 9 Don't remember
- 99 *Left blank*

97a In a typical week, about how many total trips do you log?

- 1 Log occasional trips, but less than 1 trip per week
- 2 1 to 2 trips per week
- 3 3 to 5 trips per week
- 4 6 to 9 trips per week
- 5 10 or more trips per week
- 6 Have not logged any trips yet
- 9 Don't remember
- 99 *Left blank*

IF Q97 = ONLY 2, 3, 4, 5, OR 9 (no commute trips), SKIP TO INSTRUCTIONS BEFORE Q98

IF Q97a = 1, 6, OR 9, SKIP TO INSTRUCTIONS BEFORE Q98

IF Q97 = 1 (commute trip) AND Q97a = 2, 3, 4, OR 5, ASK Q97b

97b In a typical week, about how many trips do you log for getting to or from work or school?

- 1 Log occasional trips, but less than 1 trip per week **(SKIP TO INSTRUCTIONS BEFORE Q98)**
- 2 1 to 2 trips per week
- 3 3 to 5 trips per week
- 4 6 to 9 trips per week
- 5 10 or more trips per week
- 6 Have not logged any work or school trips yet **(SKIP TO INSTRUCTIONS BEFORE Q98)**
- 9 Don't remember **(SKIP TO INSTRUCTIONS BEFORE Q98)**

97c Which of the following types of transportation have you logged for trips to or from work or school?
Select all that apply. **(ALLOW MULTIPLE RESPONSES FOR 1-5, DO NOT ALLOW MULTIPLES FOR 5, OR 9)**

- 1 Bus or train (public transit)
- 2 Carpool or vanpool
- 3 Bicycle
- 4 Walk
- 5 Drive alone
- 6 None of these types
- 9 Don't remember
- 99 *Left blank*

97d Have you redeemed any points from incenTrip yet? **(ALLOW ONE RESPONSE ONLY)**

- 1 Yes
- 2 No
- 9 Don't remember/don't know
- 99 *Left blank*

INSTRUCTIONS BEFORE Q98 – FLEXTIME REWARDS

IF Q63 NE 18 (DID NOT USE FLEXTIME REWARDS), SKIP TO INSTRUCTIONS BEFORE Q100

IF Q63 = 18 (USED FLEXTIME REWARDS) CONTINUE WITH Q98

98 You said you used or registered for Commuter Connections' Flextime Rewards program. Which program-eligible routes do you use on your trip to/from work? Select all that apply. **(ALLOW MULTIPLE RESPONSES FOR 1-8)**

- 1 I-495/Capital Beltway (VA)
- 2 I-495/Capital Beltway (MD)
- 3 I-66 (VA)
- 4 I-295 (DC)
- 5 I-95 (VA)
- 6 I-95 (MD)
- 7 US-301 (MD)
- 8 BW Parkway (MD)
- 19 Other (please specify) _____
- 98 Not sure
- 99 *Left blank*

98a About how many times per month have you received a Flextime Rewards email alerting you to higher-than-average traffic congestion along your route to work? **(ALLOW ONLY ONE RESPONSE)**

- 1 Have not yet received any email alerts **(SKIP TO INSTRUCTIONS BEFORE Q100)**
- 2 Occasionally, but less than 1 alert per month
- 3 1 or 2 alerts per month
- 4 3 to 5 alerts per month
- 5 6 to 9 alerts per month
- 6 10 or more alerts per month
- 9 Not sure
- 99 *Left blank*

IF Q98 = ONLY 19, 98, OR 99, SKIP TO INSTRUCTIONS BEFORE Q100

IF Q98 = ANY OF 1-8, ASK Q98b

98b How many times have you delayed your departure after receiving the alert and logged a flextime trip?

- 1 Have not delayed departure/logged any Flextime Rewards trips yet **(SKIP TO INSTRUCTIONS BEFORE Q100)**
- 2 1 to 2 times
- 3 3 to 5 times
- 4 6 to 9 times
- 5 10 or more times
- 9 Not sure
- 99 *Left blank*

98c When you logged a flextime trip, which of the following types of transportation were you using? Select all that apply. **(ALLOW MULTIPLE RESPONSES FOR 1-6, DO NOT ALLOW MULTIPLES FOR 9)**

- 1 Driving alone
- 2 Bus or train (public transit)
- 3 Carpool or vanpool
- 4 Bicycle or scooter/e-scooter
- 5 Walk
- 6 Taxi or ridehail (Uber, Lyft, Via)
- 9 Don't remember
- 99 *Left blank*

INSTRUCTIONS BEFORE Q100 – GRH

IF Q63 NE 14 (DID NOT RECEIVE GRH INFO), SKIP TO Q103

IF Q63 = 14 (RECEIVED GRH INFO), ASK Q100

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? **(ALLOW MULTIPLE RESPONSES FOR 1-6).**

- 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)**
- 99 *Left blank (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 Use Uber, Lyft, or bikeshare to get home in emergency
- 10 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 carpool/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

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? **(ALLOW ONLY ONE RESPONSE)**

- 1 Federal agency
- 2 State or local government agency
- 3 Non-profit organization or association
- 4 Private sector employer
- * 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 - \$159,999
- 10 \$160,000 - \$179,000
- 11 \$180,000 - \$199,999
- 12 \$200,000 - \$249,000
- 13 \$250,000 or more
- 99 *Left blank*

112 Are you ...?

- 1 Male
- 2 Female
- 3 Non-binary
- 99 *Left blank*

Q113. Commuter Connections is offering a drawing for ten \$50 Amazon gift cards. Please be assured that we will not sell or use your contact information for anything other than the drawing. Would you like to participate in the drawing? **(OPTIONAL.)**

- 01 Yes **(ASK Q114)**
- 02 No → **SKIP TO END**
- 99 **DO NOT READ:** Don't know/Refused → **SKIP TO END**

Q114. What is your name? And what is your email address so we can contact you if you are one of the 10 winners. **(OPTIONAL.)**

First Name:
Last Name:
Email Address:

98 **DO NOT READ:** I've changed my mind; I do not want to participate in the drawing.

Thank you very much for your time and cooperation!

Appendix B

Comparison of November 2020 Survey Results with Results for 2017,2014, 2011, 2008, 2005, and 2004 Surveys

Unless otherwise indicated, sample sizes are: 2023 n = 279, 2020 n = 282, 2017 n = 706, 2014 n = 716, 2011 n = 892, 2004-2008 n = 700

Current Travel Information

Table B-1

Current Mode Split – Weekly Trips

All Modes (including compressed work schedule and telework days)

(2023 n = 279, 2020 n = 282, 2017 n = 706, 2014 n = 690, 2011 n = 863, 2004-2008 n = 700)

	<u>2023</u>	<u>2020</u>	<u>2017</u>	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>
Compressed Schedule (CWS)	1.5%	0.7%	2.7%	3.7%	3.7%	2.2%	2.4%	2.5%
Telework	20.9%	75.1%	12.6%	7.7%	5.5%	3.2%	2.3%	1.9%
Drive Alone/Motorcycle	15.4%	10.4%	12.3%	9.6%	9.7%	24.6%	25.6%	27.4%
Carpool	4.7%	1.7%	13.0%	13.4%	13.5%	16.9%	21.4%	24.4%
Vanpool	7.2%	5.0%	13.3%	16.0%	13.9%	15.2%	13.8%	11.6%
Bus	18.8%	3.6%	20.9%	21.0%	24.7%	17.5%	11.4%	11.8%
Train	25.3%	2.6%	23.9%	27.4%	28.7%	20.4%	22.8%	20.3%
Metrorail	13.2%	1.0%	8.0%	9.2%	8.5%	11.3%	12.4%	11.4%
Commuter rail	12.1%	1.6%	15.9%	18.2%	20.2%	9.1%	10.4%	8.9%
Bike/Walk	6.2%	0.9%	1.3%	1.2%	0.3%	0.1%	0.4%	0.3%
Bicycle	4.8%	0.9%	1.1%	1.2%	0.3%	0.1%	0.1%	0.1%
Walk	1.4%	0.0%	0.2%	0.0%	0.0%	0.0%	0.3%	0.2%

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

(2023 n = 279, 2020 n = 282, 2017 n = 706, 2014 n = 690, 2011 n = 863, 2004-2008 n = 700)

	<u>2023</u>	<u>2020</u>	<u>2017</u>	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>
Drive Alone/Motorcycle	19.9%	43.0%	14.5%	10.8%	10.6%	26.0%	26.8%	28.6%
Carpool	6.0%	7.2%	15.3%	15.1%	15.3%	17.8%	22.4%	25.5%
Vanpool	9.3%	20.7%	15.8%	18.0%	14.9%	16.1%	14.5%	12.1%
Bus	24.2%	15.0%	24.7%	23.7%	27.2%	18.5%	11.9%	12.3%
Train	32.6%	10.5%	28.2%	31.0%	31.6%	21.5%	24.0%	21.2%
Bike/Walk	8.0%	3.6%	1.6%	1.4%	0.4%	0.1%	0.4%	0.3%

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

	<u>2023</u>	<u>2020</u>	<u>2017</u>	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>
Yes	15%	18%	20%	24%	26%	23%	18%	18%
4/40	5%	2%	3%	3%	3%	4%	2%	1%
9/80	10%	16%	17%	21%	23%	19%	16%	17%

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

	<u>2023</u>	<u>2020</u>	<u>2017</u>	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>
Distance	32.8 mi	39.2 mi	35.1 mi	36.2 mi	36.2 mi	36.3 mi	36.5 mi	34.9 mi
Time	63 min	54 min	66 min	63 min	63 min	63 min	67 min	62 min

Table B-5
Carpool/Vanpool Occupancy

	<u>2023</u>	<u>2020</u>	<u>2017</u>	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>
(n=____) carpool	24	13	121	115	147	137	172	191
(n=____) vanpool	23	8	108	104	144	115	104	88
Carpool/casual carpool (slug)	3.3	3.4	3.0	3.1	3.1	2.9	3.1	2.9
Vanpool	8.6	8.1	7.9	9.1	9.9	10.3	11.0	10.5

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

	<u>2023</u>	<u>2020</u>	<u>2017</u>	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>
(n=____)	47	22	230	245	275	252	276	279
Always drive	8%	18%	10%	9%	7%	8%	12%	11%
Share driving	60%	55%	58%	55%	58%	55%	52%	48%
Never drive	32%	27%	32%	36%	35%	36%	36%	41%

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

	<u>2023</u>	<u>2020</u>	<u>2017</u>	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>
(n=____)	189	49	607	630	775	508	498	489
Picked-up at home	2%	2%	3%	3%	5%	7%	9%	8%
Drive to driver's home	8%	0%	2%	3%	13%	6%	13%	10%
Drive to central location	58%	75%	71%	71%	64%	71%	62%	69%
Another pool/dropped off	3%	0%	2%	3%	1%	1%	2%	2%
Walk/bike	21%	11%	12%	10%	8%	12%	11%	7%
Always drive carpool/vanpool	1%	8%	4%	4%	2%	1%	1%	<1%
Bus/transit	7%	4%	6%	5%	4%	2%	2%	3%
Ave access distance	6.1 mi	6.5 mi	6.2 mi	6.8 mi	6.9 mi	6.5 mi	6.8 mi	6.0 mi

Travel Changes

Table B-8

Made Travel Change Since Receiving Information/Assistance

	<u>2023</u>	<u>2020</u>	<u>2017</u>	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>
Started/tried carpool	8.6%	4.3%	9.5%	8.7%	11.9%	9.1%	14.0%	15.4%
Started/tried vanpool	5.4%	6.0%	7.5%	7.8%	6.8%	4.9%	7.4%	5.8%
Started/tried transit	28.7%	9.6%	19.3%	20.7%	23.8%	12.3%	15.6%	11.1%
Started/tried telework	9.3%	37.2%	7.8%	4.8%	6.4%	4.4%	4.4%	3.4%
Increased days using alt modes**	N/A	N/A	N/A	N/A	N/A	0.0%	0.0%	1.8%
Started/tried bike/walk*	5.0%	1.1%	1.0%	1.2%	0.5%	N/A	N/A	N/A
Added person to carpool/vanpool	3.2%	3.9%	4.8%	5.4%	3.2%	6.9%	3.1%	3.0%
TOTAL	60.2%	62.1%	49.9%	48.6%	52.6%	37.7%	44.5%	40.5%

* 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>2023</u>	<u>2020</u>	<u>2017</u>	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>
(n=____)	143	164	253	265	263	285	311	268
Yes, influenced decision	26%	15%	26%	21%	38%	30%	33%	35%

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

	<u>2023</u>	<u>2020</u>	<u>2017</u>	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>
(n=____)	129	149	253	282	238	276	300	256
Save money	15%	7%	21%	18%	17%	14%	26%	18%
Save gas, high gas price	5%	2%	0%	3%	9%	18%	N/A	N/A
Changed jobs	19%	9%	14%	18%	16%	23%	16%	14%
Save time	6%	9%	18%	7%	13%	12%	23%	18%
Tired of driving	3%	5%	6%	4%	11%	9%	9%	12%
New option available	3%	1%	2%	1%	8%	<1%	<1%	3%
SmartBenefits/financial incentive	3%	1%	2%	1%	6%	<1%	1%	2%
Carpool broke up/didn't work out	5%	3%	9%	5%	5%	N/A	N/A	N/A
Employer permitted telework	6%	1%	6%	2%	6%	N/A	N/A	N/A
Received matchlist	<1%	N/A	4%	N/A	N/A	N/A	N/A	N/A
Moved residence	9%	1%	5%	4%	4%	8%	6%	6%
Reduce wear and tear on car	2%	N/A	4%	<1%	4%	3%	<1%	4%
Reduce congestion/pollution	5%	5%	2%	2%	2%	3%	6%	3%
Reduce stress/medical reason	4%	N/A	4%	0%	0%	0%	0%	0%
Others doing it (e.g., family)	N/A	N/A	1%	<1%	2%	2%	4%	<1%
Circumstances (no vehicle)	3%	1%	0%	N/A	N/A	4%	11%	8%
Found new CP/VP rider	2%	N/A	0%	N/A	N/A	10%	<1%	5%
Coronavirus pandemic	5%	50%	N/A	N/A	N/A	N/A	N/A	N/A

Table B-11**Distribution of Changes by Duration of Change (includes only respondents who made a travel change)**

	<u>2023</u>	<u>2020</u>	<u>2017</u>	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>
(n=____)	279	175	352	346	454	285	306	271
Continued change	41.6%	70%	73%	72%	64%	67%	60%	67%
Temporary change	6.8%	21%	11%	10%	12%	33%	34%	33%
Occasional use change	10.4%	6%	7%	7%	14%	N/A	6%	N/A
One-time change	1.4%	3%	9%	11%	10%	N/A	N/A	N/A

Table B-12**Continued and Temporary Placement Rates and VTR Factors (Overall – all respondents included)**

	<u>2023</u>	<u>2020</u>	<u>2017</u>	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>
Continued placement rate	41.6%	43.6%	36.4%	34.9%	35.4%	25.4%	26.9%	27.4%
Temporary placement rate	6.8%	12.8%	5.2%	5.2%	5.1%	12.3%	15.0%	13.2%
Occasional placement rate	10.4%	3.6%	3.7%	3.3%	6.1%	N/A	2.6%	N/A
One-time placement rate	1.4%	2.1%	4.6%	5.2%	6.0%	N/A	2.6%	N/A
Continued VTR	-0.54	-0.24	-0.51	-0.43	-0.54	-0.37	-0.45	-0.37
Temporary VTR	-0.33	-0.64	-0.45	-0.27	-0.53	-0.66	-0.57	-0.31
Average duration of temporary change	8.7 wks	10.6 wks	8.2 wks	6.7 wks	8.9 wks	6.5 wks	5.9 wks	4.3 wks

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

	<u>2023</u>	<u>2020</u>	<u>2017</u>	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>
Internet	74%	80%	81%	80%	78%	77%	67%	64%
<i>CC page on Internet</i>	71%	79%	77%	78%	76%	73%	62%	56%
<i>Another internet site</i>	3%	1%	4%	2%	2%	4%	5%	8%
Called CC directly	21%	21%	22%	26%	13%	20%	25%	26%
Employer/through work	13%	13%	14%	11%	10%	5%	5%	5%
Local jurisdiction program	3%	N/A	1%	3%	1%	N/A	2%	<1%
incenTrip mobile app	14%	5%	N/A	N/A	N/A	N/A	N/A	N/A

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

	<u>2023</u>	<u>2020</u>	<u>2017</u>	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>
GRH info / registration	62%	79%	76%	71%	71%	69%	60%	70%
Transit information	32%	34%	28%	24%	22%	17%	28%	28%
Matchlist	24%	35%	25%	21%	27%	42%	67%	66%
Information on special events	22%	20%	15%	8%	6%	N/A	N/A	N/A
Pool partners map	15%	21%	12%	8%	9%	N/A	N/A	N/A
P&R information	15%	21%	12%	11%	12%	13%	25%	26%
Bicycle information	13%	13%	7%	5%	4%	N/A	N/A	N/A
incentTrip mobile app	25%	9%	N/A	N/A	N/A	N/A	N/A	N/A
Flextime Rewards	9%	3%	N/A	N/A	N/A	N/A	N/A	N/A
HOV lane information	9%	12%	7%	6%	3%	3%	7%	12%
CarpoolNow mobile app	8%	5%	3%	N/A	N/A	N/A	N/A	N/A
'Pool Rewards	8%	8%	5%	N/A	N/A	N/A	N/A	N/A
Vanpool assistance	7%	13%	6%	5%	5%	10%	19%	27%
Telework information	3%	7%	5%	5%	3%	5%	9%	11%

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

	<u>2023</u>	<u>2020</u>	<u>2017</u>	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>
Discount/free transit pass	50%	64%	55%	49%	30%	60%	56%	55%
Telework/CWS	25%	65%	47%	35%	40%	2%	2%	<1%
GRH	18%	15%	15%	14%	<2%	0%	0%	0%
Transit information/schedule	13%	20%	12%	10%	3%	4%	3%	2%
CP/VP matchlist	12%	19%	21%	16%	11%	4%	5%	8%
Other cash incentive	11%	19%	18%	15%	11%	4%	7%	4%
Preferential parking (CP/VP)	9%	29%	23%	15%	3%	2%	2%	2%
Federal tax benefit	9%	11%	11%	11%	3%	3%	3%	2%
None	26%	15%	15%	17%	5%	27%	30%	30%

Table B-16

Received Information from Other Organization

	<u>2023</u>	<u>2020</u>	<u>2017</u>	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>
Yes	11%	9%	9%	2%	2%	4%	7%	6%

Use/Influence of Information Received

Table B-17

Received Match Names (either Commuter Connections or employer/other agency)?

	<u>2023</u>	<u>2020</u>	<u>2017</u>	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>
Yes, received match info	24%	35%	29%	23%	35%	42%	68%	66%

Table B-18

Try to reach People Named on the List?

	<u>2023</u>	<u>2020</u>	<u>2017</u>	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>
(n=____)	43	99	172	145	156	310	461	448
Yes, tried to reach people	60%	65%	56%	56%	58%	56%	56%	52%

Table B-19

Able to Reach People on List?

	<u>2023</u>	<u>2020</u>	<u>2017</u>	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>
(n=____)	24	58	93	80	90	176	256	231
Yes, reached people on list	75%	91%	83%	87%	77%	84%	88%	88%

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

	<u>2023</u>	<u>2020</u>	<u>2017</u>	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>
(n=____)	17	57	82	77	66	146	224	204
Yes, interested in RS	53%	40%	48%	44%	58%	59%	49%	45%
Interested, but schedule and/or locations not compatible	12%	33%	31%	34%	23%	21%	35%	29%
Not interested in RS	35%	16%	13%	12%	19%	20%	16%	26%

Table B-21**Reasons for Not trying to Reach Commuters (multiple responses permitted)**

	<u>2023</u>	<u>2020</u>	<u>2017</u>	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>
(n=____)	16	37	84	66	47	136	207	114
Work hours not compatible	25%	30%	18%	18%	26%	25%	28%	29%
Locations not compatible	0%	16%	17%	15%	10%	25%	26%	16%
Didn't want to RS	50%	27%	28%	22%	13%	16%	17%	12%
Already found RS arrangement	12%	8%	19%	21%	22%	19%	12%	23%
Haven't gotten around to it	13%	11%	7%	8%	11%	8%	11%	11%
Changed jobs	6%	N/A	1%	2%	2%	<1%	3%	4%
Changed residence	0%	3%	2%	0%	2%	2%	2%	4%
Coronavirus pandemic	0%	14%	N/A	N/A	N/A	N/A	N/A	N/A

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

	<u>2023</u>	<u>2020</u>	<u>2017</u>	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>
(n=____)	84	96	195	167	206	117	189	187
Yes, contacted agency	37%	41%	39%	36%	40%	31%	37%	38%

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

	<u>2023</u>	<u>2020</u>	<u>2017</u>	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>
(n=____)	31	32	69	60	68	34	42	36
Yes, used info to try transit	87%	88%	81%	87%	81%	77%	83%	60%

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

	<u>2023</u>	<u>2020</u>	<u>2017</u>	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>
(n=____)	38	47	81	52	13	81	125	121
Didn't need more information	N/A	N/A	24%	21%	19%	N/A	N/A	N/A
Prefer other modes	3%	23%	10%	6%	9%	20%	25%	24%
Got info from website	29%	N/A	N/A	N/A	7%	N/A	N/A	N/A
Too far from home/work	N/A	2%	1%	1%	3%	17%	5%	11%
Wasn't interested	5%	26%	15%	1%	3%	23%	30%	21%
Would never use transit	3%	2%	5%	1%	N/A	27%	2%	2%
Already had info, other source	11%	N/A	17%	N/A	4%	<1%	17%	20%
Never got around to it	8%	23%	6%	1%	N/A	6%	11%	15%
Coronavirus pandemic	N/A	4%	N/A	N/A	N/A	N/A	N/A	N/A

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

	<u>2023</u>	<u>2020</u>	<u>2017</u>	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>
(n=____)	40	59	85	76	97	62	134	140
Yes, used P&R info	60%	61%	52%	59%	75%	42%	54%	57%

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

	<u>2023</u>	<u>2020</u>	<u>2017</u>	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>
(n=____)	24	36	42	45	71	26	73	78
Yes, knew of P&R before	50%	50%	71%	57%	71%	73%	69%	63%

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

	<u>2023</u>	<u>2020</u>	<u>2017</u>	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>
(n=____)	13	18	29	27	51	26	73	78
Yes, used P&R lot before	42%	33%	59%	49%	55%	48%	50%	40%

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

	<u>2023</u>	<u>2020</u>	<u>2017</u>	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>
(n=____)	162	219	524	491	560	487	442	492
Drive Alone/Motorcycle	16%	11%	10%	7%	6%	14%	20%	24%
Carpool	7%	8%	13%	13%	13%	19%	22%	22%
Vanpool	12%	24%	16%	18%	17%	17%	14%	14%
Bus/train	62%	56%	60%	78%	63%	50%	45%	42%
Bike/walk	3%	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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

	<u>2023</u>	<u>2020</u>	<u>2017</u>	<u>2014</u>	<u>2011</u>	<u>2008</u>	<u>2005</u>	<u>2004</u>
(n=____)	162	222	530	494	576	478	441	492
Yes, registered for GRH	88%	91%	94%	97%	96%	86%	76%	73%

Appendix C – Calculations of Impacts Recent Applicants, July – September 2023

Commute Information Requests

Populations of Interest – Commuter Connections Rideshare Applicants

Total assisted commuters **2,348**

Within NAA (53%) 1,254

Outside NAA (47%) 1,094

COC Placement Rates

	In NAA	Out NAA
• Continued rate	42.3%	40.8%
• Temporary rate	5.4%	8.5%
• Total	47.7%	49.3%

Placements

• Continued	530	446	(Apps x cont. rate)
• Temporary	68	93	(Apps x temporary rate)

Total placements 1,137

Daily Vehicle Trips Reduced

VTR Factors

• Continued	0.49	0.60
• Temporary	0.58	0.04
• Temporary discount	17%	17%

• Continued trips reduced	260	268	(Placements x cont. VTR factor)
• Temporary trips reduced	7	1	(Placements x temp VTR factor)

Total VT reduced 536

Daily VMT Reduced

(VMT reduced is calculated as number of vehicle trips reduced x one-way travel distance; individual calculations are performed for continued and temporary placements and for both Within the NAA and Outside the NAA)

Ave one-way trip distance (mi)

• Continued	26.5	26.5	(Actual Outside dist. 41.4 miles)
• Temporary	23.5	23.5	(Actual Outside dist. 32.3 miles)

• Continued VMT reduced	6,890	7,102	(Vehicle trips x ave distance)
• Temporary VMT reduced	165	24	

Total VMT Reduced 14,181

Appendix C, continued

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

(Adjusted VT Reduced is calculated as total vehicle trips reduced x % of trips that use SOV to access HOV modes.
Adjusted VMT Reduced is calculated as total VMT reduced – (SOV access trips x SOV access distance.

Calculations are performed for continued and temporary placements for applicants who live within the NAA, All access VT and VMT for applicants living outside the NAA occur outside the NAA, thus no access adjustment is needed for these applicants)

	In NAA	Out NAA	
• SOV access % -Continued	49%	0%	(CC placement survey)
• SOV access dist (mi) – Continued	3.5	0.0	(CC placement survey)
• Non-SOV access % - Temporary	49%	0%	(CC placement survey)
• SOV access dist (mi) – Temporary	3.5	0.0	(CC placement survey)
Outside NAA – not applicable – all access outside NAA			
Adjusted VT Reduction			
• Total continued trips reduced	260	268	(Calculation shown on previous page)
• Continued SOV access VT	<u>-127</u>	<u>0</u>	(Total cont VT x SOV access %)
• Net continued VT (no SOV access)	133	268	(Total Cont VT – Cont SOV access VT)
• Total temporary trips reduced	7	1	(Calculation shown on previous page)
• Temporary SOV access VT	<u>-3</u>	<u>0</u>	(Temp VT x SOV access %)
• Net temporary VT (no SOV access)	4	1	(Total Temp VT- Temp SOV access VT)
Adjusted VT (net of SOV access)	406	137	269 (Sum net cont VT + net temp VT)
Adjusted VMT Reduction			
• Total continued VMT reduced	6,890	7,102	(Calculation shown on previous page)
• Continued SOV access VMT	<u>-445</u>	<u>0</u>	(SOV access VT x SOV access dist)
• Net continued VMT (no SOV access)	6,445	7,102	(Total Cont VMT- SOV access VMT)
• Total temporary VMT reduced	165	24	(Calculation shown on previous page)
• Temporary SOV access VMT	<u>-11</u>	<u>0</u>	(Temp access VT x SOV access dist)
• Net temporary VMT (no SOV access)	154	24	(Total Temp VMT- SOV access VMT)
Adjusted VMT (net of SOV access)	13,725	6,599	7,126 (Sum net cont VMT + net temp VMT)
Adjusted VT for AQ analysis	406		
Adjusted VMT for AQ analysis	13,725		

Appendix 5, continued

Daily Emissions Reduced – NOx and VOC

NOx	Trips	23 Emission Factor	VMT	23 Emission Factor	Tot gm	Tot ton
• From Starts	406	0.9596			390	0.0004
• From Running			13,725	0.1501	2,060	<u>0.0023</u>
Total NOx reduced (tons)					Daily	0.0027

VOC	Trips	23 Emission Factor	VMT	23 Emission Factor	Tot gm	Tot ton
• From Starts	406	2.1585			876	0.0010
• From Running			13,725	0.0575	789	<u>0.0009</u>
Total VOC reduced (tons)					Daily	0.0019

Annual Emissions Reduced – CO2

CO2	Trips	23 Emission Factor	VMT	23 Emission Factor	Tot gm	Tot ton
• From Starts	406	208.68			84,724	0.0934
• From Running			13,725	348.43	4,782,202	<u>5.2715</u>
Total CO2 reduced (tons)					Daily	5.3649
					Annual	1,341.3

Daily Energy Saving

Daily Energy Savings **592 gal/day**
 (daily VMT reduced / 23.2 miles/gallons)
 (13,725 / 23.2)

Annual Commuter Cost Savings Saving **

Annual Commuter Cost Savings **\$1,053,500 / year**
 (VMT reduced x \$0.307/mi. x 250 days)
 (13,725 x 0.307 x 250)

Cost Saving per commuter **\$1,050 / year**
 (cost saving / number of placements)**
 (\$1,053,500 / 1,003)

** 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 = 976 continued placements + 27 discounted temporary placements (17% * 161).