**ITEM #3**

Fiscal Year 2021

# Applicant Database Annual Placement Survey Technical Survey Report

(November-December 2020 Survey)

**May 18, 2021**

COMMUTER CONNECTIONS®

A SMARTER WAY TO WORK

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

Fiscal Year 2021

# Applicant Database Annual Placement Survey
# Technical Survey Report

(November-December 2020 Survey)

*Prepared for:*

Metropolitan Washington Council of Governments
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Prepared by:

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In association with:

CIC Research, Inc.
and
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May 18. 2021

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Published: May 18, 2021

**ABOUT COMMUTER CONNECTIONS**
Commuter Connections, a program of the National Capital Region Transportation Planning Board at the Metropolitan Washington Council of Governments (COG), promotes bicycling to work, ridesharing, and other alternatives to drive alone commuting, provides ridematching for carpools and vanpools, incentive programs for alternative commuting, and offers the free Guaranteed Ride Home program. Commuter Connections is funded by the District of Columbia, Maryland, Virginia and U.S. Department of Transportation.

**CREDITS**
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# Executive Summary

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

Commuter Connections provides basic commute information and assistance, such as regional ridematching and information on transit, bicycling, teleworking, 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 app, 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 the 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 2020 through a survey of 282 applicants who received information or assistance between July 1 and September 30, 2020.

**Commuter Connections Program Activity Summary and**
**Overall Participation, Utilization, and Satisfaction Performance Measures**
**Placement Survey, July-September 2020**

| | | |
|---|---|---|
| • Commuter applicants | 2,166 | |
| • Applicant placement rates | 62.1% | |
| - Continued placement rate | | 43.6% |
| - Occasional placement rate | | 3.6% |
| - Temporary placement rate | | 12.8% |
| - One-time placement rate | | 2.1% |
| • Applicants placed in alternative modes | 1,344 | |
| - Continued placements | 945 | |
| - Occasional placements | 78 | |
| - Temporary placements | 276 | |
| - One-time placements | 45 | |
| • Applicants who received matchlist from Commuter Connections | | 35% |
| • Applicants who received vanpool assistance | | 13% |
| • Applicants who received transit information | | 34% |
| • Applicants who received GRH information/registration | | 79% |
| • Applicants who received Park & Ride info | | 21% |
| • Applicants who received commute event information | | 20% |
| • Applicants who received bicycle information | | 13% |
| • Applicants who received incenTrip mobile app | | 9% |
| • Applicants who received telework information | | 7% |

**Commuter Connections Program**
**Program Impact Performance Measures**
**Placement Survey, July-September 2020**

| | | |
|---|---|---|
| • Daily vehicle trips (VT) reduced | **264** | **trips** |
| - Continued placements | 228 | trips |
| - Temporary placements (prorated credit) | 36 | trips |
| • Daily VMT reduced | **6,098** | **VMT** |
| - Continued placements | 5,267 | VMT |
| - Temporary placements (prorated credit) | 831 | VMT |
| • Daily tons of Emissions reduced | | |
| – NOx | **0.0012** | **tons** |
| – VOC | **0.0008** | **tons** |
| • Annual tons of Emissions reduced | | |
| – PM 2.5 | **0.025** | **tons** |
| – PM 2.5 NOx precursors | **0.400** | **tons** |
| – CO2 / Greenhouse gas | **598.4** | **tons** |
| • Gallons of gasoline saved | **326** | **daily gallons of gas** |
| • Commuter costs reduced | | |
| - Annual cost saving per placement | **$301** | **per year** |

## Other Key Survey Results

### Demographics

- Applicants were evenly divided between males (51%) and females (49%). Two-thirds (67%) of applicants were white and 80% were between 35 and 64 years old.

### Commute Travel Patterns

- At the time of the survey, 77% of respondents said they were teleworking three or more days per week; and 65% were teleworking full-time. This high use of telework was related to the coronavirus pandemic, as employers shifted to remote work in the spring of 2020. More than half of all respondents said they expected to continue teleworking when the pandemic ended; 7% expected to continue full-time telework and 50% said they would split their workdays between home and the workplace where they worked prior to the start of the pandemic.
- Respondents who were traveling to a workplace outside their homes at the time of the survey drove alone for 43% of their commute trips. They used transit for about one quarter (26%) of weekly trips, vanpooled for 21% of trips, and carpooled for 7%. Respondents made about 4% of weekly commute trips by bike or walk.
- The average one-way commute distance was 39.2 miles. The average one-way commute time was 54 minutes.

## Commute Changes

- Six in ten (62.1%) survey respondents made a commute pattern change or tried another method of transportation after receiving assistance from Commuter Connections. More than half (37.2%) of these changes were to telework.
- More than four in ten (43.6%) respondents made a change to an alternative mode that they had continued to use at least one day per week. This 43.6% was the "continued placement rate." The temporary placement rate (percent of applicants who made a change but returned to their original modes) was 12.8%.
- About 2.1% of applicants tried using a new alternative mode a few days (one-time placement rate) and 3.6% made a change to a mode they use occasionally, but less than once per week on average (occasional placement rate).
- About one-quarter (24%) of applicants who made a mode change shifted from driving alone. The remaining 76% shifted from one alternative mode to another.
- By far the most common reason that respondents gave for making commute changes was the coronavirus pandemic; 50% said their worksite was closed and they were working remotely. About one in ten applicants made the change to save money (9%), save time (9%), or because they had changed jobs or work hours (9%).
- Fifteen percent 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 6% of respondents cited a carpool or vanpool matching service, 6% named a transit information service, and 4% named Guaranteed Ride Home. One-third (33%) of applicants said a service from their employer or another commute service organization influenced or assisted their change. The most commonly noted services were financial incentives, cited by 15% of applicants who made a change, and vanpool assistance, named by 7%.

## Contact with Commuter Connections

- Applicants noted three primary sources of making contact with Commuter Connections: employer / employee survey (28%), word of mouth referrals (27%), and Internet (17%).
- Four in ten (39%) respondents contacted Commuter Connections to find back-up transportation in case of emergency. Nine percent wanted to check commute options or a transit schedule, 8% wanted to save money, and 8% 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; nearly eight in ten (79%) respondents said they received or accessed this service, which is open to any commuter who uses an alternative mode to commute.
- Fifty-seven percent of respondents said they received or accessed a Commuter Connections service to help with carpooling or vanpooling. One-third (35%) 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, and 13% received vanpool assistance.
- Two-thirds (65%) of respondents who received a matchlist tried to contact someone named on the list and 91% who tried to make contact reached someone on the list.
- One-third (34%) of respondents received some type of information about transit from Commuter Connections. Forty-one percent of these applicants said they used the information provided to contact a transit agency and 88% who contacted a transit agency said they used information they received from the transit agency to try transit.

- Nine in ten (90%) respondents said their employers offered some commute services at the worksite. The most common employer services were telework/compressed schedules and transit pass discounts, noted by 65% and 64% of respondents, respectively. Other common services included carpool/vanpool preferential parking (29%), carpool/vanpool information (26%), vanpool subsidies (22%), transit schedule information (20%), other cash incentive (19%), and matchlist (19%).

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# 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 every three years. 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 2017, 2014, 2011, 2008, 2005, 2004, 2003, and 2002. Results for these surveys were reported in Fiscal Year 2018, 2015, 2012, 2009, 2006, 2005, 2004, and 2003 Placement Survey Reports, respectively, dated (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, 2020. This 3-month assistance timeframe was the same as had been used for previous commuter placement surveys (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 2021-2023 Regional TDM Program Elements evaluation analysis, to be reported in June 2023.

The second population of surveyed applicants included commuters who were participating or who had 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 since the 2017 placement survey and Commuter Connections had not conducted any surveys with applicants in these programs in the past. This "Incentive Applicants" component was added to the placement survey to examine use of and travel impacts of these programs. Data collected from these respondents will be used to estimate impacts of the three incentive programs, as part of the Mass Marketing TDM Program Element analysis.

For consistency with past placement surveys, survey results for these two populations were analyzed separately. But 45 Incentive Applicants had received Commuter Connections services within the 3-month time period for Recent Applicants. These applicants were included in both the recent applicant and incentive applicant analyses.

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, and 2020 surveys.

## 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 2020 survey. Appendix B provides comparisons of 2020 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 2020 survey is shown in Appendix A. It was based on the questionnaire used for the 2017 applicant survey, with minor updates to existing questions to enhance the clarity and flow of the interviews. New questions also were added to examine use of three new Commuter Connections incentive programs, CarpoolNow, Flextime Rewards, and incenTrip. Additional questions also were included to examine changes in use of telework and other modes as a result of the coronavirus pandemic and respondents' likelihood to return to a worksite after the coronavirus pandemic is over.

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 CIC Research, Inc. (CIC), 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, 2020. This assistance timeframe was the same as had been used for previous placement surveys (2017, 2014, 2011, 2008, and 2005) and Recent Applicants were the priority focus for the survey.

In past surveys, 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 during July through September 2020 were dramatically lower than in the past; only 2,166 applicants had requested/received assistance during these months. Thus, the targeted number of completed interviews was reduced from the 700 of previous surveys to 295, a total that represented the same percentage of Recent Applicants (13.6%) as had been interviewed in 2017.

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, regardless of when they had registered or used the programs. Commuter Connections had not conducted any surveys with applicants in these programs in the past. This "Incentive Applicants" component was added to the placement survey to examine use of and travel impacts of these programs.

Potential respondents in the two sample groups were identified 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 2020. For initial sampling and interview purposes, commuters who were known to be in both groups were initially assigned to the recent applicant group, but ultimately were included in both groups during the analysis.

CIC 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, 2,166 sample points were available in the recent applicant group and 3,270 in the incentive applicant group. For sampling purposes, applicants were further divided into four sub-groups, based on the type of contact information they provided in the database record.

**Applicants and Completed Interviews by Sample Group**

| Sample Group (by Contact Information) | Recent Applicants – July-Sept 2020 | | Incentive Program Applicants | |
|---|---|---|---|---|
| | Applicants | Completed Interviews | Applicants | Completed Interviews |
| Email Only | 333 | 3 | 1,281 | 10 |
| Email & Telephone | 1,771 | 275 | 1,961 | 135 |
| Telephone Only | 62 | 4 | 8 | 0 |
| Postal Address Only | 0 | 0 | 20 | 0 |
| **Total** | 2,166 | 282 | 3,270 | 145 |

***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 2017 study, with updates for 2020. Each letter referenced the appropriate 2020 survey administration method: either Internet or telephone. Letters were developed for three of the four sub-groups described above:

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

The only option to solicit participate among the Postal Address Only applicants 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, the 20 Postal Address Only applicants were excluded from the survey.

All commuters who had 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 middle of November 2020. For Email Only and Email & Telephone groups, COG sent the letter via email on November 12, 2020, 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 reminder emails. The initial email and three reminders generated a total of 155 completed interviews. To increase the response rate, a fourth and final reminder was sent. It was reworded to note that the survey was administered "only once every three years." The fourth reminder resulted in an additional 28 interviews for a total of 183 interviews from email appeals.

## Interviews

***Internet Interviews*** – The Internet survey was hosted through the Commuter Connections' online system, with support from Mediabeef, from November 12 through December 29, 2020. Both Email Only and Email & Telephone groups (2,104 Recent Applicants and 3,242 Incentive Applicants) were invited to take the interview via Internet using their Commuter Connections' account. Two hundred fifty-one sample points were removed due to email bounce backs, resulting in a final Internet sample frame of 2,021 for the recent applicant group and 3,072 for the incentive applicant group.

At the end of the survey period, Commuter Connections sent the data for the 253 completed Internet interviews to CIC for validity checks and merging with the telephone survey data. Seventy of the 253 initial interviews could not be used because the respondents were not currently employed or did not recall receiving or requesting information from Commuter Connections. This left a total of 183 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 only 70 potential respondents was exhausted at the end of November. This effort resulted in four 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) | Completed Interviews | Internet Interviews | Telephone Interviews |
|---|---|---|---|
| **Recent Applicants** | | | |
| Email Only | 3 | 3 | 0 |
| Email & Telephone | 275 | 109 | 166 |
| Telephone Only | 4 | 0 | 4 |
| **Total** | 282 | 112 | 170 |
| **Incentive Applicants*** | | | |
| Email Only | 10 | 10 | 0 |
| Email & Telephone | 135 | 63 | 32 |
| Telephone Only | 0 | 0 | 0 |
| **Total** | 145 | 73 | 32 |

* 42 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 December 7 to January 9, 2021. If both work and home numbers were available from the applicant record, interviews were first directed to a work telephone number. If the interview could not be completed at the work number, the respondent was called at home. The average length of interview was 21.7 minutes and an average of 3.0 dialing attempts was made for each completed interview.

## Weighting of Survey Data

In past placement surveys, 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 four applicants in the Telephone Only group completed an interview. This count was deemed too small to use as a base for weighting, thus the 2020 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 2,166 for Recent Applicants and 3,270 for Incentive Applicants.

## Statistical Distribution Comparison Between Completed Interviews and Total Applicant Population

A total of 282 interviews were completed from the total of 2,166 Recent Applicants. This represented an overall response rate of 13.0%, slightly less than the 13.6% response rate from the 2017 placement survey. A total of 145 interviews were completed from among the 3,270 Incentive Applicants, for a response rate of 4.4%. 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 282 interviews from a population of 2,166 resulted in a level of confidence of 95% $\pm$ 5.4 for the recent applicant group. For the incentive applicant group, 145 completed interviews from a population of 3,270 resulted in a level of confidence of 95% $\pm$ 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 2020. This survey was conducted to define travel patterns of commuters who applied to the Commuter Connections program to obtain information and assistance with alternative modes and to collect data needed to estimate transportation and air quality benefits of travel changes made by these commuters.

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

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

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

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

Following are summaries of key results from each section of the survey. Percentages presented in the results tables show percentages weighted to the total applicant population for the survey quarter, but each table shows the raw number of respondents (e.g., n =__) who answered the question. Where possible, results from the survey are compared for sub-groups of survey respondents and/or compared with corresponding available data for the general public. Finally, comparisons are made for some questions with results from 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 calculate estimated 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. The majority of respondents lived in Virginia (62%) or Maryland (29%); 6% lived in the District of Columbia. Top home locations in Virginia included: Stafford County (17%), Spotsylvania County (13%), Prince William County (10%), Fairfax County (9%), and Loudoun County (6%). In Maryland, the top home locations were Frederick County (6%) and Montgomery County (5%). Other jurisdictions each accounted for less than 5% of respondents.

Work locations were distributed much differently. Nearly half (47%) of all respondents worked in the District of Columbia. About one-quarter (25%) worked in a Virginia jurisdiction within the COG region and 18% worked in one of the Maryland jurisdictions in the COG region. Top work locations outside the District of Columbia included: Montgomery County, MD (14%), Fairfax County, VA (12%), and Arlington County, VA (10%). About 7% of respondents worked outside the COG region.

**Table 1**
**Distribution by Home and Work Locations**

| State/County | Home Location (n = 282) | Work Location* (n = 282) |
|---|---|---|
| District of Columbia | 6% | 47% |
| Maryland | | |
| – MD counties within COG region | 16% | 18% |
| – MD counties outside COG region | 13% | 3% |
| Virginia | | |
| – VA counties within COG region | 27% | 25% |
| – VA counties outside COG region | 35% | 0% |
| Other | 3% | 7% |

* 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 sex, ethnic group, age, and income. Respondents were evenly divided between males (51%) and females (49%). The remaining demographics are summarized in Table 2 and Figure 1.

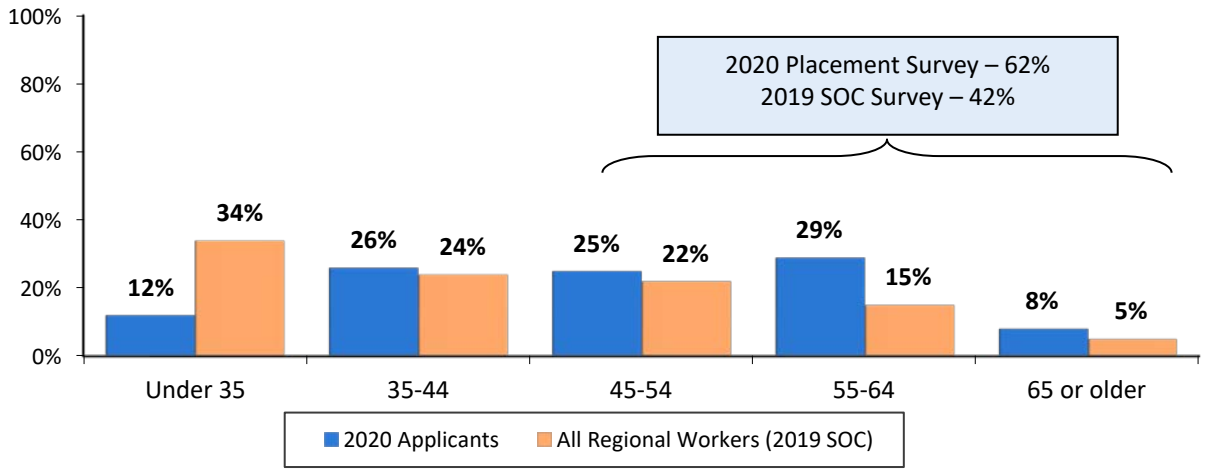
***Ethnic Background*** –As illustrated in Table 3, Non-Hispanic Whites and Non-Hispanic Blacks represented the two largest ethnic group categories of survey respondents, 67% and 19%, respectively. Asians/Pacific Islanders represented 9% of the sample and Hispanics accounted for 4% of respondents.

**Table 2**
**Distribution by Ethnic Background**
(n = 235)

| Ethnic Group | Percentage |
|---|---|
| Non-Hispanic White | 67% |
| Non-Hispanic Black | 19% |
| Asian/Pacific Islander | 9% |
| Hispanic | 4% |
| Other/Mixed | 1% |

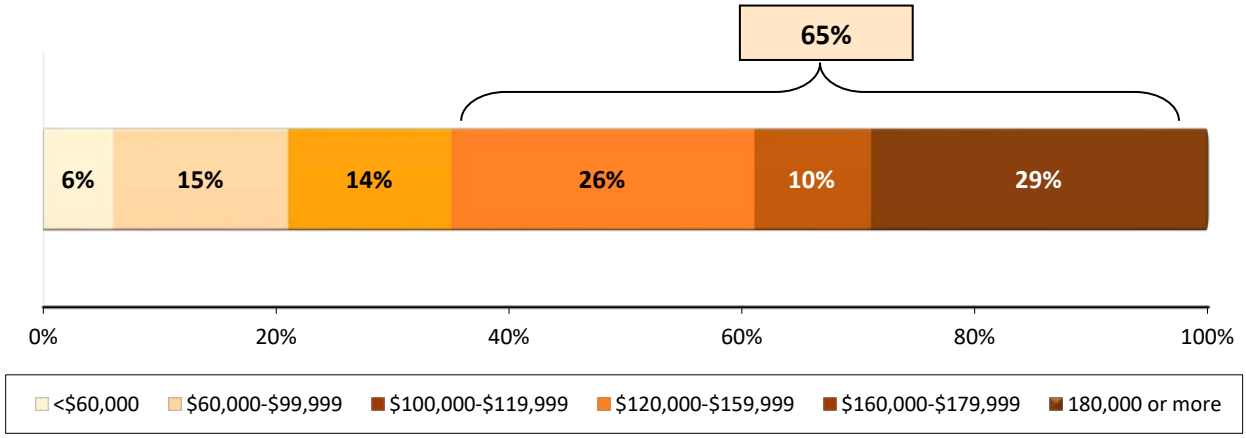
***Age*** – Placement survey respondents were considerably older than the average worker in the Washington region. As shown in Figure 1, 62% of respondents were older than 44, compared with 42% of all Washington area commuters, as estimated in the 2019 State of the Commute Survey.

**Figure 1**
**Distribution by Age**
(2020 Placement Survey n = 278, 2019 SOC Survey for All Regional Workers = 8,149)




***Income*** – Figure 2 presents the distribution of respondents' annual household income. Survey respondents had quite high annual household incomes. Two-thirds (65%) had household incomes of $120,000 or more and 29% had incomes of $180,000 or more.

**Figure 2**
**Annual Household Income**
(n = 238)




## Employment Characteristics

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

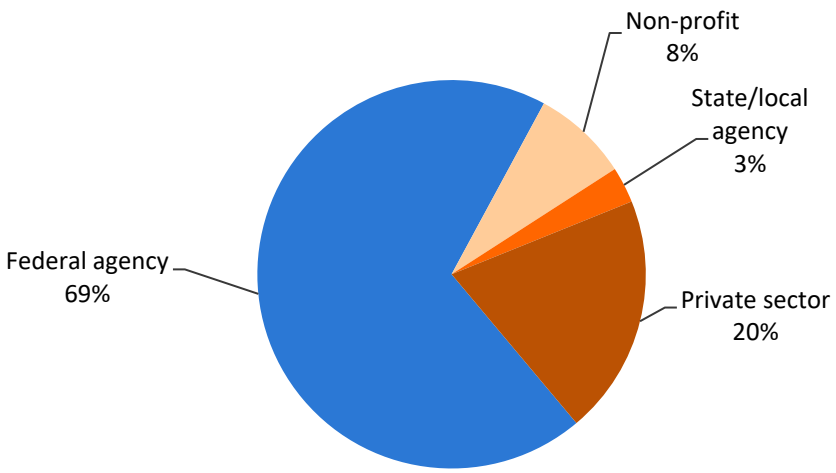
***Employer Size*** – As shown in Table 3, most respondents (86%) worked for employers with more than 100 employees. Six in ten (61%) worked for employers with at least 1,000 employees. Fourteen percent said they worked for organizations with 100 or fewer employees.

**Table 3**
**Distribution by Employer Size**
(n = 275)

| Number of Employees | Percentage | Number of Employees | Percentage |
|---|---|---|---|
| 1-25 | 3% | 101-250 | 11% |
| 26-50 | 6% | 251-999 | 14% |
| 51-100 | 5% | 1,000+ | 61% |

***Employer Type*** – About seven in ten respondents (69%) worked for a federal agency (Figure 3). Two in ten (20%) worked for a private sector employer. State and local government agencies employed 3% and 8% worked for a non-profit organization. The distribution of employer type in the 2020 survey was similar to that from the 2017 survey, in which 66% of respondents worked for Federal agencies, 21% worked for private sector firms, and 9% worked for non-profits.

**Figure 3**
**Distribution by Employer Type**
(n = 278)




**Occupations** – Respondents represented many occupations (Table 4). The most common were business/financial operations (33%), computer/engineering/science (26%), management (14%), and office administration (9%).

**Table 4**
**Distribution by Occupation**
(n = 260)

| Occupation | Percentage |
|---|---|
| Business, financial operations | 33% |
| Computer, architecture/engineering, science | 26% |
| Management occupations | 14% |
| Office administrative support | 9% |
| Legal, community/social services | 6% |
| Military | 5% |
| Healthcare practitioners/support | 3% |
| Protective services | 2% |
| Education, training, library | 2% |
| Other* | 2% |

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

In response to the coronavirus pandemic, the 2020 survey included a new question, asking if the respondent was considered an "essential worker" who was required to travel to a workplace outside the home for work. Slightly more than one-quarter of respondents said they were considered essential; 22% said they worked in a government service occupation, 3% said they worked in a healthcare job, and 2% worked in another essential occupation.

## 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.

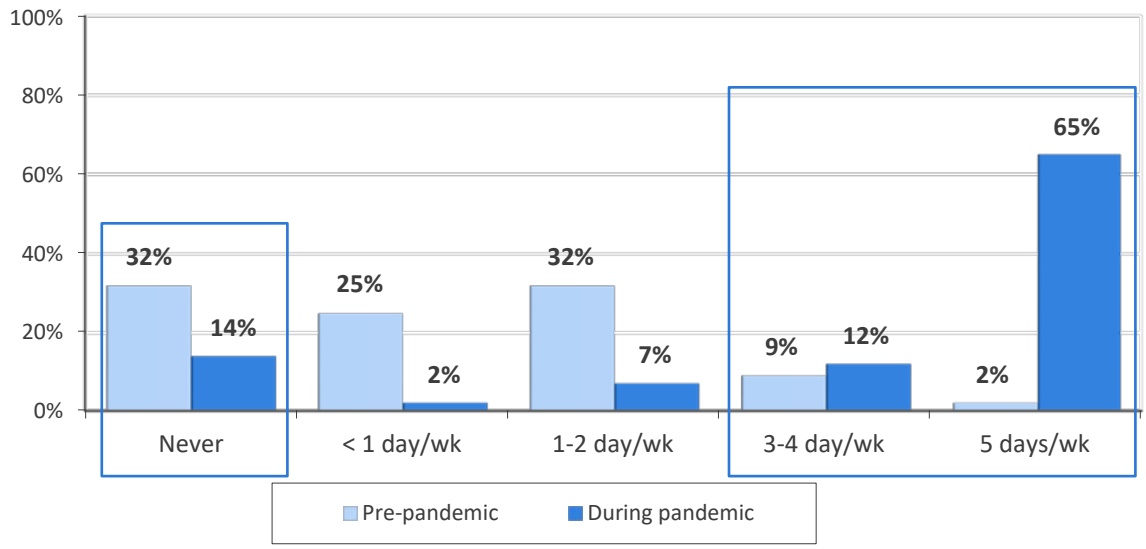
### Current and Pre-pandemic Telework

Because it was anticipated that many respondents would be working remotely, in response to the coronavirus pandemic, the survey first asked how often respondents teleworked at the time of the survey and how often they teleworked in February 2020, before the pandemic began. As illustrated in Figure 4, 77% of respondents were teleworking three or more days per week at the time of the survey and two-thirds (65%) were teleworking full-time. Only 14% were not teleworking at all.

Figure 4 also shows the telework distribution in February 2020, before the pandemic began. While many respondents had teleworked some days before the pandemic, frequent telework was far less common. About one in ten respondents teleworked three or more days per week and just 2% teleworked full-time. One-third of respondents did not telework at all before the pandemic.

Respondents who teleworked at least some workdays before the pandemic reported higher telework use during the pandemic; among respondents who teleworked in February 2020, 86% were teleworking at least 3 days per week at the time of the survey. But respondents who did not telework at all in February also reported increased telework use; 72% were teleworking at least one day per week and 56% were teleworking three or more days per week.

**Figure 4**
**Telework During the Pandemic and Pre-pandemic**
(During pandemic n = 281, Pre-pandemic n = 276)



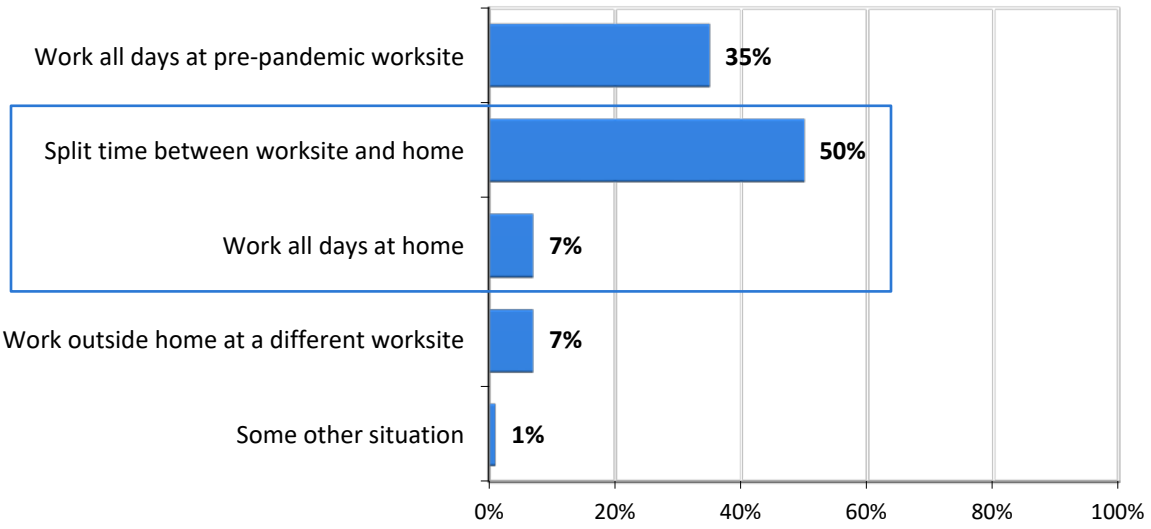

***Likelihood to Telework After Pandemic Ends*** – To anticipate how much the new teleworking would continue after the pandemic, all respondents were asked the following question:

> *"Think now of the physical location where you worked in February 2020, before the pandemic began. Is this where you expect to work once the coronavirus pandemic is over?"*

Only 35% said they would return to work all their workdays at the pre-pandemic location (Figure 5). More than half of respondents expected to continue some telework after the pandemic is over. Seven percent expected to continue working at home full-time and 50% said they would split their workdays between home and their previous worksite. Seven percent said they would be working outside the home, but at a different worksite than before the pandemic; this suggests some respondents changed jobs or work locations since the pandemic began.

Respondents' likely future telework use was related to their pre-pandemic telework frequency. Respondents who did not telework or who teleworked only occasionally prior to the pandemic were more likely to report that they would return to their February 2020 work location when the pandemic was over. Two-thirds (66%) of respondents who did not telework at all before the pandemic and 36% who teleworked less than one day per week in February 2020 expected to return to their previous work location. Among those who teleworked one or more days per week prior to the pandemic, only 11% expected to work all their workdays at the February 2020 work location; 71% expected to split their time between home and the worksite and 12% expected to work at home full-time.

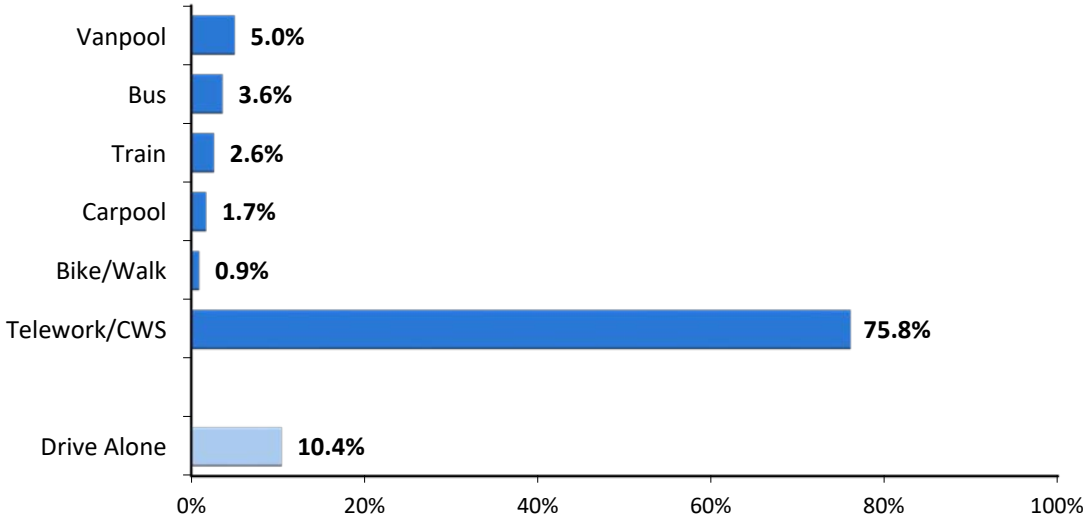
**Figure 5**
**Likely Work Location After Pandemic Ends**
(n = 274)




## 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 6 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.

**Figure 6**
**Weekly Commute Trips by Modes**
(n = 282)



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

As is clear from Figure 5, the most prominent mode was telework/CWS. Three-quarters (75%) of weekly commute days/trips were eliminated by telework. Compressed schedules accounted for less than one percent of trips reduced; about two in ten (18%) respondents worked a compressed schedule, but nearly all worked a 9/80 schedule, with one CWS day off every two weeks, so CWS eliminated only a small number of weekly trips.

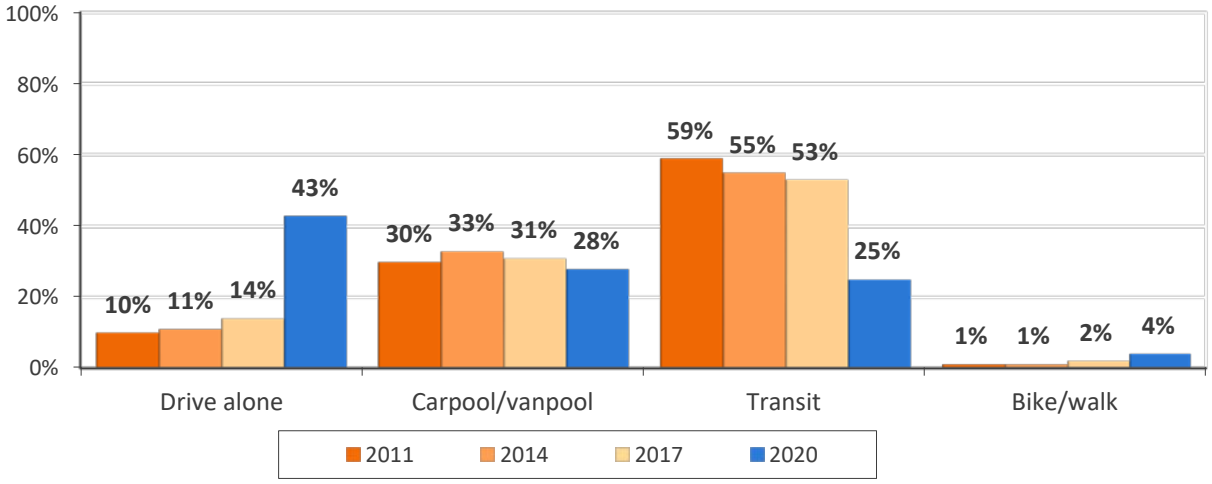
Driving alone accounted for about one in ten weekly trips. The remaining commute trips were divided among alternative modes: 5.0% vanpool, 3.6% bus, 2.6% train, 1.7% carpool, and 0.9% bike or walk.

If the telework and compressed schedule days off are excluded, to estimate the "on the road" mode share, the percentage use of each of the six travel modes increases. Without telework and CWS, the alternative mode share would rise to 57.0% of weekly commute trips. The weekly commute trip distribution would be:

- Vanpool 20.7%
- Bus 15.0%
- Train 10.5%
- Carpool 7.2%
- Bike/walk 3.6%
- Drive alone 43.0%

Mode Split Trends 2011 to 2020 – 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 was presented in Figure 6, the telework share of weekly trips in the 2020 survey was 75%, an extraordinary figure when compared with the percentages of previous surveys. The high telework share in 2020 was the result of workers shifting to remote work/telework during the coronavirus pandemic. While this was, in fact, the travel pattern at the time of the survey, it would present a very skewed view if compared with the mode split for previous placement surveys. For this reason, the mode split distribution trends presented in Figure 7 for 2020 and the previous three surveys exclude telework from the base; the percentages shown are for the commute trips that respondents actually made to a worksite outside their homes.

**Figure 7**
**Weekly Commute Trips by Modes (Excluding Telework/CWS) – 2011, 2014, 2017, and 2020**
(2011 n = 863, 2014 n = 690, 2017 n = 704, 2020 n = 99)



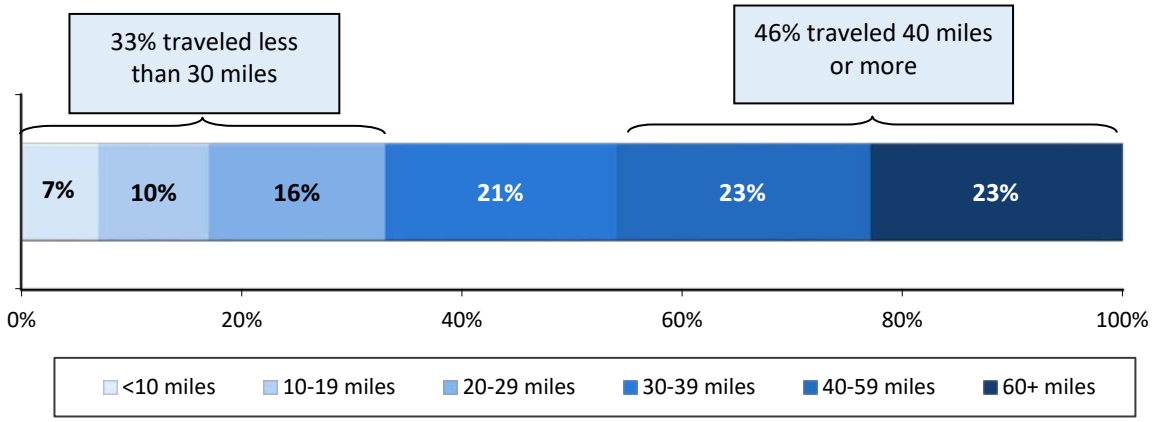
Even with telework excluded, Figure 7 shows two notable mode use changes in 2020; an increase in driving alone and a decrease in transit use. In the 2020 survey, 43% of weekly non-telework commute trips were made by driving alone, compared with about one in ten trips for each of the three previous surveys (10%, 11%, 14%). The other substantial change was in transit use, which fell from just over half of weekly commute trips in 2011 (59%), 2014 (55%), and 2017 (53%) to only 25% in 2020. The other interesting finding was that carpool/vanpool and bike/walk use remained about the same as had been measured in 2011, 2014, and 2017. Carpool/vanpool remained at about three in ten weekly trips; bike/walk accounted for a small share (4%), compared with similar 1% to 2% previously.

## Commute Distance and Time, Arrival Time at Work

***Commute Distance*** – Respondents had a wide range of commute distances, ranging from one mile to 91 miles. The average one-way distance was 39.2 miles. This was somewhat more than the 35.1 miles reported in the 2017 survey and the 36.2 miles reported in the 2014 survey, but more than twice the 17.1 mile average travel distance of all regional commuters, as estimated in the 2019 State of the Commute survey. Note that respondents who teleworked full-time were not asked about their travel distance or travel time, so the sample sizes for these questions were much smaller than in previous surveys.

Figure 8 presents the distribution of respondents by distance categories. Seven percent of respondents traveled fewer than 10 miles to work and 33% commuted less than 30 miles. Forty-six percent commuted 40 or more miles.

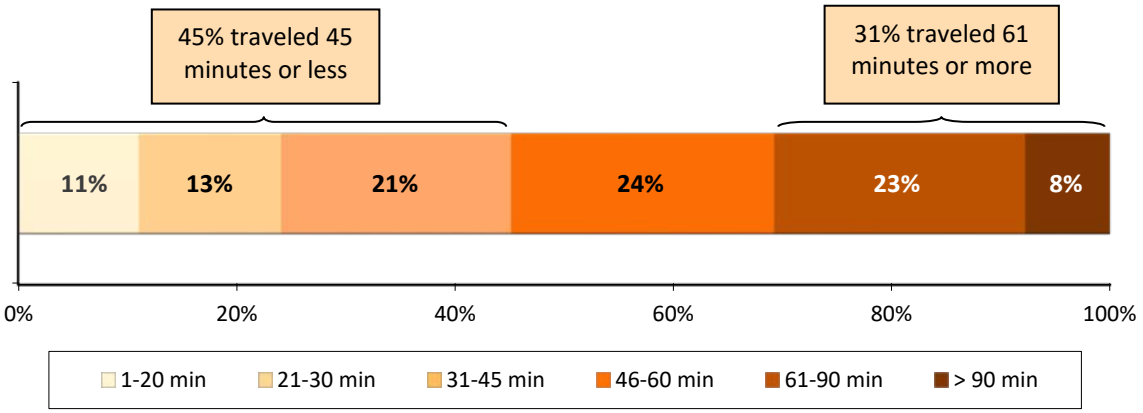
**Figure 8**
**Commute Distance (miles)**
(n = 82)




***Commute Travel Time*** – Respondents' one-way commute travel time ranged from five minutes to more than two hours. The average of 54 minutes was a full 12 minutes less than the 66-minute duration observed in the 2017 survey, despite the longer average travel distance in 2020 than in 2017. This likely reflects the lower volume of traffic during peak periods, as a large share of commuters worked remotely in 2020. Commute time for survey respondents was longer than that for the general public; the average commute time for all commuters in the region was 43 minutes, as reported in the 2019 State of the Commute survey.

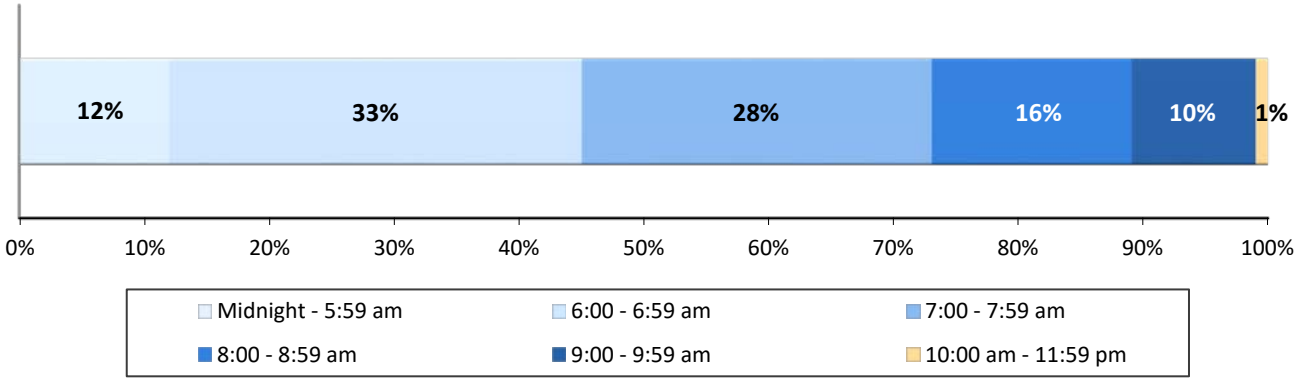
Nearly half (45%) of respondents said they traveled 45 minutes or less to work and 31% traveled more than one hour one-way (Figure 9). This was nearly the reverse of the distribution in 2017; in 2017, 29% traveled 45 minutes or less and 45% traveled more than one hour.

**Figure 9**
**Commute Time (minutes)**
(n = 86)




***Arrival Time at Work*** – Survey respondents typically arrived at work quite early in the day (Figure 10). Seventy-three percent typically arrived at work before 8:00 am and 45% arrived before 7:00 am. Sixteen percent arrived between 8:00 am and 8:59 am and 11% 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 10**
**Arrival Time at Work**
(n = 90)




## Current Alternative Mode Characteristics

The second part of the survey collected data on occupancy and composition of carpools and vanpools and explored how carpoolers, vanpoolers, and transit riders accessed these commute modes. Due to both the lower overall sample (282 versus 700 for previous surveys) and smaller share of respondents who commuted to a worksite, the absolute counts of respondents who were asked follow-up questions on alternative mode use were considerably lower than in 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

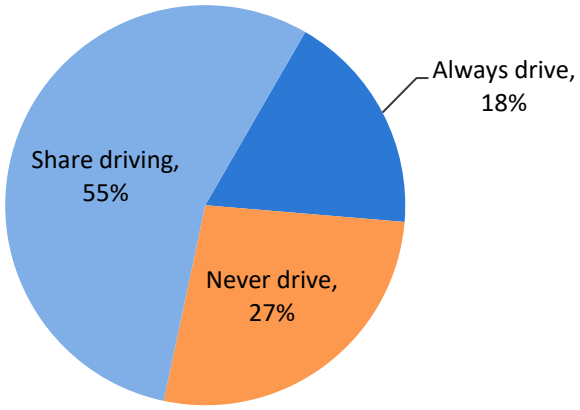
Twenty-one survey respondents said they rode in a carpool or vanpool at least one day per week. Carpools had an average size of 3.4 occupants, including the driver. Vanpool occupancy was on average 8.1, including the driver. The carpool occupancy was not statistically different from the 3.0 occupant number from the 2017 survey. The vanpool occupancy also was essentially the same as in the 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. Half (48%) of the respondents who carpooled or vanpooled traveled with at least one co-worker. By contrast, only 10% said they rode with a family or household member. This is not unexpected, as commuters who can carpool with family members are less likely to need Commuter Connections to find a carpool partner. None of the carpool/vanpool respondents said they had counted a child under the age of 16 as a carpool/vanpool rider.

More than half (55%) of carpoolers and vanpoolers shared driving with their pool partners, for example alternating days or weeks of driving the carpool (Figure 11). One-quarter (27%) said they never drove. This was primarily the response among vanpoolers and casual carpoolers. The remaining 18% said they always drove.

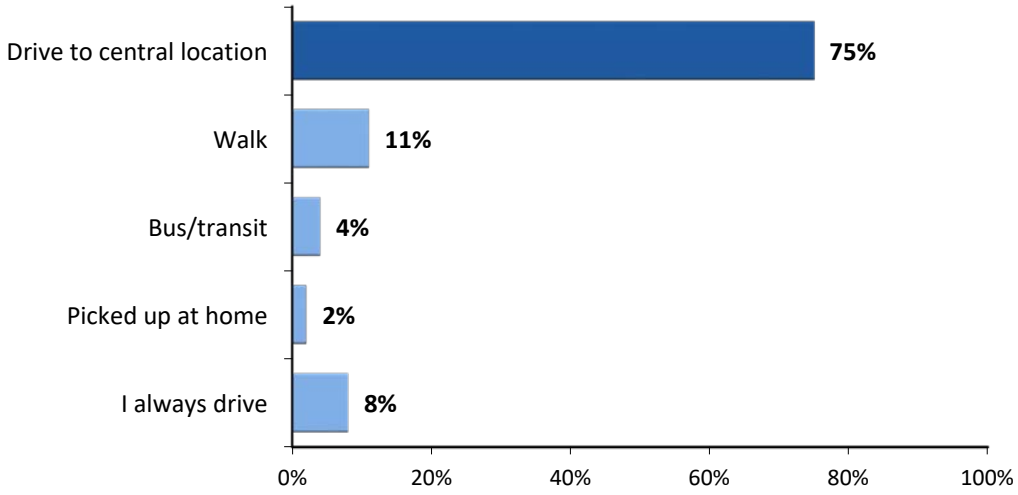
**Figure 11**
**Driving Frequency of Carpoolers/Vanpoolers**
(n = 22)




## Access to Carpools, Vanpools, and Transit

Forty-nine respondents used a carpool, vanpool, bus, or train at least one day per week for commuting. Figure 12 presents the types of transportation these respondents used to get to where they met their pool partners or started their transit trip. One in ten (11%) walked to the meeting point, but three-quarters drove to a central meeting location and left their cars at this location for the day. This is significant to the calculation of air quality impacts, because a large proportion of auto emissions are produced during the first few miles of a vehicle trip, when the engine is cold. (For details on calculating emissions reductions, refer to "Transportation Demand Management (TDM) Program Elements Revised Evaluation Framework – FY2018 – FY2020" (March 19, 2019). Even though these trips tend to be short, an average of just 6.5 miles, these trips must be accounted for in an air quality analysis.

**Figure 12**
**Access Mode to Alternative Mode Meeting Place**
(n = 49)




## 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 a new alternative mode (carpool, vanpool, bus, Metrorail, commuter rail, bicycle, 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:

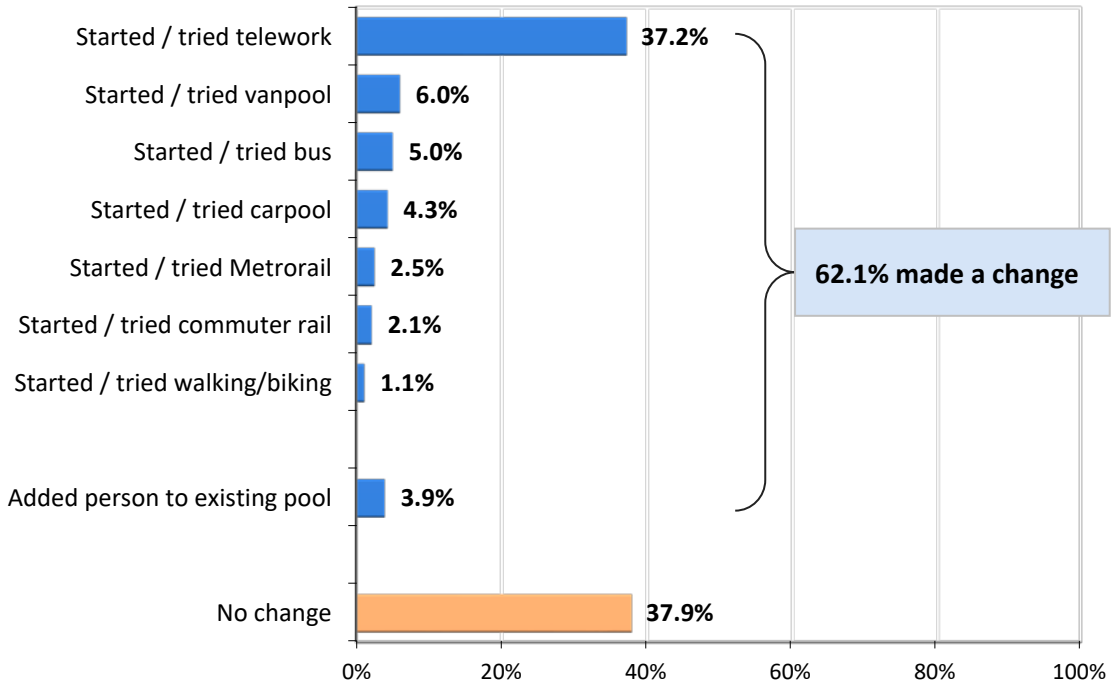
- Continued – respondent made a change and was still using the new mode at the time of the survey
- Occasional – respondent made a change and was still using the new mode, but used the alternative mode less than one time per week
- Temporary – respondent made a change, but stopped using the new mode 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 cannot be counted toward long-term reduction in vehicle trips, VMT, or emissions. Occasional and one-time shifts also are reported separately because their contribution to vehicle trips, VMT, and emissions is very minor.

## Types of Changes Made

More than six in ten (62.1%) respondents reported some type of alternative mode change after receiving Commuter Connections' assistance (Figure 13). By far, the largest segment started or tried telework; 37.2% of respondents reported this change. About one in ten started or tried vanpooling (6.0%) or carpooling (4.3%) and 3.9% said they were carpooling or vanpooling before requesting information from Commuter Connections, but added another person to their existing pools. One in ten made a change to a transit mode (Bus – 5.0%, Metrorail – 2.5%, Commuter rail – 2.1%) and 1.1% indicated a change to bike or walk.

**Figure 13**
**Commute Changes Made After Receiving Commuter Connections Services**
(n = 282)



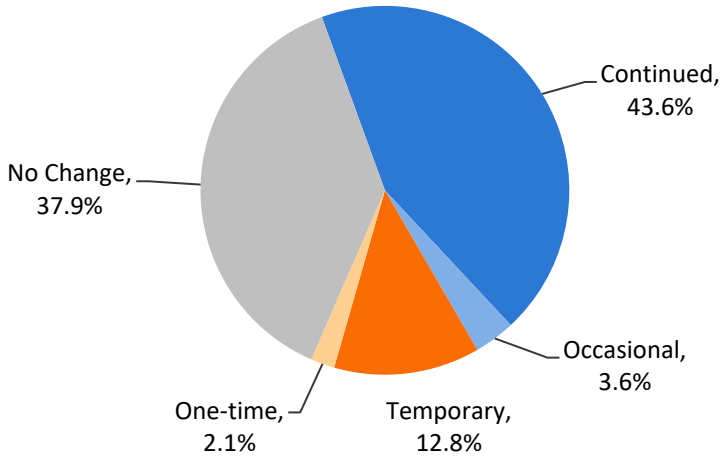

The overall percentage of respondents with a commute change was higher in 2020 (62.1%) than in 2017 (49.9%). As shown below, the distribution of changes by mode also was notably different in 2020, with telework changes being well above the level in 2017 and changes to rideshare and transit modes being much lower than in 2017

| | 2020 | 2017 | 2020 vs 2017 |
|---|---|---|---|
| • Telework change | 37.2% | 7.8% | + 29.4% |
| • Carpool/vanpool change | 14.2% | 21.8% | - 7.6% |
| • Transit change | 9.6% | 19.3% | - 9.7% |
| • Bike/walk change | 1.1% | 1.0% | + 0.1% |
| **Total changes** | **62.1%** | **49.9%** | **+ 12.3%** |

## 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 14 presents the distribution of change types, including "no change" as one change option.

**Figure 14**
**Distribution of Continued, Occasional, Temporary, and One-time Changes - "Placement Rates"**
(n = 282)




More than four in ten (43.6%) of all respondents made a change to a mode they were still using at least one day per week; these respondents made ***continued changes***. About 3.6% made a change to a mode they were using ***occasionally***, defined as less than once per week. One in ten (12.8%) 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 10.6 weeks. Finally, 2.1% of respondents tried a new mode for less than one week. These respondents were classified as ***one-time changes***. The remaining 37.9% 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 impact 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).[2] 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. Forty-five percent of respondents lived and worked in the NAA; 55% either lived or worked outside the NAA.

2 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).

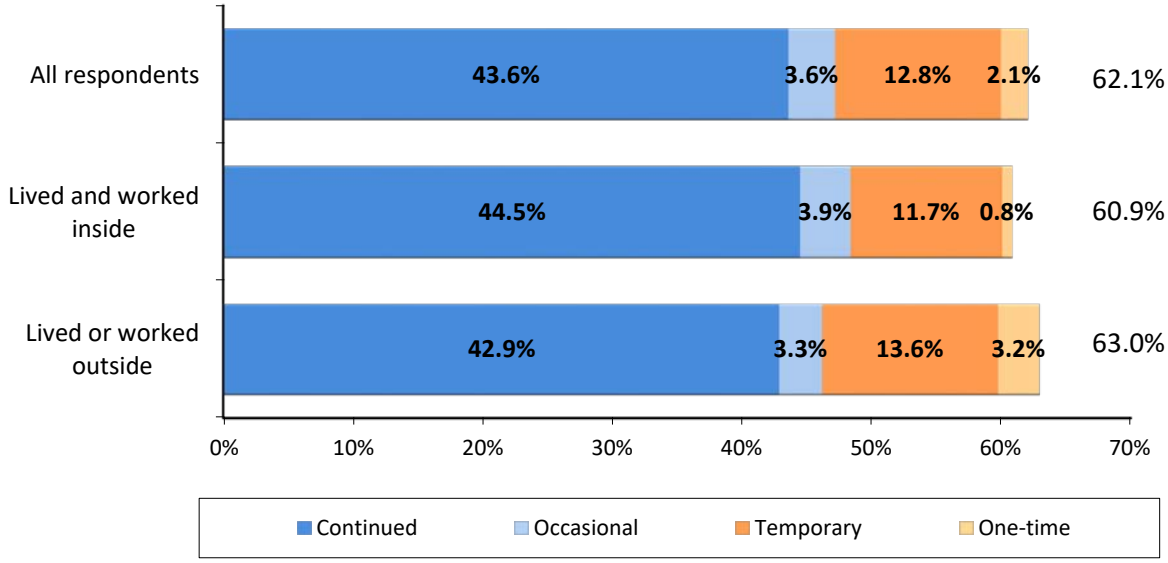
This distinction was made because respondents who lived or worked outside the NAA traveled a portion of their VMT outside the area. The VMT for these "out of area" respondents was discounted to credit VMT reduction only for the portion that occurred within the NAA.

Figure 15 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.

**Figure 15**
**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 = 282, Lived and worked inside NAA n = 128, Lived or worked outside NAA n = 154)



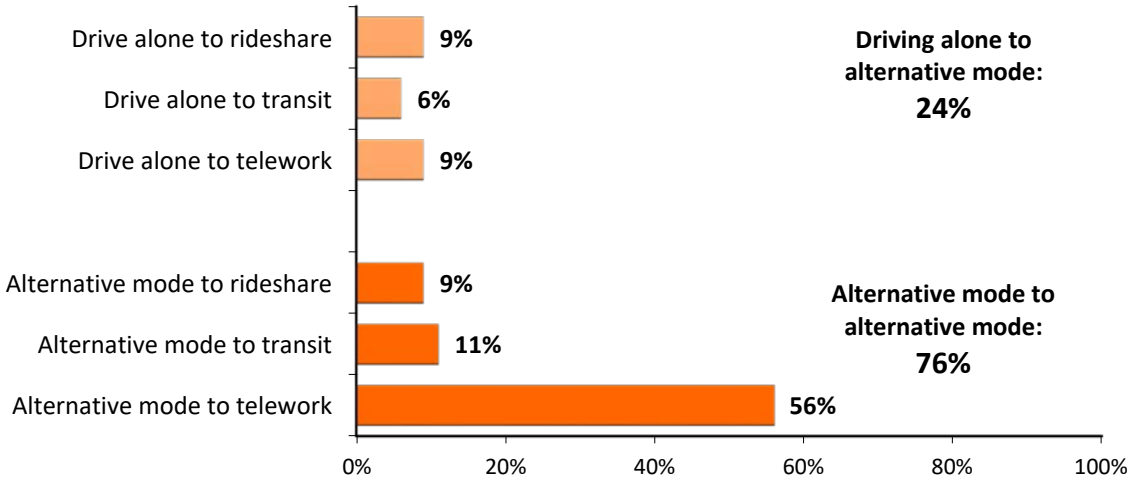

The overall placement rate was slightly higher for the "out of area" respondents (63.0%) than for respondents who both lived and worked in the NAA (60.9%). But respondents who lived and worked in the NAA were slightly more likely to report a continued placement (44.5%) than were those who lived or worked outside the NAA (42.9%). The higher overall placement rate for respondents who lived or worked outside the NAA resulted from their higher temporary and one-time rates, when compared with those who both lived and worked in the NAA.

## Previous Mode of Commuter Who Changed Mode

Some respondents who made a mode change shifted from driving alone, but others shifted from one alternative mode to another. One-quarter (24%) of respondents who made a change shifted from driving alone to an alternative mode (Figure 16). 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 76% of respondents were previously using an alternative mode and made a change from one alternative mode to another, for example, from carpool to vanpool, from bus to train, or from vanpool to train.

Shifts from alternative modes to telework accounted for more than half (56%) of the total shifts. This reflected the typically high use of alternative modes among Commuter Connections respondents and the large share of respondents who reported starting or increasing their use of telework during the coronavirus pandemic.

**Figure 16**
**Types of Mode Changes of Respondents Who Made Mode Changes**
(n = 160)




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, actually 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). The overriding reason was the coronavirus pandemic; 50% said their worksite had closed so they were working remotely. This is consistent with the results of Figure 13, which reported that 37% of all respondents said they had made a change to teleworking.

**Table 5**
**Reasons for Commute Change**
(n = 149, multiple responses permitted)

| Reason for commute change | Percentage |
|---|---|
| - Coronavirus pandemic/work location closed | 50% |
| - Save time | 9% |
| - Changed job/work hours | 9% |
| - Save money | 7% |
| - Tired of driving | 5% |
| - Reduce congestion/pollution | 5% |
| - Carpool broke up/didn't work | 3% |
| - Received vanpool assistance | 3% |
| - Use HOV lane | 3% |

About one in ten respondents made the change to save time (9%) or because they had changed jobs or work hours (9%). Other respondents said they wanted to save money (7%), were tired of driving (5%), or that they wanted to reduce congestion or pollution (5%). Small percentages of respondents made the change when their carpool broke up (3%), when they received vanpool assistance (3%), or to be eligible to use HOV/Express lanes (3%).

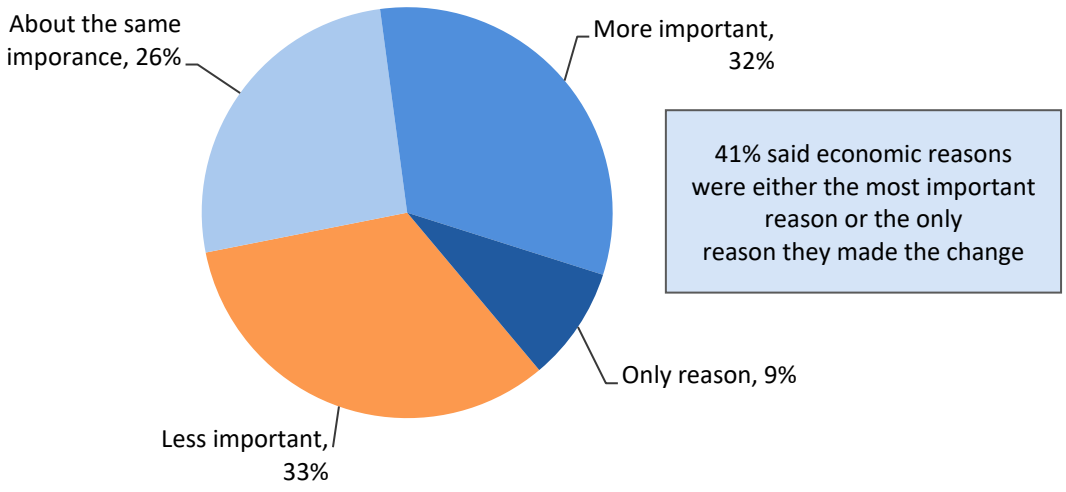
***Importance of Commute Services on Decision to Make Change*** – Respondents who made a change also were asked if their decision to make the change was influenced or assisted by any information or service they received from Commuter Connections, from another commute service organization, or from their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

Fifteen percent of respondents who made a change cited a Commuter Connections service that influenced or assisted them. About 6% of respondents cited a carpool or vanpool matching or assistance service, 6% named a transit information service, and 4% named Guaranteed Ride Home. Two percent named another type of service. The 15% figure who reported receiving a influential service in 2020 was lower than in 2017 (26%). This 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.

One-third (33%) of respondents said a service from their employer or another commute service organization influenced or assisted their change. This also was a drop from 2017, when 41% reported receiving a service that assisted them. The services noted most frequently in 2020 were financial incentives, cited by 15% of respondents who made a change, and vanpool assistance, named by 7%.

***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, were in motivating the change. Nine percent of respondents who made a change said economic reasons were the only reason they made the change and 32% said economic reasons were more important than other reasons (Figure 17). Twenty-six percent said economic reasons were about the same importance as other motivating influences and 33% said they were less important.

**Figure 17**
**Importance of Economic Reasons in Motivating Travel Changes**
(n = 151)



## Contact with Commuter Connections and Services Received

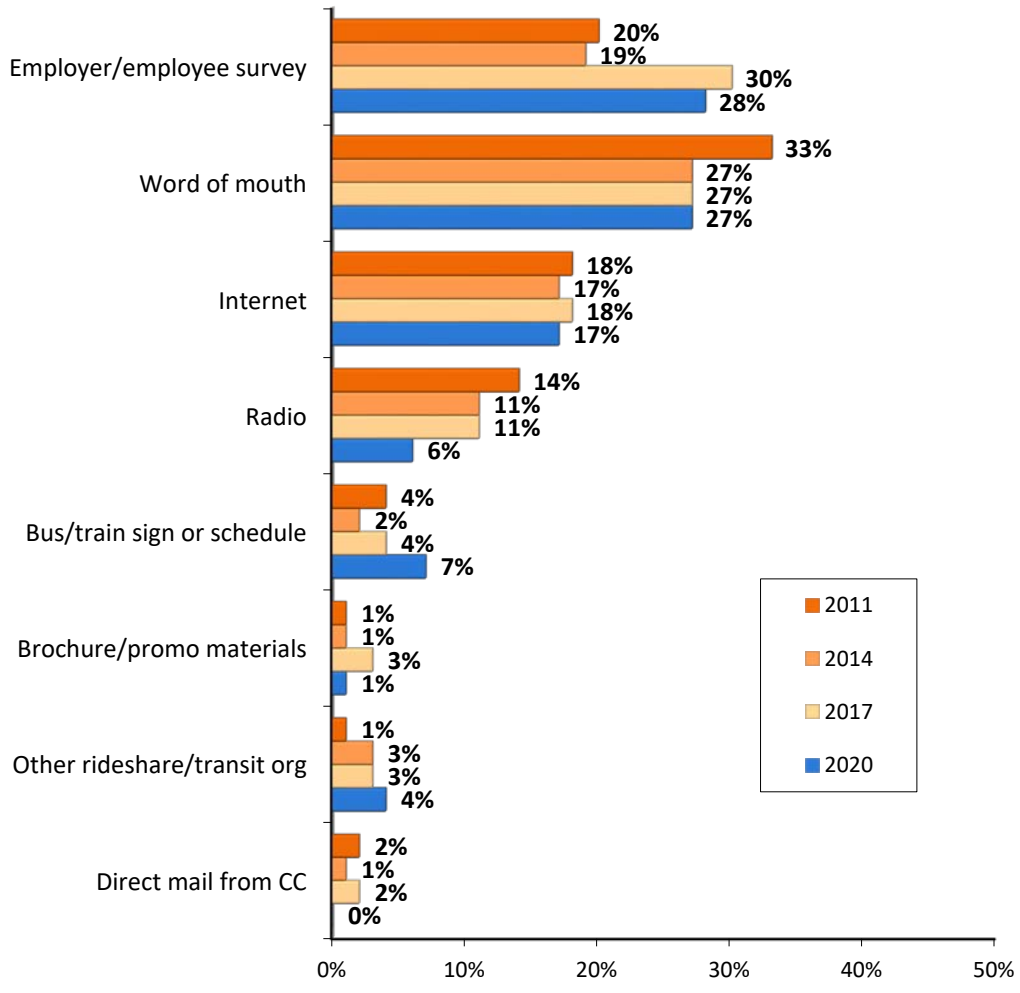
The survey asked respondents several questions related to the details of their contact with Commuter Connections and services they received. The following section of the report presents results to these questions, including:

- 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 18 presents the primary sources of information cited by respondents in 2020 and the three previous respondent surveys. Three sources dominated in 2020: employer/employee survey (28%), word of mouth referrals (27%), and internet (17%).

**Figure 18**
**How Respondents Learned of Commuter Connections – 2011, 2014, 2017 and 2020**
(Note: scale extends only to 50% to highlight differences)
(2011 n = 892, 2014 n = 600, 2017 n = 537, 2020 n = 254; multiple responses permitted)

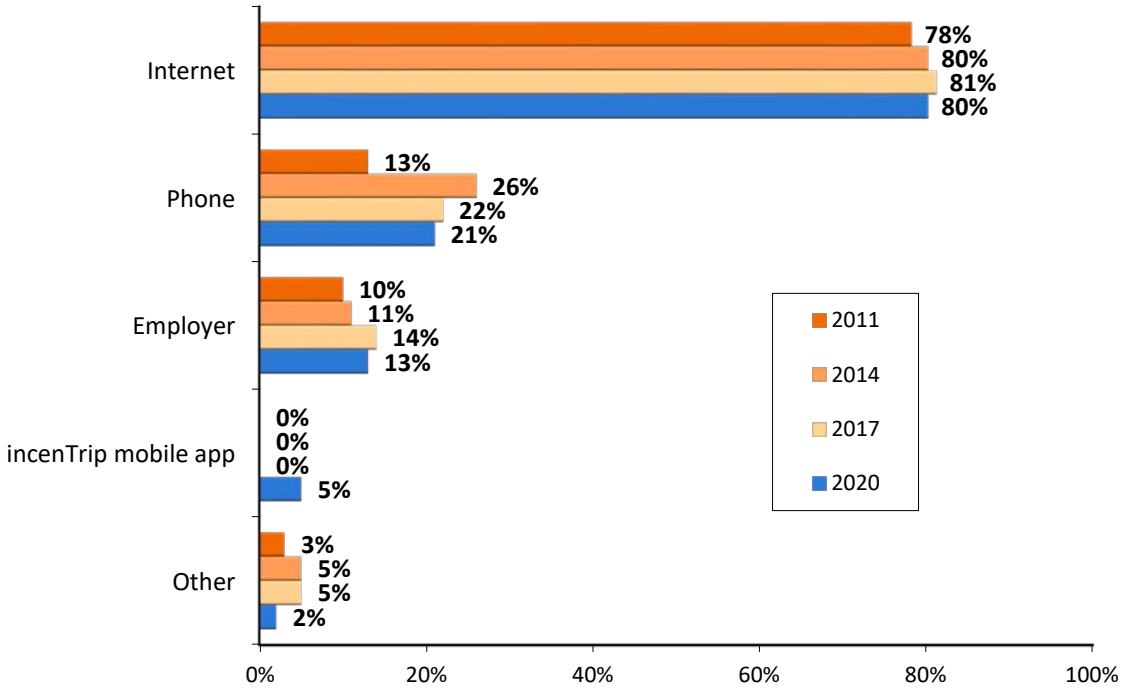


These also were the top reasons in the previous surveys, although the relative use of the sources has changed somewhat since 2011. Employer/employee survey has grown as a source, with a particular increase evident in the 2017 survey. Reliance on the radio as an information source has fallen since 2011, when it was named by 14% 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.

## Methods Used to Contact Commuter Connections

Commuters can contact Commuter Connections in a variety of methods. In 2020, 80% of respondents made this contact through the Commuter Connections web page or another web site on the Internet (Figure 19). 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 was cited in 2020; 5% of respondents made the contact to Commuter Connections through the incenTrip mobile application. This program was introduced in 2018, so 2020 is the first survey year that it was available.

**Figure 19**
**How Respondents Contacted Commuter Connections – 2011, 2014, 2017 and 2020**
(2011 n = 872, 2014 n = 688, 2017 n = 670, 2020 n = 276; multiple responses permitted)




## Reasons for Seeking Assistance

Respondents were asked what prompted them to seek information or assistance from Commuter Connections at that time. Almost four in ten (39%) wanted to find back-up transportation in case of emergency (Table 6). Nine percent wanted to check commute options or a transit schedule, 8% wanted to save money, and 8% were tired of driving and wanted to find another travel option. Six percent made the contact to find a carpool or vanpool partner or to get information about these modes, 6% changed jobs or moved to a new home, and 6% wanted to find an option that would save travel time. Four percent said they could receive a financial incentive for transit or vanpooling.

**Table 6**
**Reasons for Seeking Information**

| Reasons | Percentage (n = 254) |
|---|---|
| In case of emergencies, wanted back up transportation, GRH | 39% |
| Check commute options/schedule, get general commute information | 9% |
| Save money | 8% |
| Did not want to drive, tired of driving, traffic is worse | 8% |
| Wanted to carpool or vanpool, get carpool/vanpool information | 6% |
| Changed jobs/work schedule, moved to new residence | 6% |
| Save time | 6% |
| Receive financial incentive for transit/vanpool | 4% |
| Other* | 13% |

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

## 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 2020 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 20 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.

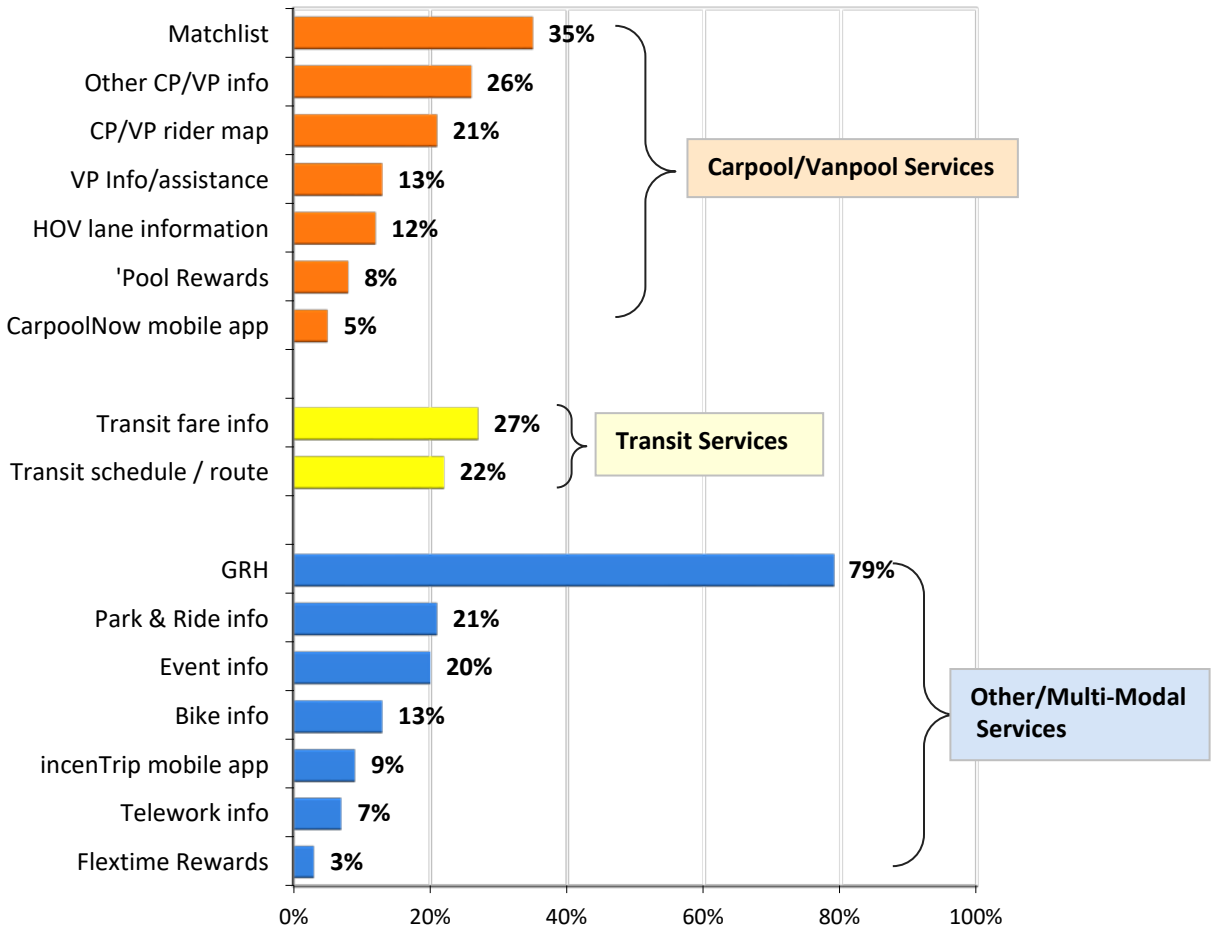
***Carpool/Vanpool Services*** – Nearly six in ten (57%) respondents received or accessed one or more Carpool/Vanpool services; some of these respondents received more than one of these services. More than one-third (35%) received a matchlist with names and contact information for potential carpool/vanpool partners, 21% received a map showing home and work locations of potential carpool/vanpool partner, 13% obtained vanpool assistance, 12% obtained information on HOV lanes, and 26% received other carpool/vanpool information.

***Transit-Related Services*** – One-third (34%) of respondents received some type of information about transit from Commuter Connections. Twenty-seven percent received information about transit fares or the SmarTrip fare payment system and 22% obtained transit route or schedule information. 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; nearly eight in ten (79%) respondents received or accessed this multi-modal service, which is open to any commuter who uses an alternative mode to commute. Two in ten respondents obtained Park & Ride lot information (21%) and 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.

One in ten (13%) respondents accessed bicycle information and 7% obtained telework information. Two other Commuter Connections services were included in the survey list for the first time in 2020. These were the two commuter incentive programs; incenTrip trip tracking mobile application was cited by 9% and 3% 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.

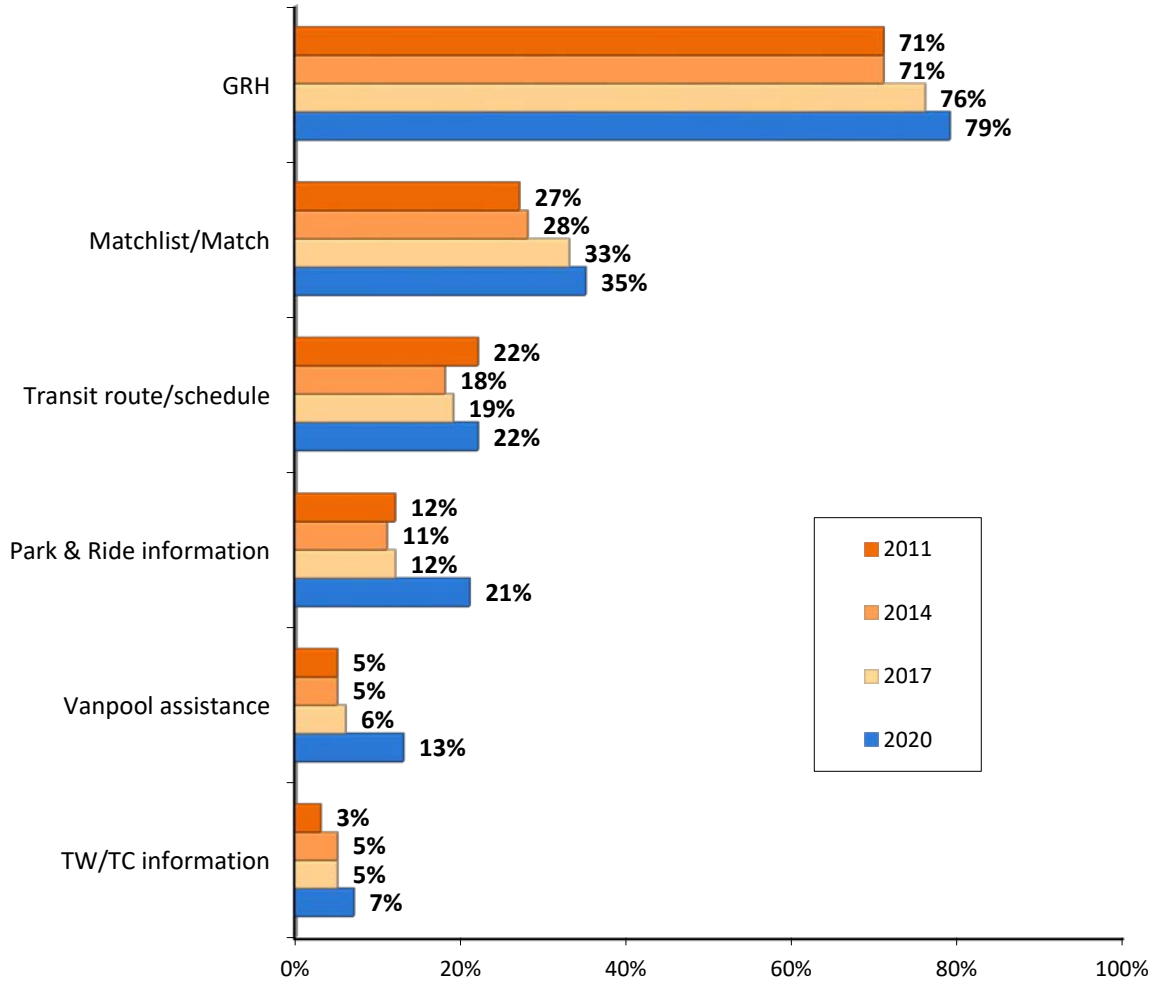
**Figure 20**
**Information Received or Accessed from Commuter Connections**
(n = 282, multiple responses permitted)




***Comparison of Services Received in 2020 to Services Received in Previous Years*** – Figure 21 shows the percentages of respondents who received various services in 2020 compared to the percentages noted in the three previous applicant surveys. Guaranteed Ride Home continued to be a popular Commuter Connections service. In 2011, 71% of respondents received this service; in 2020, 79% of respondents received this service. The share of respondents who received matchlists/matching information appears to be growing in popularity, from 27% in 2011 to 35% in 2020.

Respondents' interest in Park & Ride lot information and vanpool assistance also increased notably in 2020. However, this could be a reflection of unique travel needs among the small share of survey respondents who were still traveling to an outside work location and might not indicate an overall increase in the use of these services among the broader Commuter Connections applicant population. The shares of respondents who received transit information and telework information were not substantially different than in past years.

**Figure 21**
**Information Received or Accessed from Commuter Connections – 2011, 2014, 2017, 2020**
(2011 n = 892, 2014 n = 697, 2017 n = 682, 2020 n = 282; multiple responses permitted)

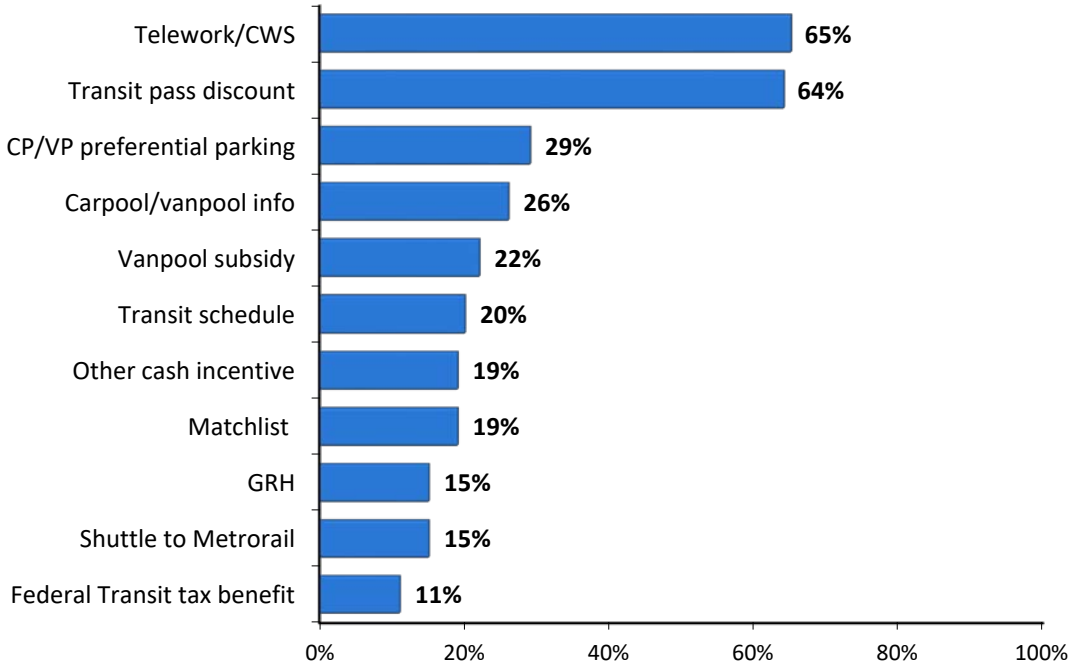



## Assistance Offered by Employers

Respondents also were asked if their employers offered commute assistance services. Nine in ten (90%) respondents said their employers did offer some services. Figure 22 lists individual services noted by respondents.

The most common employer services were telework/compressed schedules and transit pass discounts, noted by 65% and 64% of respondents, respectively, More than one-quarter had access to carpool/vanpool preferential parking (29%) and carpool/vanpool information. About two in ten mentioned vanpool subsidies (22%), transit schedule information (20%), other cash incentive (19%), and matchlist (19%). Fifteen percent said their employer provided GRH or a shuttle to Metrorail, and 11% said they had access to a Federal Transit tax benefit.

**Figure 22**
**Commuter Assistance Services Offered by Employers**
(n = 278, 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 9% 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

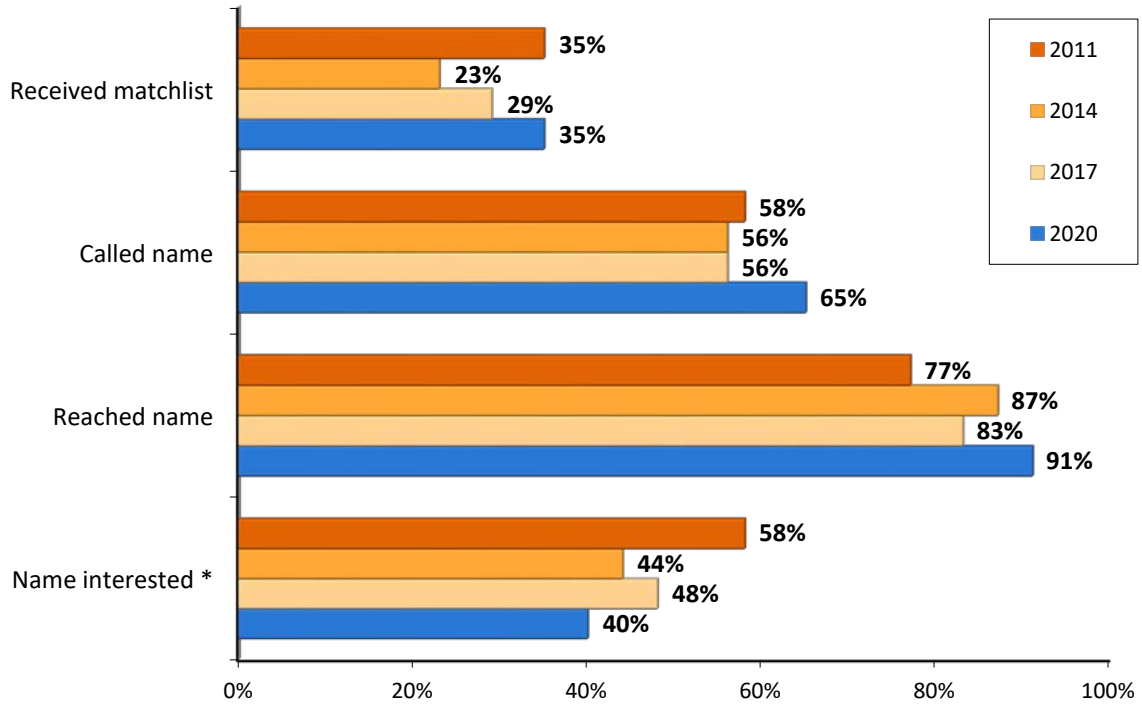
### Use of Matchlist Information

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 23. As noted earlier, the share of respondents who received matchnames has fluctuated since 2011, but respondents who received a matchlist in 2020 were as likely to use the list as were respondents surveyed in previous years.

***Tried to Make Contact*** – Two-thirds (65%) of respondents who received a matchlist in 2020 tried to contact someone on the list, slightly higher than the percentages who tried to make contact in previous survey years. The remaining 35% of respondents did not try to make contact. A primary reason for not contacting people on the list was the people were not considered compatible partners; they either had "work hours not compatible with mine" (30%) or "work or home location not compatible with mine" (16%). One in ten (8%) respondents who did not try to make contact said they already had found an alternative mode arrangement by the time they received the list and 27% decided they did not want to carpool or vanpool. One in ten (11%) said they "haven't gotten around to it" and 14% said the coronavirus pandemic had changed their interest or need to carpool.

**Figure 23**
**Actions Taken by Respondents Who Received Matchnames**

(Received matchlist: 2011 n = 892, 2014 n = 716, 2017 n = 706, 2020 n = 282)
(Called name: 2011 n = 156, 2014 n = 145, 2017 n = 172, 2020 n = 99)
(Reached name: 2011 n = 90, 2014 n = 80, 2017 n = 93, 2020 n = 58)
(Name interested: 2011 n = 66, 2014 n = 77, 2017 n = 82, 2020 n = 57)




* In 2020, an additional 33% 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 2020, 91% 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 2020 percentage was slightly higher than the results observed in the 2017 and 2014 surveys. The percentage shown in the 2011 survey was lower (77%), but the sample sizes for this question were low and this result is not statistically different from the results for the other years.

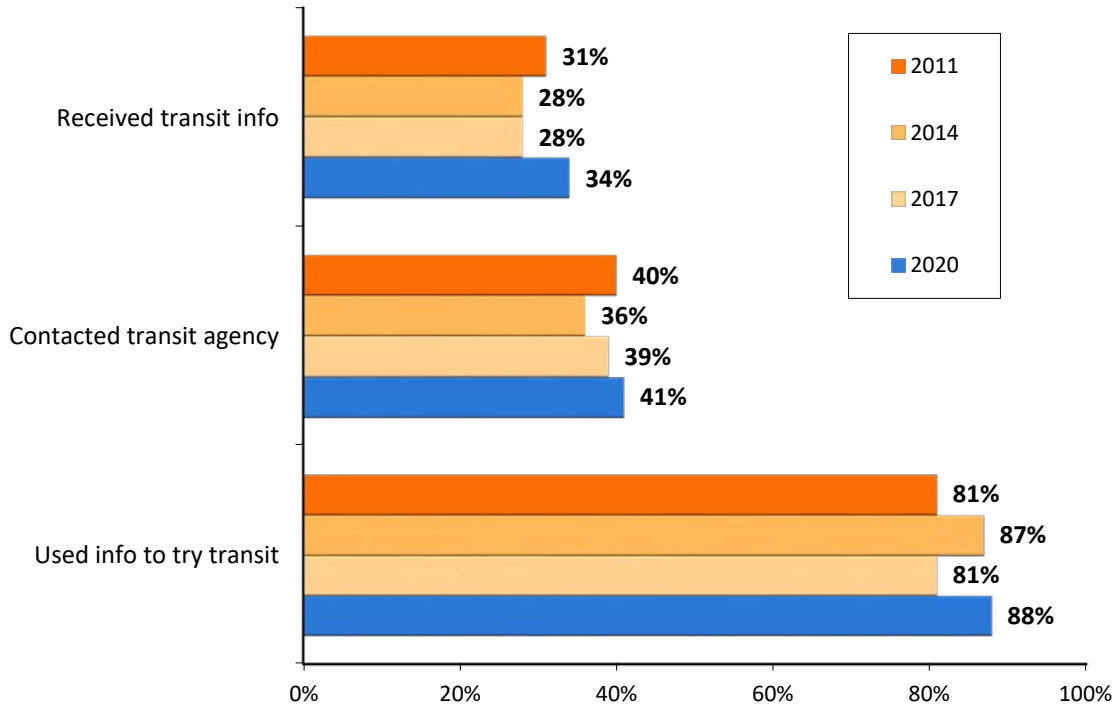
***Interest in Ridesharing*** – Four in ten (40%) respondents who reached someone said that person was interested in ridesharing. The percentage of interested commuters has declined since 2011, when nearly six in ten commuters who were reached were interested in ridesharing. In 2020, an additional 33% said the people they reached were interested, but their schedules or destinations were not compatible. Sixteen percent of respondents said the people they reached were not interested in carpooling and 11% could not remember if any were interested.

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 (34%) of respondents said they received transit information (Figure 24). As noted earlier, Commuter Connections includes on the matchlist and on the online ridematch map information on transit organizations that offer transit service that might meet the applicant's travel needs. This information is provided to all ridematch recipients, even if they did not request information. Commuter Connections staff also notify transit agencies to send transit information directly to applicants who make a formal request for the information. The online system also offers direct links to websites of local and regional transit services, so the website has become an excellent self-service portal to access transit information directly.

**Figure 24**
**Actions Taken by Respondents Who Received Transit Information**
(Received transit info: 2011 n = 892, 2014 n = 716, 2017 n = 706, 2020 n = 282)
(Contacted transit agency: 2011 n = 206, 2014 n = 167, 2017 n = 195, 2020 n = 96)
(Tried transit: 2011 n = 68, 2014 n = 60, 2017 n = 69, 2020 n = 32)



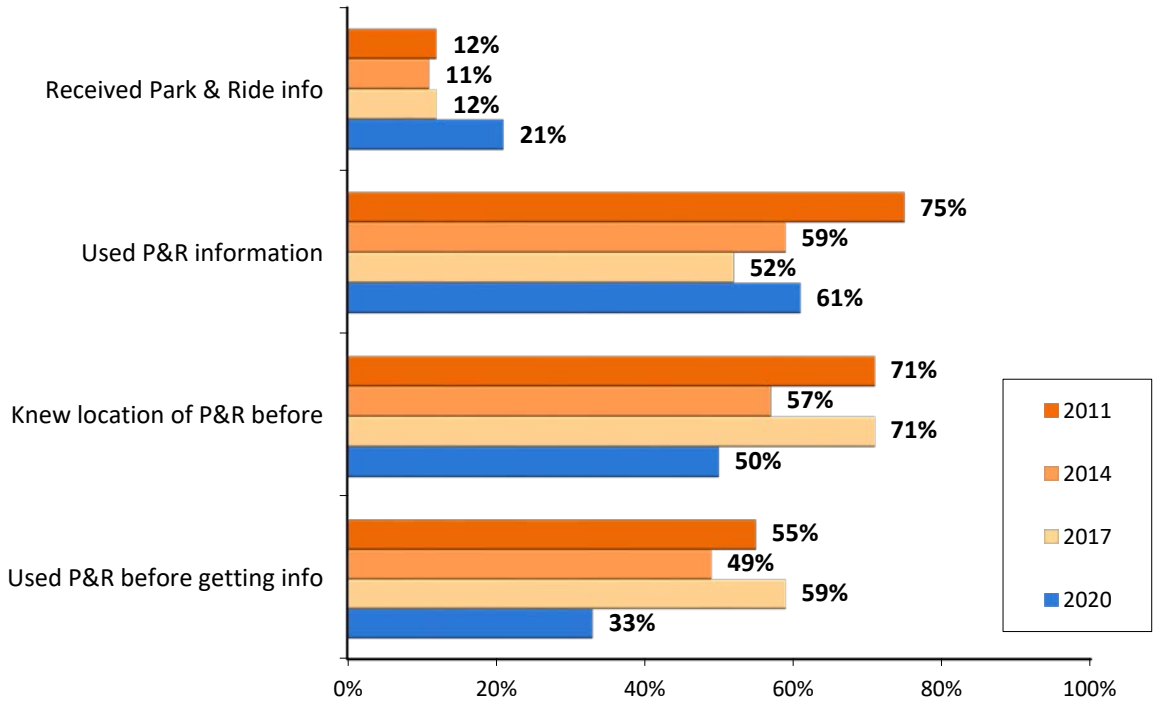
Four in ten (41%) respondents who received transit information used the information to contact a transit agency. This was not statistically different from the percentages in the three previous surveys (2017 – 39%, 2014 – 36%, 2011 - 40%). Nearly nine in ten (88%) of those who contacted a transit agency 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. One-quarter (26%) said they "weren't interested or didn't ask for the information." This response 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. Twenty-three percent said they preferred to use another mode and 23% said they had not gotten around to calling. About four percent said they did not want to ride transit during the coronavirus pandemic.

## Park & Ride Information

Commuter Connections also provides Park & Ride lot location information on matchlists and on the website. Twenty-one percent of respondents recalled receiving or accessing Park & Ride information in 2020 (Figure 25).

**Figure 25**
**Actions Taken by Respondents Who Received Park & Ride Lot Information**
(Received Park &Ride info: 2011 n = 892, 2014 n = 716, 2017 n = 706, 2020 n = 282)
(Used Park &Ride info: 2011 n = 97, 2014 n = 76, 2017 n = 85, 2020 n = 59)
(Knew locations of Park &Ride before: 2011 n = 71, 2014 n = 45, 2017 n = 42, 2020 n = 36)
(Used Park &Ride before: 2011 n = 51, 2014 n = 27, 2017 n = 29, 2020 n = 18)



Sixty-one percent of respondents who received Park & Ride information used the information provided, a higher share than the 52% noted in 2017, but the sample sizes for this question were small in all the previous surveys and the changes in 2020 and 2017 are not statistically significant.

In 2020, 50% of respondents who received Park & Ride information said they already knew the location of the lots before they received the information from Commuter Connections. This was a sizeable drop from the 2017 and 2011 surveys, but again, the sample sizes for this question were very small, so even this apparent difference is not statistically different from the other years.

Only one-third of respondents who were aware of the lot had used the lot before getting the information. This appeared to be a notable drop from the 59% percentage in 2017, but the question was answered by only 18 respondents in 2020, so even this change was not a statistically significant difference when compared with the previous years' results. Seven in ten (70%) of the 10 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

Seven percent of respondents said they received information from Commuter Connections about telework and six in ten of these respondents used the information they received. Two in ten (19%) started teleworking and 38% increased their telework frequency. Five percent said they used the information to talk to their employers about telework and 5% started teleworking at a telework or co-working center. Of respondents who started or increased teleworking, nearly half (45%) said receiving the information had been a factor in their decision.

## Bicycle Information

Thirteen percent of respondents reported receiving bicycle information. One-third of these respondents made a bicycle travel change and seven in ten of these respondents said the information was a factor in their decision to make the change. Thirteen percent started bicycling to work and 17% increased how often they bicycle to work (Table 7). Four in ten started riding a bicycle or riding more often for non-work trips.

**Table 7**
**Actions Taken After Receiving Bicycle Information**
(n = 36, multiple responses permitted)

| Bicycle Actions | Percentage |
|---|---|
| Started bicycling to work | 14% |
| Bicycle to work more often | 17% |
| Started bicycling for non-work trips | 17% |
| Bicycle more often for non-work trips | 25% |
| Did not take any bicycle action | 64% |

## Guaranteed Ride Home

Finally, the survey included questions about respondents' use of the Guaranteed Ride Home (GRH) program. Nearly eight in ten (79%) respondents received or accessed information on GRH. Nearly all (91%) of these respondents subsequently registered for GRH. About 11% of respondents who received GRH information were driving alone to work at the time they requested the information (Table 8). The remaining 89% were using an alternative mode; 56% were riding transit, 24% vanpooled, 8% carpooled, and 1% biked/walked to work.

**Table 8**
**Modes Used When Requesting GRH Information**
(n = 219, multiple responses permitted)

| Modes Used | Percentage |
|---|---|
| **Drive alone** | **11%** |
| **Alternative modes** | **89%** |
| - Bus, Metrorail, commuter rail | 56% |
| - Vanpool | 24% |
| - Carpool | 8% |
| - Bike/walk | 1% |

# Section 4 Incentive Applicants Survey Results

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

- CarpoolNow real-time ridemaching 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 the time of the survey or if they had ever participated at a time in the past. 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 the incentive applicant population was the same as for the recent applicant group. It was conducted to define travel patterns of incentive program users and to collect data needed to estimate transportation and air quality benefits of travel changes made by incentive program users. In addition, as the first survey of this population, it also had the objective of defining general characteristics of incentive users and examining their use of the programs.

Following are summaries of key survey results for this population. 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. Note that the count of completed interviews was relatively small (145), thus it was not possible to conduct reliable sub-group analysis for some questions. Additionally, because many respondents were teleworking at the time of the survey, samples for some questions on commute characteristics were very small. Despite these cautions, the survey results offer a first view of these new programs and data to estimate program performance and transportation and air quality impacts of the services.

## Characteristics and Demographics of the Sample

### Work and Home Locations

Table 9 shows the percentage of incentive applicant respondents by home and work states. Most incentive applicant respondents lived in Virginia (50%) or Maryland (30%); 17% 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. One-quarter (25%) of Incentive Applicants lived in the core jurisdictions of DC, Alexandria, and Arlington, compared with just 8% of Recent Applicants. By contrast, only 22% of Incentive Applicants lived outside the MWCOG region, compared with more than half (51%) of Recent Applicants.

Incentive Applicants' work locations were distributed much differently than their home locations. Nearly half (46%) worked in the District of Columbia. About one-quarter (26%) worked in a Virginia jurisdiction within the COG region and 20% worked in one of the Maryland jurisdictions in the COG region. This distribution was nearly the same as for the Recent Applicants.

**Table 9**
**Distribution by Home and Work Locations – Incentive Applicants**

| State/County | Home Location (n = 145) | Work Location* (n = 145) |
|---|---|---|
| **District of Columbia** | 17% | 46% |
| **Maryland** | | |
| – MD counties within COG region | 22% | 20% |
| – MD counties outside COG region | 8% | 3% |
| **Virginia** | | |
| – VA counties within COG region | 39% | 26% |
| – VA counties outside COG region | 11% | 0% |
| Other | 3% | 5% |

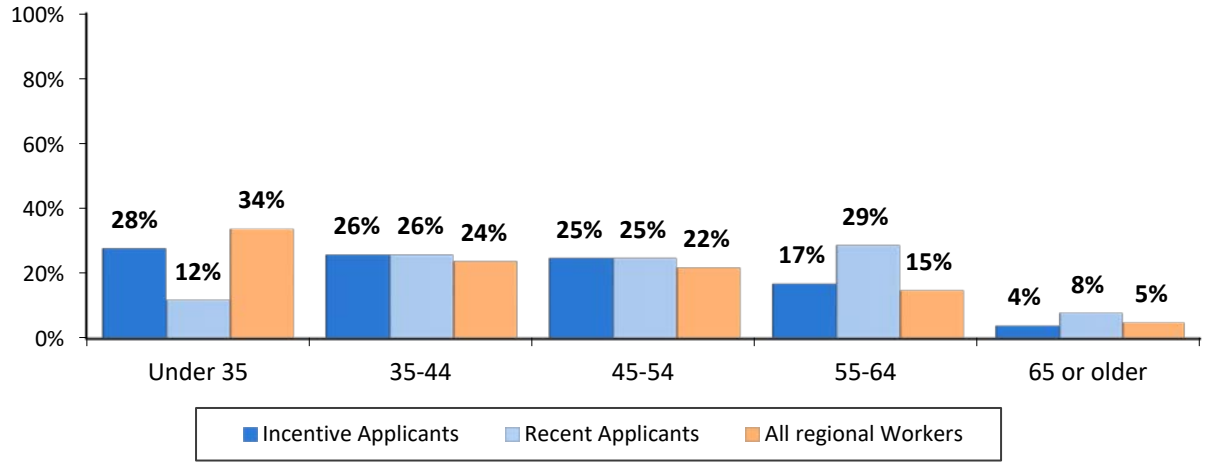
* Work location percentages for Maryland and Virginia within COG region: Maryland – Calvert, Charles, Frederick, Montgomery, and Prince George's counties; and Virginia – City of Alexandria and Arlington, Fairfax, Loudoun, and Prince William counties). Maryland and Virginia locations outside this area are counted separately.

## Demographics

The survey asked demographic classification questions for sex, ethnic group, age, and income. Incentive Applicants had similar demographic profiles in gender, race/ethnicity, and income to those of Recent Applicants. Incentive Applicants were evenly divided between males (51%) and females (49%). Non-Hispanic Whites (70%) represented the largest ethnic group category of respondents, Non-Hispanic Blacks and Asians/Pacific Islanders each represented 13% of the sample, and Hispanics accounted for about 4% of respondents. Incomes of Incentive Applicants were similarly high to those of Recent Applicants; 55% of Incentive Applicants had annual household incomes of $120,000 or more.

***Age*** – Incentive Applicants were younger than Recent Applicants (Figure 26). More than half (54%) of Incentive Applicants were younger than 45 years, compared with 38% of Recent Applicants. Incentive Applicants' age profile was much closer to that of the regional worker population, as found in the 2019 State of the Commute Survey.

**Figure 26**
**Distribution by Age – Incentive Applicants, Recent Applicants, All Regional Workers (2019 SOC)**
(Incentive Applicants n = 144, Recent Applicants n = 278, All Regional Workers (2019 SOC Survey) n = 8,149)

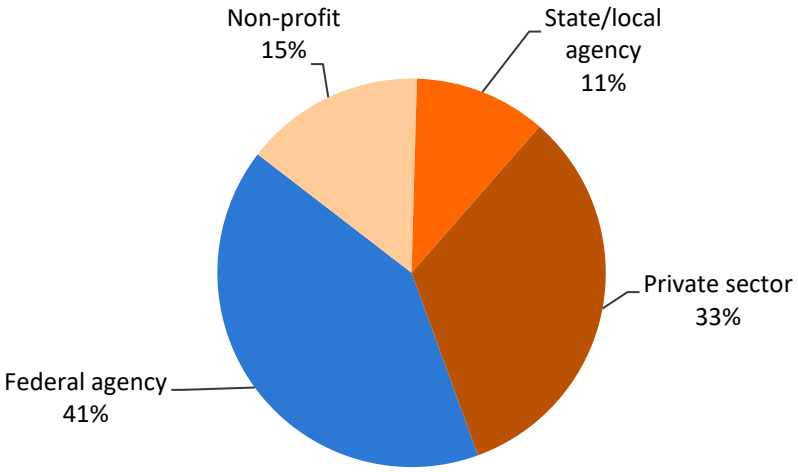


### Employment Characteristics

***Employer Size*** – Three-quarters of Incentive Applicants worked for employers with more than 100 employees. Four in ten (43%) worked for employers with at least 1,000 employees. Twenty-three percent they worked for organizations with 100 or fewer employees. Large worksites also were most prevalent among Recent Applicants.

***Employer Type*** – Incentive Applicants had a very different distribution for employer type than did Recent Applicants. Four in ten Incentive Applicants worked for a federal agency (Figure 27), compared with 69% of Recent Applicants. Incentive Applicants were more likely to work for a private sector employer (33%) than were Recent Applicants (20%). Higher shares of Incentive Applicants also worked for state and local government agencies (Incentive – 11%, Recent – 3%) and for non-profit organizations (Incentive – 15%, Recent 8%).

**Figure 27**
**Distribution by Employer Type – Incentive Applicants**
(n = 142)




**Occupations** – The profile of occupations for Incentive Applicants was very similar to that for Recent Applicants. The most common were business/financial operations (33%), computer/engineering/science (33%), management (11%), education/training (6%), and office administration (5%).

## Current Commute Patterns

### Current and Pre-pandemic Telework

Because it was anticipated that many respondents would be working remotely, in response to the coronavirus pandemic, the survey asked first how often respondents teleworked at the time of the survey and how often they teleworked in February 2020, before the pandemic began. As illustrated in Figure 28, 89% of incentive applicant respondents were teleworking three or more days per week at the time of the survey and three-quarters (74%) were teleworking full-time. Only 6% were not teleworking at all.

**Figure 28**
**Telework During the Pandemic and Pre-pandemic – Incentive Applicants**
(During pandemic n = 144, Pre-pandemic n = 145)

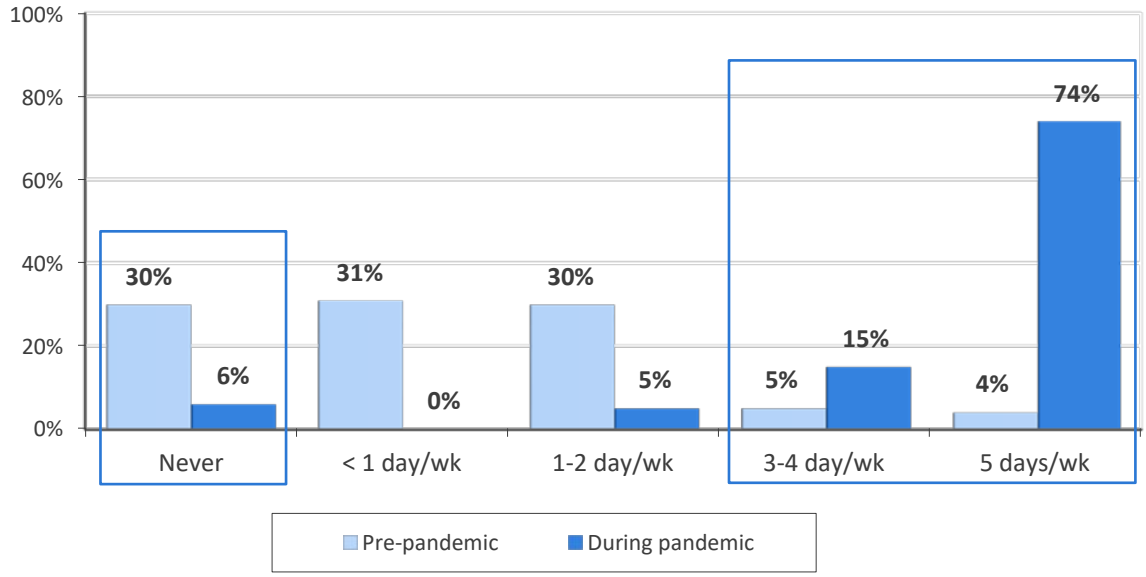


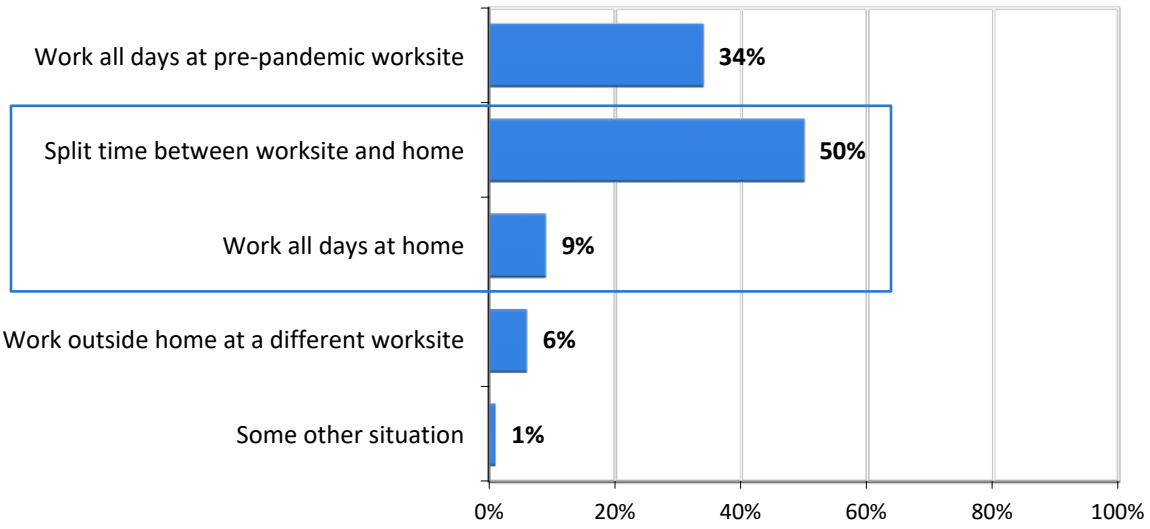

Figure 3 also shows the telework distribution in February 2020, before the pandemic began. While many respondents had teleworked some days before the pandemic, frequent telework was far less common. About one in ten respondents teleworked three or more days per week and just 4% teleworked full-time. Three in ten respondents did not telework at all before the pandemic.

***Likelihood to Telework After Pandemic Ends*** – To anticipate how much the new teleworking would continue after the pandemic, all respondents were asked the following question:

> *"Think now of the physical location <u>where</u> you worked in February 2020, before the pandemic began. Is this where you expect to work once the coronavirus pandemic is over?"*

Six in ten Incentive applicant respondents expected to continue some telework after the pandemic is over (Figure 29). Nine percent expected to continue working at home full-time and 50% said they would split their workdays between home and their previous worksite. About one-third (34%) said they would work all their workdays at the pre-pandemic location. Six percent said they would be working outside the home, but at a different worksite than before the pandemic; this suggests some respondents changed jobs or work locations since the pandemic began.

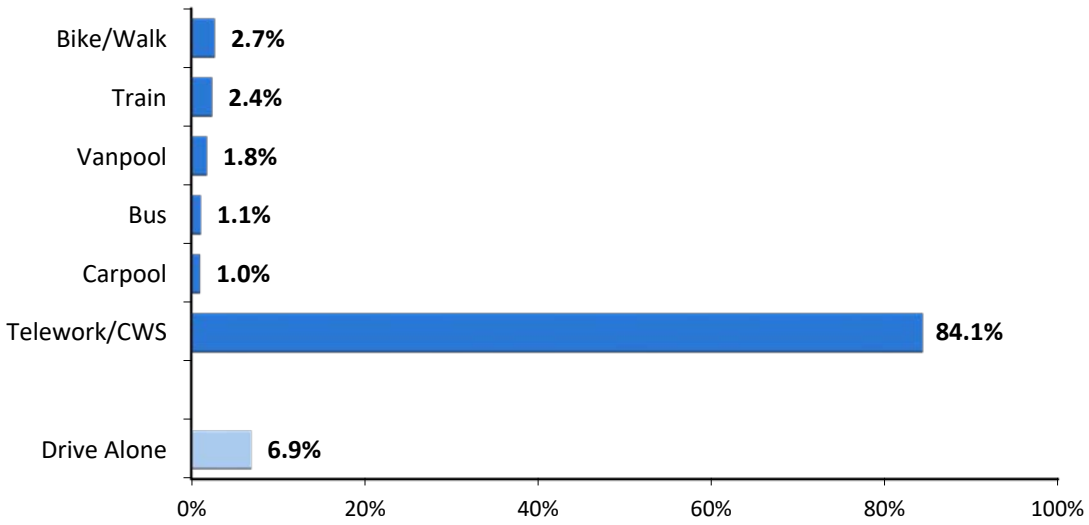
**Figure 29**
**Likely Work Location After Pandemic Ends – Incentive Applicants**
(n = 141)




## 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 30 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.

**Figure 30**
**Weekly Commute Trips by Modes – Incentive Applicants**
(n = 145)



The overwhelmingly common mode was telework/CWS. Eighty-four percent of weekly commute days/trips were eliminated by telework; compressed schedule did not account for any trips by Incentive Applicants. Driving alone accounted for 6.9% of weekly trips. The remaining commute trips were divided among alternative modes: 2.7% bike/walk, 2.4% train, 1.8% vanpool, 1.1% bus, and 1.0% carpool.

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 56.6% of weekly commute trips. The weekly commute trip distribution would be:

- Bike/walk 16.8%
- Train 15.1%
- Vanpool 11.5%
- Bus 7.1%
- Carpool 6.2%
- Drive alone 43.4%

### Commute Distance and Time, Work Arrival Time

***Commute Distance*** – The one-way travel distance for Incentive Applicants ranged from one mile to 75 miles. The average one-way distance was 24.7 miles, a considerably shorter distance than the 39.2 miles for Recent Applicants. Thirty-eight percent of Incentive Applicants traveled fewer than 10 miles to work and 59% commuted fewer than 30 miles. One-quarter commuted 40 or more miles.

***Commute Travel Time*** – Incentive Applicants' one-way commute travel time ranged from five minutes to two hours. The average was 42 minutes, again shorter than that for Recent Applicants, who traveled an average of 54 minutes. Three in ten (29%) Incentive Applicants traveled 20 minutes or less to work and 67% traveled 45 minutes or less. Only 6% traveled more than one hour one-way.

***Work Arrival Time*** – Forty-five percent of incentive applicant respondents arrived at work before 8:00 am. One-third (33%) arrived between 8:00 am and 8:59 am and 22% arrived at 9:00 am or later. Seven in ten (69%) were traveling to work during the 6:00 am to 8:59 am peak commuting period.

### Access to Carpools, Vanpools, and Transit

Only 13 incentive applicant respondents reporting using a carpool, vanpool, bus, or train at least one day per week for commuting. Nine of these respondents (69%) drove to a central meeting point, such as a Park & Ride, where they met their pool partners or started their transit trip. Drive alone access trips were an average of 6.1 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 a new alternative mode (carpool, vanpool, bus, Metrorail, commuter rail, bicycle, 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:

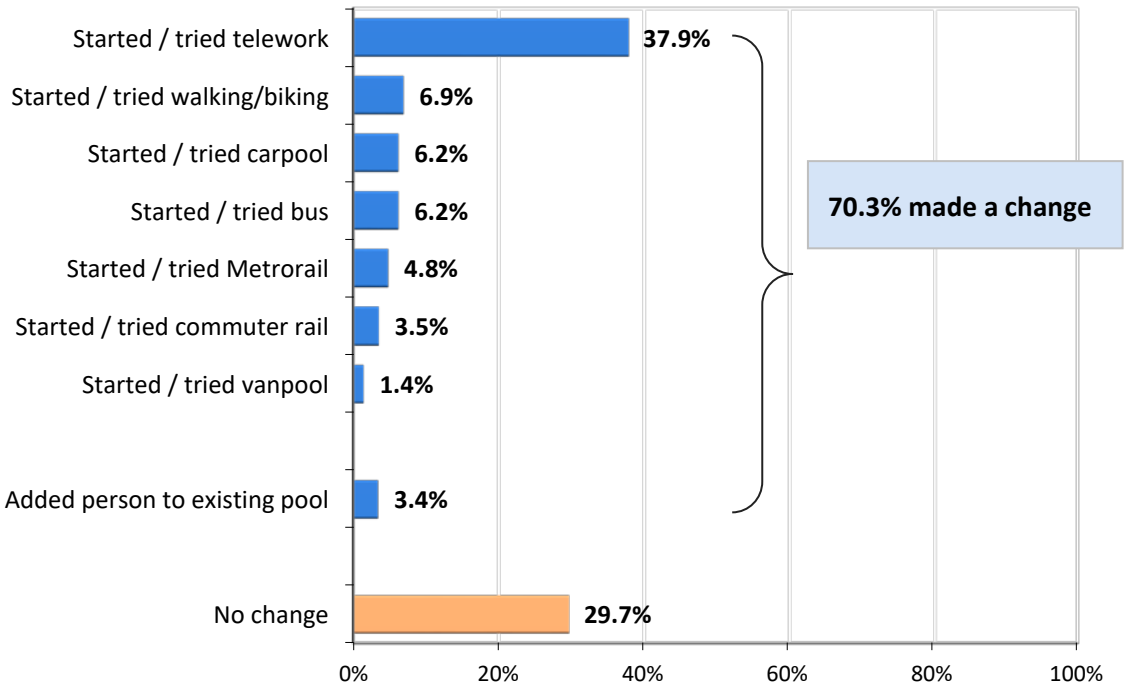
- Continued – respondent made a change and was still using the new mode at the time of the survey
- Occasional – respondent made a change and was still using the new mode, but used the alternative mode less than one time per week
- Temporary – respondent made a change, but stopped using the new mode before 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 cannot be counted toward long-term reduction in vehicle trips, VMT, or emissions. Occasional and one-time shifts also are reported separately because their contribution to vehicle trips, VMT, and emissions is very minor.

## Types of Changes Made

Seven in ten (70.3%) incentive applicant respondents reported some type of alternative mode change after receiving Commuter Connections' assistance (Figure 31). By far, the largest segment started or tried telework; 37.9% of respondents reported this change. About one in ten made a change to a ridesharing mode: 6.2% started carpooling, 1.4% started vanpooling, and 3.4% said they added another person to an existing carpool or vanpool. Others made a change to a transit mode (Bus – 6.2%, Metrorail – 4.8%, Commuter rail – 3.5%). About 6.9% indicated a change to bike or walk.

**Figure 31**
**Commute Changes Made After Receiving Commuter Connections Services – Incentive Applicants**
(n = 145)

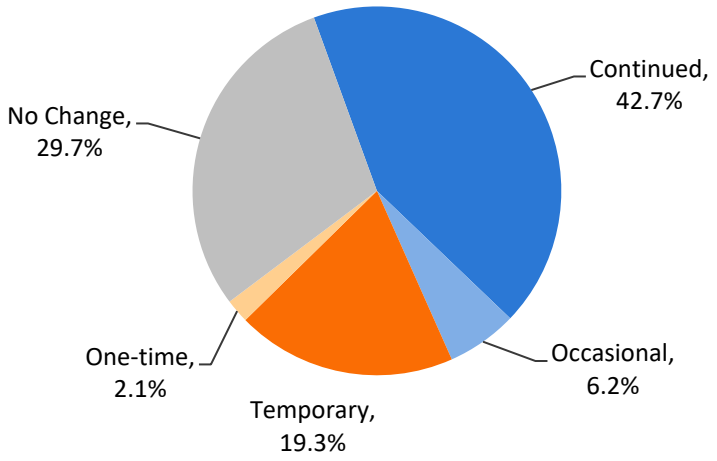


## Continued, Occasional, Temporary, and One-time Placement Rates

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." Applicants who made a change to a mode they did not report using during a typical week at the time of the survey were asked if they still used the mode occasionally or if they had stopped using it. Applicants who had stopped using the mode were asked how long they had used the new mode after the change. Then, applicants were classified as "occasional," "temporary," or "one-time" by the duration of their change. Figure 32 summarizes these results.

**Figure 32**
**Distribution of Continued, Occasional, Temporary, and One-time Changes - "Placement Rates" - Incentive Applicants**

(n = 145)



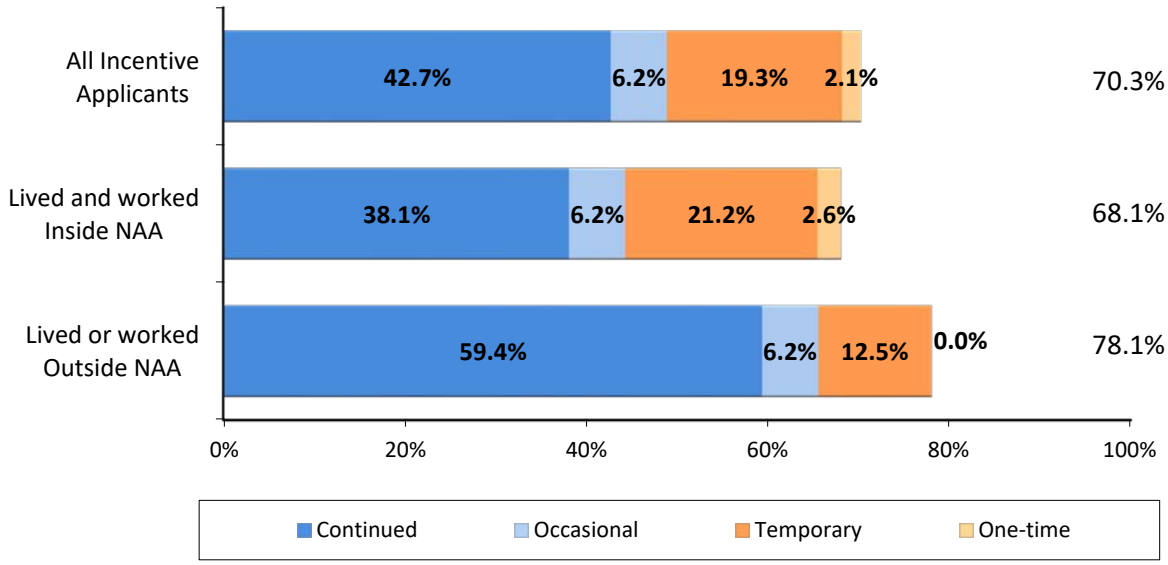

Four in ten (42.7%) Incentive Applicants made a change to a mode they were still using at least one day per week; these applicants made ***continued changes***. About 6.2% made a change to a mode they were using ***occasionally***, defined as less than once per week. Two in ten (19.3%) respondents made 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 8.6 weeks. Finally, 2.1% of applicants tried a new mode for less than one week. These applicants were classified as ***one-time changes***. About three in ten (29.7%) Incentive Applicants did not make any change.

***Placement Rates by Home and Work Location in the Non-Attainment Area*** – Placement rates were estimated also for two sub-groups of applicants, defined by applicants' 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 or worked in the NAA and lived outside it, that is, one commute end point was outside the NAA. Seven in ten (72%) Incentive Applicants lived and worked in the NAA; 28% 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.

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).

Figure 33 presents the continued and temporary placement rates for all Incentive Applicants, for applicants who lived and worked within the region (Inside NAA), and applicants who either lived or worked outside the NAA.

**Figure 33**
**Placement Rates: All Applicants, Applicants who Lived and Worked Inside NAA, and Applicants Who Lived or Worked Outside NAA – Incentive Applicants**
(All applicants n = 145, Lived and worked inside NAA n = 113, Lived or worked outside NAA n = 32)



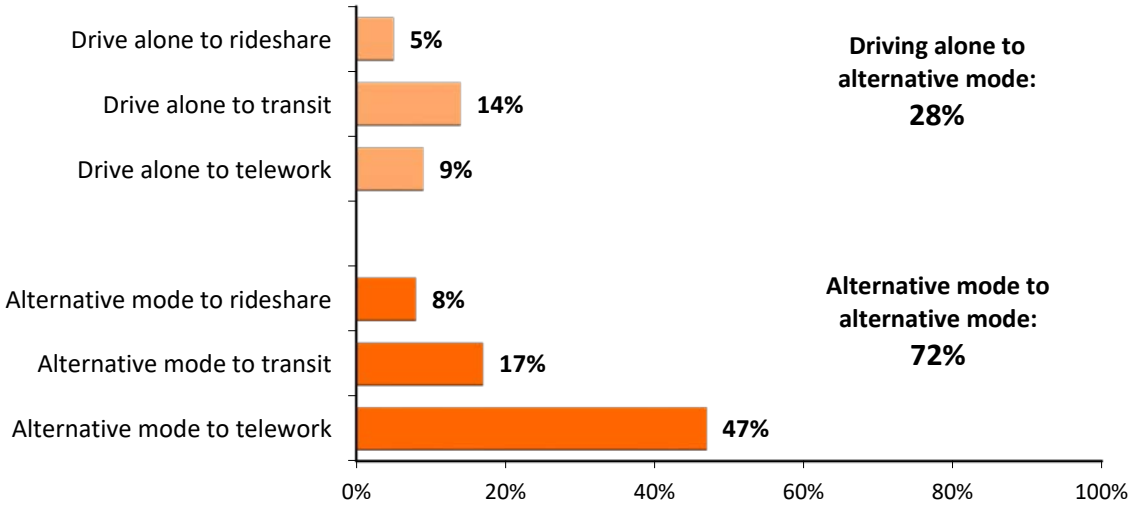

The overall placement rate was distinctly higher for the "out of area" respondents (78.1%) than for respondents who both lived and worked in the NAA (68.1%). Incentive Applicants who lived or worked outside the NAA were particularly more likely to report a continued placement (59.4%) than were those who both lived and worked inside the NAA (38.1%).

## Previous Mode of Commuter Who Changed Mode

Some Incentive Applicants who made a mode change shifted from driving alone, but most shifted from one alternative mode to another. Twenty-eight percent of applicants who made a change shifted from driving alone to an alternative mode (Figure 34). Most of these respondents made shifts to transit/non-motorized modes or telework, but some shifted to rideshare modes (carpool or vanpool). The remaining 72% of respondents 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.

The shift from alternative modes to telework accounted for more than half (56%) of the total shifts. This reflected the typically high use of alternative modes among Commuter Connections applicants and the large share of applicants who reported starting or increasing their use of telework during the coronavirus pandemic.

**Figure 34**
**Types of Mode Changes of Respondents Who Made Mode Changes – Incentive Applicants**
(n = 97)




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

## Reasons for Changes

Incentive Applicants who said they had made a commute change were asked the reasons for their changes. The reasons were similar to those for Recent Applicants. The overriding reason that Incentive Applicants made their reported commute change was the coronavirus pandemic; 46% said their worksite had closed so they were working remotely, essentially the same as the 50% of Recent Applicants who reported this reason. The top non-coronavirus reasons included making a job or home location change (11%), wanting to reduce congestion or pollution (7%), because a previous carpool/vanpool broke up (7%), to save time (4%), or being tired of driving (4%).

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

Two in ten (21%) incentive applicant respondents who made a change cited a Commuter Connections service that had influenced or assisted them. The largest share of respondents, 6%, mentioned incenTrip as the influential service. Other Commuter Connections services noted included Guaranteed Ride Home (4%), matchlist (3%), transit schedule information (3%), and bicycle information (3%). Neither Flextime Rewards nor CarpoolNow were mentioned by any incentive applicant respondents.

Two in ten (22%) 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 7% of applicants who made a change, and vanpool assistance and telework information, each named by 3% of respondents.

***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 slightly less concerned with economic reasons than were Recent Applicants. Three in ten incentive applicant respondents who made a change said economic reasons were the only reason they made the change (7%) or were more important than other reasons (21%). By comparison, 41% of Recent Applicants reported that economic reasons were of high importance.

## Contact with Commuter Connections and Services Received

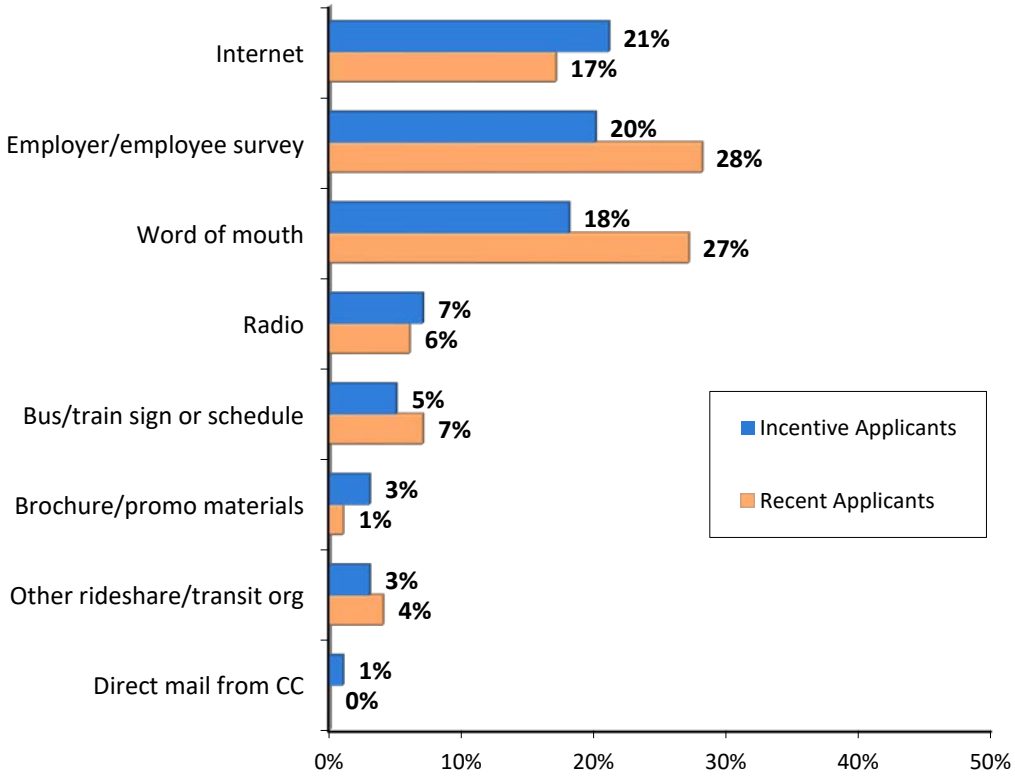
The survey asked applicants several questions related to the details of their contact with Commuter Connections and services they received. The following section of the report presents results to these questions, including:

- 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 35 presents the primary sources of information cited by Incentive Applicants and by Recent Applicants. The top three sources for incentive applicant respondents were Internet (21%), employer/employee survey (20%), and word of mouth referrals (18%). These also were the same primary sources for Recent Applicants, although higher proportions of Recent Applicants mentioned employer and word of mouth than did Incentive Applicants.

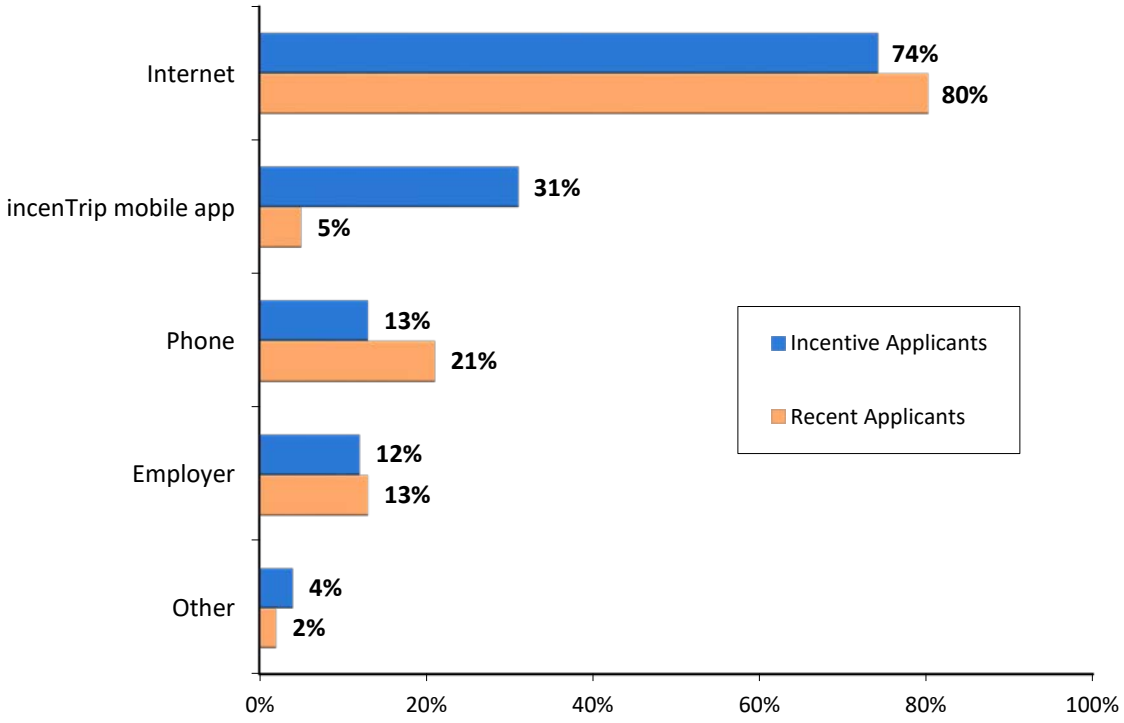
**Figure 35**
**How Applicants Learned of Commuter Connections – Incentive Applicants and Recent Applicants**
(Note: scale extends only to 50% to highlight differences)
(Incentive Applicants n = 122, Recent Applicants n = 254; multiple responses permitted)



## Methods Used to Contact Commuter Connections

The largest share (74%) of Incentive Applicants made contact with Commuter Connections through the Commuter Connections web page or another web site on the Internet (Figure 36). This was about the same as the percentage of Recent Applicants who mentioned this source. The notable difference in contact was that 31% of Incentive Applicants said they had made a contact with Commuter Connections through the incenTrip mobile app, a much higher percentage than the 5% of Recent Applicants who named this method. Incentive Applicants used their employer as a contact method at a similar rate as did Recent Applicants. They were less likely to make the contact by telephone.

**Figure 36**
**How Applicants Contacted Commuter Connections – Incentive Applicants and Recent Applicants**
(Incentive Applicants n = 137, Recent Applicants = 276; multiple responses permitted)

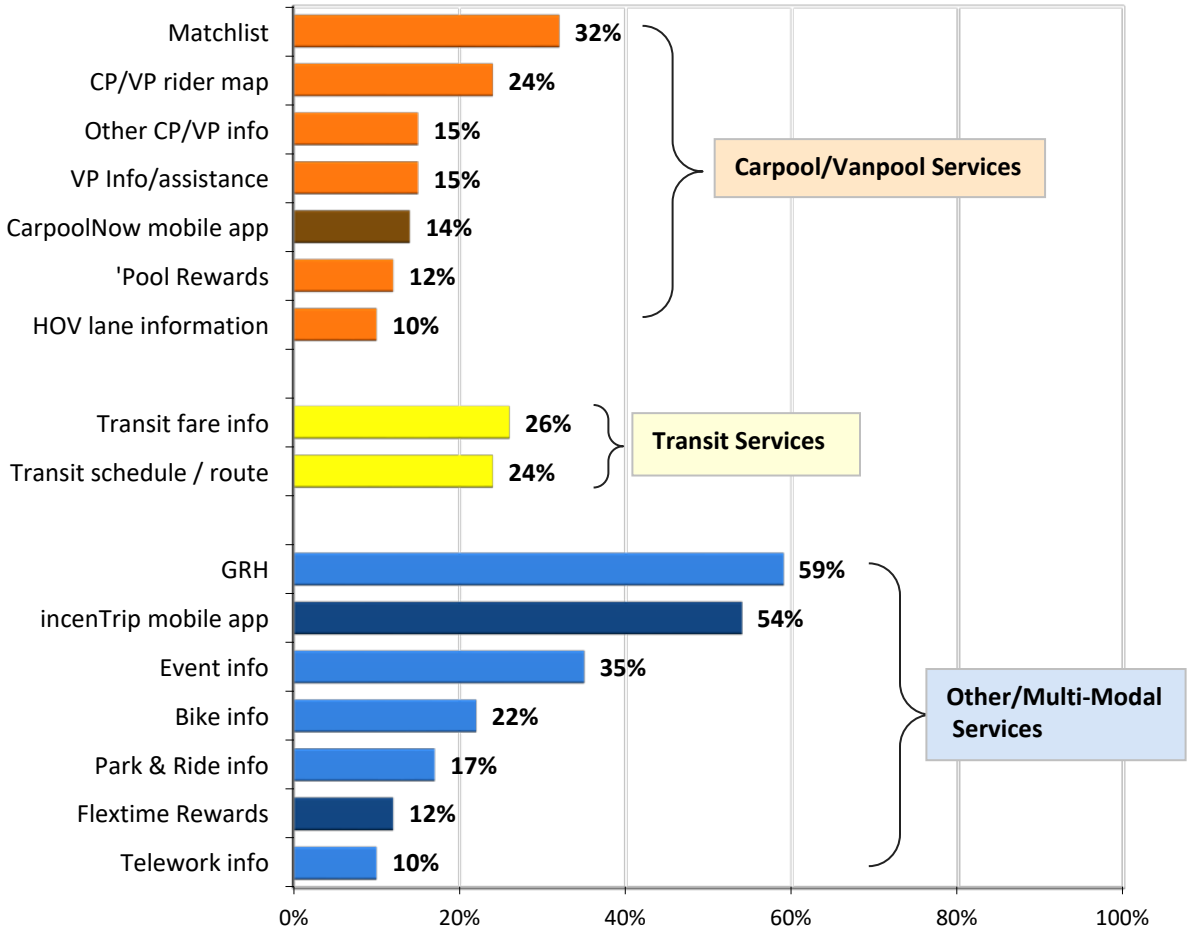



***Reasons for Seeking Assistance*** – Applicants were asked what prompted them to seek information or assistance from Commuter Connections at that time. One-quarter (25%) of Incentive applicant respondents said they wanted to find back-up transportation in case of emergency, 10% wanted to save time, 9% wanted to save money, and 8% were making a general exploration of commute options. One in ten said they could receive a financial incentive for transit or vanpooling.

## 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 37 displays the percentages of Incentive Applicants who said they received or accessed each service, with services grouped into three categories by the types of alternative modes they support: Carpool/Vanpool, Transit-Related, and Other/Multi-Modal.

**Figure 37**
**Information Received or Accessed from Commuter Connections – Incentive Applicants**
(n = 145, multiple responses permitted)




***Carpool/Vanpool Services*** – Half (50%) of incentive applicant respondents received or accessed one or more Carpool/ Vanpool services; most of these respondents received more than one of these services. One-third (32%) received a matchlist with names and contact information for potential carpool/vanpool partners, 24% received a map showing home and work locations of potential carpool/vanpool partner, 15% obtained vanpool assistance, 15% received other carpool/vanpool information, and 10% obtained information on HOV lanes. Fourteen percent said they had used the CarpoolNow mobile application.

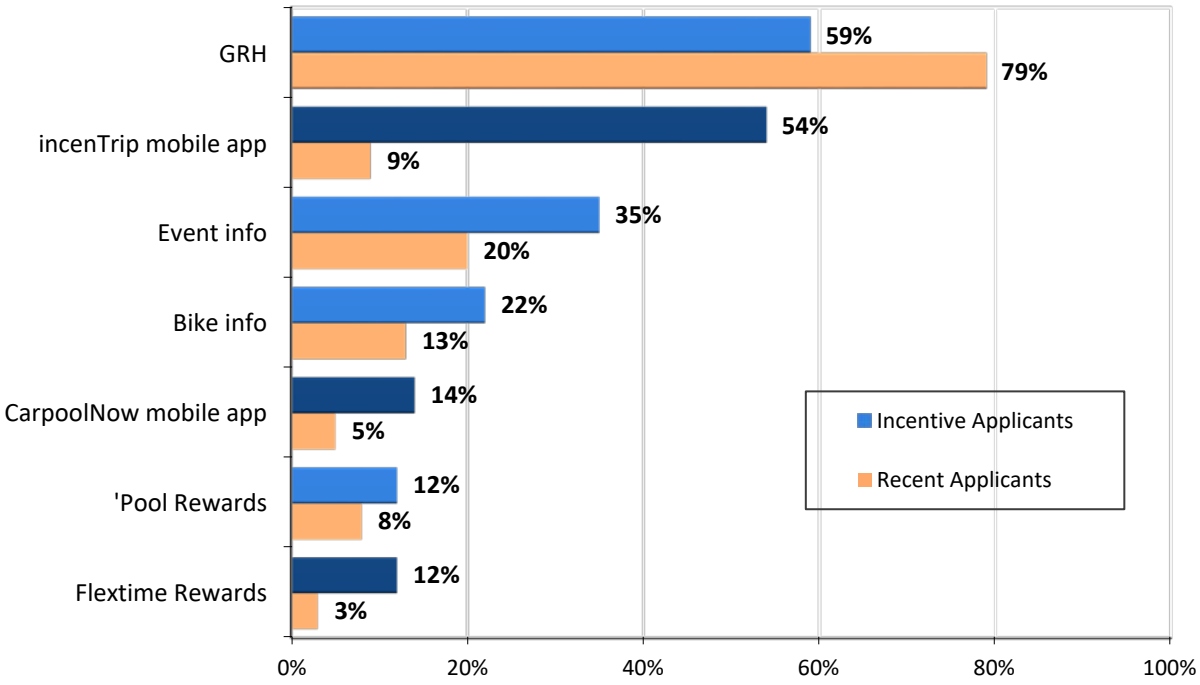
***Transit-Related Services*** – One-third (34%) of Incentive Applicants received some type of information about transit from Commuter Connections. Twenty-six percent received information about transit fares or the SmarTrip fare payment system and 24% obtained transit route or schedule information. Nearly all respondents who received transit information received both fare and route/schedule information.

***Other/Multi-Modal Services*** – The top service received overall by Incentive Applicants was Guaranteed Ride Home; 59% received or accessed this multi-modal service. But nearly as many respondents (54%) said they had used the incenTrip mobile app. Another widely-used service in the category was information on regional events, such as Car Free Day or Bike to Work Day; 35% of incentive applicant respondents used this information. Two in

ten (22%) respondents obtained bike information and 17% used Park & Ride lot information. One in ten (12%) mentioned using the Flextime Rewards incentive program and 10% cited receiving information on telework.

***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 Applicants used some services at higher rates (Figure 38). 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 (59%), but was less common than for Recent Applicants (79%). Figure 38 excludes services that were used by the two applicant populations at statistically similar rates.

**Figure 38**
**Information Received or Accessed from Commuter Connections – Incentive Applicants and Recent Applicants**
(Incentive Applicants n = 145, Recent Applicants n = 282; multiple responses permitted)

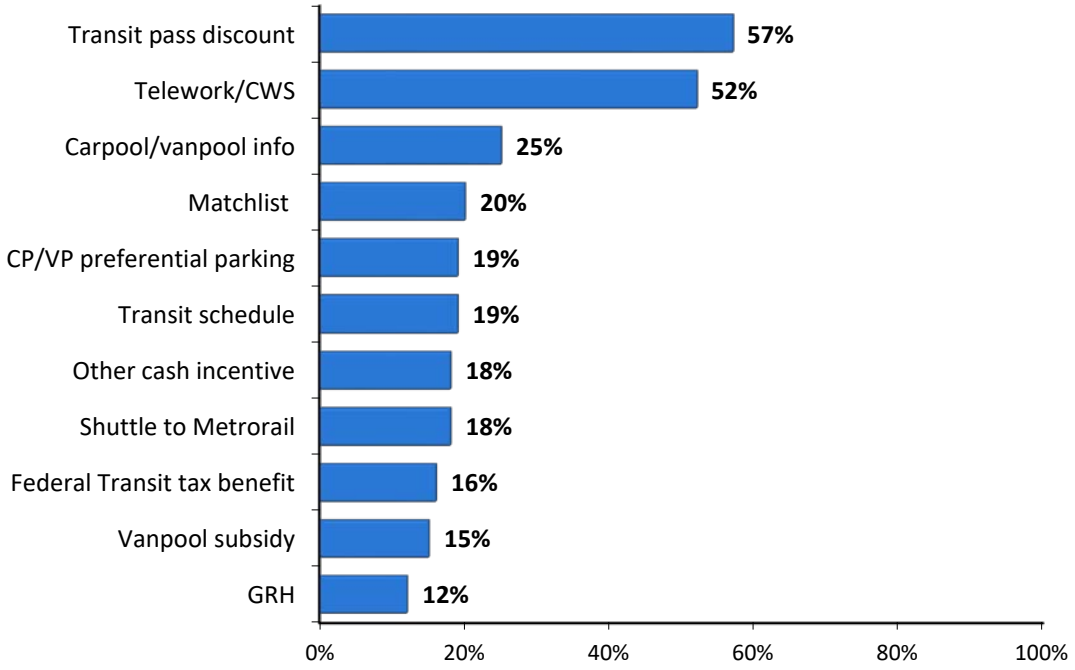



Not surprisingly, Incentive Applicants reported higher use than did Recent Applicants of each of the three incentive programs. More than half (54%) of incentive applicant respondents used incenTrip, compared with 9% of recent applicant respondents. Fewer respondents had used either CarpoolNow or Flextime Rewards, but Incentive Applicants used them at distinctly higher rates than did Recent Applicants. Incentive Applicants also used event information and bike information at higher rates than did Recent Applicants.

## Assistance Offered by Employers

As was the case for Recent Applicants, most Incentive Applicants (84%) reported access to commute assistance services at work. Figure 39 lists individual services noted by Incentive Applicants. The most common employer services were transit pass discounts and telework/compressed schedules, noted by 57% and 52% of respondents, respectively, One-quarter had access to carpool vanpool information and about two in ten had access to most of the other services that were listed in the survey.

**Figure 39**
**Commuter Assistance Services Offered by Employers**
(n = 143, multiple responses permitted)




## 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. Following are the results of these questions.

### CarpoolNow Mobile Application

Nineteen incentive applicant respondents (12%) reported using the CarpoolNow mobile application that allows commuters to request or provide carpool rides in real-time, for a single, immediate trip. Of the 18 respondents who had used the app, half (9 respondents) had used the app at least once. Five used it between one and four times and four used it five or more times. The other 10 respondents had not used the app yet for any trips.

Eight respondents used the app it at least once to try to share a ride to work; they used it also to try to share rides for an entertainment or recreation trip (2 respondents), a work-related trips (1 respondent), and a personal appointment trip (1 respondent).

Commuters were more likely to be asking for rides than offering them; six of the nine respondents who used the app said they were always requesting a ride. One respondent always offered a ride and two respondents both offered to drive and requested a ride.

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

## Flextime Rewards Incentive Program

Seventeen Incentive applicant respondents (12% of total respondents) said they had registered for the Flextime Rewards program. In this program, commuters register for text/email alerts about roadways 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 two particular segments of the Capital Beltway, I-66, or I-295, they can receive an incentive payment. Six of the 17 respondents who had registered for Flextime Rewards reported using one or more of the incentive-eligible routes,

Of the 17 respondents who had used the app, only two reported having received an alert. Nine said they had not received any alerts yet and six 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 (54%) 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 (91%) of respondents who had used the incenTrip mobile app had logged a commute trip to work or to school and four in ten (40%) logged a trip for a work-related purpose, such as going to a meeting or a work-related errand (Table 10). Substantial shares of respondents had logged trips for non-work purposes as well; 47% logged a personal appointment trip and 41% logged a trip for an entertainment, social, or recreation trip.

**Table 10**
**Types of Trips Logged Through incenTrip Mobile App – Incentive Applicants**
(n = 77, multiple responses permitted)

| Types of Trips Logged | Percentage |
|---|---|
| Get to or from work or school (commute) | 91% |
| Other work-related trip (e.g., meeting, errand) | 40% |
| | |
| Personal appointment or errand | 47% |
| Entertainment, social, recreation | 41% |
| Don't recall | 8% |

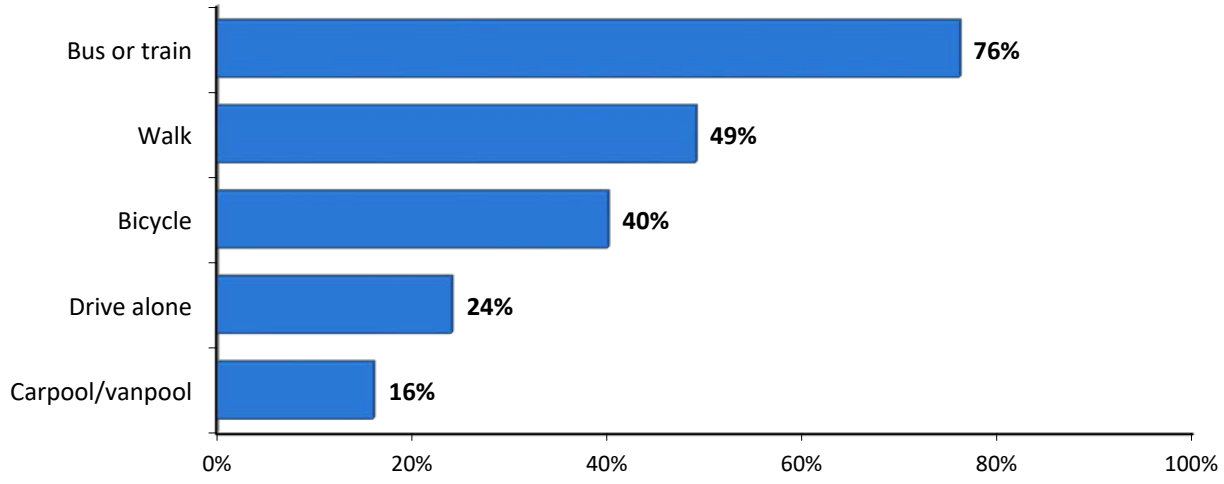
***Logging Frequency*** – Respondents reported logging frequently (Table 11). Nearly six in ten respondents reported logging six or more total trips per week; 29% logged between six and nine trips and 29% logged 10 or more. Table 11 also shows the logging frequency for logging trips for commute trip purposes. Commute trip logging was also frequent; 49% logged trips six or more commute trips per week and 17% typically logged 10 or more commute trips in a week.

**Table 11**
**Number of Weekly Trips Logged – All Trip Purposes and Commute Purposes**
(n = 69, multiple responses permitted)

| Number of Trips Logged per Week | All Trip Purposes | Commute Purpose |
|---|---|---|
| Have not logged any trips yet (or no commute trips) | 9% | 19% |
| Log occasionally but less than one per week | 10% | 1% |
| 1 to 2 trips per week | 4% | 12% |
| 3 to 5 trips per week | 19% | 19% |
| 6 to 9 trips per week | 29% | 32% |
| 10 or more trips per week | 29% | 17% |

***Modes Used When Logging Commute Trips*** – Three-quarters (76%) of respondents who logged trips on incenTrip for a commute purpose made the commute trip by transit trip (Figure 40). About half (49%) of respondents had logged a walk commute trip and 40% logged a bicycle trip. One-quarter (24%) said at least one of their logged trips had been made by driving alone. The least common mode to log was ridesharing; only 16% said they had logged a carpool or vanpool trip.

**Figure 40**
**Modes Logged on incenTrip for Commute Trips**
(n = 55; multiple responses permitted)




All commuters who log commute trips can accumulate points that they can redeem for rewards. Nearly nine in ten (89%) incenTrip users who logged a commute trips had redeemed points. These users represented 62% 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 applicant 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 2021-2023 Regional TDM Program Elements evaluation analysis (July 2020-June 2023).

Data collected from the Incentive Applicants surveyed in the placement survey also will be used in the FY 2021-2023 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 2021-2023 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**
**Overall Participation, Utilization, and Satisfaction Performance Measures**
**Placement Survey, July-September 2020**

| | | |
|---|---|---|
| • Commuter applicants | 2,166 | |
| • Applicant placement rates | 62.1% | |
| - Continued placement rate | | 43.6% |
| - Occasional placement rate | | 3.6% |
| - Temporary placement rate | | 12.8% |
| - One-time placement rate | | 2.1% |
| • Applicants placed in alternative modes | 1,344 | |
| - Continued placements | 945 | |
| - Occasional placements | 78 | |
| - Temporary placements | 276 | |
| - One-time placements | 45 | |
| • Applicants who received matchlist from Commuter Connections | | 35% |
| • Applicants who received vanpool assistance | | 13% |
| • Applicants who received transit information | | 34% |
| • Applicants who received GRH information/registration | | 79% |
| • Applicants who received Park & Ride info | | 21% |
| • Applicants who received commute event information | | 20% |
| • Applicants who received bicycle information | | 13% |
| • Applicants who received incenTrip mobile app | | 9% |
| • Applicants who received telework information | | 7% |

## 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 – NOx
  - Tons of Volatile Organic Compounds – VOC
  - Tons of Particulate Matter (2.5 microns) – PM 2.5
  - Tons of PM 2.5 NOx precursors
  - Tons of Carbon Dioxide (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**
**Program Impact Performance Measures**
**Placement Survey, July-September 2020**

| | | |
|---|---|---|
| • Daily vehicle trips (VT) reduced | **264** | **trips** |
| - Continued placements | 228 | trips |
| - Temporary placements (prorated credit) | 36 | trips |
| • Daily VMT reduced | **6,098** | **VMT** |
| - Continued placements | 5,267 | VMT |
| - Temporary placements (prorated credit) | 831 | VMT |
| • Daily tons of Emissions reduced | | |
| – NOx | **0.0012** | **tons** |
| – VOC | **0.0008** | **tons** |
| • Annual tons of Emissions reduced | | |
| – PM 2.5 | **0.025** | **tons** |
| – PM 2.5 NOx precursors | **0.400** | **tons** |
| – CO2 / Greenhouse gas | **598.4** | **tons** |
| • Gallons of gasoline saved | **326** | **daily gallons of gas** |
| • Commuter costs reduced | | |
| - Annual cost saving per placement | **$301** | **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 – FY2018 - FY2020," March 19, 2019. The report is available from Commuter Connections.

## Vehicle Trips Reduced

Vehicle trip reduction (VTR) measures the number of vehicle trips no longer made as a result of commuters increasing their use of high occupancy modes. Vehicle trip reduction can occur from shifts from driving alone to an alternative mode, shifts within alternative modes to HIGHER occupancy alternatives, and increases in the number of days per week commuters use alternatives. The calculation of trip reduction 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.

| | Within NAA | Outside NAA |
|---|---|---|
| • Continued VTR = | 0.23 | 0.25 |
| • Temporary VTR = | 0.50 | 0.76 |

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 **228 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 10.6 weeks on average. Thus, only about 20% of the temporary trip reduction was allocated to the placements, representing the portion of a year (10.6 / 52 weeks) when the mode was used. This resulted in **36 daily trips reduced by temporary changes**.

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

This sum, 228 + 36, equaled **264 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 applicants was 23.1 miles. Due to a small sample size for respondents with changes who reported a travel distance, a single within NAA distance was calculated, for continued and temporary changes together.

The actual one-way distance for the outside NAA applicants was considerably higher; 49.0. 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 25.9 one-way miles per trip for outside-NAA applicants who made changes. The VMT calculation thus was as follows, resulting in 6,098 VMT reduced daily:

(228 continued trips reduced x 23.1 miles) + (36 temporary trips reduced x 23.1 miles)

= **6,098 VMT reduced**

## Emissions Reduced

The calculation of emissions benefits, defined as tons of pollutants reduced, applied one regional emission factor to the number of vehicle trips or “trip ends” and another factor to VMT to determine the pollutants reduced as a result of the program. This analysis calculated emission reduction for five pollutants: Oxides of Nitrogen (NOx), Volatile Organic Compounds (VOC), Particulate Matter, 2.5 Microns (PM 2.5), PM 2.5 NOx precursors, and Carbon Dioxide (CO2, greenhouse gas).

For 2020, the emission factors are:

NOx:

| | | |
|---|---|---|
| Trip end (cold start) | = | 1.0309 grams per one-way vehicle trip reduced |
| VMT (running) | = | 0.1498 grams per vehicle mile reduced |

VOC:

| | | |
|---|---|---|
| Trip end (cold start + hot soak) | = | 2.1358 grams per one-way vehicle trip reduced |
| VMT (running) | = | 0.0593 grams per vehicle mile reduced |

PM 2.5:

| | | |
|---|---|---|
| Trip end (cold start + hot soak) | = | 0.0312 grams per one-way vehicle trip reduced |
| VMT (running) | = | 0.0115 grams per vehicle mile reduced |

PM 2.5, NOx precursor:

| | | |
|---|---|---|
| Trip end (cold start + hot soak) | = | 1.3603 grams per one-way vehicle trip reduced |
| VMT (running) | = | 0.2019 grams per vehicle mile reduced |

CO2 (Greenhouse gas):

| | | |
|---|---|---|
| Trip end (cold start + hot soak) | = | 212.54 grams per one-way vehicle trip reduced |
| VMT (running) | = | 382.93 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 **0.0012 daily tons of NOx and 0.0008 daily tons of VOC. PM 2.5 and CO2 emissions were calculated on an annual basis. They totaled as follows: PM 2.5 – 0.025 annual tons, PM 2.5 NOx precursors – 0.400 annual tons, and CO2 – 598.4 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, **326 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 $301,000 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 **$301 per commuter per year**.

# List of Appendices

**Appendix A** – Questionnaire for FY 2021 Applicant Survey

**Appendix B** – Comparison of 2020 Survey Results with Results for 2017, 2014, 2011, 2008, 2005, 2004, and 2003 Surveys

**Appendix C –** Commuter Connections Impact Calculations, Recent Applicants – July-September 2020

# Appendix A
# Questionnaire for FY 2021 Applicant Survey

INTRODUCTION – SHOW ONLY ON THE FIRST PAGE OF THE SURVEY

Commuter Connections is conducting this online survey of people who received commute information or assistance from the Commuter Connections program. 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?

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

2 Which of the following best represents your work schedule?

1 Part-time
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*

3 The coronavirus pandemic has disrupted many workplaces, with many people now telecommuting or working remotely. 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 at the PRESENT TIME?

1 Yes
2 No
8 Don't know
*9 Question left blank*

**IF Q3 = 2, 8, OR 9, SKIP TO Q4a1**

4 How often do you usually telecommute/work remotely now? (If you work all of your workdays at home/remotely now due to the coronavirus pandemic, select "all of my workdays)

1 Less than 1 time per month / only in emergencies (e.g., sick child, snowstorm)
2 1 to 3 times a month
3 1 day a week
4 2 days a week
5 3 days a week
6 4 days a week
7 All of my workdays (or 5 or more days a week)
8 other (SPECIFY) _____
*9 Question left blank*

4a1 How often did you usually telecommute/work remotely 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 a month
3 1 day a week
4 2 days a week
5 3 days a week
6 4 days a 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 remotely before the coronavirus pandemic
9 other (SPECIFY) _____
*999 Question left blank*

4a2 Think now of the physical location where you worked in February 2020, before the pandemic began. Is this where you expect to work once the coronavirus pandemic is over? If you are not sure, please select the response that you think is most likely.

1 I will work all my workdays at the location where I worked in February 2020
2 I will work at home/remotely some days and work some days where I worked in February 2020
3 I will work all my workdays at home/remotely
4 I will work outside my home, but at a different location than where I worked in February 2020
5 Other (**SPECIFY**) _____
*9 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 do NOT typically travel to your usual work location and the reasons for not traveling to work (e.g., regular day off, telecommute, compressed work schedule day off).

PROGRAMMER NOTES:
**CHECK SUM OF DAYS. IF TOTAL OF 1-19 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."

**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 remotely. 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, UberPool, Waze Carpool (ride or drive with others in a car, truck, van, or SUV) | |
| 6 Casual carpool (slugging) | |
| 7 Vanpool | |
| 8 N/A – don't show on screen | |
| 9 Bus (public or private bus, shuttle, buspool, commuter bus, express bus, Via) | |
| 10 Metrorail | |
| 11 MARC (MD Commuter Rail) | |
| 12 VRE | |
| 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 remotely 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**
**BKDAYS = SUM OF Q5, RESPONSE 14**
**WKDAYS = SUM OF Q5, RESPONSE 15**

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

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

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

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

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

**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) _____

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 carl/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) _____

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

_____ miles **(ALLOW ONE DECIMAL)**
*999 Question left blank*

**CHANGES**

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

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

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

**Q28 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 mode change), SET Q30 = Q28 CHANGE 11-18 WITH LONGEST Q25 DURATION. IF TIE FOR LONGEST DURATION, SELECT CHANGE USING THE FOLLOWING HIERARCHY: 12 (Temporary vanpool), 11 (Temporary carpool), 14 (Temporary Metrorail), 13 (Temporary bus), 15 (Temporary commuter rail), 16 (Temporary bicycle/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-ten hour days per week or did you work a part-time schedule?

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

43 During the time of your temporary change to [Q30 MODE: carpool, vanpool, bus, Metrorail, commuter train, bicycle/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 you did NOT travel to your usual work location and the reasons (e.g., regular day off, telework, compressed work schedule day off) for not traveling to work.

PROGRAMMER NOTES:
**CHECK SUM OF DAYS. IF TOTAL OF 1-19 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."

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

**IF Q4 = 3, 4, 5, 6, OR 7 AND RESPONDENT DOES NOT CHECK "Telecommute" (RESPONSE 2), SHOW MESSAGE**: "You said you typically telework/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, UberPool, Waze Carpool (ride or drive with others in a car, truck, van, or SUV) | |
| 6 Casual carpool (slugging) | |
| 7 Vanpool | |
| 8 N/A – DO NOT SHOW ON SCREEN | |
| 9 Bus (public or private bus, shuttle, buspool, commuter bus, express bus, Via) | |
| 10 Metrorail | |
| 11 MARC (MD Commuter Rail) | |
| 12 VRE | |
| 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 remotely 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_MRDAYS = SUM OF Q43, RESPONSE 10**
**D_CRDAYS = SUM OF Q43, RESPONSE 11, 12, 13**
**D_BKDAYS = SUM OF Q43, RESPONSE 14**
**D_WKDAYS = 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_MRDAYS > 0, Q43 MODE = METRORAIL**
**IF D_CRDAYS > 0, Q43 MODE = COMMUTER TRAIN**
**IF D_BKDAYS > 0, Q43 MODE = BICYCLE/SCOOTER**
**IF D_WKDAYS > 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_MRDAYS + D_CRDAYS + D_BKDAYS + D_WKDAYS)**

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

**IF Q30 = 11 AND D_CPDAYS = 0, ASK Q44, INSERTING "CARPOOL" AS Q43 MODE**
**IF Q30 = 12 AND D_VPDAYS = 0, ASK Q44, INSERTING "VANPOOL" AS Q43 MODE**
**IF Q30 = 13 AND D_BUDAYS = 0, ASK Q44, INSERTING "BUS" AS Q43 MODE**
**IF Q30 = 14 AND D_MRDAYS = 0, ASK Q44, INSERTING "METRORAIL" AS Q43 MODE**
**IF Q30 = 15 AND D_CRDAYS = 0, ASK Q44, INSERTING "COMMUTER TRAIN" AS Q43 MODE**
**IF Q30 = 16 AND D_BKDAYS = 0, ASK Q44, INSERTING "BICYCLE/SCOOTER" AS Q43 MODE**
**IF Q30 = 17 AND D_WKDAYS = 0, ASK Q44, INSERTING "WALKING" AS Q43 MODE**
**IF Q30 = 18 AND D_TWDAYS = 0, ASK Q44, INSERTING "TELEWORK" AS Q43MODE**

**OTHERWISE, SKIP TO INSTRUCTIONS BEFORE Q46**

45 Earlier you said you made a temporary change to (**Q43 MODE: carpool, vanpool, bus, Metrorail, commuter train, bicycle/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 (**Q43 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, use less than one time per week

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

INSTRUCTIONS BEFORE Q46
**IF D_CPDAYS = 0 AND D_VPDAYS = 0, SKIP TO INSTRUCTIONS BEFORE Q50**

**IF Q30 = 19 AND Q27 = 3, ASK Q46, INSERT "carpool" AS Q43 MODE**
**IF Q30 = 19 AND Q27 = 4, ASK Q46, INSERT "vanpool" AS Q43 MODE**

**IF Q30 NE 19 AND D_CPDAYS > D_VPDAYS, ASK Q46, INSERT "carpool" AS Q43 MODE**
**IF Q30 NE 19 AND D_VPDAYS > D_CPDAYS, ASK Q46, INSERT "vanpool" AS Q43 MODE**
**IF Q30 NE 19 AND D_CPDAYS = D_VPDAYS, ASK Q46, INSERT "vanpool" AS Q43 MODE**

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

**TRAVEL BEFORE MAKING CHANGE**

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

**IF Q30 = 1, 11, OR 21, CONTINUE WITH Q50, INSERT 'carpool' AS Q30 MODE**
**IF Q30 = 2, 12, OR 22, CONTINUE WITH Q50, INSERT 'vanpool' AS Q30 MODE**
**IF Q30 = 3, 13, OR 23, CONTINUE WITH Q50, INSERT 'bus' AS Q30 MODE**
**IF Q30 = 4, 14, OR 24, CONTINUE WITH Q50, INSERT 'Metrorail' AS Q30 MODE**
**IF Q30 = 5, 15, OR 25, CONTINUE WITH Q50, INSERT 'commuter train' AS Q30 MODE**
**IF Q30 = 6, 16, OR 26, CONTINUE WITH Q50, INSERT 'bicycle/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)**
_____ Did not work then **(SKIP TO Q60)**

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

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

1 worked compressed work schedule
2 worked part-time
3 Other _____
*9 Left blank*

52 Before you made the change to [**Q30 MODE, carpool, vanpool, bus, Metrorail, commuter train, bicycle/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 you did NOT travel to your usual work location and the reasons (e.g., regular day off, telework, compressed work schedule day off) for not traveling to work.

PROGRAMMER NOTES:
**CHECK SUM OF DAYS. IF TOTAL OF 1-19 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."

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

**IF Q4 = 3, 4, 5, 6, OR 7 AND RESPONDENT DOES NOT CHECK "Telecommute" (RESPONSE 2), SHOW MESSAGE**: "You said you typically telework/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." **PERMIT "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, UberPool, Waze Carpool (ride or drive with others in a car, truck, van, or SUV) | |
| 6 Casual carpool (slugging) | |
| 7 Vanpool | |
| 8 NA – DO NOT SHOW ON SCREEN | |
| 9 Bus (public or private bus, shuttle, buspool, commuter bus, express bus, Via) | |
| 10 Metrorail | |
| 11 MARC (MD Commuter Rail) | |
| 12 VRE | |
| 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 remotely 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_MRDAYS = SUM OF Q52, RESPONSE 10**
**P_CRDAYS = SUM OF Q52, RESPONSE 11, 12, 13**
**P_BKDAYS = SUM OF Q52, RESPONSE 14**
**P_WKDAYS = SUM OF Q52, RESPONSE 15**

**IF P_CWDAYS > 0, Q52 MODE = COMPRESSED SCHEDULE**
**IF P_TWDAYS > 0, Q52 MODE = TELEWORK**
**IF P_DADAYS > 0, Q52 MODE = DRIVE ALONE**
**IF P_CPDAYS > 0, Q52 MODE = CARPOOL**
**IF P_VPDAYS > 0, Q52 MODE = VANPOOL**
**IF P_BUDAYS > 0, Q52 MODE = BUS**
**IF P_MRDAYS > 0, Q52 MODE = METRORAIL**
**IF P_CRDAYS > 0, Q52 MODE = COMMUTER TRAIN**
**IF P_BKDAYS > 0, Q52 MODE = BICYCLE/SCOOTER**
**IF P_WKDAYS > 0, Q52 MODE = WALKING**

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

**DEFINE PALTDAYS = TOTAL Q52 DAYS USING MODES 5, 6, 7, 9, 10, 11, 12, 13, 14, 15 (= P_CPDAYS + P_VPDAYS + P_BUDAYS + P_MRDAYS + P_CRDAYS + P_BKDAYS + P_WKDAYS)**

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, vehcle 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, 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)
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
14 Carpool incentive
15 Other (SPECIFY) _____
90 Did not receive any services from another organization

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

**IF Q63 = 1, SET Q66 = 1 (Commuter Connections matchlist)**
**IF Q63 = 2, SET Q66 = 3 (map)**
**IF Q63 = 16, SET Q66 = 5 (CarpoolNow mobile app)**
**IF Q63 NE 1, 2, OR 3 AND Q64 NE 1 OR 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.**

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

80 You said that you received information about transit from Commuter Connections. Did you contact a transit agency listed in the information you received?

1 Yes
2 No **(SKIP TO Q83)**
9 Don't remember, don't know **(SKIP TO INSTRUCTIONS BEFORE Q84)**

81 Did you use the information from the transit agency to try transit?
1 Yes **(SKIP TO INSTRUCTIONS BEFORE Q84)**
2 No **(ASK Q82)**
9 Don't remember, don't know **(SKIP TO INSTRUCTIONS BEFORE Q84)**

82 Why did you decide not to try transit?

OPEN ENDED _____

**(DO NOT SHOW THESE RESPONSE ON SCREEN) CODE OPEN-ENDED RESPONSES INTO THE FOLLOWING CATEGORIES IN POST PROCESSING – ACCEPT MULTIPLE RESPONSES**
1 Never got around to it
2 Wouldn't work with my schedule
3 Too far from home/work
4 Service not available
5 Commute too long
6 Too expensive
7 Prefer other mode
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**

**NOTE: IF IT APPLIES TO RESPONDENT, Q84 IS A MANDATORY QUESTION**

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

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

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

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

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

1 Yes
2 No
*9 Left blank*

**IF Q30 = 90, SKIP TO INSTRUCTIONS BEFORE Q90**
**IF Q30 = 6, 7, 8, 9, 16, 17, 18, 19, SKIP TO INSTRUCTIONS BEFORE Q90**
**IF Q30 = ANY OF 31 – 38, SKIP TO INSTRUCTIONS BEFORE Q90**

**IF Q30 = 1, 11, OR 21, ASK Q87, INSERT "carpool" as Q30 MODE**
**IF Q30 = 2, 12, OR 22, ASK Q87, INSERT "vanpool" as Q30 MODE**
**IF Q30 = 3, 13, OR 23, ASK Q87, INSERT "bus" as Q30 MODE**
**IF Q30 = 4, 14, OR 24, ASK Q87, INSERT "Metrorail" as Q30 MODE**
**IF Q30 = 5, 15, OR 25, ASK Q87, INSERT "commuter train" as Q30 MODE**

87 Was using the park & ride lot a factor in your decision to try using (**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
* Other (SPECIFY)
*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
5 Didn't make any bicycle changes9 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**
**IF Q63 = 11 (RECEIVED TELEWORK INFO), CONTINUE WITH Q95**

95 You said you received telework information from Commuter Connections. Since you received the information, have you taken any of the following actions? **(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 your 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 1-5)**

1 I-495/Capital Beltway Inner Loop (VA)
2 I-495/Capital Beltway Outer Loop (MD)
3 I-66 (VA)
4 I-295(DC)
5 Other (please specify) _____
9 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 5, 9, OR 99, SKIP TO INSTRUCTIONS BEFORE Q100**
**IF Q98 = ANY OF 1, 2, 3, OR 4, ASK Q98b**

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

1 Have not delayed depature/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?

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 eligibilty requirements **(SKIP to Q103)**

102 What were the reasons you did not register?

OPEN ENDED _____

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

1 Couldn't use carpool, vanpool, or train 2 or more days per week (didn't meet eligibility requirements)
2 Program doesn't cover home or work area
3 Program doesn't cover work hours
4 Employer has a GRH program
5 Didn't want to pre-register
6 Too much effort to use the service
7 Don't need it
8 Haven't gotten around to it
9 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 carpoo/vanpool
7 Better transit information
8 More advertising
9 More current information
10 Use Internet
11 Transit improvements
12 VP resources & assistance
13 GRH suggestion
14 separate driver & rider lists

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**DEMOGRAPHICS**

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

The last few questions are for classification purposes only.

105 About how many employees work at your worksite?

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

106 What is your occupation?

_____
*99 Left blank*

106a Are you considered an essential worker who is required to go to a workplace outside your home for a job in any of the following industries? Select all that apply. **(ALLOW MULTIPLE RESPONSES FOR 1-6, DO NOT ALLOW MULTIPLES WITH 7)**

1 Grocery/food store
2 Health care
3 Public works
4 Government service
5 Transportation
6 Other (please specify) _____
7 Not classified as essential worker
*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 or more
*99 Left blank*

112 Are you male or female?

1 Male
2 Female
*99 Left blank*

Thank you very much for your time and cooperation!

# Appendix B

## Comparison of November 2020 Survey Results with Results for 2017,2014, 2011, 2008, 2005, 2004, and 2003 Surveys

Unless otherwise indicated, sample sizes are: 2020 n = 282, 2017 n = 706, 2014 n = 716, 2011 n = 892, 2003-2008 n = 700

## Current Travel Information

**Table B-1**
**Current Mode Split – Weekly Trips**
**All Modes (including compressed work schedule and telework days)**
(2020 n = 282, 2017 n = 706, 2014 n = 690, 2011 n = 863, 2003-2008 n = 700)

| | 2020 | 2017 | 2014 | 2011 | 2008 | 2005 | 2004 | 2003 |
|---|---|---|---|---|---|---|---|---|
| **Compressed Schedule (CWS)** | 0.7% | 2.7% | 3.7% | **3.7%** | 2.2% | 2.4% | 2.5% | 2.8% |
| **Telework** | 75.1% | 12.6% | 7.7% | 5.5% | 3.2% | 2.3% | 1.9% | 1.2% |
| **Drive Alone/Motorcycle** | 10.4% | 12.3% | 9.6% | 9.7% | 24.6% | 25.6% | 27.4% | 24.9% |
| **Carpool** | 1.7% | 13.0% | 13.4% | 13.5% | 16.9% | 21.4% | 24.4% | 17.9% |
| **Vanpool** | 5.0% | 13.3% | 16.0% | 13.9% | 15.2% | 13.8% | 11.6% | 9.1% |
| **Bus** | 3.6% | 20.9% | 21.0% | 24.7% | 17.5% | 11.4% | 11.8% | 9.5% |
| **Train** | 2.6% | 23.9% | 27.4% | 28.7% | 20.4% | 22.8% | 20.3% | 34.2% |
| Metrorail | 1.0% | 8.0% | 9.2% | 8.5% | 11.3% | 12.4% | 11.4% | 12.8% |
| Commuter rail | 1.6% | 15.9% | 18.2% | 20.2% | 9.1% | 10.4% | 8.9% | 21.4% |
| **Bike/Walk** | **0.9%** | 1.3% | 1.2% | 0.3% | 0.1% | 0.4% | 0.3% | 0.2% |
| Bicycle | 0.9% | 1.1% | 1.2% | 0.3% | 0.1% | 0.1% | 0.1% | 0.1% |
| Walk | 0.0% | 0.2% | 0.0% | 0.0% | 0.0% | 0.3% | 0.2% | 0.1% |

**Table B-2**
**Current mode split – Percent of Weekly Trips**
**Mode Groups (excluding CWS and TW days)**
(2020 n = 282, 2017 n = 706, 2014 n = 690, 2011 n = 863, 2003-2008 n = 700)

| | 2020 | 2017 | 2014 | 2011 | 2008 | 2005 | 2004 | 2003 |
|---|---|---|---|---|---|---|---|---|
| **Drive Alone/Motorcycle** | 43.0% | 14.5% | 10.8% | 10.6% | 26.0% | 26.8% | 28.6% | 26.0% |
| **Carpool** | 7.2% | 15.3% | 15.1% | 15.3% | 17.8% | 22.4% | 25.5% | 18.7% |
| **Vanpool** | 20.7% | 15.8% | 18.0% | 14.9% | 16.1% | 14.5% | 12.1% | 9.5% |
| **Bus** | 15.0% | 24.7% | 23.7% | 27.2% | 18.5% | 11.9% | 12.3% | 9.9% |
| **Train** | 10.5% | 28.2% | 31.0% | 31.6% | 21.5% | 24.0% | 21.2% | 35.7% |
| **Bike/Walk** | | 3.6% | 1.6% | 1.4% | 0.4% | 0.1% | 0.4% | 0.3% |
| 0.2% | | | | | | | | |

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

| | 2020 | 2017 | 2014 | 2011 | 2008 | 2005 | 2004 | 2003 |
|---|---|---|---|---|---|---|---|---|
| **Yes** | 18% | 20% | 24% | 26% | 23% | 18% | 18% | 15% |
| 4/40 | 2% | 3% | 3% | 3% | 4% | 2% | 1% | 2% |
| 9/80 | 16% | 17% | 21% | 23% | 19% | 16% | 17% | 13% |

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

| | 2020 | 2017 | 2014 | 2011 | 2008 | 2005 | 2004 | 2003 |
|---|---|---|---|---|---|---|---|---|
| **Distance** | 39.2 mi | 35.1 mi | 36.2 mi | 36.2 mi | 36.3 mi | 36.5 mi | 34.9 mi | 35.6mi |
| **Time** | 54 min | 66 min | 63 min | 63 min | 63 min | 67 min | 62 min | 66 min |

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

| | 2020 | 2017 | 2014 | 2011 | 2008 | 2005 | 2004 | 2003 |
|---|---|---|---|---|---|---|---|---|
| (n=____) carpool | 13 | 121 | 115 | 147 | 137 | 172 | 191 | 140 |
| (n=____) vanpool | 8 | 108 | 104 | 144 | 115 | 104 | 88 | 71 |
| Carpool/casual carpool (slug) | 3.4 | 3.0 | 3.1 | 3.1 | 2.9 | 3.1 | 2.9 | 2.9 |
| Vanpool | 8.1 | 7.9 | 9.1 | 9.9 | 10.3 | 11.0 | 10.5 | 10.5 |

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

| | 2020 | 2017 | 2014 | 2011 | 2008 | 2005 | 2004 | 2003 |
|---|---|---|---|---|---|---|---|---|
| (n=____) | 22 | 230 | 245 | 275 | 252 | 276 | 279 | 211 |
| Always drive | 18% | 10% | 9% | 7% | 8% | 12% | 11% | 9% |
| Share driving | 55% | 58% | 55% | 58% | 55% | 52% | 48% | 43% |
| Never drive | 27% | 32% | 36% | 35% | 36% | 36% | 41% | 48% |

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

| | 2020 | 2017 | 2014 | 2011 | 2008 | 2005 | 2004 | 2003 |
|---|---|---|---|---|---|---|---|---|
| (n=____) | 49 | 607 | 630 | 775 | 508 | 498 | 489 | 511 |
| Picked-up at home | 2% | 3% | 3% | 5% | 7% | 9% | 8% | 7% |
| Drive to driver's home | 0% | 2% | 3% | 13% | 6% | 13% | 10% | 2% |
| Drive to central location | 75% | 71% | 71% | 64% | 71% | 62% | 69% | 74% |
| Another pool/dropped off | 0% | 2% | 3% | 1% | 1% | 2% | 2% | 3% |
| Walk/bike | 11% | 12% | 10% | 8% | 12% | 11% | 7% | 11% |
| Always drive carpool/vanpool | 8% | 4% | 4% | 2% | 1% | 1% | <1% | 1% |
| Bus/transit | 4% | 6% | 5% | 4% | 2% | 2% | 3% | 3% |
| Ave access distance | 6.5 mi | 6.2 mi | 6.8 mi | 6.9 mi | 6.5 mi | 6.8 mi | 6.0 mi | 6.2 mi |

## Travel Changes

**Table B-8**
**Made Travel Change Since Receiving Information/Assistance**

| | 2020 | 2017 | 2014 | 2011 | 2008 | 2005 | 2004 | 2003 |
|---|---|---|---|---|---|---|---|---|
| Started/tried carpool | 4.3% | 9.5% | 8.7% | 11.9% | 9.1% | 14.0% | 15.4% | 10.2% |
| Started/tried vanpool | 6.0% | 7.5% | 7.8% | 6.8% | 4.9% | 7.4% | 5.8% | 5.1% |
| Started/tried transit | 9.6% | 19.3% | 20.7% | 23.8% | 12.3% | 15.6% | 11.1% | 15.0% |
| Started/tried telework | 37.2% | 7.8% | 4.8% | 6.4% | 4.4% | 4.4% | 3.4% | 2.2% |
| Increased days using alt modes** | N/A | N/A | N/A | N/A | 0.0% | 0.0% | 1.8% | 0.0% |
| Started/tried bike/walk* | 1.1% | 1.0% | 1.2% | 0.5% | N/A | N/A | N/A | N/A |
| Added person to carpool/vanpool | 3.9% | 4.8% | 5.4% | 3.2% | 6.9% | 3.1% | 3.0% | 0.0% |
| **TOTAL** | **62.1%** | **49.9%** | **48.6%** | **52.6%** | **37.7%** | **44.5%** | **40.5%** | **32.5%** |

* 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?**

| | 2020 | 2017 | 2014 | 2011 | 2008 | 2005 | 2004 | 2003 |
|---|---|---|---|---|---|---|---|---|
| (n=____) | 164 | 253 | 265 | 263 | 285 | 311 | 268 | 264 |
| Yes, influenced decision | 15% | 26% | 21% | 38% | 30% | 33% | 35% | 32% |

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

| | 2020 | 2017 | 2014 | 2011 | 2008 | 2005 | 2004 | 2003 |
|---|---|---|---|---|---|---|---|---|
| (n=____) | 149 | 253 | 282 | 238 | 276 | 300 | 256 | 223 |
| Save money | 7% | 21% | 18% | 17% | 14% | 26% | 18% | 19% |
| Save gas, high gas price | 2% | 0% | 3% | 9% | 18% | N/A | N/A | N/A |
| Changed jobs | 9% | 14% | 18% | 16% | 23% | 16% | 14% | 14% |
| Save time | 9% | 18% | 7% | 13% | 12% | 23% | 18% | 22% |
| Tired of driving | 5% | 6% | 4% | 11% | 9% | 9% | 12% | 10% |
| New option available | 1% | 2% | 1% | 8% | <1% | <1% | 3% | N/A |
| SmartBenefits/financial incentive | 1% | 2% | 1% | 6% | <1% | 1% | 2% | 3% |
| Carpool broke up/didn't work out | 3% | 9% | 5% | 5% | N/A | N/A | N/A | N/A |
| Employer permitted telework | 1% | 6% | 2% | 6% | N/A | N/A | N/A | N/A |
| Received matchlist | N/A | 4% | N/A | N/A | N/A | N/A | N/A | N/A |
| Moved residence | 1% | 5% | 4% | 4% | 8% | 6% | 6% | 11% |
| Reduce wear and tear on car | N/A | 4% | <1% | 4% | 3% | <1% | 4% | 2% |
| Reduce congestion/pollution | 5% | 2% | 2% | 2% | 3% | 6% | 3% | 5% |
| Reduce stress/medical reason | N/A | 4% | 0% | 0% | 0% | 0% | 0% | 0% |
| Others doing it (e.g., family) | N/A | 1% | <1% | 2% | 2% | 4% | <1% | <1% |
| Circumstances (no vehicle) | 1% | 0% | N/A | N/A | 4% | 11% | 8% | 14% |
| Found new CP/VP rider | N/A | 0% | N/A | N/A | 10% | <1% | 5% | 2% |
| Coronavirus pandemic | 50% | N/A | 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)**

| | 2020 | 2017 | 2014 | 2011 | 2008 | 2005 | 2004 | 2003 |
|---|---|---|---|---|---|---|---|---|
| (n=____) | 175 | 352 | 346 | 454 | 285 | 306 | 271 | 224 |
| Continued change | 70% | 73% | 72% | 64% | 67% | 60% | 67% | 63% |
| Temporary change | 21% | 11% | 10% | 12% | 33% | 34% | 33% | 37% |
| Occasional use change | 6% | 7% | 7% | 14% | N/A | 6% | N/A | N/A |
| One-time change | 3% | 9% | 11% | 10% | N/A | N/A | N/A | N/A |

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

| | 2020 | 2017 | 2014 | 2011 | 2008 | 2005 | 2004 | 2003 |
|---|---|---|---|---|---|---|---|---|
| Continued placement rate | 43.6% | 36.4% | 34.9% | 35.4% | 25.4% | 26.9% | 27.4% | 20.4% |
| Temporary placement rate | 12.8% | 5.2% | 5.2% | 5.1% | 12.3% | 15.0% | 13.2% | 12.1% |
| Occasional placement rate | 3.6% | 3.7% | 3.3% | 6.1% | N/A | 2.6% | N/A | N/A |
| One-time placement rate | 2.1% | 4.6% | 5.2% | 6.0% | N/A | 2.6% | N/A | N/A |
| Continued VTR | -0.24 | -0.51 | -0.43 | -0.54 | -0.37 | -0.45 | -0.37 | -0.44 |
| Temporary VTR | -0.64 | -0.45 | -0.27 | -0.53 | -0.66 | -0.57 | -0.31 | -0.42 |
| Average duration of temporary change | 10.6 wks | 8.2 wks | 6.7 wks | 8.9 wks | 6.5 wks | 5.9 wks | 4.3 wks | 4.2 wks |

## Information Received

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

| | 2020 | 2017 | 2014 | 2011 | 2008 | 2005 | 2004 | 2003 |
|---|---|---|---|---|---|---|---|---|
| Internet | 80% | 81% | 80% | 78% | 77% | 67% | 64% | 66% |
| *CC page on Internet* | *79%* | *77%* | *78%* | *76%* | *73%* | *62%* | *56%* | *64%* |
| *Another internet site* | *1%* | *4%* | *2%* | *2%* | *4%* | *5%* | *8%* | *2%* |
| Called CC directly | 21% | 22% | 26% | 13% | 20% | 25% | 26% | 24% |
| Employer/through work | 13% | 14% | 11% | 10% | 5% | 5% | 5% | 8% |
| Local jurisdiction program | N/A | 1% | 3% | 1% | N/A | 2% | <1% | 1% |
| incenTrip mobile app | 5% | N/A | 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)**

| | 2020 | 2017 | 2014 | 2011 | 2008 | 2005 | 2004 | 2003 |
|---|---|---|---|---|---|---|---|---|
| GRH info / registration | 79% | 76% | 71% | 71% | 69% | 60% | 70% | 61% |
| Transit information | 34% | 28% | 24% | 22% | 17% | 28% | 28% | 33% |
| Matchlist | 35% | 25% | 21% | 27% | 42% | 67% | 66% | 48% |
| Pool partners map | 21% | 12% | 8% | 9% | N/A | N/A | N/A | N/A |
| P&R information | 21% | 12% | 11% | 12% | 13% | 25% | 26% | 21% |
| Information on special events | 20% | 15% | 8% | 6% | N/A | N/A | N/A | N/A |
| Vanpool assistance | 13% | 6% | 5% | 5% | 10% | 19% | 27% | 22% |
| Bicycle information | 13% | 7% | 5% | 4% | N/A | N/A | N/A | N/A |
| Telework information | 7% | 5% | 5% | 3% | 5% | 9% | 11% | 9% |
| HOV lane information | 12% | 7% | 6% | 3% | 3% | 7% | 12% | 8% |
| CarpoolNow mobile app | 5% | 3% | N/A | N/A | N/A | N/A | N/A | N/A |
| 'Pool Rewards | 8% | 5% | N/A | N/A | N/A | N/A | N/A | N/A |
| incenTrip mobile app | 9% | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flextime Rewards | 3% | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

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

| | 2020 | 2017 | 2014 | 2011 | 2008 | 2005 | 2004 | 2003 |
|---|---|---|---|---|---|---|---|---|
| Telework/CWS | 65% | 47% | 35% | 40% | 2% | 2% | <1% | <1% |
| Discount/free transit pass | 64% | 55% | 49% | 30% | 60% | 56% | 55% | 58% |
| Preferential parking | 29% | 23% | 15% | 3% | 2% | 2% | 2% | 3% |
| Transit information/schedule | 20% | 12% | 10% | 3% | 4% | 3% | 2% | 4% |
| Other cash incentive | 19% | 18% | 15% | 11% | 4% | 7% | 4% | 3% |
| CP/VP matchlist | 19% | 21% | 16% | 11% | 4% | 5% | 8% | 9% |
| GRH | 15% | 15% | 14% | <2% | 0% | 0% | 0% | 0% |
| Federal tax benefit | 11% | 11% | 11% | 3% | 3% | 3% | 2% | 3% |
| None | 15% | 15% | 17% | 5% | 27% | 30% | 30% | 30% |

**Table B-16**
**Received Information from Other Organization**

| | 2020 | 2017 | 2014 | 2011 | 2008 | 2005 | 2004 | 2003 |
|---|---|---|---|---|---|---|---|---|
| Yes | 9% | 9% | 2% | 2% | 4% | 7% | 6% | 5% |

## Use/Influence of Information Received

**Table B-17**
**Received Match Names (either Commuter Connections or employer/other agency)?**

| | 2020 | 2017 | 2014 | 2011 | 2008 | 2005 | 2004 | 2003 |
|---|---|---|---|---|---|---|---|---|
| Yes, received match info | 35% | 29% | 23% | 35% | 42% | 68% | 66% | 48% |

**Table B-18**
**Try to reach People Named on the List?**

| | 2020 | 2017 | 2014 | 2011 | 2008 | 2005 | 2004 | 2003 |
|---|---|---|---|---|---|---|---|---|
| (n=____) | 99 | 172 | 145 | 156 | 310 | 461 | 448 | 332 |
| Yes, tried to reach people | 65% | 56% | 56% | 58% | 56% | 56% | 52% | 49% |

**Table B-19**
**Able to Reach People on List?**

| | 2020 | 2017 | 2014 | 2011 | 2008 | 2005 | 2004 | 2003 |
|---|---|---|---|---|---|---|---|---|
| (n=____) | 58 | 93 | 80 | 90 | 176 | 256 | 231 | 161 |
| Yes, reached people on list | 91% | 83% | 87% | 77% | 84% | 88% | 88% | 89% |

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

| | 2020 | 2017 | 2014 | 2011 | 2008 | 2005 | 2004 | 2003 |
|---|---|---|---|---|---|---|---|---|
| (n=____) | 57 | 82 | 77 | 66 | 146 | 224 | 204 | 141 |
| Yes, interested in RS | 40% | 48% | 44% | 58% | 59% | 49% | 45% | 45% |
| Interested, but schedule and/or locations not compatible | 33% | 31% | 34% | 23% | 21% | 35% | 29% | 34% |
| Not interested in RS | 16% | 13% | 12% | 19% | 20% | 16% | 26% | 21% |

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

| | 2020 | 2017 | 2014 | 2011 | 2008 | 2005 | 2004 | 2003 |
|---|---|---|---|---|---|---|---|---|
| (n=____) | 37 | 84 | 66 | 47 | 136 | 207 | 114 | 171 |
| Work hours not compatible | 30% | 18% | 18% | 26% | 25% | 28% | 29% | 25% |
| Locations not compatible | 16% | 17% | 15% | 10% | 25% | 26% | 16% | 23% |
| Didn't want to RS | 27% | 28% | 22% | 13% | 16% | 17% | 12% | 17% |
| Already found RS arrangement | 8% | 19% | 21% | 22% | 19% | 12% | 23% | 15% |
| Haven't gotten around to it | 11% | 7% | 8% | 11% | 8% | 11% | 11% | 10% |
| Changed jobs | N/A | 1% | 2% | 2% | <1% | 3% | 4% | 2% |
| Changed residence | 3% | 2% | 0% | 2% | 2% | 2% | 4% | 2% |
| Coronavirus pandemic | 14% | N/A | 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)**

| | 2020 | 2017 | 2014 | 2011 | 2008 | 2005 | 2004 | 2003 |
|---|---|---|---|---|---|---|---|---|
| (n=____) | 96 | 195 | 167 | 206 | 117 | 189 | 187 | 229 |
| Yes, contacted agency | 41% | 39% | 36% | 40% | 31% | 37% | 38% | 32% |

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

| | 2020 | 2017 | 2014 | 2011 | 2008 | 2005 | 2004 | 2003 |
|---|---|---|---|---|---|---|---|---|
| (n=____) | 32 | 69 | 60 | 68 | 34 | 42 | 36 | 41 |
| Yes, used info to try transit | 88% | 81% | 87% | 81% | 77% | 83% | 60% | 88% |

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

| | 2020 | 2017 | 2014 | 2011 | 2008 | 2005 | 2004 | 2003 |
|---|---|---|---|---|---|---|---|---|
| (n=____) | 47 | 81 | 52 | 13 | 81 | 125 | 121 | 160 |
| Didn't need more information | N/A | 24% | 21% | 19% | N/A | N/A | N/A | N/A |
| Prefer other modes | 23% | 10% | 6% | 9% | 20% | 25% | 24% | 18% |
| Got info from website | N/A | NA | NA | 7% | N/A | N/A | N/A | N/A |
| Too far from home/work | 2% | 1% | 1% | 3% | 17% | 5% | 11% | 12% |
| Wasn't interested | 26% | 15% | 1% | 3% | 23% | 30% | 21% | 34% |
| Would never use transit | 2% | 5% | 1% | N/A | 27% | 2% | 2% | 2% |
| Already had info, other source | N/A | 17% | NA | 4% | <1% | 17% | 20% | 16% |
| Never got around to it | 23% | 6% | 1% | N/A | 6% | 11% | 15% | 7% |
| Coronavirus pandemic | 4% | N/A | 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)**

| | 2020 | 2017 | 2014 | 2011 | 2008 | 2005 | 2004 | 2003 |
|---|---|---|---|---|---|---|---|---|
| (n=____) | 59 | 85 | 76 | 97 | 62 | 134 | 140 | 96 |
| Yes, used P&R info | 61% | 52% | 59% | 75% | 42% | 54% | 57% | 47% |

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

| | 2020 | 2017 | 2014 | 2011 | 2008 | 2005 | 2004 | 2003 |
|---|---|---|---|---|---|---|---|---|
| (n=____) | 36 | 42 | 45 | 71 | 26 | 73 | 78 | 45 |
| Yes, knew of P&R before | 50% | 71% | 57% | 71% | 73% | 69% | 63% | 69% |

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

| | 2020 | 2017 | 2014 | 2011 | 2008 | 2005 | 2004 | 2003 |
|---|---|---|---|---|---|---|---|---|
| (n=____) | 18 | 29 | 27 | 51 | 26 | 73 | 78 | 45 |
| Yes, used P&R lot before | 33% | 59% | 49% | 55% | 48% | 50% | 40% | 50% |

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

| | 2020 | 2017 | 2014 | 2011 | 2008 | 2005 | 2004 | 2003 |
|---|---|---|---|---|---|---|---|---|
| (n=____) | 219 | 524 | 491 | 560 | 487 | 442 | 492 | 464 |
| Drive Alone/Motorcycle | 11% | 10% | 7% | 6% | 14% | 20% | 24% | 21% |
| Carpool | 8% | 13% | 13% | 13% | 19% | 22% | 22% | 15% |
| Vanpool | 24% | 16% | 18% | 17% | 17% | 14% | 14% | 11% |
| Bus/train | 56% | 60% | 78% | 63% | 50% | 45% | 42% | 52% |

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

| | 2020 | 2017 | 2014 | 2011 | 2008 | 2005 | 2004 | 2003 |
|---|---|---|---|---|---|---|---|---|
| (n=____) | 222 | 530 | 494 | 576 | 478 | 441 | 492 | 464 |
| Yes, registered for GRH | 91% | 94% | 97% | 96% | 86% | 76% | 73% | 74% |

# Appendix C – Calculations of Impacts
# Recent Applicants, July – September 2020

**Commute Information Requests**

**Populations of Interest – Commuter Connections Rideshare Applicants**

| | | | |
|---|---|---|---|
| **Total assisted commuters** | **2,166** | | |
| Within NAA (45%) | 983 | | |
| Outside NAA (55%) | 1,183 | | |
| **COC Placement Rates** | **In NAA** | **Out NAA** | |
| • Continued rate | 44.5% | 42.9% | |
| • Temporary rate | 11.7% | 13.6% | |
| • Total | 56.2% | 56.5% | |
| **Placements** | | | |
| • Continued | 437 | 508 | (Apps x cont. rate) |
| • Temporary | 115 | 161 | (Apps x temporary rate) |
| **Total placements 1,221** | | | |

**Daily Vehicle Trips Reduced**

| | | | |
|---|---|---|---|
| **VTR Factors** | | | |
| • Continued | 0.23 | 0.25 | |
| • Temporary | 0.50 | 0.76 | |
| • Temporary discount | 20% | 20% | |
| • Continued trips reduced | 101 | 127 | (Placements x cont. VTR factor) |
| • Temporary trips reduced | 12 | 24 | (Placements x temp VTR factor) |
| **Total VT reduced 264** | | | |

**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 | 23.1 | 23.1 | (Actual Outside dist. 49.0 miles) |
| • Temporary | 23.1 | 23.1 | (Actual Outside dist. 49.0 miles) |
| • Continued VMT reduced | 2,333 | 2,934 | (Vehicle trips x ave distance) |
| • Temporary VMT reduced | 277 | 554 | |
| **Total VMT Reduced 6,098** | | | |

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 | | 64% | 0% | (CC placement survey) |
| • SOV access dist (mi) – Continued | | 3.1 | 0.0 | (CC placement survey) |
| • Non-SOV access % - Temporary | | 64% | 0% | (CC placement survey) |
| • SOV access dist (mi) – Temporary | | 3.1 | 0.0 | (CC placement survey) |
| Outside NAA – not applicable – all access outside NAA | | | | |
| **Adjusted VT Reduction** | | | | |
| • Total continued trips reduced | | 101 | 127 | (Calculation shown on previous page) |
| • Continued SOV access VT | | -65 | 0 | (Total cont VT x SOV access %) |
| • **Net continued VT (no SOV access)** | | **36** | **127** | (Total Cont VT – Cont SOV access VT) |
| • Total temporary trips reduced | | 12 | 24 | (Calculation shown on previous page) |
| • Temporary SOV access VT | | -8 | 0 | (Temp VT x SOV access %) |
| • **Net temporary VT (no SOV access)** | | **4** | **24** | (Total Temp VT- Temp SOV access VT) |
| **Adjusted VT (net of SOV access)** | **191** | **40** | **151** | (Sum net cont VT + net temp VT) |
| **Adjusted VMT Reduction** | | | | |
| • Total continued VMT reduced | | 2,333 | 2,934 | (Calculation shown on previous page) |
| • Continued SOV access VMT | | -202 | 0 | (SOV access VT x SOV access dist) |
| • **Net continued VMT (no SOV access)** | | **2,131** | **2,934** | (Total Cont VMT- SOV access VMT) |
| • Total temporary VMT reduced | | 277 | 554 | (Calculation shown on previous page) |
| • Temporary SOV access VMT | | -25 | 0 | (Temp access VT x SOV access dist) |
| • **Net temporary VMT (no SOV access)** | | **252** | **554** | (Total Temp VMT- SOV access VMT) |
| **Adjusted VMT (net of SOV access)** | **5,871** | **2,383** | **3,488** | (Sum net cont VMT + net temp VMT) |

**Adjusted VT for AQ analysis** **191**
**Adjusted VMT for AQ analysis** **5,871**

Appendix 5, continued

**Daily Emissions Reduced – NOx and VOC**

| NOx | Trips | 20 Emission Factor | VMT | 20 Emission Factor | Tot gm | Tot ton |
|---|---|---|---|---|---|---|
| • From Starts | 191 | 1.0309 | | | 197 | 0.0002 |
| • From Running | | | 5,871 | 0.1498 | 879 | 0.0010 |
| **Total NOx reduced (tons)** | | | | | **Daily** | **0.0012** |

| VOC | Trips | 20 Emission Factor | VMT | 20 Emission Factor | Tot gm | Tot ton |
|---|---|---|---|---|---|---|
| • From Starts | 191 | 2.1358 | | | 408 | 0.0004 |
| • From Running | | | 5,871 | 0.0593 | 348 | 0.0004 |
| **Total VOC reduced (tons)** | | | | | **Daily** | **0.0008** |

**Annual Emissions Reduced – PM 2.5, Precursor NOx, and CO2 (PART 1 – Commute Information Requests)**

| PM 2.5 | Trips | 20 Emission Factor | VMT | 20 Emission Factor | Tot gm | Tot ton |
|---|---|---|---|---|---|---|
| • From Starts | 191 | 0.0312 | | | 6 | 0.0000 |
| • From Running | | | 5,871 | 0.0115 | 68 | 0.0001 |
| **Total PM 2.5 reduced (tons)** | | | | | **Daily** | **0.0001** |
| | | | | | **Annual** | **0.025** |

| PM 2.5 Precursor NOx | Trips | 20 Emission Factor | VMT | 20 Emission Factor | Tot gm | Tot ton |
|---|---|---|---|---|---|---|
| • From Starts | 191 | 1.3603 | | | 260 | 0.0003 |
| • From Running | | | 5,871 | 0.2019 | 1,185 | 0.0013 |
| **Total PM 2.5 Precursor NOx reduced (tons)** | | | | | **Daily** | **0.0016** |
| | | | | | **Annual** | **0.400** |

| CO2 | Trips | 20 Emission Factor | VMT | 20 Emission Factor | Tot gm | Tot ton |
|---|---|---|---|---|---|---|
| • From Starts | 191 | 212.54 | | | 40,595 | 0.0447 |
| • From Running | | | 5,871 | 362.93 | 2,130,762 | 2.3488 |
| **Total CO2 reduced (tons)** | | | | | **Daily** | **2.3935** |
| | | | | | **Annual** | **598.4** |

**Daily Energy Saving**

**Daily Energy Savings** **326 gal/day**

(daily VMT reduced / 18.0 miles/gallons)
(5,871 / 18.0)

Appendix 5, continued

**Annual Commuter Cost Savings Saving ****

| | |
|---|---|
| **Annual Commuter Cost Savings**<br>(VMT reduced x $0.205/mi. x 250 days)<br>(5,871 x 0.205 x 250) | **$301,000 / year** |
| **Cost Saving per commuter**<br>(cost saving / number of placements)**<br>($301,000 / 1,000) | **$301 / year** |

** 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 = 945 continued placements + 55 discounted temporary placements (20% * 276).