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TRANSPORTATION PLANNING BOARD MEETING PACKET

October 19, 2022

12:00 P.M. – 2:00 P.M.

In-Person Meeting

National Capital Region
Transportation Planning Board

National Capital Region
Transportation Planning Board

TRANSPORTATION PLANNING BOARD

Wednesday, October 19, 2022
12:00 P.M. - 2:00 P.M.
Walter A. Scheiber Board Room

Meeting in-person/hybrid for members

AGENDA

12:00 P.M. **1. PARTICIPATION PROCEDURES, MEMBER ROLL CALL, AND PUBLIC COMMENT OPPORTUNITY**
Pamela Sebesky, TPB Chair

Interested members of the public will be given the opportunity to make brief comments on transportation issues under consideration by the TPB. Any member of the public who wishes to address the board on the day of the meeting may do so by registering to attend and speak in person or by emailing a short statement to be relayed to the board at the meeting by noon on Tuesday, October 18, 2022. In-person comments will be limited to no more than three minutes. Written comments should be no more than 375 words. Please email TPBcomment@mwcog.org with the subject line "Item 1 Virtual Comment Opportunity" or call 202-962-3315 to register attendance or to provide the emailed statement.

12:15 P.M. **2. APPROVAL OF THE SEPTEMBER 21, 2022 MEETING MINUTES**
Pamela Sebesky, TPB Chair

12:20 P.M. **3. TECHNICAL COMMITTEE REPORT**
Jason Groth, Past TPB Technical Committee Chair

12:25 P.M. **4. COMMUNITY ADVISORY COMMITTEE REPORT**
Ashley Hutson, CAC Chair

12:35 P.M. **5. STEERING COMMITTEE ACTIONS AND REPORT OF THE DIRECTOR**
Kanti Srikanth, TPB Staff Director

This agenda item includes Steering Committee actions, letters sent/received, and announcements and updates.

12:45 P.M. **6. CHAIRMAN'S REMARKS**
Pamela Sebesky, TPB Chair

ACTION ITEM

12:50 P.M. **7. PBPP: FINAL 2022-2025 REGIONAL TARGETS FOR HIGHWAY SYSTEMS PERFORMANCE AND HIGHWAY ASSETS**
Eric Randall, TPB Transportation Engineer

The board will be asked to adopt the 2022-2025 highway systems performance and highway assets (bridge and pavement) targets for the region.

Action: Adopt Resolution R3-2023 to approve regional targets for highway systems performance and highway assets.

INFORMATIONAL ITEMS

1:00 P.M. **8. BRIEFING ON THE 2022 STATE OF THE COMMUTE SURVEY**
Nicholas Ramfos, TPB Transportation Operations Programs Director

Every three years since 2001, Commuter Connections has conducted a random sample survey of employed persons in the Metropolitan Washington Region to monitor trends in commuting behavior such as mode shares, telecommuting, and distance traveled, as well as attitudes about commuter assistance services. The board will be briefed on the highlights from the 2022 State of the Commute Survey.

1:25 P.M. **9. BUS TRANSIT EQUITY: 2022 UPDATE**
Eric Randall, TPB Transportation Engineer

The board will be briefed on an updated analysis of bus transit service in the National Capital Region, looking at current bus service frequency and coverage in relation to the COG Equity Emphasis Areas and demographics. A webmap will be demonstrated.

1:45 P.M. **10. 2024 LONG-RANGE PLAN UPDATE**
Stacy Cook, TPB Transportation Planner

Ms. Cook will review considerations related to the 2024 plan update and will present the schedule for the update.

2:00 P.M. **11. ADJOURN**

The next meeting is scheduled for November 16, 2022.

MEETING VIDEO

Watch and listen to live video of TPB meetings and listen to the recorded video from past meetings at:
www.mwcog.org/TPBmtg

TRANSPORTATION PLANNING BOARD
MEETING MINUTES

September 21, 2022

VIRTUAL MEETING

MEMBERS AND ALTERNATES PRESENT

Pamela Sebesky, TPB Chair – Manassas
Brook Pinto – DC Council
Ella Hanson – DC Council
Charles Allen – DC Council
Christina Henderson – DC Council
Heather Edelman – DC Council
Dan Emerine – DC Office of Planning
Anna Chamberlin – DDOT
Lezlie Rupert – DDOT
Mark Rawlings - DDOT
Matt Bazurto - Bowie
Reuben Collins - Charles County
Patrick Wojahn – College Park
Denise Mitchell – College Park
Mark Mishler – Frederick County
Kelly Russell – City of Frederick
Neil Harris – Gaithersburg
Rodney Roberts – Greenbelt
Brian Lee – Laurel
Gary Erenrich – Montgomery County Executive
Evan Glass – Montgomery County Legislative
Victor Weissberg – Prince George's County Executive
Bridget Donnell Newton – Rockville
Kacy Kostiuk – Takoma Park
Marc Korman – Maryland House of Delegates
Nancy King – Maryland Senate
R. Earl Lewis, Jr. – MDOT
Jeffrey Hirsch - MDOT
Canek Aguirre – Alexandria
Takis Karantonis – Arlington County
Dan Malouff – Arlington County
David Meyer – City of Fairfax
Walter Alcorn – Fairfax County - Legislative
David Snyder – Falls Church
Adam Shellenberger – Fauquier County
Matthew Letourneau – Loudoun County
Kristen Umstattd – Loudoun County
Corinna Sinsbury – Loudoun County
Jeannette Rishell – Manassas Park
Victor Angry – Prince William County
Paolo Belita – Prince William County

John Lynch - VDOT
Maria Sinner – VDOT
Amir Shahpar - VDOT
Allison Davis - WMATA
Mark Phillips – WMATA
Sandra Jackson – FHWA
Dan Koenig - FTA
Julia Koster - NCPC

MWCOG STAFF AND OTHERS PRESENT

Kanti Srikanth
Chuck Bean
Lyn Erickson
Mark Moran
Tim Canan
Andrew Meese
Nick Ramfos
Tom Gates
Sharon Pandak
Stacy Cook
Leo Pineda
Sergio Ritacco
John Swanson
Eric Randall
Kim Sutton
Rachel Beyerle
David Petrucci - FHWA
Adam Campbell - VDOT
Ashley Hutson - CAC
Matt Arcieri - Manassas

1. PARTICIPATION PROCEDURES, MEMBER ROLL CALL, AND PUBLIC COMMENT OPPORTUNITY

Chair Sebesky called the meeting to order. She said the meeting was being conducted virtually and she reiterated the procedures for conducting virtual meetings.

Ms. Erickson conducted a roll call confirming those participants in the room and those attending remotely. Attendance for the meeting can be found on the first page of the minutes. She confirmed there was a quorum.

Chair Sebesky said that no public comments had been received.

2. APPROVAL OF THE JULY 20, 2022, MEETING MINUTES

Ms. Umstattd made a motion to approve the minutes. The motion was seconded by Mr. Karantonis and was approved unanimously.

3. TECHNICAL COMMITTEE REPORT

Referring to the posted material, Mr. Arcieri said the Technical Committee met on September 9. He said that among other things, the committee received a briefing from U.S.DOT on safety which would be featured later on the TPB agenda. As information items, the committee discussed the preparations for the next long-range plan update, the updates on the Round 10 Cooperative Land-Use Forecasts, and the proposed greenhouse gas rule at the federal level.

4. REPORTS OF THE COMMUNITY ADVISORY COMMITTEE & THE ACCESS FOR ALL ADVISORY COMMITTEE

Referring to the posted report, Ms. Hutson said the Community Advisory Committee met on September 15. She said the committee invited representatives from the region's DOTs to attend the meeting. The intent for this session was to educate the committee on DOT coordination with the MPO process and to form relationships between CAC members and the DOTs. She said the meeting began with brief presentations from the DOT representatives. After a full-group discussion, the meeting broke into state-based breakout groups for more in-depth, state-specific interaction. She said that after this meeting, she believed CAC members had a better understanding of how DOT plans and processes fit with MPO plans and processes, and they also had formed or improved relationships with their respective DOTs.

Chair Sebesky said it is good that the CAC is strengthening its understanding of the regional transportation planning process.

Mr. Aguirre said the Access for All Advisory Committee met on September 2. He said that the meeting featured a presentation from the National Capital Planning Commission on their Pennsylvania Avenue Initiative. He said this effort is very exciting and has implications for committee members. He said the Committee also received a presentation on Equity Emphasis Areas and on the TPB's pedestrian and bicycle planning work. He said the committee's next meeting would be on December 16.

5. STEERING COMMITTEE ACTIONS AND REPORT OF THE DIRECTOR

Referring to the posted material, Mr. Srikanth said that the Steering Committee met on September 9 and approved the following: An amendment to the list of Northern Virginia projects that the TPB had previously endorsed for SMART SCALE funding; endorsement of the performance projects for roadway safety, air quality measures for the Baltimore MPO. He said there is a small piece of the Baltimore MPO's planning area that is physically in the TPB's urbanized area; and amendments to the TIP that the TPB adopted in June from DDOT, from WMATA, and from VDOT.

Mr. Srikanth highlighted a letter sent to WMATA requesting funding for the Street Smart program.

Mr. Srikanth called attention to the federal approval of the update of Visualize 2045. He thanked the federal agencies for the quick turnaround.

Mr. Srikanth also called attention to a federal proposal to add carbon dioxide emissions reduction target into the MPO planning process. He said that TPB staff had drafted a letter responding to this proposal, which supports establishing these targets as part of the MPO performance-based planning and programming process. He said the draft letter highlighted some differences between the federal proposal and the approach that the TPB has taken in its climate work, and he suggested that federal agencies might consider requiring a broader-based approach, such as what TPB has done.

Mr. Srikanth highlighted a resolution adopted by the COG board to establish a regional electric vehicle deployment working group, and also to set up an electric vehicle deployment clearinghouse for the entire region. He noted that a significant amount of federal funding being made available for EV deployment and he suggested that if there is interest among the TPB member jurisdictions and agencies to come together and apply for a regional federal grant, then this working group can be the forum where such discussions and efforts might be undertaken.

Mr. Srikanth said the September 22 is Car Free Day and he encouraged registration in the event.

Mr. Srikanth spoke about an email update from Maryland Department of Transportation about their Maryland express lane project. He asked Mr. Lewis if he had anything to say about it.

Mr. Lewis that TPB resolution R15-2022 called upon MDOT to provide the TPB with an update on the status of the Op Lanes Maryland project and transit investments. As described in the memo submitted to the TPB, he briefly summarized the status of the project.

Ms. Kostiuk asked about the proposed federal rule on the greenhouse gas emissions. She saw that the proposal suggested a six- to nine-month period to establish targets once the rule is established, and she asked if it might be possible to accelerate that schedule.

On a separate point, Ms. Kostiuk asked about the MDOT policy of not allowing partial funding for Transportation Alternatives Set-Aside Program projects, which she had asked about in July. She said she appreciated the information provided by MDOT, but she said she continued to be concerned that funding could be left on the table if partial funding is not allowed. She asked if the issue might be further explored to potentially find some middle ground.

Mr. Lewis said he would ask their planning staff to look into this further.

In response to Ms. Kostiuk's first question, Mr. Srikanth noted that the process of setting targets would take time and it could be difficult to accelerate the process. He further noted that some specific issues would need to be resolved before the targets could be set, including discrepancies between MPO boundaries and urbanized area boundaries, and the challenges of gathering data to inform target-setting.

6. CHAIR'S REMARKS

Chair Sebesky noted that the next day would be Car-Free Day. She expressed appreciation for the quick federal approval of the long-range plan and associated documents. She called attention to the proposed federal rule regarding greenhouse gas targets for MPO planning. She also expressed support for the COG board resolution on electric vehicle deployment.

ACTION ITEM

7. TPB BYLAWS UPDATE

Chair Sebesky introduced the only action item on the agenda. She said that TPB members are being asked to provide comments on the draft Bylaws revisions released in July 2022 and stated that if possible, she would like the TPB to act on the revisions today.

Chair Sebesky said that the staff memo for the Bylaws item contains a comment about opting to participate virtually in a meeting that is scheduled as an in-person meeting.

Ms. Erickson said that the impetus for the July proposal was to outline virtual participation procedures available to members and alternates after the public health emergency ends.

Ms. Erickson said that this revision period is an opportunity to bring the Bylaws into the 21st century through minor edits and as currently drafted, the Bylaws address virtual participation in a couple ways. She said that in the current draft of the Bylaws, the TPB chair and TPB can designate and pre-schedule up to three all-virtual meetings per year.

Ms. Erickson said that the current draft Bylaws note that the TPB shall give preference to in-person meetings versus virtual meetings and members will be expected to participate in in-person meetings unless exempted from the provisions which allow as an exemption up to two virtual participations in "in-person meetings", and they allow the TPB chair to determine that no electronic participation is permitted for any given meeting, .

Ms. Erickson said that the comments received on the draft were related to offering more flexibility for virtual participation in "in-person" meetings, and as such the degree of flexibility for virtual participation in "in-person" meetings is the topic of discussion before the board.

Ms. Erickson said that that the staff has identified four options to consider and that the TPB members will be informally polled on the options listed in the agenda memo via Webex prior to a formal vote. She asked that only voting TPB member or alternates vote once the poll has started and all participants will see the responses.

Ms. Erickson said that once poll responses are submitted that she will show the members what the Bylaws text will read that members will be asked to vote on in the formal vote. She stated that the chosen text will be placed into Resolution R2-2023 for the final vote.

Ms. Erickson explained that in preparing the staff memo, the TPB staff asked to see what other board members and member agencies are doing regarding virtual participation and found variation in member's boards, and some agencies have not yet started the process.

Ms. Erickson stated that in Option A, the bylaws remain as drafted, which limits optional virtual participation and in-person meetings to two times a year. She said that Option A translates to two in addition to the three that the TPB can already schedule and that gives up to five of the 11 meetings that a member can participate in virtually.

Ms. Erickson stated that Option B limits optional virtual participation in in-person meetings to up to four times a year, so therefore, potentially seven of 11 meetings can involve virtual participation.

Ms. Erickson said that Option C replaces limits on two optional virtual participations with a requirement for two in-person participations, so what that translates to is potentially nine of 11 meetings can be virtual participation.

Ms. Erickson explained that Option D places no limits on virtual participation or requirements for in-person participation. She said that this is the option recently approved by the COG Board.

Chair Sebesky said that the four options cover a wide spectrum that the board could do. She stated that she believes that the TPB is a regional body with members from three states and 23 localities, and it makes a difference when members, many of whom would likely not have a chance to work together other than when they are on the TPB, come together in person at least once every couple of months.

Chair Sebesky stated that in—person meetings provide an opportunity for members to get to know one another so that all can understand the different priorities and challenges to making the transportation system better and work for everyone.

Chair Sebesky stated that she has concerns that if the Bylaws are changed so that board members can participate virtually 100 percent of the time, that there will be less collaboration and this will ultimately impact the decisions this board needs to make in a potentially negative way. She said that she appreciates that there are some who see the other benefits of participating virtually, such as the time commitment for travel to these meetings or from an environmental perspective.

Chair Sebesky asked if any TPB members have thoughts on an option that has not been proposed. There were no comments on additional options.

Ms. Erickson posted the poll for TPB members and announced the results which showed that the Bylaws remain as drafted with seven responding to change from two to four, five responses to place limits for two virtual with two in-person, and maximum flexibility with not limits received 12 votes. .

Chair Sebesky called for comments.

Mr. Lee said that having served on several regional collaborative bodies including Leadership Greater Washington, the Metropolitan Washington Board of Trade, and on the TPB, he thinks it is important to have some in-person meetings because the board are a deliberative and collaborative body, and those things that you get when you meet and network are invaluable and members cannot get that online. He said he thinks it is important to have some in-person meetings.

Mr. Harris said that the reason he voted for maximum flexibility is that he recognized that value of attending in person and would expect to attend in person whenever possible; however, he commented about the practicality of limiting virtual participation. He stated that the City of Gaithersburg had a similar discussion about its council meetings and ended up opting for maximum flexibility because they did not want someone to be in a position where they had already attended their entire quota of virtual meetings, and therefore would not be allowed to attend.

Mr. Snyder said that from the poll it appears that there is a large number of votes that support maximum flexibility. He said that he supports Mr. Harris's comments.

Mr. Snyder stated that because the laws in the different TPB member jurisdictions vary, that he thinks the Bylaws change should be reviewed by municipal attorneys in all three [state] jurisdictions to assure that the TPB is not inadvertently stepping on laws that would otherwise apply.

Chair Sebesky recognized Ms. Sharon Pandak, TPB legal counsel, to comment.

Ms. Pandak stated that the issue raised by Mr. Snyder has been reviewed and was reviewed prior to the discussion being brought to the COG Board and stated that it is not relevant to Falls Church. She said that when there are more than two members from the same jurisdiction coming to a meeting then there has to be notice given at the home jurisdiction because of the requirements.

Ms. Pandak said that there is not a problem with respect to allowing maximum flexibility under the Virginia Freedom of Information Act (FOIA), the Maryland Public Records, or the District Public Meeting and Records Act, because COG is not subject to them.

Chair Sebesky stated that members in Virginia have to get approval and a vote by the board to participate virtually, and there is a limitation for Virginia boards, but that is not applying to COG.

Ms. Rishell said that she thinks that no matter what the board decides that members will do their best to accommodate the scheduling. She pointed out that the TPB board just passed greenhouse gas reduction goals that were really very robust, and it would seem to me that the maximum flexibility (Option D) would support that previous vote.

Mr. Karantonis said that he has respect for board members who come from very far to attend the TPB meetings and said that he thinks it would help to see whether the board can move the meetings to a place where the commuting would be facilitated.

Mr. Karantonis said that he hopes that the board can reach a point where travel can be done without significant carbon footprint with public transportation. He said that the board member alternates provide additional flexibility when members have a conflict to attend the meeting in person.

Ms. Erickson displayed the resolution text for board vote. She said that the amended sentence in the Bylaws would read, "virtual participation in an in-person meeting when an in-person meeting is scheduled a member may attend the meeting virtually through electronic communication means from a remote location," and the "...the member wishing to participate virtually shall give at least three days-notice,"

Mr. Snyder moved approval of the proposed language for Resolution R2-2023. The motion was seconded by Ms. Rishell.

Chair Sebesky requested a roll call vote.

Ms. Russell said that with regards to the three-days' notice, she stated that there may be exceptions if something occurs day of the meeting.

Ms. Erickson said that there are exceptions, and the chair can accept or deny anything, and there is flexibility built into the bylaws.

Ms. Erickson performed a roll call vote. She said that a "yes" vote indicates passing Resolution, R2-2023, with the language from Option (D).

The following members voted "yes" to Resolution R2-2023: Ms. Pinto, Ms. Hanson, Ms. Henderson, Mr. Emerine, DC Office of Planning, Ms. Chamberlin, Ms. Bazurto, Mr. Collins, Mr. Mishler, Ms. Russell, Mr. Harris, Mr. Erenrich, Mr. Weissberg, Ms. Newton, Ms. Kostiuk, Mr. Korman, Ms. King, Mr. Hirsch, Mr. Snyder, Mr. Shellenberger, Ms. Umstattd, Ms. Sinsbury, Ms. Rishell, Mr. Angry, Mr. Belita, Mr. Lynch, Ms. Davis

The following members voted "no" to Resolution R2-2023: Mr. Wojahn, Mr. Lee, Mr. Aguirre, Mr. Karantonis, Ms. Sebesky.

The final vote tally was Yes: 26; No: 5; Abstain: 2; Absent: 6.

INFORMATIONAL ITEMS

8. PBPP: DRAFT 2022-2025 REGIONAL TARGETS FOR HIGHWAY SYSTEMS PERFORMANCE AND HIGHWAY ASSETS

Chair Sebesky introduced Eric Randall, TPB Transportation Engineer, to brief TPB members on proposed updates to the performance targets previously set for highway assets and for highway system performance.

Mr. Randall referred the information memo and presentation in the agenda packet. He said that in 2018 the TPB set four-year targets for performance areas including highway and pavement conditions.

Mr. Randall said that he would provide a recap of the proposes measures and explain the methodology, performance forecasts, and development of the updated targets for 2022-2025.

Mr. Randall explained that the process is part of performance-based planning and programming, which is a federal requirement.

Mr. Randall said that the TPB is working with the District DOT, Maryland DOT, and Virginia DOT to validate data and discuss methodology forecasting future performance and developing new targets.

Mr. Randall presented the highway asset pavement bridge condition draft targets and the highway system performance travel time reliability measures. He said that the draft targets would be brought to the TPB for adoption at the October TPB meeting.

Mr. Randall said that the state DOTs are planning for slowly degrading asset conditions and that there is decreased focus on keeping the interstate in good condition. He said that there is increased focus on the rest of the National Highway System and on other state-maintained roads.

Mr. Randall said that federal funds make up about 15 percent of transportation funding in the region, and overall, about 10 percent of funding is going toward keeping highway assets in good condition.

Mr. Randall presented slides on the performance measures that indicated actual performance compared to past targets and the six targets proposed for the 2022-2025 period.

Mr. Randall presented slides on travel time reliability indicating the performance during 2020-2021 and proposed targets.

Mr. Randall said that TPB staff will take comments; but staff are receiving final data and information from the states.

Mr. Randall said in the next few days that the TPB staff will have snapshots that show conditions for each jurisdiction, so that members can see what conditions are in their jurisdiction, and staff is also on a GIS map that shows pavement and bridge conditions.

Chair Sebesky asked the TPB members place questions in the chat and staff will respond with answers.

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9. U.S. DOT SAFE SYSTEMS APPROACH FOR ROADWAY SAFETY

Chair Sebesky said that safety is a topic that TPB has been working on for several years, and the TPB has established a new grant program to help improve safety outcomes on our region's roadways.

Chair Sebesky introduced David Petrucci, Federal Highway Administration Senior Safety Engineer to brief the TPB on the U.S. DOT's comprehensive Safe System Approach to roadway safety.

Mr. Petrucci referred to the slide presentation contained in the agenda packet and explained that the Safe System Approach (SSA) is a change from how the U.S. Department of Transportation has traditionally or conventionally approached safety. He said that the SSA recognizes that people make mistakes, and humans are vulnerable to those mistakes on our transportation system.

Mr. Petrucci explained that SSA designs a roadway system with redundancies in place can help to improve safety and protect all users.

Mr. Petrucci said that SSA is built on the management of kinetic energy, is human focused, embraces best practices, and embraces proactivity. He said that SSA has existed for more than 30 years in other countries, and those countries have seen marked decreases in traffic fatalities of at least 50 percent from the mid-1990s to 2015 compared to 11 percent decreases in the U.S. for the same period.
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Mr. Petrucci presented the six Safe System principles: redundancy is crucial, death and serious injury are unacceptable, humans make mistakes, humans are vulnerable to mistakes, responsibility using operating, designing our system is shared, and safety is proactive.

Mr. Petrucci explained that the six Safe System elements are safe road users, safe vehicles, safe speeds, safe roads, and post-crash care. He said that the approach does not abandon enforcement, education, emergency response and engineering.

Mr. Petrucci said that a traditional approach focuses on preventing crashes, and the SSA accepts that crashes will happen, and the focus is on prevention of death and serious injury.

Mr. Petrucci shared links to resource materials from the U.S. Department of Transportation and the Institute of Transportation Engineers.

Mr. Wojahn stated that his concern is that the safest road often times for a bicyclist or pedestrian isn't a road but separated infrastructure or trails. He said that keeping the focus on roadways is concerning in that roads are particularly built for cars, and bicyclists and pedestrians are considered as afterthoughts. He asked Mr. Petrucci about the role of infrastructure like trails, like off-road infrastructure, fitting into this overall scheme.

Mr. Petrucci replied that safe roads are an element of the approach that include the roadway environment not just the cross-section of the highway, roadway, or street but the environment in which users are operating and making decisions. He said that the approach is intended to go beyond just the street and includes the physical infrastructure that exists to support multiple user types and modes of travel.

Ms. Kostiuk asked how much FHWA considers the larger system such as land use, locating people close to grocery stores so that they do not have to drive, and transit access. She said that in thinking about safe vehicles, often using a transit vehicle is much safer than driving your own car in terms of the likelihood of being in a crash. She asked if those things are taken into consideration in building into this approach?

Mr. Petrucci said that one of the technical avenues that can be considered is the management of conflicts on roadway types and among various user groups. He said that conflicts may exist due to access and land development among other reasons. He said that the SSA is at the approach level at this point and is not discussing specific strategies and solutions but as an exercise to manage conflicts, where they occur, how they occur, what those conflicts look like, the Safe System Approach is really compelling us to consider them in the design of our projects and the management of the systems that U.S. DOT is responsible for.

Mr. Harris asked if the SSA is different than Vision Zero?

Mr. Petrucci said that that the two are not exclusive. He said that the Safe System Approach might be really the way that we would like to see reaching that ultimate goal of zero injuries and fatalities on our nation's surface transportation system. He said that the goal of zero might be the vision, and the approach is the way we could get to that goal.

Mr. Roberts said that he hears about people making mistakes yet when people are traveling 80 miles per hour in a 55 miles per hour zone, he doesn't view that as a mistake and views speeding as on purpose. He encouraged better enforcement of traffic laws.

10. BRIEFING ON THE 2022 STATE OF THE COMMUTE SURVEY

Chair Sebesky said that because the board had run out of time, the State of the Commute Survey report will be in October or November.

11. ADJOURN

Chair Sebesky said that the next meeting will be on October 19 and will be an in-person meeting at COG.

The meeting was adjourned at 2:05 PM.

Meeting Highlights
TPB Technical Committee – October 7, 2022

The Technical Committee met on Friday, October 7, 2022. Meeting materials can be found here: https://www.mwcog.org/events/2022/10/7/tpb-technical-committee/

The following items were reviewed for inclusion on the TPB's October agenda.

TPB AGENDA ITEM 7 – PBPP: 2022-2025 REGIONAL TARGETS FOR HIGHWAY SYSTEMS PERFORMANCE AND HIGHWAY ASSETS
The committee was briefed on final draft targets for highway systems performance and highway asset condition (bridge and pavement) performance measures, for the period 2022-2025. A draft set of targets was briefed to the committee and the board in September. The board will be asked to adopt the 2022-2025 highway systems performance and highway assets (bridge and pavement) targets for the region at its October meeting.

TPB AGENDA ITEM 10 – VISUALIZE 2045 AND THE 2024 PLAN UPDATE
Ms. Cook reviewed considerations related to the 2024 plan update and presented the schedule for the update.

The following items were presented for information and discussion:

MOVES3 AND MVEB UPDATES IN THE SIP
The committee was briefed on preliminary results from EPA's MOVES3 model and the need to update the motor vehicle emissions budgets (MVEBs) in the State Implementation Plan (SIP).

PUBLIC PARTICIPATION EVALUATION
As part of the evaluation of the TPB's Participation Plan implementation activities between 2019 and 2022, TPB's consultant, Foursquare ITP, held focus group discussions with members of the TPB Technical Committee, and will be holding them for the TPB Community Advisory Committee and the TPB Access for All Advisory Committee. These discussions will compare outcomes of participation activities, including Visualize 2045 long-range transportation plan update participation, against stated TPB participation goals and objectives. Technical Committee members were asked to provide initial input on engagement experiences, virtual and in-person participation opportunities, outreach to historically underserved communities, and to provide suggestions for ways to engage the public over the next two years.

PBPP DATA VISUALIZATIONS
The committee was briefed on a dashboard under development for displaying the PBPP highway asset data.

NATIONAL ELECTRIC VEHICLE INFRASTRUCTURE PLANS

The Biden-Harris Administration announced on September 27, 2022 that it has approved Electric Vehicle Infrastructure Deployment Plans for all 50 States, the District of Columbia and Puerto Rico ahead of schedule under the National Electric Vehicle Infrastructure (NEVI) Formula Program, established and funded by President Biden's Bipartisan Infrastructure Law (BIL). With this approval, all states now have access to all FY22 and FY23 NEVI formula funding, totaling more than $1.5 billion to help build EV chargers covering approximately 75,000 miles of highway across the country. DDOT, MDOT, and VDOT representatives briefed the committee on their respective plans.

OTHER BUSINESS

- TPB PBPP GHG NPRM comment letter
- EV Work Group
- DOE Hydrogen Hub Opportunity
- TPB Bylaws implementation
- Visualize 2045 materials – sent to Tech/hard copies at TPB
- Staff Update

National Capital Region
Transportation Planning Board

MEMORANDUM

TO: Transportation Planning Board
FROM: Kanti Srikanth, TPB Staff Director
SUBJECT: Steering Committee Actions and Report of the Director
DATE: October 13, 2022

The attached materials include:

- Steering Committee Actions
- Letters Sent/Received
- Announcements and Updates

National Capital Region
Transportation Planning Board

MEMORANDUM

TO: Transportation Planning Board
SUBJECT: Steering Committee Actions
FROM: Kanti Srikanth, TPB Staff Director
DATE: October 13, 2022

At its meeting on October 7, 2022, the TPB Steering Committee adopted two resolutions approving amendments to the FY 2023-2026 Transportation Improvement Program (TIP) as requested by the District Department of Transportation (DDOT) and the Virginia Department of Transportation (VDOT), as described in the bullets below:

- TPB SR7-2023, requested by DDOT to add a net total of approximately $5.4 million under TIP Action 23-03.1. This set of amendments adds one new project, the DC Circulator South Capitol Street Facility Improvements project with $24 million in funding programmed; an update to the scope of the Anacostia Waterfront Initiative AWI- Buzzard Point, Fort McNair, Southwest Waterfront Climate Initiative Project (no change in programmed total or project cost); and updates to the 4-year program totals for three ongoing programs;
    - Traffic Operations Improvements Citywide – Increased from $44.8 to $54.5 million,
    - FTA Section 5303/530, increases from $3.3 to $3.8 million, and
    - DC Circulator decreases from $29.5 million to $725,000

  All projects and programs above are exempt from the air quality conformity requirement.

- TPB SR8-2023, requested by VDOT, reduces the amount programmed and total cost for the Neabsco Mills Road Widening project by approximately $24.7 million under TIP Action 23-03.3. This amendment was requested to accurately reflect VDOT's previous and planned obligations and total project cost in the FY 2023-2026 TIP. This project was included in the air quality conformity analysis of the 2022 Update to Visualize 2045 and the FY 2023-2026 TIP, and the reduction in amounts programmed will not impact the project's scope or expected timeline to completion.

The TPB Bylaws provide that the Steering Committee "shall have the full authority to approve non-regionally significant items, and in such cases, it shall advise the TPB of its action." The director's report each month and the TPB's review, without objection, shall constitute the final approval of any actions or resolutions approved by the Steering Committee.

Attachments:

- Adopted resolution SR7-2023, approving amendments to the FY 2023-2026 TIP which adds one new project and updates the scope of work for one project and funding for three ongoing programs under TIP Action 23-03.1, as requested by DDOT.
- Adopted resolution SR8-2023, approving amendments to the FY 2023-2026 TIP which updates funding and total cost for the Neabsco Mills Road Widening project under TIP Action 23-03.3, as requested by VDOT.

TPB Steering Committee Attendance – October 7, 2022
(only voting members and alternates listed)

TPB Chair/ VA rep.:	Pamela Sebesky
DC Rep.:	Heather Edelman
MD rep.:	Reuben Collins
DDOT:	Mark Rawlings
VDOT:	Amir Shahpar

TPB SR7-2023
October 7, 2022

NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD
777 North Capitol Street, N.E.
Washington, D.C. 20002

RESOLUTION ON AN AMENDMENT TO THE FY 2023-2026 TRANSPORTATION IMPROVEMENT PROGRAM (TIP) THAT IS EXEMPT FROM THE AIR QUALITY CONFORMITY REQUIREMENT TO INCLUDE TIP ACTION 23-03.1 WHICH ADDS A NEW PROJECT AND UPDATES THE SCOPE OF ONE PROJECT AND FUNDING AND TOTAL COST INFORMATION FOR THREE ONGOING PROGRAMS, AS REQUESTED BY THE DISTRICT DEPARTMENT OF TRANSPORTATION (DDOT)

WHEREAS, the National Capital Region Transportation Planning Board (TPB), as the federally designated metropolitan planning organization (MPO) for the Washington region, has the responsibility under the provisions of the Fixing America's Surface Transportation (FAST) Act, reauthorized November 15, 2021 when the Infrastructure Investment and Jobs Act (IIJA) was signed into law, for developing and carrying out a continuing, cooperative and comprehensive transportation planning process for the metropolitan area; and

WHEREAS, the TIP is required by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) as a basis and condition for all federal funding assistance to state, local and regional agencies for transportation improvements within the Washington planning area; and

WHEREAS, on June 15, 2022 the TPB adopted the FY 2023-2026 TIP; and

WHEREAS, DDOT has requested an amendment to the FY 2023-2026 TIP to include TIP Action 23-03.1 which adds a net total of approximately $5.44 million, as described below and in the attached materials:

- Adding a new project, the **DC Circulator South Capitol Street Facility Improvements [T11608]** with approximately $24 million in funding
- updating the scope of the **Anacostia Waterfront Initiative AWI- Buzzard Point, Fort McNair, Southwest Waterfront Climate Initiative Project [T6803]** (see revised project description, no change to project cost)
- and updating the funding and four-year program totals for three ongoing programs:
    - **Traffic Operations Improvements Citywide [T3216]** increases from $44,758,908 to $54,525,764
    - **FTA Section 5303/5304 [T6102],** increases from $3,282,990 to $3,834,922
    - **DC Circulator [T6105]** decreases from $29,551,675 to $724,994; and

WHEREAS, the attached materials include: Attachment A) a Project Overview report showing how the projects and programs will appear in the TIP following approval, Attachment B) an Amendment Summary report showing the changes in four-year program total, reason for the amendment, and a Change Summary providing line-item changes to every programmed amount by fund source, fiscal year, and project phase, and Attachment C) a letter from DDOT dated September 28, 2022 requesting the amendments; and

WHEREAS, these projects and programs have been updated in the TPB's Project InfoTrak database under TIP Action 23-03.1, creating the third amended version of the FY 2023-2026 TIP, which supersedes all previous versions of the TIP and can be found online at www.mwcog.org/ProjectInfoTrak; and

WHEREAS, these projects and programs are exempt from the air quality conformity requirement, as defined in Environmental Protection Agency's (EPA) Transportation Conformity Regulations as of April 2012; and

WHEREAS, this resolution and the amendments to the FY 2023-2026 TIP shall not be considered final until the Transportation Planning Board has had the opportunity to review and accept these materials at its next full meeting.

NOW, THEREFORE, BE IT RESOLVED THAT the Steering Committee of the National Capital Region Transportation Planning Board amends the FY 2023-2026 TIP to include TIP Action 23-03.1 which adds a net total of approximately $5.44 million, as described below and in the attached materials.

- Adding a new project, the **DC Circulator South Capitol Street Facility Improvements [T11608]** with approximately $24 million in funding
- updating the scope of the **Anacostia Waterfront Initiative AWI- Buzzard Point, Fort McNair, Southwest Waterfront Climate Initiative Project [T6803]** (see revised project description, no change to project cost)
- and updating the funding and four-year program totals for three ongoing programs:
    - **Traffic Operations Improvements Citywide [T3216]** increases from $44,758,908 to $54,525,764
    - **FTA Section 5303/5304 [T6102],** increases from $3,282,990 to $3,834,922
    - **DC Circulator [T6105]** decreases from $29,551,675 to $724,994.

Adopted by the TPB Steering Committee at its meeting on Friday, October 7, 2022.
Final approval following review by the full board on Wednesday, October 19, 2022.

National Capital Region
Transportation Planning Board

ATTACHMENT A
Overview Report for TIP Action 23-03.1: Amendment to the
FY 2023-2026 Transportation Improvement Program
Requested by the District Department of Transportation
Approved by the TPB Steering Committee - Oct. 7, 2022

TIP ID	T11608	*Lead Agency*	District Department of Transportation	*Project Type*	Transit - Bus
Project Name	DC Circulator South Capitol Street Facility Improvements	*County*	Washington	*Total Cost*	$23,946,892
Project Limits		*Municipality*	District of Columbia	*Completion Date*	2028
		Agency Project ID			

Description DDOTs South Capitol Street facility houses 14 battery-electric buses. DDOT intends to expand the facility to accommodate up to 46 additional electric buses, construct a minimum of two maintenance bays and one bus wash bay, and install new charging equipment, including a new solar canopy to offset electric bus charging costs.

Phase	Source	Prior	FY2023	FY2024	FY2025	FY2026	Future	4 Year Total	Total
CON	CRP	-	$3,370,858	-	-	-	-	$3,370,858	$3,370,858
CON	S. 5339(B)	-	$5,984,319	-	-	-	-	$5,984,319	$5,984,319
CON	S. 5339	-	$6,999,000	-	-	-	-	$6,999,000	$6,999,000
CON	STATE	-	$6,792,715	-	-	-	-	$6,792,715	$6,792,715
CON	STBG	-	$800,000	-	-	-	-	$800,000	$800,000
Total CON		-	$23,946,892	-	-	-	-	$23,946,892	$23,946,892
Total Programmed		-	$23,946,892	-	-	-	-	$23,946,892	$23,946,892

*Map Has Not Been Marked

Version History

TIP Document			*MPO Approval*	*FHWA Approval*	*FTA Approval*
23-03.1	Amendment	2023-2026	*10/19/2022*	*Pending*	*Pending*

Current Change Reason
SCHEDULE / FUNDING / SCOPE - New project

National Capital Region
Transportation Planning Board

ATTACHMENT A
Overview Report for TIP Action 23-03.1: Amendment to the
FY 2023-2026 Transportation Improvement Program
Requested by the District Department of Transportation
Approved by the TPB Steering Committee - Oct. 7, 2022

TIP ID	T3216	*Lead Agency*	District Department of Transportation	*Project Type*	Road - ITS/Technology
Project Name	Traffic Operations Improvements Citywide	*County*	Washington	*Total Cost*	$54,525,764
Project Limits		*Municipality*	District of Columbia	*Completion Date*	2024
		Agency Project ID	OSS07A, CI060A, CI034A, CI035A, PM097A, CI050A,		

Description This project modifies and improves vehicular and pedestrian traffic control systems, such as traffic signals, channelization, signs, pavement markings, and other traffic control measures on and off the Federal-aid highway system. Includes installation of a variety of traffic engineering devices and construction of nominal geometric alterations. The project will preserve and promote the efficient use of existing city streets through changes in the organization of vehicular and pedestrian traffic flows. Projects include: a. Advanced Transportation Management System b. Fiber Communication Networks on Major Arterial Corridors c. ITS Maintenance d. MATOC e. Mobile Pavement Marking Retroreflectivity Measurement and Data Collection f. Moveable Barrier System g. Thermoplastic Pavements Markings h. TMC Hardware and Data Services i. Traffic Management Center Operations

Phase	Source	FY2023	FY2024	FY2025	FY2026	4 Year Total	Total
PE	STATE	$26,040	$26,041	$26,041	$26,041	$104,163	$104,163
PE	STBG	$104,160	$104,161	$104,162	$104,162	$416,645	$416,645
	Total PE	$130,200	$130,202	$130,203	$130,203	$520,808	$520,808
CON	HSIP	$2,259,000	$2,259,000	$3,161,986	$3,161,986	$10,841,972	$10,841,972
CON	NHPP	$1,031,427	$1,060,674	$1,113,450	$1,168,857	$4,374,408	$4,924,808
CON	STATE	$1,926,929	$1,967,017	$2,102,243	$2,137,795	$8,133,984	$8,271,584
CON	STBG	$5,672,293	$5,803,396	$5,890,196	$5,976,996	$23,342,881	$23,342,881
	Total CON	$10,889,649	$11,090,087	$12,267,875	$12,445,634	$46,693,245	$47,381,245
OTHER	HSIP	$195,300	$195,300	$195,300	$195,300	$781,200	$781,200
OTHER	STATE	$244,668	$426,514	$226,223	$427,339	$1,324,744	$1,324,744
OTHER	STBG	$783,370	$1,510,754	$709,590	$1,514,053	$4,517,767	$4,517,767
	Total Other	$1,223,338	$2,132,568	$1,131,113	$2,136,692	$6,623,711	$6,623,711
	Total Programmed	$12,243,187	$13,352,857	$13,529,191	$14,712,529	$53,837,764	$54,525,764

*Map Has Not Been Marked

Version History

TIP Document		*MPO Approval*	*FHWA Approval*	*FTA Approval*
23-00	Adoption 2023-2026	06/15/2022	08/25/2022	08/25/2022
23-02	Modification 2023-2026	09/16/2022	N/A	N/A
23-03.1	Amendment 2023-2026	*10/19/2022*	*Pending*	N/A

Current Change Reason

SCHEDULE / FUNDING / SCOPE - Cost change(s), Programming Update

Funding Change(s):
Total project cost increased from $44,758,908 to $54,525,764

National Capital Region
Transportation Planning Board

ATTACHMENT A
Overview Report for TIP Action 23-03.1: Amendment to the
FY 2023-2026 Transportation Improvement Program
Requested by the District Department of Transportation
Approved by the TPB Steering Committee - Oct. 7, 2022

TIP ID	T6102	*Lead Agency*	District Department of Transportation	*Project Type*	Transit - Administration
Project Name	5303/5304 FTA Program	*County*	Washington	*Total Cost*	$3,834,922
Project Limits		*Municipality*	District of Columbia	*Completion Date*	2045
		Agency Project ID			

Description DDOT receives an annual FTA grant appropriation to support metropolitan planning activities (5303) and Statewide/DC based Planning Activities (5304).

Phase	Source	FY2023	FY2024	FY2025	FY2026	4 Year Total	Total
PE	S. 5303	$960,537	$529,000	$529,000	$529,000	$2,547,537	$2,547,537
PE	S. 5304	$128,300	$130,700	$130,700	$130,700	$520,400	$520,400
PE	STATE	$272,210	$164,925	$164,925	$164,925	$766,985	$766,985
	Total PE	$1,361,047	$824,625	$824,625	$824,625	$3,834,922	$3,834,922
Total Programmed		$1,361,047	$824,625	$824,625	$824,625	$3,834,922	$3,834,922

*Not Location Specific

Version History

TIP Document		*MPO Approval*	*FHWA Approval*	*FTA Approval*
23-00	Adoption 2023-2026	06/15/2022	08/25/2022	08/25/2022
23-03.1	Amendment 2023-2026	*10/19/2022*	N/A	*Pending*

Current Change Reason

SCHEDULE / FUNDING / SCOPE - Cost change(s)

Funding Change(s):
Total project cost increased from $3,282,990 to $3,834,922

National Capital Region
Transportation Planning Board

ATTACHMENT A
Overview Report for TIP Action 23-03.1: Amendment to the
FY 2023-2026 Transportation Improvement Program
Requested by the District Department of Transportation
Approved by the TPB Steering Committee - Oct. 7, 2022

TIP ID	T6105	*Lead Agency*	District Department of Transportation	*Project Type*	Transit - Bus
Project Name	DC Circulator	*County*	Washington	*Total Cost*	$724,994
Project Limits		*Municipality*	District of Columbia	*Completion Date*	2026
		Agency Project ID			

Description DC Circulator capital projects. a. DC Circulator On-Board Photo Enforcement b. DC Circulator Planning (TDP Implementation Activities) d. DC Circulator Sustainability and Zero Emissions Fleet Transition Plan

Phase	Source	FY2023	FY2024	FY2025	FY2026	4 Year Total	Total
PE	S. 5304	-	-	-	-	-	$351,343
PE	STATE	-	-	-	-	-	$87,836
	Total PE	-	-	-	-	-	$439,179
CON	STATE	-	-	-	$1,000	$1,000	$1,000
	Total CON	-	-	-	$1,000	$1,000	$1,000
STUDY	CMAQ	-	-	-	-	-	$227,851
STUDY	STATE	-	-	-	-	-	$56,964
	Total STUDY	-	-	-	-	-	$284,815
	Total Programmed	-	-	-	$1,000	$1,000	$724,994

*Not Location Specific

Version History

TIP Document		*MPO Approval*	*FHWA Approval*	*FTA Approval*
23-00	Adoption 2023-2026	06/15/2022	08/25/2022	08/25/2022
23-02	Amendment 2023-2026	09/16/2022	N/A	N/A
23-03.1	Amendment 2023-2026	*10/19/2022*	*Pending*	*Pending*

Current Change Reason

SCHEDULE / FUNDING / SCOPE - Cost change(s), Programming Update

Funding Change(s):
Total project cost decreased from $29,551,675 to $724,994

National Capital Region
Transportation Planning Board

ATTACHMENT A
Overview Report for TIP Action 23-03.1: Amendment to the
FY 2023-2026 Transportation Improvement Program
Requested by the District Department of Transportation
Approved by the TPB Steering Committee - Oct. 7, 2022

TIP ID T6803
Project Name Anacostia Waterfront Initiative AWI- Buzzard Point, Fort McNair, Southwest Waterfront Climate Initiative Project
Project Limits

Lead Agency District Department of Transportation
County Washington
Municipality District of Columbia
Agency Project ID

Description The Anacostia Waterfront Initiative (AWI) - Buzzard Point, Fort McNair, Southwest Waterfront Trail Project (Project) is the next project in the planning area for the Anacostia W advance pedestrian and bicycle access to the riverfront by extending the existing Anacostia Riverwalk Trail from the Frederick Douglass Memorial Bridge to the Southwest W Anacostia and the Potomac Rivers. The proposed scope is to complete preliminary engineering and environmental documentation for a pedestrian and bicycle trail to the wa barriers between neighborhoods and waterfront parks.

*Map

Phase	Source	Prior	FY2023	FY2024	FY2025	FY2026	Future	4 Year Total	Total
PE	STATE	$1,140,000	-	-	-	-	-	-	$1,140,000
PE	STBG	$160,000	-	-	-	-	-	-	$160,000
	Total PE	$1,300,000	-	-	-	-	-	-	$1,300,000
OTHER	TBD	-	-	-	-	-	$1,000	-	$1,000
	Total Other	-	-	-	-	-	$1,000	-	$1,000
	Total Programmed	$1,300,000	-	-	-	-	$1,000	-	$1,301,000

Version History

TIP Document		*MPO Approval*	*FHWA Approval*	*FTA Approval*
23-00	Adoption 2023-2026	06/15/2022	08/25/2022	08/25/2022
23-03.1	Amendment 2023-2026	*10/19/2022*	*Pending*	N/A

Current Change Reason
SCHEDULE / FUNDING / SCOPE - Scope Change(s)

Funding Change(s):
Total project cost stays the same $1,301,000

ATTACHMENT B
Summary Report for TIP Action 23-03.1: Amendment to the
FY 2023-2026 Transportation Improvement Program
Requested by the District Department of Transportation
Approved by the TPB Steering Committee - Oct. 7, 2022

TIP ID	PROJECT TITLE	COST BEFORE	COST AFTER	COST CHANGE	% CHANGE	CHANGE REASON	CHANGE SUMMARY
T6803	Anacostia Waterfront Initiative AWI-Buzzard Point, Fort McNair, Southwest Waterfront Climate Initiative Project	$1,301,000	$1,301,000	$0	0	Scope Change(s)	PROJECT CHANGES (FROM PREVIOUS VERSION): Update project description to read: "The Anacostia Waterfront Initiative (AWI) - Buzzard Point, Fort McNair, Southwest Waterfront Trail Project (Project) is the next project in the planning area for the Anacostia Waterfront Initiative (AWI) and will advance pedestrian and bicycle access to the riverfront by extending the existing Anacostia Riverwalk Trail from the Frederick Douglass Memorial Bridge to the Southwest Waterfront, at the conflux of the Anacostia and the Potomac Rivers." *Total project cost stays the same $1,301,000*
T3216	Traffic Operations Improvements Citywide	$44,758,908	$54,525,764	$9,766,856	22	Cost change(s), Programming Update	PROJECT CHANGES (FROM PREVIOUS VERSION): DC/STATE + Increase funds in FFY 23 in PE from $0 to $26,040 + Increase funds in FFY 23 in CON from $1,793,464 to $1,926,929 + Increase funds in FFY 23 in OTHER from $60,000 to $244,668 + Increase funds in FFY 24 in PE from $0 to $26,041 + Increase funds in FFY 24 in CON from $1,793,464 to $1,967,017 + Increase funds in FFY 24 in OTHER from $60,000 to $426,514 + Increase funds in FFY 25 in PE from $0 to $26,041 + Increase funds in FFY 25 in CON from $1,893,796 to $2,102,243 + Increase funds in FFY 25 in OTHER from $60,000 to $226,223 + Increase funds in FFY 26 in PE from $0 to $26,041 + Increase funds in FFY 26 in CON from $1,893,796 to $2,137,795 + Increase funds in FFY 26 in OTHER from $60,000 to $427,339 HSIP + Increase funds in FFY 23 in CON from $2,247,750 to $2,259,000 - Decrease funds in FFY 23 in OTHER from $240,000 to $195,300 + Increase funds in FFY 24 in CON from $2,247,750 to $2,259,000 - Decrease funds in FFY 24 in OTHER from $240,000 to $195,300 + Increase funds in FFY 25 in CON from $3,150,736 to $3,161,986 - Decrease funds in FFY 25 in OTHER from $240,000 to $195,300 + Increase funds in FFY 26 in CON from $3,150,736 to $3,161,986 - Decrease funds in FFY 26 in OTHER from $240,000 to $195,300

							NHPP + Increase funds in FFY 23 in CON from $320,000 to $1,031,427 + Increase funds in FFY 24 in CON from $320,000 to $1,060,674 + Increase funds in FFY 25 in CON from $320,000 to $1,113,450 + Increase funds in FFY 26 in CON from $320,000 to $1,168,857 STBG + Increase funds in FFY 23 in PE from $0 to $104,160 - Decrease funds in FFY 23 in CON from $5,854,854 to $5,672,293 + Increase funds in FFY 23 in OTHER from $0 to $783,370 + Increase funds in FFY 24 in PE from $0 to $104,161 - Decrease funds in FFY 24 in CON from $5,854,854 to $5,803,396 + Increase funds in FFY 24 in OTHER from $0 to $1,510,754 + Increase funds in FFY 25 in PE from $0 to $104,162 + Increase funds in FFY 25 in CON from $5,854,854 to $5,890,196 + Increase funds in FFY 25 in OTHER from $0 to $709,590 + Increase funds in FFY 26 in PE from $0 to $104,162 + Increase funds in FFY 26 in CON from $5,854,854 to $5,976,996 + Increase funds in FFY 26 in OTHER from $0 to $1,514,053 *Total project cost increased from $44,758,908 to $54,525,764*
T6102	5303/5304 FTA Program	$3,282,990	$3,834,922	$551,932	17	Cost change(s)	PROJECT CHANGES (FROM PREVIOUS VERSION): DC/STATE + Increase funds in FFY 23 in PE from $161,823 to $272,210 S. 5303 + Increase funds in FFY 23 in PE from $518,992 to $960,537 *Total project cost increased from $3,282,990 to $3,834,922*
T6105	DC Circulator	$29,551,675	$724,994	($28,826,681)	-98	Cost change(s), Programming Update	PROJECT CHANGES (FROM PREVIOUS VERSION): CRP ► Delete funds in FFY 23 in CON for $3,370,857 DC/STATE - Decrease funds in FFY 22 in CON from $16,328,790 to $0 ► Delete funds in FFY 23 in CON for $842,715 STBG ► Delete funds in FFY 22 in CON for $800,000 S. 5339 ► Delete funds in FFY 22 in CON for $1,500,000 S. 5339(B) ► Delete funds in FFY 22 in CON for $5,984,319 *Total project cost decreased from $29,551,675 to $724,994*

T11608	DC Circulator South Capitol Street Facility Improvements	$0	$23,946,892	$23,946,892	0	New project	PROJECT CHANGES (FROM PREVIOUS VERSION): CRP ► Add funds in FFY 23 in CON for $3,370,858 DC/STATE ► Add funds in FFY 23 in CON for $6,792,715 STBG ► Add funds in FFY 23 in CON for $800,000 S. 5339 ► Add funds in FFY 23 in CON for $6,999,000 S. 5339(B) ► Add funds in FFY 23 in CON for $5,984,319 *Total project cost $23,946,892*
	Grand Totals:	**$78,894,573**	**$84,333,572**	**$5,438,999**			

Government of the District of Columbia

Department of Transportation

September 23, 2022

The Honorable Pamela Sebesky, Chair
National Capital Region Transportation Planning Board
Metropolitan Washington Council of Governments
777 North Capitol Street N.E., Suite 300
Washington, DC 20002-4290

Dear Chair Sebesky,

The District Department of Transportation (DDOT) requests that the FY 2023-2026 Transportation Improvement Program (TIP) be amended as detailed below.

1. **Advanced Transportation Management System (TIP ID: T-3216a)**
    a. Increase STBG funding for Other by $192,588 in FY 2023
    b. Increase STBG funding for Other by $98,193 in FY 2024
    c. Increase STBG funding for Other by $100,363 in FY 2025
    d. Increase STBG funding for Other by $102,316 in FY 2026
    e. Increase STBG funding for Construction by $9,576,660 in FY 2023

2. **Fiber Communication Networks on Major Arterial Corridors (T-3216b)**
    a. Increase STBG funding for Construction by $9,576,660 in FY 2023

3. **ITS Maintenance (TIP ID: T-3216c)**
    a. Increase STBG funding for Construction by $555,169 in FY 2023
    b. Increase STBG funding for Construction by $719,048 in FY 2024
    c. Increase STBG funding for Construction by $827,548 in FY 2025
    d. Increase STBG funding for Construction by $936,048 in FY 2026

4. **MATOC (TIP ID: T-3216d)**
    a. Increase STBG funding for Other by $786,625 in FY 2023
    b. Increase STBG funding for Other by $786,625 in FY 2024
    c. Increase STBG funding for Other by $786,625 in FY 2025
    d. Increase STBG funding for Other by $786,625 in FY 2026
    e. Decrease STBG funding for Construction by $783,370 in FY 2023
    f. Decrease STBG funding for Construction by $783,370 in FY 2024
    g. Decrease STBG funding for Construction by $783,370 in FY 2025
    h. Decrease STBG funding for Construction by $783,370 in FY 2026

5. **Mobile Pavement Marking Retroreflectivity Measurement and Data Collection (TIP ID: T-3216e)**
    a. Increase HSIP funding for Construction by $12,500 in FY 2023
    b. Increase HSIP funding for Construction by $12,500 in FY 2024
    c. Increase HSIP funding for Construction by $12,500 in FY 2025
    d. Increase HSIP funding for Construction by $12,500 in FY 2026

6. **Moveable Barrier System (TIP ID: T-3216f)**
    a. Increase NHPP funding for Construction by $889,285 in FY 2023
    b. Increase NHPP funding for Construction by $925,844 in FY 2024
    c. Increase NHPP funding for Construction by $991,813 in FY 2025
    d. Increase NHPP funding for Construction by $1,061,072 in FY 2026

7. **TMC Field Network Copper to Fiber Replacement (TIP ID: T-3216j)**
    a. Create new subproject j. TMC Field Network Copper to Fiber Replacement and Increase STBG funding for Other by $1,003,625 in FY 2024
    b. Increase STBG funding for Other by $1,003,625 in FY 2026

8. **TMC Hardware and Data Services (TIP ID: T-3216h)**
    a. Increase STBG funding for Other by $1,003,625 in FY 2026
    b. Decrease STBG funding for Other by $55,875 in FY 2023
    c. Decrease STBG funding for Other by $55,874 in FY 2024
    d. Decrease STBG funding for Other by $55,873 in FY 2025
    e. Decrease STBG funding for Other by $55,872 in FY 2026
    f. Increase STBG funding for PE by $130,200 in FY 2023
    g. Increase STBG funding for PE by $130,201 in FY 2024
    h. Increase STBG funding for PE by $130,202 in FY 2025
    i. Increase STBG funding for PE by $130,203 in FY 2026

9. **Anacostia Waterfront Initiative AWI- Buzzard Point, Fort McNair, Southwest Waterfront Trail Project (T-6803)**
    a. Update project description to reflect new scope: "The Anacostia Waterfront Initiative (AWI) - Buzzard Point, Fort McNair, Southwest Waterfront Trail Project (Project) is the next project in the planning area for the Anacostia Waterfront Initiative (AWI) and will advance pedestrian and bicycle access to the riverfront by extending the existing Anacostia Riverwalk Trail from the Frederick Douglass Memorial Bridge to the Southwest Waterfront, at the conflux of the Anacostia and the Potomac Rivers."

10. **5303/5304 FTA Program (T6102)**
    a. Increase Sect. 5303 funding for PE by $551,932 in FY 2023

11. **DC Circulator (T-6105)**
    a. Remove Subproject c. DC Circulator South Capitol Street Facility Improvements
    b. Decrease CRP funding for Construction by $4,213,572 in FY 2023

12. **DC Circulator South Capitol Street Facility Improvements (T-11608)**
    a. Create new project
    b. Increase STBG funding for Constriction by $1,000,000 in FY 2023
    c. Increase Sect. 5339 funding for Construction by $8,749,000 in FY 2023
    d. Increase Sect. 5339(b) funding for Construction by $5,984,319 in FY 2023
    e. Increase DCSTATE Funding for construction by $4,000,000 in FY 2023
    f. Increase CRP funding for Construction by $4,213,572 in FY 2023

The proposed amendments do not add additional capacity for motorized vehicles and do not require conformity analysis or public review and comment. The funding sources have been identified, and the TIP will remain fiscally constrained. Therefore, DDOT requests that the TPB Steering Committee approve these amendments at its October 7th meeting.

We appreciate your cooperation in this matter. Should you have questions regarding these amendments, please contact Mark Rawlings at (202) 671-2234 or by e-mail at mark.rawlings@dc.gov. Of course, please feel free to contact me directly.

Sincerely,

Saesha Carlile
Chief Administrative Officer
District Department of Transportation
Saesha.carlile@dc.gov

TPB SR8-2023
October 7, 2022

NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD
777 North Capitol Street, N.E.
Washington, D.C. 20002

RESOLUTION ON AN AMENDMENT TO THE FY 2023-2026 TRANSPORTATION IMPROVEMENT PROGRAM (TIP) THAT IS EXEMPT FROM THE AIR QUALITY CONFORMITY REQUIREMENT TO INCLUDE TIP ACTION 23-03.3 WHICH UPDATES FUNDING AND PROJECT COST INFORMATION FOR THE NEABSCO MILLS ROAD WIDENING PROJECT, AS REQUESTED BY THE VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT)

WHEREAS, the National Capital Region Transportation Planning Board (TPB), as the federally designated metropolitan planning organization (MPO) for the Washington region, has the responsibility under the provisions of the Fixing America's Surface Transportation (FAST) Act, reauthorized November 15, 2021 when the Infrastructure Investment and Jobs Act (IIJA) was signed into law, for developing and carrying out a continuing, cooperative and comprehensive transportation planning process for the metropolitan area; and

WHEREAS, the TIP is required by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) as a basis and condition for all federal funding assistance to state, local and regional agencies for transportation improvements within the Washington planning area; and

WHEREAS, on June 15, 2022 the TPB adopted the FY 2023-2026 TIP; and

WHEREAS, VDOT has requested an amendment to the FY 2023-2026 TIP to include TIP Action 23-03.3 which updates funding information and reduces the total project cost for the **Neabsco Mills Road Widening project** (**T6542**) from $54,063,836 to $29,385,425, a net decrease of approximately $24.7 million, as described in the attached materials; and

WHEREAS, the attached materials include: Attachment A) a Project Overview report showing how the projects will appear in the TIP following approval, Attachment B) an Amendment Summary report showing the changes in total project cost, the reason for the amendment, and a Change Summary providing line-item changes to every programmed amount by fund source, fiscal year, and project phase, and Attachment C) a letter from VDOT dated Septembert 28, 2022 requesting the amendments; and

WHEREAS, this project has been updated in the TPB's Project InfoTrak database under TIP Action 23-03.3, creating the third amended version of the FY 2023-2026 TIP, which supersedes all previous versions of the TIP and can be found online at www.mwcog.org/ProjectInfoTrak; and

WHEREAS, this project is included in the air quality conformity analysis of the 2022 Update to Visualize 2045 and the FY 2023-2026 TIP (CON ID 593); and

WHEREAS, this resolution and amendment to the FY 2023-2026 TIP shall not be considered final until the Transportation Planning Board has had the opportunity to review and accept these materials at its next full meeting.

NOW, THEREFORE, BE IT RESOLVED THAT the Steering Committee of the National Capital Region Transportation Planning Board amends the FY 2023-2026 TIP to include TIP Action 23-03.3 which updates funding information and reduces the total project cost for the **Neabsco Mills Road Widening project** (**T6542**) from $54,063,836 to $29,385,425, a net decrease of approximately $24.7 million, as described in the attached materials.

Adopted by the TPB Steering Committee at its meeting on Friday, October 7, 2022.
Final approval following **review by the full board on Wednesday, October 19, 2022.**

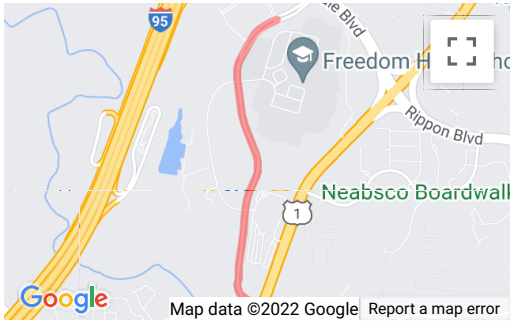
National Capital Region
Transportation Planning Board

ATTACHMENT A
Overview Report for TIP Action 23-03.3 Amendment to the
FY 2023-2026 Transportation Improvement Program
Requested by the Virginia Department of Transportation
Approved by the TPB Steering Committee - Oct. 7, 2022

TIP ID	T6541	*Lead Agency*	Virginia Department of Transportation	*Project Type*	Road - Add Capacity/Widening
Project Name	NEABSCO MILLS ROAD - Widen to 4 lanes	*County*	Prince William	*Total Cost*	$29,385,425
Project Limits	Smoke Court to US 1 Jefferson Davis Highway	*Municipality*		*Completion Date*	2025
		Agency Project ID	107947		

Description Widen Neabsco Mills Road to 4 lanes between Smoke Ct (S. of Dale Blvd) and Route 1.

Phase	Source	Prior	FY2023	FY2024	FY2025	FY2026	Future	4 Year Total	Total
PE	STATE	$887,038	-	-	-	-	-	-	$887,038
PE	STBG	$3,548,150	-	-	-	-	-	-	$3,548,150
	Total PE	$4,435,188	-	-	-	-	-	-	$4,435,188
ROW	RSTP	$2,521,854	-	-	-	-	-	-	$2,521,854
ROW	STATE	$630,464	-	-	-	-	-	-	$630,464
ROW	STBG	$592,559	-	-	-	-	-	-	$592,559
	Total ROW	$3,744,877	-	-	-	-	-	-	$3,744,877
CON	LOCAL	-	$5,802,500	$688,322	-	-	-	$6,490,822	$6,490,822
CON	RSTP	$4,747,518	-	-	-	-	-	-	$4,747,518
CON	REVSH	-	$5,802,500	$688,322	-	-	-	$6,490,822	$6,490,822
CON	STATE	$3,476,198	-	-	-	-	-	-	$3,476,198
	Total CON	$8,223,716	$11,605,000	$1,376,644	-	-	-	$12,981,644	$21,205,360
	Total Programmed	$16,403,781	$11,605,000	$1,376,644	-	-	-	$12,981,644	$29,385,425



Version History

TIP Document		*MPO Approval*	*FHWA Approval*	*FTA Approval*
23-00	Adoption 2023-2026	06/15/2022	08/25/2022	08/25/2022
23-03.3	Amendment 2023-2026	*10/19/2022*	*Pending*	N/A

Current Change Reason

SCHEDULE / FUNDING / SCOPE - Programming Update

Funding Change(s):
Total project cost decreased from $54,063,836 to $29,385,425
* ACCP is not part of the Total

ATTACHMENT B
Summary Report for TIP Action 23-03.3: Amendment to the
FY 2023-2026 Transportation Improvement Program
Requested by the Virginia Department of Transportation
Approved by the TPB Steering Committee - Oct. 7, 2022

TIP ID	PROJECT TITLE	COST BEFORE	COST AFTER	COST CHANGE	% CHANGE	CHANGE REASON	CHANGE SUMMARY
T6541	NEABSCO MILLS ROAD - Widen to 4 lanes	$54,063,836	$29,385,425	($24,678,411)	-46%	Programming Update	PROJECT CHANGES (FROM PREVIOUS VERSION): LOCAL ► Add funds in FFY 23 in CON for $5,802,500 ► Add funds in FFY 24 in CON for $688,322 REVSH ► Delete funds in FFY 17 in ROW for $2,000,000 ► Add funds in FFY 23 in CON for $5,802,500 ► Add funds in FFY 24 in CON for $688,322 AC ► Delete funds in FFY 17 in ROW for $362,400 ► Delete funds in FFY 20 in ROW for $1,276,800 STATE + Increase funds in FFY 17 in PE from $340,000 to $887,038 + Increase funds in FFY 17 in ROW from $460,200 to $630,464 ► Delete funds in FFY 18 in PE for $190,000 ► Delete funds in FFY 20 in ROW for $1,257,000 ► Delete funds in FFY 21 in ROW for $611,029 - Decrease funds in FFY 22 in CON from $5,169,003 to $3,476,198 ► Delete funds in FFY 23 in CON for $10,092,067 ► Delete funds in FFY 24 in CON for $1,197,172 STBG ► Add funds in FFY 17 in PE for $3,548,150 ROW for $592,559 RSTP - Decrease funds in FFY 17 in PE from $1,360,000 to $0 + Increase funds in FFY 17 in ROW from $1,478,400 to $2,232,801 ► Delete funds in FFY 18 in PE for $760,000 ► Delete funds in FFY 20 in ROW for $3,751,200 - Decrease funds in FFY 22 in OTHER from $18,721,994 to $0 RSTP - Decrease funds in FFY 17 in PE from $1,360,000 to $0 + Increase funds in FFY 17 in ROW from $1,478,400 to $2,232,801 ► Delete funds in FFY 18 in PE for $760,000 ► Delete funds in FFY 20 in ROW for $3,751,200 - Decrease funds in FFY 22 in OTHER from $18,721,994 to $0 ► Delete funds in FFY 17 in ROW for $362,400 ► Delete funds in FFY 20 in ROW for $1,276,800 *Total project cost decreased from $54,063,836 to $29,385,425*

COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION

Stephen C. Brich, P.E.
Commissioner

1401 East Broad Street
Richmond, Virginia 23219

(804) 786-2701
Fax: (804) 786-2940

September 23, 2022

The Honorable Pamela Sebesky
Chair, National Capital Region Transportation Planning Board
Metropolitan Washington Council of Governments
777 North Capitol Street, N.E., Suite 300
Washington, DC 20002-4201

RE: FY 2023-2026 Transportation Improvement Program (TIP) Amendment:

Dear Chair Sebesky:

The Virginia Department of Transportation (VDOT) requests the following project amendment be added to the FY 2023-2026 TIP.

Projects Requests for TIP Amendments

Neabsco Mills Road Widening Project TIP ID 6541 (UPC# 107947)

This project will widen Neabsco Mills Road to 4 lanes and will include a sidewalk and trail. It will help with safety and congestion and is included in the air quality conformity analysis. The proposed amendment will:

- Move $65,356 (RSTP) for FY22 for PE Phase
- Move $2,444,117 (ACC-RSTP) and $289,053 (RSTP) for FY21 for ROW Phase
- Move $1,096,703 (RSTP) for FY22 for ROW Phase
- Add $4,747,518 (RSTP) and $2,289,318 (Other: State) for FY 22 for CN Phase
- Add $5,802,500 (REVSH) for FY23 for CN Phase
- Add $688,322 (REVSH) for FY24 for CN Phase

VDOT requests approval of this TIP Amendment by the Transportation Planning Board's Steering Committee at its meeting on October 7, 2022. VDOT's representative will be available to answer any questions about the amendment request.

Thank you for your consideration of this matter.

Sincerely,

John D. Lynch, P.E.
Northern Virginia District Engineer

Cc: Ms. Maria Sinner, P.E., NOVA Assistant District Administrator for PIM
Mr. Amir Shahpar, P.E., NOVA District Transportation Planning Director

National Capital Region
Transportation Planning Board

MEMORANDUM

TO: Transportation Planning Board
FROM: Kanti Srikanth, TPB Staff Director
SUBJECT: Letters Sent/Received
DATE: October 13, 2022

The attached letters were sent/received since the last TPB meeting.

National Capital Region
Transportation Planning Board

September 29, 2022

Stephanie Pollack
Acting Administrator
Federal Highway Administration
U.S. Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590

Re: Comments on "National Performance Management Measures; Assessing Performance of the National Highway System, Greenhouse Gas Emissions Measure" [Docket No. FHWA–2021–0004]

Dear Administrator Pollack:

The National Capital Region Transportation Planning Board (TPB), the metropolitan planning organization (MPO) for the metropolitan Washington region, appreciates your efforts and those of Federal Highway Administration (FHWA) staff to provide opportunities for commenting on the National Performance Management Measures; Assessing Performance of the National Highway System, Greenhouse Gas Emissions Measure. Our comments on the Notice of Proposed Rulemaking (NPRM) to reinstitute the Greenhouse Gas (GHG) performance measure and target-setting are provided for your consideration below.

The TPB supports enacting the GHG measure. The TPB believes that this rule will increase the accountability and transparency of the Federal-aid highway program and add to the existing framework for improving transportation investment decision making through a focus on performance-based outcomes for key national transportation goals. On June 15, 2022, the TPB adopted regional, voluntary, on-road, transportation-sector-specific goals to reduce GHG emissions 50% below 2005 levels by 2030 and 80% below 2005 levels by 2050. A set of strategies to move the region towards achieving those goals was also adopted, while other strategies have been identified for further consideration towards implementation. The TPB's efforts will be well complemented by enacting a federal rule establishing the performance measure known as "Percent Change in Tailpipe Carbon Dioxide Emissions on the National Highway System" (also known as the GHG performance measure), under the federally-required transportation performance management system.

The TPB has the following comments on the proposed GHG performance measure for your consideration:

1. **The TPB recommends against reporting of the proposed GHG performance measures for the Urbanized Area (UZA), and instead strongly endorses using the metropolitan planning area as the area of measurement and target-setting**. The UZA does not align with jurisdictional boundaries, which, in most places, is where preliminary transportation project planning and programming decisions are made. Furthermore, the basic unit used for developing UZAs, Census blocks, differs from the basic unit used by MPOs. As all UZAs are covered by MPO planning areas, requiring measurement and target setting for both areas will be redundant and the effort required would be disproportionate to the benefit for transportation planning. Finally, the Census Bureau should be releasing new UZA boundaries based on the 2020

Census soon, which would complicate comparability of the GHG performance measure from the selected base year of 2021 going forward.

2. **The TPB appreciates the additional flexibility afforded to MPOs, as compared to state DOTs, to measure performance and establish targets following their own processes as described in Section 490.511 of the proposed rule.** The TPB encourages this flexibility extend to having the option to develop the GHG performance measure for all public roads, rather than being limited to roads in the NHS.
3. **The TPB does not believe that the October 1, 2022, deadline for states to submit targets is appropriate or feasible.** First, the comment period for the NPRM will still be open. Second, collaboration between state DOTs, MPOs, and other stakeholders takes time. While the TPB appreciates that FHWA wants to have the GHG measure as part of the 2022-2025 four-year performance period, the work to set targets should not be rushed. A deadline of six to nine months after the rule is finalized would be more appropriate.
4. **The TPB notes that additional resources may be needed for measuring GHG emissions performance each year.**

The FHWA invited comments on the following questions:

1. In instances that MPOs are establishing a joint urbanized area target, should FHWA require that the individual MPO-wide targets be the same as the jointly established urbanized area target?

Although TPB recommends against the establishment of an urbanized area target, in the event that urbanized area GHG emissions targets are required, all MPOs whose planning area overlaps the urbanized area should coordinate on the adoption of an identical target for the urbanized area. This would be consistent in practice with the existing requirements for establishment of targets for the Non-Single Occupancy Vehicle (SOV) Travel performance measure and Peak Hour Excessive Delay performance measure.

2. Should MPOs that establish a joint urbanized area target be exempt from establishing individual MPO-level targets, and instead only be required to adopt and support the joint urbanized area target?

As above, TPB recommends against the establishment of an urbanized area target. The TPB will continue to report on GHG emissions for its metropolitan planning area and, consistent with the intent of this proposed rule, will likely establish targets for this metric regardless of any urbanized area target-setting requirement.

3. In cases where there are multiple MPOs with boundaries that overlap any portion of an urbanized area, and that urbanized area contains NHS mileage, should each of those MPOs establish their own targets, with no requirement for a joint urbanized area target?

As per the response to Question 1 above, in the event urbanized area GHG emissions targets are required, all MPOs whose planning area overlaps the urbanized area should coordinate on the adoption of an identical target for the urbanized area. This would be consistent in practice with the existing requirements for establishment of targets for the Non-Single Occupancy Vehicle (SOV) Travel performance measure and Peak Hour Excessive Delay performance measure

4. Are there other approaches to target setting in urbanized areas served by multiple MPOs that would better help MPOs reach net-zero emissions?

Adding a per-capita GHG measure and target would allow for changes in population, metropolitan area planning boundaries, and urbanized area boundaries over time and would effectively add a "rate" measure for performance, consistent with many of the other federally-required performance measures (e.g., highway safety, transit assets, etc.). This would improve comparability across States and MPOs and aid in the identification of more effective strategies for reducing GHG emissions.

Please feel free to contact me at ksrikanth@mwcog.org or 202-962-3257 if there is any additional information or support that the TPB can provide in the development and implementation of the performance-based planning and programming regulations.

Sincerely,

Kanathur Srikanth
Staff Director, National Capital Region Transportation Planning Board
Deputy Executive Director - Metropolitan Planning, Metropolitan Washington Council of Governments

National Capital Region
Transportation Planning Board

September 26, 2022

The Honorable Peter Buttigieg
Secretary
U.S. Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590-0001

Re: FY 2022 Reconnecting Communities Pilot Planning Application by the District of Colombia for the DC-295/I-295 Corridor

Dear Secretary Buttigieg:

I am writing to express the support of the National Capital Region Transportation Planning Board (TPB), the Metropolitan Planning Organization (MPO) for the National Capital Region, for an application by the District of Colombia Department of Transportation (DDOT) for a Reconnecting Communities Pilot (RCP) Planning grant application for the DC-295/I-295 Corridor Feasibility Study.

DC-295/I-295 is a four- to six-lane expressway with many substandard design features and missing interchange on- and off-ramps, resulting in unsafe conditions and recurring congestion issues at multiple locations along the broader Corridor. The physical presence of the roadway and the issues noted above create barriers to community connectivity and economic development that predominantly impact economically disadvantaged neighborhoods in Wards 7 and 8. The Corridor also includes the CSX freight rail line and the Metrorail Orange line running parallel to DC-295 for most of the length of the Corridor, an additional barrier for many residents.

The purpose of the planning grant-funded Feasibility Study will be to develop concepts that create equitable and sustainable outcomes by increasing safer, multi-modal transportation options for communities that are predominately low-income and African American. A robust public and stakeholder engagement effort, leveraging previous studies completed by DDOT and its District partner agencies, will enable community and other stakeholders to see the "big picture" of what is possible in the Corridor.

The TPB requests your favorable consideration of this request by the District of Colombia. In July 2021 the TPB adopted a resolution that identified equity as a fundamental value and integral part of all of the board's work activities; this grant would directly support such regional activities and would advance the region's long-term transportation priorities in accordance with the TBP's Vision and Regional Transportation Priorities Plan.

Upon a successful RCP planning grant award, subject to the availability of the required matching funding, the region's transportation improvement program (TIP) will be amended to include the grant funding for this project.

Sincerely,

Pamela Sebesky

Pamela J. Sebesky
Chair, National Capital Region Transportation Planning Board

Cc: Everett Lott, Director, District Department of Transportation

National Capital Region
Transportation Planning Board

September 27, 2022

Ms. Jennifer DeBruhl
Director
Virginia Department of Rail and Public Transportation
600 East Main Street, Suite 2102
Richmond, VA 23219

Re: Loudoun County TRIP application for Expanded Transit Service

Dear Director DeBruhl:

I am writing to express the support of the National Capital Region Transportation Planning Board (TPB), the Metropolitan Planning Organization (MPO) for the National Capital Region, for an application for state funds by Loudoun County under the Virginia Department of Rail and Public Transportation's (DRPT) Transit Ridership Incentive Program (TRIP) to fund an expansion of transit service in Loudoun County.

The requested grant funds would be used to help fund twenty-one transit routes providing connecting transit service to the new Ashburn, Loudoun Gateway and Dulles International Airport Metrorail Stations on the Silver Line. The expanded transit service routes will connect communities in Loudoun County that currently do not have transit service to key regional metro connections across the County as well as the activity centers of Loudoun. The new transit service will also help alleviate congestion by providing alternative transportation to single-vehicle occupancy auto trips. The transit service expansion plan is part of the Loudoun County Transit Development Plan for FY 2018-2028 and support the Transit Infrastructure Goals outlined in the 2019 Countywide Transportation Plan. The transit service expansion is also key to realizing the full regional benefits of significant county investments in the Silver Line Project.

We urge your favorable consideration of Loudoun County's request, as it directly responds to regional transportation goals and priorities adopted by the TPB. This grant would advance the region's long-term transportation priorities in accordance with the Washington region's long-range transportation plan Visualize 2045; improved access to transit is one of the seven Aspirational Initiatives of the plan. I anticipate that upon a successful grant award, subject to the availability of the required matching funding, the region's transportation improvement program (TIP) will be amended to include the grant funding for this project.

Sincerely,

Kanathur N. Srikanth
Staff Director, National Capital Region Transportation Planning Board

Cc: Nancy Boyd, Acting Director, Loudoun County Department of Transportation and Capital Infrastructure

National Capital Region
Transportation Planning Board

September 30, 2022

The Honorable Peter Buttigieg
Secretary
U.S. Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590-0001

Re: FY 2022 Reconnecting Communities Pilot Application by Prince William County, Virginia for the North Woodbridge Town Center-Transit Connections Pedestrian Bridge

Dear Secretary Buttigieg:

I am writing to express the support of the National Capital Region Transportation Planning Board (TPB), the Metropolitan Planning Organization (MPO) for the National Capital Region, for an application by Prince William County for a Reconnecting Communities Pilot (RCP) grant application to construct a pedestrian bridge over US Route 1, connecting the North Woodbridge town center to the Virginia Railway Express (VRE) Woodbridge commuter rail station.

Route 1 in the project area is a six-lane divided highway carrying an average of 39,000 vehicles daily. This project will construct a 231-foot long, 12-foot-wide pedestrian bridge over US Route 1 to connect the Woodbridge VRE Station on the east side to the Town Center development on the west side. This project is located in a Federal Opportunity Zone and will serve residents of federally designated Historically Disadvantaged Communities and regional Equity Emphasis Areas, improving their access to public transportation and commercial and employment sites.

The project is consistent with the regional transportation goals adopted by the TPB in our Regional Transportation Priorities Plan and as identified in the Washington region's long-range transportation plan, Visualize 2045. The TPB has long supported investment in pedestrian infrastructure and active transportation options to provide a broad range of transportation choices for our region and to improve access to public transportation, particularly for traditionally disadvantaged communities. This grant would advance the region's long-term transportation priorities in accordance with the TBP's Vision and Regional Transportation Priorities Plan.

The TPB requests your favorable consideration of this request by Prince William County. I anticipate that upon a successful RCP grant award, subject to the availability of the required matching funding, the region's transportation improvement program (TIP) will be amended to include the grant funding for this project.

Sincerely,

Pamela Sebesky

Pamela J. Sebesky
Chair, National Capital Region Transportation Planning Board

Cc: Mr. Paolo Belita, Prince William County Department of Transportation

National Capital Region
Transportation Planning Board

MEMORANDUM

TO: Transportation Planning Board
FROM: Kanti Srikanth, TPB Staff Director
SUBJECT: Announcements and Updates
DATE: October 13, 2022

The attached documents provide updates on activities that are not included as separate items on the TPB agenda.

National Capital Region
Transportation Planning Board

MEMORANDUM

TO: Transportation Planning Board

FROM: Nicholas Ramfos, Transportation Operations Programs Director

SUBJECT: Federal Transit Administration's Innovative Coordinated Access and Mobility Pilot Program (ICAM Pilot Program; Catalog of Federal Domestic Assistance (CFDA) number: 20.513) and Enhancing Mobility Innovation (EMI) Program; Catalog of Federal Domestic Assistance (CFDA) number: 20.530 -- Public Transportation Innovation

DATE: September 15, 2022

COG/TPB staff applied for two grants from the Federal Transit Administration that included the ICAM Pilot and EMI Public Transportation Innovation programs. Each grant application was approved for funding.

The ICAM project is in the amount of $100,000 in federal funds and $25,000 in matching funds from the Washington Metropolitan Transit Authority (WMATA) for a total budget of $125,000. The purpose of the project will be to convene a consortium of regional stakeholders to move the existing Reach a Ride platform towards a one-call, one-click Information and Referral/Assistance tool for transportation options in the region. The grant period of performance will be over a two year timeframe after the grant contract is signed with FTA. The COG Board was asked to approve the receipt of the ICAM grant funds during its July 30, 2022 meeting. Resolution R32-2022 authorizing COG to receive and expend grant funds from the Federal Transit Administration for its ICAM Mobility Pilot Program was approved and COG will act as the administrative agent for the project

The EMI project is in the amount of $250,000 in federal funds and $62,500 in matching funds from the District, Maryland, and Virginia Departments of Transportation from the CCWP for a total budget of $312,500. The purpose of the project will be to design an open-source, cross platform mobile application to convert existing and future vanpools into microtransit providers to provide additional mobility solutions to environmental justice populations. Partnerships with employers and vanpool operators in the region through Commuter Connections will be used to improve occupancy rates on existing vanpools and set the groundwork for new vanpool formation. This will create a self-sustaining cycle in which new vanpool formations will provide wider mobility options for commuters and additional microtransit routes. The grant period of performance will be over a two-year timeframe after the grant contract is signed with FTA. The COG Board was asked to approve the receipt of the EMI grant funds during its September 14, 2022 meeting. Resolution R36-2022 authorizing COG to receive and expend grant funds from the Federal Transit Administration for its EMI Public Transportation Innovation was approved and COG will act as the administrative agent for the project.

COG/TPB is currently working on completing applications in TrAMS to receive the funds from FTA and contract with the two subrecipients to manage the grant awards.

Lyn Erickson

From: Chuck Bean <no-reply@mwcog.org>
Sent: Monday, September 26, 2022 2:46 PM
To: Lyn Erickson
Subject: Register: COG 2022 Annual Meeting

Metropolitan Washington Council of Governments

2022 COG ANNUAL MEETING AND AWARDS PROGRAM

Join us for COG's biggest event of the year that brings together area elected officials, government executives, and business and nonprofit leaders to celebrate regional partnership, make connections, and recognize outstanding leadership. During the meeting, COG will present its three highest honors—the Scull, Kirby, and Freudberg Awards.

At the start of 2022, we unveiled *Region United: Metropolitan Washington Planning Framework for 2030* to communicate more effectively about our shared priorities and encourage new collaborative actions. Since then, we have initiated promising new housing and climate efforts. The Transportation Planning Board at COG approved a major update to the *Visualize 2045* long-range plan. And, we have continued to closely analyze economic and travel

trends as we plan for the post-pandemic future. Let's take the chance to applaud this important work and look ahead to new opportunities in 2023.

REGISTER TODAY

Wednesday, December 14
Registration & Networking: 11:00 A.M.
Meeting & Luncheon: 12:00 P.M. - 2:00 P.M.

Marriott Marquis Washington, D.C.
901 Massachusetts Avenue NW
Washington, D.C. 20002

MWCOG.ORG

ITEM 7 – Action
October 19, 2022

PBPP: Final 2022-2025 Regional Targets for
Highway Systems Performance and Highway Assets

Action: Adopt Resolution R3-2023 to approve regional targets for highway systems performance and highway assets.

Background: The board will be asked to adopt the 2022-2025 highway systems performance and highway assets (bridge and pavement) targets for the region.

TPB R3 -2023
October 19, 2022

NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD
777 North Capitol Street, N.E.
Washington, D.C. 20002

RESOLUTION TO ADOPT REGIONAL HIGHWAY ASSET AND TRAVEL TIME RELIABILITY PERFORMANCE MEASURE TARGETS FOR 2022-2025 FOR THE NATIONAL CAPITAL REGION

WHEREAS, the National Capital Region Transportation Planning Board (TPB), as the federally designated metropolitan planning organization (MPO) for the Washington region, has the responsibility under the provisions of the Fixing America's Surface Transportation (FAST) Act, reauthorized November 15, 2021 when the Infrastructure Investment and Jobs Act (IIJA) was signed into law, for developing and carrying out a continuing, cooperative and comprehensive transportation planning process for the metropolitan area; and

WHEREAS, the provisions of the federal surface transportation acts continue the implementation of performance-based planning and programming to achieve desired performance outcomes for the multimodal transportation system, including the setting of targets for future performance by States and metropolitan planning organizations (MPOs); and

WHEREAS, the Federal Highway Administration issued a rulemaking for state departments of transportation (DOTs) and MPOs to quadrennially establish data-driven targets for performance measures and for MPOs to work in coordination with state DOTs in the development of targets; and

WHEREAS, the District Department of Transportation (DDOT), the Maryland Department of Transportation (MDOT), the Virginia Department of Transportation (VDOT), and the TPB are required to establish statewide and metropolitan planning area targets respectively for the Highway Asset (Pavement and Bridge Condition) performance measures and the Highway Systems Performance Travel Time Reliability performance measures for the 2022-2025 four-year period; and

WHEREAS, TPB staff have coordinated with officials at DDOT, MDOT and VDOT to develop regional Highway Asset and Travel Time Reliability targets that are evidence based, consistent with the targets submitted by each member state DOT, and reflective of the outcomes expected through the implementation of funded projects, programs, and policies; and

WHEREAS, the TPB encourages every jurisdiction in the region to adopt similar goals and calls on the transportation agencies of the region to redouble their efforts to develop projects, programs and policies to achieve improved conditions and increased reliability on roadways; and

WHEREAS, the TPB will use the four-year regional Highway Asset and Travel Time Reliability target setting process as one method to evaluate the region's progress toward achieving said aspirational goals going forward with each future performance period; and

WHEREAS, these Highway Asset and Travel Time Reliability targets have been reviewed and recommended for TPB approval by the TPB Technical Committee at its September 9 and October 7 meetings, and have been reviewed by the TPB at its September 21 meeting.

NOW, THEREFORE, BE IT RESOLVED THAT the National Capital Region Transportation Planning Board adopts the following set of four-year regional Highway Asset and Travel Time Reliability targets for the period 2022-2025 for the National Capital Region, as shown in the following tables.

Pavement Condition

Performance Measure for the NCR	4-year Target 2022 – 2025
(1) Percentage of pavements on the **Interstate** System in **Good** condition	**44.8%**
(2) Percentage of pavements on the **Interstate** System in **Poor** condition	**1.6%**
(3) Percentage of pavements on the **NHS** (excl. Interstate) in **Good** condition	**26.3%**
(4) Percentage of pavements on the **NHS** (excl. Interstate) in **Poor** condition	**7.3%**

Bridge Condition

Performance Measure for the NCR	4-year Target 2022 – 2025
(5) Percentage of NHS **Bridges** Classified as in **Good** Condition	**25.7%**
(6) Percentage of NHS **Bridges** Classified as in **Poor** Condition	**4.2%**

Travel Time Reliability

Performance Measure for the NCR	4-year Target 2022 – 2025
Travel Time Reliability (TTR) – Interstate	**61.1%**
Travel Time Reliability (TTR) – Non-Interstate NHS	**78.6%**
Truck Travel Time Reliability (TTTR) Index	**2.56**

National Capital Region
Transportation Planning Board

MEMORANDUM

TO: Transportation Planning Board

FROM: Eric Randall, TPB Transportation Engineer

SUBJECT: Performance-Based Planning and Programming (PBPP) Highway Asset and Highway Travel Reliability Targets for 2022-2025 – FINAL DRAFT

DATE: October 13, 2022

This memorandum provides an update on implementation of the federal performance-based planning and programming (PBPP) target-setting requirements for performance measures of the Highway Asset area and the Highway Systems Performance: Travel Reliability area.

New targets are required to be set for the 2022 through 2025 performance period for these two performance areas. Reports on actual performance vs. the 2018-2021 targets and on the establishment of new 2022-2025 targets were due to FHWA by October 1, 2022 from the District, Maryland, and Virginia DOTs.

Draft regional targets for the two performance areas were developed by TPB staff in close coordination with the state DOTs, and were briefed to the TPB Technical Committee at its September 9 meeting and to the TPB at its September 21 meeting.

Comments on the draft targets were requested at both meetings. No comments were received by September 30.

Accordingly, the following sets of targets (unchanged since the September meetings) are recommended for adoption by the board at the October 19 meeting.

REGIONAL HIGHWAY ASSET TARGETS – DRAFT 2022-2025

Using methodologies generally consistent with those used in 2018 and reflective of state DOT targets, TPB staff developed a set of regional highway asset targets for the 2022-2025 four-year period, below.

Pavement Condition

Performance Measure for the NCR	4-year Target 2022 – 2025
(1) Percentage of pavements on the **Interstate** System in **Good** condition	**44.8%**
(2) Percentage of pavements on the **Interstate** System in **Poor** condition	**1.6%**
(3) Percentage of pavements on the **NHS** (excl. Interstate) in **Good** condition	**26.3%**
(4) Percentage of pavements on the **NHS** (excl. Interstate) in **Poor** condition	**7.3%**

Bridge Condition

Performance Measure for the NCR	4-year Target 2022 – 2025
(5) Percentage of NHS **Bridges** Classified as in **Good** Condition	**25.7%**
(6) Percentage of NHS **Bridges** Classified as in **Poor** Condition	**4.2%**

HIGHWAY SYSTEMS PERFORMANCE TRAVEL TIME RELIABILITY TARGETS – DRAFT 2022-2025

Using methodology consistent with that in 2018, TPB staff developed a set of regional travel time reliability targets for the 2022-2025 four-year period, below.

Travel Time Reliability

Performance Measure for the NCR	4-year Target 2022 – 2025
Travel Time Reliability (TTR) – Interstate	**61.1%**
Travel Time Reliability (TTR) – Non-Interstate NHS	**78.6%**
Truck Travel Time Reliability (TTTR) Index	**2.56**

NEXT STEPS

These final draft regional targets are recommended for TPB approval at its October 19 meeting.

Following the approval of the 2022-2025 Highway Asset and Highway System Performance targets, TPB staff intend to prepare a revised Visualize 2045 LRTP System Performance Report (Appendix D) with information on performance vs the 2018-2021 targets and with the approved 2022-2025 targets ahead of the federal certification review anticipated in early 2023.

PERFORMANCE BASED PLANNING & PROGRAMMING

2022-2025 Targets:

- Highway Assets (Pavement & Bridge Condition)
- Highway System Performance: Travel Time Reliability

Eric Randall, TPB Transportation Engineer

Transportation Planning Board
October 19, 2022

Agenda Item 7

National Capital Region
Transportation Planning Board

Contents of Presentation

- Highway Asset Four-year Targets
- Data Visualization: Bridge Condition
- Highway System Performance: Travel Time Reliability Four-year Targets
- Resolution

Performance Based Planning and Programming

As briefed at September meeting:

- Federal surface transportation regulations require the implementation of performance based planning and programming (PBPP) by State DOTs, MPOs, and transit agencies
- State DOTs, MPOs, and providers of public transportation must adopt targets in the each of the required performance areas and link investment priorities to the achievement of performance targets in the TIP and the LRTP
- Next round of 4-year targets for the two areas of Highway Assets and Highway Systems Performance for the period 2022-2025 are due for adoption

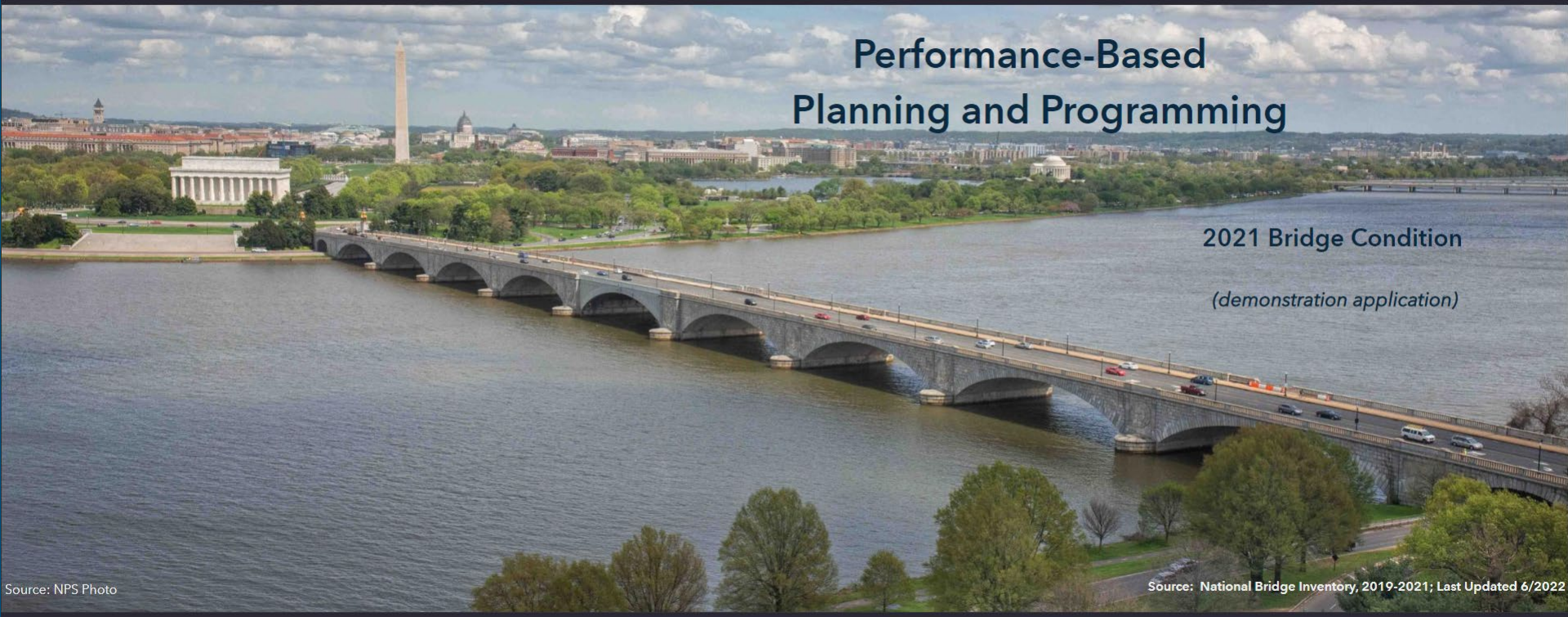
Highway Asset DRAFT 2022-2025 Targets for the NCR

Interstate Pavement	2022 – 2025 Four Year Target
(1) Percentage of pavements on the **Interstate** System in **Good** condition	**44.8%**
(2) Percentage of pavements on the **Interstate** System in **Poor** condition	**1.6%**
NHS (Non-Interstate) Pavement	
(3) Percentage of pavements on the **NHS** (excl. Interstate) in **Good** condition	**26.3%**
(4) Percentage of pavements on the **NHS** (excl. Interstate) in **Poor** condition	**7.3%**
Bridges	
(5) Percentage of **NHS Bridges** Classified as in **Good** Condition	**25.7%**
(6) Percentage of **NHS Bridges** Classified as in **Poor** Condition	**4.2%**

Data Visualization: Bridge Condition

https://gis.mwcog.org/webmaps/tpb/pbpp/highway_assets/

- Note: webmap still in development



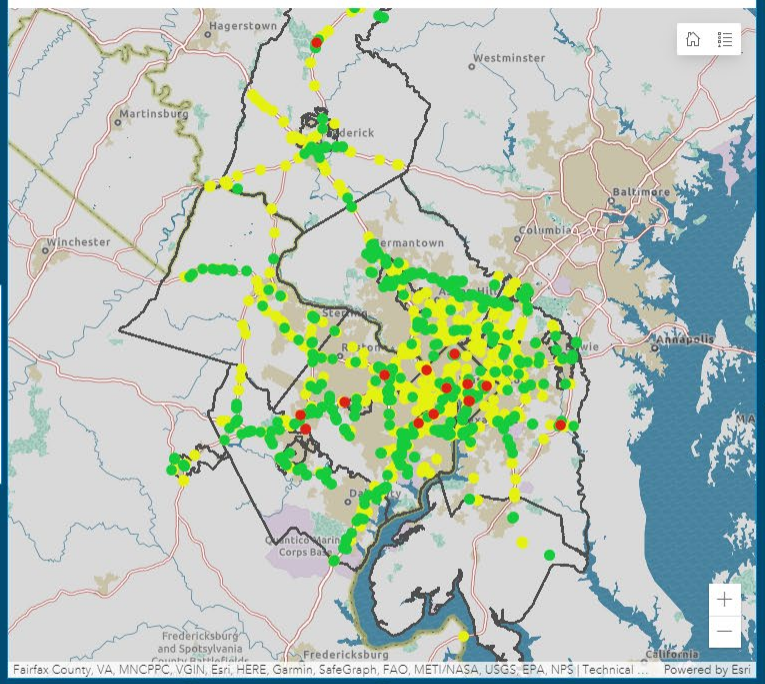
Data Visualization: Bridge Condition (2)

Performance Based Planning & Programming: Bridge Condition
2021 National Bridge Inventory

State
None

Jurisdiction
Selection required

2021 Bridges on the National Highway System



Good	Fair	Poor	Total Bridges
584	849	15	1,448

NHS Bridge Conditions by State

Selection required on one or more elements

State | Jurisdiction

NHS Bridge Ownership by State

Selection required on one or more elements

State | Jurisdiction

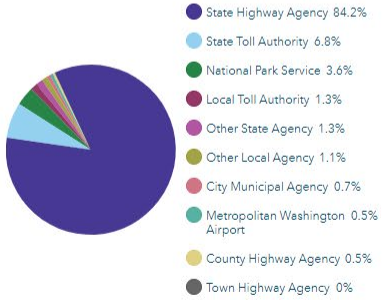
Structurally Deficient NHS Bridges by State

Selection required on one or more elements

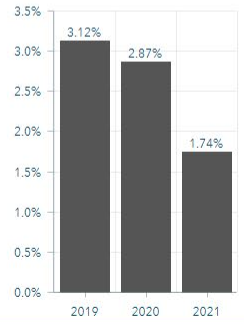
State | Jurisdiction

Regional NHS Bridge Conditions

Regional NHS Bridge Ownership

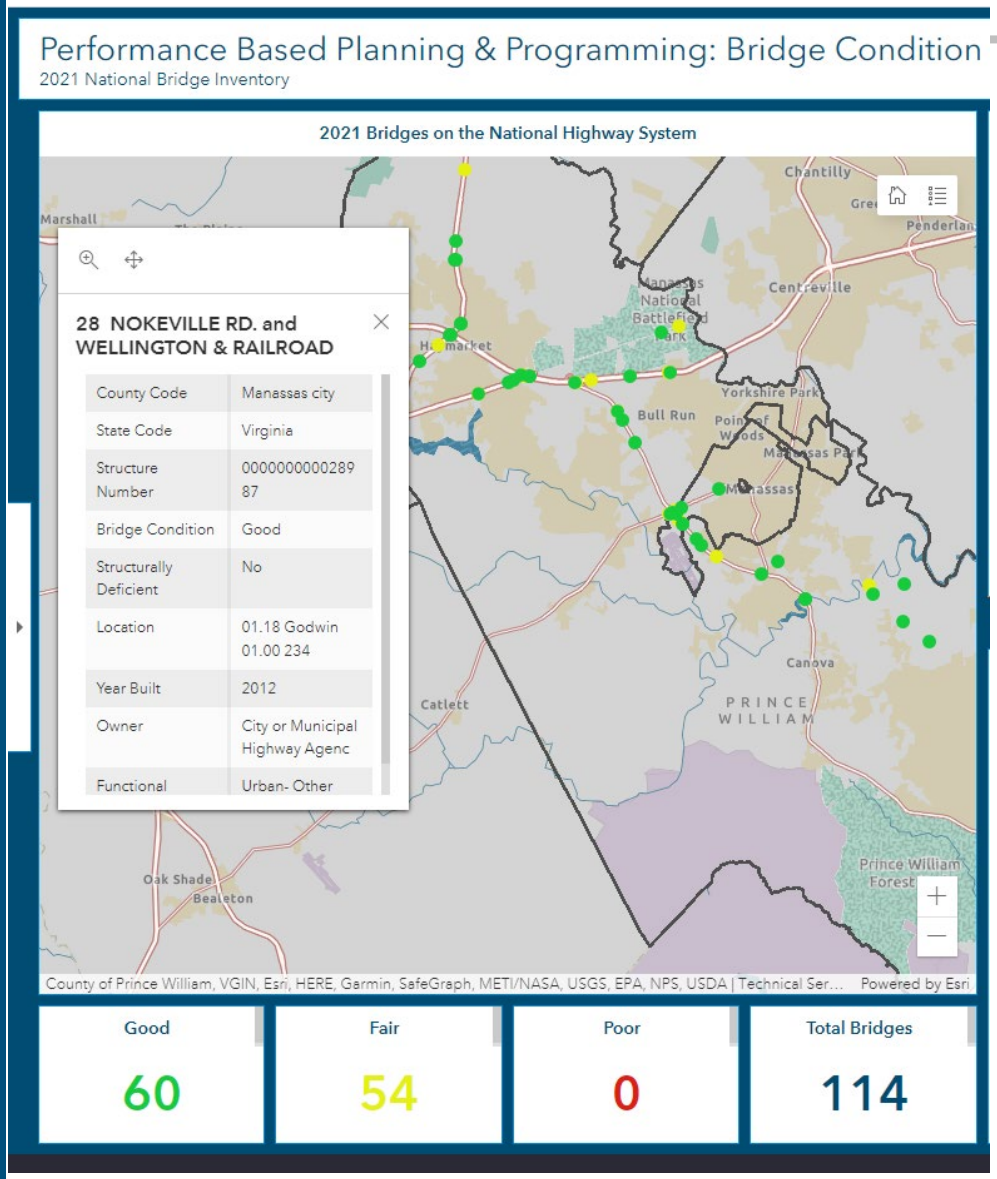


Regional Structurally Deficient NHS Bridges



Cover | Intro | Dashboard | End

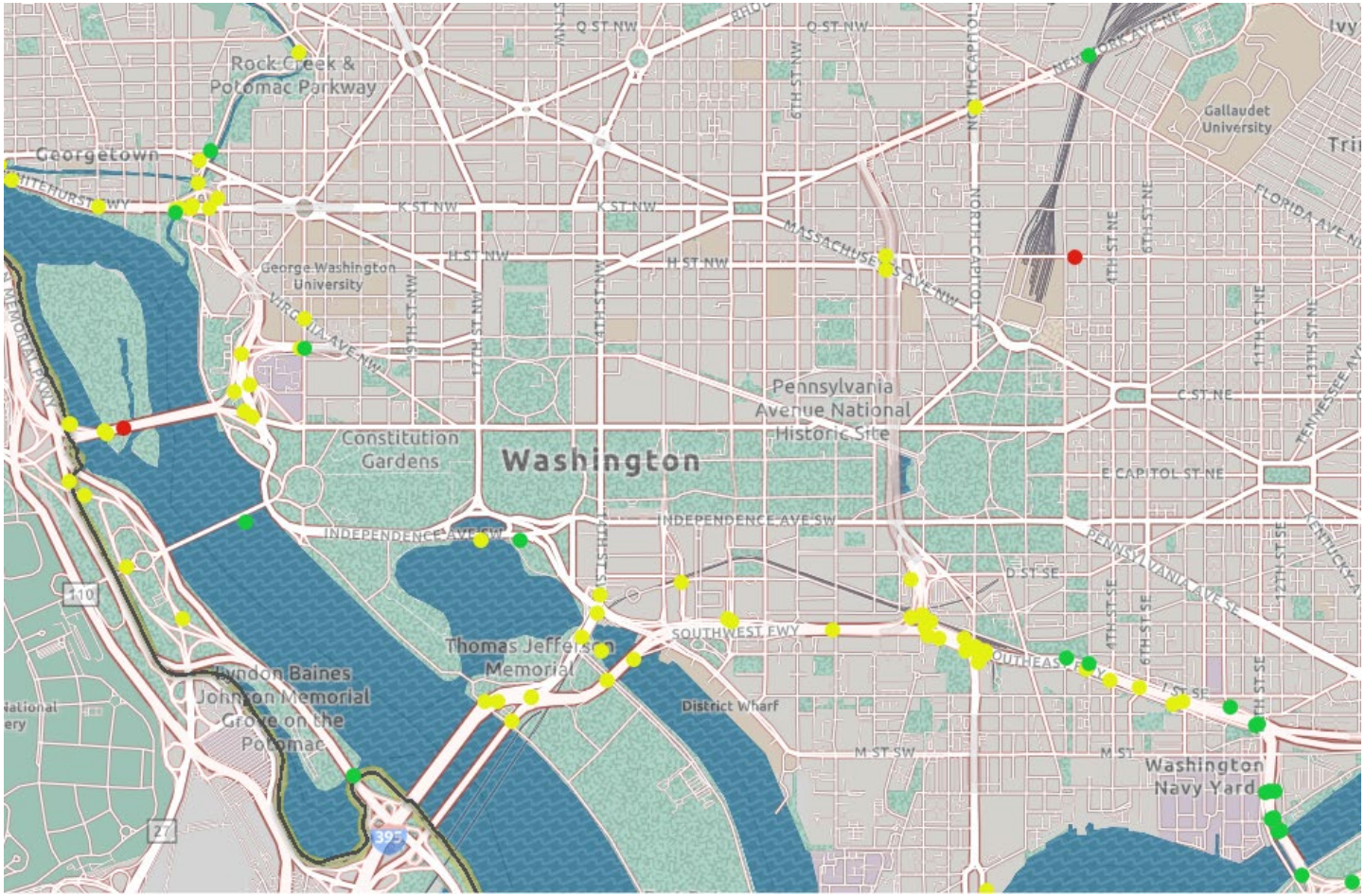
Data Visualization: Bridge Condition (3)



- Can also select state or jurisdiction for specific detail
  - ➢ Example: Prince William County and the City of Manassas
- Select specific bridge for more detail

Data Visualization: Bridge Condition (4)

- Can expand map for larger view
  - Example: two ‘Poor’ bridges: TR Bridge and H Street Bridge



Highway System Performance: Travel Time Reliability Targets

Highway System Performance: Travel Time Reliability
DRAFT 2022-2025 Targets for the NCR

Highway System Performance: Travel Time Reliability for the NCR	2022 – 2025 Four Year Target
Travel Time Reliability (TTR) – Interstate	61.1%
Travel Time Reliability (TTR) – Non-Interstate NHS	78.6%
Truck Travel Time Reliability (TTTR) Index	2.56

Resolution R3-2023

TPB staff request approval of Resolution R3-2023

- To adopt targets for Highway Assets and Highway System Performance Travel Time Reliability performance measures for the period 2022-2025 for the National Capital Region metropolitan planning area

Eric Randall
TPB Engineer
(202) 962-3254
erandall@mwcog.org

mwcog.org/tpb

Metropolitan Washington Council of Governments
777 North Capitol Street NE, Suite 300
Washington, DC 20002

National Capital Region
Transportation Planning Board

Performance Based Planning & Programming

TPB Planning Region

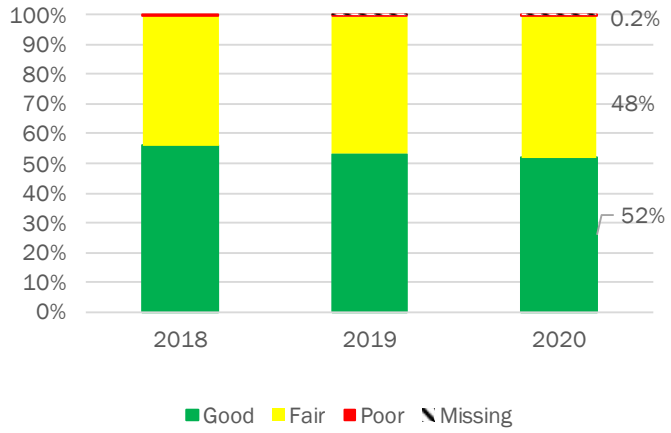
District of Columbia, City of Alexandria (VA), Arlington County (VA), Fairfax County (VA), Fauquier County (VA, Warrenton portion), Loudoun County (VA), Prince William County (VA), City of Falls Church (VA), City of Fairfax (VA), City of Manassas (VA), City of Manassas Park (VA), Charles County (MD), Frederick County (MD), Montgomery County (MD), Prince George's County (MD)

The Federal Highway Administration has established measures for state departments of transportation to use to assess the condition of pavements on the National Highway System (NHS), bridges carrying the NHS which includes on-and off-ramps connected to the NHS, and pavements on the Interstate System.

Pavement Conditions (by lane mile)

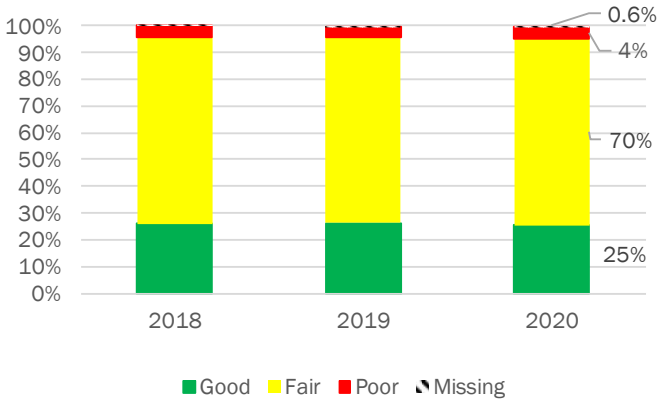
(Sections with Bridges, ramps, non-mainline, non-inventory direction, planned/unbuilt, unpaved and 'other' pavement types excluded)

Interstate Pavement Conditions



1652.9 Interstate Lane Miles

Non-Interstate NHS Pavement Conditions

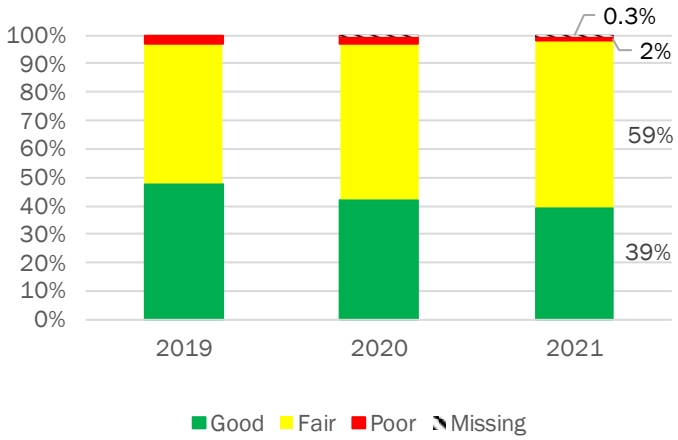


4660.3 Non-Interstate NHS Lane Miles

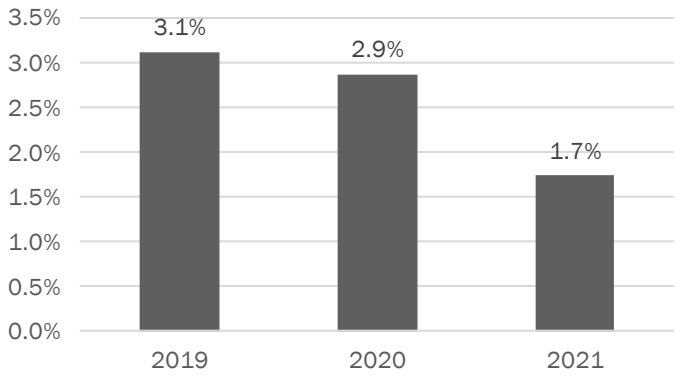
NHS Bridges (by square meters of deck area)

(Includes: 1225 Bridges and 223 Culverts; 15 Structurally Deficient)

NHS Bridge Conditions



Structurally Deficient NHS Bridges

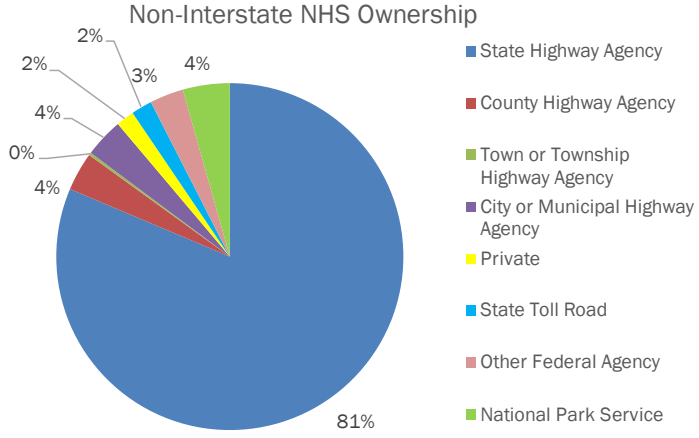


Largest Structurally Deficient Bridges (by deck area): H Street at Washington Terminal Yard, T. Roosevelt Bridge Over Potomac River, King Street At Route I-395 Ramps C&G

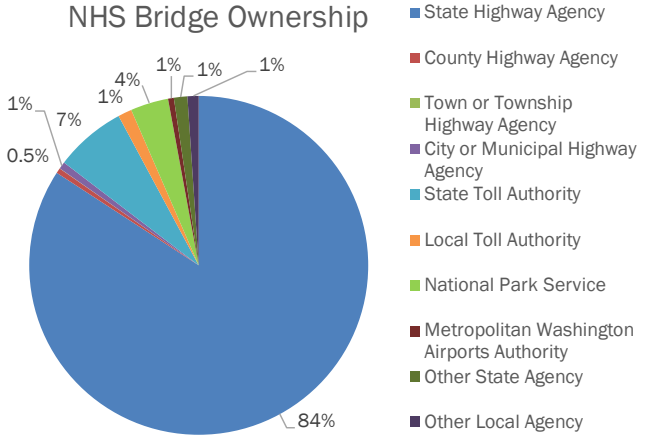
Ownership

(by lane mile or square meters of deck area; all Interstate lane miles owned by the corresponding state highway agency)

Non-Interstate NHS Ownership



NHS Bridge Ownership



Total = 1448; weighted by deck area

Source: Highway Performance Monitoring System, 2018-2020 and National Bridge Inventory, 2019-2021; Last Updated 10/3/2022

National Capital Region Transportation Planning Board

Performance Based Planning & Programming

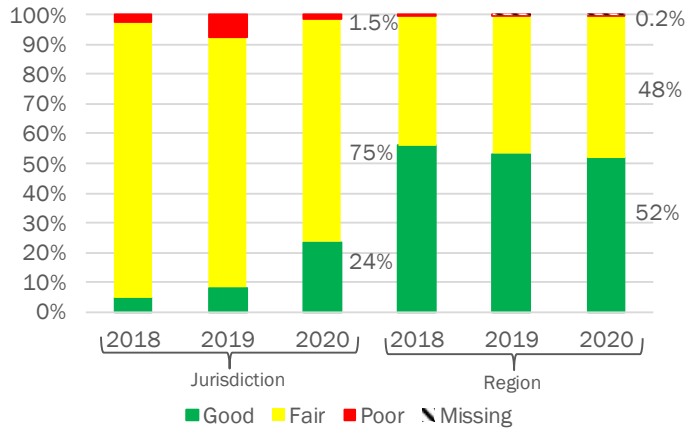
District of Columbia

The Federal Highway Administration has established measures for state departments of transportation to use to assess the condition of pavements on the National Highway System (NHS), bridges carrying the NHS which includes on-and off-ramps connected to the NHS, and pavements on the Interstate System.

Pavement Conditions (by lane mile)

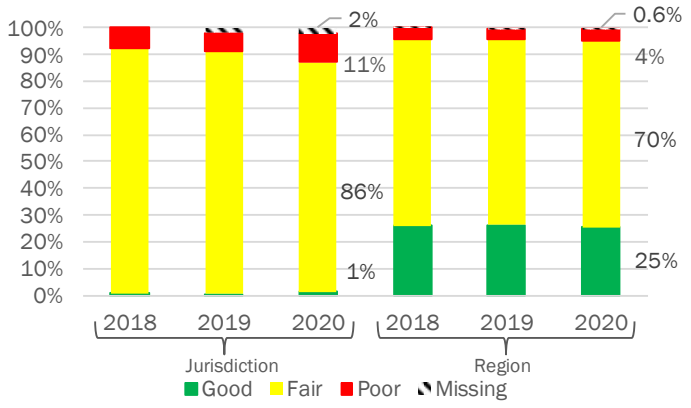
(Sections with Bridges, ramps, non-mainline, non-inventory direction, planned/unbuilt, unpaved and 'other' pavement types excluded)

Interstate Pavement Conditions



53.5 Interstate Lane Miles

Non-Interstate NHS Pavement Conditions

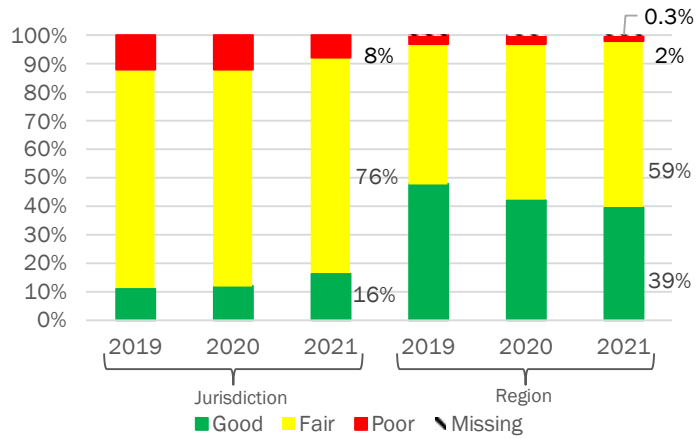


472.5 Non-Interstate NHS Lane Miles

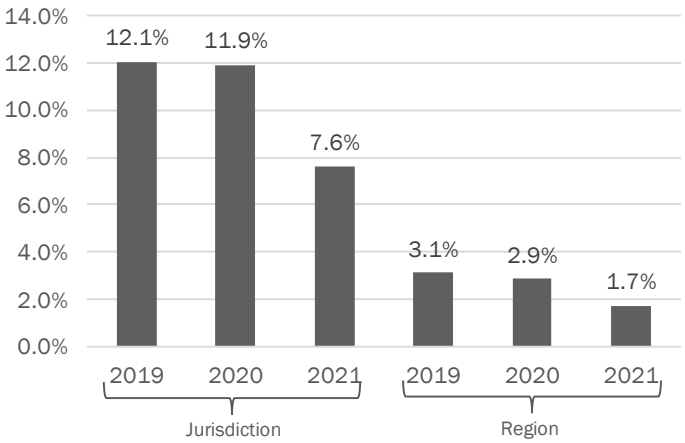
NHS Bridge Conditions (by square meters of deck area)

(Includes: 145 Bridges and 0 Culverts; 6 Structurally Deficient)

NHS Bridge Conditions



Structurally Deficient NHS Bridges

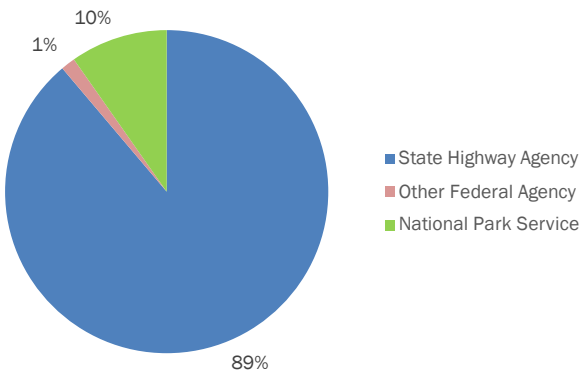


Largest Structurally Deficient Bridges (by deck area): H Street at Washington Terminal Yard, T. Roosevelt Bridge Over Potomac River, Anacostia Freeway at Suitland Pkwy S.E.

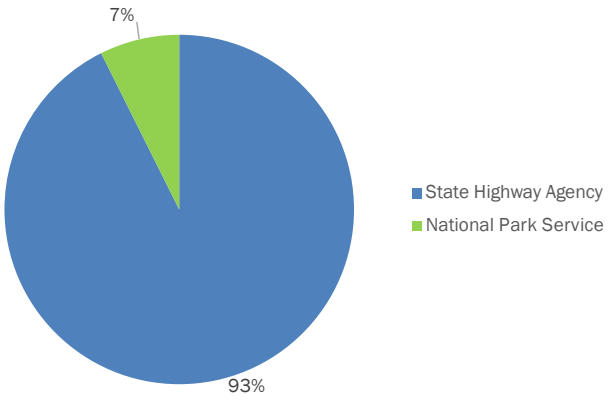
Ownership

(by lane mile or square meters of deck area; all Interstate lane miles owned by the corresponding state highway agency)

Non-Interstate NHS Ownership



NHS Bridge Ownership



Total = 145; weighted by deck area

Source: Highway Performance Monitoring System, 2018-2020 and National Bridge Inventory, 2019-2021; Last Updated 10/3/2022

National Capital Region Transportation Planning Board

Performance Based Planning & Programming

Suburban Maryland

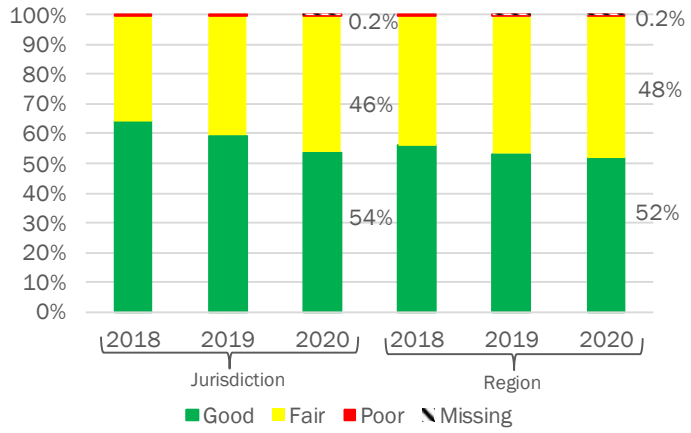
Charles County, Frederick County, Montgomery County, Prince George's County

The Federal Highway Administration has established measures for state departments of transportation to use to assess the condition of pavements on the National Highway System (NHS), bridges carrying the NHS which includes on-and off-ramps connected to the NHS, and pavements on the Interstate System.

Pavement Conditions (by lane mile)

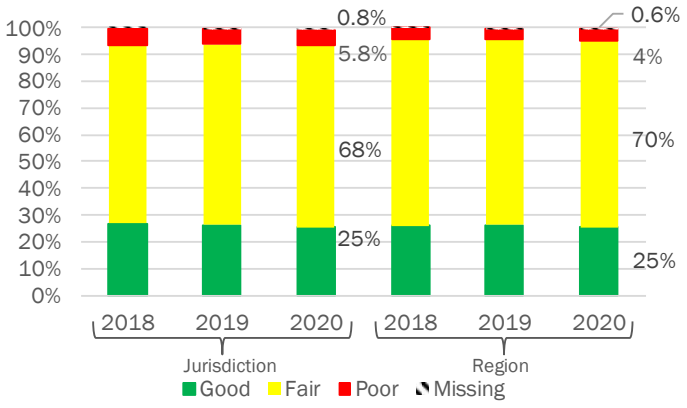
(Sections with Bridges, ramps, non-mainline, non-inventory direction, planned/unbuilt, unpaved and 'other' pavement types excluded)

Interstate Pavement Conditions



863.8 Interstate Lane Miles

Non-Interstate NHS Pavement Conditions

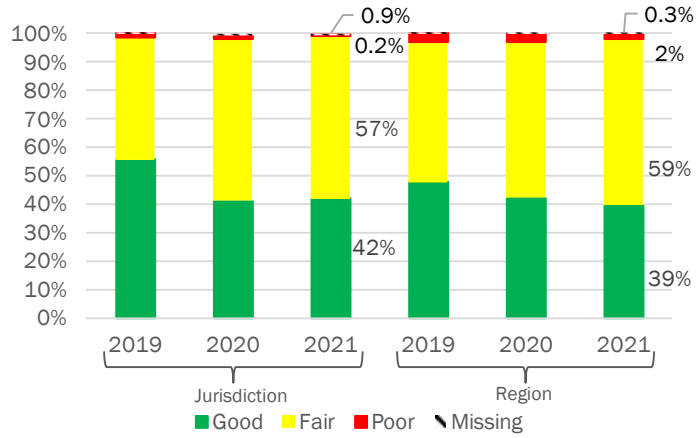


2270.0 Non-Interstate NHS Lane Miles

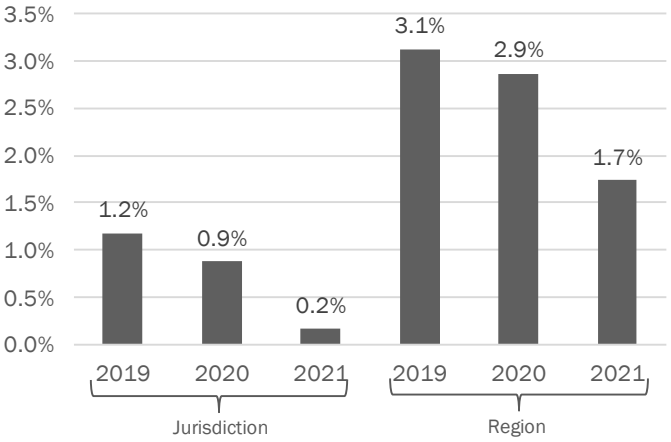
NHS Bridges (by square meters of deck area)

(Includes: 481 Bridges and 108 Culverts; 2 Structurally Deficient)

NHS Bridge Conditions



Structurally Deficient NHS Bridges

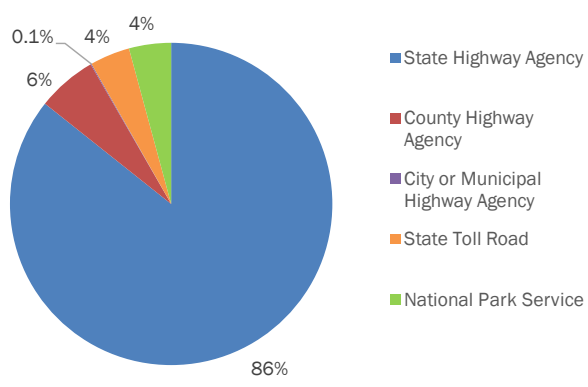


Largest Structurally Deficient Bridges (by deck area): Us 15 NBR at MD 77 Hunting Creek, MD 4 WBR at MD 717

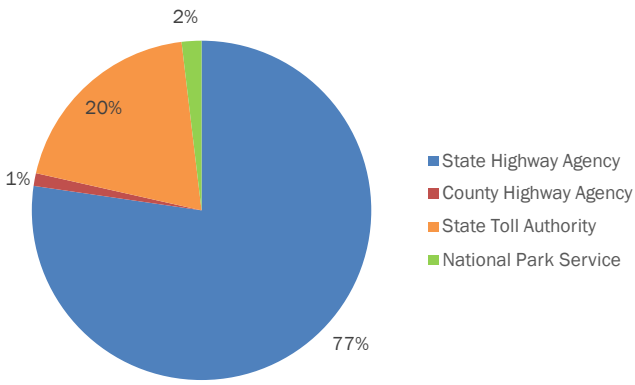
Ownership

(by lane mile or square meters of deck area; all Interstate lane miles owned by the corresponding state highway agency)

Non-Interstate NHS Ownership



NHS Bridge Ownership



Total = 589; weighted by deck area

Source: Highway Performance Monitoring System, 2018-2020 and National Bridge Inventory, 2019-2021; Last Updated 10/3/2022

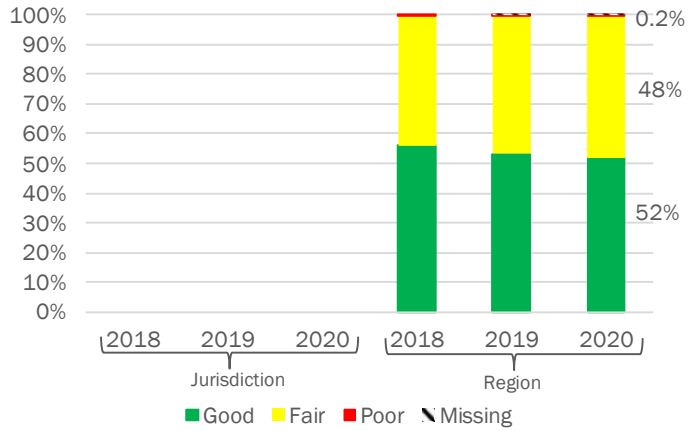
Performance Based Planning & Programming

Charles County

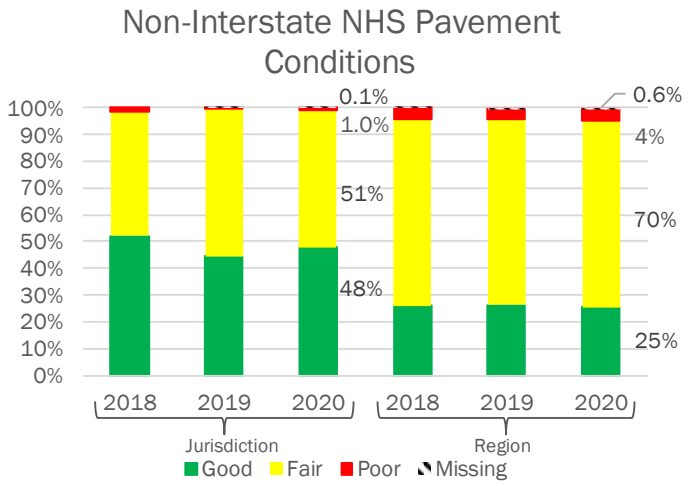
The Federal Highway Administration has established measures for state departments of transportation to use to assess the condition of pavements on the National Highway System (NHS), bridges carrying the NHS which includes on-and off-ramps connected to the NHS, and pavements on the Interstate System.

Pavement Conditions (by lane mile)

(Sections with Bridges, ramps, non-mainline, non-inventory direction, planned/unbuilt, unpaved and 'other' pavement types excluded)



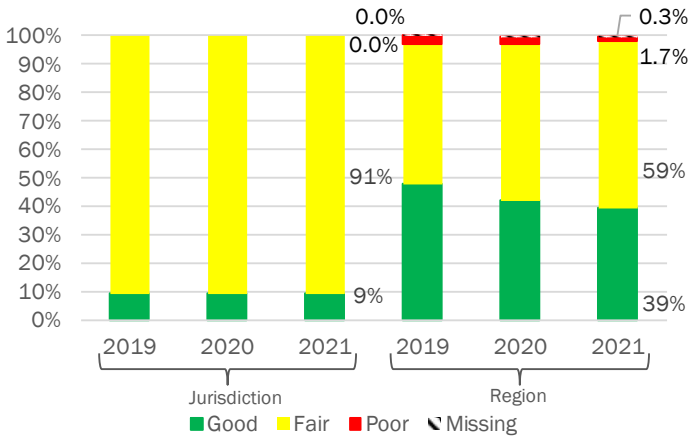
0 Interstate Lane Miles

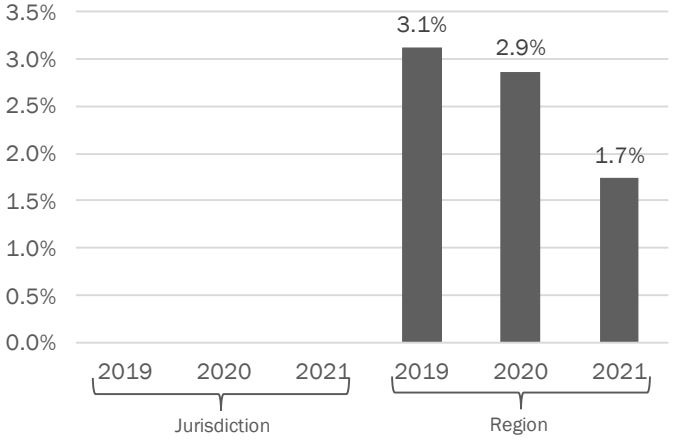


225.6 Non-Interstate NHS Lane Miles

NHS Bridge Conditions (by square meters of deck area)

(Includes: 9 Bridges and 3 Culverts; 0 Structurally Deficient)

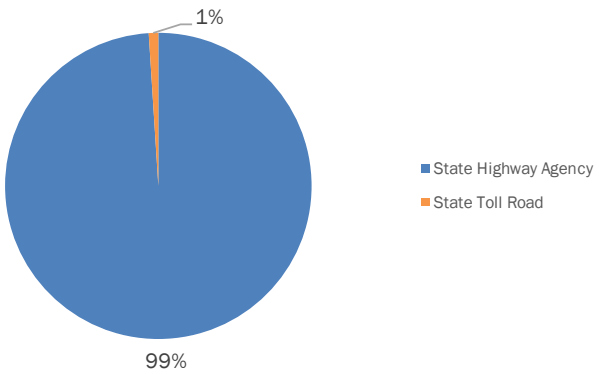


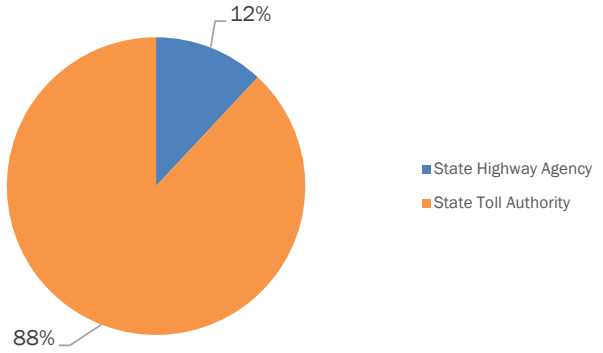


Largest Structurally Deficient Bridges (by deck area): N/A

Ownership

(by lane mile or square meters of deck area; all Interstate lane miles owned by the corresponding state highway agency)





Total = 12; weighted by deck area

Source: Highway Performance Monitoring System, 2018-2020 and National Bridge Inventory, 2019-2021; Last Updated 10/3/2022

National Capital Region Transportation Planning Board

Performance Based Planning & Programming

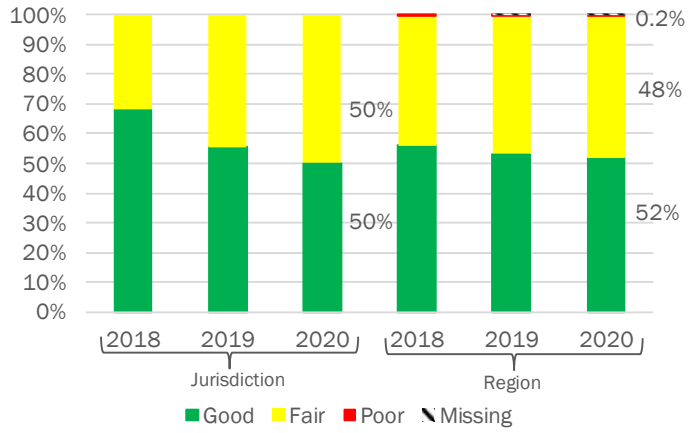
Frederick County

The Federal Highway Administration has established measures for state departments of transportation to use to assess the condition of pavements on the National Highway System (NHS), bridges carrying the NHS which includes on-and off-ramps connected to the NHS, and pavements on the Interstate System.

Pavement Conditions (by lane mile)

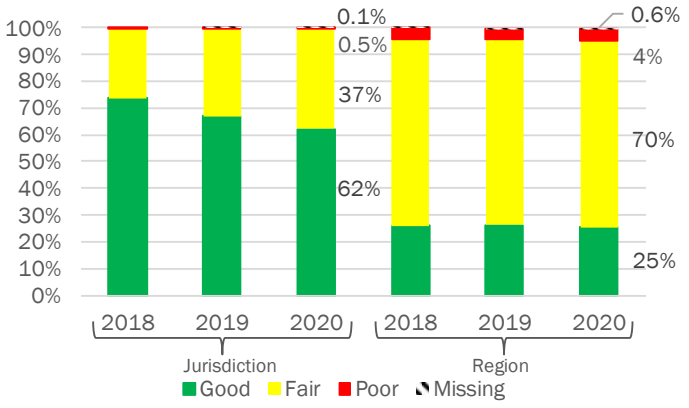
(Sections with Bridges, ramps, non-mainline, non-inventory direction, planned/unbuilt, unpaved and 'other' pavement types excluded)

Interstate Pavement Conditions



192.6 Interstate Lane Miles

Non-Interstate NHS Pavement Conditions

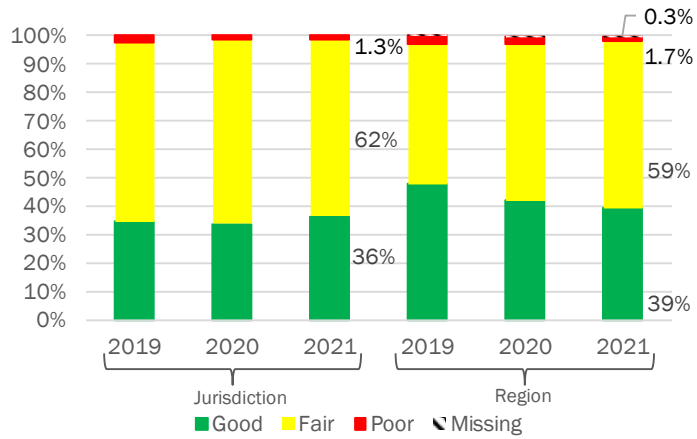


210.4 Non-Interstate NHS Lane Miles

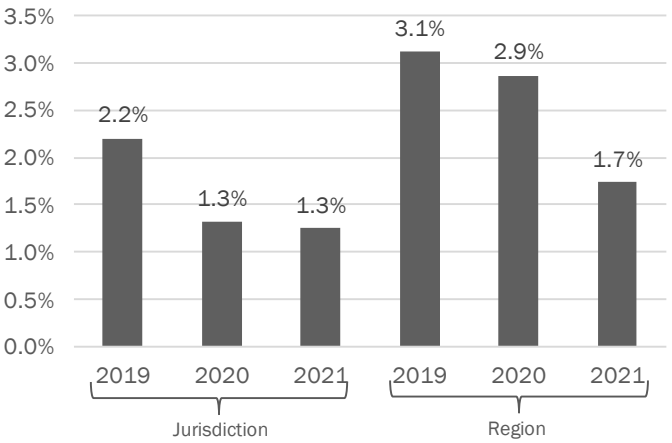
NHS Bridge Conditions (by square meters of deck area)

(Includes: 96 Bridges and 9 Culverts; 1 Structurally Deficient)

NHS Bridge Conditions



Structurally Deficient NHS Bridges

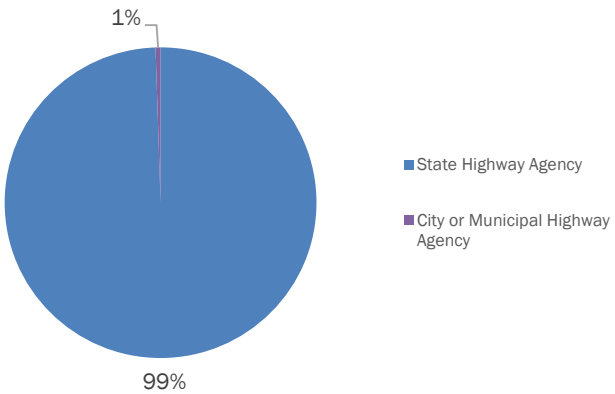


Largest Structurally Deficient Bridges (by deck area): Us 15 Nbr At MD 77 Hunting Creek

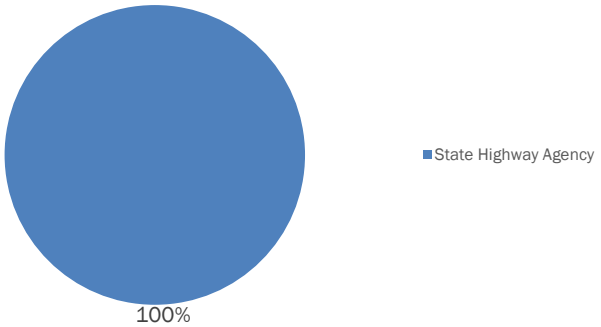
Ownership

(by lane mile or square meters of deck area; all Interstate lane miles owned by the corresponding state highway agency)

Non-Interstate NHS Ownership



NHS Bridge Ownership



Total = 105; weighted by deck area

Source: Highway Performance Monitoring System, 2018-2020 and National Bridge Inventory, 2019-2021; Last Updated 10/3/2022

National Capital Region Transportation Planning Board

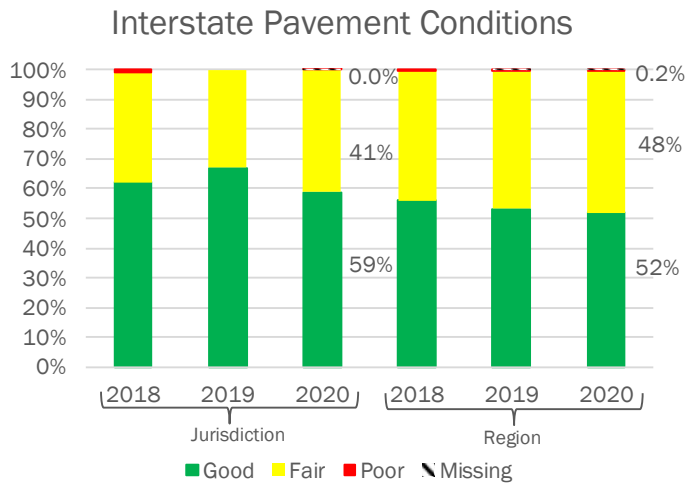
Performance Based Planning & Programming

Montgomery County

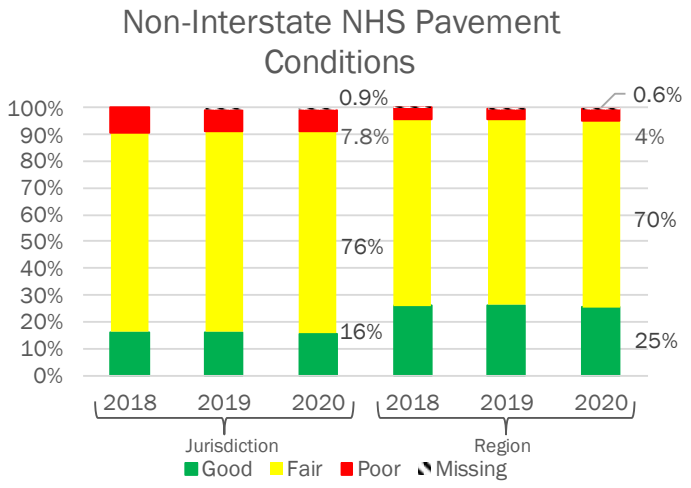
The Federal Highway Administration has established measures for state departments of transportation to use to assess the condition of pavements on the National Highway System (NHS), bridges carrying the NHS which includes on-and off-ramps connected to the NHS, and pavements on the Interstate System.

Pavement Conditions (by lane mile)

(Sections with Bridges, ramps, non-mainline, non-inventory direction, planned/unbuilt, unpaved and 'other' pavement types excluded)



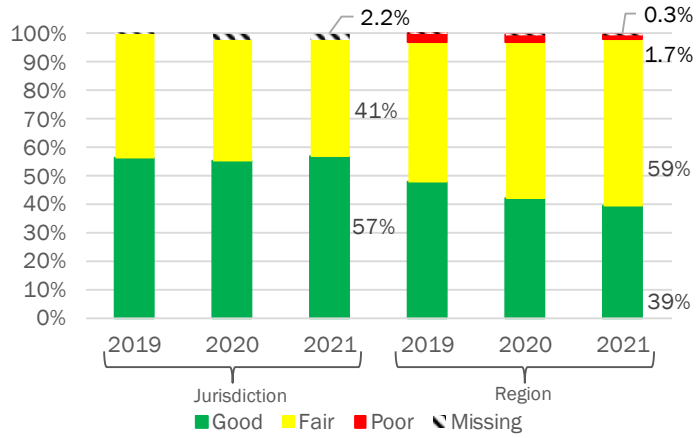
310.2 Interstate Lane Miles

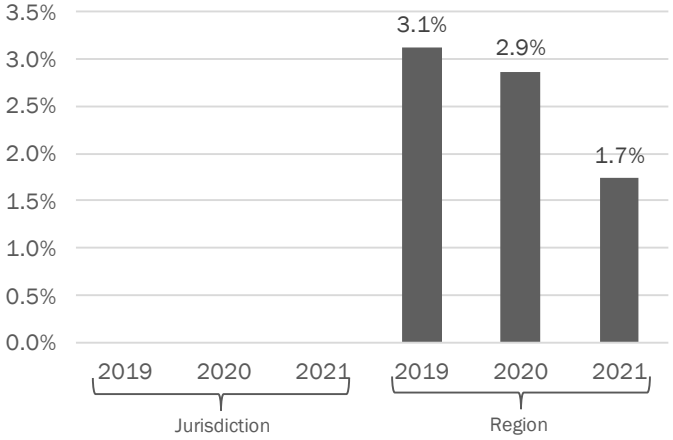


891.8 Non-Interstate NHS Lane Miles

NHS Bridge Conditions (by square meters of deck area)

(Includes: 162 Bridges and 31 Culverts; 0 Structurally Deficient)

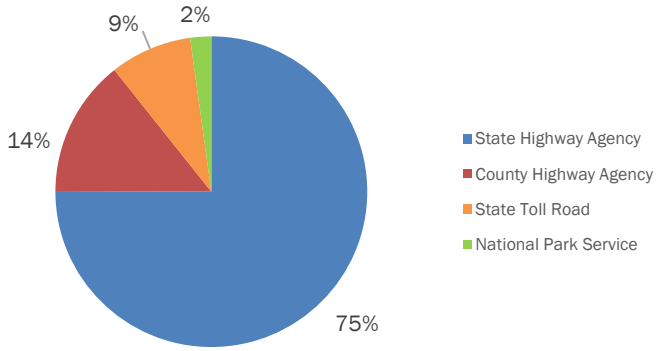


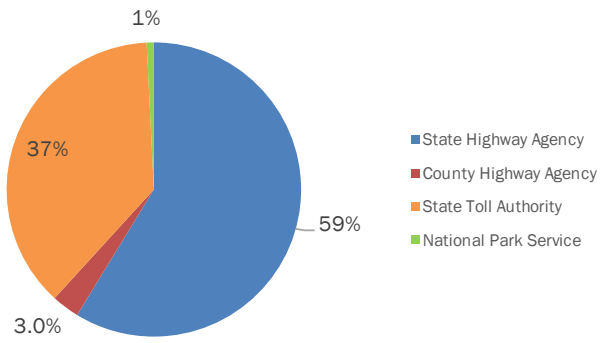


Largest Structurally Deficient Bridges (by deck area): N/A

Ownership

(by lane mile or square meters of deck area; all Interstate lane miles owned by the corresponding state highway agency)





Total = 193; weighted by deck area

Source: Highway Performance Monitoring System, 2018-2020 and National Bridge Inventory, 2019-2021; Last Updated 10/3/2022

National Capital Region Transportation Planning Board

Performance Based Planning & Programming

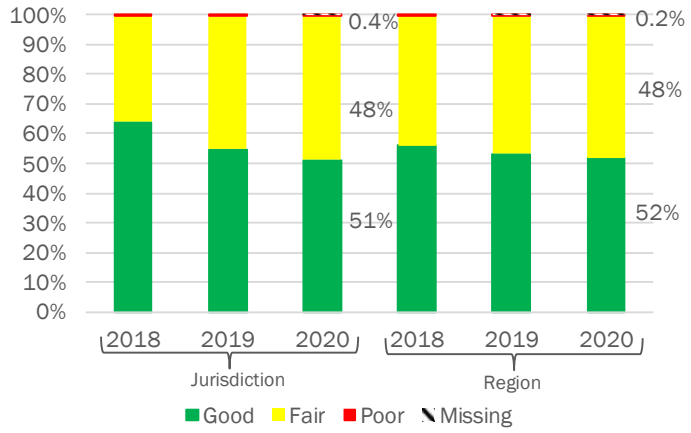
Prince George's County

The Federal Highway Administration has established measures for state departments of transportation to use to assess the condition of pavements on the National Highway System (NHS), bridges carrying the NHS which includes on-and off-ramps connected to the NHS, and pavements on the Interstate System.

Pavement Conditions (by lane mile)

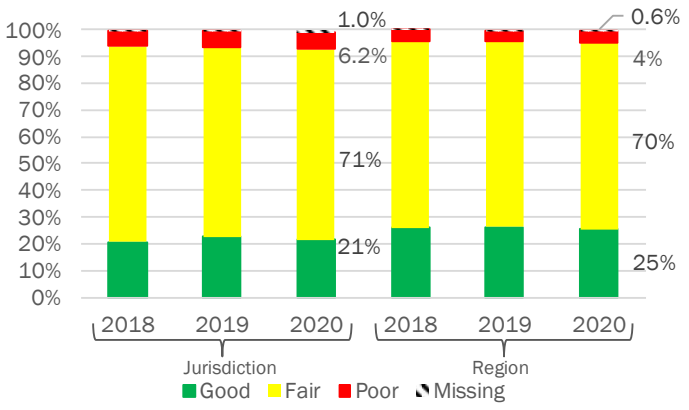
(Sections with Bridges, ramps, non-mainline, non-inventory direction, planned/unbuilt, unpaved and 'other' pavement types excluded)

Interstate Pavement Conditions



361.0 Interstate Lane Miles

Non-Interstate NHS Pavement Conditions

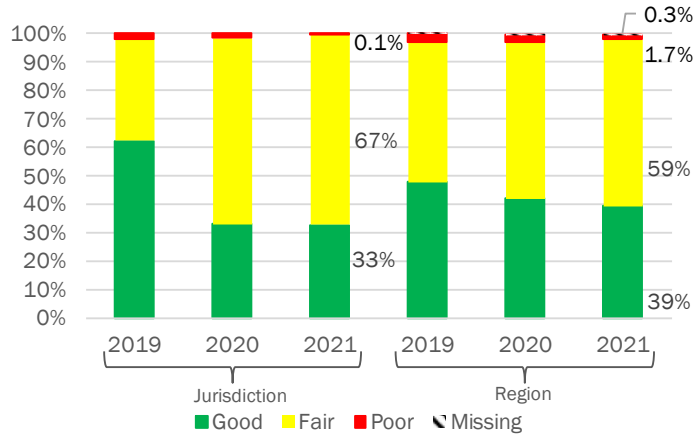


942.2 Non-Interstate NHS Lane Miles

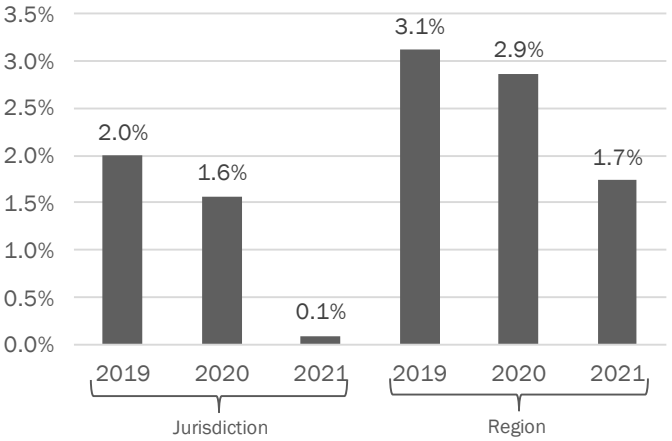
NHS Bridge Conditions (by square meters of deck area)

(Includes: 214 Bridges and 65 Culverts; 1 Structurally Deficient)

NHS Bridge Conditions



Structurally Deficient NHS Bridges

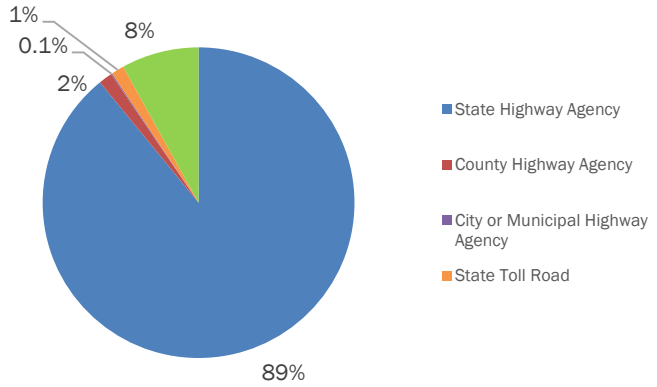


Largest Structurally Deficient Bridges (by deck area): MD 4 WBR at MD 717

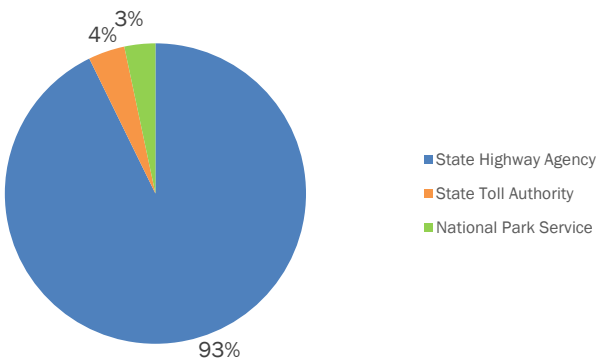
Ownership

(by lane mile or square meters of deck area; all Interstate lane miles owned by the corresponding state highway agency)

Non-Interstate NHS Ownership



NHS Bridge Ownership



Total = 279; weighted by deck area

Source: Highway Performance Monitoring System, 2018-2020 and National Bridge Inventory, 2019-2021; Last Updated 10/3/2022

National Capital Region Transportation Planning Board

Performance Based Planning & Programming

Northern Virginia

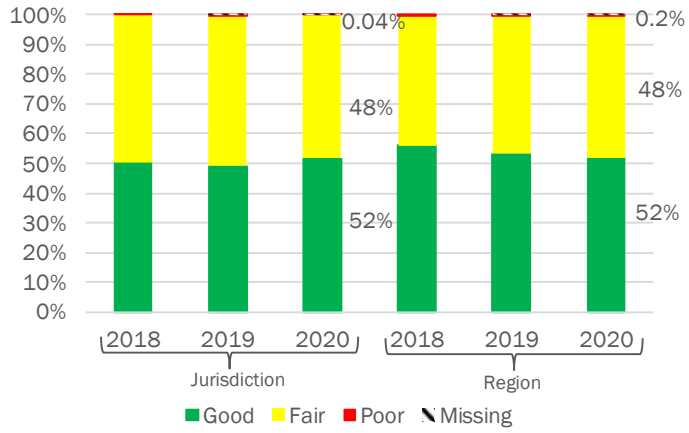
City of Alexandria, Arlington County, Fairfax County, Fauquier County (Warrenton portion), Loudoun County, Prince William County, City of Falls Church, City of Fairfax, City of Manassas, City of Manassas Park

The Federal Highway Administration has established measures for state departments of transportation to use to assess the condition of pavements on the National Highway System (NHS), bridges carrying the NHS which includes on-and off-ramps connected to the NHS, and pavements on the Interstate System.

Pavement Conditions

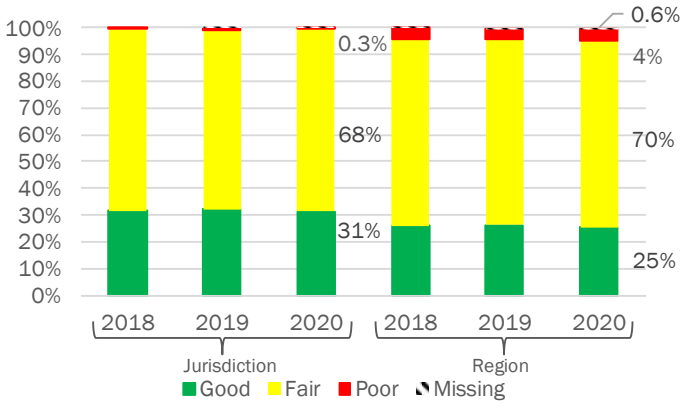
(Sections with Bridges, ramps, non-mainline, non-inventory direction, planned/unbuilt, unpaved and 'other' pavement types excluded)

Interstate Pavement Conditions



735.6 Interstate Lane Miles

Non-Interstate NHS Pavement Conditions

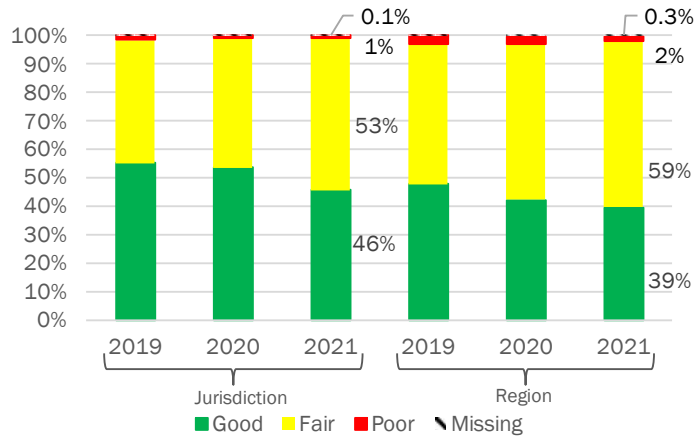


1917.8 Non-Interstate NHS Lane Miles

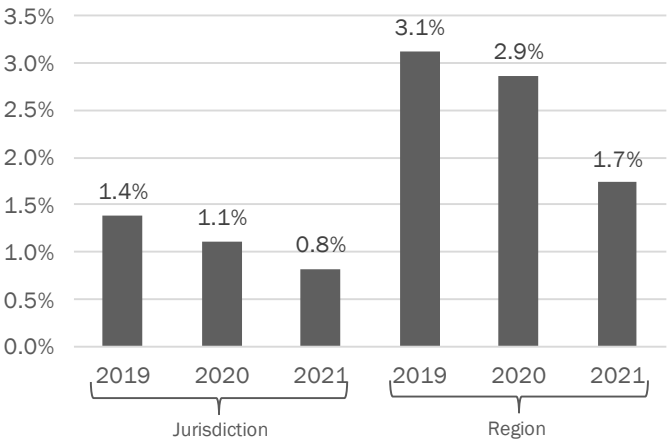
NHS Bridges (by square meters of deck area)

(Includes: 599 Bridges and 115 Culverts; 7 Structurally Deficient)

NHS Bridge Conditions



Structurally Deficient NHS Bridges

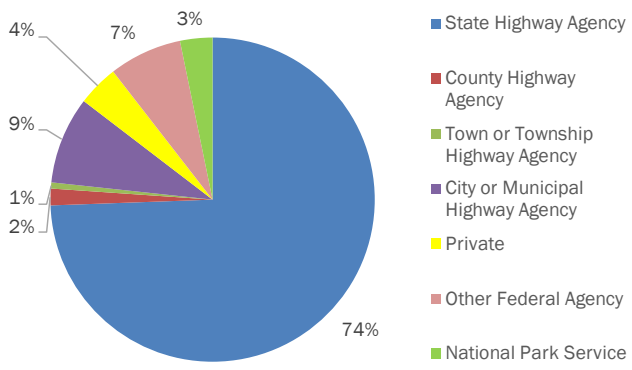


Largest Structurally Deficient Bridges (by deck area): King Street at I-395 Ramps C&G, Duke Street at I-395, Centreville Road at Bull Run

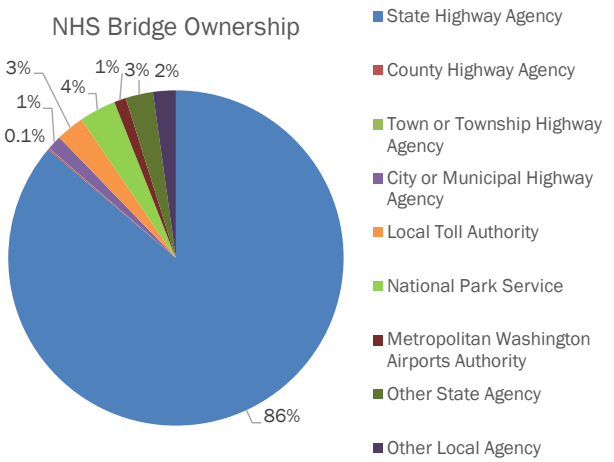
Ownership

(by lane mile or square meters of deck area; all Interstate lane miles owned by the corresponding state highway agency)

Non-Interstate NHS Ownership



NHS Bridge Ownership



Total = 714; weighted by deck area

Source: Highway Performance Monitoring System, 2018-2020 and National Bridge Inventory, 2019-2021; Last Updated 10/3/2022

National Capital Region Transportation Planning Board

Performance Based Planning & Programming

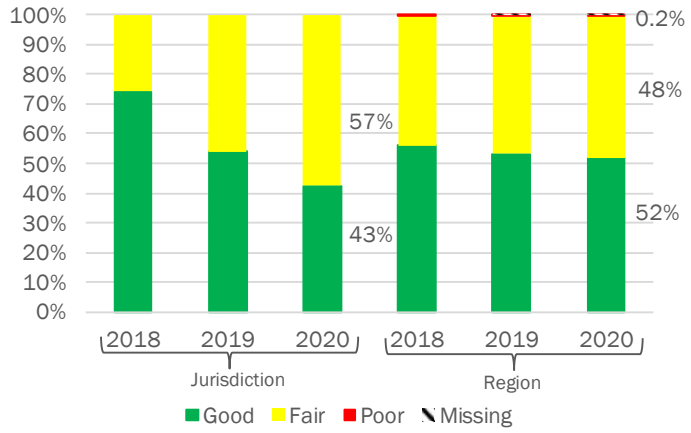
City of Alexandria

The Federal Highway Administration has established measures for state departments of transportation to use to assess the condition of pavements on the National Highway System (NHS), bridges carrying the NHS which includes on-and off-ramps connected to the NHS, and pavements on the Interstate System.

Pavement Conditions (by lane mile)

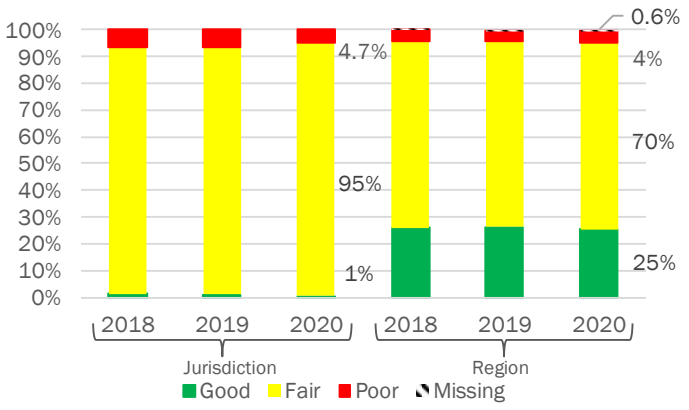
(Sections with Bridges, ramps, non-mainline, non-inventory direction, planned/unbuilt, unpaved and 'other' pavement types excluded)

Interstate Pavement Conditions



33.3 Interstate Lane Miles

Non-Interstate NHS Pavement Conditions

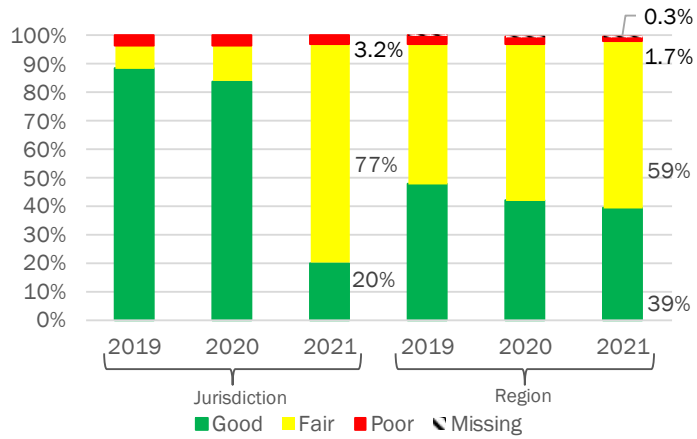


72.8 Non-Interstate NHS Lane Miles

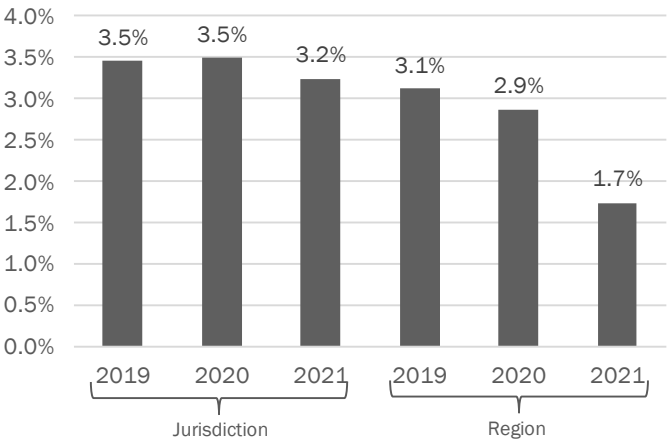
NHS Bridge Conditions (by square meters of deck area)

(Includes: 37 Bridges and 2 Culverts; 2 Structurally Deficient)

NHS Bridge Conditions



Structurally Deficient NHS Bridges

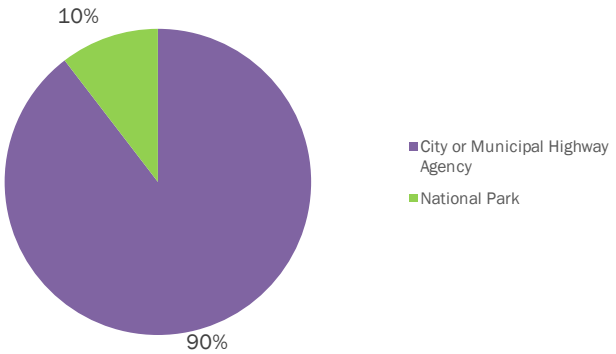


Largest Structurally Deficient Bridges (by deck area): King Street At Route I-395 Ramps C&G, Duke Street At Route I-395

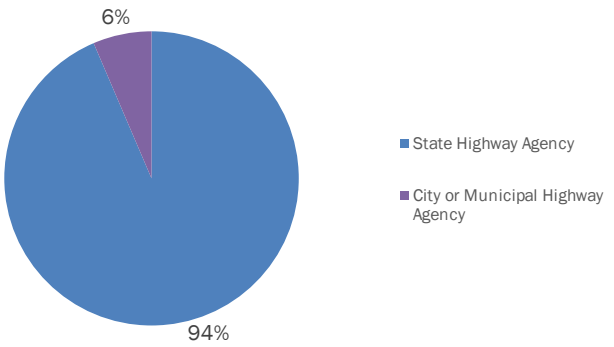
Ownership

(by lane mile or square meters of deck area; all Interstate lane miles owned by the corresponding state highway agency)

Non-Interstate NHS Ownership



NHS Bridge Ownership



Total = 39; weighted by deck area

Source: Highway Performance Monitoring System, 2018-2020 and National Bridge Inventory, 2019-2021; Last Updated 10/3/2022

National Capital Region Transportation Planning Board

Performance Based Planning & Programming

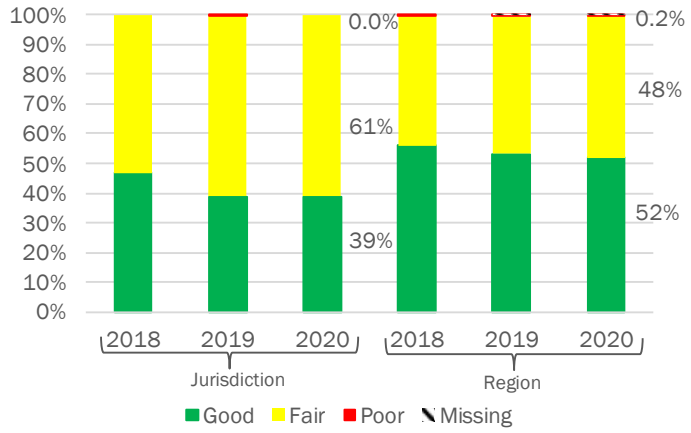
Arlington County

The Federal Highway Administration has established measures for state departments of transportation to use to assess the condition of pavements on the National Highway System (NHS), bridges carrying the NHS which includes on-and off-ramps connected to the NHS, and pavements on the Interstate System.

Pavement Conditions (by lane mile)

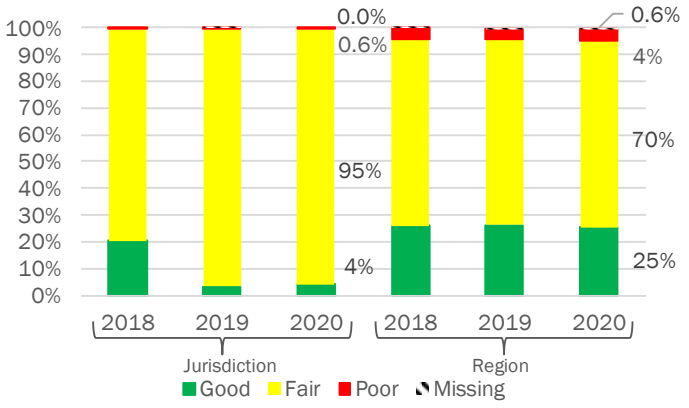
(Sections with Bridges, ramps, non-mainline, non-inventory direction, planned/unbuilt, unpaved and 'other' pavement types excluded)

Interstate Pavement Conditions



59.9 Interstate Lane Miles

Non-Interstate NHS Pavement Conditions

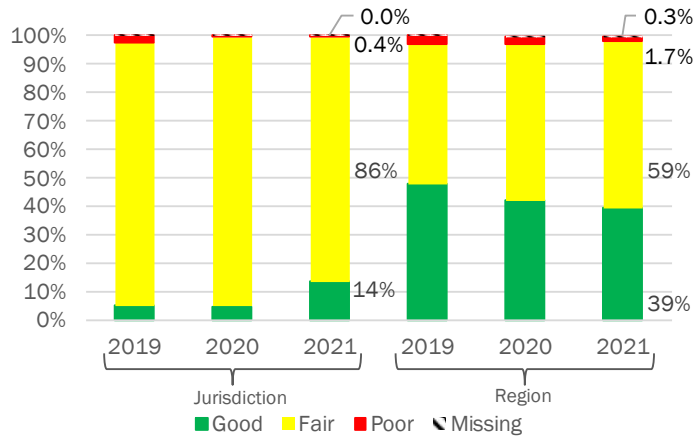


198.4 Non-Interstate NHS Lane Miles

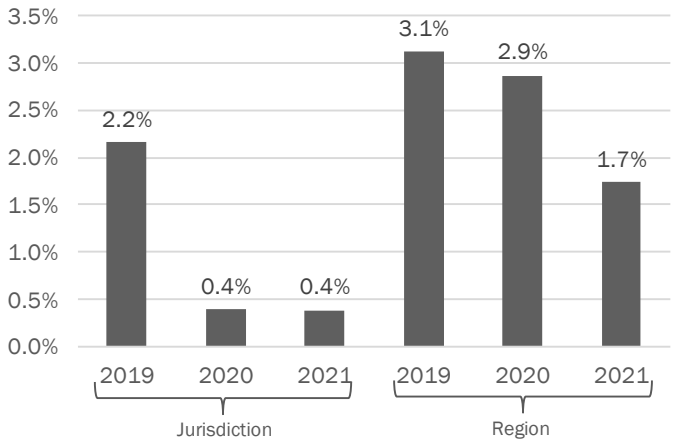
NHS Bridge Conditions (by square meters of deck area)

(Includes: 107 Bridges and 6 Culverts; 1 Structurally Deficient)

NHS Bridge Conditions



Structurally Deficient NHS Bridges

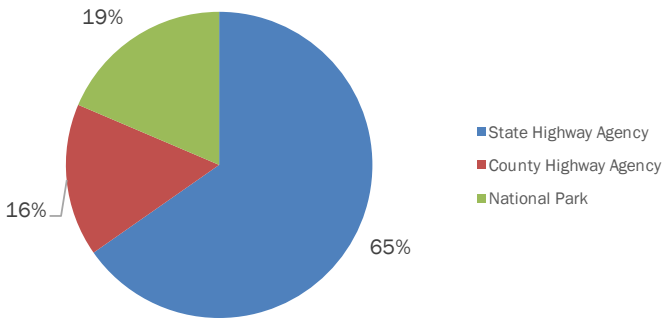


Largest Structurally Deficient Bridges (by deck area): North Glebe Road at Pimmit Run

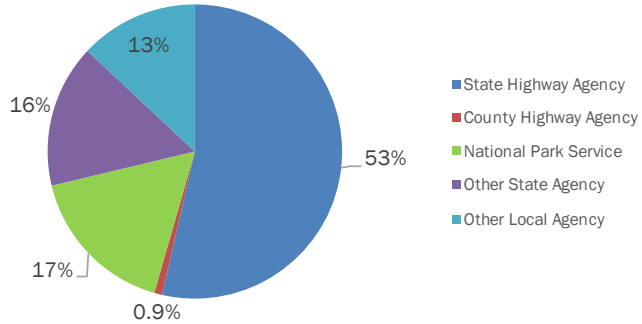
Ownership

(by lane mile or square meters of deck area; all Interstate lane miles owned by the corresponding state highway agency)

Non-Interstate NHS Ownership



NHS Bridge Ownership



Total = 113; weighted by deck area

Source: Highway Performance Monitoring System, 2018-2020 and National Bridge Inventory, 2019-2021; Last Updated 10/3/2022

National Capital Region Transportation Planning Board

Performance Based Planning & Programming

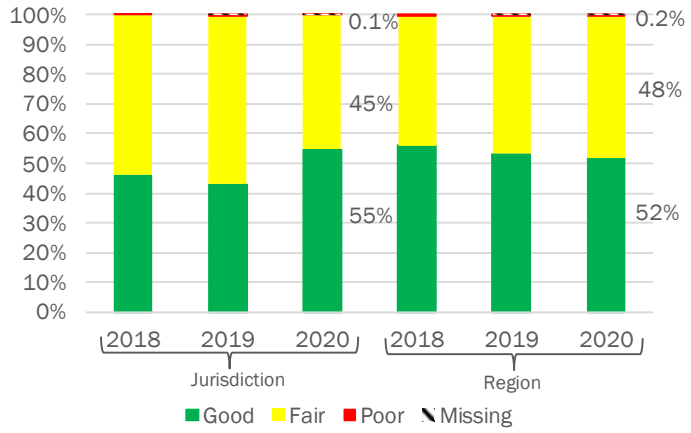
Fairfax County (including City of Falls Church and City of Fairfax)

The Federal Highway Administration has established measures for state departments of transportation to use to assess the condition of pavements on the National Highway System (NHS), bridges carrying the NHS which includes on-and off-ramps connected to the NHS, and pavements on the Interstate System.

Pavement Conditions (by lane mile)

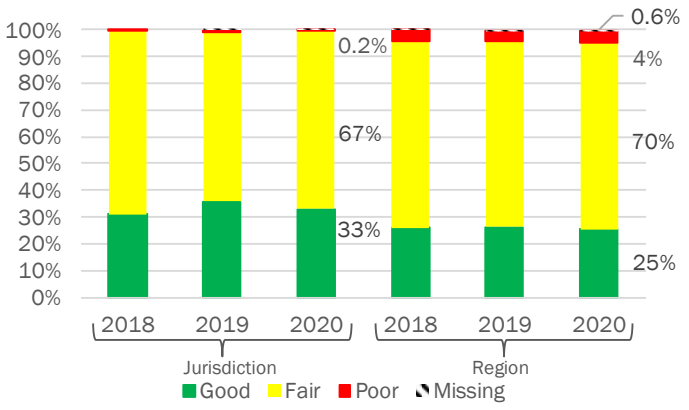
(Sections with Bridges, ramps, non-mainline, non-inventory direction, planned/unbuilt, unpaved and 'other' pavement types excluded)

Interstate Pavement Conditions



433.4 Interstate Lane Miles

Non-Interstate NHS Pavement Conditions

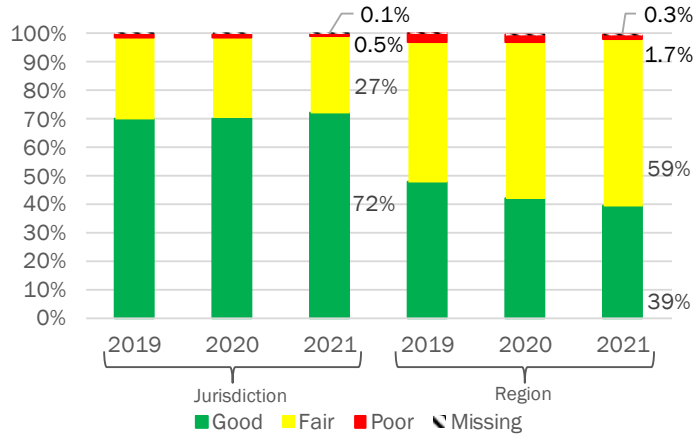


909.9 Non-Interstate NHS Lane Miles

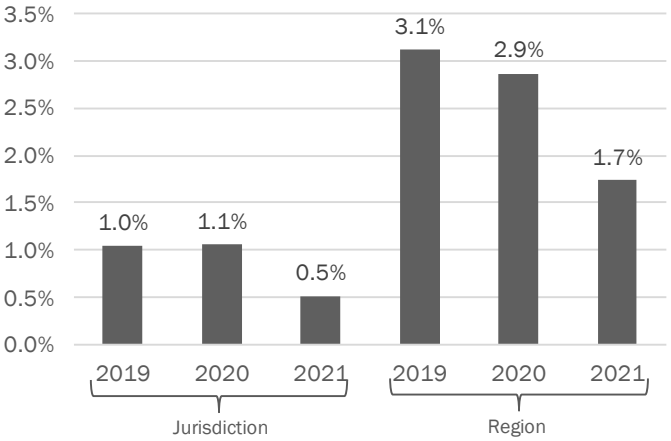
NHS Bridge Conditions (by square meters of deck area)

(Includes: 290 Bridges and 52 Culverts; 4 Structurally Deficient)

NHS Bridge Conditions



Structurally Deficient NHS Bridges

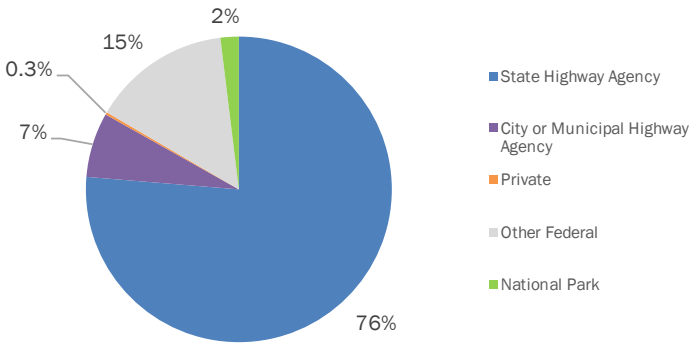


Largest Structurally Deficient Bridges (by deck area): Centreville Road At Bull Run, Chainbridge Road NB At Leesburg Pike, Lee Jackson MEM HY at I-66 (Ramp B)

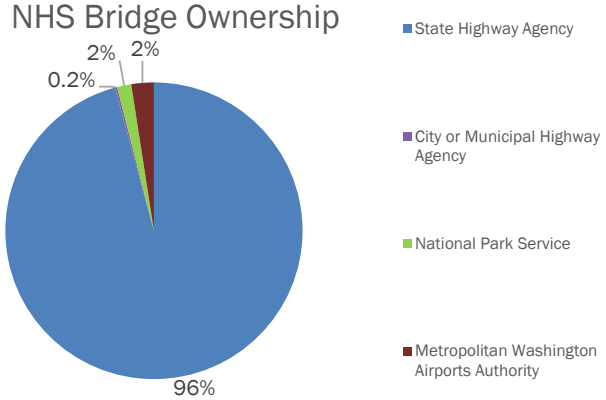
Ownership

(by lane mile or square meters of deck area; all Interstate lane miles owned by the corresponding state highway agency)

Non-Interstate NHS Ownership



NHS Bridge Ownership



Total = 342; weighted by deck area

Source: Highway Performance Monitoring System, 2018-2020 and National Bridge Inventory, 2019-2021; Last Updated 10/3/2022

Performance Based Planning & Programming

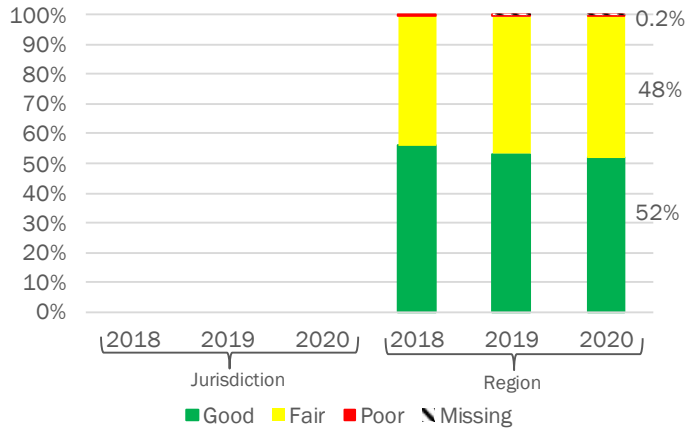
Fauquier County (Urbanized Area)

The Federal Highway Administration has established measures for state departments of transportation to use to assess the condition of pavements on the National Highway System (NHS), bridges carrying the NHS which includes on-and off-ramps connected to the NHS, and pavements on the Interstate System.

Pavement Conditions (by lane mile)

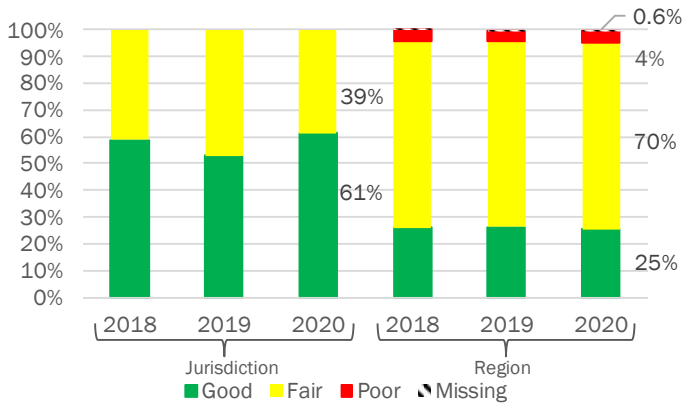
(Sections with Bridges, ramps, non-mainline, non-inventory direction, planned/unbuilt, unpaved and 'other' pavement types excluded)

Interstate Pavement Conditions



0 Interstate Lane Miles

Non-Interstate NHS Pavement Conditions

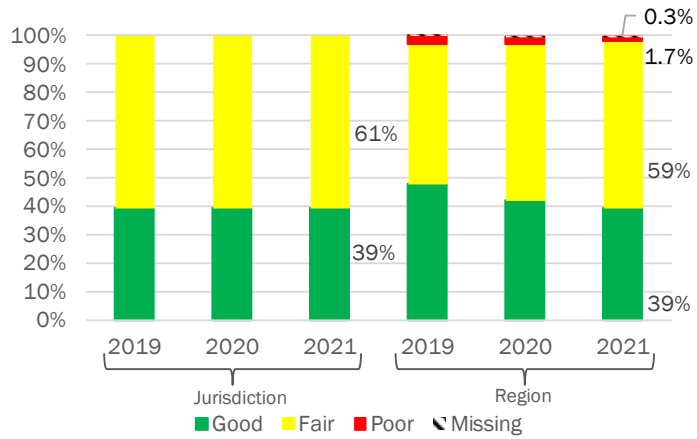


47.6 Non-Interstate NHS Lane Miles

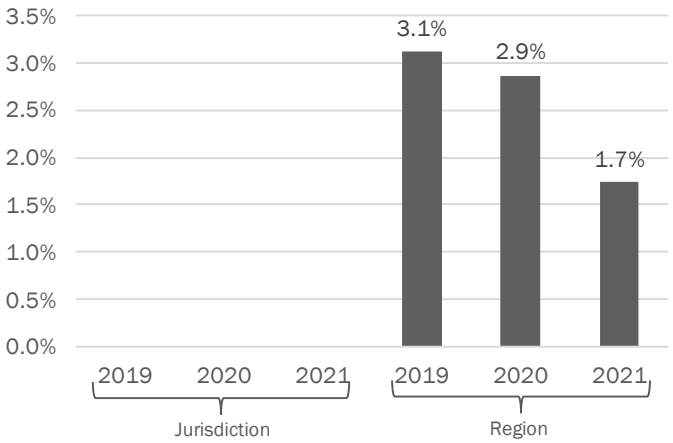
NHS Bridge Conditions (by square meters of deck area)

(Includes: 10 Bridges and 9 Culverts; 0 Structurally Deficient)

NHS Bridge Conditions



Structurally Deficient NHS Bridges

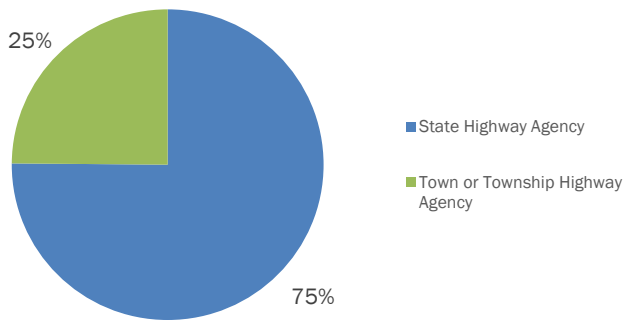


Largest Structurally Deficient Bridges (by deck area): N/A

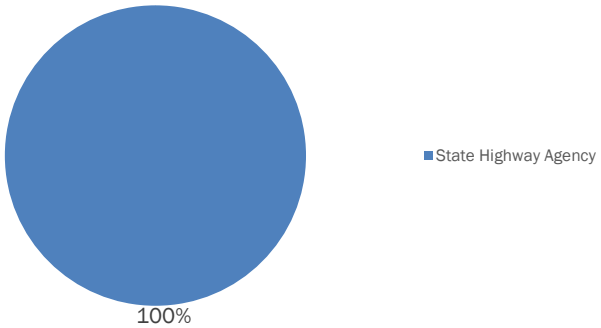
Ownership

(by lane mile or square meters of deck area; all Interstate lane miles owned by the corresponding state highway agency)

Non-Interstate NHS Ownership



NHS Bridge Ownership



Total = 19; weighted by deck area

Source: Highway Performance Monitoring System, 2018-2020 and National Bridge Inventory, 2019-2021; Last Updated 10/3/2022

Performance Based Planning & Programming

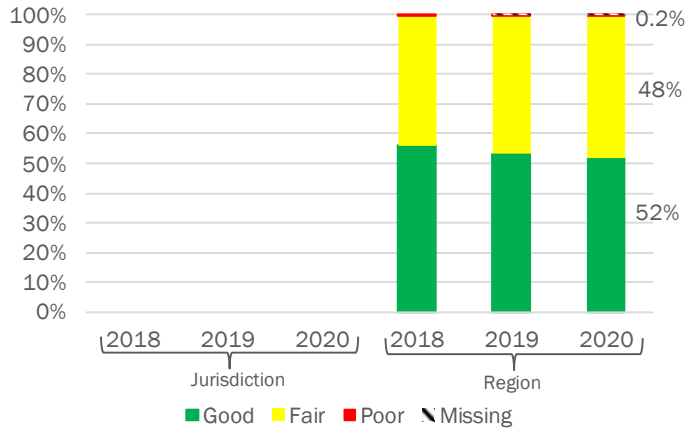
Loudoun County

The Federal Highway Administration has established measures for state departments of transportation to use to assess the condition of pavements on the National Highway System (NHS), bridges carrying the NHS which includes on-and off-ramps connected to the NHS, and pavements on the Interstate System.

Pavement Conditions (by lane mile)

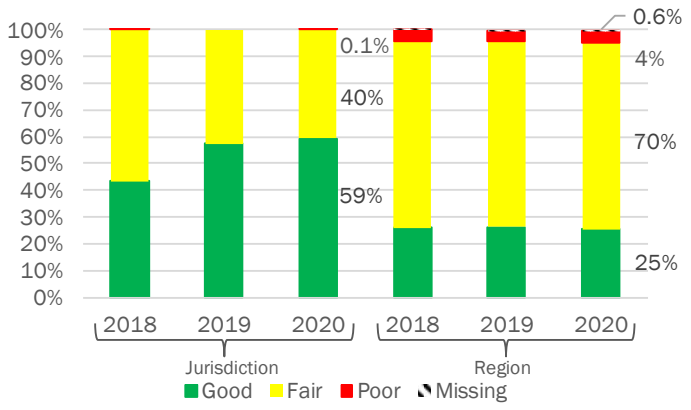
(Sections with Bridges, ramps, non-mainline, non-inventory direction, planned/unbuilt, unpaved and 'other' pavement types excluded)

Interstate Pavement Conditions



0 Interstate Lane Miles

Non-Interstate NHS Pavement Conditions

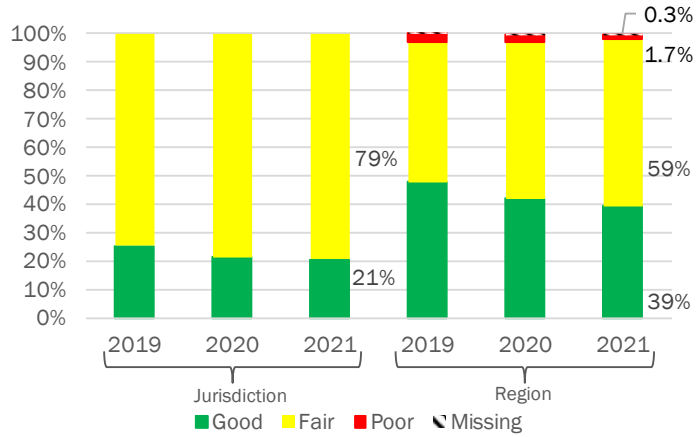


323.6 Non-Interstate NHS Lane Miles

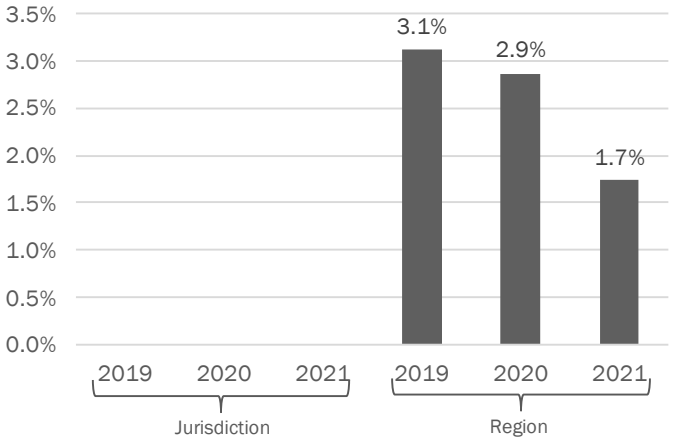
NHS Bridge Conditions (by square meters of deck area)

(Includes: 64 Bridges and 23 Culverts; 0 Structurally Deficient)

NHS Bridge Conditions



Structurally Deficient NHS Bridges

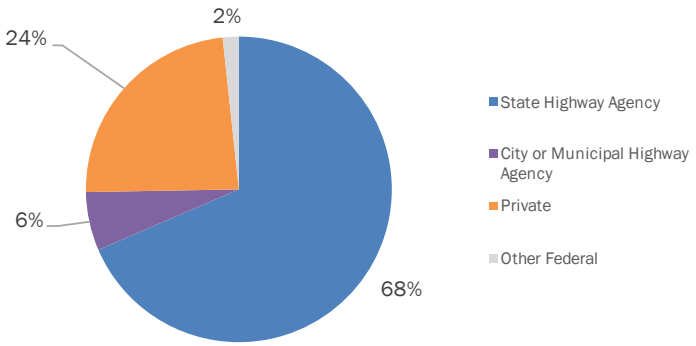


Largest Structurally Deficient Bridges (by deck area): N/A

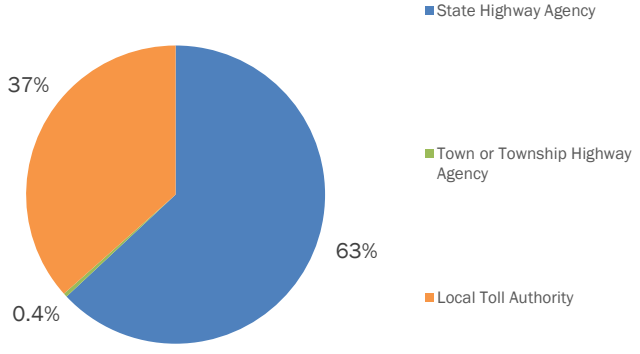
Ownership

(by lane mile or square meters of deck area; all Interstate lane miles owned by the corresponding state highway agency)

Non-Interstate NHS Ownership



NHS Bridge Ownership



Total = 87; weighted by deck area

Source: Highway Performance Monitoring System, 2018-2020 and National Bridge Inventory, 2019-2021; Last Updated 10/3/2022

National Capital Region Transportation Planning Board

Performance Based Planning & Programming

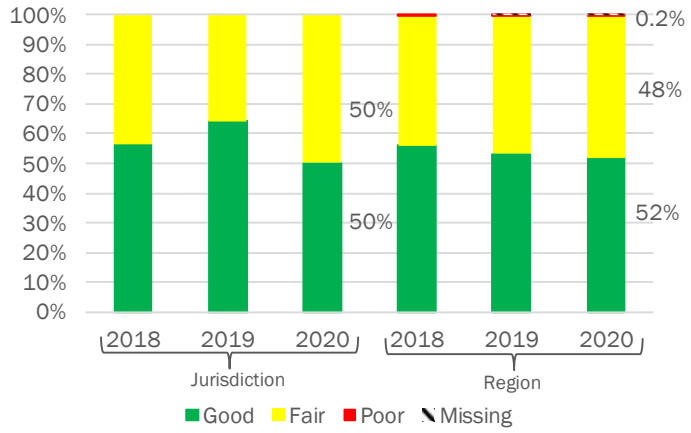
Prince William County (including City of Manassas and City of Manassas Park)

The Federal Highway Administration has established measures for state departments of transportation to use to assess the condition of pavements on the National Highway System (NHS), bridges carrying the NHS which includes on-and off-ramps connected to the NHS, and pavements on the Interstate System.

Pavement Conditions (by lane mile)

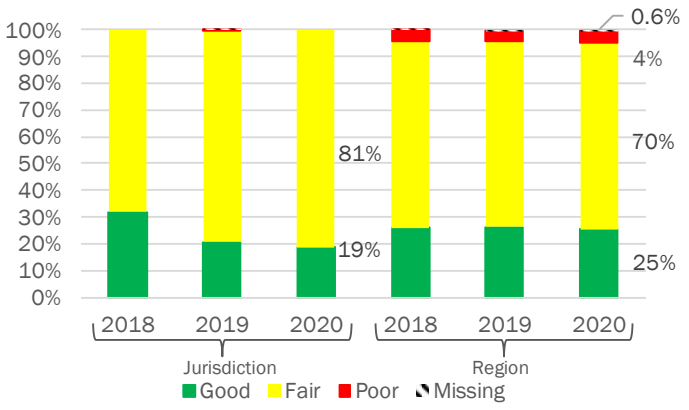
(Sections with Bridges, ramps, non-mainline, non-inventory direction, planned/unbuilt, unpaved and 'other' pavement types excluded)

Interstate Pavement Conditions



208.9 Interstate Lane Miles

Non-Interstate NHS Pavement Conditions

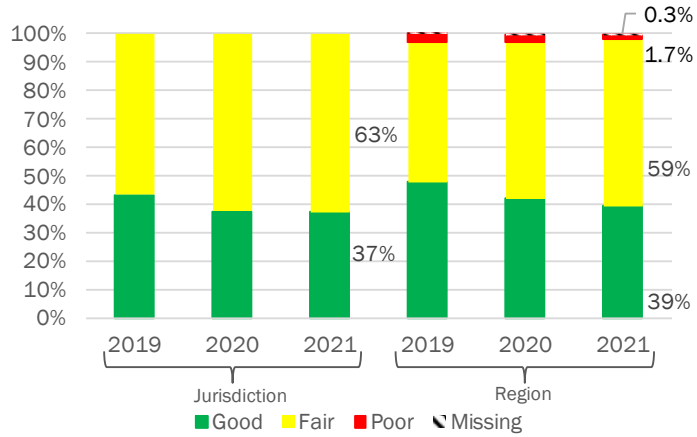


365.5 Non-Interstate NHS Lane Miles

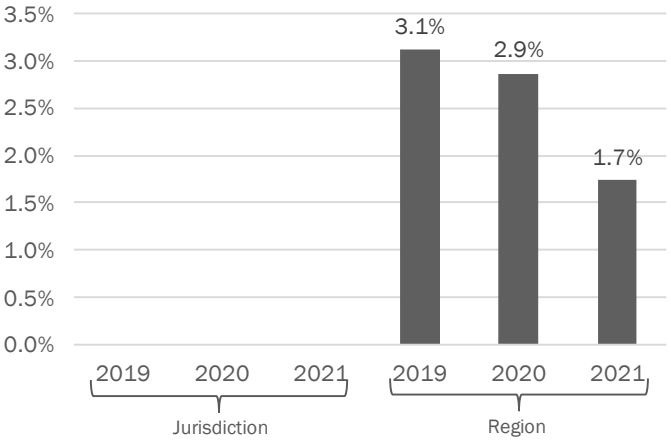
NHS Bridge Conditions (by square meters of deck area)

(Includes: 91 Bridges and 23 Culverts; 0 Structurally Deficient)

NHS Bridge Conditions



Structurally Deficient NHS Bridges

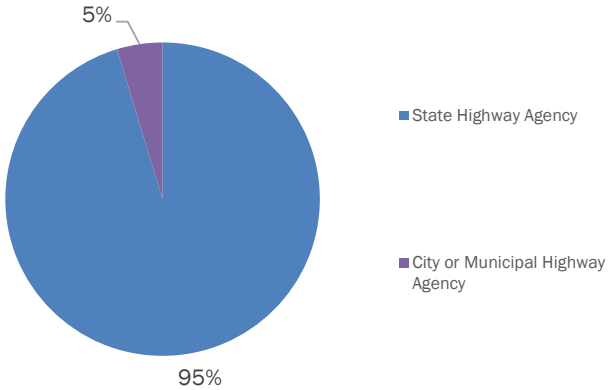


Largest Structurally Deficient Bridges (by deck area): N/A

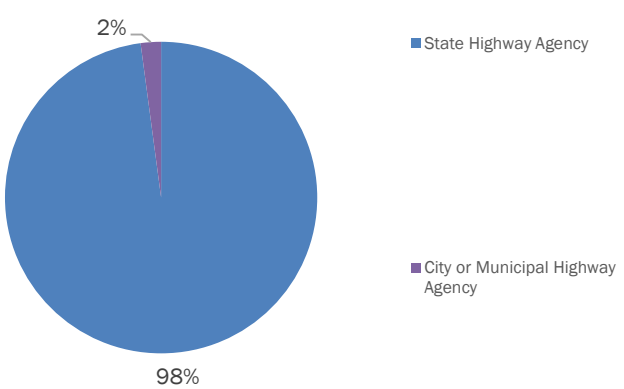
Ownership

(by lane mile or square meters of deck area; all Interstate lane miles owned by the corresponding state highway agency)

Non-Interstate NHS Ownership



NHS Bridge Ownership



Total = 114; weighted by deck area

Source: Highway Performance Monitoring System, 2018-2020 and National Bridge Inventory, 2019-2021; Last Updated 10/3/2022

National Capital Region Transportation Planning Board

ITEM 8 – Information
October 19, 2022

Briefing on the 2022 State of the Commute Survey

Background: Every three years since 2001, Commuter Connections has conducted a random sample survey of employed persons in the Metropolitan Washington Region to monitor trends in commuting behavior such as mode shares, telecommuting, and distance traveled, as well as attitudes about commuter assistance services. The board will be briefed on the highlights from the 2022 State of the Commute Survey.

National Capital Region
Transportation Planning Board
COMMUTER CONNECTIONS PROGRAM

2022 State of the Commute Survey
Technical Survey Report

Prepared for:

Metropolitan Washington Council of Governments
777 North Capitol Street, NE, Suite 300
Washington, DC 20002-4290

Prepared by:

LDA Consulting

In association with:

WBA Research, Inc.
Eric N. Schreffler, Transportation Consultant
and
Center for Urban Transportation Research (University of South Florida)

September 20, 2022

EXECUTIVE SUMMARY

Introduction

This report presents the results of the State-of-the-Commute (SOC) survey conducted for the Commuter Connections program of the Metropolitan Washington Council of Governments (COG).[1] Commuter Connections provides a wide range of transportation information and assistance services in the Washington metropolitan area to inform commuters of the availability and benefits of alternatives to driving alone and to assist them to find alternatives that fit their commute needs. COG administers Transportation Demand Management (TDM) services as part of a regional effort to reduce vehicle trips, vehicle miles of travel, and emissions resulting from commute travel, as well as to support other regional transportation goals.

The 2022 survey was conducted as an Internet survey of employed adult residents. The survey used an address-based sampling (ABS) method to select a random sample of potential respondents, a postcard survey invitation delivered through the U.S. mail to selected addresses, and a respondent-administered Internet interview format for respondents to complete the survey. To boost survey response rate, survey respondents who completed the survey were offered the opportunity to participate in a random drawing for one of fifty $250 Amazon gift cards. A total of 8,396 interviews were collected. Upon completion of the interviews, the survey responses were expanded to represent the employed population of the jurisdictions that make up the Washington metropolitan region. The results also were adjusted to align survey results to known U.S. Census race/ethnicity and age distributions, an adjustment that also had been applied in the 2016 and 2019 SOC surveys.

As its name indicates, the survey is designed to examine commuting, defined as travel to and from work, for the Washington metropolitan region. First, the SOC survey documents trends in commuting patterns – where, how, and when workers travel and why they choose or avoid certain travel modes. Second, it explores workers' awareness and use of regional transportation infrastructure and information and assistance services offered to facilitate commuting. Third, the survey explores commuters' opinions about current transportation initiatives. Finally, the SOC survey collects data needed to estimate, as part of a triennial analysis, the travel and air quality impacts of commute alternative programs and commute marketing and outreach efforts undertaken by Commuter Connections to support and influence commute travel behavior of workers in the region.

2022 SOC Survey Report in the Context of the Coronavirus Pandemic

The 2022 SOC survey was the eighth SOC survey, with previous surveys conducted triennially since 2001. Each SOC survey represents a profile of commuting at the point in time when the data were collected. Analysis and explanation of changes in commuting from one survey to the next has always been an important element of the SOC survey and as much as possible, SOC questions have been retained from survey to survey to allow for trend analysis.

This straightforward approach to collecting, analyzing, and reporting commute data was complicated in 2022 by the coronavirus pandemic. Pandemic stay-at-home directives were implemented throughout the Washington metropolitan region in March 2020, closing many worksites and disrupting typical commutes for many workers. Commute and employment surveys conducted during 2020 and 2021 by

[1] Commuter Connections is administered through the National Capital Region Transportation Planning Board (TPB) at COG and funded through the District Department of Transportation, the Maryland Department of Transportation, and the Virginia Department of Transportation, with state and federal funds.

various researchers showed that many employees shifted to working from home, some employees lost jobs or changed jobs, and some who continued commuting changed their commute modes. [2]

In the early months of the pandemic, workplace and commuting adjustments were anticipated to be temporary. However, as the pandemic continued into 2021 and, to a lesser but still notable extent, into 2022, it became clear that work and commuting patterns remained unsettled. For this reason, questions were added to the 2022 SOC interviews to examine commute patterns at the time of the survey (January – March 2022) and in February 2020, just prior to the start of the pandemic. SOC survey reports have typically presented comparisons of the subject year with the results from the previous survey, in this case, results from 2019. Collecting data on this immediate pre-pandemic point would enable comparisons between 2022 and 2019 data to be interpreted more clearly.

Questions also were added to the survey to examine telework/work from home experience and the wording of some existing questions was modified to be relevant both to workers who worked from home and those who traveled to outside workplaces. These question modifications are described in the report to assist readers to interpret changes in travel patterns between 2019 and 2022.

Comparison of results for 2022 with those from past SOC survey also required additional analysis. When deeper examination of SOC sub-populations data supported or refuted possible interpretations for findings, these results are described in the appropriate section. But a myriad of factors influence commute patterns and attitudes and even with the extensive SOC dataset, it was sometimes impossible to draw a definitive conclusion. In these cases, the report presents factors that might be relevant.

Finally, the SOC survey presents commuting at a point in time. Despite the pronounced changes described in the report, some extreme impacts that might have been observed had this survey been conducted in 2020 or 2021 likely have abated. Additionally, the survey interviewed only residents who were employed at the time of the survey and asked about their "current" commute. So, residents who lost jobs during the pandemic and had not returned to work were not interviewed. And the survey does not presume that the commute defined in this report will be durable. But the pandemic has upended many aspects of commuting and 2022 will serve as an interesting new baseline for future SOC surveys.

Highlights of Results

Following is a summary of key findings. This section starts with findings that appear most related to the pandemic. Following that overview are specific results on the following additional topics:

- Commute patterns
- Commute changes, commute ease, and commute satisfaction
- Telework
- Availability of and attitudes toward transportation options
- Awareness and impacts of commute advertising
- Awareness and use of commuter assistance resources
- Employer-provided commuter assistance services
- Technology-based applications and driverless cars

[2] In a survey of 180 employers conducted by MWCOG in June 2020, eight in ten employers reported that some or all their employees were working remotely, compared with about one in three employees pre-pandemic. *(Source: MWCOG, Commuter Connections, 2020 Employer Telework Survey, June 30, 2020).* A VDOT survey of nearly 5,500 Virginia workers conducted in July 2020 showed that more than three-quarters were teleworking from home full-time. *(Source: VDOT Virginia Commuter Survey, July 2020; https://www.virginiadot.org/travel/commuter-survey.asp).*

Findings Related to the Coronavirus Pandemic

- ***Commute disruptions were widespread*** – Three quarters of all workers experienced some disruption to their pre-pandemic commute patterns. Six in ten started or increased their use of telework; 32% shifted to full-time telework, eliminating all their commute trips, and 28% increased the number of days they teleworked. Workers also reported making other commute and work situation changes; 16% were working for a different employer or different job, 13% were working different days or hours, and 9% had shifted to a different type of transportation for their commute. The SOC survey interviewed only residents who were employed at the time of the survey. It is likely some residents who lost jobs during the pandemic had not yet returned to work but these job and commute disruptions are not included in the results.
- ***Both the percentage of workers who teleworked and the average frequency of telework were dramatically higher in 2022 than in 2019*** – In 2022, 66% of regional commuters were teleworking at least occasionally, nearly a doubling of the 2019 percentage of 35%. The 2022 teleworkers represented 2.14 million regional workers. The average telework frequency also rose, nearly tripling from the 2019 average of 1.2 telework days per week to 3.37 telework days per week in 2022.
- ***Telework replaced nearly half of daily commute trips in 2022*** – The combination of high percentage of workers teleworking and high frequency of telework produced a nearly five-fold increase in the percentage of commute trips replaced by telework in 2022, compared with 2019. In 2022, telework accounted for 48% of commute trips, compared with about one in ten trips in 2019. On a typical workday in 2022, nearly 1.5 million workers teleworked, eliminating 2.9 million daily commute trips.
- ***Most teleworkers rated their teleworking as a positive experience and most wanted to telework in the future*** – When asked how much they agreed with statements about telework, 86% agreed that they were productive while they were teleworking and 80% agreed that they were able to coordinate with co-workers while they were working at home. Two-thirds (66%) agreed that they were better able to concentrate on work tasks while teleworking. More than nine in ten (92%) respondents who were teleworking at the time of the survey said they would want to telework at least one day per week and 39% said they would want to telework all their workdays.
- ***Driving alone accounted for a higher share of trips that were made to outside work locations in 2022*** – The analysis examined commute patterns both with and without telework. When telework was excluded from the mode distribution, the resulting mode splits for trips made to outside work locations showed a statistical increase of nearly 14 percentage points in the drive alone mode share between 2019 and 2022 (2019 64.6%, 2022 78.4%). These trips were shifted from train (10.0 percentage points), carpool/vanpool (1.8 points), and bus (1.7 points), all of which lost mode share between 2019 and 2022.
- ***Transit mode share declined across all geographic and demographic commuter populations*** – The analysis also examined commute patterns across a range of commuter characteristics. When telework was excluded, relative patterns of mode use were generally similar in 2022 as in 2019. For example, transit use in 2022 was higher among workers who lived and/or worked in the Core area, younger workers, Non-Hispanic Black respondents, and respondents who had limited access to a personal vehicle; these groups also had been above average users of transit in 2019. But even for commuting populations for which transit was a common mode, transit use declined between 2019 and 2022. For example, in 2019, three in ten workers under 45 years old had primarily used transit; in 2022, only 16% used transit as their primary mode. And in all cases, the lost transit mode share was shifted to driving alone.

- ***Commuting got easier for some workers and more difficult for others but overall commute satisfaction was about the same in 2022 as in 2019*** – One-quarter (26%) of respondents who were traveling to an outside work location said their commute was more difficult than one year ago but 24% said their commute was easier. The percentage who had a more difficult commute was about the same as in 2019 but the 24% of workers with an easier commute was higher than the 15% who reported easier commutes in 2019. The percentage of respondents who were satisfied with their commute was about the same in 2022 (52%) as in 2019 (50%).
- ***Transit riders were more likely to report commute difficulty and less commute satisfaction than were other mode users*** – Respondents who primarily teleworked, carpooled/vanpooled, or drove alone to work were particularly likely to report an easier commute than last year. This likely reflected the fact that while commute distances were about the same in 2022 as in 2019, commute travel times had declined, due to fewer vehicles on the road. More difficult commutes were far more common among train riders (50%) and bus commuters (42%). Transit riders also gave lower ratings for commute satisfaction; 46% of Metrorail riders and 44% of bus commuters reported being satisfied with their commute, compared with about half of carpoolers/vanpoolers (52%) and drive alone commuters (51%). Transit riders also were less satisfied in 2022 than they had been in 2019; perhaps due to transit service disruptions during the pandemic and riders' concerns with the potential exposure to coronavirus.
- ***Workers were less aware of commute advertising and commute resources in 2022*** - About 27% of all respondents said they had seen, heard, or read advertising about commuting in the year prior to the survey, a considerably lower percentage than estimated in the 2019 (45%) survey. This is likely due in part to lower exposure to advertising. Workers who teleworked most or all their workdays would have fewer opportunities to see or hear advertising during their commute and perhaps noticed it less because it was not relevant to their current work situation. But some organizations that sponsor commute advertising paused their mass media and worksite outreach, so it also is likely that fewer ads were even available for commuters to notice. Awareness of regional and local commuter assistance services also fell; awareness of Commuter Connections dropped from 48% in 2019 to 40% and five of the ten local jurisdiction commute assistance programs experienced lower name recognition in 2022 than in 2019.
- ***But respondents continued to report access to workplace commute services at nearly as high a rate in 2022 as in 2019*** – Fifty-six percent of respondents said their employers offered one or more commuter benefits or services at the worksite; this was a slight decrease from the 60% rate estimated in the 2019 SOC survey. This could suggest some employers discontinued commute services because many employees were working from home during the pandemic. However, working from home could have limited employees' exposure to information or services they might have noticed if they were working at their usual work location. Transit subsidies and commute information continued to be the most common worksite services and employees who had access to the services were as likely to use them in 2022 as they had been in 2019.

Commute Patterns

In 2022, 48% of weekly commute days were telework (work from home). This was vastly different than in 2019, when telework accounted for just 10% of weekly commute days. But even controlling for the growth in telework, for commute trips made to outside work locations, use of drive alone increased and alternative modes fell as a share of commute trips.

- Two modes, driving alone and telework, accounted for nearly nine in ten commute days in 2022. Workers teleworked for 47.6% of their commute days/trips and made 41.2% of commute trips by driving alone (including taxi/ride-hail service). The remaining commute days/trips were divided into 7.8% transit, 1.7% carpool/vanpool, and 1.7% bike/walk.
- The 2022 mode split was dominated by the pandemic-related increase in telework. Excluding telework from the total reveals the distribution of modes used on days workers traveled to outside work locations. Driving alone accounted for about 78% of commute trips to outside locations and alternative modes made up the balance; 15.0% transit, 3.3% carpool/vanpool, and 3.3% bike/walk.
- Comparison of the "outside commuting" mode splits for 2022 and 2019 showed a statistical increase of nearly 14 percentage points in the drive alone share of commute trips (2019 64.6%, 2022 78.4%). These trips were shifted from train (10.0 percentage points), carpool/vanpool (1.8 points), and bus (1.7 points) all of which lost mode share. Bike/walk mode share remained essentially unchanged, when telework is excluded.
- Carpooling declined as a share of weekly commute trips but among those who were carpooling in 2022, about three-quarters said they carpooled with family members. This was a significant increase over the 56% of "household carpools" reported in 2019. By contrast, the share of carpoolers who said they used casual carpools or "slug" carpools declined from 20% in 209 to just 4% in the 2022 survey. The coronavirus pandemic could have had two impacts on casual carpooling. First, the shift of many workers to work from home/telework would have reduced the number of potential slug drivers and riders. The second possible factor is commuters' desire to minimize their risk of contracting coronavirus by avoiding travel with commuters whose virus and or vaccination status they did not know.

Alternative mode use fell across all geographic and demographic characteristics but remained higher for respondents who lived and/or worked in the central portion of the region than for those who lived/worked outside the regional core.

- When telework is excluded from the mode distribution, only about half (49%) of commuters who lived in the Core area (Alexandria, Arlington, and District of Columbia) drove alone. This was much lower than the 81% drive alone rate for the Middle Ring (Fairfax, Montgomery, and Prince George's counties) and the 88% rate for the Outer Ring (Calvert, Charles, Frederick, Loudoun, and Prince William counties). The mode pattern for employment area was similar; about six in ten (59%) commuters who worked in the Core area drove alone, dramatically lower than the drive alone rates for Middle Ring workers (88%) and Outer Ring workers (93%).

The average commute distance of respondents who commuted to outside work locations declined slightly from 17.1 miles in 2019 to 16.9 miles in 2022.

- The 2022 survey asked respondents the distance from their home to their work location. Respondents who teleworked full-time were asked the distance to the location where they would work if they were not teleworking. Respondents who were commuting to an outside location traveled 16.9 miles one way, essentially the same as the 17.1 miles average measured in the 2019

survey. Full-time teleworkers reported their average travel distance would be 16.3 miles if they were not teleworking. Across all workers, the average commute distance would be 16.7 miles.

- Respondents who were traveling to an outside work location commuted an average of 37 minutes one-way, a notably shorter time than that reported in 2019 (43 minutes). This could be related to the slight drop in commute distance, but it is likely the elimination of commute trips due to expanded telework was the more significant factor. One-third of workers were teleworking full-time at the time of the survey and another one-third were teleworking at least occasionally. This would have removed a much larger number of commuting trips from the peak period in 2022 than in 2019.

Commuters who used alternative modes recognized personal benefits of choosing these modes.

- When alternative mode users were asked what personal benefits they receive from using these modes, 94% named at least one benefit, a slightly higher share than in 2019 (89%). Saving money topped the list of personal benefit, mentioned by 32%. Respondents also cited benefits with a connection to quality of life, such as getting exercise or health benefit (20%), avoiding traffic (17%), and helping them avoid stress or relax while commuting (14%). Fourteen percent said they could save time or travel more quickly and 13% said they could use their travel time productively when they used an alternative mode. Over one in ten said it was a convenient/easy way to travel (11%) and 10% benefitted by not needing to find or pay for parking.

Commute Changes, Commute Ease, and Commute Satisfaction

While many commuters were long-time users of their mode, commuters continued to shift modes.

- Commuters who drove alone to work had used this mode an average of 6.4 years and 30% had been driving alone for 10 years or more. Four in ten (39%) started driving alone within the past three years. By contrast, 45% of train riders, 53% of bike/walk commuters, 58% of bus riders, and 65% of carpoolers adopted these modes within the past three years.
- Commuters who shifted to alternative modes within the past three years did so primarily to save money (11%), because the new mode was more convenient (9%), or because they had a change in their personal circumstances, such as changing jobs or work hours (21%) or moving to a new residence (20%).
- Respondents who started driving alone to work in the past three years gave some of the same reasons for switching modes as did alternative mode users; changing jobs or work hours (16%), moving to a new residence (8%), saving time (7%), and ease or convenience (6%). These results suggest both drive alone and alternative mode shifts are made to respond to changing personal circumstances. But respondents who started driving alone reported greater concerns about coronavirus than did alternative mode users; 11% of commuters who started driving alone said they wanted to avoid getting COVID-19 and 7% simply said "coronavirus pandemic." Twelve percent switched due to reduced or unreliable transit service and 7% said they lost a carpool partner; these also could have been pandemic-related.

Half of commuters were satisfied with their current commute, about the same percentage as in 2019 but transit commuters gave notably lower ratings for satisfaction in 2022 than in 2019.

- Half (52%) of commuters rated their commute satisfaction as a 4 or 5 on a 5-point scale, where 5 meant very satisfied. Two in ten (20%) rated their commutes as a 1 (not at all satisfied) or 2. Commute satisfaction in 2022 was statistically the same as in 2019, when 50% were satisfied.

- Nine in ten bicycle/walk commuters were satisfied with their commutes. By contrast, only about half of carpoolers/vanpoolers (52%) and drive alone commuters (51%) reported being satisfied. Transit riders reported lower satisfaction; half (49%) of commuter rail riders also were satisfied but only 46% of Metrorail riders and 44% of bus commuters rated their commute satisfaction as a 4 or 5.
- Satisfaction among carpool/vanpool commuters and drive alone commuters increased slightly in 2022. These mode users are most affected by traffic congestion and these changes could reflect a lessening of congestion in 2022, as fewer workers traveled to outside job locations. Commute satisfaction declined between 2019 and 2022 among users of all three transit modes: commuter rail (56% in 2019 to 49% in 2022), Metrorail (56% in 2019 to 46% in 2022), and bus (62% in 2019 to 44% in 2022). The 2022 declines in satisfaction for the three transit options likely are at least somewhat related to transit service disruption during the pandemic and riders' concerns with the potential exposure to coronavirus.
- Commute satisfaction also differed by where the respondent lived and worked. Respondents who lived in the Core were more satisfied (60% satisfied) than were respondents who lived in the Middle Ring (54%) or Outer Ring (45%). Conversely, a much higher share of respondents who worked in the Outer Ring (66%) were satisfied than was the case for Core (50%) and Middle Ring (53%) workers.
- Commute satisfaction declined dramatically as commute length increased. Nine in ten (91%) respondents who commuted 10 minutes or less gave a 4 or 5 rating for satisfaction. When the commute was between 21 to 30 minutes, satisfaction dropped to 59% and when travel time exceeded 60 minutes, only 17% rated their commute a 4 or 5.

Commuting got more difficult in the past year for one-quarter of commuters but a nearly equal share had an easier commute. Many respondents considered commuting factors when making job or home location decisions and took actions to improve their commutes.

- Twenty-six percent of respondents said their commute was more difficult than one year ago but 24% said their commute was easier. Respondents who primarily teleworked, carpooled/vanpooled, or drove alone to work, and those whose commutes were short were particularly likely to report an easier commute than last year. More difficult commutes were far more common among train riders (50%), bus commuters (42%), and those who commuted more than 45 minutes to work (39%).
- Respondents' commute satisfaction was influenced by the ease of the commute. Two-thirds (66%) of respondents who had an easier commute than last year and 60% whose commutes had not changed were satisfied with their commute, compared with only 26% who said their commutes had become more difficult.
- Nearly four in ten respondents said they made either a work or home location change in the past two years; 19% changed their work location and 28% changed moved their residence.[3] The work change percentage was about the same as the 20% who reported a work location change in 2019. But the 2022 home move percentage was well above the 18% who reported a home location change in the 2019 survey.
- Respondents who made a home or work location change in the past year were more likely to report an easier commute (27%) than were commuters who did not make a move (22%). This suggests a move could have played a role in improving the commute.

[3] 9% of workers changed both home and work. Workers who started teleworking full-time due to the pandemic were not counted in work location changes but were included in the home location changes if they moved to a different residence..

- Two-thirds (67%) of respondents who made a location change said they considered a commuting factor, such as the length, ease, or cost of commuting to/from the new location, when making their location decision. Nearly one-third (28%) said commute ease was more important than other factors and 1% said it was the only factor in their decisions.
- More than half (52%) of respondents who made a home or work location change considered how close their new location would be to transportation services such as Park & Ride lots, HOV/Express Lanes, protected bike lanes, transit stations/stops, and bikeshare and carshare services. Despite the higher incidence of home location changes in 2022 compared with 2019, the percentage of respondents who considered their transportation access at the new location was the same in 2022 as in 2019 (52%). And most individual services were named by similar percentages of respondents in 2022 as in 2019.

Telework

The percentage of workers who telework exploded between 2019 and 2022, in response to the pandemic. In 2022, 2.14 million regional workers teleworked at least occasionally. This represented a near doubling of regional teleworkers.

- Two-thirds (66%) of regional commuters said they teleworked at least occasionally. "Commuters" were defined as workers who were not self-employed and would otherwise travel to a worksite outside their homes if not teleworking. These teleworkers represented 2,137,000 regional workers.
- The 66% telework percentage represents a near doubling of the 2019 percentage of 35%. Telework incidence grew in every demographic and occupational segment.
- Even with the dramatic telework increase in 2022, the survey showed that an additional 9% of all commuters "could and would" telework if given the opportunity (295,000 workers). These respondents said they did not telework but could perform some or all their job responsibilities at a location away from the main workplace and they would like to telework. In fact, many of these workers did occasionally work remotely, although they did not consider it as "telework;" 73% said they worked from home all day during their regular work hours as least one day in the past year and 27% worked from home at least one day per month. But they worked from home infrequently; on average just 13.5 days per year or about 0.27 days per week.

In early 2022, 1,455,700 workers (44% of all regional workers) were teleworking/working from home on a typical workday. This action eliminated nearly 3 million commute trips each work day.

- The average telework frequency also rose between 2019 and 2022. Nearly four in ten teleworkers were teleworking all their workdays in 2022 and 32% teleworked three or four days per week. When averaged across all teleworkers, this resulted in an average of 3.37 telework days, nearly a tripling of the average 1.2 days per week frequency in 2019.
- When the average 3.37 days per week telework frequency for teleworkers and the 0.27 days per week work-at-home frequency of non-teleworkers are applied across the region, it equates to approximately 1,455,700 regional workers teleworking/working at home on a typical workday, or about 44% of all regional workers. Assuming two commute trips per day, these workers eliminate nearly three million work trips each workday.

Most teleworkers reported that telework had a positive impact on their ability to do their work and most teleworkers wanted to continue teleworking in the future.

- More than nine in ten (92%) respondents who were teleworking at the time of the survey said they would want to telework at least one day per week and 39% said they would want to telework all their workdays. Only 2% of teleworkers were not interested in continuing to telework at all.
- Teleworkers were shown four statements about their experience with telework and were asked to rate their level of agreement with each statement on a five-point scale. Nearly nine in ten (86%) agreed (rating of 4 or 5-strongly agree) with the statement that they were productive while they were teleworking and 80% agreed that they were able to coordinate with co-workers while they were working at home. Two-thirds (66%) agreed that they were better able to concentrate on work tasks while teleworking. Conversely, when asked if they found it difficult to unplug from work while teleworking, nearly half (45%) agreed. But more than one-third either disagreed or strongly disagreed, suggesting that it was not universally a concern.

The percentage of teleworkers who worked under "formal" telework arrangements was more than twice as high as the percentage who teleworked under informal arrangements with supervisors.

- Half (50%) of all respondents (both teleworkers and non-teleworkers) said their employer had a formal telework program and 21% said telework was permitted under informal arrangements between a supervisor and employee. Formal programs were most common at Federal agencies and among respondents who worked for large employers.
- The 50% share of workers who reported a formal telework arrangement at work was a considerable increase over the 34% who reported formal telework in 2019. It is possible that employers' opening telework to a much greater number and wider range of employees to respond to the pandemic prompted some employers to formalize telework policies and replace informal agreements that had been sufficient for use with selected employees before the pandemic.

Availability of and Attitudes Toward Transportation Options

Most respondents reported access to some transit service in their home area.

- More than four in ten (44%) respondents said they lived less than one-half mile from a bus stop and 53% said they lived less than one mile away. Train station access was less convenient; only 19% lived less than one mile from a train station. About one-quarter of respondents said they did not know how far they lived from the bus stop and train station.
- Among respondents who could provide a distance, the average distances were 1.1 miles to the nearest bus stop and 4.4 miles to the nearest train station. But respondents who lived in the Core area said the closest bus stop was an average of 0.4 miles away and a train station was 1.2 miles away. Three-quarters (78%) of Core area residents lived less than one-half mile from a bus stop.
- At the time of the survey, one in ten respondents who were commuting to outside work locations used transit for their commute. Among those who were not riding transit to work, 31% said they had done so within the past three years. When asked why they stopped riding, 68% cited the coronavirus pandemic as a reason and half said it was an important factor in their decision to change commute modes. But access to transit also was a factor for former riders. About two in ten said transit was less available because they had changed their work location or schedule (12%) or moved to a home area where transit was not available or convenient (5%), and 13% said transit service or schedule was limited. Former riders also noted some transit service characteristics as

barriers to transit use, particularly that transit "takes too much time" (14%), "could be unreliable" (8%), and expensive (5%), or that they did not feel safe on transit (5%).

One in ten commuters region-wide had used an HOV lane for their trip to work and 14% had used an Express/Toll Lane. But more than three-quarters of commuters who used the Express/Toll Lanes said they typically drove alone while using the lane. Thus, these lanes offer only modest benefits for congestion relief along those corridors.

- Three in ten (31%) respondents said there was an HOV lane along their route to work and one-third of these respondents, equating to about 9% of all commuters, had used the lanes. Fewer respondents (26%) had access to Express/Toll Lanes, which are open to drive alone commuters for a fee. But more than half of respondents who had an Express/Toll Lane available had used it, representing 14% of all commuters region-wide.
- More than three-quarters (77%) of Express/Toll Lane users said they typically drove alone while riding in the lanes. But commuters who carpooled, vanpooled, or rode transit buses in Express/Toll Lanes used the lanes more frequently. One-third (33%) of commuters who typically rode in a carpool/vanpool or bus on an Express/Toll Lane used the lanes three or more days per week; only 14% of commuters who drove alone in an Express/Toll Lane used the lanes this frequently.

More than four in ten commuters who used an HOV lane (HOV lane only or HOV and Express/Toll lanes) made a travel change influenced by availability of the lanes. Among those who used only the Express/Toll Lanes, 24% made a change influenced by the lane availability.

- More than one-third (35%) of respondents who used both HOV and Express/Toll Lanes said they made an alternative mode change to be able to use the lanes (18% started carpooling/vanpooling, 8% added another rider to a carpool/vanpool, and 9% started riding transit). Among respondents who used only HOV lanes, 13% made one of these alternative mode changes to use the lanes. Some HOV respondents said they changed their work schedule to avoid the restricted hours (HOV only 11%, HOV/Express 18%). Respondents who used only Express/Toll Lanes were less likely to have made alternative mode travel changes; only small percentages started ridesharing (3%) or riding transit (1%) to use the lanes. One in ten (13%) changed their work schedule to avoid the time restriction and 5% started or increased driving alone, presumably shifting from alternative modes.
- Respondents who used an HOV/Express Lane for commuting estimated that they saved an average of 16 minutes for each one-way trip when they used the lanes. HOV/Express Lane users who lived in the Outer Ring jurisdictions saved an average of 20 minutes one-way.

Awareness and Impact of Commute Advertising

General awareness of commute information fell between 2019 and 2022 but it is not clear if this is the result of lower recall or lower exposure to advertising.

- About 27% of all respondents had seen, heard, or read advertising for commuting in the year prior to the survey, a considerably lower percentage than estimated in 2019 (45%). Increased use of telework might have been a factor in the decline. Workers who teleworked most or all their workdays would have fewer opportunities to see or hear advertising during their commute and perhaps noticed it less because it was not relevant to their current work situation. But Commuter Connections and some other organizations that sponsor commute advertising paused their mass media and worksite outreach in 2020, so it also is likely that fewer ads were available for commuters to notice.

- Forty-five percent of respondents who recalled advertising could cite a specific advertising message. Nearly three in ten respondents who had heard or seen a message reported a message related to transit service, with most recall focused on the Washington Metropolitan Area Transit Authority (WMATA, Metro). Nearly one in ten (9%) respondents reported a message about WMATA and coronavirus cleaning or safety. Six percent named a message about WMATA service improvements and 3% said it was about WMATA service cuts or changes. Eight percent recalled a message about ridesharing and 3% recalled a message to contact Commuter Connections.
- Four in ten (41%) respondents who had heard ads could name the sponsor. WMATA was named by 25% as the advertising sponsor. Commuter Connections/MWCOG was named by 6%, lower than the 10% who named Commuter Connections in 2019.

Commute advertising appeared to influence commuters' consideration of travel options.

- Two in ten (17%) respondents who saw or heard advertising said they were more likely to consider ridesharing or public transportation after seeing or hearing the advertising. This was about the same percentage (18%) as was estimated in the 2019 survey.
- But about one-third of respondents who recalled an advertising message and who were commuting to an outside work location at least one day per week said they took some action after hearing the ad to try to change their commute. And 35% of respondents who took an action to change their commute said the advertising they saw or heard encouraged the action.
- Many respndents who took an action sought more information, from the Internet, a personal referral, or from a commute or transit service. But almost half who took an action tried or started using an alternative mode for commuting. While these respondents equaled just 1.9% of all regional respondents, they represent nearly 40,000 commuters region-wide.

Awareness and Use of Commute Assistance Resources

About one-third of regional commuters were aware of commute information and assistance resources.

- About one-third (32%) of respondents said they knew of a telephone number or web site they could use to obtain commute information. Awareness of regional commute information resources was the same as noted in the 2019 SOC survey.
- Awareness of commute resources was substantially higher among respondents who saw or heard commute advertising in the past year (43%) than for respondents who did not recall advertising (26%). And commuters who had heard of Commuter Connections reported higher awareness of regional commute resources (43%) than did commuters who were not aware of Commuter Connections (24%).
- About one-third of respondents who said they knew of a specific number or web site had used it; these respondents represented about 11% of all regional commuters, about the same percentage as in 2019 (12%). Respondents named more than 40 numbers, websites, or mobile apps that they had used, indicating commuters seek information from a wide range of resources. Five percent named a Metro/WMATA resource, about 1% mentioned a resources offered by a county transit, commuter, or transportation agency; less than 0.5% named a phone number or website administered by Commuter Connections.

Four in ten regional commuters had heard of Commuter Connections.

- In 2022, 40% of all regional commuters said they had heard of an organization in the Washington region called Commuter Connections. This was a smaller percentage than knew about the program in previous SOC survey years (2019 – 48%, 2016 - 61%, 2013 - 62%, 2010 - 64%), but still represented a high level of general population awareness.
- Five percent of respondents who knew of Commuter Connections had contacted the program or visited a Commuter Connections or MWCOG website in the past year. These commuters represented about 2% of all employed residents of the region.

Most local jurisdiction services were known to at least a quarter of their target populations.

- Respondents were asked about local commute assistance services provided in the jurisdictions where they lived and worked. Awareness of these programs ranged from 9% to 53% of respondents who were asked the questions. Two of the ten local programs were known to at least half of the target respondents and three other programs were known to about three in ten target respondents.
- Use of the services ranged from 1% to 8% of the target audience. Use was generally higher for programs in outer jurisdictions and for programs associated with transit agencies or with a strong transit component. The relationship to the location in region was likely because outer jurisdiction commuters encountered more congestion in their travel and had longer commute times and distances, which could encourage them to seek options for travel to work.

Employer-provided Commuter Assistance Services

Availability of worksite commute assistance services declined slightly between 2019 and 2022, perhaps because many employees were working from home.

- Fifty-six percent of respondents said their employers offered one or more alternative mode benefits or services to employees at their worksites. This was a slight decline from the 2019 percentage (60%) but about the same as percentages noted in the 2016 (55%) and 2013 (57%) surveys. The drop from 2019 could suggest some employers suspended some commute services because many employees were working from home during the pandemic. However, the percentage represents employees' perceptions or awareness of service availability; the fact that many employees worked from home some or all their workdays could have limited their exposure to services they might have noticed if they were working at their usual work location.
- The most common services were SmarTrip/subsidies for transit/vanpool, available to 43% of respondents, and information on commuter transportation options, available to 23% of respondents. Two in ten (23%) respondents said their employers offered services for bicyclists and walkers and 15% said their employers offered preferential parking for carpools and vanpools.
- Respondents who worked for Federal agencies were most likely to have benefits/services available (81%), compared with 42% to 60% of respondents who worked for other types of employers. Respondents who worked for large employers also reported greater access to benefits/services than did respondents who worked for small firms. Benefits/services were far more common among respondents who worked in the Core area; 72% of these respondents had access to services compared with 46% who worked in the Middle Ring and 28% who worked in the Outer Ring.
- SmartBenefit transit/vanpool subsidies and information on commute options were the most widely used commuter assistance services, used by 56% and 34%, respectively, of respondents who had

access to the services. Two in ten respondents who had access to carpool subsidies (19%) and bicycle/walking support (18%0 had used these services.

Seven in ten commuters reported having free worksite parking.

- The majority of respondents (69%) said their employers offered free, on-site parking to all employees in 2022. This was a substantial increase from the 60% who reported free parking in 2019. Four percent of workers who had free parking said parking was not free before the pandemic, so this result could indicate employers expanded availability of free parking to the reduced population of workers who continued working at the main workplace.
- Respondents who worked for non-profit organizations and Federal agency workers were least likely to have free parking at work; only 55% of non-profit workers and 59% of Federal workers had free parking, compared with seven in ten workers who worked for private firms or state/local governments. Free parking also was much less common in the Core; only 37% of Inner Core workers had free parking, compared with 81% of Middle Ring workers and 87% of Outer Ring workers.
- The availability of commute benefits/services was inversely related to the availability of free parking at the worksite. Only 40% of respondents who said free parking was offered to all employees said their employers also offered commute benefits/services that would encourage or help them use alternative modes for commuting. By contrast, 66% of respondents who said free parking was not available reported having access to commute benefits/services at work.

Worksite commuter assistance services appeared to encourage use of alternative modes.

- Driving alone was less common for respondents who had access to benefits. Only 67% of respondents with these services drove alone to work, compared with 87% of respondents whose employers did not provide these services.
- Respondents whose employers did not offer free parking also used alternative modes at much higher rates. Six in ten (60%) respondents who did not have free parking drove alone, compared with 87% of respondents who had free parking.

Technology-based Applications, and Driverless Cars

More than eight in ten respondents had used travel/trip information mobile application.

- Eighty-four percent of all respondents had used at least one of nine travel/trip information apps/services. Six in ten (60%) had used wayfinding or mapping apps, such as Google Maps and Waze, and 50% had used traffic alerts delivered via text message or other means. Forty-six percent had used an application for a ride-hail service such as Uber, Lyft, or Via and 37% had used an application that tracked transit schedules or provided "next bus/train" information on arrival time.
- Use of travel/trip information applications was similar among respondents who were younger than 55 years, with about 85% saying they used apps. Use dropped among older respondents; 82% who were between 55 and 64 years and 77% of those who were 65 years or older had used an app.
- Respondents who were younger than 45 years were particularly more likely to have used bikeshare, carshare, and e-scooter service apps but younger respondents also were less likely to have access to a personal vehicle and more likely to live in the Core area, where these services are more widely available. The pattern for use of ridehail services and wayfinding applications declined through all four age groups, with each age group using the application less than did the next younger group.

Commuters in the region have only a modest understanding of the concept of driverless cars. Two-thirds of respondents cited concerns about the concept.

- Three in ten (31%) respondent said they were "very familiar" with the concept of driverless cars; they had heard or read a lot about them. The largest share, 58%, of respondents said they were only "somewhat familiar" with the concept of driverless cars; they had heard or read something about them but did not know much about them. The remaining one in ten either were "not at all familiar" (7%) or were not sure what they knew (4%). Awareness does not appear to have grown recently; these percentages mirror nearly exactly the awareness reported in the 2019 survey.
- General awareness was similar among most demographic groups, but higher shares of men (42%), Non-Hispanic White (35%) and Asian (34%) respondents, and respondents with household incomes above $160,000 (37%) said they were "very familiar" with the concept.
- Two-thirds (66%) of respondents cited a concerns that they had with driverless cars. Nearly half (48%) were concerned that driverless cars could reduce the safety of driving or increase driving crashes, and 25% expressed a concern that the technology was not yet reliable enough.

Nearly four in ten respondents said they were at least somewhat interested in using a driverless car, but only about three in ten were interested in buying a driverless car.

- When asked how interested they would be in buying a driverless car or riding in a driverless taxi/ride-hail vehicle, a driverless bus/shuttle, or driverless carpool/vanpool, 38% of respondents rated their interest as a 4 or 5 (very interested) for at least one of the scenarios presented.
- About one-quarter of respondents said they were at least somewhat interested in four of the five scenarios, with 13% or 18% saying they were very interested. Interest was slightly lower for riding in a driverless carpool or vanpool; 21% were at least somewhat interested and 13% were very interested. The relatively modest interest reported for using driverless vehicles could be related to the low level of familiarity many respondents indicated and the concerns that many respondents have about safety and reliability.
- Interest was notably higher among respondents who were more familiar with driverless cars. Nearly six in ten (57%) respondents who said were very familiar with the concept expressed interest in using them. Among respondents who said they had read or heard about driverless cars but did not know much about them, only 31% were interested. Interest was lower still for those who said they hadn't heard of driverless cars; only 19% were interested in using one.
- Interest also was notably higher among respondents who were younger than 45 years (under 35 years – 49% and 35-44 years – 42%), male respondents (48%), and respondents with incomes greater than $80,000 ($80,000-$179,999 – 40% and $180,000 or more – 46%).

Table of Contents

Table of Contents (cont.)

LIST OF TABLES AND FIGURES

List of Tables and Figures (continued)

List of Tables and Figures (continued)

Figures (continued) Page

List of Tables and Figures (continued)

List of Tables and Figures (continued)

SECTION 1 – INTRODUCTION

Purpose of the State of the Commute (SOC) Survey

This report presents the results of the State-of-the-Commute (SOC) survey conducted for the Commuter Connections program of the Metropolitan Washington Council of Governments (COG).[4] Commuter Connections provides a wide range of transportation information and assistance services in the Washington metropolitan area to inform commuters of the availability and benefits of alternatives to driving alone and to assist them to find options that fit their commute needs. COG administers Transportation Demand Management (TDM) services as part of a regional effort to reduce vehicle trips, vehicle miles of travel, and emissions resulting from commute travel, as well as to support other regional transportation goals.

In 1997, Commuter Connections established an evaluation framework that outlined a methodology and data collection activities to evaluate the effectiveness of its commuter services programs. This framework was updated and revised eight times, in 2001, 2004, 2007, 2010, 2013, 2016, 2019, and 2022 to incorporate improvements to the evaluation methodology.[5] A major addition to the 2001 framework was the State of the Commute (SOC) survey, a random sample survey of employed persons in the Washington metropolitan non-attainment region. This survey collects commute data from the general commuting public in addition to data collected from users of Commuter Connections services. Subsequent evaluation frameworks also included the SOC survey as a major data collection effort for the regional Commuter Connections TDM evaluation and the SOC survey has been conducted every three years since 2001, most recently in 2022, with a sample of 8,396 respondents.

The SOC survey serves several purposes. First, it documents trends in commuting patterns, such as commute mode shares and distance traveled, and use of and prevalent attitudes about transportation services that are available in the region. Wherever possible, questions used in previous SOC surveys were replicated to allow for trend analysis. Second, the survey examines how commute alternative programs and marketing efforts might influence commute travel behavior of workers in the region. In particular, the SOC survey collects data needed to estimate, as part of a triennial analysis, the travel impacts of several such services offered by Commuter Connections. Finally, the survey explores commuters' opinions about and interest in current transportation initiatives.

Summary of Survey Methodology

The geographic scope of COG's responsibility encompasses the 11 independent cities and counties that make up the Washington metropolitan non-attainment region. All employed residents who lived within this geographic area and who were 18 years of age or older were eligible for selection in the study. Following is summary of the interview, sampling, and weighting methodologies used for the survey. Appendix A provides additional details of the sampling and survey administration. Appendix B provides details of the data weighting/expansion procedures.

[4] Commuter Connections is administered through the National Capital Region Transportation Planning Board (TPB) at COG and funded through the District Department of Transportation, the Maryland Department of Transportation, and the Virginia Department of Transportation, with state and federal funds.

[5] For more information on the evaluation framework in effect at the time of this survey, readers may refer to *Transportation Demand Management Program Elements Revised Evaluation Framework – FY2021 –FY2023*, available from COG (https://www.commuterconnections.org/wp-content/uploads/2021-2023-FINAL-TDM-Evaluation-Framework-Document-031522.pdf).

ABS Sample with Internet Interview Method

The 2022 survey was conducted as an Internet survey of employed adult residents. The survey used an address-based sampling (ABS) method to select a random sample of potential respondents, a postcard survey invitation sent through postal mail to selected addresses, and a respondent-administered Internet interview format for respondents to complete the survey. The postcards invited employed persons 18 years of age or older to participate in the survey by accessing the survey website link, www.TraveltoWork2022.org and entering a password printed on the card. Two passwords were provided to permit two adults in the household to participate. Appendix C presents the questionnaire.

To boost survey response rates, survey respondents were offered the opportunity to participate in a drawing for one of fifty $250 Amazon gift cards. When interviewing was completed, names of winners were randomly selected from among respondents who chose to participate in the drawing. Each winner was emailed a gift card voucher. Ninety-three percent of respondents requested to participate.

Survey Sample

At the start of the project, the research team set a soft target for 8,000 completed interviews; this region-wide target was consistent with the sample size from the 2019 survey (8,246). Minimum targets of 600 completed interviews were set for each of the 11 jurisdictions, with higher individual targets established for larger jurisdictions and for jurisdictions that were closest to the center of the region. Additionally, the research team attempted to achieve jurisdiction level samples that approximated the numbers of interviews collected for those jurisdictions in the 2019 SOC survey.

A total of 8,396 interviews were completed for the survey. On the base of 446,208 postcards that were distributed, this resulted in an initial response rate for the Internet survey of 1.88%. The confidence interval for the regional sample was 95% +/- 1.1 percentage points. Individual samples collected for each of the 11 jurisdictions ranged from a low of 518 to a high of 981. The confidence interval for the smallest jurisdiction sub-sample (518 interviews) was 95% +/- 4.3 percentage points.

Weighting of Survey Data

Because the jurisdiction-level samples were not collected proportionately, the survey results were expanded at the jurisdiction level to match counts of employed residents in each sample jurisdiction. The results also were adjusted to align survey results to known race/ethnicity and age distributions, an adjustment that also was applied in the 2016 and 2019 SOC surveys. Analysis of the 2016 survey results showed a significant over-collection of older age groups and an under-collection of younger age groups. The 2019 and 2022 surveys also over-represented older respondents and under-represented young respondents, but to a much lesser extent than in 2016; the ABS sample frame and Internet survey captured a larger share of young respondents. For this reason, the age adjustment, while still necessary in 2019 and 2022, was less extensive than had been needed in 2016.

Population statistics from the U.S. Census Bureau's American Community Survey (ACS) for combinations of employment status, race/ethnicity, and age were used to calculate expansion values for jurisdictions in the survey sample. Age categories included 18-34 years, 35-44 years, 45-54 years, and 55 years and older. Race/ethnicity categories included Hispanic, Non-Hispanic Black, Non-Hispanic White, and Other. Details of the weighting/expansion process are found in Appendix B. This methodology was the same as had been used for the 2019 and 2016 SOC surveys, however it replaced use of employment numbers obtained from the Bureau of Labor Statistics, Local Area Unemployment Statistics (LAUS) that had been used in the 2013 SOC and earlier SOC surveys. The need for available employment statistics broken down by race/ethnicity and by age groups was the reason for the change from LAUS to ACS figures.

Conventions Used in Presentation of Results

The sections following this introduction present key findings of the survey. As noted in the description of the survey weighting, the data were expanded to represent the number of employed residents of the metropolitan region and to correct for under- or over-representation of some racial/ethnic groups and age groups in the sample. The expansion methodology allows the proper representation of employed residents in each of the 11 jurisdictions in the survey area and in the region. Each table and figure in the results sections shows the raw number of respondents (e.g., *n*= ##) who answered the question, but the percentage results presented in the tables and figures are percentages expanded to the total working population for the geographic areas referenced.

Note also that the term "respondent," when used in the text of the document, refers to expanded data, unless otherwise noted. Other terms, such as "commuter," "employee," "worker," and "resident" also are used, when it is necessary or helpful to distinguish subsets of the total surveyed population. The term "alternative mode" refers to any non-drive alone mode of travel, including public transit (bus, Metrorail, commuter train), carpool (traditional carpool, casual carpool/slug), vanpool, bicycle/bike/scooter/e-scooter, and walk. In some analyses, telework and compressed work schedules also are considered alternative modes, because they eliminate commute trips.

Where relevant, survey results are compared for sub-groups of respondents. Data also are compared against results from past SOC surveys, when these data were available and notable. Sub-group and year-to-year results that are statistically different from those of other groups/years are highlighted.[6] Appendix D also presents 2022 results compared with those of SOC surveys beginning with 2010.

Geographic Analysis

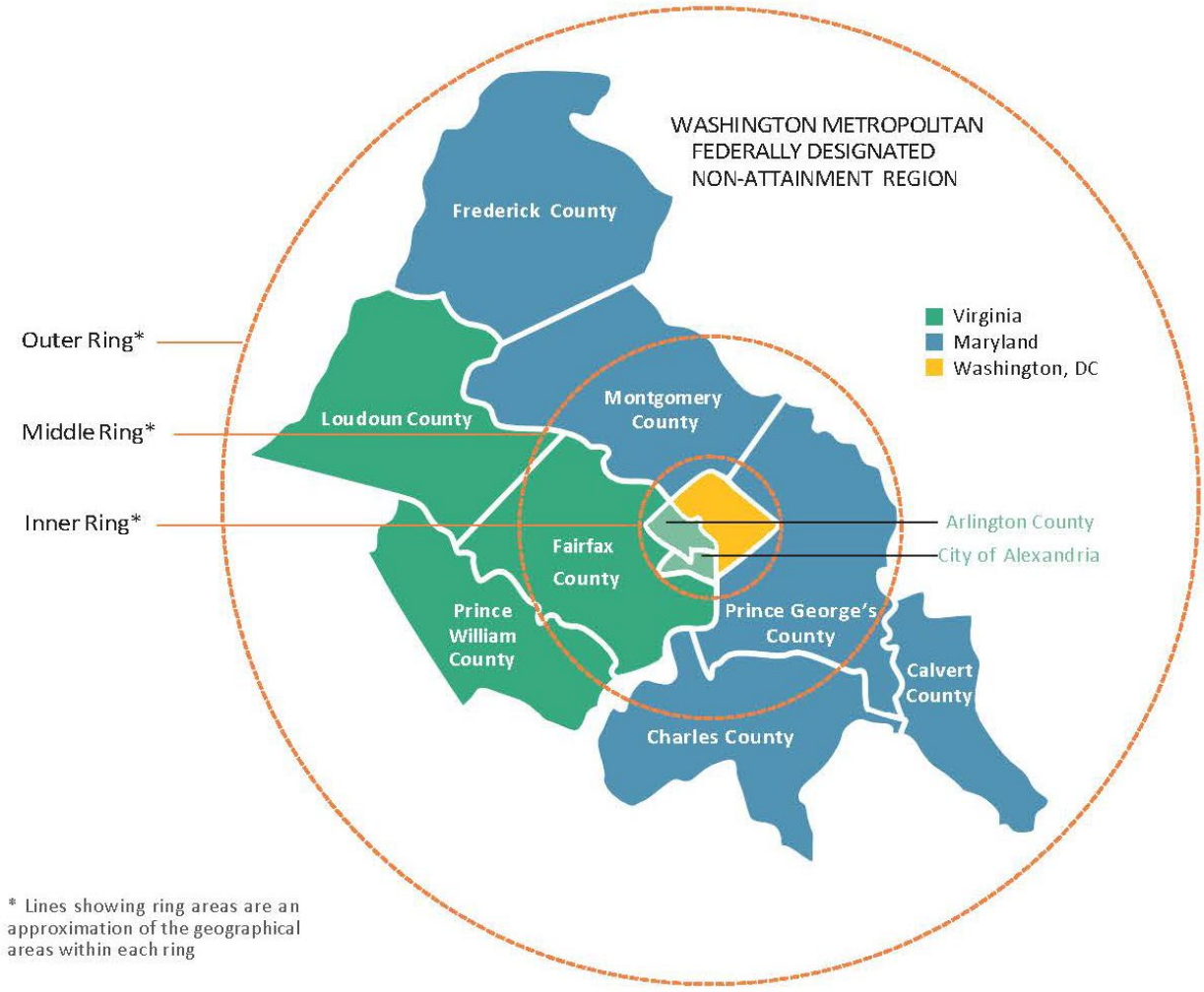
The SOC analysis focused primarily on the region. However, the survey collected robust samples for each of the 11 jurisdictions in the region, to enable analysis at multiple geographic levels. For some questions, the analysis examined results for individual jurisdictions or for other geographic sub-areas of the region. Datasets for individual jurisdictions also will be provided to transportation agencies in their respective areas, for additional analysis to be conducted locally.

A primary sub-area categorization used in the analysis divided the region into three categories roughly representing concentric rings around the central core (Figure 1). The Inner Ring or "Core" area includes the City of Alexandria (VA), Arlington County (VA), and the District of Columbia. The Middle Ring, surrounding the core, includes Fairfax County (VA), Montgomery County (MD), and Prince George's County (MD). The Outer Ring includes Calvert County (MD), Charles County (MD), Frederick County (MD), Loudoun County (VA), and Prince William County (VA).

Past SOC surveys have shown that the Core, Middle Ring, and Outer Ring groupings aggregate jurisdictions with roughly similar travel patterns and similar transportation infrastructure. These aggregate groupings result in excellent sample sizes, facilitating analysis of many regional and sub-regional transportation planning topics.

[6] Statistical differences noted in tables or figures were measured using the t-test, with a significance threshold set at $p < .05$. For simplicity, values that are significantly higher in value are indicated by shading or other highlighting.

Figure 1
Geographic Sub-Areas – Core (Inner Ring), Middle Ring, Outer Ring



Organization of Survey Results

The remaining sections of the report present key survey findings:

Section 2 Commute patterns
Section 3 Recent commute changes, commute ease, and commute satisfaction
Section 4 Telework
Section 5 Availability of/attitudes toward transportation options
Section 6 Awareness and impact of commute advertising
Section 7 Awareness and use of commuter assistance resources
Section 8 Employer-provided commuter assistance services
Section 9 Technology-based applications and driverless cars
Section 10 Characteristics of the sample

Sections 2 through 9 present results on commute travel and respondents' awareness, attitudes, and opinions on various transportation topics. These topics were the focus of the analysis. Section 10 details demographic characteristics of the survey sample. At the end of the survey interview, respondents were asked a series of questions about their age, race/ethnicity, gender, income, household size, vehicle ownership, home and work locations, type of employer, size of employer, and occupation. These sample characteristics are referenced throughout the findings of Sections 2 through 9 when the analysis indicated relevant and practical differences among sub-groups of respondents.

Following these main sections are four appendices dealing with survey procedures and methodology:

Appendix A – Survey and Sampling Methodology

Appendix B – Survey Data Weighting and Expansion

Appendix C – Survey Questionnaire

Appendix D – Comparison of Key 2022 SOC Results with 2019, 2016, 2013, and 2010 SOC Results

SECTION 2 – COMMUTE PATTERNS

An early section of the survey inquired about respondents weekly commute patterns. Commute questions in the survey included:

- Number of days worked per week, work schedules, and work location
- Current commute mode
- Length of commute
- Alternative mode characteristics

A primary objective of the State of the Commute Survey is to document trends in regional commute trip patterns. These data were obtained in the 2022 SOC and in past SOC surveys by asking respondents about their commute "in a typical week" at the time of the survey. These results could be analyzed for sub-groups of workers, compared to previous SOC survey data to define commute trends, and through additional analysis, examine awareness and opinions of commuters who use different commute modes.

This straightforward approach to collecting and reporting commute data was complicated in 2022 by the coronavirus pandemic. Pandemic stay-at-home directives were implemented in March 2020, disrupting typical commutes for many workers. Many employees shifted to working remotely, some changed jobs, and some workers who commuting changed their commute mode. [7]

In the early months of the pandemic, workplace and commuting adjustments were anticipated to be temporary. However, as the pandemic continued into 2021 and, to a lesser but still notable extent, into 2022, it became clear that work and commuting patterns remained unsettled. For this reason, questions were added to the 2022 SOC questionnaire to examine commute patterns at the time of the survey and in February 2020, just prior to the start of the pandemic. Several new questions were added to examine telework/work from home experience. Additionally, the wording of some existing questions was modified to be relevant both to workers who were working from home and those who were traveling to outside workplaces. Throughout this section and subsequent sections, these question modifications are described to assist readers to interpret changes in reported travel patterns between 2019 and 2022.

Number of Days Worked Per Week and Work Schedules

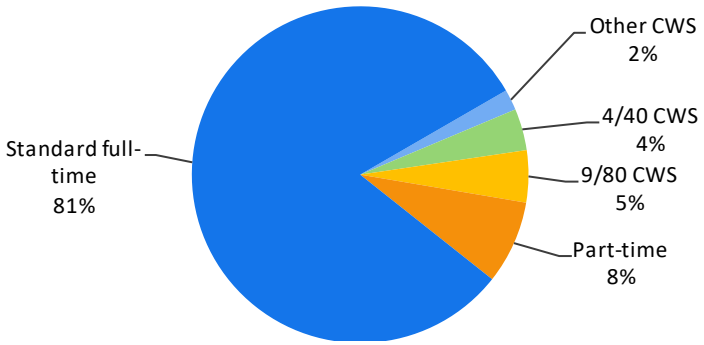
Workdays and Non-standard Work Schedules

Eight in ten (81%) respondents worked five weekdays (Monday through Friday) per week. Seven percent worked four weekdays, 6% worked three weekdays, and 5% worked one or two weekdays. A very small share (1%) of respondents worked all their work days on weekends. On average, respondents were assigned to work 4.6 weekdays per week. The average was less than five days per week because some respondents worked part-time and some worked one or more of their work days on the weekend.

Eight in ten (81%) respondents worked a "standard" full-time schedule, defined as five or more days per week (Figure 2). Eight percent worked part-time and 11% worked a compressed work schedule, in which they worked a full-time week in fewer than five days per week. Five percent worked a 9/80 schedule (80 hours over nine days in two weeks), 4% worked a 4/40 schedule, with four 10-hour days per week, and 2% worked another compressed schedule. The share of respondents who worked a compressed schedule in 2022 was about the same as the 12% who reported compressed schedules in 2019.

[7] *MWCOG, Commuter Connections, 2020 Employer Telework Survey, June 30, 2020. VDOT Virginia Commuter Survey, July 2020; https://www.virginiadot.org/travel/commuter-survey.asp.*

Figure 2
Schedule Types Used
(n = 8,289)



Availability of Flexible Work Schedules

Some employers also permit employees to work a "flexible" work schedule, in which they can choose their work start and end times, so long as they meet a minimum number of weekly or daily work hours. About half (51%) of commuters said their employers offered some work schedule flexibility and 78% of respondents who had access to a flexible schedule had used it, about the same as the 81% who used flexible schedules in 2019.

Work From Home

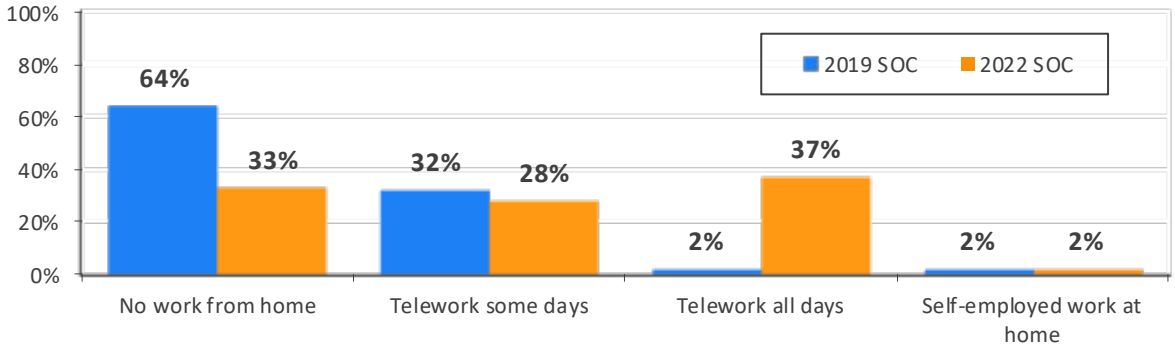
Because it was anticipated that many respondents could be working remotely, in response to the coronavirus pandemic, respondents were asked if they worked from home any of their workdays at the time of the survey. Two-thirds of all workers said they worked from home at least occasionally; 28% worked from home some of their days and four in ten worked from home all their workdays (37% full-time telework and 2% self-employed work at home) (Figure 3). The remaining 33% did not work from home any workdays; they traveled to an outside work location every day they worked.

Respondents who worked from home full-time were asked a follow-up question to define their work situation. A small share (2%) of total workers indicated they were self-employed and their home was their only work location. This was the same percentage of workers who reported being self-employed in the 2019 SOC survey. These respondents typically are not considered teleworkers in commute studies, because they would not commute to an outside work location on days they do not work at home. They were included in questions about awareness of commute advertising and demographics but were not asked further questions on either telework or commuting.

More than one-third (37%) of 2022 respondents worked for an outside employer and teleworked all their workdays. This 37% share of full-time telework was a dramatic departure from the 2019 survey, in which only 2% of workers teleworked full-time; without doubt much of, if not all the increase was an outcome of the coronavirus pandemic. Most full-time teleworkers worked for an employer located in the Washington metropolitan region, but in 2022, about one in ten (13%) worked remotely for an employer located outside the region. Full-time teleworkers were excluded from questions about commute travel, but were asked telework follow-up questions, reported in Section 4, and most other questions in the survey. Respondents who worked from home some workdays also were asked telework questions as well as questions about their commute on the days they worked outside their homes.

Figure 3
Work From Home/Telework – 2019 and 2022

(2019 n = 8,219, 2022 n = 8,312)



Current Commute Mode

Respondents who did not telework/work from home full-time were asked what modes they used to travel to work each weekday (Monday-Friday) during a typical work week. By asking about an entire week, rather than simply "usual" travel mode, the survey captures use of modes that are used just one or two days per week. Figures 4 and 5 present two views of modal distribution: percentage of weekly work days by mode (weekly commute trips) and percentage of respondents using each mode (primary and secondary mode).

Weekly Work Days by Mode in 2022

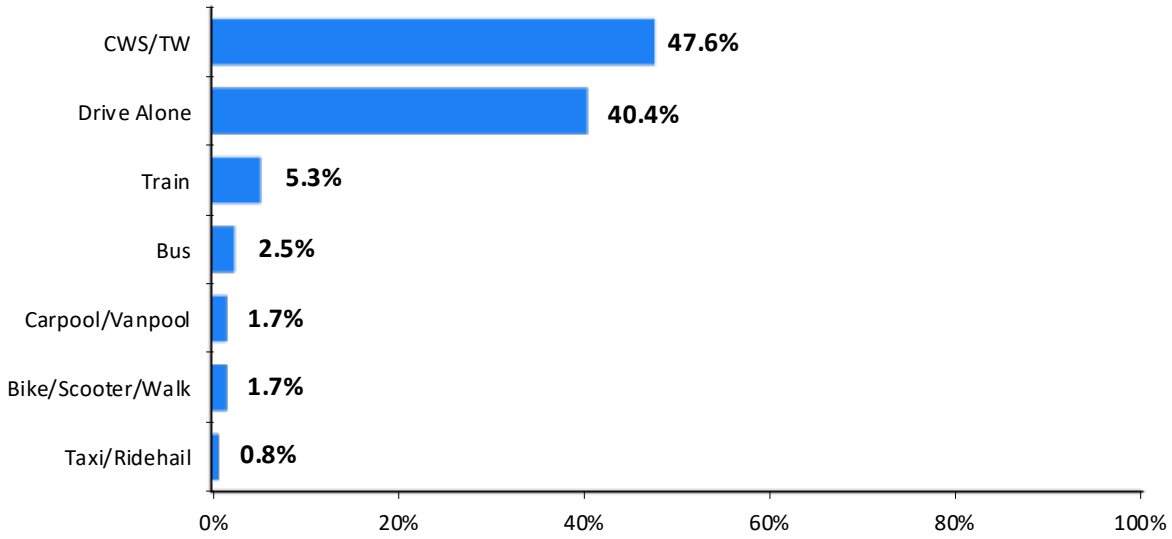
Figure 4 presents mode shares as a percentage of commuters' weekly work days for six "on the road" travel mode groups: drive alone (personal vehicle), train (Metrorail/commuter rail), carpool/vanpool (traditional carpool, casual carpool/slug, vanpool), bus (local bus, express bus, shuttle, and buspool), bike/scooter/walk, and taxi/ridehail (e.g., Uber, Lyft). The figure also includes the mode share for compressed work schedule and telework (CWS/TW). These are not actually travel modes but are included to show the percentage of weekly work trips eliminated through use of these options.

Commuters drove alone to work on 40.4% of their total work days. They rode on a train for 5.3% of work days and used a bus for 2.5% of work days. Respondents carpooled or vanpooled to work on 1.7% of work days and bicycled, rode a scooter, or walked for 1.7%.

About 0.8% of weekly commute trips were made by riding as a passenger in a taxi or ridehail vehicle (Uber or Lyft). In SOC surveys before 2019, use of taxi/ridehail was reported within the drive-alone mode group. While they are still considered "driving alone" for purposes of vehicle use (i.e., they do not eliminate a drive alone work trip), the 2019 survey began tracking and reporting ridehail use separately to define use trends for this growing service.

Compressed work schedule days off and telework days (CWS/TW) eliminated nearly half (47.6%) of weekly work trips. As noted in early in this section, two-thirds of all workers said they were teleworking/working from home at least some of their workdays and 38% were teleworking full-time at the time of the survey. These days are officially assigned as part of the work week and commuters would make a trip if they did not use these work arrangements.

Figure 4
Weekly Commute Trips by Modes – 2022
(n = 8,114)



If telework and compressed schedule days off were excluded, to estimate the "on the road" mode share of commute trips made to outside work locations, the percentage use of each of the travel modes would be higher. Without telework and CWS, the drive alone share would rise to 77.0% of weekly commute trips. Excluding telework and CWS, the weekly commute trip distribution for all travel modes would be:

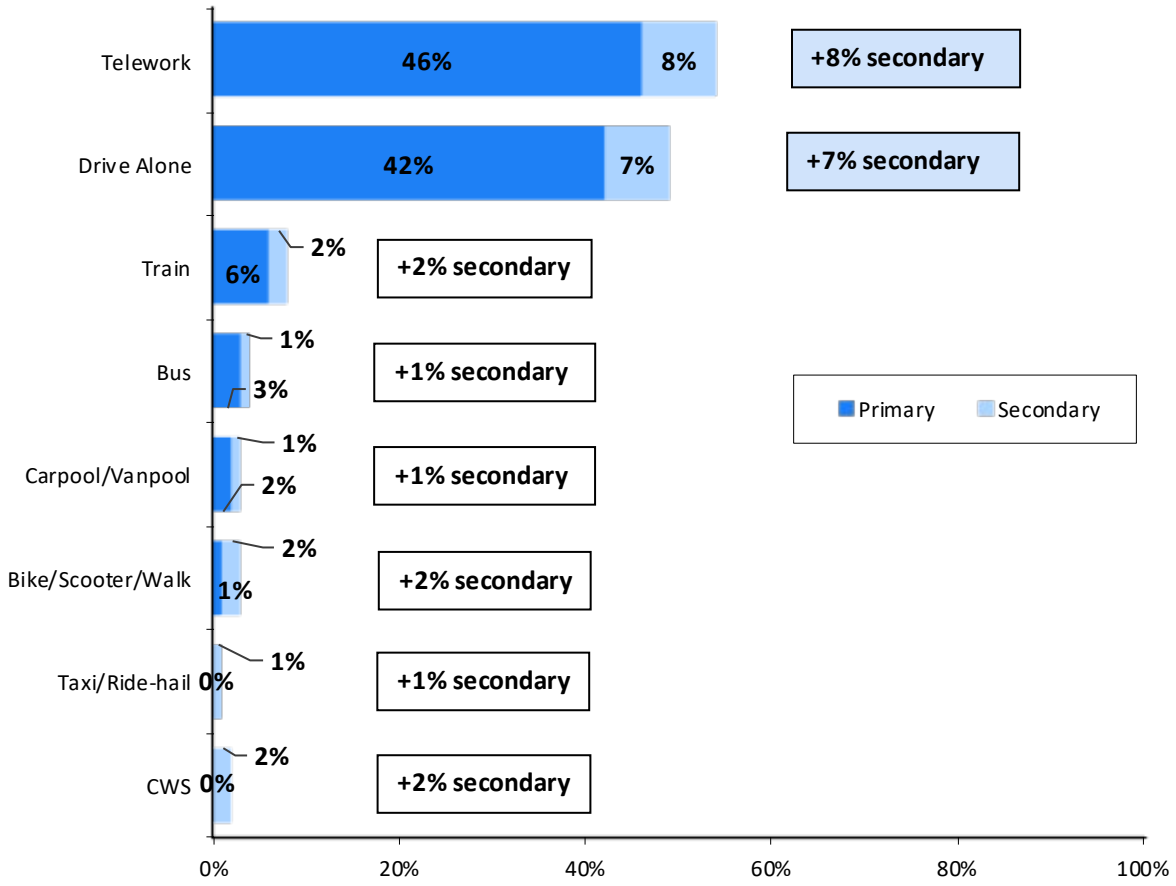
- Drive alone (including motorcycle) 77.0%
- Train 10.2%
- Bus 4.8%
- Carpool/vanpool 3.3%
- Bike/scooter/walk 3.3%
- Taxi/Ridehail 1.4%

Frequency of Current Mode Use

Primary Mode – Mode split also can be portrayed as the percentage of respondents who use each mode. Figure 5 presents the percentage of respondents who used a mode as their "primary" mode, defined as the mode used the greatest number of days per week. Most respondents worked five weekdays per week, so primary mode generally equated to use three or more days per week. For a small percentage of respondents who worked fewer than five weekdays or who used more than two modes, the primary mode could be used just two days per week.

As with mode split by weekly trips, telework was the most common primary mode; nearly half (46%) of respondents reported this as the mode they used most of their workdays. The second most common primary mode, used by 42% of respondents, was driving alone. Eight percent said they primarily rode a train, 3% rode a bus, and 2% carpooled or vanpooled. One percent of respondents primarily biked, rode a scooter, or walked. Less than 1% primarily rode in a taxi or ridehail vehicle. No commuters worked a primary compressed work schedule, but that is because CWS schedules eliminate at most two of the regular work days, so commuters would have at least one other mode during the week.

Figure 5
Primary Modes and Secondary Modes
(n = 8,114)



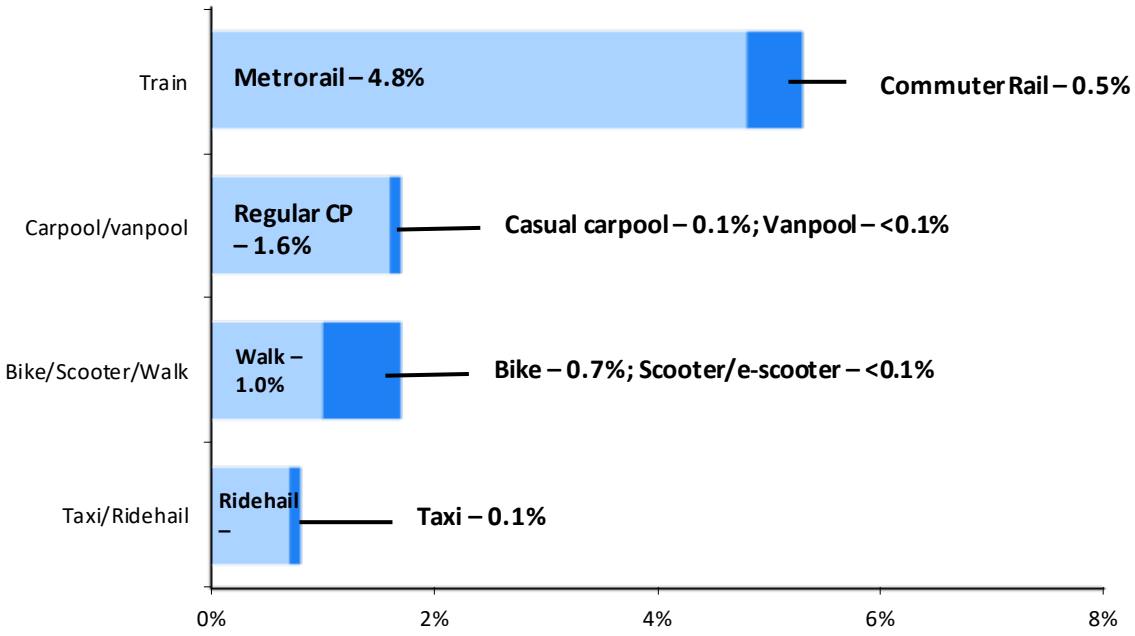
Secondary Modes – Figure 5 also shows the percentages of respondents who used a mode as a secondary mode, meaning they used it one or two days per week, in addition to their primary mode. The top two primary modes also had the greatest secondary use. Eight percent of respondents teleworked one or two days per week and 7% drove alone as a secondary mode. Two modes, train and bike/walk/scooter, each was used by 2% of respondents as a secondary mode. Two percent had a compressed schedule day off one or two days per week or one day off every two weeks. The remaining three modes each was used by just 1% of respondents as a secondary mode.

In most cases, the percentage of respondents who used a mode as their primary mode was higher than the percentage of total work days on which commuters used that mode. For example, 49% of respondents primarily drove alone to work but only 40.4% of weekly work trips were made by this mode. The difference was largely due to the incidence of telework and compressed work schedule as secondary schedules.

Mode Use within Mode Groups

The mode groupings shown in Figures 4 and 5 each is comprised of several related individual modes. The large sample size of the SOC survey enables some analysis not only of grouped modes, but also of individual modes. Figure 6 shows the relative use of individual modes within the four main combined mode groups: train, carpool/vanpool, bike/scooter/walk, and taxi/ridehail.

Figure 6
Composition of Combined Mode Groupings – Percentage of Weekly Commute Trips
(n = 8,114)
(Note: scale extends only to 8% to highlight mode group composition)



Train – The train mode group was comprised of Metrorail and three commuter rail companies: MARC (Maryland commuter rail), VRE (Virginia Railway Express), and Amtrak. Metrorail dominated this category, with nine in ten train riders using this mode (4.8% of total 5.3% train ridership). The balance of train ridership was in commuter rail (0.5% of total train use).

Carpool/Vanpool – Regular carpooling dominated the carpool/vanpool mode group. Nearly all carpool/vanpool trips were in regular carpools (1.6% of total 1.7% carpool/vanpool use). Casual carpools (also called "slugs"), accounted for about one in twenty of the total trips in the carpool/vanpool group (0.1% of total 1.7%).[8] Vanpool trips accounted for very few trips in this mode group (< 0.1% of 1.7%).

Taxi/Ridehail – Within the taxi/ridehail group, ridehail was by far the more common mode. About nine in ten of the taxi/ridehail mode group trips were made in Uber, Lyft, or another ridehail services (0.7% of the total 0.8%). Traditional taxi accounted for just one in ten trips in this group (0.1% of 0.8%).

[8] Casual carpooling is ridesharing without any prearrangement between the driver and riders. During commute hours, riders and drivers line up at predetermined meeting points and create spontaneous, single-trip carpools.

Ridehail services have been operating in the region for several years and even with travel disruptions during the coronavirus pandemic some commuters appear to use ridehail for commuting. The 71 respondents who used ridehail to get to work during their typical week were asked which ridehail services they had used. Note that respondents were permitted to check more than one type of transportation, so the total will add to more than 100%. Uber and Lyft (riding alone as a passenger) were reported by similar share of respondents; 76% used Uber for commuting and 70% used Lyft.

Six respondents (9%) said they used a shared-ride ridehail service, in which they rode with another passenger; three had used Lyft Shared Ride or Lyft XL and four used UberPool or Uber Express Pool. Because shared-ride ridehail groups could be considered carpools, respondents who used these services were asked how many riders, excluding the driver, typically rode in the vehicle but the sample of six respondents was too small for reliable analysis.

Ridehail users also were asked how they would have made these commute trips if ridehail service had not been available. About one-third of said they would have driven in a personal vehicle (19%) or ridden in a taxi (16%). But seven in ten (70%) said transit would have been a likely option, 28% likely would have walked, and 16% likely would have bicycled; this suggests some ridehail trips create a vehicle trip that would not have occurred in the absence of the ridehail service.

Mode Used if Ridehail Not Available	Percentage of Ridehail Respondents (n = 67)
• Drive alone in personal vehicle	19%
• Taxi	16%
• Public transit (train, bus)	70%
• Walk	28%
• Bicycle	16%
• Carpool/casual carpool	7%

Bike/Scooter/Walk – Walking and biking were about equally represented in the bike/scooter/walk mode group in Figure 6. Walking accounted for 1.0% of the total 1.7% trips in this group and 0.7% were made by bicycle. A very small share, less than 0.1%, of these trips were made by scooter or e-scooter.

In recent years, numerous shared-bike and shared-scooter options have been introduced in the metropolitan Washington region. Commuters who reported one or more days of bike/scooter use were asked what type(s) of bike/scooter they used. This distribution is shown below. Respondents were permitted to check more than one bike/scooter type, so the total will add to more than 100%:

Bike/Scooter type	Percentage of bike/scooter Respondents (n = 153)
• Personal bike	81%
• Capital Bikeshare bike	18%
• Dockless bike	3%
• Rented scooter/e-scooter	8%
• Personal scooter/e-scooter	7%

Commuters who reported using a bike or scooter overwhelmingly rode personal bikes for their commute; 81% said they rode a personal bike on some or all their bike/scooter commute days. About two in ten used a rented bike, either a Capital Bikeshare bicycle (18%) or a dockless bike (3%). About one in ten bike/scooter commuters typically used either a rented scooter (8%) or a personal scooter (7%).

Use of both personal bikes and rented bikes and scooters was strongly related to respondent characteristics. Nearly all (97%) commuters who used a rented bike/scooter lived in the Core area, 100% worked in the Core area, and 68% traveled less than five miles to work (Table 1). Rented bike/scooter users also were predominantly young (76% under 45 years old), male (59%), and higher income (61% with household income of $160,000 or more). Commuters who used personal bikes/scooters followed a generally similar profile for income and gender, but they were less likely to be as young. They also traveled somewhat farther to work and were less likely to be concentrated in the Core area.

Table 1
Predominant Characteristics of Commuters Who Used Rented and Personal Bikes/Scooters

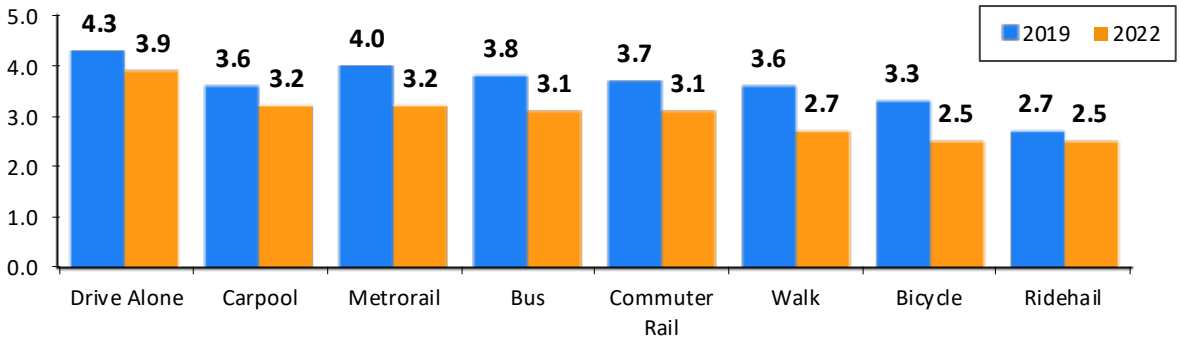
Respondent Characteristic	Rented (n = 41)	Personal (n = 135)
Lived in Core area	97%	59%
Worked in Core area	100%	66%
Travel distance less than 5 miles	68%	57%
Age under 45 years old	76%	58%
Income $160,000 or more	61%	61%
Male	59%	65%

Mean Days Used

Figure 7 details the average days per week individual modes were used, by respondents who used the mode. Five modes, excluding walk, bicycle, and ridehail, were used an average of at least three days per week in 2022. Commuters who drove alone used this mode most frequently; 3.9 days per week on average. The high average use is consistent with further analysis of the data, which showed that 78% of commuters used a single mode four or more of their commute days and 67% used a single mode all their commute days.

Figure 7
Average Days per Week Modes Were Used by Respondents Using the Modes – 2019 and 2022

(Drive Alone n = 3,972, Carpool n = 161, Metrorail n = 561, Bus n = 311, Commuter Rail n = 69 Walk n = 158, Bicycle n = 153, Ridehail n = 73; Vanpool and taxi not included due to insufficient sample sizes)



But as also shown in Figure 7, the average frequency of use declined for every mode from 2019 to 2022. This is because even though the average total weekly workdays was about the same in 2022 (4.7) and 2019 (4.8), respondents teleworked some days and commuted fewer days to outside work locations.

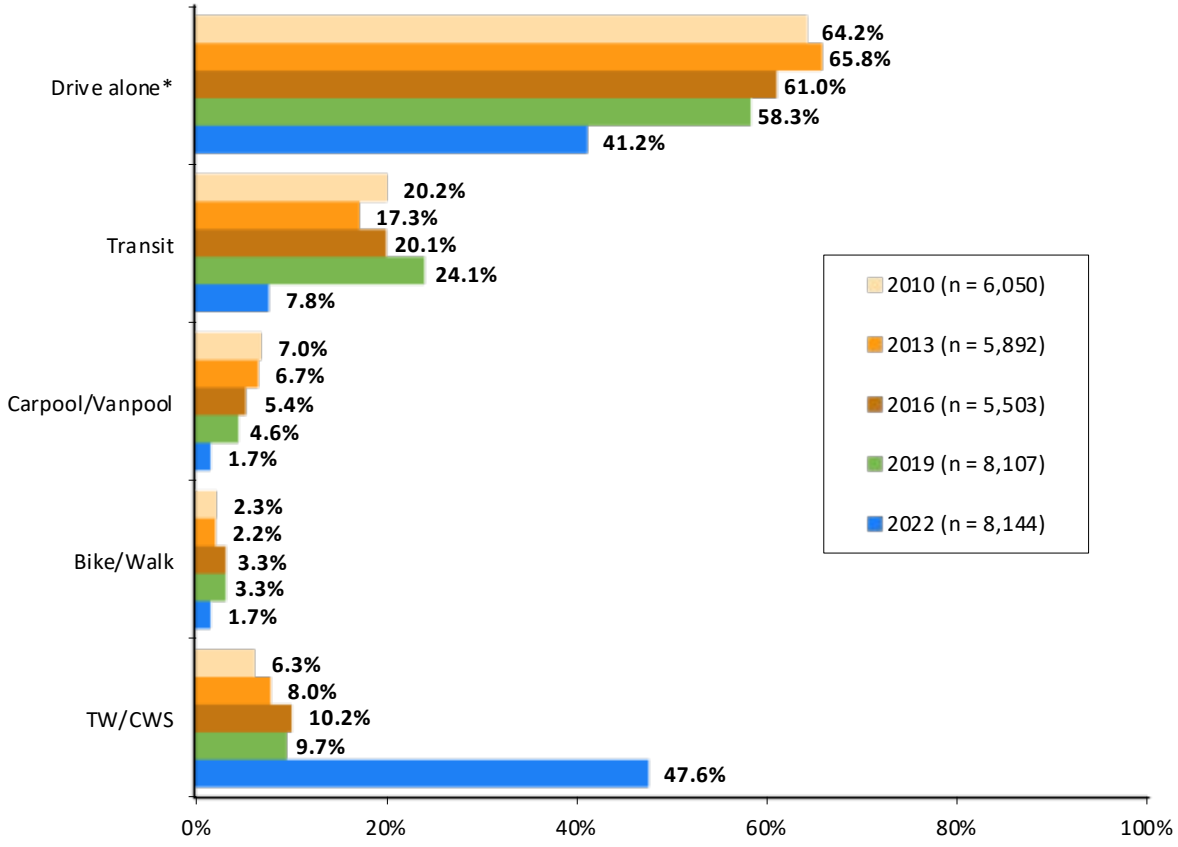
Weekly Trips by Mode – Trends from 2010 to 2022

Figure 8 presents weekly commute trip mode use for 2022 and four previous SOC surveys. The share of drive alone trips in 2022 (41.2%) was by far the lowest of all SOC surveys since 2010 and fully 17.1 percentage points lower than in 2019. As evidenced by the 37.9 percentage point increase in telework's share of commute days/trips in 2022, however, the drive alone trips eliminated were overwhelmingly shifted to telework, rather than to other travel modes. Driving alone exhibited a declining pattern also between 2013 and 2019, with trips shifted both to transit and telework. Commute trips in each non-drive alone travel mode other than telework also dropped from 2019 to 2022, with transit losing 16.3 percentage points from 24.1% in 2019 to 7.8% in 2022. Commute use of carpool/vanpool and bike/walk also fell between 2019 and 2022. All 2019-2022 mode differences were statistically significant.

Figure 8
Percentage of Weekly Trips by Mode – 2010 to 2022

(Including telework and compressed schedules)

(*Note: taxi/ridehail was reported as part of "drive alone" in the 2010-2016 surveys. For consistency, "drive alone" percentages shown for 2019 and 2022 follow the same approach. In 2022, taxi/ridehail accounted for 0.8% of the total 41.2% drive alone.)



Change in Mode Use from 2019 to 2022, Excluding Telework – The overwhelming change in telework mode share between 2019 and 2022 obscures shifts in use of other modes. If telework/CWS are excluded from both the 2022 and 2019 mode distributions, a clearer pattern of shifting mode use emerges for commute trips to outside work locations. Table 2 presents percentages of weekly commute trips by mode for 2019 and 2022 and the percentage point changes for each mode.

Table 2
Change in Percentage of Weekly Commute Trips by Mode, Excluding Telework – 2019 to 2022
(2019 n = 8,107, 2022 n = 8,144)

Commute Mode (excluding TW/CWS)	2019 SOC	2022 SOC	Change (Percentage Points)
Gained Mode Share			
Drive alone (incl. taxi/ride-hail)	64.6%	**78.4%**	**+ 13.8**
Lost Mode Share			
Train	20.2%	**10.2%**	**- 10.0**
Carpool/vanpool	5.1%	**3.3%**	**- 1.8**
Bus	6.5%	**4.8%**	**- 1.7**
No Statistical Change			
Bike/scooter/walk	3.6%	**3.3%**	- 0.3

While Figure 8 showed that driving alone declined as a share of all commute days, driving alone increased as a share of trips for days workers traveled to outside work locations. When telework is excluded, workers drove alone for 78.4% of work trips in 2022, 13.8 percentage points more than in 2019 (64.6%). Transit and carpool/vanpool both lost mode share; train use fell 10.0 percentage points from 20.2% to 10.2%, bus and carpool/vanpool dropped 1.8 and 1.7 percentage points, respectively.

Some of the loss in alternative mode use is explained by shifts to telework. Thirty-seven percent of respondents who primarily teleworked at the time of the survey said they commuted by transit or rideshare most days pre-pandemic, compared with only 22% of respondents who were traveling to outside work locations most days in early 2022. The 2019 figures include these pre-pandemic alternative mode trips, while they are missing from the 2022 percentages. But alternative mode loss also is due to some commuters who shifted away from shared modes to driving alone, perhaps to minimize their interactions with other people to avoid contracting COVID-19; 8% of 2022 respondents who were driving alone in 2022 said they primarily used alternative modes in pre-pandemic.

Commute Changes Related to Coronavirus Pandemic and Pre-pandemic Mode

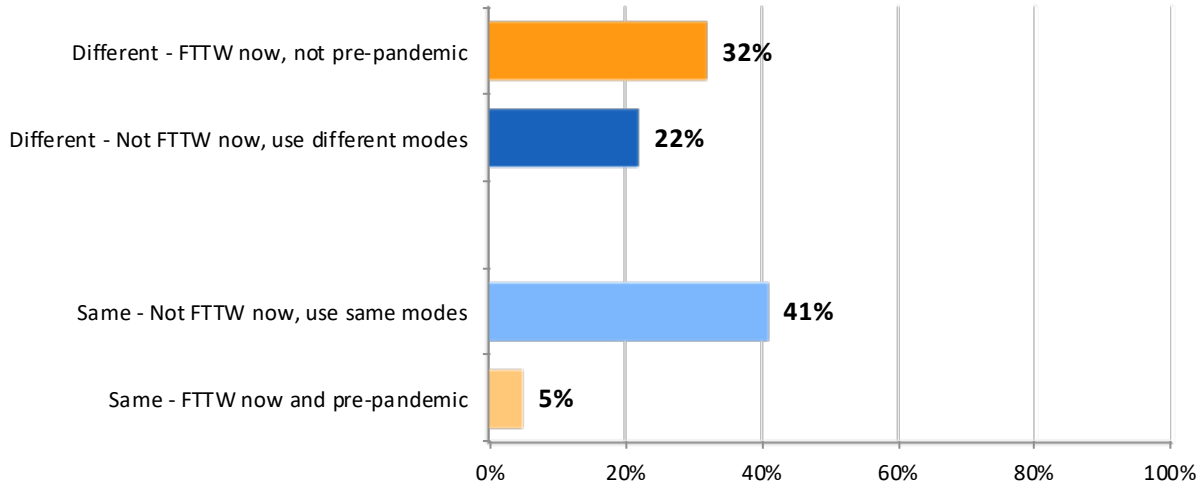
The 2022 SOC survey added questions to examine other changes workers made that could have altered their commute. Respondents were asked a general question; "Is your current travel to work as you just described it about the same as your commute before the coronavirus pandemic began or is it different than before the pandemic?" They were then asked to indicate if they had made any work or commute changes. Finally, they were asked what commute modes they used one or more days per week and which of those modes they had used most of their work days (primary mode) in early 2020.

Commute Same As or Different Than Before Pandemic

Given the large increase in use of telework and declines in use of other travel modes in 2022, it is not surprising that 54% of respondents reported that their commute was different at the time of the survey (January-March 2022) than it had been before the coronavirus pandemic (February 2020). Figure 9 presents four general commute change scenarios that respondents indicated.

Figure 9
Current Commute (Early 2022) Same or Different than Pre-pandemic (Early 2020)

(n = 7,952)



One-third (32%) of all respondents said their commute had changed because they were teleworking full-time (FTTW) now and had not been doing so before the pandemic. About two in ten (22%) respondents said they were not currently teleworking all their workdays but their commute was different because they were using a different mix of commute options. The remaining 46% of respondents said their commute was essentially the same; 41% were using the same commute option mix as before the pandemic and 5% had been teleworking full-time before the pandemic and still were doing so.

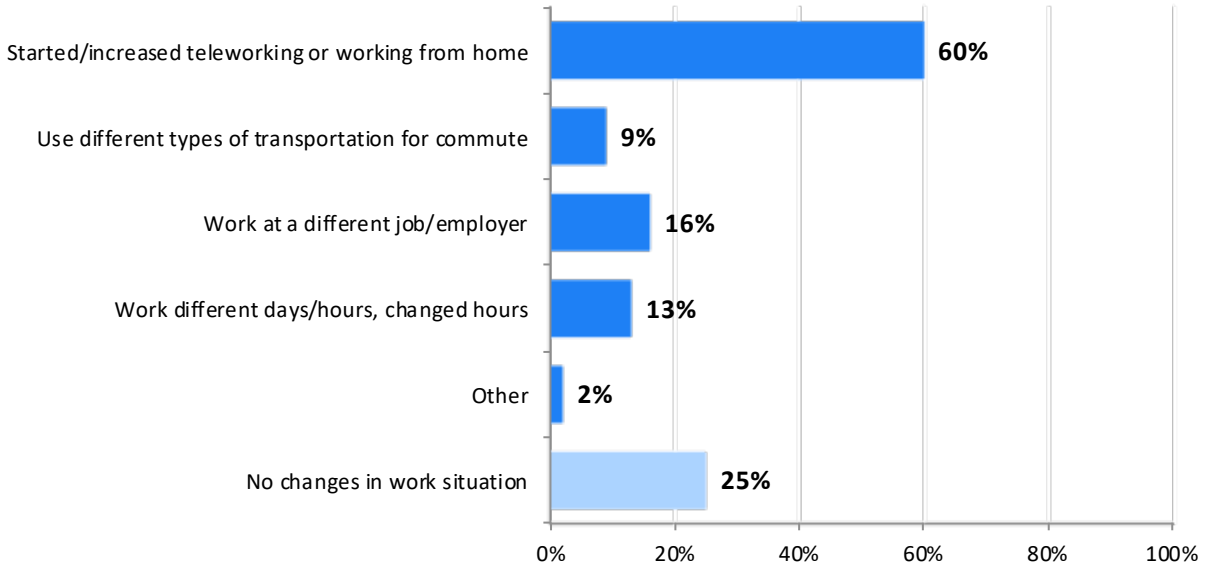
Commute and Work Situation Changes Since the Start of the Pandemic – Both respondents who said their commutes were the same and those who said they were different were asked a follow-up question to explore various work situations or commute components that might have changed. Overall, three-quarters of respondents reported at least one of the changes shown in Figure 10.

Six in ten (60%) respondents either started teleworking or increased the number of days per week that they teleworked. One in ten (9%) said they started using different types of transportation to get to work on days they traveled to an outside work location. About three in ten made a work situation change, such as changing jobs or employers (16%) or a change in their work days or hours (13%). Two percent said their commute had changed for some other reason.

Respondents whose commutes were different because they shifted to full-time telework contributed to the telework growth shown in Figure 8. But some telework growth between 2019 and 2022 was from workers who were still commuting to an outside work location at least some workdays and were working from home some days. Across all workers who reported a different commute than before the pandemic, 88% said starting or increasing telework was part of their commute change.

Figure 10
Commute and Work Situation Changes Since Start of Pandemic

(n = 7,745; multiple responses permitted)



Primary Commute Mode in 2022 Compared with Early 2020, Pre-Pandemic

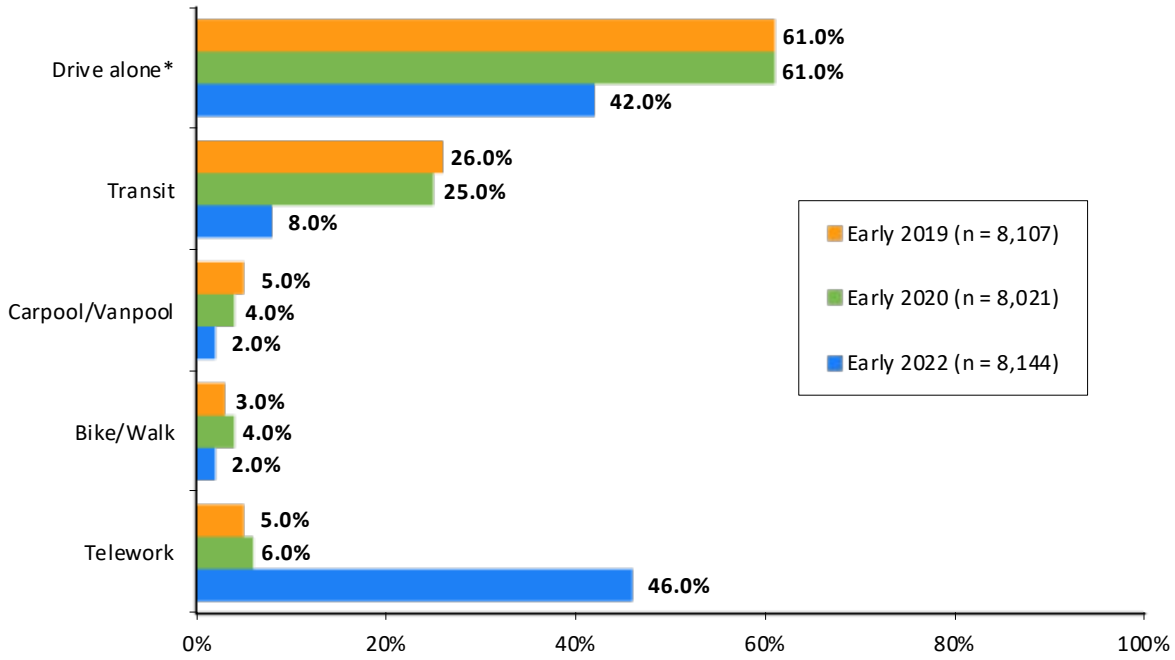
Figure 8 and Table 2 documented substantial commute mode shifts between 2019 and 2022. The 2019 survey was conducted just one year before the start of the pandemic and it is reasonable to expect that commute patterns would not have changed dramatically over the next year. However, to test this assumption, respondents in the 2022 survey were asked what modes they had used to get to work in early 2020, just before the pandemic began.

They first were asked to select all modes that they used at least one day per week, then to indicate the single type of transportation that they used most days for their commute, their primary mode. For consistency with other mode questions in the survey, respondents who typically used more than one mode on a single day (e.g., ride a bus and train) were instructed to choose the mode they used for the longest distance part of their trip. The middle (green) bars in Figure 11 show the results for primary mode in early 2020, the immediate pre-pandemic period. Figure 11 also shows the distributions of primary mode from the 2019 SOC (top/orange bars) and for the 2022 SOC, in early 2022 (bottom/blue bars).

As is evident from the top two bars in each mode group, the mode distribution in early 2020 was essentially the same as that observed in the 2019 SOC data. There were slight differences in transit, carpool, bike/walk, and telework, but in each mode case it was only one percentage point and within expected statistical margins of error. This suggests that the mode changes observed between 2019 and 2022 can be largely, or perhaps entirely, attributed to the influence of the pandemic rather than other factors.

Figure 11
Primary Mode (Mode Used Most Days Per Week) – 2019, 2020, and 2022

(*Note: "Drive alone" includes taxi/ridehail)



Commute Changes by Respondent Characteristics

Pre-pandemic Commute Mode – Further analysis of the new questions on commute change revealed that some groups of respondents were more likely than were others to have reported a change in their commute. A particularly important finding was that respondents who had been commuting by public transit, carpool/vanpool, and or bike/walk reported commute changes at a much higher rate than did commuters who primarily drove alone prior to the pandemic (Table 3).

Eight in ten (80%) respondents who rode a train to work and three-quarters (74%) of respondents who primarily rode a bus said their commute was different than before the pandemic. Large shares of commuters who carpooled/vanpooled (68%) and biked/walked (60%) to work before the pandemic also noted that they had made a commute change. By contrast, less than half (47%) of respondents who primarily drove alone before the pandemic reported that their commute was different.

The last two columns of the table break down the different commute total into the two components that were presented in Figure 9; respondents who had a different commute because they were now teleworking full-time and respondents who were still commuting at least one day per week but were using a different mix of commute modes. These columns indicate that the high percentages of different commutes among alternative mode respondents were driven particularly by shifts to full-time work from home, with at least four in ten respondents in each alternative mode group shifting to full-time telework, compared with 25% of pre-pandemic drive alone commuters.

But percentages of respondents who were still traveling to outside work locations and who had changed the mix of modes they used also were higher among respondents who had used transit and carpool or vanpool pre-pandemic than was the case for pre-pandemic drive alone commuters, suggesting a further shift away from these modes.

Table 3
Current Commute Same or Different than Pre-pandemic – By Pre-pandemic Primary Mode

Pre-pandemic Primary Mode	Commute Same as Pre-pandemic	Commute Different Than Pre-pandemic		
		Different (Total)	Now Full-time Telework	Use Different Mix of Modes
Train (n = 1,473)	20%	80%	55%	26%
Bus (n = 552)	26%	74%	42%	31%
Carpool/vanpool (n = 228)	32%	68%	39%	29%
Bike/walk (n = 407)	40%	60%	43%	17%
Drive alone (n = 4,759)	53%	47%	25%	22%
Telework (n = 439)	89%	11%	9%	2%

Comparison of Current Primary Mode with Pre-pandemic Primary Mode – Table 4 compares the primary modes that respondents were using at the time of the survey (Current mode) with the modes they used pre-pandemic (early 2020). The percentages in each row will add to 100%.

Table 4
Current Primary Commute Mode by Pre-pandemic (Early 2020) Primary Commute Mode

Pre-pandemic Primary Mode (Early 2020)	Current Primary Commute Mode (Early 2022)					
	Telework	Drive Alone	Carpool/ Vanpool	Bus	Train	Bike/ Walk
All respondents (n = 8,126)	45%	42%	2%	3%	6%	2%
Drive alone (n = 4,874)	34%	62%	1%	1%	1%	1%
Carpool/vanpool (n = 231)	50%	16%	32%	1%	1%	0%
Bus (n = 556)	50%	14%	2%	28%	4%	2%
Train (n = 1,495)	63%	10%	1%	2%	23%	1%
Bike/walk (n = 413)	55%	10%	2%	1%	4%	28%
Telework (n = 442)	97%	3%	0%	0%	0%	0%

As indicated by the second column in the table, 34% of respondents who drove alone to work pre-pandemic reported shifting to telework as their primary mode at the time of the survey but more than six in ten (62%) continued to drive alone for days they traveled to an outside work location. Shifts to telework were even more common among respondents who used an alternative mode pre-pandemic; at least half of respondents in each of these groups reported telework as their current primary mode. But about one in ten respondents in each alternative mode group had shifted to driving alone. As shown by the shaded cells, only about three in ten respondents in each alternative mode groups continued using their pre-pandemic alternative mode (carpool/vanpool 32%, bus, 28%, train 23%, bike/walk 28%).

Commute Change by Geographic, Employment, and Demographic Factors – Other factors associated with commute changes included home and work location, type and size of employer, and several demographic characteristics:

- Lived in the Core and Middle Ring – 65% of workers who lived in the Core area and 53% who lived in the Middle Ring said their commute was different, compared with 48% of Outer Ring residents.
- Worked in the Core and Middle Ring – 65% of Core and 47% of Middle Ring workers said their commute had changed, compared with 34% of Outer Ring workers.
- Worked for larger employers – 65% of respondents who worked at worksites with more than 250 employees and 60% who worked at a location with 101 to 250 employees had a different commute, compared with 46% of respondents who worked at a worksite with 100 or fewer employees.
- Worked for Federal agencies or non-profit organizations – 65% of Federal agency workers and 60% of respondents who were employed by a non-profit organization had a different commute, compared with 49% of private sector employees and 39% of state/local agency workers.
- Higher incomes – 63% of respondents with incomes of $140,000 or more reported a different commute, compared with 47% of respondents with incomes below $140,000.
- Younger than 55 years old – 56% of respondents who were younger than 55 years said their commute was different, compared with 48% of respondents who were 55 or older.
- Female – 58% of female respondents had a different commute, compared with 50% of males.

Primary Commute Mode by Geographic and Demographic Group

Following are tables and figures examining primary mode distribution by respondents' home and work location and demographic characteristics: gender, race/ethnicity, age, income, and vehicle availability. Any of these characteristics, and indeed many other factors, might be related to or influence commuters' mode choice and relationships observed in each individual case should viewed as mode associations, rather than independent or causal relationships. Because the 2022 mode distribution was so strongly skewed toward telework and the figures were designed to highlight sub-group differences, the results for both the 2022 period (current) and the 2019 SOC survey show the share of respondents who teleworked, then the distribution of primary mode when telework is excluded. The discussion for each table and figure describes notable differences from the 2019 case.

Residence and Employment Location

Residence State – Table 5 shows the primary mode distributions by home state. Each line of the table shows the share of commuters in the sub-group who primarily teleworked. The last four columns of the table show the primary mode distribution with primary telework excluded. This provides a clearer comparison between 2022 and 2019 of modal distributions for travel to workplaces outside the home.

In 2022, telework was the primary mode for 55% of District of Columbia residents and for more than four in ten who lived in Virginia (46%) and Maryland (42%). When telework is excluded, driving alone was the most common mode for each state but was more than twice as common for Maryland (84%) and Virginia (80%) respondents as for District of Columbia residents (41%). District residents used transit and bike/walk at higher rates than did Maryland and Virginia residents. Carpool/vanpool was used by a larger share of Virginia residents (5%) than District (2%) or Maryland (2%) residents.

Table 5
Primary Mode by State of Residence – 2022 and 2019
(Shading indicates statistically higher percentages of mode use)

Residence State	Telework	Primary Commute Mode (Excluding Telework*)			
		Drive Alone	Carpool/ Vanpool	Transit	Bike/ Walk
Current (2022 SOC)					
District of Columbia (n = 956)	**55%**	**41%**	**2%**	**41%**	**16%**
Maryland (n = 3,434)	**42%**	**84%**	**2%**	**13%**	**1%**
Virginia (n = 3,750)	**46%**	**80%**	**5%**	**12%**	**3%**
Pre-pandemic (2019 SOC)					
District of Columbia (n = 735)	3%	32%	2%	49%	17%
Maryland (n = 3,828)	7%	69%	4%	26%	1%
Virginia (n = 3,544)	4%	68%	8%	22%	2%

*Note: distribution of Drive alone, Car/vanpool, Transit, Bike/walk equals 100%; it excludes Primary Telework)

As is described further in Section 5, the much higher transit mode share for District residents is related to their greater access to transit modes. District residents also travel shorter distances to work than do Maryland and Virginia residents, thus the higher bike/walk percentage is not surprising. Virginia residents' higher use of carpool/vanpool is almost certainly related to their greater access to Express/Toll Lanes and High Occupancy Vehicle (HOV) lanes, which provide a substantial time saving for ridesharing commuters.

The bottom section of the table displays mode use patterns in 2019. The major difference between 2019 and 2022 is the overall share of telework, which was a very small component of primary mode in 2019. When telework is excluded, however, the relative use of modes in 2022 was essentially the same as in 2019. Drive alone was the primary mode for about twice as many residents of Maryland and Virginia as for District residents and transit and bike/walk was used by much larger shares of District residents. One notable difference was in apparent shifts from transit to driving alone. Transit use fell in all three states and driving alone increased, but the shifts were more prominent for Maryland and Virginia residents than for those who lived in the District.

Employment State – Table 6 displays primary mode distributions by respondents' employment state. Respondents who were working from home full-time at the time of the survey were asked to report where they would be working if they were not working from home. The 2022 mode patterns by employment state were similar to those observed by residence state. Telework was the primary mode for a larger share of respondents whose main work location was the District of Columbia (55%) than for respondents who worked in Virginia (41%) or Maryland (38%). When primary telework is excluded, drive alone rates were much lower for District of Columbia workers (56%) than for Maryland (87%) and Virginia (85%) and a much larger proportion of District workers rode transit (32%) to work than did Maryland (9%) and Virginia (8%) workers.

Table 6
Primary Mode by State of Employment – 2022 and 2019
(Shading indicates statistically higher percentages of mode use)

Employment State	Telework	Primary Commute Mode (Excluding Telework)*			
		Drive Alone*	Carpool/ Vanpool	Transit	Bike/ Walk
Current (2022 SOC)					
District of Columbia (n = 2,871)	55%	56%	5%	32%	7%
Maryland (n = 2,170)	38%	87%	2%	9%	2%
Virginia (n = 2,881)	41%	85%	4%	8%	3%
Pre-pandemic (2019 SOC)					
District of Columbia (n = 2,720)	2%	33%	6%	54%	7%
Maryland (n = 2,447)	7%	81%	5%	12%	2%
Virginia (n = 2,846)	4%	80%	5%	13%	2%

*Note: distribution of Drive alone, Car/vanpool, Transit, Bike/walk equals 100%; it excludes Primary Telework)

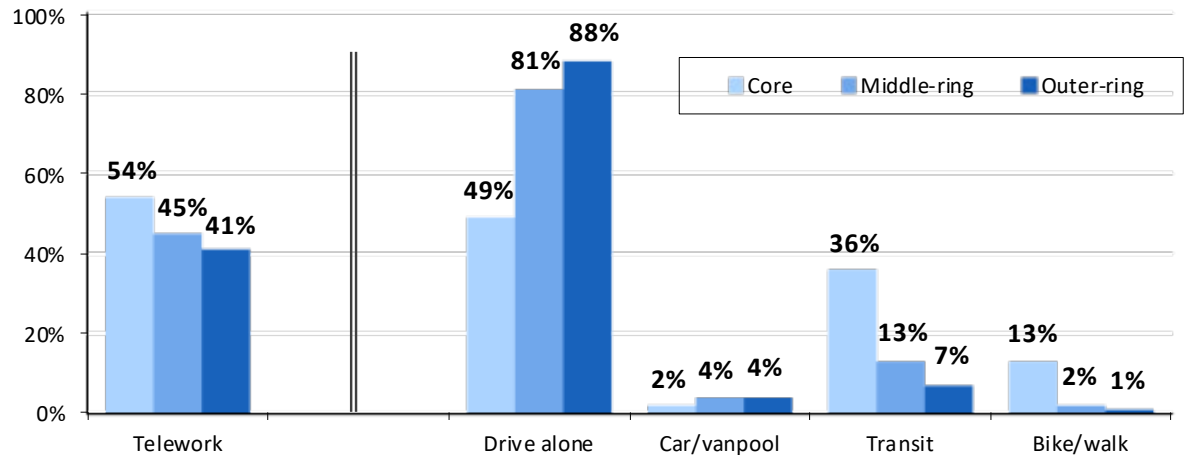
The mode use pattern in 2022, excluding primary telework, generally followed that from 2019. But as with home state, the most notable changes was the drop in transit use among District workers. In 2019, among commuters who were not primarily teleworking, 54% of District workers primarily commuted by transit; in 2022, transit was the primary mode for just 32% of District workers who were not teleworking.

Home Area "Ring" – The mode distributions presented for Virginia and Maryland represent average use across large geographic areas with substantially different travel conditions and options. Virginia includes two jurisdictions that are largely urban (Alexandria and Arlington), along with suburban (Fairfax), and exurban (Loudoun and Prince William) areas. Maryland includes two counties (Montgomery and Prince George's) that are largely suburban with pockets of urban development and three exurban areas (Calvert, Charles, and Frederick). These aggregations can mask large differences in mode use for sub-areas of the states. Figure 12 displays primary mode as a function of residence area, using the "ring" designation defined earlier. As with the state tables, the figure shows overall percentage of primary telework, then the distribution of other modes, excluding telework.

Primary use of telework was higher among respondents who lived in the Core (54%) than for residents of either the Middle Ring (45%) or Outer Ring (41%). With telework excluded, driving alone is the most common mode in all three areas, but only about half (49%) of Core residents primarily used this mode, compared with more than eight in ten residents in the Middle Ring (81%) or Outer Ring (88%). Conversely, use of transit and bike/walk were considerably higher among Core residents than for respondents who lived farther from the center of the region.

The mode distribution for the Core, which includes the District of Columbia, Alexandria, and Arlington, was nearly same as that shown in Table 5 for District of Columbia residents alone. This suggests that residents of the two Core Virginia jurisdictions were more like District of Columbia residents in travel mode characteristics than they were to residents of other Virginia jurisdictions.

Figure 12
Current Primary Mode by Home Area – Telework and Mode Distribution Excluding Telework
(Note: distribution of Drive alone, Car/vanpool, Transit, Bike/walk equals 100%; it excludes Primary Telework)
(Core n = 2,560, Middle Ring n = 2,528, Outer Ring n = 3,038)



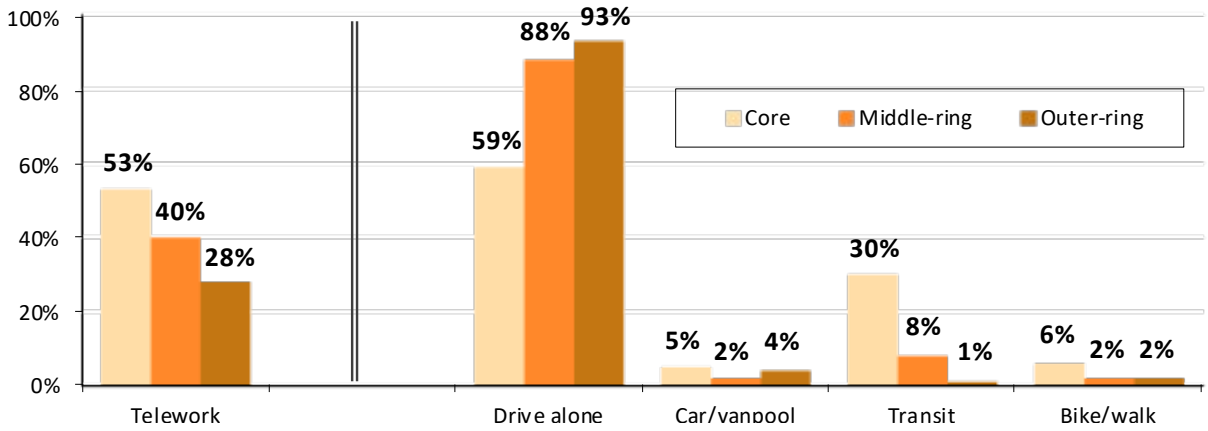
As shown below, excluding primary use of telework, the relative use of modes in 2022 paralleled that from 2019. In 2019, the drive alone and carpool/vanpool mode shares increased with increasing distance from the center of the region, while transit and bike/walk mode shares declined. However, the transit rates for all three areas declined from 2019 to 2022, while the drive alone rates increased.

	Home Area 2019 (Pre-pandemic) Primary Mode				
		Primary Mode (Excluding Telework)			
Home Area	Telework	Drive alone	Car/vanpool	Transit	Bike/walk
Core	3%	39%	2%	46%	13%
Middle Ring	5%	68%	5%	26%	1%
Outer Ring	5%	79%	8%	13%	0%

Work Area Ring – Primary telework was highest for Core area workers (53%) and lower among Middle Ring workers (40%) (Figure 13). These percentages were about the same as for residents of these two areas. A notable difference in the work area finding, however, was the relatively low share (28%) of Outer Ring workers who primarily teleworked.

With telework excluded, the 2022 mode use pattern by employment area was comparable to that for the residence area. About six in ten (59%) commuters who worked in the Core area drove alone, a dramatically lower rate than for the Middle Ring (88%) and Outer Ring (93%). Transit use was higher in the Core; 30% of Core workers who did not primarily telework used bus or train as their primary mode, while transit rates were much lower for commute trips to Middle Ring (8%) and Outer Ring (1%) worksites. This pattern obviously reflects the greater availability of transit infrastructure in the Core areas, as well as other potential factors.

Figure 13
Current Primary Mode by Work Area – Telework and Mode Distribution Excluding Telework
(Note: distribution of Drive alone, Car/vanpool, Transit, Bike/walk equals 100%; it excludes Primary Telework)
(Core n = 3,973, Middle Ring n = 2,699, Outer Ring n = 929)



As shown below, excluding primary telework, the 2022 drive alone mode shares in the Core area (59%) was well above the 2019 rate (39%) and 2022 transit use (30%) was considerably lower than 2019 (48%), suggesting large mode shifts from transit to drive alone, even accounting for telework growth. By contrast, drive alone rates in the Middle and Outer rings were higher in 2022 than in 2019.

	Work Area 2019 (Pre-pandemic) Primary Mode				
		Primary Mode (Excluding Telework)			
Work Area	Telework	Drive alone	Car/vanpool	Transit	Bike/walk
Core	3%	39%	7%	48%	6%
Middle Ring	5%	83%	4%	12%	1%
Outer Ring	5%	91%	5%	3%	1%

Primary Mode by Demographic Characteristics

Analysis of survey data also showed some differences in choice of primary mode (mode used most days per week) among demographic groups. Tables 7 through 11 present distributions of primary mode by respondent age, gender, income, race/ethnicity, and vehicle availability. As was presented for mode by home and work areas, the tables show primary telework percentages, then present primary use of other modes, with telework excluded.

Age – Telework was most common among respondents in the middle age groups; about half of respondents between 35 and 54 years of age primarily teleworked, compared with 44% of respondents who were younger than 35 and 39% who were 55 or older (Table 7). Respondents who were younger than 35 years old were less likely to drive alone than were older respondents. The 2019 mode distribution (excluding telework) generally followed the 2022 pattern, with lower drive alone and higher transit and bike/walk use among younger respondents. As was seen in mode use by home and work area, shifts from transit to drive alone were observed for all age groups between 2019 and 2022, but bike/walk use remained close to the 2019 rates.

Table 7
Primary Mode by Age – 2022 and 2019
(Shading indicates statistically higher percentages of mode use)

Age	Telework	Primary Commute Mode (Excluding Telework*)			
		Drive Alone	Carpool/ Vanpool	Transit	Bike/Walk
Current (2022 SOC)					
Under 35 years (n = 1,788)	44%	74%	3%	19%	4%
35-44 years (n = 1,843)	51%	78%	4%	14%	4%
45-54 years (n = 1,782)	48%	79%	4%	15%	2%
55+ years (n = 2,409)	39%	81%	3%	13%	3%
Pre-pandemic (2019 SOC)					
Under 35 years (n = 1,725)	4%	59%	5%	31%	5%
35-44 years (n = 1,795)	6%	64%	5%	28%	3%
45-54 years (n = 1,998)	5%	67%	5%	25%	3%
55+ years (n = 2,297)	5%	68%	5%	25%	2%

*Note: distribution of Drive alone, Car/vanpool, Transit, Bike/walk equals 100%; it excludes Primary Telework)

Gender – In 2022, male and female respondents reported primary telework at about the same rate (Table 8). Male respondents drove alone at a slightly higher rate (79%) than did female respondents (76%), while female respondents were slightly more likely to ride transit. Other modes showed no statistical differences. The 2022 mode patterns generally reflected those from 2019 with the exception that shifts from transit to drive alone between 2019 and 2022 were evident for both male and female respondents.

Table 8
Primary Mode by Gender – 2022 and 2019
(Shading indicates statistically higher percentages of mode use)

Gender	Telework	Primary Commute Mode (Excluding Telework*)			
		Drive Alone	Carpool/ Vanpool	Transit	Bike/Walk
Current (2022 SOC)					
Female (n = 3,670)	46%	76%	4%	17%	3%
Male (n = 3,809)	45%	79%	3%	14%	4%
Pre-pandemic (2019 SOC)					
Female (n = 3,806)	5%	64%	5%	28%	3%
Male (n = 3,859)	5%	64%	6%	26%	4%

*Note: distribution of Drive alone, Car/vanpool, Transit, Bike/walk equals 100%; it excludes Primary Telework)

Income – Primary telework showed a strong increasing pattern as income increased (Table 9). Only 18% of respondents with incomes under $60,000 primarily teleworked, compared with at least four in ten higher income respondents and more than six in ten (61%) respondents with incomes of $180,000 or more. Except for bike/walk use, which was highest among high income respondents, use of other modes did not follow a particular pattern with increasing or decreasing income and differences by income were not statistically significant for most modes.

Table 9
Primary Mode by Annual Household Income – 2022 and 2019
(Shading indicates statistically higher percentages of mode use)

Household Income	Telework	Primary Commute Mode (Excluding Telework*)			
		Drive Alone	Carpool/ Vanpool	Transit	Bike/Walk
Current (2022 SOC)					
Less than $60,000 (n = 610)	**18%**	**74%**	**4%**	**19%**	**3%**
$60,000 – 99,999 (n = 1,226)	**40%**	**80%**	**1%**	**16%**	**3%**
$100,000 – 139,999 (n = 1,162)	**48%**	**78%**	**4%**	**14%**	**4%**
$140,000 – 179,999 (n = 1,043)	**51%**	**74%**	**4%**	**18%**	**4%**
$180,000 or more (n = 1,999)	**61%**	**77%**	**5%**	**12%**	**6%**
Pre-pandemic (2019 SOC)					
Less than $60,000 (n = 633)	2%	65%	3%	28%	4%
$60,000 – 99,999 (n = 1,234)	3%	66%	4%	26%	4%
$100,000 – 139,999 (n = 1,267)	5%	61%	6%	29%	4%
$140,000 – 179,999 (n = 1,103)	4%	62%	5%	29%	4%
$250,000 or more (n = 1,537)	8%	63%	8%	24%	5%

*Note: distribution of Drive alone, Car/vanpool, Transit, Bike/walk equals 100%; it excludes Primary Telework)

In 2019 driving alone had been slightly more common among lower income respondents and carpool/vanpool use had increased with income, but other modes showed no clear association with income. Comparison of transit and drive alone rates for 2019 and 2022 indicates that shifts from transit to driving alone were observed for all income groups, at approximately the same rate.

Race/Ethnicity – Table 10 presents primary mode distribution for respondents of the four primary race/ethnicity groups. Hispanic respondents were more likely to carpool/vanpool than were other race/ethnicity groups and Non-Hispanic Blacks rode transit at higher rates than did other groups. Bike/walk was most common among Non-Hispanic White and Asian respondents. The 2022 pattern was similar in proportions to that from 2019, excepting the shifts from transit to driving alone that were noted for other demographic sub-populations. One other difference in the pattern was that carpool/vanpool use grew among Hispanic respondents between 2019 and 2022, while it substantially decreased among Asian respondents.

Table 10
Primary Mode by Race/Ethnicity – 2022 and 2019
(Shading indicates statistically higher percentages of mode use)

Race/Ethnicity	Telework	Primary Commute Mode (Excluding Telework*)			
		Drive Alone	Carpool/ Vanpool	Transit	Bike/Walk
Current (2022 SOC)					
Hispanic (n = 486)	**37%**	**75%**	**8%**	**15%**	**2%**
Non-Hispanic Black (n = 1,220)	**39%**	**78%**	**2%**	**19%**	**1%**
Non-Hispanic White (n = 4,577)	**48%**	**78%**	**3%**	**13%**	**6%**
Asian (n = 656)	**60%**	**79%**	**2%**	**14%**	**5%**
Pre-pandemic (2019 SOC)					
Hispanic (n = 502)	5%	66%	4%	27%	3%
Non-Hispanic Black (n = 1,351)	4%	63%	5%	31%	1%
Non-Hispanic White (n = 5,466)	5%	64%	5%	25%	6%
Asian (n = 586)	5%	63%	8%	27%	2%

*Note: distribution of Drive alone, Car/vanpool, Transit, Bike/walk equals 100%; it excludes Primary Telework)

Vehicles Available – Finally, Table 11 shows the primary mode distribution by the number of vehicles per adult resident in the respondent's household. This measure of vehicle availability accounts for both the number of household vehicles and number of adult household members. Some respondents had no household vehicle; these respondents were car-free regardless of the number of adults in the household. Some residents had at least one vehicle in the household for each adult resident. An intermediate group of respondents had a household vehicle but fewer vehicles than adult household members; these respondents, who shared a vehicle, were designated as "car-lite."

Not unexpectedly, respondents who lived in a car-free household (0 vehicles per adult) and those who had fewer cars than adult residents (0.1-0.5 vehicles and 0.6-0.9 vehicles) were less likely to drive alone and more likely to commute by transit and bike/walk than were respondents who reported having one or more vehicles for each adult in the household.

In 2022, as the number of vehicles per adult in the household increased, driving alone increased from 63% for respondents who had at most one vehicle for two household members (0.1-0.5 vehicles) to a high of 88% when every household member had a vehicle available. Use of transit declined significantly with higher vehicle availability. Carpooling was most common for respondents who were "car-lite," with a vehicle in the household, but fewer vehicles than adult residents. Some of these respondents likely carpooled with another member of the household. Biking/walking was more common among respondents with low vehicle availability, but these respondents would have lived close to work, so the relationship between car availability and mode could be in the opposite direction; being able to bike/walk to work could have encouraged them to avoid car ownership or share a vehicle with other household members.

Table 11
Primary Mode by Number of Vehicles Per Adult in the Household – 2022 and 2019
(Shading indicates statistically higher percentages of mode use)

Vehicles per Adults in Household	Telework	Primary Commute Mode (Excluding Telework*)			
		Drive Alone	Carpool/ Vanpool	Transit	Bike/Walk
Current (2022 SOC)					
0 vehicles (n = 535)	**52%**	**13%**	**4%**	**66%**	**17%**
0.1 to 0.5 vehicles (n = 1,406)	**52%**	**63%**	**6%**	**24%**	**7%**
0.6 to 0.9 vehicles (n = 454)	**43%**	**81%**	**7%**	**10%**	**2%**
1 vehicle or more (n = 5,421)	**45%**	**88%**	**3%**	**8%**	**1%**
Pre-pandemic (2019 SOC)					
0 vehicles (n = 393)	3%	8%	1%	74%	17%
0.1 to 0.5 vehicles (n = 1,021)	5%	56%	7%	34%	3%
0.6 to 0.9 vehicles (n = 431)	3%	53%	9%	34%	4%
1 vehicle or more (n = 5,982)	4%	73%	5%	20%	2%

*Note: distribution of Drive alone, Car/vanpool, Transit, Bike/walk equals 100%; it excludes Primary Telework)

Mode use by vehicle availability in 2019 had been much the same as in 2022, with higher drive alone rates and lower use of transit among respondents with greater access to a personal vehicle. But one notable finding was the degree to which respondents in each group shifted modes between 2019 and 2022. The drive alone rate was higher and transit rate was lower in 2022 than in 2019 for each vehicle availability group, but transit use declined much more for respondents with between 0.6 and 0.9 vehicles per adult (from 34% to 10%) and respondents with a vehicle for each adult (from 20% to 8%) than for respondents with no vehicle (from 74% to 66%) and 0.1 to 0.5 vehicles (from 34% to 24%). And respondents who had no vehicle or limited vehicle availability reported continued or even higher bike/walk use in 2022 than in 2019.

Length of Commute

Both the 2022 SOC survey and past SOC surveys have asked about the distance and time commuters spend traveling to work and the time at which they arrive at work. However, because it was expected that a notable share of workers still could be working from home full-time in 2022, the 2022 survey adjusted this series of questions. First, respondents who teleworked full-time were excluded from the questions on the time they spent commuting and their work arrival time, because it asked about a current activity (commuting to an outside location) that was not relevant to their situation.

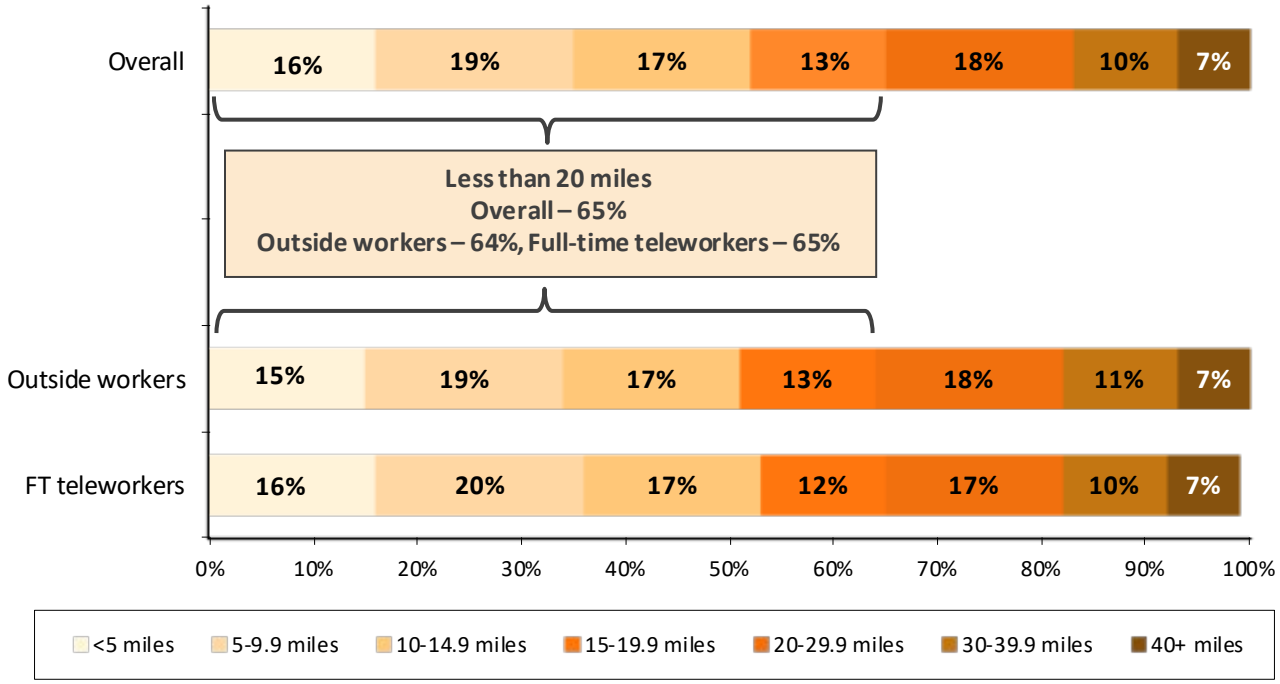
A different change was made to the commute mileage question to include two question forms. Respondents who were traveling to an outside work location one or more days per week were asked the same question that had been asked in the 2019 survey: "How long is your typical daily commute one-way in miles?" Respondents who were teleworking full-time were asked: "You said you are working from home full-time now. How many miles is it one-way from your home to where you would work if

you were not working from home?" Because the non-telework location would be a physical location, it was reasonable to expect respondents could provide a valid response to the question.

Number of Miles

Respondents reported a wide range of commute distances, ranging from less than one mile to more than 100 miles, with an overall average of 16.7 miles. Slightly more than one-third (35%) of respondents said they commuted, or would commute if they were not teleworking full-time, fewer than 10 miles one-way (Figure 14). Three in ten (30%) reported a distance between 10 and 19 miles. Seven percent reported a commute distance of 40 or more miles.

Figure 14
Commute Distance (miles) – Overall, Outside Workers, and Full-time Teleworkers
(Overall n = 7,291, Outside workers n = 4,854, Full-time teleworkers n = 2,452)



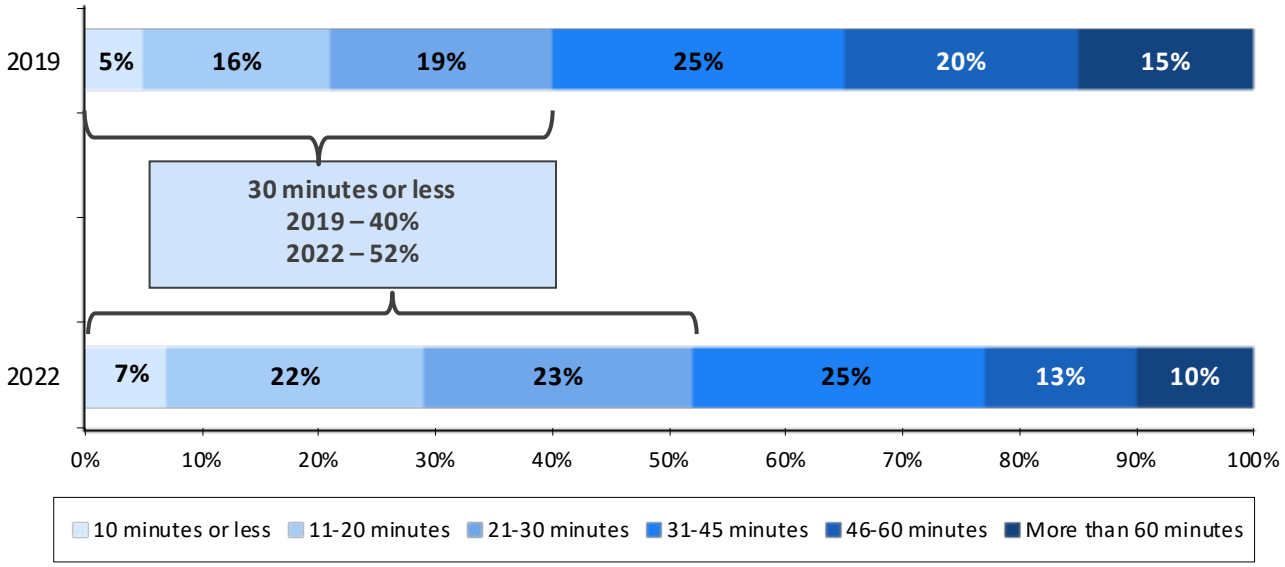
The 16.7 mile average travel distance was slightly less than the 17.1 miles estimated in the 2019 SOC survey. The drop could be related to work location changes. Respondents who were traveling to an outside work location in 2022 reported an average commute distance of 16.9 miles, not statistically different from the overall distance in 2019. By contrast, those who were working from home full-time said their average travel distance would be 16.3 miles if they were not teleworking. But the distance distributions of the two groups were nearly the same. About two thirds of both groups reported they traveled or would travel less than 20 miles (full-time teleworkers 65%, outside workers 64%) and 7% of each group reported 40 or more miles. And the overall distance distribution in 2022 was not statistically different from the distribution in 2019.

Commute Travel Time

Respondents who were traveling to an outside work location commuted, on average, about 37 minutes one-way.[9] Three in ten (29%) respondents commuted 20 minutes or less and 48% commuted between 21 and 45 minutes (Figure 15). Slightly less than one quarter (23%) traveled more than 45 minutes, with 10% traveling more than one hour one-way.

The 2022 reported average commute time (37 minutes) was notably shorter than the time reported in 2019 (43 minutes). This could be related to the slight drop in commute distance, but it is likely the elimination of commute trips due to expanded telework was the more significant factor. One-third of workers were teleworking full-time at the time of the survey and another one-third were teleworking at least occasionally. This would have removed a much larger number of commuting trips from the peak period in 2022 than in 2019.

Figure 15
Commute Time (minutes) – 2019 and 2022
(2019 n = 7,862 ; 2022 n = 5,088)



Commute Distance By Mode

Survey respondents' travel mileage and travel time differed by the type of transportation they used to commute (Table 12). Commuter rail riders traveled the farthest, 31.1 miles one-way. Commuters who drove alone to work also traveled farther than the 16.7-mile regional average.

Transit riders spent the longest amount of time commuting; commuter rail riders traveled 76 minutes on average, while bus and Metrorail riders traveled averages of 50 minutes and 49 minutes, respectively, for their one-way commute trips.

[9] Respondents who teleworked full-time were excluded from the questions on the time they spent commuting, because it asked about a current activity (commuting to an outside location) that was not relevant to their situation.

Table 12
Average Commute Distance and Commute Time by Primary Mode

(Note: Distances greater than 120 miles and times greater than 150 minutes are excluded from the averages; Vanpool is excluded from the mode list due to insufficient sample size for reliable analysis)

Primary Commute Mode	Average Distance (mi.)		Average Time (min.)	
	(n = __)	Average	(n =__)	Average
Commuter rail	38	31.1 mi.	47	76 min.
Drive alone	3,247	18.1 mi.	3,434	35 min.
Carpool	104	16.7 mi.	110	37 min.
Bus	175	13.9 mi.	206	50 min.
Metrorail	320	12.4 mi.	383	49 min.
Bike	88	4.5 mi.	88	25 min.
Walk	91	1.3 mi.	98	20 min.

Commute Distance By Home and Work Location

Respondents' travel distance also varied by where they lived and where they worked (Table 13). Respondents who lived in the Core area traveled the shortest distance to work, an average of 7.7 miles one-way. Respondents who lived in the Middle Ring commuted considerably farther, 15.6 miles. Respondents who lived in the Outer Ring traveled an average of 26.4 miles one-way, more than three times the distance of Core area residents.

Table 13
Average Commute Distance and Commute Time by Home and Work Areas

(Note: Distances greater than 120 miles and times greater than 150 minutes are excluded from the averages)

Primary Commute Mode	Average Distance (mi.)		Average Time (min.)	
	(n =__)	Average	(n =__)	Average
Home Area				
Core	2,263	7.7 mi.	1,436	31 min.
Middle Ring	2,255	15.6 mi.	1,549	35 min.
Outer Ring	2,745	26.4 mi.	2,098	46 min.
Work Area				
Core	3,564	15.3 mi.	2,244	42 min.
Middle Ring	2,480	16.3 mi.	1,814	33 min.
Outer Ring	810	18.0 mi.	688	28 min.

Commute distances by work area were less varied. Respondents who worked in the Core traveled an average of 15.3 miles and Middle Ring workers traveled 16.3 miles. Respondents who worked in the Outer Ring traveled the farthest, 18.0 miles one way.

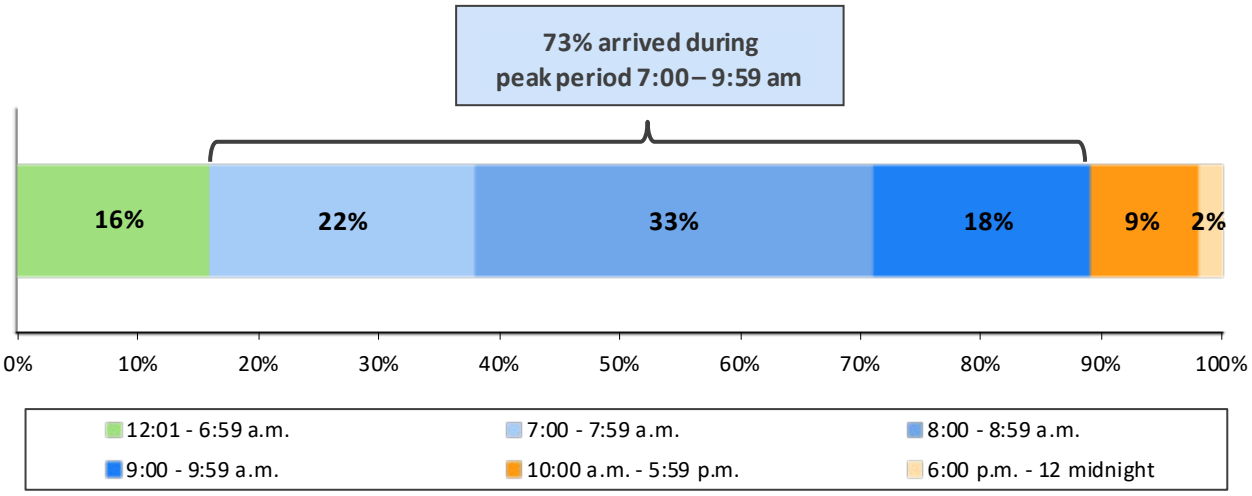
Core area residents had the shortest travel time, an average of 31 minutes one-way. But, while the Core respondents traveled fewer miles and fewer minutes to work than did other respondents, they did not have proportionately shorter travel times than their distances might suggest. Middle Ring residents traveled only four minutes longer than did Core residents and Outer Ring residents traveled just 15 minutes longer, despite substantially longer mileage. This was likely due to Core residents' higher transit and bike/walk use; transit and bike/walk trips, while short in distance, tend to be longer in time.

By contrast with the home area results, respondents who worked in the Core had the longest commute time, an average of 42 minutes one-way. Middle Ring workers and Outer Ring workers commuted 33 and 28 minutes, respectively. The higher travel time for Core workers likely was due to their higher use of transit for commuting and congestion they would encounter along their commute.

Work Arrival Time

More than half (55%) of all respondents typically arrived at work between the hours of 7:00 am and 8:59 am (Figure 16). Another 18% arrived between 9:00 am and 9:59 am, so many of these commuters also would be traveling during the peak commuting time. Sixteen percent arrived at work before 7:00 am.

Figure 16
Arrival Time at Work
(n = 5,137)



Arrival Time in 2022 versus 2019 – The question of arrival time was asked only of respondents who were traveling to an outside work location at least one day per week; full-time teleworkers were not asked the question. Thus, the results shown in Figure 16 represent work arrival time for only about six in ten respondents. But the distribution of arrival times was not substantially different in 2022 than in 2019, when 97% of respondents were asked the question. In 2019, 57% of respondents arrived between 7:00 am and 8:59 am and 77% of respondents arrived during the peak period.

Primary Roads Used on the Trip to Work

The 2022 SOC survey included a question to identify the major roadways that commuters use to get to work. This question will primarily be used for COG/TPB planning purposes, but the results are briefly summarized in Table 14 for commuters whose primary mode was carpool/vanpool or public transit. These commuters did not drive alone to work, so the question identified roads on which traffic was most likely to have been reduced when commuters chose non-drive alone modes of travel.

Table 14
Primary Roadways Used to Get To Work – Commuters who Carpool/Vanpool or Ride Public Transit

Primary Roadway	Carpoolers / Vanpoolers (n = 115)	Public Transit Riders (n = 617)
Maryland / District of Columbia)		
I-495 – Capital Beltway (MD)	16%	13%
I-270 (MD)	10%	6%
I-295 (MD/DC)	9%	12%
I-95 (MD)	8%	7%
U.S. Route 1 (MD)	7%	4%
U.S. Route 50 – John Hanson Highway (MD)	5%	2%
I-695 – Southeast-Southwest Freeway (DC)	1%	5%
Baltimore Washington Parkway – U.S. Route 295 (MD)	1%	6%
U.S. Route 301 (MD)	1%	2%
U.S. Route 29 – Colesville Road (MD)	1%	0%
Virginia		
I-66 Outside the Beltway (VA)	24%	8%
I-66 Inside the Beltway (VA)	23%	11%
I-495 – Capital Beltway (VA)	19%	8%
I-395 Shirley Highway (VA)	18%	15%
I-95 (VA)	18%	9%
Dulles Toll Road – VA Route 267 (VA)	13%	5%
U.S. Route 50 – Lee Jackson Highway (VA)	13%	5%
George Washington Parkway (VA)	12%	7%
U.S. Route 1 – Richmond Highway (VA)	11%	5%
VA Route 29 – Lee Highway (VA)	4%	1%

The most common commute route for carpoolers/vanpoolers was I-66 in Virginia; nearly one-quarter used I-66 either outside the Beltway (24%) or inside the Beltway (23%) for their trip to work. Other common routes, each used by nearly two in ten carpoolers/vanpoolers were the Capital Beltway in both Virginia and Maryland, I-395 (Shirley Highway) in Virginia, and I-95 in Virginia. About one in ten carpoolers/vanpoolers used the Dulles Toll Road, US Route 50, the George Washington Parkway, and US Route 1 in Virginia. One in ten carpoolers/vanpoolers said they used I-270, I-295, or I-95 in Maryland.

Commuters who used transit all their workdays were asked what roads they would use if they drove to work. Among transit riders, common routes would be the Capital Beltway in Maryland and Virginia, I-295 in Maryland/District of Columbia, I-270 in Maryland, I-395, I-66, and I-95 in Virginia.

Alternative Mode Use Characteristics

Carpool Occupancy

About 2% of respondents reported carpooling one or more days per week. On average, respondents' carpools carried 2.3 occupants, including the driver. Average carpool occupancy declined slightly from the 2019 SOC survey, when carpools carried an average of 2.6 occupants. This could reflect a reduction in carpooling with non-family members, but carpool occupancy had fluctuated between 2.4 to 2.6 occupants over the past 15 years of SOC surveys, so the 2022 average does not necessarily indicate a longer-term declining trend. In 2022, two-thirds (67%) of carpoolers rode with just one other person. It was not possible to calculate a reliable vanpool occupancy, because only eight respondents reported vanpooling. But all vanpoolers said their vanpools had eight or fewer occupants.

Seven respondents said they used a pooled form of ridehail, such as UberPool, Uber Express Pool, Lyft Shared Ride, or Lyft XL at least one day per week for their commute. While ridehail services are not typically considered carpools, in the traditional sense of the word, these pooled options are comparable to casual carpooling, because passengers share rides with other passengers on a one-time basis. These respondents were asked how many passengers (excluding the driver) were usually in the vehicle, but as with vanpooling, the sample of shared-ride ridehail users was too small to analyze.

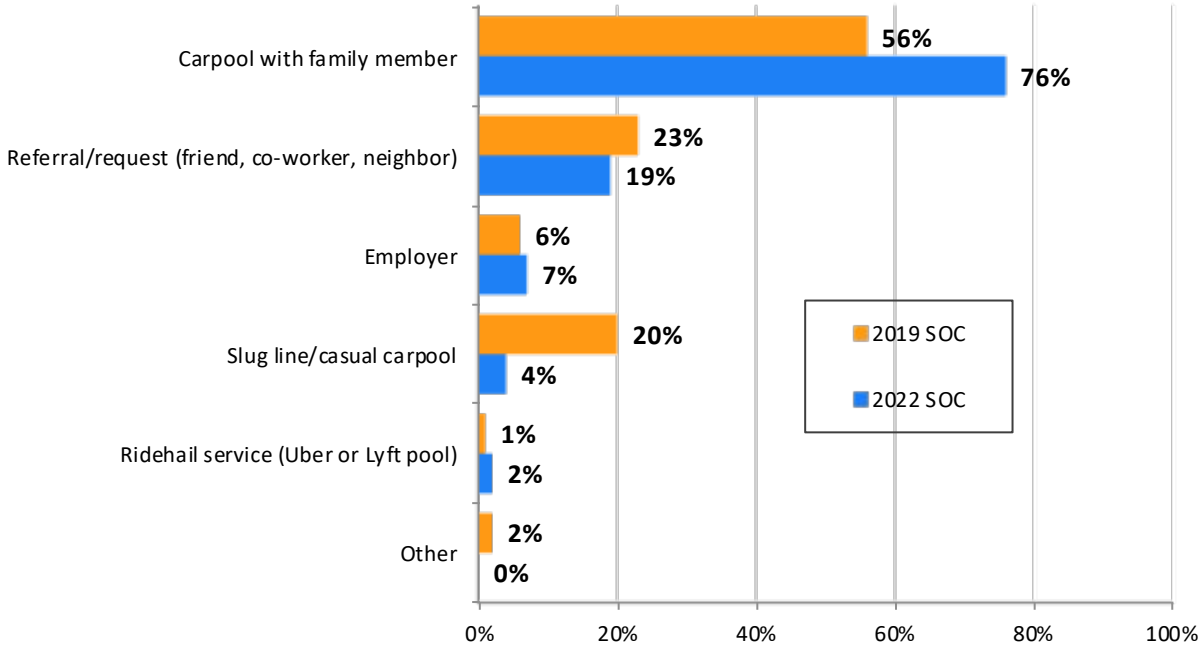
Carpool Formation Assistance

Carpoolers have numerous ways to find rideshare partners. More than three-quarters (76%) of respondents who carpooled at the time of the survey rode with family members (Figure 17). This was a notable increase over the 2019 SOC survey, when only 56% of carpoolers reported household carpooling. This most likely indicates that while the share of regional workers who carpool had declined, household carpooling had continued through the pandemic, representing a larger component of the overall lower carpool population in 2022 than it did in 2019.

The other notable change between 2019 and 2022 was the drop in carpoolers who said they casual carpooled/slugged, so traveled with different people each day they carpooled. These commuters either pick up riders at slug line pick-up points or wait in the line to travel as a passenger. In 2022, only 4% of carpoolers found their partners through slug lines, compared with 20% in 2019.

For more than 25 years, slug lines that facilitate use of this mode, primarily located in Virginia near the I-95 and I-395 HOV lanes, have provided both a substantial time-saving motivation for commuters to carpool and an opportunity to carpool without committing to a full-time carpool arrangement. The coronavirus pandemic could have had two impacts on these arrangements. First, the shift of many workers to work from home/telework would have reduced the number of potential slug drivers and riders. The second possible factor is commuters' desire to minimize their risk of contracting coronavirus by avoiding travel with commuters whose virus and or vaccination status they did not know.

Figure 17
How Carpool Riders Found Rideshare Partners – 2019 and 2022
(2019 n = 420, 2022 n = 153; multiple responses permitted)



The percentages of carpoolers who found carpool partners by other methods did not change substantially from 2019 to 2022. The second highest share of carpool formation in 2022 was by referral or simple request from a friend, co-worker, or neighbor who knew that their work locations and schedules were compatible; 19% of respondents cited this source. Presumably these respondents did not need assistance from an outside group to find rideshare partners, although they might have received other services, such as preferential or reserved carpool parking at work or information about the location of Park & Ride lots, which influenced their decisions to rideshare. The 2022 percentage was near the 23% for referrals in the 2019 SOC survey.

Seven percent of carpoolers said they found their rideshare partners through their employer, about the same as the 6% who reported this source in 2019. Although some employers do provide pool formation assistance, it is likely that many of these ridersharers used regional or local commuter ridematching resources, which were provided to them at transportation information meetings and fairs at their worksites, with the agreement and encouragement of their employers. Two percent said they carpooled through a pooled ridehail service, such as UberPool or Lyft Shared Ride.

Access Mode to Alternative Mode Meeting Points and from Drop Off to Worksite Destination

Table 15 presents how carpoolers, vanpoolers, and transit riders traveled to where they met their rideshare partners or where they started their transit trip. The table also shows results for a question asking transit commuters how they got from where they got off the bus or train to their work location. This question was designed particularly to examine use of bikeshare and e-scooters as a "last mile" option to get from a transit stop to the workplace.

Table 15
Means of Getting from Home to Alternative Mode Meeting Place and from Alternative Mode "Drop Off" Location to Worksite Destination

(Access to alternative mode n = 1,039; Worksite destination access n = 878)

Access/Destination Mode	Access Mode Percentage	Destination Mode Percentage
Driving access	**22%**	
Drive to a central location (e.g., Park & Ride)	21%	
Drive alone to driver's/passenger's home	1%	
Non-driving access	**78%**	
Walk	45%	
Picked up at home by carpool/vanpool driver	13%	
Bus/transit	13%	
Dropped off/rode in another carpool/vanpool	3%	
I drive the carpool/vanpool or carpool with family members	2%	
Bicycle	2%	
Non-driving destination mode (transit users)		**100%**
Walk		93%
Ridehail (Uber, Lyft)		2%
Bicycle (personal, bikeshare, dockless), scooter/e-scooter		1%
Bus, shuttle, Metrorail		4%

Access Mode to Alternative Mode Meeting Points – More than four in ten respondents walked (45%) to the meeting place. Thirteen percent said they were picked up at home by the carpool or vanpool driver and 2% always drove the pool vehicle or rode with a household member, so they left home together. Thirteen percent of respondents rode transit to the meeting point and 3% said they were dropped off, for example by a spouse or other household member. Two percent bicycled to the meeting point.

The remaining 22% of respondents said they drove to the meeting point, such as a Park & Ride lot or bus/train station (21%) or the home of a carpool rider (1%) and left their cars at that location during the day. This is significant, because a large proportion of auto emissions are produced during the first few miles of a vehicle trip, when the engine is cold. Even though these trips generally were short, they have an environmental impact.

The total 22% drive alone access, however, is a reduction from 32% drive alone access in the 2019 survey. This likely reflects the drop in carpool/vanpool use from 2019 to 2022; drive alone access is more common for ridesharers than for transit riders. Driving alone to a meeting point also was far more common for commuters who lived outside the Core area. Nearly six in ten (57%) alternative mode commuters who lived in the Outer Ring and 25% of Middle Ring commuters drove alone to the meeting point. Among Core area respondents, driving alone accounted for only 4% of all access trips. Core respondents were far more likely to walk; 71% walked to the meeting point, compared with 36% of Middle Ring respondents and just 7% of Outer Ring residents.

The high share of walk access for Core area residents largely reflects their proximity to and use of transit. Nearly three-quarters (74%) of bus riders and 42% of train riders walked to the transit stop. By comparison, the majority (72%) of carpoolers said they traveled from home with a household member, so there was no access distance at all. Among train riders, 25% drove and 22% took a feeder bus.

Destination Mode from Transit Drop Off Location to Workplace Destination – The third column of Table 15 displays the modes transit riders used to get from their transit "drop off" point to their work location. Nearly all (93%) of these respondents said they walked from the drop-off point to their work location. Two percent used a ridehail service and 1% used a bike (personal bike, Capital Bikeshare, dockless bike) or a scooter/e-scooter. About 4% said they rode a company shuttle or other transit service to the work location. The question specifically asked respondents who used more than one transit route or mode to report how they got to work after they got off the last transit vehicle. These respondents appear to have misunderstood the question. If they are excluded from the respondent base, the share of respondents who walked from the drop-off location rises to 97%, with 2% using ridehail and 1% using a bike/scooter.

Distance to Alternative Mode Meeting Point

Most access trips to alternative mode meetings points were short. Respondents traveled an average of 2.6 miles to the meeting point. Six in ten (60%) traveled one mile or less; these were primarily bus and Metrorail riders who walked to the stop or station (Table 16). About one-quarter (27%) of respondents traveled between 1.1 and 5.0 miles. Only 13% of respondents traveled more than 5.0 miles. Carpoolers traveled farther to the meeting points than did transit riders; carpoolers had an average access distance of 3.6 miles, while train riders traveled 2.9 miles. Bus riders traveled the shortest distance, an average of just 2.0 miles, and 55% of bus riders traveled one-half mile or less.

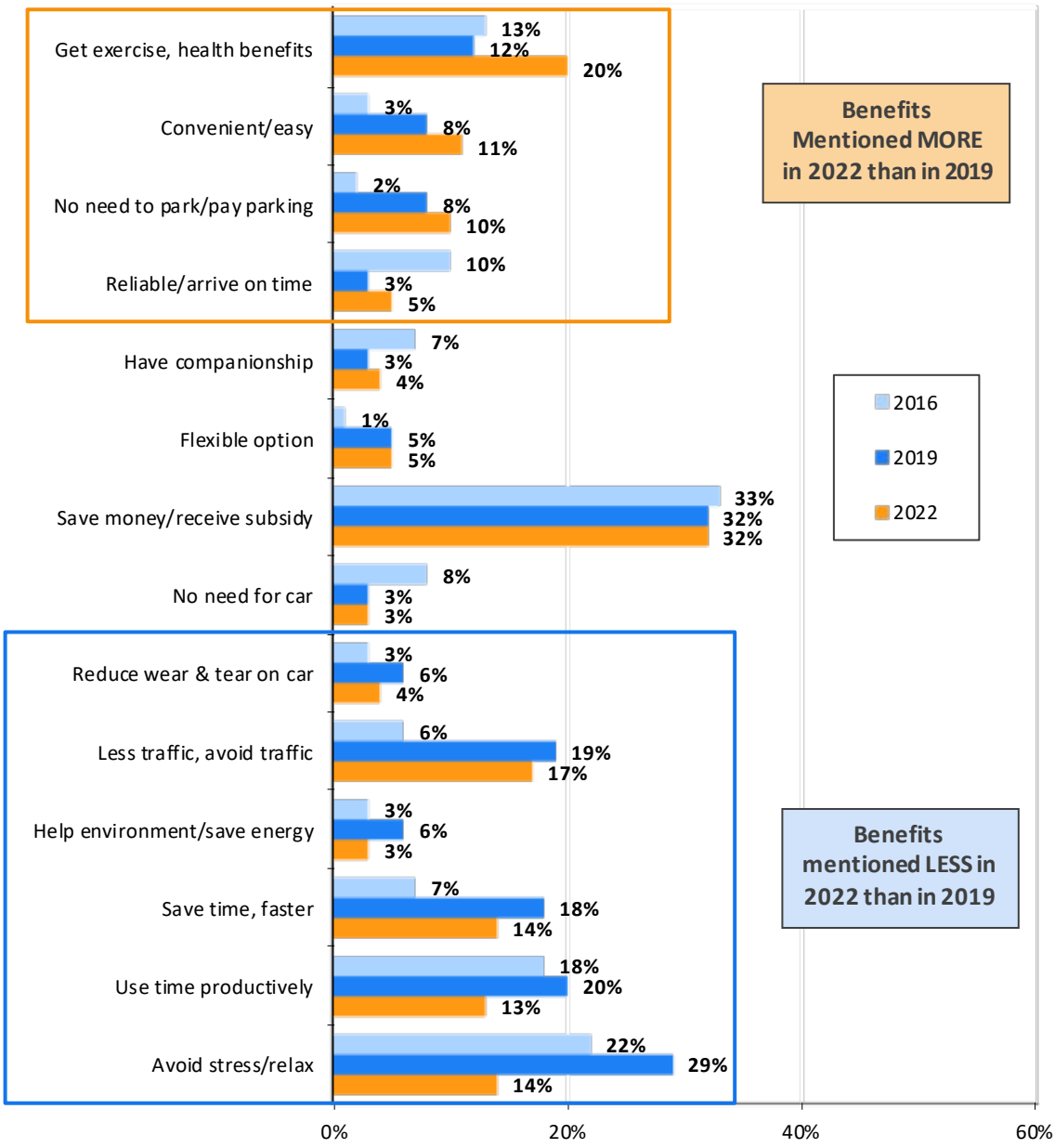
Table 16
Distance from Home to Alternative Mode Meeting Point
(n = 830)

Distance	Percentage
1.0 mile or less	60%
1.1 to 3.0 miles	17%
3.1 to 5.0 miles	10%
5.5 to 10.0 miles	8%
10.1 miles or more	5%

Personal Benefits of Alternative Mode Use

Respondents who used alternative modes were asked what benefits they personally had received from traveling to work this way. More than nine in ten (94%) named at least one benefit, a slightly higher share than the 89% who mentioned a personal benefit in 2019. Saving money or receiving a financial incentive that reduced their transportation cost topped the list of personal benefit; 32% of alternative mode users mentioned this benefit (Figure 18).

Figure 18
Personal Benefits of Alternative Mode Use – 2016, 2019, and 2022
Asked Only of Alternative Mode Users
(2016 n = 1,555, 2019 n = 2,610, 2022 n = 1,203)
(Scale extends only to 60% to highlight differences between years)



Respondents also cited benefits that have a connection to personal quality of life. About two in ten, primarily those who biked/walked or used transit to work, mentioned getting exercise or another health benefit (20%). Seventeen percent said use of alternative modes could avoid traffic and 14% said it helped them avoid stress or relax while commuting. Fourteen percent said they could save time or travel more quickly and 13% said they could use their travel time productively when they used an alternative

mode. Over one in ten said it was a convenient/easy way to travel (11%) and 10% benefitted by not needing to find or pay for parking.

Figure 18 also presents responses to this question from the SOC surveys in 2016 and 2019. Saving money was the top benefit in each of the three years shown, but other benefits showed quite different results in 2022 than in 2019. As shown by the responses highlighted with the orange box at the top of the figure, larger shares of 2022 respondents mentioned getting exercise, convenience, avoiding parking, and reliability than did 2019 respondents. Responses that were mentioned less often in 2022 than in 2019 are shown in the blue box at the bottom of the figure. These included reducing wear and tear, avoiding traffic, environmental concern, saving time, using time productively, and avoiding stress. Benefits in the center of the figure were mentioned at statistically the same rates in 2022 as in 2019.

Differences in Personal Benefits by Alternative Mode – Saving money was a common personal benefit named by all alternative mode users, with about two in ten in each mode group naming this benefit (Table 17). Saving time also was noted across modes, but carpoolers/vanpoolers and bike/walk users noted this benefit at a much higher rate than did transit riders. Respondents who primarily carpooled also reported having companionship during the commute, saving on gas, and being able to use the HOV lanes, a benefit associated with saving time. Carpoolers also cited less wear and tear of personal vehicles and flexibility in traveling, benefits also mentioned by transit riders.

Table 17
Personal Benefits of Alternative Mode Use by Primary Alternative Mode

(Shaded percentages indicate statistically higher values for benefits)

Personal Benefit	Carpool (n = 135)	Transit (n = 800)	Bike/Walk (n = 261)
Save money	16%	22%	17%
Save time, travel faster	21%	11%	24%
Have companionship during commute	24%	1%	1%
Save gas, save energy	12%	7%	2%
Can use HOV lane	10%	0%	0%
Less traffic/don't need to drive	5%	23%	6%
Use travel time productively	5%	17%	4%
Avoid stress, relax	3%	16%	16%
No need to park/look for parking	3%	13%	5%
Receive financial benefit for mode use	0%	10%	0%
Get exercise	0%	5%	78%
Less wear and tear on car	7%	4%	2%
Flexibility/control/always available	6%	4%	8%
Arrive at work on time	4%	4%	6%
No need for a car	1%	3%	1%

Transit riders mentioned several benefits at higher rates than did other mode groups. They particularly noted being able to avoid traffic or not having to drive (23%), avoiding stress (16%), and not having to look or pay for parking (13%). Another benefit cited disproportionately by transit riders was using travel time productively (17%); this was noted by few carpoolers or bike/walk commuters, who would have to give their attention to their travel. Transit riders also mentioned receiving a financial benefit for their commute costs (10%), a benefit that was not mentioned by other alternative mode users. Commuters who bicycled or walked to work also mentioned saving money (17%), saving time (24%), and avoiding stress (16%), but they overwhelmingly noted getting exercise; nearly eight in ten bike/walk commuters noted this personal benefit.

Differences in Personal Benefits by Commute Distance (Minutes) and by Work Location – Some benefits were more often reported by short-distance or long-distance commuters or by respondents who worked in the Core of the region. For example, commuters who traveled 20 minutes or less to work noted that using an alternative mode was faster, gave them travel flexibility, and was an opportunity to get exercise. Commuters who traveled longer distances were more likely to mention avoiding traffic and stress. These results likely were related, however, to the modes that were common at each distance, such as the sizeable presence of bikers/walkers in the short commute time category and carpoolers and train riders in the long commute time group.

Respondents who worked in the Core or Middle Ring areas were more likely to note using travel time productively, avoiding traffic/not having to drive, and avoiding stress during their commutes than were Outer Ring workers, but these benefits also were likely influenced by both the modes used and travel time to each area, so were not solely due to work location. One benefit that was definitively related to location was the benefit of not needing to find parking. One in ten (11%) Core workers and 9% of Middle Ring workers mentioned not needing to find parking because they used an alternative mode, compared with less than 1% of Outer Ring respondents.

SECTION 3 – RECENT COMMUTE CHANGES, EASE OF COMMUTE, AND COMMUTE SATISFACTION

The SOC survey also examined recent changes in commuting, in particular:

- Commute mode shifts and motivations for making commute changes
- Satisfaction with current commute
- Ease of commute
- Commute influence of residential and work location changes

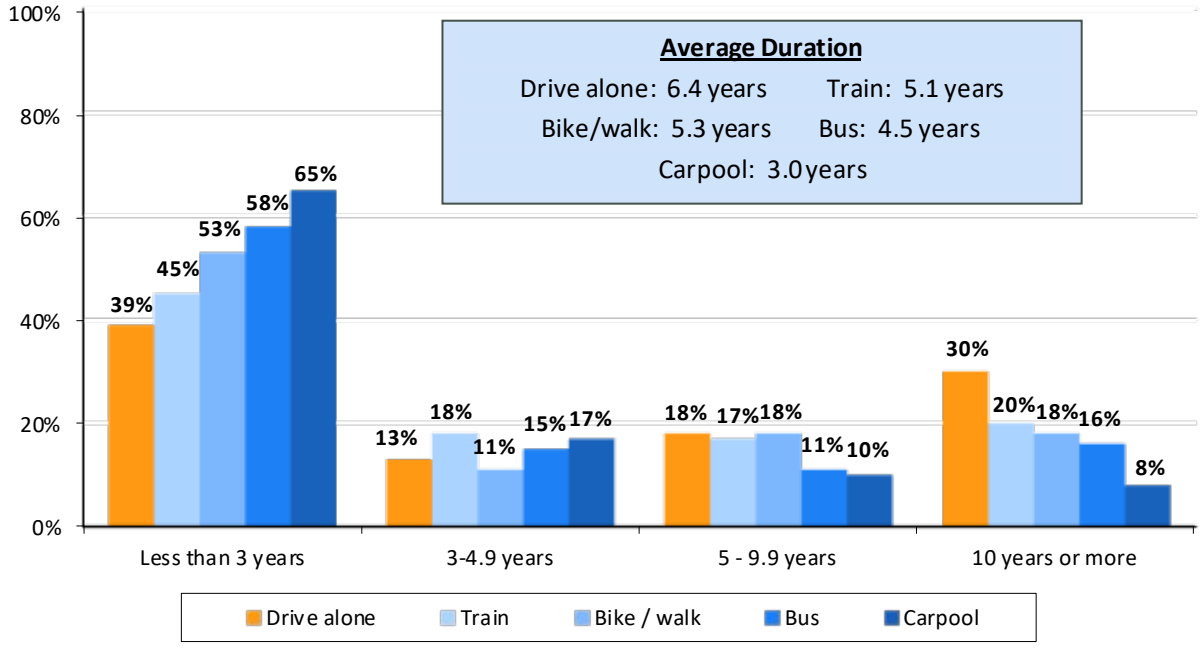
Commute Mode Shifts and Mode Shift Motivations

Length of Time Using Mode

Respondents were asked how long they had used each mode they reported using one or more days per week. Results are shown in Figure 19 for commuters who drove alone, rode a train, rode a bus, biked/walked, and carpooled. Commuters who drove to work had used this mode the longest, an average of 6.4 years. Three in ten (30%) drive alone commuters used this mode 10 years or more and 48% had been driving alone for five or more years. About four in ten (39%) started using this mode less than three years ago.

Figure 19
Duration of Mode Use by Primary Commute Mode

(Drive alone n = 3,755, Train n = 595, Bus n = 280, Bike /Walk n = 294, Carpool n = 148)



Alternative mode users had used their modes for shorter durations, ranging from an average of 3.0 years (carpool) to 5.3 years (bike/walk). But a substantial portion of alternative mode users still were long-term users; 37% of train riders, 36% of bike/walk commuters, 27% of bus riders, and 18% of carpoolers had used these modes for five or more years. Carpoolers and bus riders were most likely to

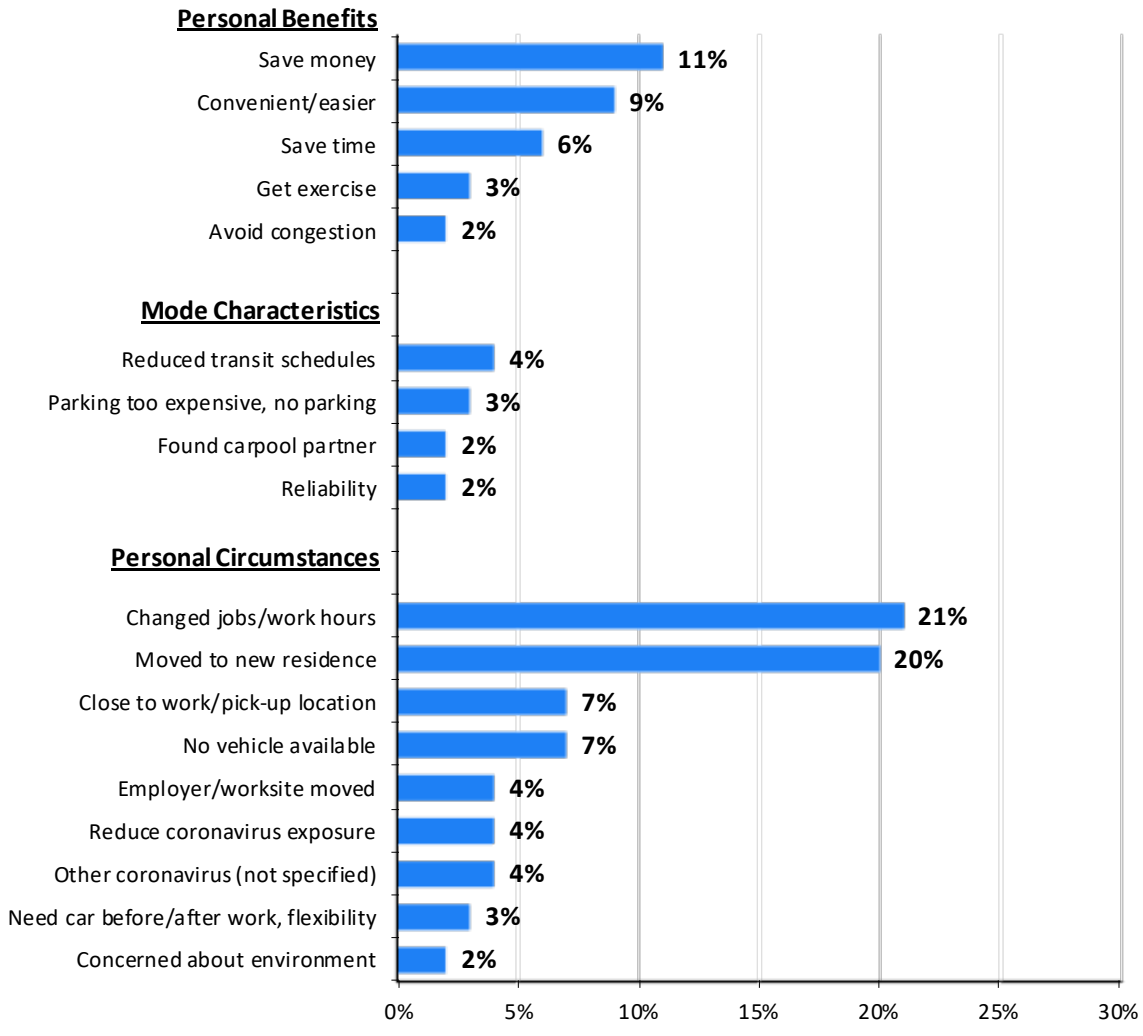
have started using these modes recently; 65% of commuters who carpooled and 58% of bus riders started using these modes within the past three years. About half (53%) of bikers/walkers and 45% of train riders started these modes less than three years ago.

Reasons for Changing Mode

Respondents who Started a New Alternative Mode – Respondents who had been using an alternative mode for three years or less were asked why they began using those modes. The reasons are listed in Figure 20, divided into three broad categories:

- Personal benefits – benefits the respondent would expect to receive by using an alternative mode
- Commute mode characteristics – characteristics, either positive or negative, that had encouraged or discouraged use of a mode
- Personal circumstances – personal circumstances or changes experienced by the respondent

Figure 20
Motivations to Start Using Current Alternative Mode
(Note: Scale extends only to 30% to highlight difference in responses)
(n = 378, multiple responses permitted)



Current alternative mode users cited motivations in each of the three categories. The most common personal benefit reasons were to save money (11%), that the new mode was more convenient to use (9%), or to save time (6%). The most common reason in the mode characteristics category was that transit service/schedule had been reduced, noted by 4% of respondents. The top two personal circumstances reasons to shift to an alternative mode were changing jobs or work hours (21%) and moving to a new residence (20%). Other personal circumstances included living close to work or to a transit pick-up location (7%) and not having a vehicle available (7%).

Respondents who Started Driving Alone – Respondents who started driving alone to work in the past three years gave some of the same reasons for switching modes as did alternative mode users; 16% of new drive alone users had changed jobs or work hours, 8% moved to a new residence, 7% wanted to save time, and 6% said driving alone was easier or more convenient. These results suggest both drive alone and alternative mode shifts are made to respond to changing personal circumstances. But respondents who started driving alone reported greater concerns about coronavirus than did alternative mode users; 11% of commuters who started driving alone said they wanted to avoid getting COVID-19 and 7% simply said "coronavirus pandemic." Twelve percent switched due to reduced or unreliable transit service and 7% said they lost a carpool partner; these also could have been pandemic-related.

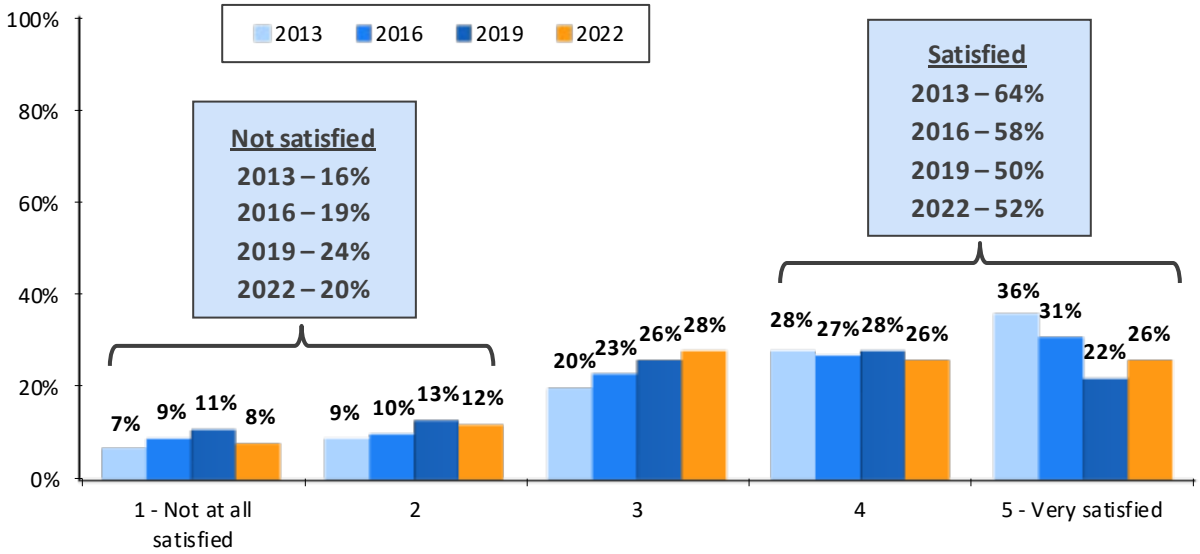
Commute Satisfaction

The 2022 survey included a question that had been asked in several previous SOC surveys, about how satisfied commuters were with their trip to work. As with other questions about the current commute experience, respondents who were working from home/teleworking full-time were not asked this question, so this section reflects responses only for those who were commuting to an outside location one or more days per week.

In 2022, 52% rated their commute satisfaction as a "4" or "5" on a 5-point scale, where "5" meant "very satisfied" (Figure 21). Twenty-eight percent gave a rating of 3 and 20% rated their satisfaction as either a "1 – not at all satisfied" (8%) or 2 (12%).

Figure 21
Satisfaction with Commute – 2013 to 2022

(2013 n = 5,692, 2016 n = 5,217, 2019 n = 7,911, 2022 n = 5,131)



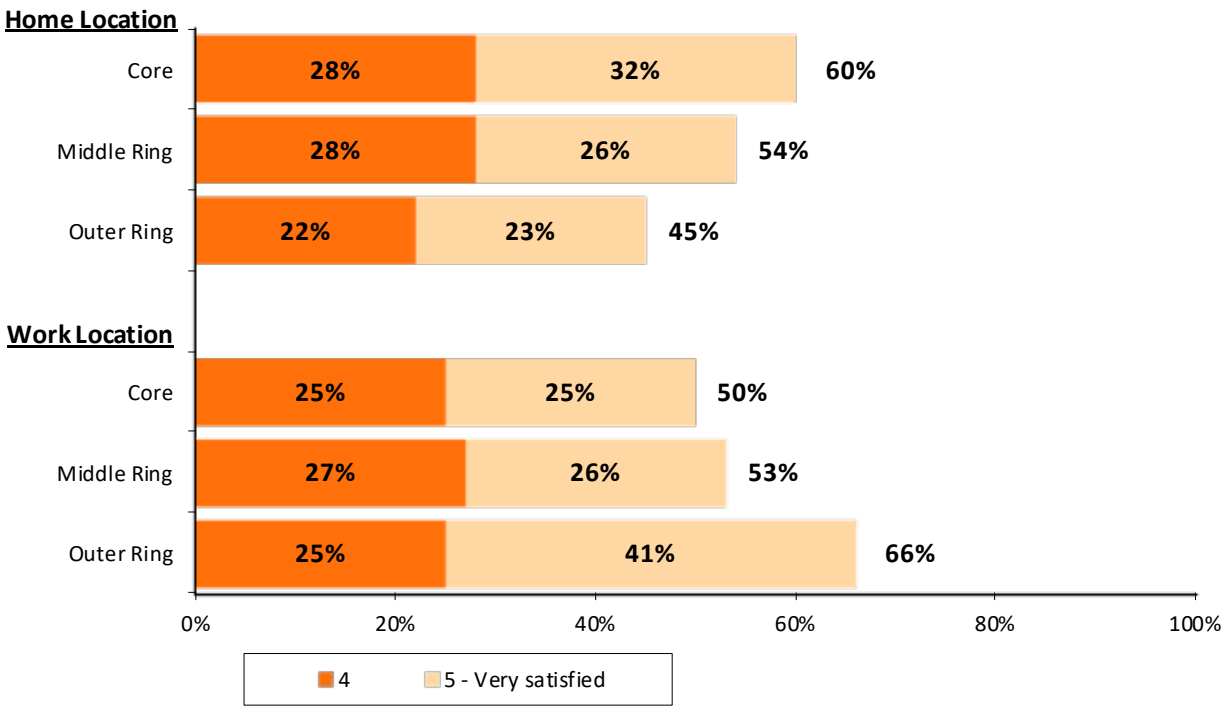
Commute satisfaction in 2022 was about the same as in 2019, when 50% of respondents rated their satisfaction as a 4 or 5 (very satisfied). But satisfaction has declined since 2013, when nearly two-thirds (64%) of SOC respondents said they were satisfied with their commute. The percentage satisfied fell over the next three years to 58% in 2016. Satisfaction declined even more between 2016 and 2019, to 50%, the lowest percentage since the question was added to the SOC survey in 2010. The uptick to 52% in 2022 is not a statically significant change.

Over the years since 2013, the most striking change has been in the percentage of respondents who reported being very satisfied (rating of 5). In 2013, 36% of all respondents said they were very satisfied. That percentage dropped in each of the subsequent survey years, to a low of 22% in 2019. In 2022, the percentage of very satisfied commuters increased slightly, to 26%.

Commute Satisfaction by Home and Work Location

Respondents who lived in the Core area were notably more satisfied with their commute than were respondents who lived farther out in the region (Figure 19). Six in ten Core residents rated their commute satisfaction as a 4 (28%) or 5-very satisfied (32%), while only 54% of Middle Ring and 45% of Outer Ring residents were satisfied. Respondents who worked in the Core and Middle Ring areas were about equally satisfied, with about half of respondents in these two work areas rating their commute satisfaction as a 4 or 5. Respondents who worked in the Outer Ring reported considerably higher satisfaction, however; two-thirds (66%) were satisfied and 41% said they were very satisfied.

Figure 22
Satisfaction with Commute by Home and Work Area
Percent Rating Commute Satisfaction a 4 or 5
(Home Area – Core n = 1,456, Middle Ring n = 1,569, Outer Ring n = 2,106)
(Work Area – Core n = 2,261, Middle Ring n = 1,822, Outer Ring n = 703)



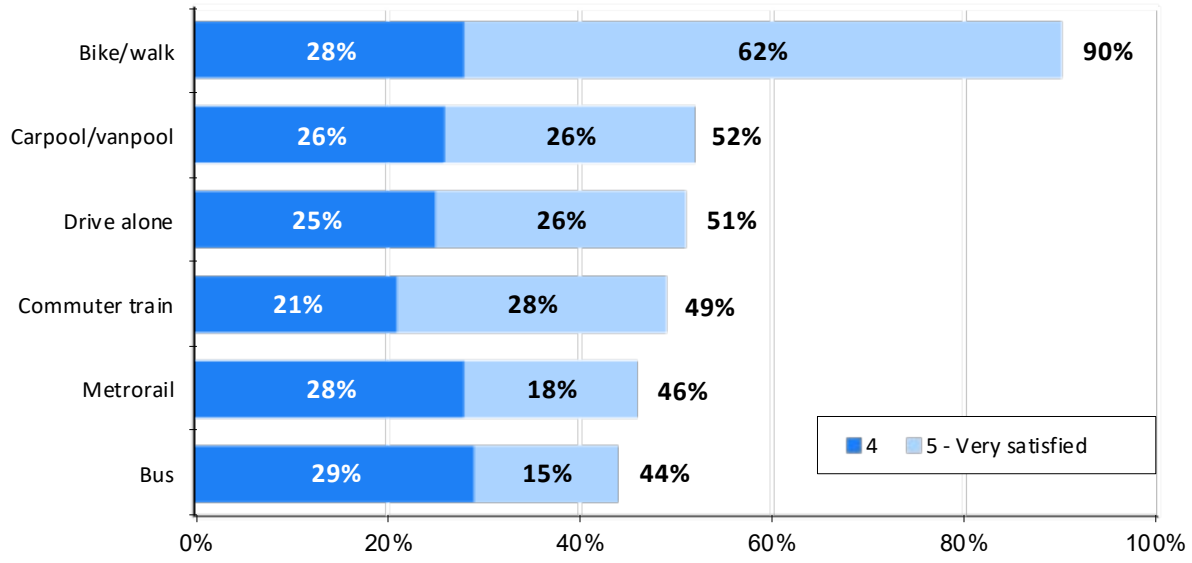
Commute Satisfaction by Demographic Characteristics

The data showed only small differences in commute satisfaction across demographic characteristics. Men and women were equally satisfied (men – 53% satisfied, women – 54% satisfied). Non-Hispanic White respondents (61%) were slightly more satisfied than were Hispanic (54%), Non-Hispanic Black (54%), or Asian (51%) respondents. Respondents with household incomes under $100,000 were more satisfied (58%) than were those with higher incomes (52%). And commute satisfaction was higher among respondents who were younger than 35 years (55%) and those who were older than 55 years old (58%) than for respondents in the middle 35 to 54 years old group (49%). The 2022 results for each of these demographic groups were consistent with the results observed in the 2019 SOC survey.

Commute Satisfaction by Commute Mode

Commute satisfaction appeared more related to commute mode than to demographics. Nine in ten (90%) commuters who walked or biked to work reported high commute satisfaction (Figure 23). About half of carpoolers/vanpoolers (52%) and drive alone commuters (51%) reported being satisfied. Transit riders reported slightly lower satisfaction; half (49%) of commuter rail riders also were satisfied but only 46% of Metrorail riders and 44% of bus commuters rated their commute satisfaction as a 4 or 5.

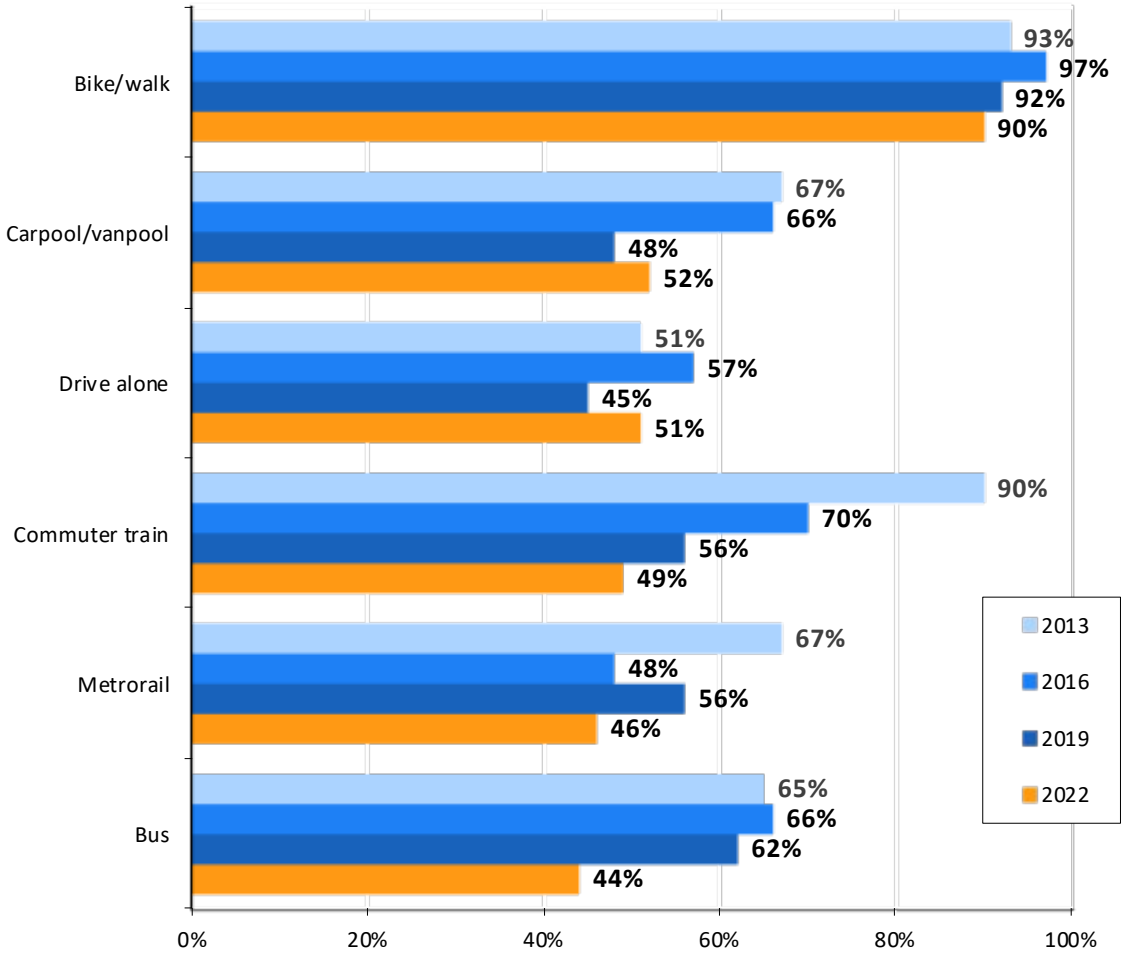
Figure 23
Satisfaction with Commute by Primary Commute Mode
Percent Rating Commute a 4 or 5
(Bike/walk n = 190, Carpool/vanpool n = 119, Drive alone n = 3,364, Commuter train n = 47, Metrorail n = 393, Bus n = 209)



Satisfaction by Mode from 2013 to 2022 – Commute satisfaction among bike/walk commuters has been high since 2013 but has shifted up and down for other mode users over the 12-year period (Figure 24). Carpool/vanpool and drive alone commute satisfaction both experienced a substantial decline between 2016 and 2019 but increased slightly in 2022. These mode users are most affected by traffic congestion and these changes could reflect longer travel times and more congested travel in 2019 and a lessening of congestion in 2022, as fewer workers traveled to outside job locations.

Figure 24
Satisfaction with Commute by Primary Commute Mode – 2013 to 2022
Percent Rating Commute Satisfaction as 4 or 5

(2013: Bike/walk n=150, Carpool/vanpool n=363, Drive alone n=4,080, Commuter train n=64, Metrorail n=615, Bus n=298)
(2016: Bike/walk n=180, Carpool/vanpool n=283, Drive alone n=3,552, Commuter train n=62, Metrorail n=634, Bus n=284)
(2019: Bike/walk n=302, Carpool/vanpool n=378, Drive alone n=5,042, Commuter train n=144, Metrorail n=1,177, Bus n=588)
(2022: Bike/walk n=190, Carpool/vanpool n=119, Drive alone n=3,364, Commuter train n=47, Metrorail n=393, Bus n=209)

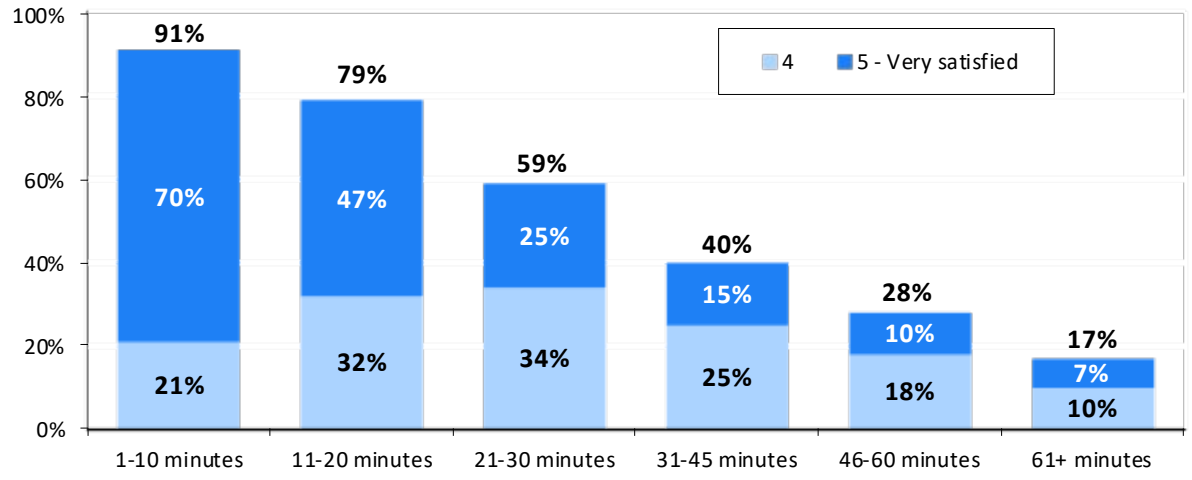


Satisfaction with transit commuting also has varied over the 12 years, but with different patterns for each transit mode. Satisfaction among bus users declined substantially between 2019 and 2022, after a stable pattern of satisfaction. Commuter rail satisfaction steadily declined from a high of 90% in 2013 to just 49% in 2022. Metrorail riders expressed notably lower satisfaction in 2016 than in 2013, likely due to the SafeTrack trackwork maintenance efforts, which affected both frequency and reliability of train service. Metrorail reversed some of the loss in 2019, when the SafeTrack work was completed, but satisfaction declined again in 2022. The 2022 decline in satisfaction for the three transit options likely is at least somewhat related to transit service disruption during the pandemic and riders' concerns with the potential exposure to coronavirus. Metrorail riders' ratings also could be related to perceptions that track, train car, and other infrastructure problems could negatively affect personal safety while riding.

Commute Satisfaction by Travel Time

Commute satisfaction declined steadily and significantly as the amount of time a commuter traveled increased (Figure 25). Nine in ten (91%) commuters who traveled 10 minutes or less gave a 4 or 5 rating for commute satisfaction. When the commute was between 11 and 20 minutes, 79% were satisfied. At 21 to 30 minutes, satisfaction dropped to 59%. Only four in ten (40%) commuters who traveled 31 to 45 minutes were satisfied and satisfaction fell to 28% for travel times of 46 to 60 minutes. When travel time exceeded 60 minutes, only 17% rated their commute a 4 or 5.

Figure 25
Satisfaction with Commute by Length of Commute (minutes)
Percent Rating Commute Satisfaction a 4 or 5
(1-10 min n = 353, 11-20 min n = 1,032, 21-30 min n = 1,018, 31-45 min n = 1,193, 46-60 min n = 804, 61+ min n = 626)



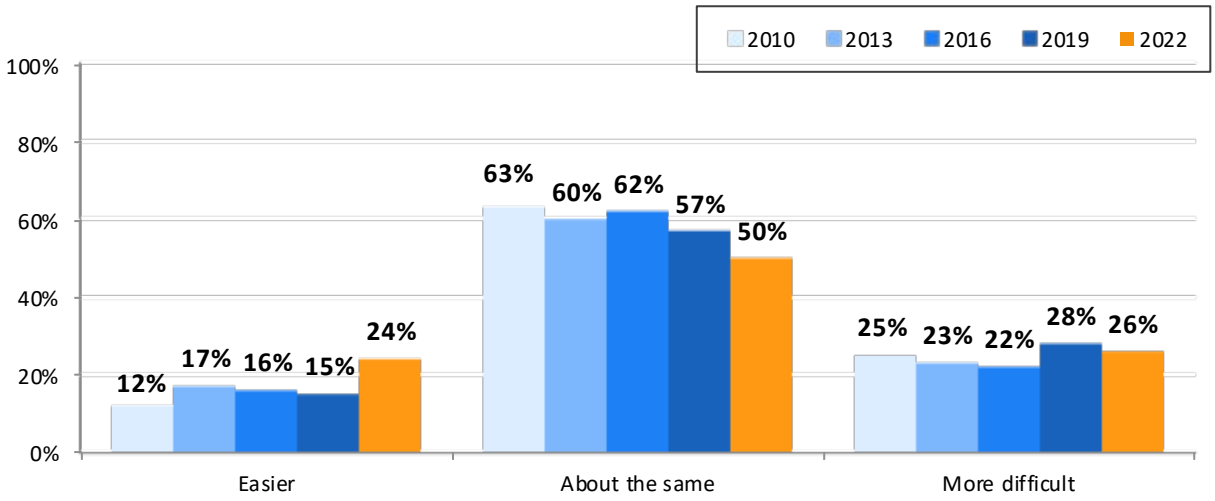
Ease of Commute

Respondents who commuted to an outside work location at least one day per week also were asked if their commute was easier, more difficult, or about the same as it was a year prior. Half (50%) of respondents said their commute was about the same (Figure 26). The remaining responses were divided nearly evenly between commuters who said their commute was easier (24%) and those who said their commute was more difficult (26%).

The 24% share of respondents who said they had an easier commute in 2022 was well above the results from the four previous surveys but the 26% share of commuters who said they had a more difficult commute in 2022 was not appreciably lower than for the previous years. With these combined results, 2022 was the first year in which the share of commuters who reported an easier commute was statistically as high as the share of commuters who experienced a degradation in the commute.

Figure 26
Commute Easier, More Difficult, or About the Same as Last Year – 2010 to 2022

(2010 n = 6,049, 2013 n = 5,717, 2016 n = 5,142, 2019 n = 7,787, 2022 n = 5,067)

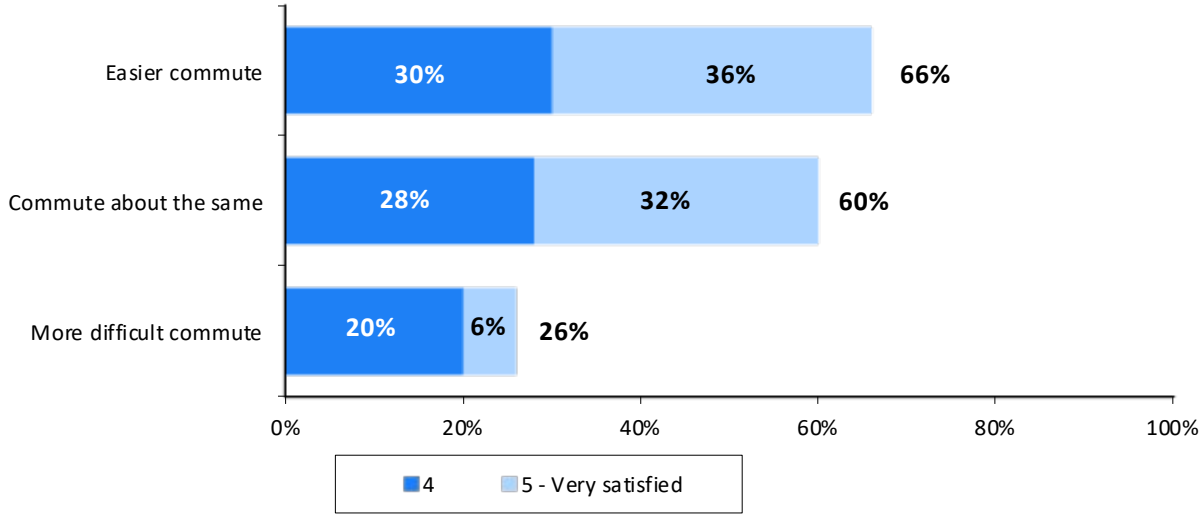


Commute Satisfaction by Ease of Commute Compared with a Year Ago

Commuters' satisfaction with commuting appeared related to the ease or difficulty of commuting. Two-thirds (66%) of respondents who said they had an easier commute than last year and 60% who said their commute had not changed were satisfied with their commute, compared to only 26% who said their commute had become more difficult (Figure 24).

Figure 27
Satisfaction with Commute by Change in Ease of Commute
Percent Rating Commute Satisfaction a 4 or 5

(Easier commute n = 1,106, Commute about the same n = 2,637, More difficult commute n = 1,273)



Change in Commute Ease by Primary Commute Mode

Figure 24 showed that commute satisfaction had improved for carpool/vanpool and drive alone commuters between 2019 and 2022 and had declined for transit riders. Table 18, which presents results on change in commute ease by primary commute mode, suggests the satisfaction results are related to changes in the commute experience.

Table 18
Change in Ease of Commute by Primary Commute Mode
(Shading indicates statistically higher percentages of ease or difficulty)

Primary Mode	Easier	About the Same	More Difficult
Telework* (n = 772)	33%	45%	23%
Carpool/Vanpool (n = 119)	29%	44%	27%
Drive alone (n = 3,339)	24%	54%	23%
Bus (n = 207)	18%	40%	42%
Train (n = 426)	15%	35%	50%
Bike/Walk (n = 191)	15%	75%	10%

*Includes respondents who primarily teleworked but did NOT telework full-time; Full-time teleworkers were not asked the question about commute ease/difficulty.

Commuters who carpooled or vanpooled were about equally likely to report an easier commute (29%) as a more difficult commute (27%). Drive alone respondents had similar results. Respondents who primarily biked or walked to work were least likely to report a worse commute; only 10% said it was more difficult, but most (75%) reported a commute that was about the same.

Train and bus riders reported a less positive experience. More than twice as many bus riders said they had a more difficult commute (42%) as said their commute was easier (18%). Train riders reported an even starker situation; half (50%) said their commute had become worse, more than three times the percentage who said it improved (15%). These results reinforce the drop in commute satisfaction for transit riders and satisfaction improvement of carpool/vanpool riders and drive alone commuters.

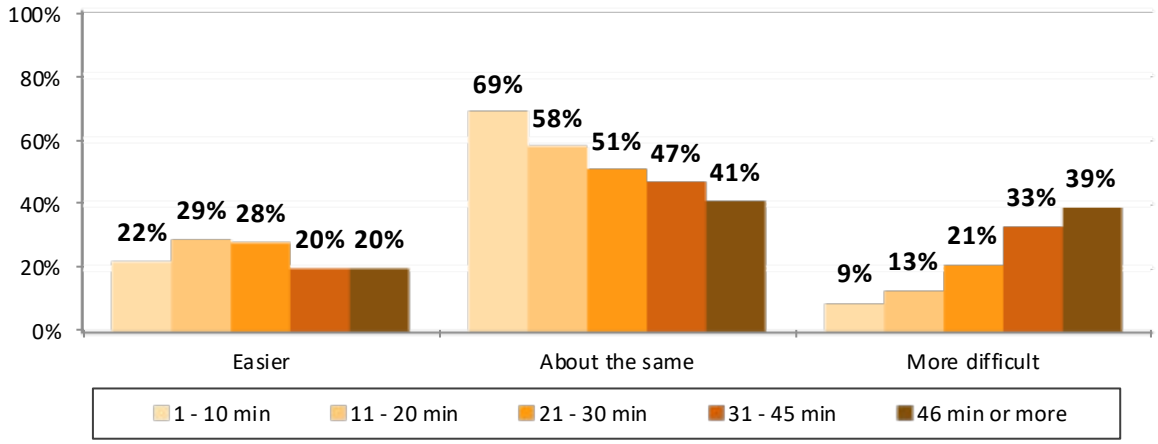
Respondents who were teleworking full-time were excluded from this question, but the question was asked of respondents who worked from home some days. One-third (33%) of respondents who primarily teleworked said they had an easier commute in 2022, while only 23% said their commute was more difficult. It seems reasonable to expect that eliminating some commute days could have influenced teleworkers' overall perception of commute ease.

Change in Commute Ease by Travel Time

Figure 28, which presents change in commute ease by respondents' commute time, shows a clear pattern; the ease of commuting was inversely proportionate to the length of the commute. Among commuters who traveled 10 minutes or less to work, seven in ten said their commute was about the same as it was a year ago and 22% said it was easier; only 9% said it was more difficult. Conversely, the share who had a more difficult commute increased steadily with increasing commute time. Among commuters who traveled more than 45 minutes to work, 39% said their commute was more difficult.

Figure 28
Change in Ease of Commute by Commute Time (minutes)

(1 to 10 min n = 352, 11 to 20 min n = 1,020, 21 to 30 min n = 1,012, 31 to 45 min = 1,174, 46 min or more n = 1,410)



Change in Commute Ease by Home and Work Location

Respondents who lived in the Core of the region were more likely to report that their commute was worse than one year ago than were commuters who lived farther from the center (Table 19). One-third (33%) of Core area residents said their commute was more difficult, compared with 24% of Middle Ring residents and 25% of Outer Ring residents. Percentages of respondents whose commutes had gotten easier were about the same in all three areas.

Table 19
Change in Ease of Commute in Past Year by Home Location – 2022 and 2019

Shading indicates statistically higher percentages)

Home Location	Easier	About the Same	More Difficult
Current (2022 SOC)			
Core (n = 1,432)	**22%**	**46%**	**33%**
Middle Ring (n = 1,551)	**25%**	**51%**	**24%**
Outer Ring (n = 2,084)	**21%**	**53%**	**25%**
Pre-pandemic (2019 SOC)			
Core (n = 2,104)	19%	61%	21%
Middle Ring (n = 2,315)	15%	59%	26%
Outer Ring (n = 3,368)	11%	49%	40%

As seen in the bottom of the figure, the 2022 results are nearly opposite to what was observed in 2019. In 2019, respondents who lived in the outer areas of the region were more likely to report a more difficult commute and fully four in ten (40%) Outer Ring residents said their commute was more difficult. The greater difficulty for Core area commuters in 2022 is likely related to their much higher use of transit for commuting, as was noted in the commute mode distributions reported in Section 2.

The ease or difficulty of commuting in 2022 also seemed related to where respondents worked, with the same pattern as was noted for home location. More than half (56%) of Core area residents said their commute had changed, compared with 46% of Middle Ring and 40% of Outer Ring workers. Respondents in all three areas reported similar rates of easier commutes (Core 25%, Middle Ring 23%, Outer Ring 23%) but one-third (33%) of respondents who worked in the Core reported a more difficult commute, compared with 23% of Middle Ring and 17% of Outer Ring workers. In 2019, work location did not appear to have an impact on changes in the ease or difficulty of their commute, with commuters in all three work areas reporting similar rates of easier and more difficult commutes.

Influence of Changes in Residence or Work Location on Commuting Conditions

Anecdotal reports suggest some commuters might move their residences and/or seek new jobs at least in part to make their commute easier or less costly and several survey questions explored the role commute factors might play in such decisions. Respondents were asked if they had made a change in their work and/or home location in the past two years. Note that commuters who shifted to full-time telework during the pandemic were asked only about home changes. They were not asked about work location changes, because the intent was to examine how job changes and/or moves to different worksites could affect commuting decisions. But it also should be noted that many workers lost jobs during 2020 due to business shut-downs related to the pandemic. While many subsequently found new jobs, their "decision" to change jobs or work locations might have been more necessity than choice.

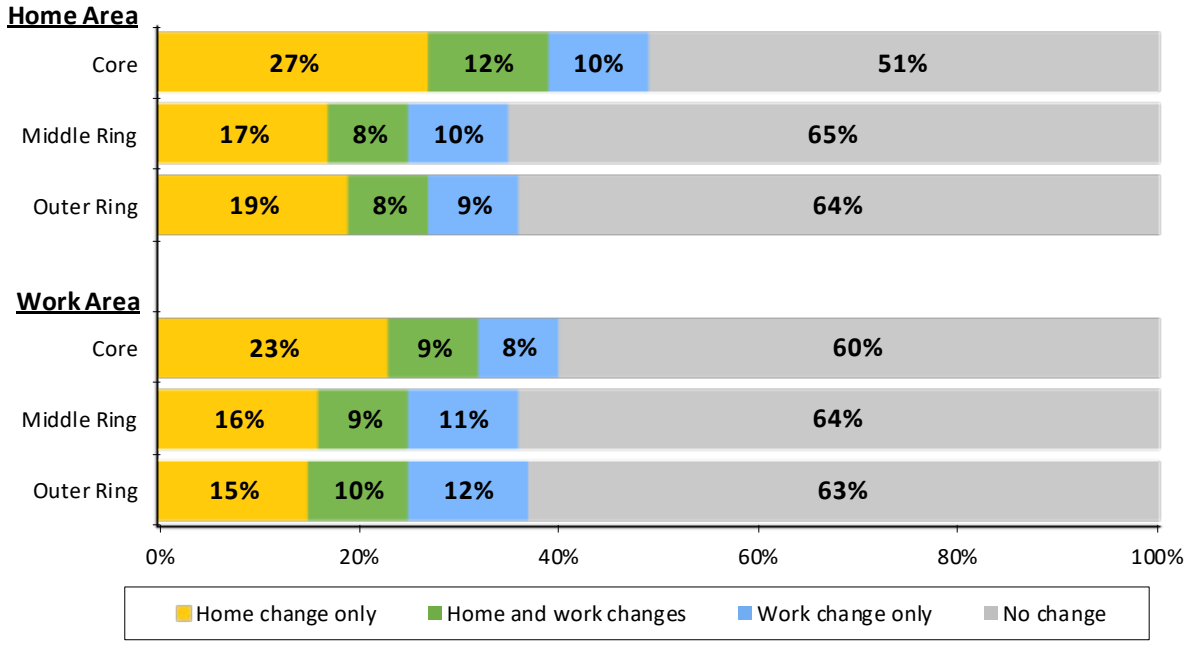
Incidence of Home and Work Location Changes

Nearly four in ten respondents reported a location change; 9% changed both home and work, 10% changed only the work location, and 19% changed only the home location. Of the 19% of respondents who changed only the home location, slightly more than half (56%) were full-time teleworkers. The remaining 44% were working outside their home some days; these respondents were asked the work location question and said their work location had not changed.

When combined, these results show that 28% of respondents moved their residence and 19% moved their work location. The 19% who moved to a different work location was about the same as the 20% who reported a work location change in 2019. But the 28% who moved their home was well above the 18% who reported a recent home location in the 2019 SOC survey. About two-thirds (65%) of respondents moved within the Washington metropolitan region and one-third (35%) moved from a jurisdiction outside the Washington region.

Home and Work Location Changes by Home and Work Areas – Figure 29 presents percentages of respondents who made home or work changes by where they lived at the time of the survey. Nearly half (49%) of Core area residents made a location change in the past two years, versus 35% of Middle Ring and 36% of Outer Ring residents. Core area respondents were particularly more likely to have moved their home; nearly four in ten reported a home move (27% home only and 12% home and work), compared with 25% of Middle Ring and 27% of Outer Ring residents. Core area residents also made work location changes at a higher rate; 22% of Core residents moved their work location (12% home and work and 10% work only), compared with 18% of Middle Ring and 17% of Outer Ring residents.

Figure 29
Home and Work Location Changes by Home and Work Area
(Home Area – Core n = 2,563, Middle Ring n = 2,531, Outer Ring n = 3,046)
(Work Area – Core n = 3,982, Middle Ring n = 2,700, Outer Ring n = 931)



Percentages of respondents who made location changes varied less by where they worked at the time of the survey. About four in ten respondents in each area reported some move. Core workers reported more home moves (32% total; 23% home only and 9% home and work), than did Middle Ring (25%) and Outer Ring (25%) workers. But fewer Core area workers made a work location change (17% total; 9% home and work plus 8% work only) than did Middle Ring (20%) and Outer Ring (22%) workers.

Home and Work Location Changes by Demographics – There were no statistical differences in home or work changes by race/ethnicity, but women and young respondents made location changes at higher rates. Half (53%) of respondents who were younger than 35 years old made a change, compared with 28% who were 35 years or older and 41% of female respondents made location changes, compared with 37% of males. Changes also were more common among lower income respondents; 49% of respondents with incomes below $100,000 reported a change, compared with 40% of those with incomes between $100,000 and $179,999 and 33% who had household incomes of $180,000 or more. Some of these differences likely were related to the pandemic; media reports during 2020 and 2021 highlighted that pandemic-related job losses were higher among women, younger workers, and lower-income workers.

Ease of Commute By Home and Work Location Changes

Commute ease appeared related to location changes for at least some respondents (Table 20). Fifty-five percent of respondents who did not move said their commutes were about the same, 22% said their commutes had improved, and 23% said they had gotten more difficult. Among those who made a location change, 29% had a more difficult commute but nearly as many (27%) said their commute improved. Both the percentages of easier and more difficult commutes were higher for those who made location changes than those who did not. This suggests a move could play a role in improving or worsening a commute, but the move was as likely to improve the commute as to make it more difficult.

Table 20
Change in Ease of Commute by Made a Change in Home or Work Location
(Shading indicates statistically higher percentages for ease/difficulty of commute)

Changed Home or Work Location *	Easier	About the Same	More Difficult
No location change (n = 3,135)	22%	55%	23%
Any location change (n = 1,932)	27%	44%	29%
Type of change made			
Changed only home (n = 633)	25%	52%	23%
Changed only work (n = 720)	27%	43%	30%
Changed home and work (n = 579)	28%	38%	34%

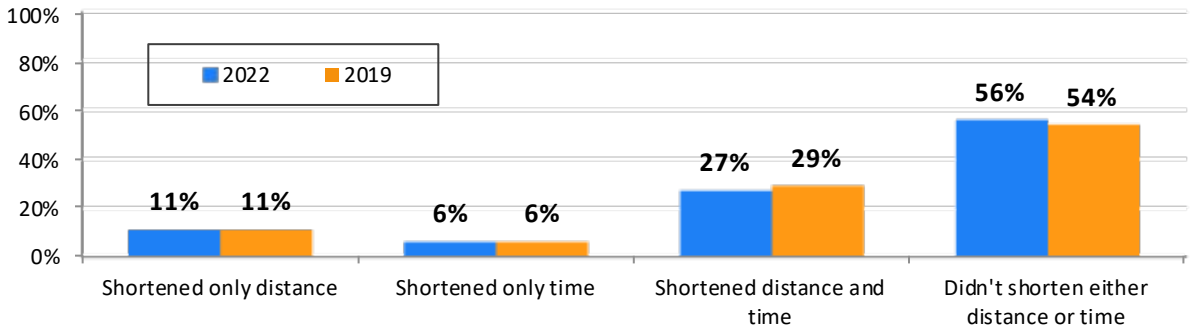
*Excludes respondents who moved from outside the region because they could not provide a valid before-the-move comparison for change in ease/difficulty of commute.

The table also shows a breakdown of change in commute conditions by whether the move was for home location only, work location only, or both home and work. Respondents were about equally likely to report easier commutes, regardless of the type of location changes they had made. But higher percentages of commuters whose work location changed said their commute was more difficult than was the case for those who moved only their home. This result could be related to job changes made to replace pandemic-related job losses. Workers who needed to find a job because they were suddenly unemployed might have felt they had little freedom to consider the new work location. They needed jobs and the commute conditions to the new location, including the distance, traffic along the route, and/or availability of commuting options, would be secondary concerns in their job search.

Move as Factor in Shortening Commute Distance or Time

Nearly three in ten (27%) respondents who moved said the move shortened both the distance and time for their trip to work (Figure 30). For 11%, the move shortened only the distance and 6% said it shortened only the time. These results were very close to the 2019 results; 29% said the move led to a shorter distance and time, 11% had only a shorter distance, and 6% had only a shorter commute time.

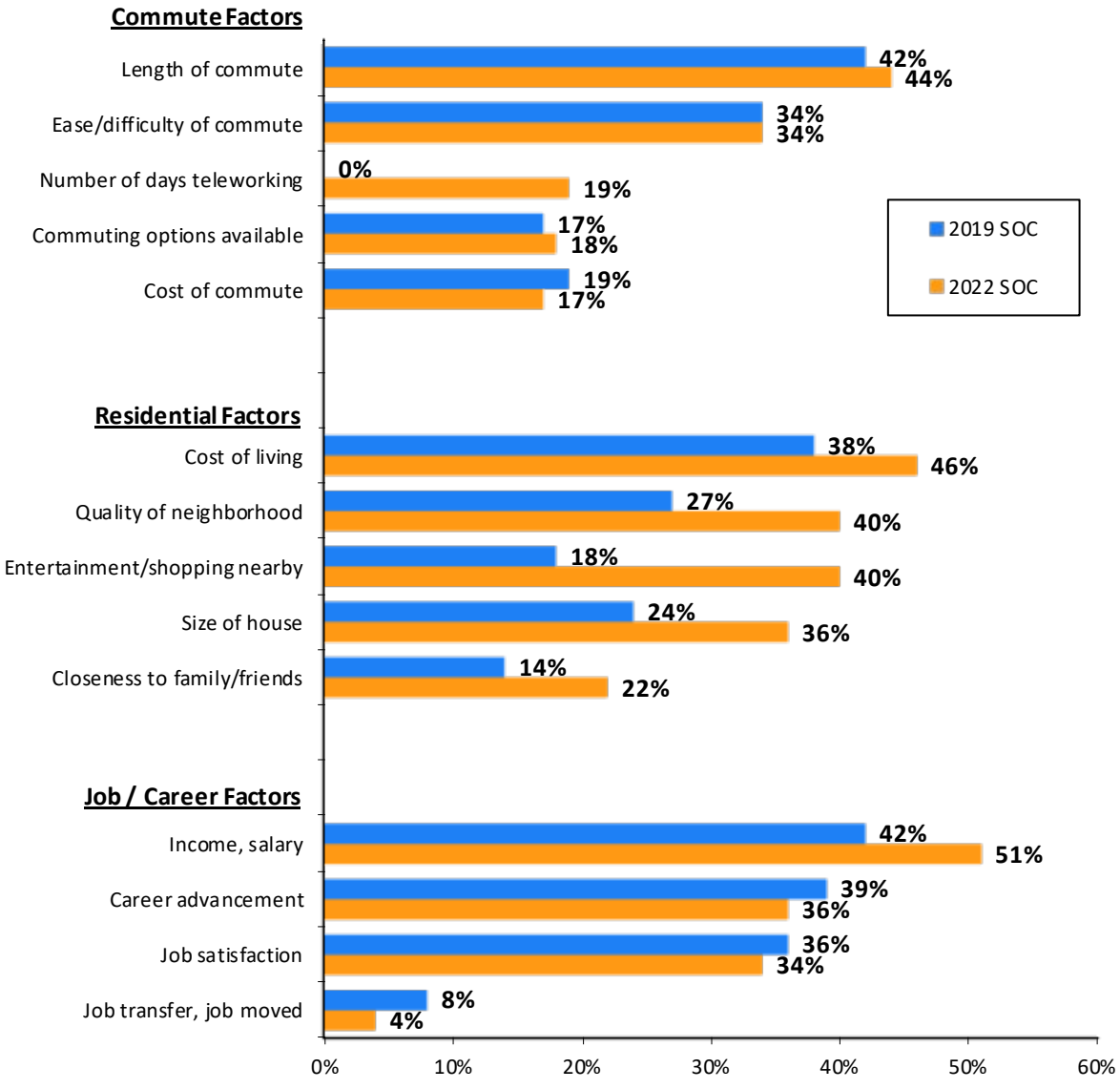
Figure 30
Home or Work Move Shortened Distance or Time from Home to Work – 2019 and 2022
(2019 n = 1,960, 2022 n = 2,585)



Concern about Commuting as a Factor in Location Change Decisions

Respondents who moved also were asked what factors they considered in making location changes and how important to their decision commute ease had been compared with other factors they considered. Two-thirds (67%) of respondents cited at least one commute-related concern in the moving decision. Four in ten (44%) cited the length of the commute (either distance or time) and 34% mentioned the ease or difficulty of the commute (Figure 31). Nineteen percent said the number of days they would be teleworking had entered their consideration about the move, 18% considered the range of commuting options that would be available at the new location, and 17% had thought about how much the commute would cost.

Figure 31
Factors Considered in Home or Work Location Changes
Respondents who Made a Change in Work or Residence Location
(Note: Scale extends only to 60% to highlight difference in responses)
(2019 n = n = 2,013, 2022 n = 2,657; multiple responses permitted)



Except for the number of days the respondent would be teleworking, which was not included in the list of factors in 2019, the commute factor results were very similar in 2022 to the results from the 2019 SOC survey. The results for residential factors were strikingly different, however. In 2022, more than three-quarters (78%) of respondents mentioned at least one residential factor, compared with about half of respondents in 2019 and every residential factor was cited by a statistically higher share of respondents in 2022 than in 2019. The most common residential factors were the cost of living (46%), quality of the neighborhood (40%), entertainment and shopping that would be in the neighborhood (40%), and the size of the house (36%).

Finally, in 2022, 73% of respondents noted a job or career concern as a factor in their decision, essentially the same percentage that cited one of these factors in 2019. In 2020, respondents mentioned income (51%), career advancement (36%), and job satisfaction (34%) as common considerations. Only income had a statistically different result in 2022 than in 2019.

Several groups of respondents cited commute factors at a statistically higher rate, presumably because they anticipated a more difficult commute after moving or because they wanted to improve their commute by moving:

- Respondents who worked in the Middle Ring – 69% of Middle Ring workers named commute factors, compared with 64% of Core area and (64%) of Outer Ring workers.
- Respondents with household incomes under $100,000 – 71% of respondents with incomes of less than $100,000 mentioned commute factors, compared with 65% of respondents with incomes between $100,000 and $179,999, and 60% of those with higher incomes.
- Respondents who rode transit to work – 72% of respondents who primarily rode a train or bus to work had considered commute factors, while only 64% of drive alone commuters, 58% of carpoolers, and 57% of bike/walk commuters considered commute factors.
- Respondents who changed their home location – 68% of respondents who made a residence change considered commute factors, compared with 62% of respondents who moved only their work location. Likely, some respondents who moved only their work location would have been required to make the job move to continue their employment, so commuting was less of a motivating factor for these respondents than job or career considerations.

Importance of Commute Ease Relative to Other Factors – Respondents who made a location change also were asked how important the expected ease of their new commute had been to their decisions, relative to other factors they considered. Nearly three in ten (28%) of these respondents said the length or ease of their commute was more important than other factors and 1% said it was the only factor they considered (Table 21). About 46% said length or ease of commute was about equally important to other factors. Only 25% said commute ease was less important.

Table 21 also lists the responses for the question from the four previous SOC surveys. Except for 2016, when a higher share of respondents said commute ease was the only factor they considered, the relative role of commute ease as a factor in location decisions has been consistent since 2010; the 2022 results are not statistically different from past results. Thus, even with substantial job upheaval due to the pandemic, commuting remained an important factor through the 2022 survey period.

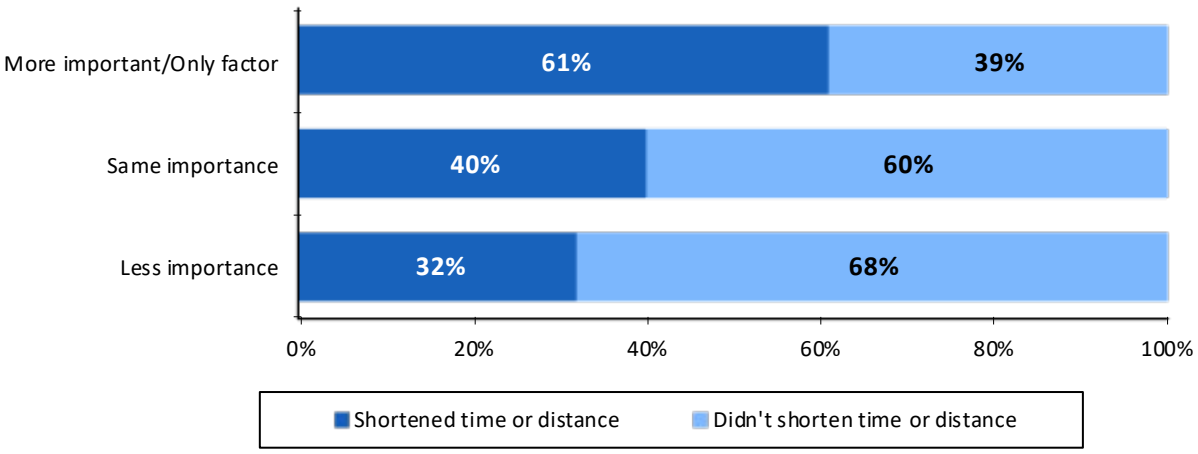
Table 21
Importance of Commute Ease Relative to Other Factors in Home or Work Location Changes
Respondents who Made a Change in Work or Residence Location
(2010 n = 887, 2013 n = 850, 2016 n = 789, 2019 n = 1,921, 2022 n = 2,612)

Importance of Commute Ease	2010	2013	2016	2019	2022
Commute ease was the only factor	---	---	13%	3%	**1%**
More important than other factors	29%	28%	26%	30%	**28%**
About the same importance as other factors	38%	46%	42%	42%	**46%**
Less important than other factors	33%	26%	19%	25%	**25%**

Importance of Commute Factors by Commute Mode – Respondents who commuted by bike/walk and transit were more likely to have considered commuting an important factor; 41% of bike/walk commuters and 36% who primarily used transit said the length or ease of their commute was more important than other factors, compared with only 29% of commuters who carpooled or drove alone.

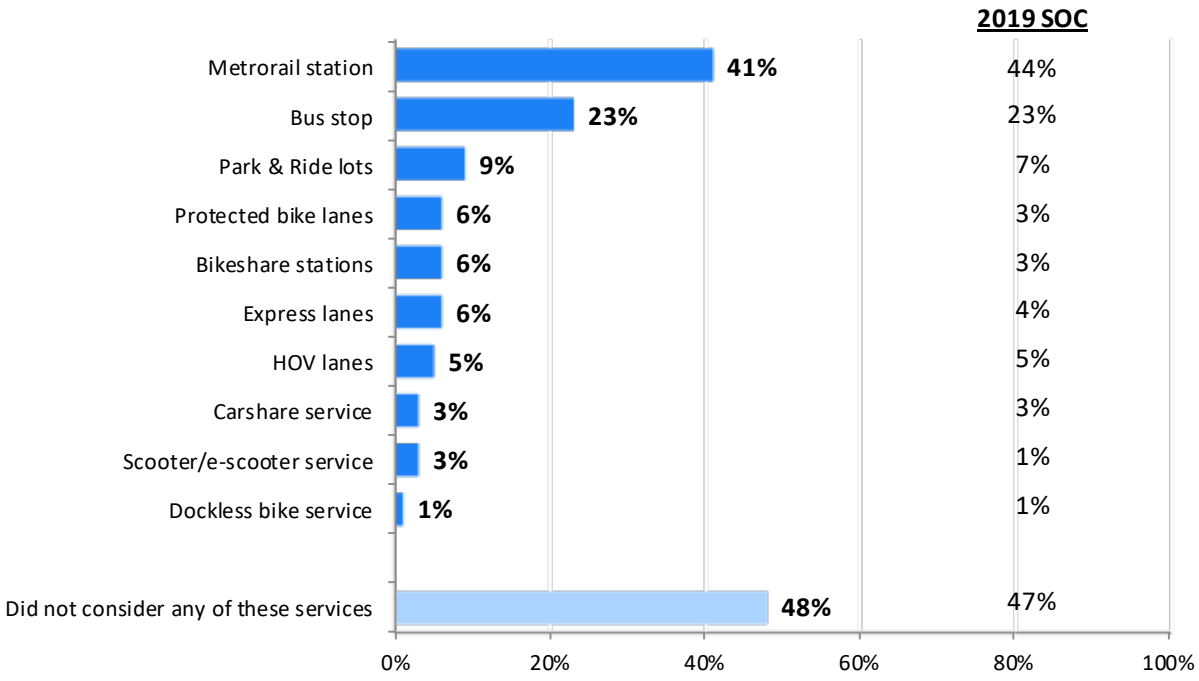
Importance of Commute Factors by Length of Commute – Respondents who said commuting was important to their decision also were more likely to have a shorter commute after making the move than were respondents who said commuting was not as important. Six in ten (61%) respondents who said commuting was more important or the only factor they considered in the move had a shorter commute after making the move (Figure 32). This suggests respondents who were particularly concerned with commuting ease, length, or cost chose work and/or home locations that improved their commutes. By contrast, only 40% of those who said commute factors had been about the same importance as other factors and 32% who said commute factors were less important than were job, home, or personal factors shortened their commutes.

Figure 32
Importance of Commute Factors by Move Shortened Distance or Time from Home to Work
(Commute factors were: More important/only factor n = 681, Same importance n = 1,169, Less important n = 631)



Transportation Services Considered When Making Home or Work Move – Finally, respondents who made a residential or work location change were asked if, when they were considering making this change, they had considered how close their new location would be to any of ten transportation services such as Park & Ride lots, HOV and Express Lanes, bike and scooter servicers, and transit stops or stations (Figure 33).

Figure 33
Access to Transportation Services Considered when Making Home or Work Move
(2019 n = 2,013, 2022 n = 2,697; multiple responses permitted)



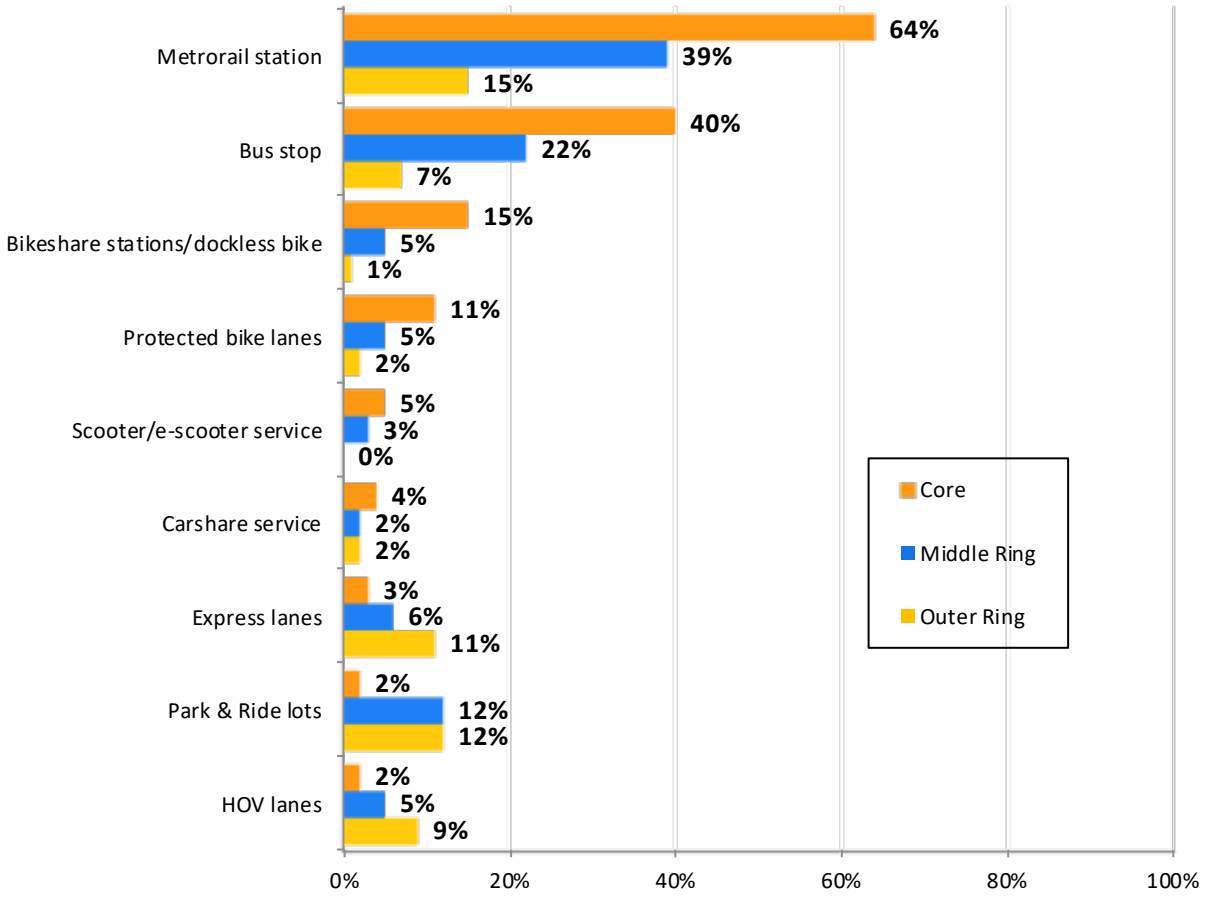
More than half (52%) of respondents who moved said they considered their access to at least one of these services. Four in ten (41%) considered how close they would be to a Metrorail station and 23% considered their access to a bus stop. About one in ten (9%) thought about the availability of a Park & Ride lot. Only one in twenty considered their access to Express lanes (6%) or HOV lanes (5%), but these lanes are primarily available in Virginia, so would be less likely to be noted by respondents who lived in the District of Columbia and Maryland. Similarly small shares said they considered how close they would be to bike lanes, bikeshare, carshare, and scooter services; these services also are offered only in limited areas and in the most urban parts of the region.

As indicated by the sidebar in Figure 33, the percentages who considered service access in 2022 were essentially the same as from the 2019 SOC survey. Fifty-two percent of respondents had considered one or more of the services in 2022, compared with 53% in 2019. And nearly all individual services were named by approximately the same share of respondents in 2022 as in 2019.

Consideration of these services was highly dependent on where respondents lived and worked. Three-quarters (74%) of Core area residents considered transportation service access, compared with 50% of Middle Ring and 31% of Outer Ring respondents. And 69% of Core workers explored the availability of transportation services, compared with 40% of Middle Ring and 22% of Outer Ring workers.

The lower percentages of Outer Ring residents who explored their access to these services suggests that they assumed, rightly in many cases, that these services would not be available in their new home or work area, or that they would not be useful services for their travel in the new area. Despite their lower overall interest, however, Middle Ring and Outer Ring residents were more likely to have considered their access to Park & Ride lots and to HOV lanes and Express Lanes than were commuters who lived closer to the center of the region (Figure 34).

Figure 34
Access to Transportation Services Considered when Moving – By Home Area
Respondents who Made a Change in Work or Residence Location
(Core n = 823, Middle Ring n = 338, Outer Ring n = 245)



About one in ten Middle Ring (12%) and Outer Ring (12%) residents explored their access to Park & ride lots, compared with just 2% of Core area residents. Similarly, one in ten Outer Ring residents considered their access to HOV (9%) and Express (11%) lanes, compared with about one in twenty Middle Ring residents and 2%-3% of Core area residents.

Several other groups of respondents also gave greater consideration to transportation access at their new home or work location:

- Respondents who moved their residence – 58% of respondents who moved their home location considered their access to services at their new home, while just 35% who moved only their work explored transportation service access.
- Respondents who had limited access to a personal vehicle – 82% of respondents who were car-free (no household vehicles) and 62% who had fewer than one car for each adult in the household (0.1 – 0.9 vehicles per adult) considered transportation options. By contrast, just 42% of respondents who had a vehicle for each adult in the household explored service access.
- Respondents who were younger than 35 years old – 59% of respondents who were younger than 35 years considered what transportation services would be available, compared with 48% of respondents who were between 35 and 54, and 33% of respondents who were 55 years or older. This result could be related to younger respondents being less likely to have a personal vehicle available, their greater presence in the Core area of the region, where these services are primarily available, and/or young respondents' perception that these are feasible or appropriate modes for commuting.
- Respondents who used an alternative mode to commute – More than eight in ten (84%) transit riders, 63% of commuters who biked/walked to work, and 52% who carpooled considered their access to transportation services at the new location. This indicates that commuters who were using alternative modes were interested in continuing to do so after the move. By contrast, only 32% of respondents who drove alone had considered access to the services. However, the fact that one-third of drive alone commuters were willing to consider alternative mode access when their commute pattern was changing due to a move highlights the potential value of providing commute information and assistance services to relocating commuters.

SECTION 4 – TELEWORK

Since the first SOC survey in 2001, the survey has explored the incidence of telework in the region. Analysis of telework trends and characteristics of teleworkers has been an important component of the research, showing a steady but gradual increase in telework use in the Washington metropolitan region.

As noted in Section 2 the coronavirus pandemic resulted in many employers pausing onsite operations in early 2020 and shifting workers to full-time or part-time work from home. With these changes, the 2022 SOC survey was expected to show radically different telework patterns from the incremental changes observed in past surveys. While work from home is discussed in other sections of this report when it is a relevant factor in those discussions, this section focuses on examining telework/work from home patterns and the experience of teleworkers in early 2022.

Because telework was a new concept to some workers and employers used different terms to refer to telework, the survey employed various redundant naming options in the early sections of the questionnaire to try to develop a consistent understanding for respondents of the telework questions. The early questions used the term "telework" but noted that the respondent might call the action "telecommute," "work from home," or "remote work." Subsequent questions used one or more of these terms as seemed appropriate for the question and the targeted respondents.

The survey further clarified that respondents should consider as telework only regularly assigned workdays they worked at home or a telework/co-working center during an entire work day. This definition, which had been used in previous SOC surveys, excluded work at client or customer locations during the day, working part of the workday at home and part at the regular workplace, and work at home on evenings or weekends, outside of normal work hours. These situations are not generally considered telework for commute-related purposes, because workers still make work-related trips.

Finally, the questions emphasized that respondents were to report their current telework/commute experience, even if they expected it to be a temporary arrangement. For this reason, the results presented in this section and throughout the report should be considered a profile of telework in the region for early 2022, when the survey data were collected. When available and informative, results for previous SOC surveys are also presented.

Current and Potential Telework

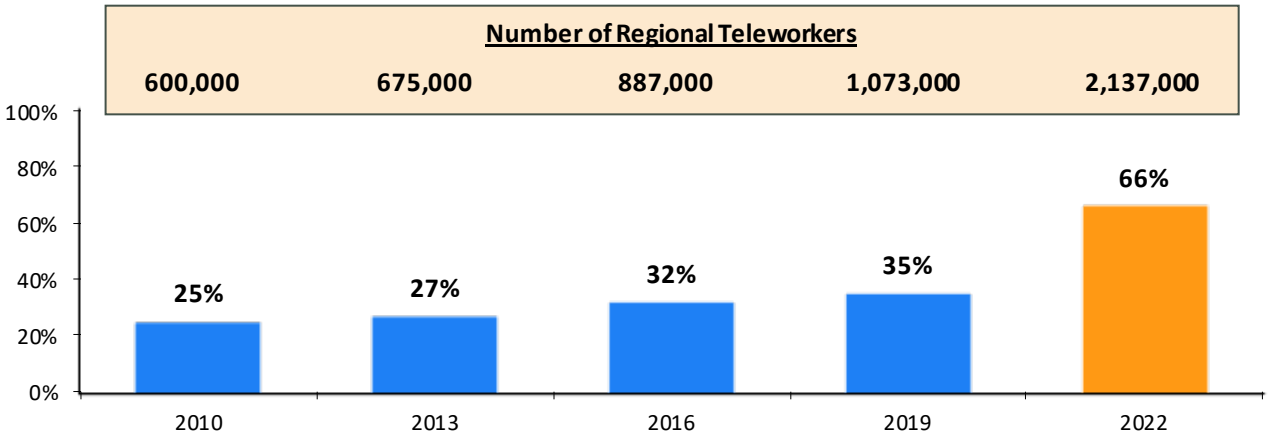
Respondents who Currently Telework

Sixty-five percent of all respondents said they teleworked, either regularly or occasionally. When extrapolated to the regional worker population, this represented about 2,137,000 workers region-wide.

Teleworkers accounted for 66% of regional workers who would otherwise travel to a main work location on non-telework days (i.e., commuters). Using the commuter base excludes self-employed workers for whom home was their only workplace. These workers would not make commute trips to an outside work location, thus, excluding them from the telework calculation reflects a more realistic assessment of telework's role in eliminating commute trips.

The 66% telework percentage represents a dramatic increase over the 2019 survey, when 35% of employees teleworked (Figure 35). But telework grew in each of the previous SOC surveys, albeit at a gradual rate of increase.

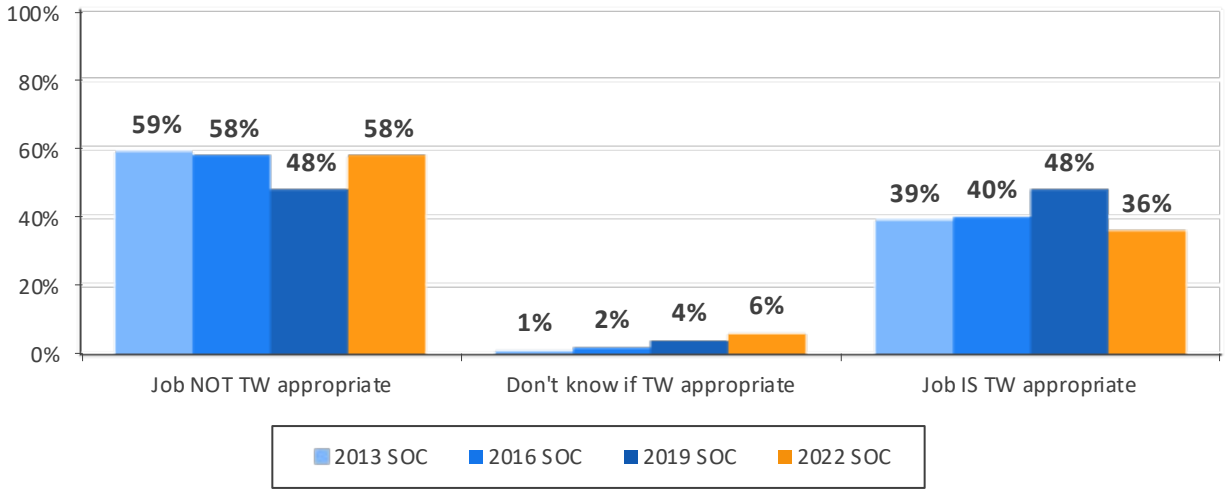
Figure 35
Percentage of Commuters who Telework – 2010 to 2022
(2010 n = 6,050, 2013 n = 5,892, 2016 n = 5,503, 2019 n = 8,107, 2022 n = 8,139)



Interest in Telework

Commuters who worked at a location outside their homes and who did not report teleworking at the time of the survey were asked if their job responsibilities would allow them to work at a location other than their main work place, at least occasionally. In 2022, 36% of non-teleworkers had at least some telework-appropriate work (Figure 36). The percentage of non-teleworkers with telework-appropriate responsibilities declined between 2019 and 2022, but this was largely because many non-teleworkers who had telework-appropriate jobs in 2019 were working from home in 2022, so the remaining base of non-teleworkers logically would include a higher share of workers for whom telework was not a feasible job option.

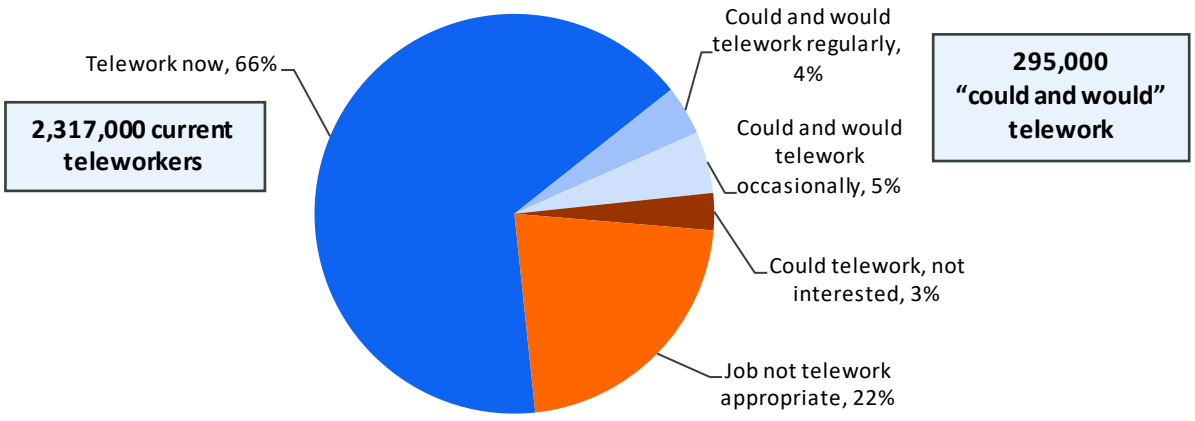
Figure 36
Potential for Telework Among Non-teleworkers – 2013 to 2022
(2013 n = 4,319, 2016 n = 3,605, 2019 n = 5,195, 2022 n = 2,610)



Non-teleworkers who had telework-appropriate jobs were then asked how often they would want to telework. In 2022, the 36% of non-teleworkers was evenly divided between 18% who could telework one or more days per week and 18% who could telework less than one day per week. Three-quarters of these non-teleworkers said they would be interested in telework on either an occasional (40%) or regular (36%) basis. Telework-interested respondents equaled about 295,000 commuters or about 9% of all commuters region-wide.

The results for current telework and non-teleworker interest suggest that even with the dramatic growth in telework in 2022, additional telework potential exists. Figure 37 summarizes the 2022 telework status of all respondents who were commuters, that is, not self-employed/work at home.

Figure 37
Telework Status Distribution
(n = 8,139)



About 2,317,000 regional commuters (66%) teleworked at the time of the survey. An additional 9% of commuters "could and would" telework, that is, they had job responsibilities that could be accomplished away from the main work place and they would be interested in teleworking, if given an opportunity. These potential teleworkers represented about 295,000 commuters. The remaining commuters said they would not be interested in teleworking (3%) or that their job responsibilities could only be performed at the main workplace (22%).

Table 22 summarizes the 2022 results shown above, with additional comparisons for previous SOC surveys. The sum of current plus potential telework had increased substantially from 45% in 2010 to 60% in 2019. While the composition of jobs could have changed somewhat in the region, this result more likely suggests a shift in commuters' ability or perception of their ability to perform work remotely, due to increasing availability of communication, computer, and networking technology or perhaps from greater understanding of telework options and a broader definition of what jobs were "telework-compatible." Interestingly, the 2022 current telework share of 66% exceeded the current plus potential 60% share from 2019. But it is likely that some respondents teleworked in 2022 solely because their workplace shut down due to the pandemic. In 2019, they would not have chosen to telework so would have been excluded from the potential (could and would) percentage in 2019.

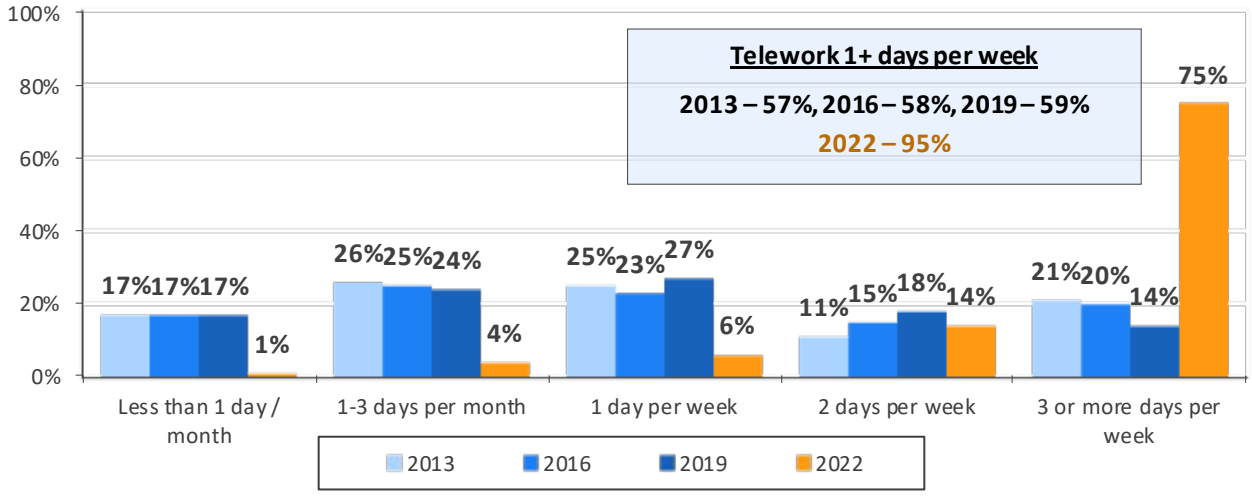
Table 22
Summary of Current and Potential Telework – 2010 to 2022
Respondents who are not Self-Employed/Work at Home ("Commuters")

Telework Status	2010 (n = 6,050)	2013 (n = 5,892)	2016 (n = 5,503)	2019 (n = 8,107)	2022 (n = 8,139)
Currently teleworking	**25%**	**27%**	**32%**	**35%**	**66%**
Not teleworking	**75%**	**73%**	**68%**	**65%**	**34%**
- Job responsibilities allow telework and INTERESTED in telework ("could and would")	21%	18%	18%	25%	9%
- Job responsibilities allow telework, but NOT INTERESTED in telework	9%	11%	9%	6%	3%
- Job responsibilities would NOT allow telework	45%	44%	41%	34%	22%

Telework/Work at Home Frequency

The frequency with which respondents teleworked in 2022 and in the years of the previous three SOC surveys is detailed in Figure 38. Prior to 2022, about six in ten respondents teleworked one or more days per week and four in ten teleworked less than one day per week. The 2022 pattern was notably different, with 95% of respondents teleworking at least one day per week and 75% teleworking at least three days per week.

Figure 38
Frequency of Telework – 2013 to 2022
(2013 n = 1,559, 2016 n = 1,874, 2019 n = 2,856, 2022 n = 5,514)



In 2022, the average telework frequency was 3.37 days per week, nearly a tripling of the average 1.20 days per week frequency from 2019. The high average frequency in 2022 was driven by two factors.

First, more than half of teleworkers were teleworking all their workdays, substantially raising the average across all teleworkers. But the telework frequency for respondents who worked some days at an outside work location was 1.46 days per week, also higher than the 2019 average.

Average frequency in 2022 was generally high across respondent sub-groups. Differences that did exist generally followed a similar pattern to that for telework percentages of the sub-group, that is, population sub-groups with higher shares of overall telework also had higher average telework frequencies, reinforcing the conclusion that members of these sub-groups had job responsibilities, work situations, or personal characteristics that made them especially well-suited to telework.

Frequency of Work at Home Among Non-Teleworkers

Even with the 2022 telework growth, self-defined teleworkers could under-represent the extent of telework activity in the region. The research team considered the possibility that some commuters who occasionally worked at home might not consider this "telework." To test this premise, the survey asked respondents who were not teleworking but who had telework-appropriate jobs the following question:

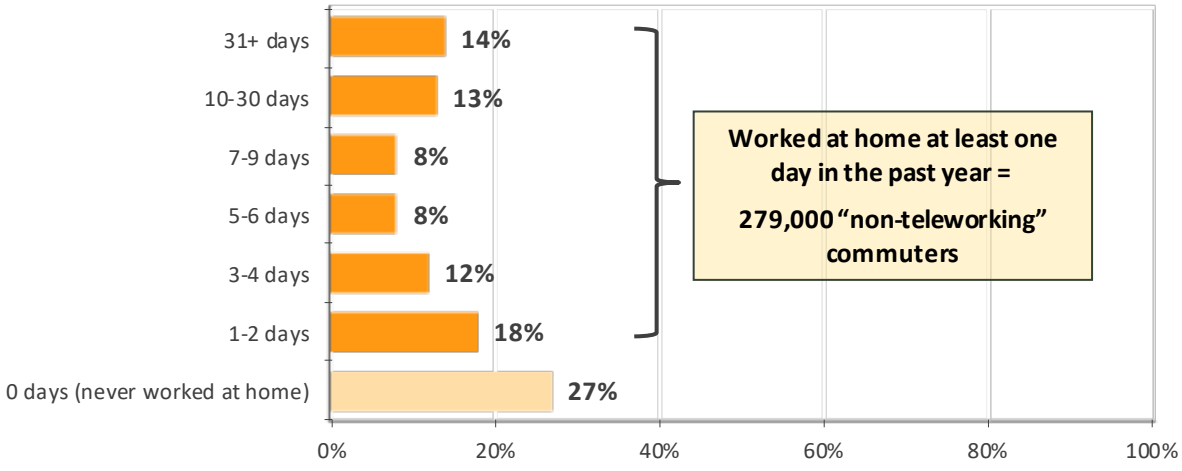
"In the past year, about how many days did you work at home all day on a regular work day, instead of traveling to your main workplace?"

The purpose of the question was to determine how many had teleworked during the past year, even though they did not consider it as such.

Nearly three-quarters (73%) of these respondents had worked all day at home at least once in the past year (Figure 39). These respondents represented about 9% of all commuters region-wide or a total of 279,000 commuters. When added to the 66% of commuters who self-defined as teleworkers, the total percentage of commuters who telework/work at home at least occasionally rises to 75%.

The average work at home frequency of these "non-teleworkers" was quite low. Self-defined teleworkers teleworked an average of 3.37 days per week. By contrast, "non-teleworkers" worked at home an average of just 13.5 days per year or about 0.27 days per week (13.5 telework days per year / 50 work weeks per year = 0.27 telework days per week).

Figure 39
Number of Days Worked at Home in the Past Year – Non-teleworkers
(n = 911)



Total Workers Teleworking on a Typical Workday

When the average telework frequency for respondents who self-identified as teleworkers and the work-at-home frequency of workers who did not self-identify as teleworkers are applied across the region, it equates to approximately 1,455,404 regional workers teleworking/working at home on a typical workday, or about 44% of all regional workers. The 2022 typical day telework estimate is five times higher than the 2019 SOC estimate of 272,700 typical day teleworkers. In 2022, about 1% of the telework/work at home days come from commuters who do not consider themselves teleworkers occasionally working at home. Assuming each worker makes two commute trips per day, workers in the Washington metropolitan region eliminate 2.9 million work trips each day by telework/work from home.

1,455,404 Workers Teleworking on a Typical Day (44% of regional workers)

Total telework/work at home days per week = 7,277,020 weekly days

Teleworkers = 2,137,000 workers x 3.37 days per week = 7,201,690 weekly days

Non-teleworkers work at home = 279,000 workers x 0.27 days per week = 75,330 weekly days

Typical day impact = 1,455,404 teleworkers (7,277,020 weekly TW/WAH days / 5 weekdays)

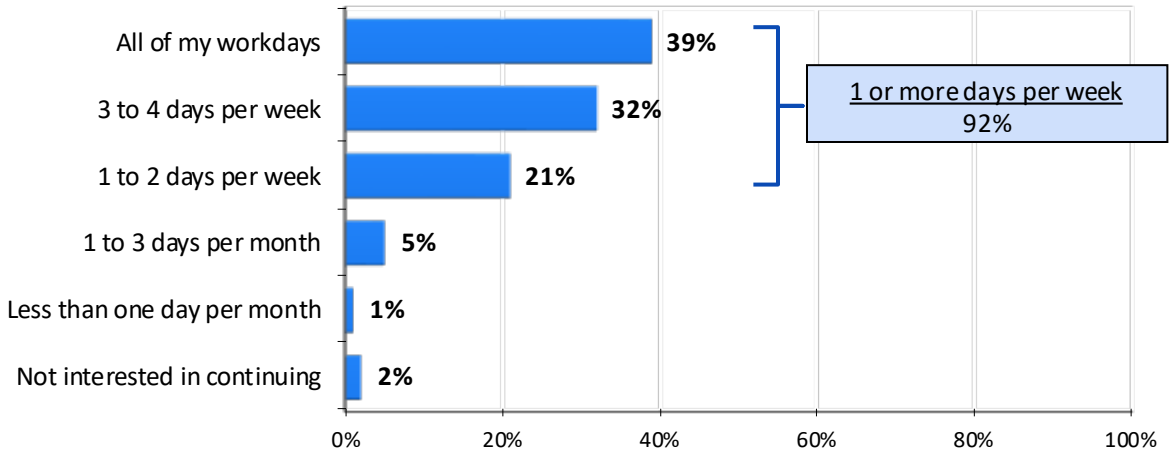
Commute trips eliminated per day = 1,455,404 x 2 trips per day = 2.9 million trips per day

Interest in Continued Telework After Pandemic is Over

Respondents who were teleworking at the time of the survey were asked how often they would want to telework in the future, if given a choice by their employer. More than nine in ten (92%) respondents who were teleworking at the time of the survey said they would want to telework at least one day per week and 39% said they would want to telework all their workdays (Figure 40). Only 2% of teleworkers were not interested in continuing to telework at all. Note that this is the preference of the employee; it does not indicate how often employers will expect or allow employees to telework. Some employers might dictate a frequency different from what employees would want, but this question illustrates that most respondents who teleworked wanted to continue at a reasonably high level of telework.

Figure 40
Teleworkers' Preferred Future Frequency of Telework

(n = 5,495)

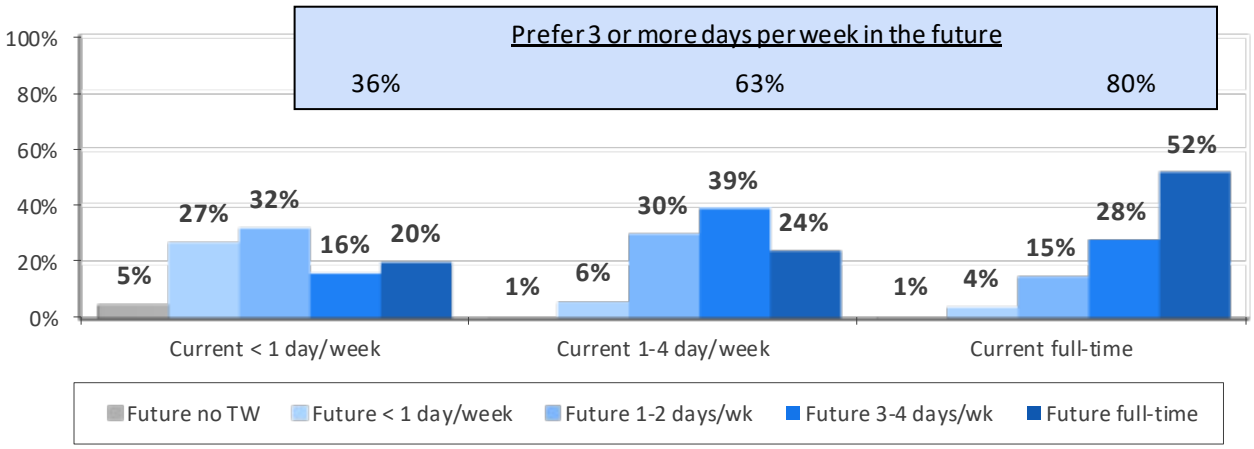


Preferred Future Telework Frequency by Current Frequency

Respondents who teleworked full-time at the time of the survey expressed the greatest interest in teleworking frequently in the future. Eight in ten (80%) full-time teleworkers said they wanted to telework at least three days per week and 52% wanted to continue full-time (Figure 41). Among respondents who teleworked at least one day per week but not full-time, 24% would like to increase to full-time and 63% wanted to telework at least three days per week. More than one-third (36%) who teleworked less than one day per week wanted to increase to at least three telework days per week.

Interest in frequent future telework also was higher among those who teleworked before the pandemic; 78% of these respondents wanted to telework three or more days per week, compared with 70% of respondents who started teleworking during the pandemic. Frequent telework, defined as three or more days per week, also was preferred by higher shares of women (76%) than men (67%) and higher shares of Non-Hispanic Black (82%) respondents than those in other racial/ethnic groups (69%). And teleworkers who commuted longer distances on days they traveled (or would travel) to an outside work location had greater interest in frequent telework; 78% of teleworkers with commutes of 20 or more miles wanted to telework three or more days per week in the future, compared with 70% who traveled between 5 and 19 miles and 61% who had commutes of less than five miles.

Figure 41
Preferred Future Telework Frequency by Current Frequency
(Current TW: < 1 day/week n = 263, 1-4 days/week n = 2,172, Full-time n = 2,979)



Telework by Personal and Employment Characteristics

Differences in Telework Use by Demographics

Telework was not distributed equally by demographic group. Table 23 compares the incidence of telework by respondents' gender, race/ethnicity, age, and income. The table presents the percentages of respondents in each demographic group who teleworked in 2019 (e.g., 35% of men and 34% of women) and in 2022 (e.g., 66% of men and 66% of women). The last column shows the 2022 percentage of commuters in the group who "could and would" telework if given the opportunity (e.g., additional 9% of men and 9% of women would telework). Note that the "could and would" percentages should be compared against the 9% regional "could and would" average.

Table 23
Telework by Demographic Characteristics

Demographic Group	2019 SOC		2022 SOC		
	(n = __) *	Telework	(n = __) *	Telework	"Could and would Telework"**
Gender					
Male	3,859	35%	3,817	66%	9%
Female	3,806	34%	3,674	66%	9%
Race/Ethnicity					
Asian	586	39%	659	76%	9%
Non-Hispanic White	5,466	39%	4,582	70%	8%
Non-Hispanic Black	1,351	27%	1,222	60%	10%
Hispanic	502	26%	487	57%	9%
Age					
Under 25 years	205	19%	243	40%	19%
25 – 34	1,520	35%	1,530	67%	9%
35 – 44	1,795	37%	1,844	72%	9%
45 – 54	1,998	36%	1,783	68%	8%
55 – 64	1,883	32%	1,804	64%	9%
65 or older	614	27%	614	55%	8%
Income					
Less than $30,000	123	5%	118	19%	15%
$30,000 – $59,999	510	15%	495	38%	12%
$60,000 – $99,999	1,234	25%	1,230	59%	10%
$100,000 – $139,999	1,267	36%	1,163	70%	8%
$140,000 – $179,999	1,013	45%	1,043	77%	9%
$180,000 – $249,999	957	48%	1,104	80%	6%
$250,000+	580	53%	896	84%	6%

* All respondents in the group, both teleworkers and non-teleworkers
** Respondents whose job responsibilities would allow telework and who would be interested in telework

In 2022, some demographic groups teleworked more than did others. For example, 76% of Asian respondents and 70% of Non-Hispanic Whites teleworked, compared with 60% of Non-Hispanic Blacks and 57% of Hispanics. Use of telework increased with increasing age to a peak among 35 to 44 year old respondents, then declined as age increased further. There was a strong pattern of increasing telework as income increased; about eight in ten respondents with household incomes of $140,000 or more teleworked, compared with only 19% of workers with incomes below $30,000, 38% of workers with incomes between $30,000 and $59,999, and 59% of respondents with incomes of $60,0000 to $99,999.

The relative use of telework by demographic groups in 2022 generally followed the 2019 patterns; demographics groups with higher telework use in 2022 also had higher share of telework in 2019. But even groups with lower use in 2022 exhibited telework growth since 2019.

Table 23 also illustrates the potential for additional telework; the percentages of non-teleworkers who would telework in the future, if given the opportunity. In general, with only a few exceptions, additional potential was within one or two percentage points of the 9% regional average for most groups. The youngest respondents and lower income respondents exhibited higher potential telework, but their current telework percentages were much lower than for others in the demographic category.

Differences in Telework Use by Home and Work Location

Respondents who lived in the Core area (77%) teleworked at a higher rate than did Middle Ring (64%) residents and Outer Ring residents (61%) (Table 24). A similar pattern was observed for telework by work area but with a stronger association; 76% of respondents who worked in the Core area and 60% of Middle Ring workers teleworked, compared with less than half (47%) of respondents who worked in the Outer Ring.

Table 24
Telework by Home/Work Area and Home/Work State

Commute Characteristic	2019 SOC		2022 SOC		
	(n = __) *	Telework	(n = __) *	Telework	"Could and would Telework"**
Home Area					
Core	2,198	37%	2,563	**77%**	**7%**
Middle Ring	2,421	35%	2,531	**64%**	**10%**
Outer Ring	3,488	31%	3,045	**61%**	**10%**
Work Area					
Core	3,843	39%	3,982	**76%**	**7%**
Middle Ring	2,828	32%	2,700	**60%**	**11%**
Outer Ring	1,375	23%	930	**47%**	**13%**
Home State					
District of Columbia	751	35%	956	**77%**	**6%**
Maryland	3,876	35%	3,433	**62%**	**10%**
Virginia	3,592	35%	3705	**67%**	**9%**
Work State					
District of Columbia	2,720	41%	2,871	**78%**	**7%**
Maryland	2,447	31%	2,169	**57%**	**13%**
Virginia	2,846	31%	2,881	**62%**	**9%**

* All respondents in the group, both teleworkers and non-teleworkers

** Respondents whose job responsibilities would allow telework and who would be interested in telework

Telework use by home state followed the pattern for Home Area; District of Columbia residents (77%) teleworked at a higher rate than did Maryland (62%) or Virginia (67%) residents. The pattern was similar for work state; 78% of District workers teleworked, compared with 57% in Maryland and 62% of Virginia.

Differences in Telework Use by Employment Characteristics

The survey data also showed differences in the telework and potential telework distribution by employment characteristics (Table 25).

Table 25
Telework by Employment Characteristics

Employment Characteristic	2019 SOC		2022 SOC		
	(n = __) *	Telework	(n = __) *	Telework	"Could and would Telework"**
Employer Type					
Federal agency	2,435	48%	2,284	79%	7%
Non-profit organization	1,152	36%	1,269	75%	8%
Private employer	3,480	30%	3,514	62%	10%
State/local agency	848	14%	789	48%	16%
Employer Size					
1 – 25 employees	1,390	24%	1,367	45%	1%
26 – 100	1,578	26%	1,481	60%	11%
101 – 250	1,031	34%	1,005	66%	10%
251 – 999	1,414	41%	1,275	75%	8%
1,000+	2,174	42%	2,033	74%	8%
Occupation					
Executive, manager	1,796	41%	1,300	74%	10%
Professional	4,006	38%	3,202	73%	9%
Technicians/related support	152	19%	669	71%	6%
Administrative support	527	20%	818	65%	15%
Military	90	9%	101	57%	23%
Protective services	184	15%	237	46%	10%
Sales	228	25%	209	44%	7%
Other service	101	2%	181	22%	4%
Precision craft, production	74	14%	77	5%	9%

* All respondents in the group, both teleworkers and non-teleworkers
** Respondents whose job responsibilities would allow telework and who would be interested in telework

Federal agency employees (79%) and non-profit organization employees (75%) reported the highest rate of telework, above the 62% of private sector workers and well above the 48% for state/local agency employees. The lower rates of telework for private sector workers would reflect the wider job types in this category, including retail, service, medical, hospitality, and other jobs that involve greater levels of customer contact than for most Federal agencies and non-profit organizations. Similarly, state/local agency jobs include utilities, fire and police protective services, and other government functions that require an onsite presence.

Generally, use of telework increased with increasing employer size. About three-quarters of respondents who worked for employers with 251 to 999 employees (75%) or 1,000 or more employees (74%) teleworked, compared with 45% of respondents who worked for employers with between 1 and 25 employees. Some occupations also had above average telework rates, including executive and managerial (74%), professional (73%), and technicians/related support (71%). Common occupations with below average telework rates included protective services (46%), sales (44%), other service such as hospitality (22%) and precision craft/production (5%).

Telework Use Patterns

Respondents who self-defined as teleworkers were questioned about their telework characteristics including their telework location, incidence of trips during a telework day, length of time teleworking, use of informal or formal telework arrangement, and sources of telework information.

Telework Locations

Nearly all (96%) teleworkers said they teleworked exclusively from home. Two percent named another telework location, such as a satellite office, library or community center, or Telework/Co-working Center and 2% said they teleworked from both home and from another location. Teleworkers who teleworked from locations outside their homes traveled an average distance of 12.5 miles to the telework location. Three-quarters (76%) of these respondents drove alone to the telework location. The remaining 24% used an alternative mode.

Trips Made During a Telework Day

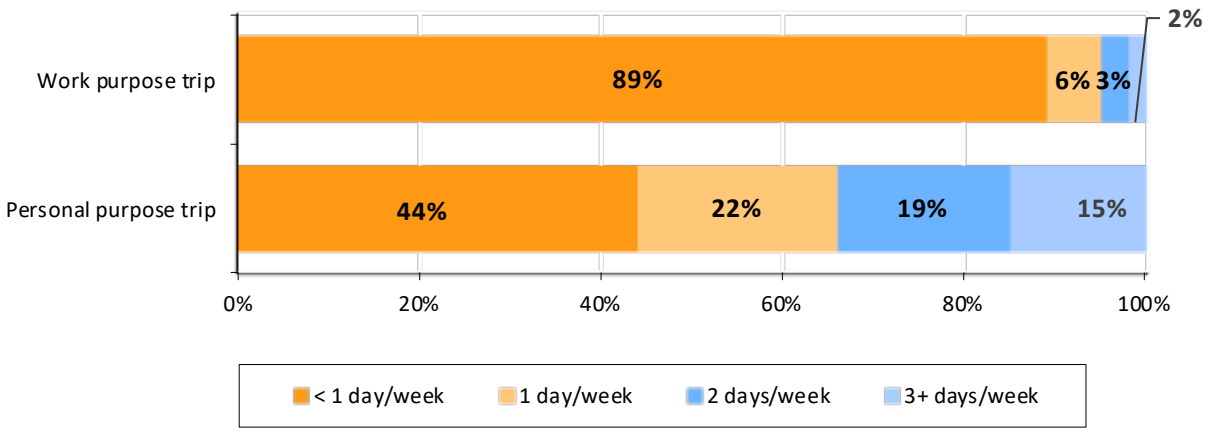
Many workers who commute to an outside location use their commute trip as an opportunity to make personal errand, shopping, and appointment trips on the way to and from work. Respondents who telework full-time do not have that opportunity but might make some of these trips during their regular work hours. The 2022 survey added a question, asked only of full-time teleworkers, to examine the frequency of work-purpose and personal-purpose trips made by teleworkers.

Work-Purpose Trips – Respondents made few work-purpose trips on telework days (Figure 42). Nine in ten (89%) said they typically made these trips less than one day per week and 6% said they made such trips only one day per week. Only 5% made work-purpose trips on two or more telework days.

Personal-Purpose Trips – Full-time teleworkers made personal-purpose trips much more frequently. More than half (56%) typically made a personal trip at least one day per week during usual work hours, 19% made trips two days per week and 15% made these trips three or more days per week.

The survey did not ask when during the workday the trip was made, the trip distance, or the modes used for the trips, so it is not possible to estimate the travel or environmental impact of the trips. But trips made during work hours on telework days could contribute to regional traffic and/or air pollution if they are primarily made by driving during the peak commuting hours.

Figure 42
Frequency of Work-Purpose and Personal-Purpose Trips on Telework Days – Full-time Teleworkers
(n = 2,874)



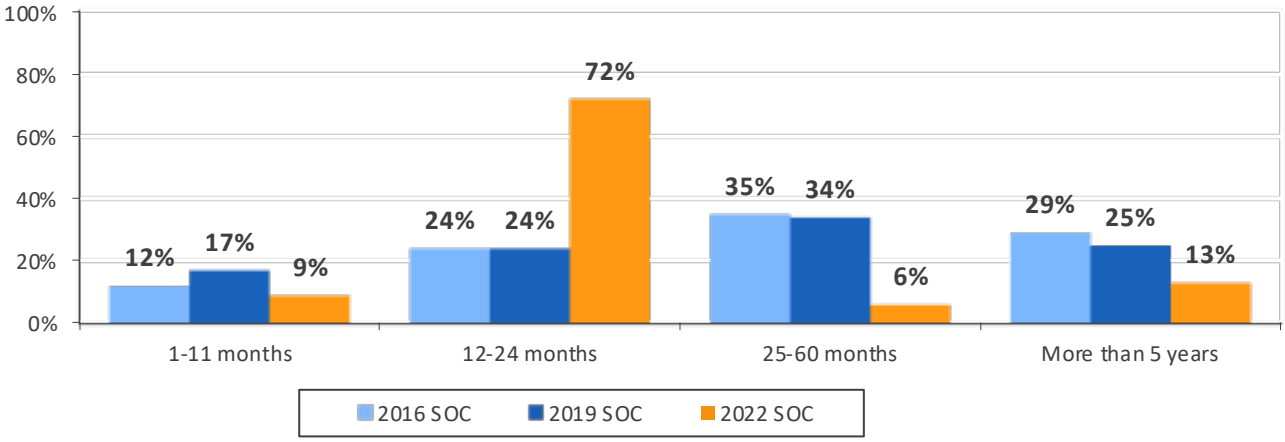
Frequency of personal trip making was similar across most telework sub-groups; there were no differences among teleworkers who worked under a formal or informal arrangement and no difference by how long they had been teleworking. Similarly, there were no differences by gender, income, or race/ethnicity. But several characteristics were associated with higher rates of personal trip-making:

- Lived in the Core – 65% of Core area teleworkers made personal trips at least one day per week, compared with 56% who lived in the Middle Ring and 46% of Outer Ring teleworkers.
- Worked for smaller employers – 62% of teleworkers who worked at worksites with 100 or fewer employees made at least one trip per week, compared with 54% who worked for firms with 101 to 999 employees, and 50% who worked for employers with 1,000 or more employees.
- Worked for state/local agencies or non-profit organizations – 64% of state/local agency workers and 63% of teleworkers employed by non-profit organizations made at least one personal trip per week on a telework day, compared with 59% of private sector employees and 47% of Federal agency workers.
- Younger than 35 years old – 63% of respondents who were younger than 35 years made at least one personal trip per week during their telework day, compared with 57% of respondents who were between 35 and 54 years old and 44% of those who were 55 years or older.

Length of Time Teleworking

Although telework has been common in the region for many years, telework's growth has meant that in each SOC survey, a sizeable share of teleworkers said they adopted this work option recently. As indicated in Figure 43, 36% of teleworkers in the 2016 SOC survey and 41% of 2019 teleworkers started teleworking within the past two years. In each of those years, about one-third teleworked for between 25 and 60 months and about one-quarter had been teleworking more than five years.

Figure 43
Length of Time Teleworking
(2016 n = 1,822, 2019 n = 2,744, 2022 n = 5,390)



Not surprisingly, given the nearly doubling of telework between 2019 and 2022, the pattern for 2022 was much different. More than eight in ten teleworkers had been teleworking two years or less and 72% started teleworking between 12 and 24 months before the survey. The question specifically asked respondents to indicate the approximate duration in months and fully 52% of all teleworkers said they started 22, 23, or 24 months ago. The 2022 SOC survey was conducted between January and March 2022, thus most new teleworkers started in March or April of 2020. In 2022, only 19% of all teleworkers had teleworked more than two years; 13% had been teleworking more than five years.

On average, 2022 SOC respondents had been teleworking about 30 months, well below the average of 50 months calculated in the 2019 survey. But with the steady growth in telework in past years, as more workers teleworked each year, the average telework duration had been declining since 2013, when the average was 59 months.

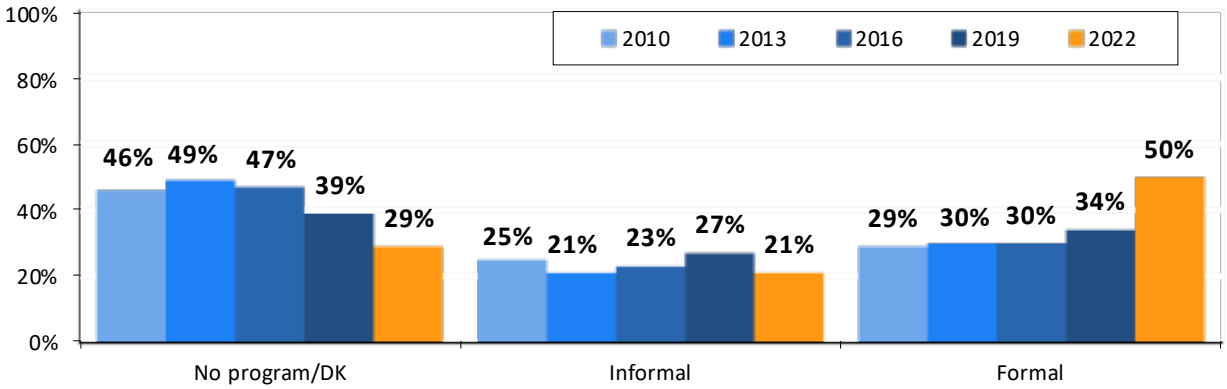
Formal or Informal Telework Arrangement

Teleworkers were asked if they teleworked under a formal program or through an informal arrangement with a supervisor. Respondents who said they were not teleworkers were asked if their employer had a telework program, even though the respondent did not use it. More than seven in ten (71%) of all respondents said their employers allowed some telework, either under a formal program (50%) or an informal arrangement (21%) (Figure 44). The remaining 29% of respondents said their employers did not have any telework program (18%) or that they did not know about any program (11%).

Figure 37 also shows telework arrangements for the four previous SOC surveys. The overall share of employees that reported telework availability increased in each SOC survey between 2013 and 2022, with the change between 2019 and 2022 (+10%) being about the same as for 2016 to 2019 (+8%).

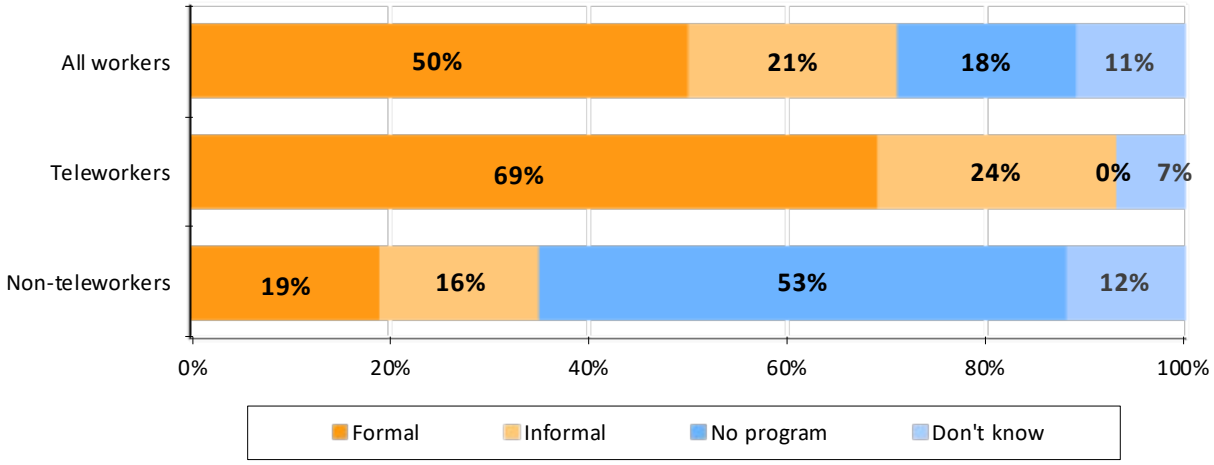
What changed markedly was the shares of formal and informal telework. Until 2022, formal programs only slightly dominated over informal programs. The 2022 results exhibited a notable change in the pattern, with formal programs accounting for seven in ten of all telework programs in 2022. It is possible that employers' opening telework to a much greater number and wider range of employees to respond to the pandemic prompted some employers to formalize telework policies and replace informal agreements that had been sufficient for use with selected employees before the pandemic.

Figure 44
Telework Arrangements – 2010 to 2022
(2010 n = 5,854, 2013 n = 5,892, 2016 n = 5,487, 2019 n = 8,101, 2022 n = 8,214)



Availability of Telework Arrangements at Worksites by Teleworkers and Non-teleworkers – Teleworkers were much more likely than were non-teleworkers to report that their employer had a formal telework program (Figure 45). Seven in ten (69%) teleworkers teleworked under a formal arrangement and 24% teleworked under an informal arrangement with their supervisor. This represents a continued shift from 2010, when only 50% of teleworkers had a formal agreement.

Figure 45
Formal and Informal Telework Arrangements Available at Work – Teleworkers and Non-Teleworkers
All respondents and Teleworkers versus Non-Teleworkers
(All workers n = 8,214, Teleworkers n = 5,221, Non-teleworkers n = 2,600)



Among respondents who were not teleworking, only 19% said their employers had a formal telework program and 16% said telework was permitted under informal arrangements. Half (53%) said the employer had no program and 12% did not know if a program existed.

Telework Arrangement by Employer Type – The availability of telework arrangements varied by respondents' employer types. Formal programs were most common among respondents who worked for a Federal government agency (Table 26).

Table 26
Formal or Informal Telework Arrangements By Employer Type

Program Type	Federal Agencies (n = 2,279)	Non-profit Organizations (n = 1,265)	Private Employers (n = 3,503)	State/local Agencies (n = 787)
No TW program/Don't know	16%	19%	35%	41%
Telework permitted	84%	81%	65%	59%
Formal program	74%	52%	39%	45%
Informal arrangement	10%	29%	26%	14%

Three-quarters (74%) of respondents who worked for Federal agencies said their employers had formal programs, compared to only about 52% of respondents who worked for non-profit organizations, 39% who worked for private employers, and 45% who were employed by state/local agencies. Respondents who worked for non-profit organizations or private employers were most likely to have informal telework. Three in ten (29%) non-profit employees and 26% of private sector employees said their employers permitted informal telework. State/local government agencies were least likely to permit telework under any arrangement. Only 59% of these respondents said their employer allowed employees to telework at all.

Telework Arrangement by Employer Size – Respondents who worked for large employers were most likely to have access to a telework program and to have access to a formal program (Table 27). Eight in ten respondents who worked employers with 1,000 or more employees said their employer had either a formal program (64%) or permitted informal telework (15%). By contrast, only two-thirds who worked for employers with 50 or fewer employees had access to either formal (42%) or informal (25%) telework.

Table 27
Formal or Informal Telework Arrangements By Employer Size

Program Type	1-50 Employees (n = 1,477)	51-100 Employees (n = 802)	101-250 Employees (n = 1,004)	251-999 Employees (n = 1,273)	1,000+ Employees (n = 2,027)
No TW program/Don't know	33%	32%	28%	21%	21%
Telework permitted	67%	68%	72%	79%	79%
Formal program	42%	43%	52%	61%	64%
Informal arrangement	25%	25%	20%	18%	15%

Telework Arrangement by Employer Location – Finally, access to telework programs generally and formal telework, specifically, were both more common for respondents who worked in the Core (Table 28). Nearly eight in ten respondents who worked in the Core said their employer had either a formal program (56%) or permitted informal telework (22%). Among Middle Ring workers, about two-thirds had access to either a formal program (45%) or informal program (21%). Workers in the Outer Ring were least likely to have access to telework; only 54% had any telework option and just 18% said their employer had a formal program.

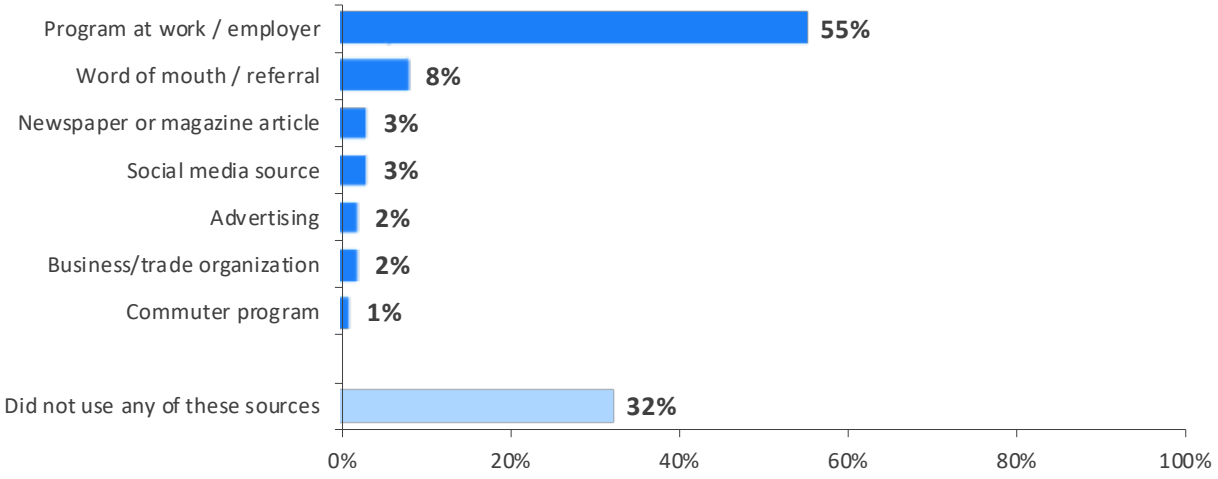
Table 28
Formal or Informal Telework Arrangements By Employer Work Location

Program Type	Core (n = 3,969)	Middle Ring (n = 2,695)	Outer Ring (n = 926)
No TW program/Don't know	22%	34%	46%
Telework permitted	78%	66%	54%
Formal program	56%	45%	36%
Informal arrangement	22%	21%	18%

Sources of Telework Information

Respondents who teleworked were if they had used any of a listed set of information resources to learn about telework. They also were asked a separate question to determine if they had received telework information from Commuter Connections or from MWCOG. The largest source of information, by far, was "program at work/employer," named by 55% of respondents (Figure 46). Eight percent learned of telework through "word of mouth" referrals from friends, co-workers, or family.

Figure 46
Sources of Information About Telework
(n = 2,511, multiple responses permitted)



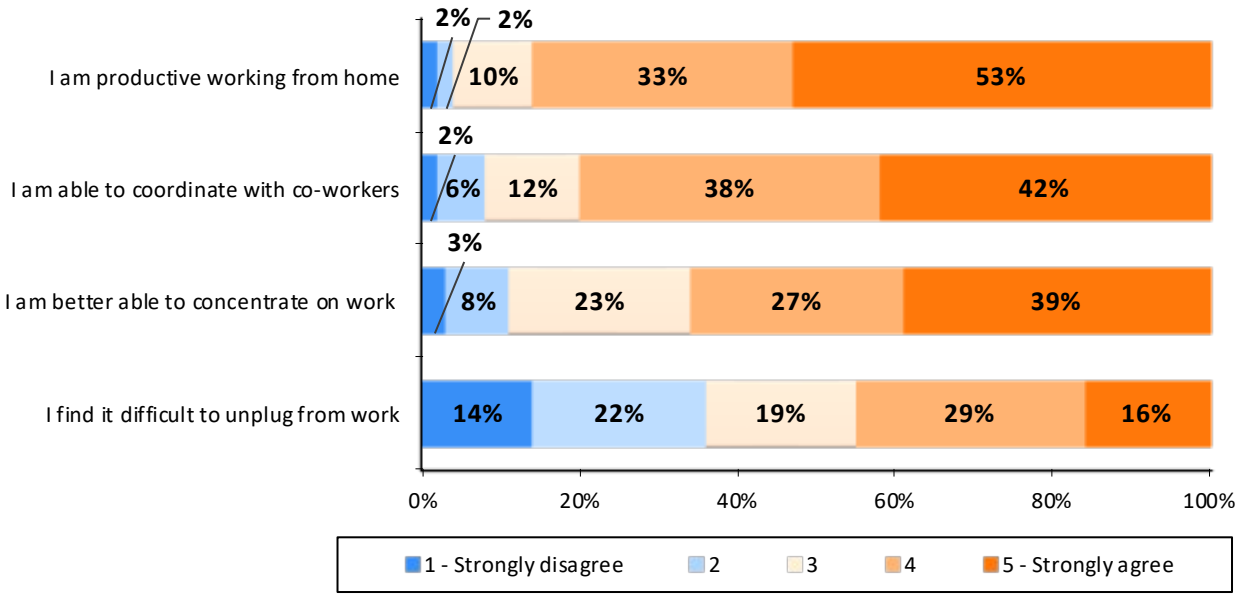
Small percentages of respondents mentioned that a newspaper or magazine article (3%), social media (3%), general advertising (2%), or a business or trade/industry organization (2%) provided information. In this question about general sources, 1% cited a commuter service organization or program, such as Commuter Connections, Telework!VA, www.telework.gov, or a county transportation program.

When asked directly if they had received information from Commuter Connections or MWCOG, 5% said they had. This was a slightly lower percentage than had mentioned Commuter Connections/MWCOG in 2019 (7%) and 2016 (9%) but many teleworkers likely had been directed by their employer to work from home due to the pandemic, so perhaps had not sought information beyond the information their employers supplied. Additionally, while the percentage was lower in 2022, on the high base of teleworkers, this represented more than 100,000 teleworkers who had received telework information from Commuter Connections/MWCOG.

Respondents' Experience with Telework

Telework research has found that employees can receive both personal and work-related benefits from teleworking. To examine this possibility for the Washington region, the survey asked teleworkers to rate their level of agreement with four statements about possible impacts of teleworking (Figure 47).

Figure 47
Experience with Telework – Agreement with Statements About Telework
(n = 2,411)



At least eight in ten respondents agreed with the statement that they were productive while they were teleworking (86%) and that they were able to coordinate with co-workers while they were working at home (80%). These are two common concerns of managers about employees who work remotely; employees' perception was that they did not experience significant problems with these two considerations. Teleworkers were less positive in assessing telework's impact on their concentration; 66% agreed that they were better able to concentrate on work while teleworking and one-quarter (23%) gave this statement a neutral rating, indicating neither agreement nor disagreement.

Teleworkers rated their agreement on one potential negative impact of telework. When asked if they found it difficult to unplug from work while teleworking, nearly half (45%) agreed. But more than one-third either disagreed or strongly disagreed, suggesting that it was not universally a concern.

One important caveat in reviewing these results is that they reflect telework experience for a very unusual period. Many employers and teleworkers were new to the arrangement in 2020 and some encountered technical, coordination, and management issues that needed to be resolved all at once. For this reason, the results presented above might not be comparable to results of similar telework research conducted pre-pandemic.

However, the survey was conducted two years after the start of the pandemic, thus the experience described above likely reflects resolution of most telework issues that might have been common at the start of the pandemic. Additionally, some workers who worked from home during the early months of the pandemic could have returned to full-time work at an outside work location. These respondents would not have been asked the telework agreement questions, so the level of agreement with the telework statements would include only those workers who were teleworking at the time of the survey.

Agreement With Telework Experience Statements by Length of Time Teleworking – Table 29 shows the level of agreement on the four telework statements by how long respondents had been teleworking. Statistical differences were found between long-term teleworkers and respondents who started teleworking more recently on two statements. Respondents who had been teleworking 25 months or longer, meaning they started teleworking prior to the pandemic, reported slightly higher agreement with the statements "I'm productive working at home" and "I'm better able to concentrate on work tasks" than did respondents who had been teleworking less than 25 months.

Table 29
Percentage Agreeing with Telework Statement by Length of Time Teleworking
(Shaded percentages indicate statistically higher percentages of agreement)

Telework Statement	Length of Time Teleworking		
	1-24 months (n = 4,143)	25-60 months (n = 657)	61+ months (n = 517)
Productive working at home	85%	88%	92%
Better able to concentrate on work	64%	71%	73%
Able to coordinate with co-workers	80%	82%	86%
Difficult to unplug from work	45%	45%	44%

But the percentages who said they were able to coordinate with co-workers were statistically the same across the three groups. Similarly, about four in ten (44%-45%) in each group reported agreement with the statement about difficulty unplugging from work.

Agreement With Telework Experience Statements by Desire to Continue Teleworking – As noted earlier, most current teleworkers wanted to continue teleworking, but many wanted to telework only some of their workdays. It seems reasonable to think that teleworkers' interest in future teleworking could be related to their experience during the pandemic. Table 30 shows the level of agreement on the four telework statements by respondents' preference for future telework.

Teleworkers who wanted to telework frequently in the future reported higher agreement with the three statements about positive impacts of telework on their work and lower agreement with the one statement about a negative personal impact. Agreement with the statement that "I'm productive working at home" showed a steady increase with increase in the preferred frequency of future telework; 95% who wanted to telework all their workdays agreed with the statement, compared with 69% who wanted to telework less than one day per week.

Respondents who were interested in frequent telework also had higher agreement on the statements related to concentration on work tasks and ability to coordinate with co-workers and lower agreement on the one statement about difficulty unplugging from work. These results suggest that personal factors and personality characteristics could influence both respondents' interest in telework as well as their self-assessment of their personal suitability to telework.

Table 30
Percentage Agreeing with Telework Statement by Desired Future Telework Frequency
(Shaded percentages indicate statistically higher percentages of agreement)

Telework Statement	Desired Future Telework Frequency			
	< 1 day per week (n = 373)	1-2 days per week (n = 1,233)	3-4 days per week (n = 1,712)	All workdays (n = 2,042)
Productive working at home	69%	74%	88%	95%
Better able to concentrate on work	39%	43%	65%	83%
Able to coordinate with co-workers	60%	70%	80%	90%
Difficult to unplug from work	58%	54%	48%	35%

Agreement With Telework Experience Statements by Demographic Characteristics – Analysis of the agreement with the statements by demographic sub-groups showed slight differences by age and gender. Respondents who were older than 35 were slightly more likely to agree that they were productive (88%) than were teleworkers who were younger than 35 years (82%). A higher share of older respondents (68%) also agreed that they were better able to concentrate than were those under 35 (61%).

There also were statistical differences in the responses from female and male teleworkers, with female respondents reporting higher agreement with the three work-related statements: productive working at home (89% of females, 84% of males), better able to concentrate on work (71% of females, 60% of males), and able to coordinate with co-workers (83% of females, 78% of males). These age and gender differences could be related to many other factors, however, including the types of work they perform, their roles in the organizations, and personal or home situations.

SECTION 5 – AVAILABILITY OF AND ATTITUDES TOWARD TRANSPORTATION OPTIONS

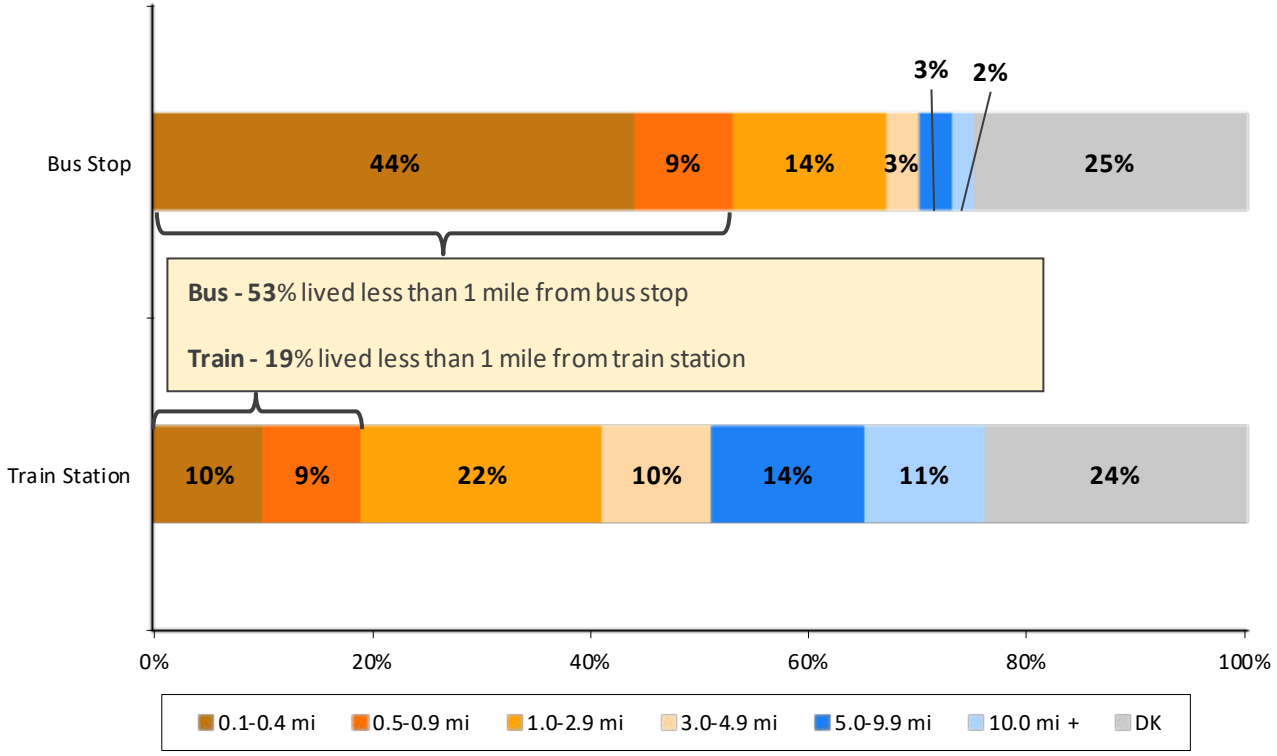
Another major section of the State of the Commute Survey examined the availability of transportation options, such as public transportation, and respondents' attitudes toward these options.

Public Transportation

Distance to Bus Stop and Train Station

Respondents were asked how far their homes were from the nearest bus stop and the nearest train station. More than four in ten (44%) respondents said they lived less than one-half mile from a bus stop and 53% lived less than one mile (Figure 48). But one-quarter (25%) were unsure of the distance. Among respondents who could provide a distance to a bus stop, the average distance was 1.1 miles.

Figure 48
Distance from Home to Bus Stop and Train Station
(n = 8,109)



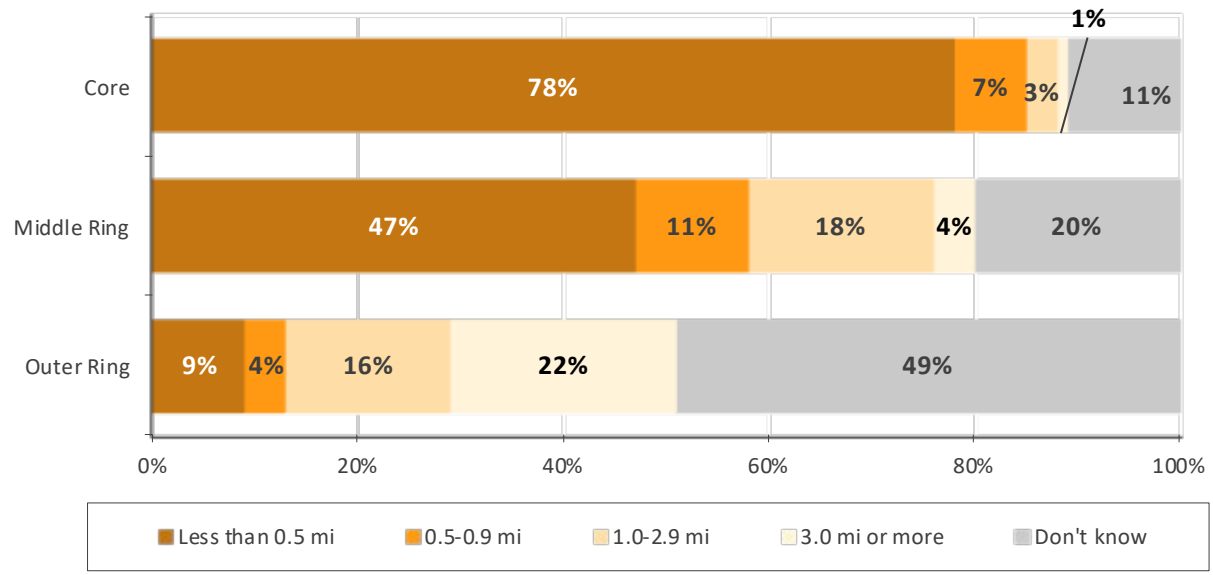
Train stations were farther away for most respondents. Only 10% lived less than one-half mile from a Metrorail or commuter rail station and only 19% lived less than one mile. Thirty-five percent said they lived three or more miles from the nearest train station. As with bus stop distance, 24% of respondents did not know the distance from their home to the train stations. On average, respondents who provided a distance lived 4.4 miles away.

Distance to Transit by Home Area

Figure 49 presents the distribution of bus stop distance for the three home areas. Eight in ten (85%) Core area residents said they lived less than one mile from a bus stop, compared with 58% of Middle Ring and just 13% of Outer Ring residents. About 22% of Middle Ring and 38% of Outer Ring residents said they lived one or more miles from a bus stop but an additional 20% of Middle Ring and 49% of Outer Ring residents said they did not know the distance to the nearest bus stop; it is likely these respondents did not have bus stop nearby.

The average transit access distance was the shortest for respondents who lived in the Core area; just 0.4 miles to the nearest bus stop and 1.2 miles to the nearest train station. Respondents in the Middle Ring said they traveled 0.8 miles to the nearest bus stop and 3.9 miles to the nearest train station. Respondents who lived in the Outer Ring reported that the nearest bus stop was an average of 3.7 miles away and train was 10.6 miles away.

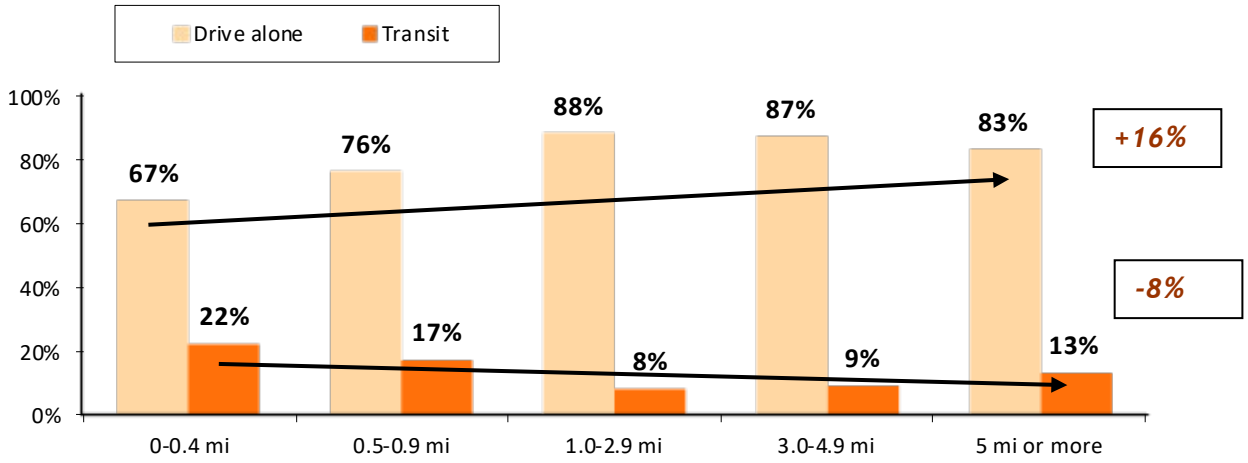
Figure 49
Distance from Home to Bus Stop by Home Area
(Core n = 2,559, Middle Ring n = 2,518, Outer Ring n = 3,032)



Commute Mode by Distance to Bus Stop – As might be expected, the transit commute mode share declined with increasing distance from a bus stop (Figure 50). More than two in ten (22%) commuters who lived less than one-half mile from a bus stop primarily commuted by bus or train. As the distance from home to a bus stop increased, the transit share fell. When the nearest bus stop was one or more miles from home, the percentage who commuted by transit fell by half.

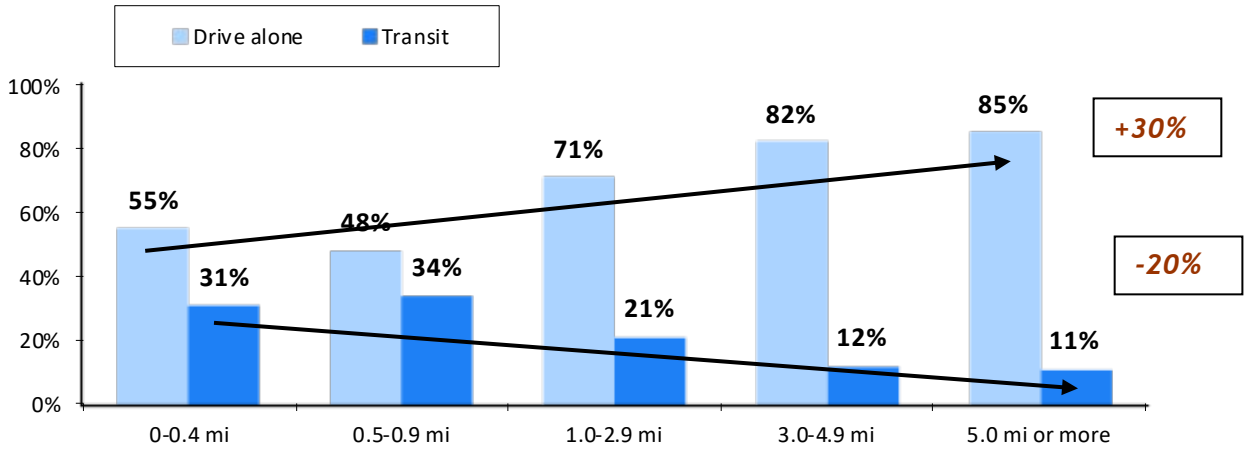
The decline in transit use was mirrored by a corresponding increase in driving alone. The drive alone rate for commuters who lived one or more miles from a bus stop was as much as 21 percentage points higher than the 67% rate for commuters who lived less than one-half mile from a bus stop.

Figure 50
Commute Mode by Distance from Home to Bus Stop (Excluding Primary Telework)
(Less than 0.5 mi n = 1,542, 0.5-0.9 mi n = 313, 1.0-2.9 mi n = 563, 3.0-4.9 mi n = 173, 5.0 mi or more n = 391)



Drive alone use also increased and transit use decreased with increasing distance from home to a train station (Figure 51). Among commuters who lived less than one-half mile from a train station, 55% drove alone and 31% used transit. Among commuters who lived 5 miles or more from the nearest train station, the drive alone rate was 85%, an increase of 30 percentage points, and the transit share was 11%, a drop of 20 percentage points.

Figure 51
Commute Mode by Distance from Home to Train Station (Excluding Primary Telework)
(Less than 0.5 mi n = 332, 0.5-0.9 mi n = 343, 1.0-2.9 mi n = 771, 3.0-4.9 mi n = 328, 5.0 mi or more n = 1,153)



High Occupancy Vehicle (HOV) and Express/Toll Lanes

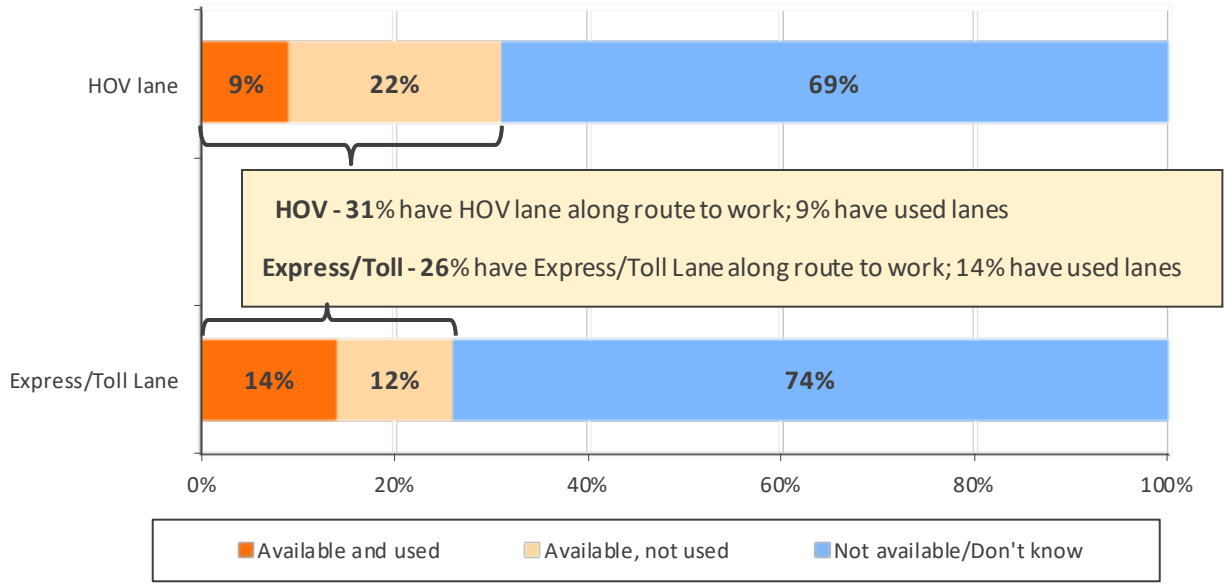
Availability and Use of HOV and Express/Toll Lanes

The survey also examined availability and use of High Occupancy Vehicle (HOV) and Express/Toll Lanes. Several roads in the region have had HOV lanes for many years. In recent years, new HOV lanes have opened in Maryland and Virginia, and Virginia has initiated tolled Express Lanes, which permit travelers who are driving alone to use the lanes for a fee. The 2022 SOC survey repeated several HOV/Express questions from previous SOC surveys. Because respondents who were full-time teleworkers could not report on current availability or use of the lanes, they were excluded from this set of questions.

Nearly four in ten (38%) commuters said one or both types of facilities were available along their route to work: 31% had access to HOV lanes (12% only HOV and 19% both HOV and Express/Toll) and 26% had access to Express/Toll lanes (7% only Express/Toll and both 19% Express/Toll and HOV). About half (52%) said HOV/Express lanes were not available and 10% said they were not sure.

Nine percent of commuters region-wide had used an HOV lane, about one-third of the 31% of commuters who said an HOV lane was available along their route to work (Figure 52). Fourteen percent of commuters region-wide had used an Express/Toll Lane, more than half of the 26% who reported access to an Express/Toll Lane along the route to work.

Figure 52
Availability and Use of HOV and Express/Toll Lanes – All Regional Commuters
(n = 4,910)

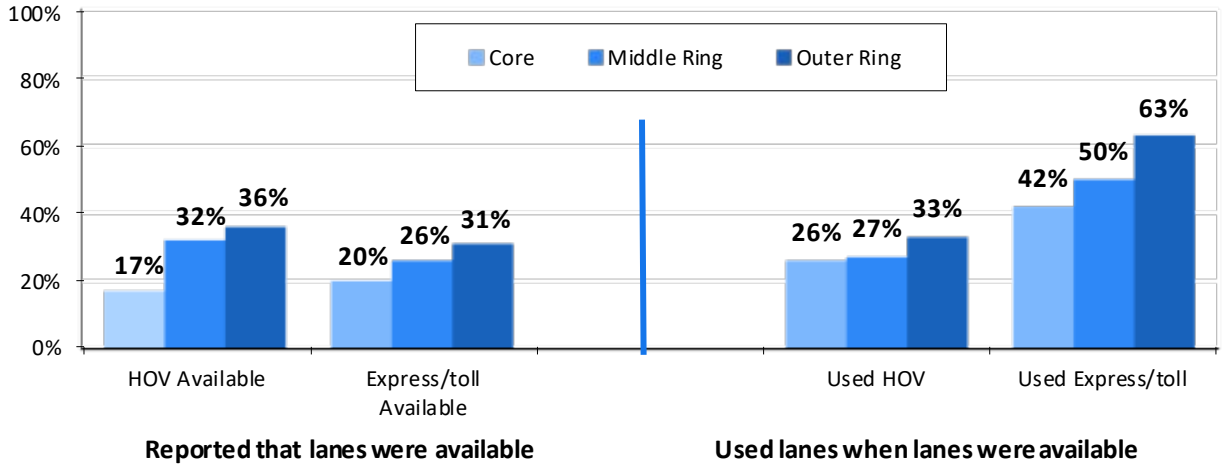


The lower use of HOV lanes than Express/Toll Lanes is certainly related to the lower potential market for HOV lanes; they allow only carpools, vanpools, and transit buses, while Express/Toll Lanes also are open to all vehicles, including single-occupant vehicles. But reported availability of HOV lanes fell between 2019 to 2022; in 2019, 34% of respondents said an HOV lane was available on their route. By contrast, both availability and use of Express/Toll Lanes increased from 2019 to 2022; in 2019 only 18% reported that an Express/Toll Lane was available and 12% of commuters had used an Express/Toll Lane.

HOV and Express/Toll Lanes by Home Area – Figure 53 shows availability and use of HOV lanes and Express/Toll Lanes by home location within the three "ring" categories. Commuters were more likely to have HOV lanes available on their route to work if they lived in Middle Ring (32%) or Outer Ring (36%) jurisdictions than if they lived in the Core (17%). The pattern was similar for availability of Express/Toll Lanes; 26% of Middle Ring and 31% of Outer Ring residents said they were available, compared with 20% of Core area residents. The greater access of commuters who lived and worked outside the Core reflects the locations of HOV lanes and Express/Toll Lanes, nearly all of which are outside the Core.

Figure 53
Availability and Use of HOV and Express/Toll Lanes by Home Area

(HOV lane/Express Lane available – Core n = 1,289, Middle Ring n = 1,548, Outer Ring n = 2,099)
(HOV lane used (respondents with lanes available) – Core n = 292, Middle Ring n = 455, Outer Ring n = 580)
(Express lane used (respondents with lanes available) – Core n = 344, Middle Ring n = 372, Outer Ring n = 447)



The right half of Figure 53 displays use of lanes, among respondents who had the lanes available. Respondents who lived in the Outer Ring also used HOV lanes at a higher rate than did commuters in other areas. One-third (33%) of Outer Ring respondents who had access to HOV lanes said they used them, compared with about one-quarter of Middle Ring (27%) and Core area (26%) residents. Outer Ring respondents also used Express Lanes at a high rate; 63% who said the lanes were available had used them. But Express Lane use also was sizeable (50%) among Middle Ring respondents and four in ten (42%) Core area residents who said Express Lanes were available had used the lanes.

Table 31 shows availability and use of HOV/Express Lanes by respondents' home county or city. Virginia residents generally had higher availability than did residents of Maryland or the District of Columbia. At least one-quarter of respondents in each of the five Virginia jurisdictions said an HOV lane was available; nearly half of Prince William County (49%) and Fairfax (48%) respondents reported having access to HOV lanes. By comparison, the highest rates of HOV lane availability outside Virginia were 38% for Frederick County, MD residents and 31% for Montgomery County, MD residents. Only 9% of respondents from the District of Columbia reported having access to the lanes along their route to work.

Table 31
Availability and Use of HOV and Express/Toll Lanes by Residence Jurisdiction

Home Jurisdiction (County/City)	All Respondents			Respondents Use Lanes When Available			
	(n=___)	HOV Available	Express Available	HOV (n =)*	HOV Use	Express (n=)*	Express Use
Virginia jurisdictions							
Prince William Co	458	49%	49%	241	37%	217	62%
Fairfax Co	518	48%	50%	231	26%	242	53%
Loudoun Co	353	35%	39%	121	31%	137	66%
Alexandria City	404	33%	39%	131	18%	150	35%
Arlington Co	455	26%	34%	124	22%	157	42%
Maryland jurisdictions							
Frederick Co	431	38%	7%	164	25%	30	53%
Montgomery Co	482	31%	14%	143	27%	69	53%
Prince George's Co	548	16%	12%	81	28%	61	38%
Charles County	480	8%	11%	37	35%	45	55%
Calvert County **	377	4%	5%	NA	NA	NA	NA
District of Columbia	430	9%	8%	37	40%	37	52%

* Respondents in the jurisdiction who have an HOV/Express Lane available along their route to work.
** Samples for Calvert County residents with HOV lanes and Express lanes available were too small for reliable analysis of use.

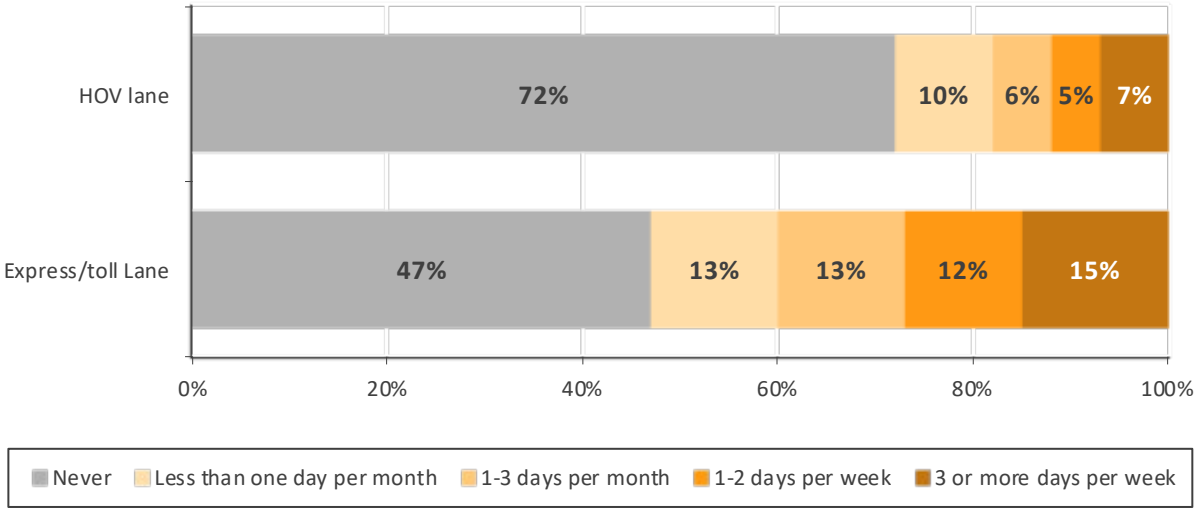
Virginia residents also had higher availability of Express/Toll Lanes than did residents of Maryland or the District of Columbia. Half of Prince William (49%) and Fairfax (50%) residents said Express/Toll Lanes were available. In Maryland, about one in ten residents of Montgomery (14%), Prince George's (12%), and Calvert (11%) counties said Express/Toll Lanes were available.

Table 31 also shows use of the lanes for respondents who had lanes available. Both HOV lane and Express/Toll Lane use was highest for Virginia residents; except for Alexandria, at least two in ten of these jurisdictions used HOV lanes when they were available and four in ten used Express/Toll Lanes.

HOV lane use also was notable for residents of the District of Columbia and Maryland, with at least one-quarter of residents who had lanes available using them. And substantial shares of Maryland residents used Express/Toll Lanes when they were available. But fewer respondents in Maryland jurisdictions had Express/Toll Lanes available, so much smaller numbers of residents of these jurisdictions used the lanes, when compared to absolute use among Virginia residents.

HOV and Express/Toll Lane Use Frequency – As noted above, respondents who had access to Express/Toll Lanes typically used them at a higher rate than did respondents who had access to HOV lanes. They also used them more frequently than did those with HOV lanes available. More than one-quarter (27%) of commuters with Express/Toll Lanes available used them at least one day per week, compared with 12% of commuters who had an HOV lane available (Figure 54).

Figure 54
Use Frequency of HOV and Express/Toll Lanes – Among Commuters Who Have Lanes Available
(HOV lane available n = 1,327, Express/Toll Lane available n = 1,163)



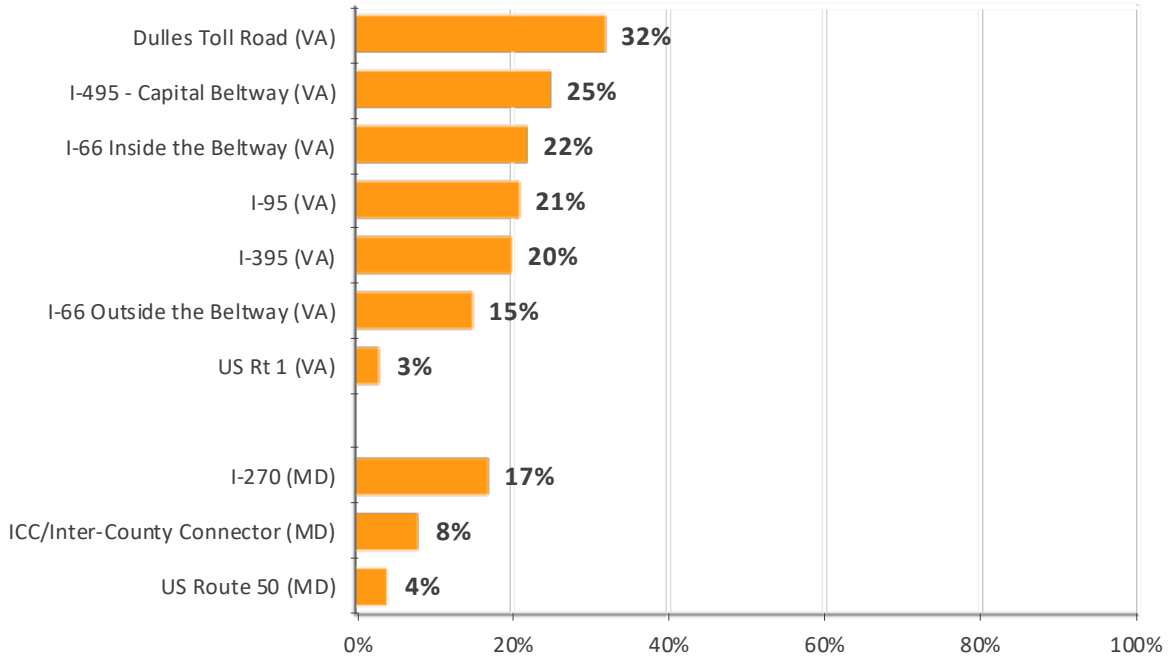
The 27% share of regular use of an Express/Toll Lane when it was available was the same in 2022 as in 2019 (27%). Use of HOV lanes among those who had lanes available declined, however, between 2019 and 2022. In 2022, 12% of commuters with HOV lanes available had used them one or more days per week, compared with 20% in 2019. The decline in HOV lane use likely is related to coronavirus pandemic travel changes away from long-distance bus and carpooling to driving alone.

HOV and Express/Toll Lanes Used – In 2022, HOV/Express/Toll Lanes were available on several major roads in the region. These roads in Maryland included I-270, US Route 50, and the Inter-County Connector. In Virginia, HOV and/or Express/toll lanes were available on I-495, I-66, I-395, I-95, the Dulles Toll Road, and US Route 1. Respondents who said they used either an HOV or Express/toll Lane on their commute were asked which roadway(s) they used (Figure 55).

The most common road overall was the Dulles Toll Road; 32% of respondents who used either an HOV or Express/Toll Lane reported using the lane on this road. About one-quarter of respondents reported using another HOV/Express/Toll lane in Virginia; I-495 - Capital Beltway (25%), I-66 inside the Capital Beltway (22%), I-95 (21%), I-395 (20%), and I-66 outside the Beltway (15%). Lower shares of respondents reported using HOV/Express/Toll lanes in Maryland; I-270 (17%) and Inter-County Connector (8%).

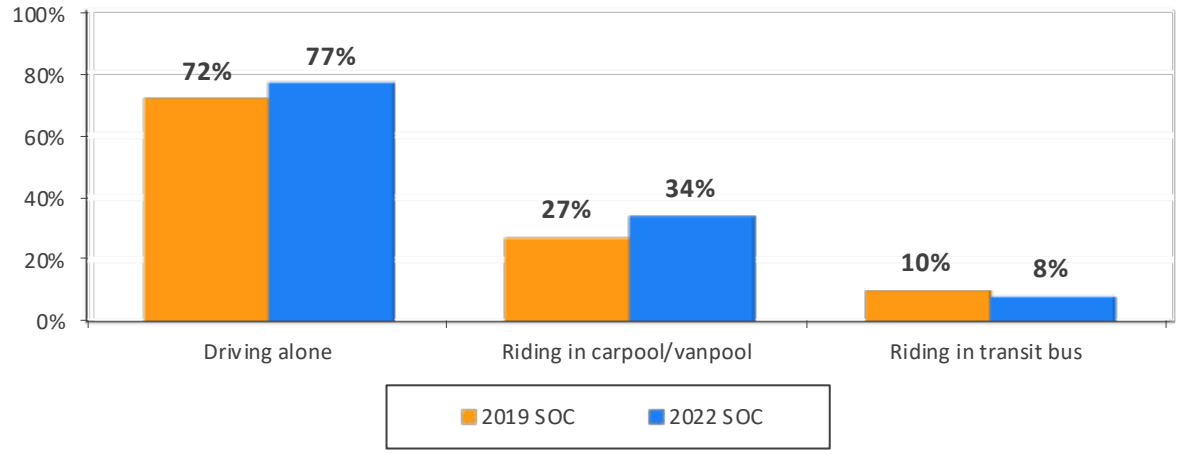
It is important to note that the Figure 55 distribution is based only on the commuters who are using HOV/Express/Toll lanes. It does not reflect the total volume of traffic on the roads or the share of individual road users who access the HOV/Express/Toll lanes on an individual road. Thus, the very high use of the Dulles Toll Road in Figure 55 results because this road is toll only; that is, all vehicles that travel on the road are subject to the toll, and the road is a primary route for many commuters who live or work in Fairfax and Loudoun counties in Virginia. The Inter-County Connector in Maryland also is a toll-only road but carries a lower commuter volume. The other roads listed in Figure 55 offer an option for vehicles to use non-tolled general purpose lanes.

Figure 55
HOV and Express/Toll Lanes Used – Among Commuters Who Have Lanes Available
(n = 747; multiple responses permitted)



Mode When Using Express/Toll Lanes – Respondents who said they used Express/Toll Lanes also were asked what mode they used while traveling on the lanes (Figure 56). During certain hours of the day, HOV lanes are restricted to those using shared-ride modes, such as carpools, vanpools, or transit buses. Express Lanes do not have this restriction; they are open to all users all day, although travelers who are driving alone pay a fee to use the lanes, while shared-ride users travel for free or a reduced price.

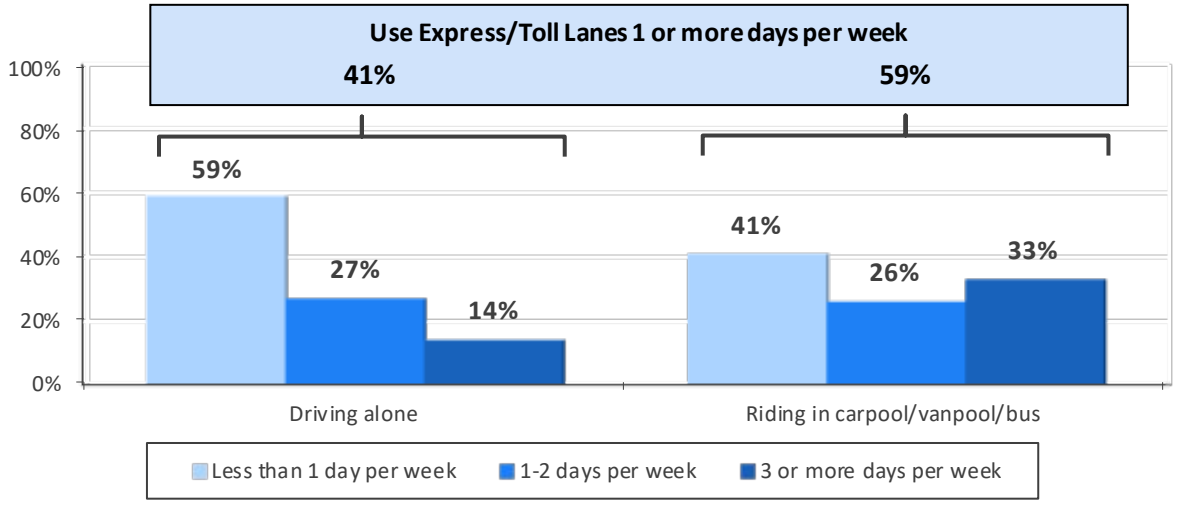
Figure 56
Commute Mode While Using Express/Toll Lanes – 2019 and 2022
(2019 n = 533, 2022 n = 213; multiple responses permitted)



More than three-quarters (77%) of Express/Toll Lane users said they typically drove alone while riding in the Express/Toll Lanes (Figure 56). This was a slightly higher percentage than was observed in 2019 (72%). About one-third (34%) rode in a carpool or vanpool at least some days. This also was an increase over the 2019 percentage of 27%. In 2022, 8% reported riding in a transit bus on the Express/Toll Lanes. This was not statistically different than the 10% result from 2019. Respondents were permitted to select more than one answer, so the total will add to more than 100%.

Frequency of Express/Toll Lane Use by Mode When Using Lane – Although a larger share of commuters said they typically drove alone while using Express/Toll Lanes, commuters who carpooled, vanpooled, or rode transit buses in these lanes used them more frequently. Nearly six in ten (59%) commuters who typically rode in a carpool/vanpool or bus on an Express/Toll Lane did so at least one day per week and 33% used the lane three or more days per week (Figure 57). By contrast, only four in ten commuters who drove alone on an Express/Toll Lane used the lanes at least once per week and only 14% were frequent users.

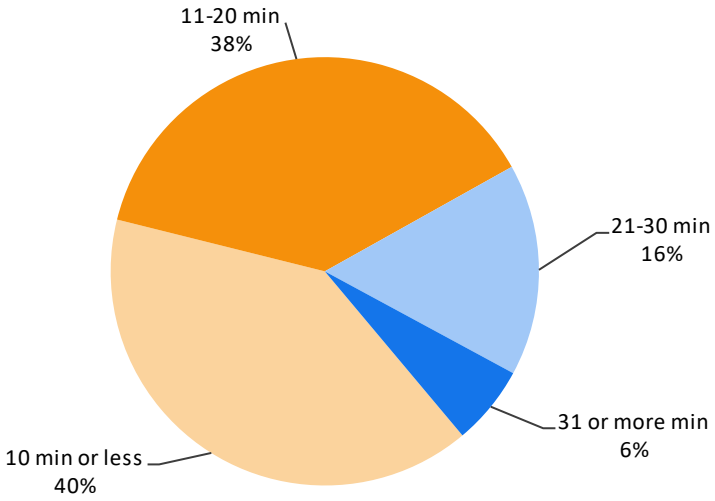
Figure 57
Frequency of Express/Toll Lane Use by Mode While Using Express/Toll Lanes
(Drive alone n = 175, Carpool/vanpool/bus n = 74)



HOV and Express/Toll Lane Influence

HOV and Express/Toll Lane Time Saving – A primary benefit attracting both HOV and Express/Toll Lane users is the travel time saving and travel time reliability these lanes provide. Respondents who said they regularly used an HOV or Express/Toll Lane for commuting estimated that using the lane saved them an average of 16 minutes for each one-way commute trip. Four in ten (40%) respondents said they saved 10 minutes or less and a similar share (38%) said they saved between 11 and 20 minutes (Figure 58). The remaining respondents were split between saving 21 to 30 minutes (16%) and saving more than 30 minutes one-way (6%).

Figure 58
Perceived Travel Time Saving of HOV and Express/Toll Lane Users (Estimated by Users)
(Note that actual time saving could be different from the respondent-estimated, perceived time saving)
(n = 551)

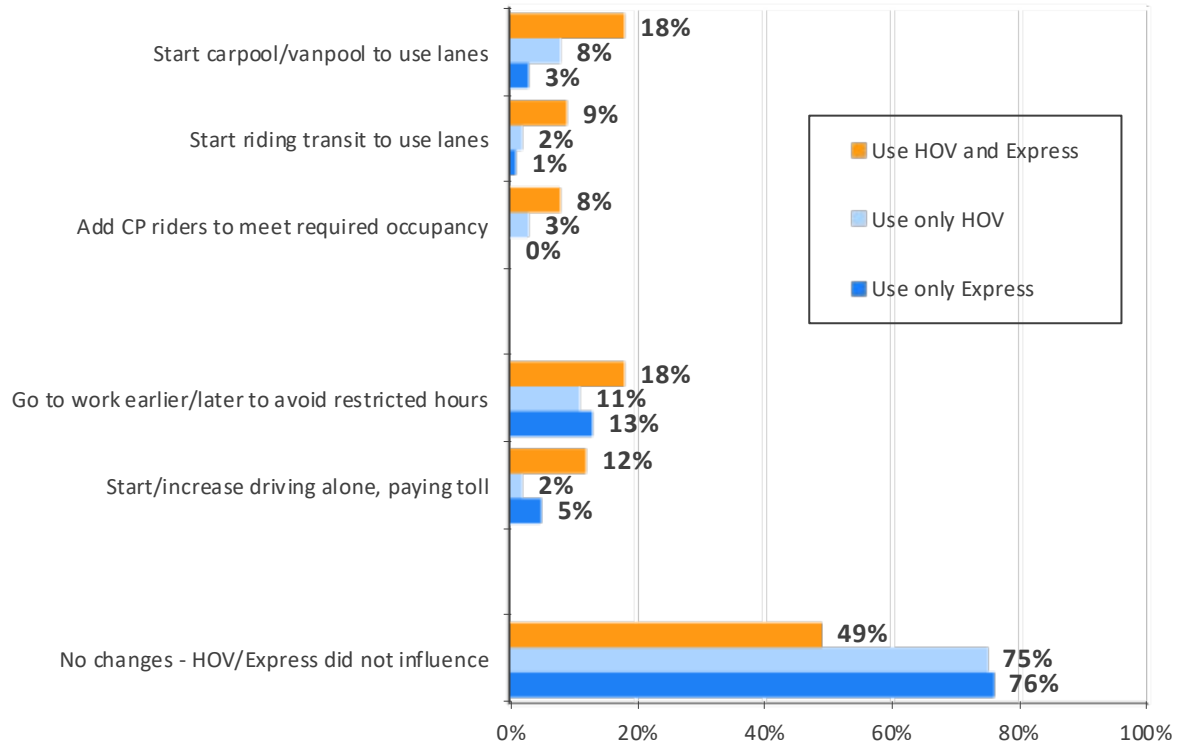


The 16 minutes time saving was slightly lower than the 19-minute saving reported by HOV/Express/Toll lane users in 2019. This could suggest there was less congestion on the general purpose lanes of these roadways. HOV/Express/Toll lane users who lived in the Core saved an average of 12 minutes, Middle Ring commuters saved 15 minutes, and Outer Ring commuters who used the lanes saved an average of 20 minutes on their commute. Note that these time savings are self-reported and represent the respondents' perceptions of time saving, rather than actual, measured time saving.

Travel Changes Influenced by HOV and Express/Toll Lane Use – A primary objective of HOV lanes is to encourage commuters to shift from driving alone to shared-ride modes, to obtain travel time savings. Express/Toll Lanes, which allow all users for a fee, also provide time savings, but do not necessarily encourage shifts to alternative modes, unless carpools and vanpools receive a toll discount. To explore the possible influence of HOV and Express/Toll Lanes on travel choices, the survey asked if the availability of HOV or Express/Toll Lanes had influenced users of the lanes to make any of five specific changes in how they commuted.

Three of the travel changes would result in greater use of non-drive-alone modes: start carpooling or vanpooling to use the lanes (or use for free/reduced price), start riding transit to use the lanes, and add another rider to an existing carpool to meet the occupancy requirement. The remaining two changes would allow the respondents to use the lanes, but while driving alone: go to work earlier or later to avoid the restricted hours and start or increase driving alone, knowing the commuter could pay the toll. Because HOV lanes and Express Lanes might influence quite different actions, Figure 59 displays the percentage of commuters who took each action by the type of lanes they used: both HOV and Express/Toll Lanes, HOV lanes only, and Express/Toll Lanes only.

Figure 59
Travel Changes Influenced by Use of HOV Lanes and Express/Toll Lanes
(Use both HOV/Express Lanes n = 212, Use only HOV n = 109, Use only Express Lanes n = 392; multiple responses permitted)



The data suggest HOV and Express/Toll lanes can influence commuters' mode choice. Among commuters who used both HOV and Express/Toll Lanes, 51% made one or more of the travel changes presented and many made one of the three changes that result in greater use of non-drive alone modes; 18% started carpooling or vanpooling and 8% added another rider to a carpool to meet the 3-person minimum requirement to use the lane for free or reduced toll. One in ten (9%) started riding a bus that travels along the HOV/Express Lane. Other respondents made one of the "continue driving alone" changes; 18% said they changed their work hours to avoid the time restrictions and 12% started or increased driving alone, gaining the travel time saving by paying the toll on the Express/Toll Lane.

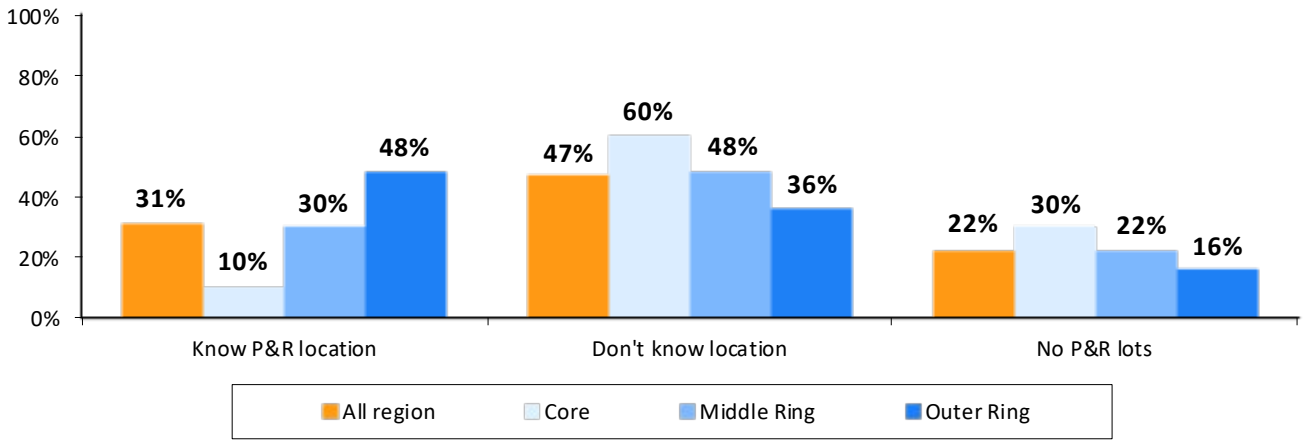
Of commuters who used only HOV lanes, 25% were influenced to make at least one change; 8% started ridesharing, 3% added a rider to an existing pool, and 2% started riding a bus traveling on the lanes. Eleven percent changed their work hours to avoid HOV restricted hours and 2% increased driving alone.

Not surprisingly, the profile of changes made by commuters who used only Express/Toll Lanes, which allow commuters to use the lanes with no travel changes at all, was very different from those of the HOV/Express and HOV only cases. One-quarter (24%) said they were influenced to change their travel but most made changes that would continue or increase how often they drove alone. Thirteen percent changed their work hours to avoid the restricted hours and 5% started or increased how often they drove to work, presumably shifting from an alternative mode. Only 4% were influenced to start using an alternative mode.

Park and Ride Lots

A large network of Park & Ride lots is available in the region, providing convenient locations for commuters who want to rideshare to meet their rideshare partners. Some Park & Ride lots also are served by feeder and express bus, so can facilitate use of transit and/or bicycling for commuting. Many of the lots are located along congested commuting routes and/or routes with HOV/Express/Toll lane access, to encourage alternative mode use even more. Figure 60 depicts respondents' awareness of the locations of Park and Ride (P&R) lots along their route to work.

Figure 60
Awareness of Park & Ride Lots Along Route to Work By Home Area
(All region n = 5,192, Core n = 1,473, Middle Ring n = 1,585, Outer Ring n = 2,134)



Regionwide, three in ten (31%) respondents said they knew P&R lots were available on their commuting route and they knew the locations. Forty-seven percent said they thought lots existed but did not know or were not sure of the locations. The remaining (22%) said there were no P&R lots along their route to work. These percentages were nearly the same as in 2019 (Yes 32%, Don't know 45%, No lots 23%).

Awareness/availability of lots varied substantially by home location. Only 10% of respondents who lived in the Core knew of a P&R lot on their route, while 30% of respondents who lived in the Middle Ring and 48% of respondents in the Outer Ring knew of a lot along their route to work.

Interestingly, there was very little difference in awareness of lots by the mode that respondents used to get to work; 31% of commuters who primarily carpooled to work and 32% who rode a bus knew lot locations, but 32% of primary drive alone commuters also knew lot locations.

Thirteen percent of those who knew Park and Ride lot locations had used these lots when commuting during the past year. These respondents represented 3% of total respondents in the survey, about half the share of respondents who used P&R lots in 2019 (7%), 2016 (6%), and 2013 (7%).

Among those who knew P&R lot locations, lot use was similar for respondents in all three home areas; 15% of Core area residents and 13% of Middle Ring and Outer Ring residents had used the lots. But respondents who worked in the Core used P&R lots at a much higher rate than did other respondents. One-quarter (26%) of Core area workers who knew of a lot used it in the past year, compared with just 6% of respondents who worked in the Middle Ring and 9% who worked in the Outer Ring.

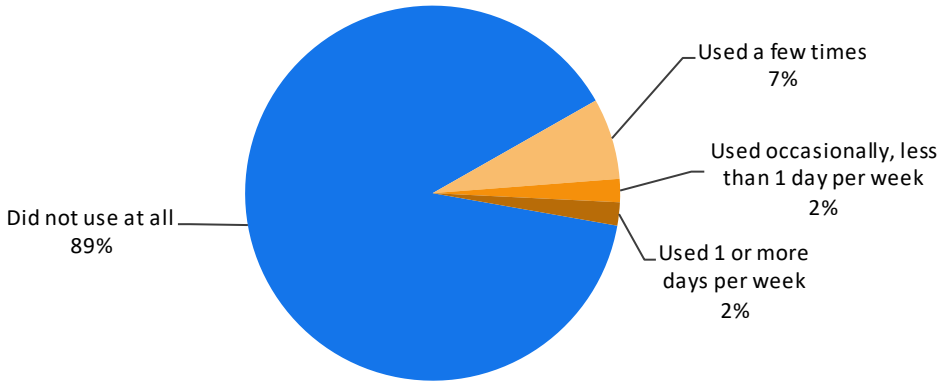
Attitudes Towards Transportation Options

Carpool/Vanpool Barriers

Previous Carpool/Vanpool Use Among Non-users – At the time of the survey, about 2% of respondents traveled to work by carpool, casual carpool, or vanpool one or more days per week. This was a considerable drop from 2019, when 6% of respondents reported ridesharing weekly. Respondents who were traveling to outside work locations at the time of the survey and were not ridesharing for their commute were asked if they had carpooled or vanpooled to work at any time in the past three years.

Most (89%) said they had not carpooled/vanpooled at all (Figure 61). Of those who had carpooled or vanpooled, most were infrequent users; 7% carpooled or vanpooled just a few times and 2% used a carpool or vanpool occasionally, but less than one day per week. Two percent had carpooled or vanpooled to work at least one day per week.

Figure 61
Carpool/Vanpool Commuting in the Past Three Years – Non-rideshare Commuters
(n = 4,960)



Reasons for Not Ridesharing – Respondents who had carpooled or vanpooled at least occasionally in the previous three years were asked how significant the pandemic had been in their decision to stop ridesharing. Six in ten respondents said the pandemic had been a factor; 32% said the pandemic was the only factor in their decision and 24% said the pandemic was a major factor. A small share (4%) said the pandemic was a minor factor and 40% said it was not a factor at all.

Note that these questions on past rideshare use were asked only of respondents who were commuting to outside locations; respondents who teleworked full-time were not included in these questions. As described in Section 2 (Table 4), 50% of respondents who said they were primarily carpooling or vanpooling in early 2020 (before the pandemic) reported they were primarily teleworking at the time of the survey, so the pandemic likely was a factor for these respondents' mode shift as well.

Respondents who stopped carpooling/vanpooling in the past three years were asked if they had other reasons, in addition to the pandemic, for making the change. Respondents who never carpooled or vanpooled in the past three years were asked a more general question of why they did not use these modes. Table 32 lists the responses for those who stopped ridesharing (Former Rideshare) and for those who had not used rideshare (Never Rideshare).

Table 32
Reasons to Stop Ridesharing (Former Rideshare) or For Not Ridesharing (Never Rideshare)
(Shading indicates statistically higher percentages for reasons; multiple responses permitted)

Reasons	Former Rideshare (n = 170)	Never Rideshare (n = 4,330)
Coronavirus Pandemic (general response)	60%	5%
Personal Changes		
Changed jobs/work location/schedule	11%	---
Moved to new home	8%	---
Mode Availability		
Don't know anyone to carpool/vanpool with	24%	26%
No carpool/vanpool services/options at my work	1%	9%
Don't know how to arrange carpool/vanpool	---	5%
Mode Characteristics		
Takes too much time	5%	2%
Too expensive	3%	1%
Carpool/vanpool partner could be unreliable/late	1%	2%
Personal Preferences/Needs		
Prefer to use bus / Metro / train	3%	5%
Prefer to drive	3%	5%
Don't like to ride with strangers, prefer to be alone	2%	5%
Work schedule irregular	1%	12%
Just not interested / not feasible or practical	---	8%
Live close to work, can walk, use other mode	---	6%
Not convenient	---	5%
Need car before/after work	---	4%
Need my car for work	---	4%
Need flexibility in commute	---	4%
Other	4%	10%

Former Rideshare – Six in ten (60%) respondents' who were still traveling to work but who stopped ridesharing cited the pandemic as at least one reason for the mode change. About one in ten mentioned a personal work location/schedule change (11%) or home location change (8%) as a factor; these also could be pandemic-related for some respondents. The only other commonly-noted reason given by those who stopped ridesharing was not knowing anyone with whom they could carpool or vanpool. This also could be related to the pandemic, if these commuters lost rideshare partners due to work schedule or location changes. Fewer than one in twenty named individual characteristics of the modes as reasons. Similarly, few former ridesharers cited personal preferences or needs as reasons to stop ridesharing.

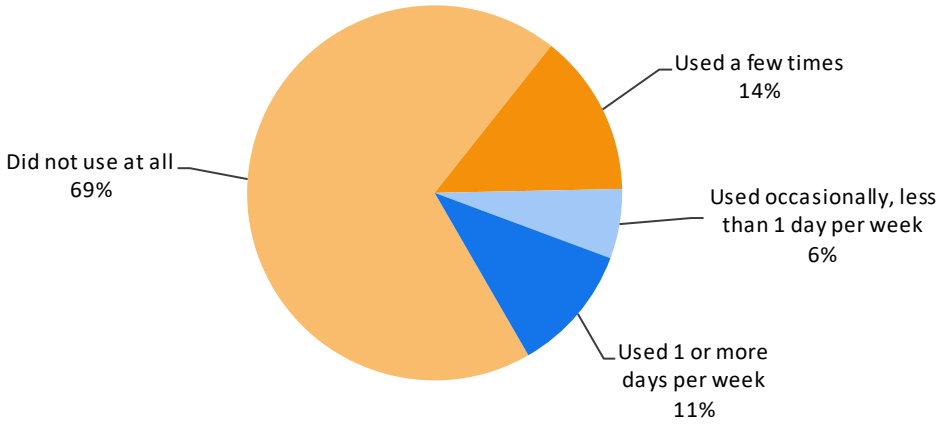
Never Rideshare – Respondents who had not carpooled or vanpooled in the past three years also named lack of mode availability; 26% said they didn't know any rideshare partners, about the same share as among former rideshare respondents (24%). But more than one in ten cited another availability issue; 9% said there were no carpool/vanpool services or options at their worksite and 5% said they did not know how to arrange a carpool or vanpool. Significantly larger percentages of commuters who had not carpooled or vanpooled also noted reasons related to personal preferences or needs, such as having an irregular work schedule (12%), feeling ridesharing was not feasible or practical (8%), living too close to work (6%), preferring to use transit (5%) or drive alone (5%), needing a car for work (4%) or before or after work (4%), or wanting more commute flexibility than ridesharing would offer (4%).

Transit Barriers

Previous Transit Use Among Non-riders – A parallel series of question to those described above for non-ridesharers was asked for respondents who were not commuting by transit. At the time of the survey 11% of respondents were using transit to get to work at least one day per week. This mode percentage represented a large drop from the 29% of respondents who were riding transit to work in 2019.

Among those who were not riding transit to work at the time of the survey, 31% said they had done so within the past three years (Figure 62). Fourteen percent had used transit just a few times and 6% used transit occasionally, but less than one day per week. One in ten (11%) non-riders had been regular riders, taking transit to work at least one day per week.

Figure 62
Transit Commuting in the Past Three Years – Non-transit Commuters
(n = 4,266)



Full-time teleworkers were excluded from this question, which also was asked in 2019, when full-time telework represented less than 3% of respondents. Interestingly, the 2022 distribution of former transit use was nearly identical to that from 2019. In 2022, 17% of transit non-riders had used transit at least occasionally and 11% were regular weekly riders. In 2019, the same 17% were former users and 11% were weekly riders. The only difference between the 2022 and 2019 results was that 14% reported using transit "a few times" in 2022; this was a slight decrease from the 18% who gave this response in 2019. This suggests full-time teleworkers who had used transit prior to the pandemic followed a similar past transit frequency profile to those who were still commuting but had stopped commuting by transit.

Previous Transit by Respondent Characteristic – Table 33 shows differences in past transit use by several respondent characteristic. The former rider percentage consists of respondents who commuted by transit regularly (one or more days per week) or occasionally (less than one day per week) in the past three years but who had stopped using transit. Some of these respondents might have shifted some workdays to telework, but full-time teleworkers were excluded from this question, thus former rider respondents shifted to non-transit modes on days they commuted to their outside work location. The table also shows the corresponding share of non-riders who had not ridden transit at all in the past three years (Never Rider).

Table 33
Percentage of Transit Non-Riders by Respondent Characteristic
(Shading indicates statistically higher percentages)

Respondent Characteristic	Former Transit Riders			Total Never Rider
	Former Regular	Former Occasional	Total Former	
Income				
Less than $100,000 (n = 1,123)	8%	6%	14%	86%
$100,000 - $179,999 (n = 1,110)	14%	6%	20%	80%
$180,000 or more (n = 904)	12%	8%	20%	80%
Household Vehicles per Adults				
0 vehicle (n = 92)	15%	26%	41%	59%
0.1 to 0.9 (Car lite) (n = 810)	14%	8%	22%	78%
1 vehicle (n = 3,205)	10%	5%	15%	85%
Home area				
Core (n = 960)	22%	12%	34%	66%
Middle Ring (n = 1,373)	12%	6%	18%	82%
Outer Ring (n = 1970)	5%	3%	8%	92%
Work area				
Core (n = 1,543)	22%	11%	33%	67%
Middle Ring (n = 1,715)	7%	4%	11%	89%
Outer Ring (n = 705)	3%	2%	5%	95%
Distance from home to bus stop				
Less than 1 mile (n = 1,714)	15%	9%	24%	76%
1.0 to 4.9 miles (n = 743)	8%	6%	14%	86%
5.0 miles or more (n = 403)	9%	2%	11%	89%

The overall shares of former transit riders who shifted from transit did not differ by gender, age, or race/ethnicity. But higher income respondents shifted away from transit at a higher rate; two in ten respondents with household income of $100,000 or more shifted from transit, compared with 14% with incomes under $100,000. Across all income groups, shifts from transit were primarily from former regular riders but were particularly evident among higher income respondents.

Shifts from transit also were more common among respondents who did not have a personal vehicle (41%) or had limited access to a vehicle (22%). In the case of car-free respondents, regular riders accounted for a smaller share of former riders than was the case for most other respondent sub-groups, perhaps indicating that occasional riders had more non-transit options than did the regular riders.

Shifts from transit also were related to where respondents lived and worked. One-third (34%) of transit non-riders who lived in the Core formerly rode transit, with two in ten having been regular riders. This was substantially higher than for Middle Ring (18% former riders) and Outer Ring (8% former riders) residents. Similarly, a larger share of transit non-riders who worked in the Core were former riders (33%) than was the case among Middle Ring (11%) and Outer Ring (5%). Finally, transit shifts were most common for respondents with close access to bus stops; one-quarter of transit non-riders who lived less than one mile from a bus stop had shifted away from transit, compared with 14% who lived between 1.0 and 4.9 miles from a bus stop and 11% who lived more than 5.0 miles from the nearest stop.

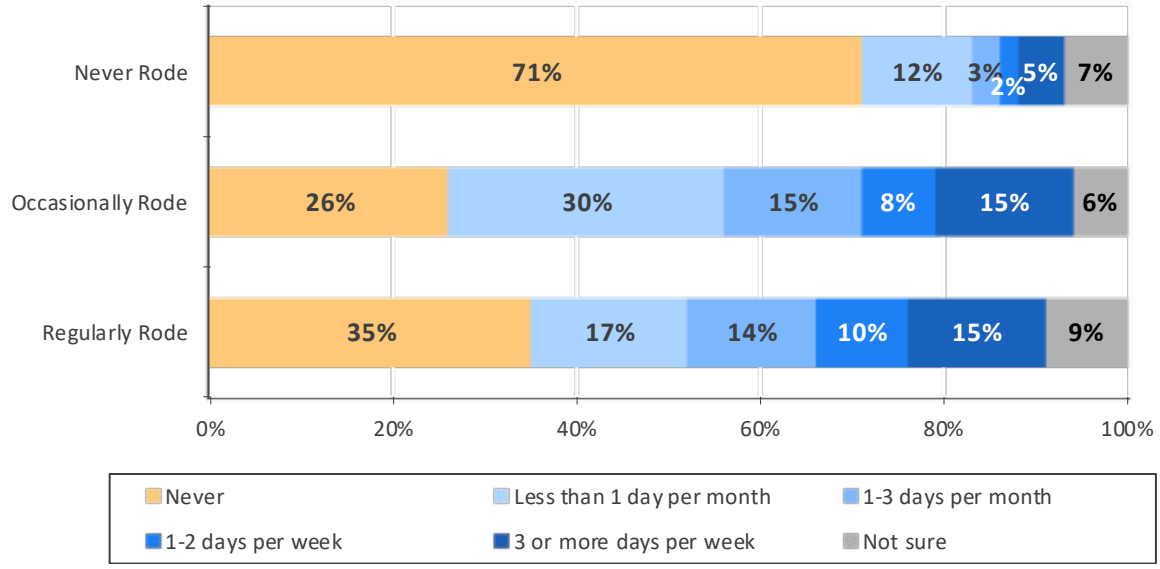
Possible Future Transit Use Among Non-riders – Non-transit riders also were asked how often they might be able to use transit now to get to work, considering their work and personal schedules. Across all non-riders, 64% said they would not be able to use transit at all for commuting and two in ten said they would be able to use transit only infrequently, 14% less than one day per month and 5% one to three days per month. One in ten would be able to commute by transit one or more days per week; 3% one or two days per week and 6% three or more days per week. The remaining 8% were unsure. In 2019, 14% said they would be able to use transit one or more days per week.

Figure 56 presents potential transit use frequencies by how often respondents rode transit to work in the past three years: never rode or rode just a few times, rode occasionally but less than one day per week, or rode regularly, one or more days per week. A large share of respondents who did not use transit at all in the past three years said they either would not be able to ride at all (71%) or could ride less than one day per week (15%). These results suggest these respondents either have work or personal situations that would make it infeasible for them to use transit or are unwilling to use transit for other reasons. Seven percent said they could use transit at least one day per week.

Among former regular riders, defined as respondents who formerly commuted by transit at least one day per week, 25% could still commute by transit this often and another 31% could ride occasionally, but less than once per week. One-third (35%) said they could not ride at all, perhaps because their work or personal situation had changed from the time when they were regular riders.

The more interesting result is for potential use among respondents who were occasional riders in the past three years. One-quarter said they would not be able to commute by transit at all now and 45% said they could use transit at most occasionally, as they had done previously. But nearly one-quarter (23%) said they would be able to ride at least one day per week, an increase over their past use.

Figure 63
Possible Transit Commute Frequency Now by Previous Transit Use
(Never rode n = 3,566, Occasionally rode n = 237, Regularly rode n = 454)



Potential for regular future transit use (one or more days per week) was highest among:

- Core area residents (16%), compared with Middle Ring (10%) and Outer Ring (6%) residents
- Core area workers (16%), compared with Middle Ring (7%) and Outer Ring (5%) workers
- Commuters who live less than one mile from a bus stop (13%), compared with those who live 1.0 to 9.9 miles away (9%) and those who live 10.0 miles or more from a stop (4%)
- Federal agency workers (13%), compared with non-profit (9%), private sector (9%), and state/local agency (6%) workers
- Male respondents (11%), compared with female respondents (8%)

Reasons for Not Using Transit or to Stop Using Transit – Respondents who had ridden a bus or train to work at least occasionally were asked how significant the pandemic had been in their decision to stop using transit. The impact of the pandemic on transit use was comparable to its impact on ridesharing; two-thirds of respondents said the pandemic had been a factor and more than half said it was an important factor; 22% said the pandemic was the only factor in their decision and 31% said it was a major factor. Fifteen percent said the pandemic was a minor factor and the remining one-third (32%) said the pandemic was not a factor at all. As described in Section 2 (Table 4), 50% of respondents who primarily rode a bus and 63% who primarily rode a train to work before the pandemic reported they were primarily teleworking at the time of the survey, so the pandemic likely was a factor for these respondents' mode shift as well.

Respondents who stopped riding transit in the past three years were asked if they had other reasons, in addition to the pandemic, for making the change. Respondents who did not previously use a bus or train were asked a more general question of why they did not use these modes. Table 34 lists the responses for those who stopped riding transit in the past three years (Former Riders) and for those who did not use transit during those years (Never Riders).

Table 34
Reasons to Stop Using Transit (Former Riders) or For Not Using Transit (Never Riders)

Reasons to Stop Using / for Not Using Transit	Former Riders (n = 636)	Never Riders (n = 3,418)
Coronavirus Pandemic (general response)	68%	4%
Service Availability *		
Service/schedule was limited, not convenient	13%	12%
Changed jobs/work location/schedule (transit not available)	12%	---
Moved to new home (transit not available)	5%	---
Transit not available/operating in home/work area	5%	19%
Stations closed for construction/renovation	2%	---
No train service available in home/work area	---	7%
No bus service available in home/work area	---	5%
Service Characteristics		
Takes too much time	14%	26%
Bus/train could be unreliable/late	8%	6%
Too expensive	5%	6%
Don't feel safe on bus/train or at stop/station, safety concern	5%	2%
Have to transfer/too many transfers	2%	1%
Buses/trains uncomfortable/crowded	2%	1%
Personal Preferences/Needs		
Prefer to drive, want freedom/flexibility, obtained vehicle	5%	14%
Commute is too short/prefer to walk	2%	7%
Childcare issues	2%	---
Need my car for work	1%	7%
Work schedule irregular	---	6%
Need car before/after work	---	4%
Trip is too long/distance too far	---	2%
Don't like to ride with strangers, prefer to be alone	---	1%
Other	7%	7%

* Respondents who said no train or bus service is available also were permitted to answer other reasons why they could not use bus or train

As already indicated, more than two-thirds of former riders said the coronavirus pandemic was one reason they stopped using transit. But access to transit also was a factor noted by respondents in the former rider group. For some, transit was less available because they had made a personal change; 12% changed their work location or schedule and 5% reported moving to a home area where transit was not

available or convenient. An additional 13% said transit service or schedule was limited or not convenient and 2% reported that the train station they previously used was closed for renovation.

Former riders noted some transit service characteristics as barriers to transit use, particularly that transit "takes too much time" (14%), "could be unreliable" (8%), and expensive (5%). One common reason was noted in the personal preferences or needs category; that they preferred to drive for the freedom or flexibility it offered (5%).

Among respondents who had not used transit in the past three years, lack of availability was a primary reason; 19% made a general statement that transit service was not available in their home or work area, 7% specified that train service was not available, and 5% indicated they did not have bus service. One in ten (12%) said service was limited or not convenient either to locations or times they wanted to travel.

Non-rider respondents noted bus/train service characteristics as transit barriers at about the same rate as did former riders, with one exception. More than one-quarter (26%) of never riders said transit "takes too much time," compared with 14% of former riders. Never riders' concerns with the need to transfer, transit cost, safety, and reliability were not substantially different from those for former riders.

Never riders reported greater concern than did former riders with nearly all the personal preferences or needs reasons, in particular preferring to drive for the freedom and flexibility, having a very short commute that made it easier to walk, needing a vehicle for work or before or after work, having an irregular work schedule, and not wanting to ride with strangers.

SECTION 6 – AWARENESS AND IMPACT OF COMMUTE ADVERTISING

Commute Advertising Recall

The next set of questions in the survey inquired about respondents' awareness of commute information advertising. About 27% of all respondents said they had seen, heard, or read advertising about commuting in the year prior to the survey. This was a considerably lower percentage than estimated in the 2019 (45%), 2016 (54%), 2013 (55%), and 2010 (58%) SOC surveys; in 2022 nearly two in ten (18%) respondents said they didn't recall if they heard, saw, or read any commute advertising, so could not provide a definitive response.

The dramatic shift to telework during the pandemic might have been a factor in the decline in advertising recall. Workers who teleworked most or all their workdays would have fewer opportunities to see or hear advertising during their commute and perhaps noticed it less because it was not relevant to their current work situation. Twenty-five percent of respondents who primarily teleworked at the time of the survey said they heard or saw commute ads, compared with 28% of respondents who primarily commuted to an outside work location. But some organizations that sponsor commute advertising paused their mass media and worksite outreach, so it also is likely that fewer ads were even available for commuters to notice.

Advertising recall differed by respondents' personal characteristics and by their travel patterns. Advertising recall was highest among respondents who:

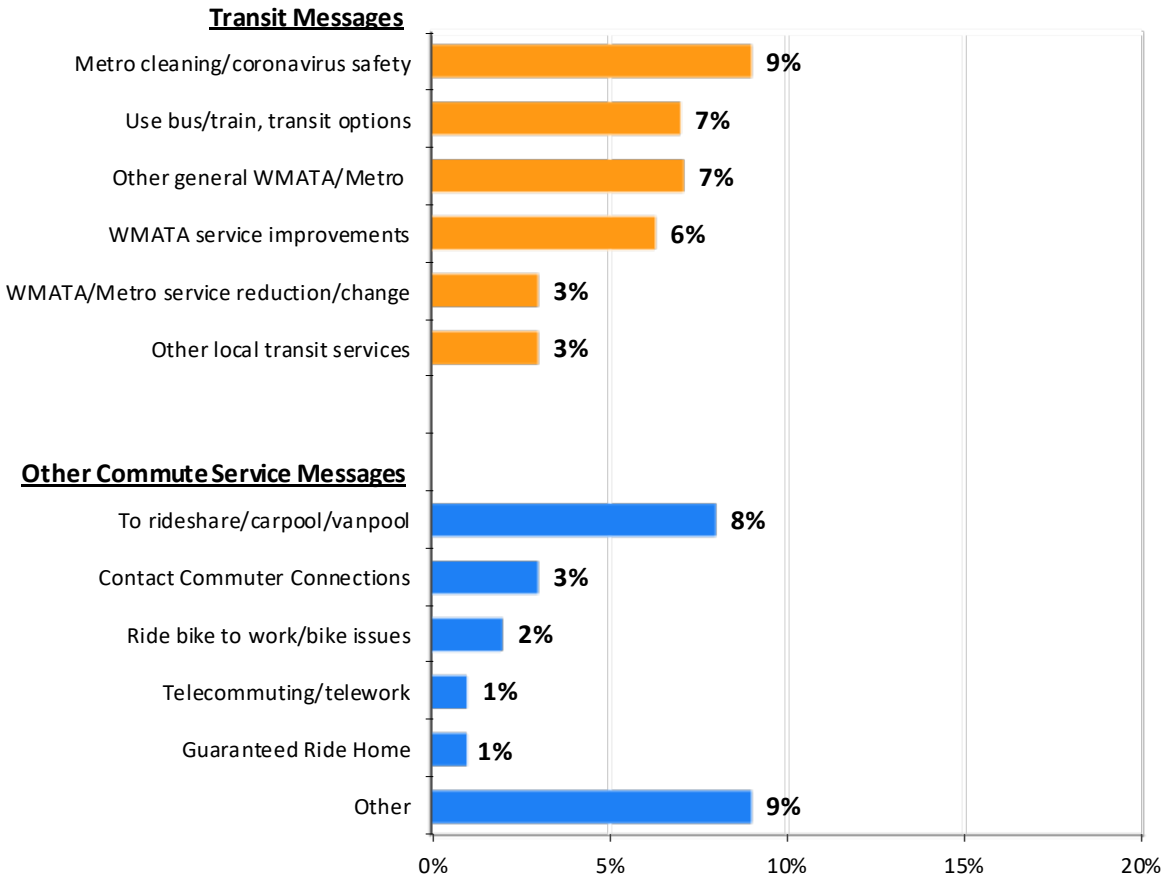
- Were 55 years or older – One-third (34%) of respondents who were 55 years or older, compared with 25% who were between 35 and 54 years and 24% who were younger than 35 years.
- Were Non-Hispanic White – Three in ten (30%) Non-Hispanic White respondents, compared with 27% of Non-Hispanic Black, 26% of Hispanic, and 18% of Asian respondents.
- Had Higher Household Incomes – Three in ten (29%) respondents with annual incomes of $100,000 or more, compared with 26% who had incomes less than $100,000.

Message Recall

Respondents who recalled some advertising were then asked what specific messages they saw or heard; 45% could cite a specific message. As with overall awareness of advertising, recall of specific messages was lower than the share who could recall a message in previous years (2019 – 59%, 2016 – 67%, 2013 – 67%, and 2010 – 70%). Figure 64 lists specific messages that were mentioned by at least 1% of respondents in the 2022 survey, divided into two categories: transit messages and other commute services messages.

Transit Messages – Nearly three in ten respondents who had heard or seen a message reported a message related to transit service. Seven percent cited a general message about using transit, but most recall focused on the Washington Metropolitan Area Transit Authority (WMATA, Metro). Nearly one in ten (9%) respondents reported a message about WMATA and coronavirus cleaning or safety. Six percent named a message about WMATA service improvements and 3% said it was about WMATA service cuts or changes. Seven percent recalled another reference to WMATA.

Figure 64
Commute Information/Advertising Messages Recalled
(Note: Scale extends only to 20% to highlight difference in responses)
(n = 2,405)



Other Commute Service Messages – The other broad category of messages included other commute service topics. The most common message in this category was "contact Commuter Connections," mentioned by 3% of respondents, slightly less than the 5% who gave this response in 2019. One percent of respondents mentioned the regional Guaranteed Ride Home, a large decline from the 5% who volunteered this response in 2019. Two percent of respondents recalled a bike service or issue message and 1% recalled a message about telework.

Recall of Advertising Sponsors

About four in ten (41%) respondents who could cite an advertising message said they remembered who sponsored the ad (Table 35). WMATA or Metro was named by 25% of respondents. Commuter Connections or COG was named by 6%, lower than the 10% who gave this response in 2019. Six percent cited a local county or city transportation or commuter program, 1% named a state transportation agency (VDOT, VDRPT, MDOT, MTA, DDOT), 1% said the sponsor was a transit agency other than WMATA (MARC, VRE, local bus company), and 1% mentioned a ridehail company (Uber or Lyft). Many other organizations also were named, each by less than 1% of respondents.

Table 35
Recall of Advertising Sponsors
(n = 2,405)

Advertising Sponsor	Percentage
Metro, WMATA	25%
Commuter Connections, MWCOG	6%
County/city transportation or commute agency	6%
State transportation agency (VDOT, MDOT, MTA, DDOT, DRPT)	1%
Transit agency other than WMATA (MARC, VRE)	1%
Ridehail company (Uber, Lyft)	1%
Don't remember, don't know	59%
Other	4%

Advertising Sources/Media

Table 36 presents the primary sources or media through which respondents encountered commute advertising. The most common 2022 source was a sign on a bus or train, or at a bus stop or train station; fully half (53%) of respondents who recalled an ad saw it in one of these locations. The other top sources were radio, named by 29% of respondents who recalled ads, and television, cited by 26% as the source.

Table 36
Advertising Sources/Media – 2010 to 2022
(Shaded percentages indicate statistically higher percentages between 2019 and 2022; multiple responses permitted)

Advertising Source/Media	2010 (n=2,756)	2013 (n=2,457)	2016 (n=2,341)	2019 (n=2,373)	2022 (n=2,380)
Sign on bus/train, at bus stop/train station	22%	25%	22%	49%	**53%**
Radio	40%	33%	34%	36%	**29%**
Television	24%	18%	21%	19%	**26%**
Roadside billboard/ad	5%	9%	10%	16%	**16%**
Postcard in the mail	3%	5%	4%	10%	**12%**
Social media (Facebook, Twitter)	---	---	2%	5%	**10%**
Newspaper	18%	20%	14%	8%	**8%**
Smart phone/tablet	---	1%	3%	4%	**6%**
At work	6%	5%	7%	6%	**4%**
MWCOG/Commuter Connections website*	---	---	---	5%	**4%**
Other website/internet	2%	2%	6%	3%	**4%**
Other	4%	3%	5%	2%	**2%**

* Prior to 2019, MWCOG/Commuter Connections website was not reported separately from other websites.

Other common sources named in 2022 included roadside billboard (16%), postcard received in the mail (12%), newspaper (8%), and employer/work (4%). More than two in ten mentioned a source related to the Internet; 10% noted social media, 8% mentioned seeing the ad on either the MWCOG or Commuter Connections website (4%) or another website (4%), and 6% cited a smart phone or tablet as the source.

Table 36 also shows sources or media named in previous SOC surveys. Most sources were used by about the same percentage of respondents in 2022 as in 2019. Two sources that was named substantially more in 2022 than in 2019 were television and social media. Radio showed a decline as a source from 36% in 2019 to 29% in 2022. This drop likely reflects both the drop in workers commuting to an outside work location and the reduction in radio advertising by Commuter Connections and other commute organizations in 2020. Prior to the pandemic, WMATA and Commuter Connections used radio spots during commute hours to disseminate messages to drive alone commuters. With both reduced messaging and many workers teleworking/working from home during the pandemic, commuters' exposure to drive-time radio ads would have declined.

Commute Advertising Impact

Persuasiveness of Advertising Messages

The advertising appeared to have had an effect for some respondents. Two in ten (17%) respondents who were commuting to an outside work location at the time of the survey and who recalled advertising said they were more likely to consider ridesharing or using transit after seeing or hearing the advertising. This was statistically the same percentage as the 18% who noted this willingness in 2019.

Persuasiveness of Messages by Commute Mode and Distance – The respondents who were most persuaded by the advertising were those who already used alternative modes. Half (50%) of bus riders, 31% of train riders, and 19% of carpoolers/vanpoolers said they were more likely to consider using an alternative after hearing the ads, compared with 13% of respondents who drove alone. Commuters who traveled longer distances were more likely to be persuaded; 27% who traveled 30 or more miles to work said they were more willing to use alternative modes after hearing the ads, compared with 17% of respondents who had shorter commutes.

Persuasiveness of Messages by Commute Ease and Satisfaction – An interesting result was that ad receptivity was highest among respondents who were satisfied with their commutes. Two in ten (20%) commuters who were satisfied with their current commutes said they were persuaded by the ads, compared with 14% of those who were not satisfied with their commutes.

Commuters Persuaded by Ads to Consider Alternative Modes – 17% overall

Commute Mode: Bus (50%) and train (31%) riders vs Drive alone commuters (13%)

Commute Distance: 30+ miles (27%) vs Commute less than 20 miles (17%)

Ease of commute: More difficult commute (22%) vs Easier commute (14%)

Satisfied with commute: Satisfied (20%) vs Not satisfied (14%)

Age: Younger than 35 (27%) vs 55 or older (13%)

Gender: Male (22%) vs Female (16%)

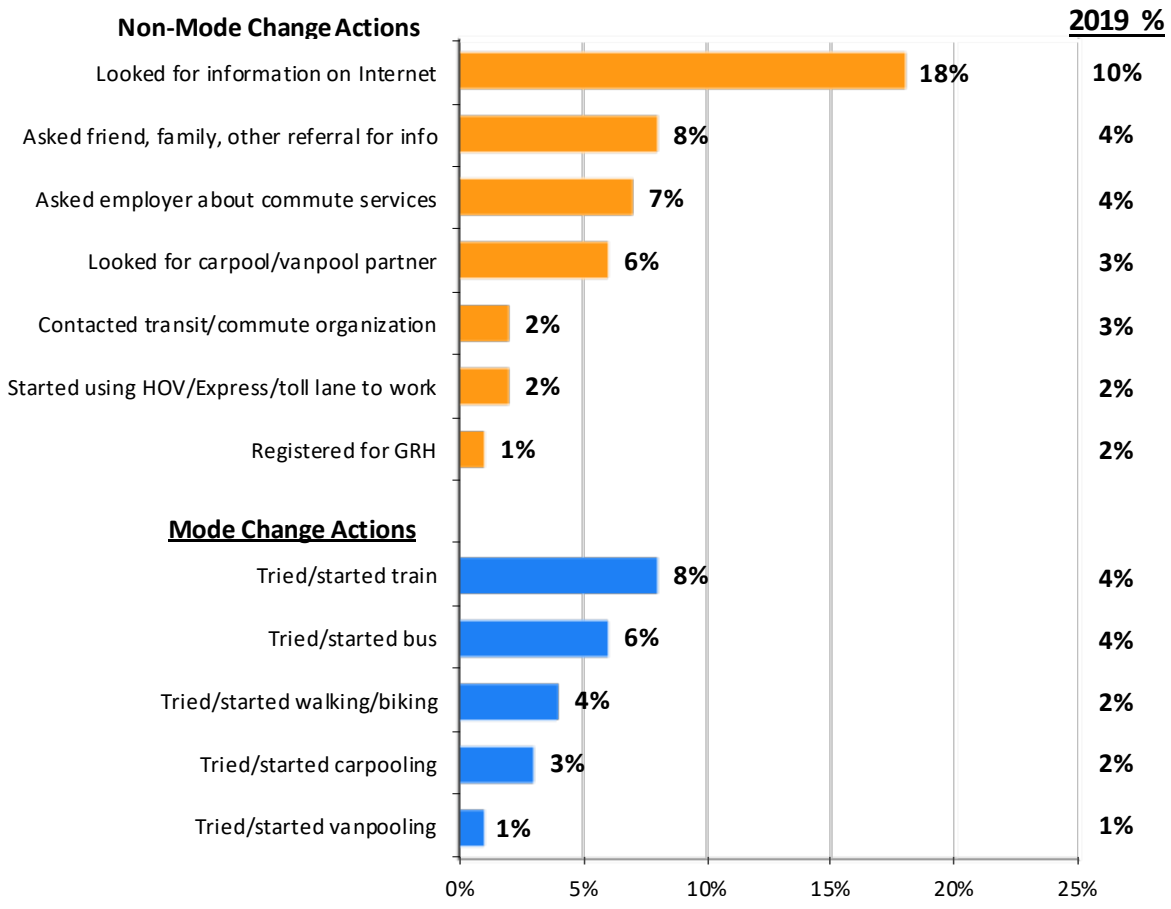
Commuters who reported a stable or more difficult commute than last year were more likely to say they were persuaded by the ads than were commuters whose commutes had become easier; 22% of commuters with a more difficult commute and 19% who said their commute was about the same were more willing to consider alternative modes after hearing the ads, compared with 14% of commuters who had an easier commute.

Persuasiveness of Messages by Gender and Age – A higher share of male respondents (22%) who heard ads reported being persuaded, compared with 16% of female respondents. Young respondents also said they were more persuaded by ads; 27% who were younger than 35 said they were more likely to consider using an alternative mode after hearing the ads, compared with 20% of respondents who were between 35 and 54 years and just 13% of respondents who were 55 or older.

Commute Actions Taken After Hearing or Seeing Commute Advertising

Respondents who recalled hearing or seeing commute advertising and who were commuting to an outside work location (not teleworking full-time) were asked if they had taken any actions to try to change how they commuted after seeing or hearing the ads. About one-third (35%) of these respondents said they took one of the actions listed (Figure 65).

Figure 65
Commute Change Actions Taken After Hearing/Seeing Commute Advertising
(Base is commuters who heard/saw ads and commuted to outside location; 2022 n = 687; multiple responses permitted)



For most respondents, the action they took was to seek more information on commuting options or services. Nearly two in ten (18%) sought information on commuting through the Internet, 8% asked family member, friend, or co-worker for commute information, 7% asked their employers about commute services, and 6% looked for a rideshare partner. Two percent sought information from a commute organization or a transit agency. Two percent started using an HOV lane to get to work and 1% registered for a regional or local Guaranteed Ride Home program.

About two in ten respondents who recalled an ad message (84 respondents) said they tried or started using one or more alternative modes for commuting. Eight percent started or tried riding a train and 6% started or tried riding a bus. Four percent of these respondents tried or started walking or bicycling, 3% tried/started carpooling, and 1% tried vanpooling. While these respondents equaled just 1.9% of all regional commuters, they represent nearly 40,000 commuters region-wide.

2022 Actions versus 2019 Action – The 34% who took some commute-change action in 2022 equated to 4% of all regional commuters. This was about half the rate from 2019 (7%), however, as noted earlier in this section, a much smaller share of commuters recalled hearing or seeing advertising in 2022 (27%) than in 2019 (45%), perhaps due to fewer ads and/or reduced ad exposure from fewer days commuting. Due to the many changes in commute patterns and in advertising messaging and dissemination since the pandemic began, it is difficult to draw comparisons between 2022 and 2019 in commute actions. But as illustrated by the "2019 %" sidebar in Figure 65, nearly all the individual mode and non-mode actions listed were reported by a higher percentage of the base (ad-aware workers who traveled to an outside work location) in 2022 than in 2019.

Influence of Ads on Commute Change Actions – More than one-third (35%) of respondents who took an action to change their commute said the advertising they saw or heard encouraged the action.

SECTION 7 – AWARENESS AND USE OF COMMUTE ASSISTANCE RESOURCES

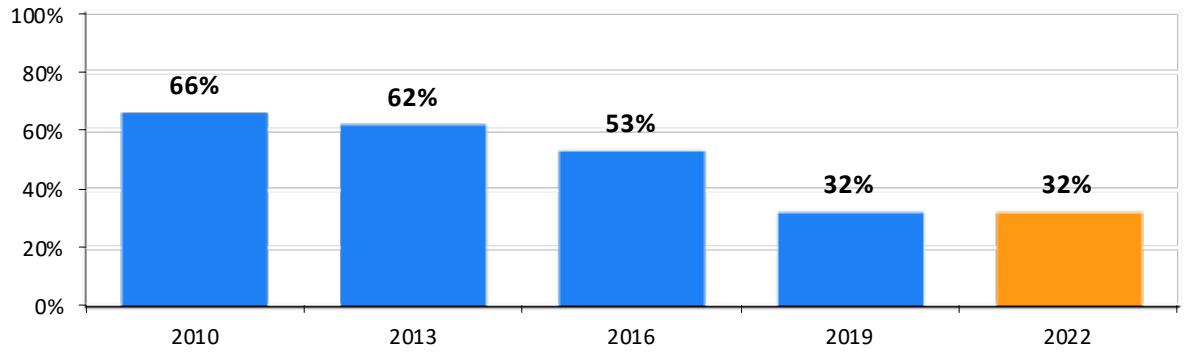
The survey also explored respondents' awareness of commute/travel assistance services that were offered to commuters by regional and local organizations. All respondents were asked an unprompted question about regionally-available telephone numbers, websites, and mobile applications that offered commute information. They next were asked if they had heard of Commuter Connections, the organization that provides services throughout the Washington metropolitan region. Finally, respondents were asked about local commute information organizations providing services in the geographic areas where they lived and worked.

Awareness of Commute Assistance Numbers/Websites/Mobile Applications

Respondents first were asked if they were aware of a telephone number, website, or mobile application they could use to obtain information on ridesharing, public transportation, HOV/Express Lanes, and telework in the Washington region. One-third (32%) of respondents said they knew such a resource. Twenty-one percent said there was not such a resource. Nearly half (47%) said they did not know if a phone number, web site, or mobile application existed.

Awareness of regional information resources has declined since 2010, when 66% of respondents knew of a number, website, or mobile application but the drop between 2016 (53%) and 2019 (32%) was particularly steep (Figure 66). The 32% awareness reported in 2022 represented a leveling off.

Figure 66
Awareness of Regional Commute Information Resource – 2010 to 2022
(2010 n = 6,629, 2013 n = 6,335, 2016 n = 5,903, 2019 n = 8,236, 2022 n = 8,359)



Awareness by Population Sub-Group

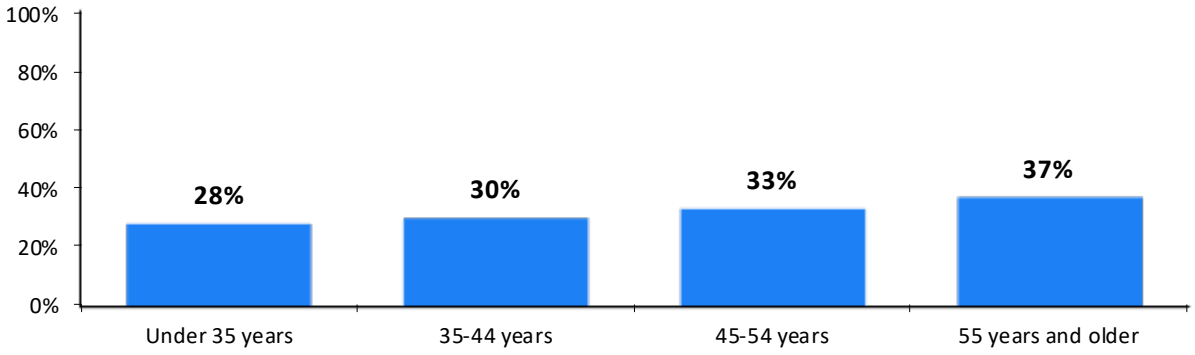
Awareness was substantially higher among respondents who said they saw or heard commute advertising in the past year (43%) than for respondents who did not recall advertising (26%). And commuters who had heard of Commuter Connections reported higher awareness of regional commute resources (43%) than did commuters who were not aware of Commuter Connections (24%). Commuters' contact with worksite commute programs also appeared to boost awareness of regional commute services; 36% of respondents who said their employers offered commute services at the worksite knew of a regional commute information resource, compared with 22% of those who said no such services were offered at work, suggesting some information that employers disseminate to commuters is related to regional services as well as to services offered directly by the employer.

Awareness by Commute Travel Time and Mode – There were no awareness differences by commuters' travel distance or travel time, but awareness was higher among commuters who used an alternative mode for commuting. Just one-quarter (26%) of drive alone commuters knew of a regional information number or website, compared with 32% of commuters who carpooled or vanpooled, 36% of those who rode a bus, 39% who commuted by train, and 35% who biked/walked to work.

Awareness by Home/Work Location and Demographics – Awareness of commute resources was slightly higher among respondents who lived in the Core (36%) than in the Middle Ring (32%) and Outer Ring (30%). Awareness of resources also was higher for Core workers; 36% of Core area workers knew of resources, compared with 29% of Middle Ring and 26% of Outer Ring workers.

Men and women were equally aware of regional resources and there was no clear pattern of awareness with household income. But awareness was higher among Non-Hispanic White (34%) and Non-Hispanic Black (34%) respondents than for Hispanic (28%) or Asian (28%) respondents. Awareness also was higher among older respondents (Figure 67). Fewer than three in ten respondents who were younger than 45 years of age knew of a regional resource, compared with 33% who were between 45 and 54 years and 37% of respondents who were 55 or older.

Figure 67
Awareness of Regional Commute Information Resources by Respondent Age
(Under 35 years n = 1,816, 35-44 years n = 1,881, 45-54 years n = 1,826, 55 year and older n = 2,517)



Recall of Web Sites and Phone Numbers

Respondents who said there was a regional resource were asked if they had used the resource and what number or website they used. About one-third of respondents who said a commute resource was available had used it. These commuters represented about 11% of all regional commuters (Figure 68).

Figure 68
Summary of Awareness and Use of Regional Commute Information Resource
(n = 8,396)

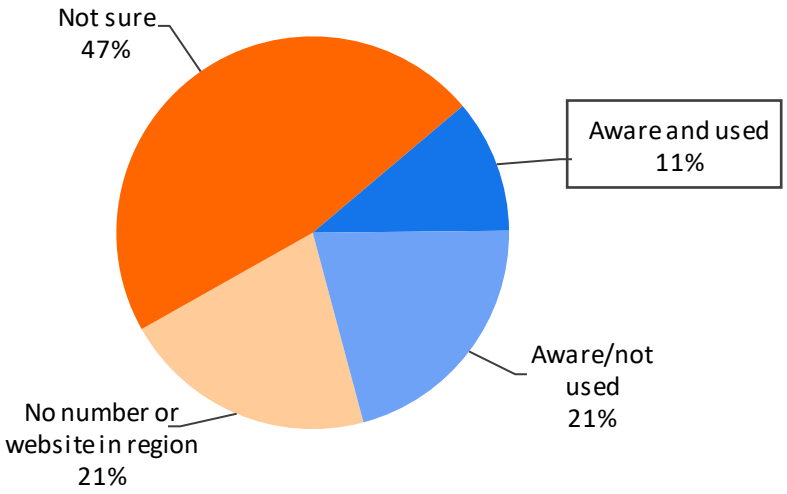


Table 37 summarizes the awareness/use of numbers/websites, as percentages of the regional commuter population. About 5% of respondents said they had used a WMATA resource; some could cite a specific web address or phone number but most recalled simply using a resource sponsored or maintained by WMATA. The Commuter Connections website was named by 0.2% of all respondents. About 0.8% of respondents had used a website or application maintained by a county transit, commute, or transportation agency, but except for Fairfax.gov, these resources individually each were named by less than 0.1% of respondents.

Respondents named 26 additional organizations that they had contacted to obtain commuter information. Each was named by less than 0.2% of all respondents, but collectively they were used by 3% of the regional population. The high count of commute resources suggests commuters seek information from a wide range of regional and local resources.

Commuters who had used one of the resources fell disproportionately in certain personal and travel characteristic groups. Use of regional information resources was highest among respondents who:

- Lived in the Core – Two in ten (21%) Core area residents, compared with 12% of Middle Ring residents and 13% of Outer Ring residents.
- Worked in the Core – Two in ten (19%) Core area workers, compared with 11% of Middle Ring workers and 11% of Outer Ring workers.
- Used alternative modes to commute – One-third (33%) of bus riders and train riders, 21% of bikers/walkers, and 18% of carpoolers/vanpoolers, compared with 9% of drive alone commuters.
- Had longer commute times – Two in ten (21%) respondents with commutes longer than one hour, compared with 15% who commuted between 30 and 60 minutes, and 10% who traveled less than 30 minutes to work.
- Had a more difficult commute than last year – 18% who reported a more difficult commute, compared with 12% whose commute was easier than last year and 12% whose commute was about the same.

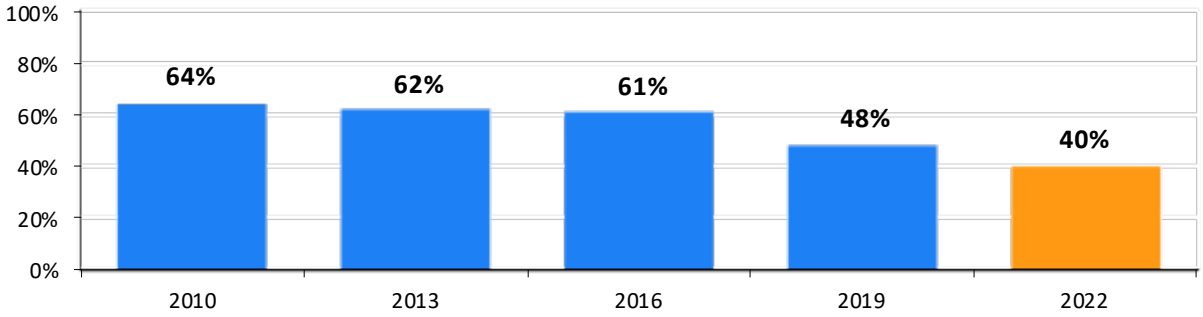
Table 37
Regional Commuter Assistance Resources Used
(n = 8,296, multiple responses permitted for numbers/websites used)

Number or Web site	Percentage
Believe no phone number/web site exists	21%
Don't know if a phone number exists	47%
Aware of number/web site, didn't use it	21%
Aware of number/web site and used it	11%
Transit numbers/websites used:	
www.wmata.com	2.1%
WMATA/Metro website (unspecified)	1.2%
WMATA/Metro app (unspecified)	1.0%
Transit app (unspecified)	0.8%
DC Metro bus / DC Metro Transit app	0.5%
Metrohero	0.2%
200-637-7000 Metro, WMATA	0.3%
PRTC/OmniRide.com website	0.2%
www.vre.org (VRE/Virginia Railway Express)	0.2%
Other websites used:	
Google/Google maps	1.2%
SmarTrip	0.4%
Waze	0.3%
www.CommuterConnections.org/.com	0.2%
Fairfax.gov/Fairfax Connector	0.2%
Uber/Lyft app	0.2%
Other	3.0%

Awareness and Use of Commuter Connections

A small share of commuters named Commuter Connections as a regional information source that they had used without being prompted with the organization's name. But when directly asked if they have heard of an organization in the Washington region called Commuter Connections, four in ten (40%) commuters knew of the program (Figure 69). This represented a drop of eight percentage points since 2019, when 48% were aware.

Figure 69
Awareness of Commuter Connections (Prompted)
(2010 n = 6,629, 2013 n = 6,335, 2016 n = 5,903, 2019 n = 8,227, 2022 n = 8,377)



Awareness of Commuter Connections by Population Sub-Group

Awareness by Home/Work Location – Commuter Connections was better known among commuters who lived farther from the center of the region; 45% of Outer Ring residents and 41% of Middle Ring residents had heard of Commuter Connections, while only 30% of Core area residents said they knew of the program. Awareness by work location was less varied; 40% of Core and 42% of Middle Ring workers knew of Commuter Connections, compared with 37% of Outer Ring workers.

Awareness by Commute Mode, Distance, and Time – Awareness of Commuter Connections differed very little by respondents' commute mode; 37% of commuters who drove alone and 35% of carpoolers said they knew of the program. Awareness was only slightly lower for bike/walk commuters (33%) and for transit riders (31%). Interestingly, workers who teleworked reported higher awareness of Commuter Connections than did non-teleworkers. More than four in ten (44%) respondents who teleworked at least one day per week and 36% who teleworked occasionally had heard of Commuter Connections; among respondents who did not telework at all, only 32% were aware of the program.

Know/Heard of Commuter Connections – 40% overall

Commute Distance: 20+ miles (49%) vs Less than 5 miles (28%)

Commute Time: 30+ minutes (42%) vs less than 30 minutes (34%)

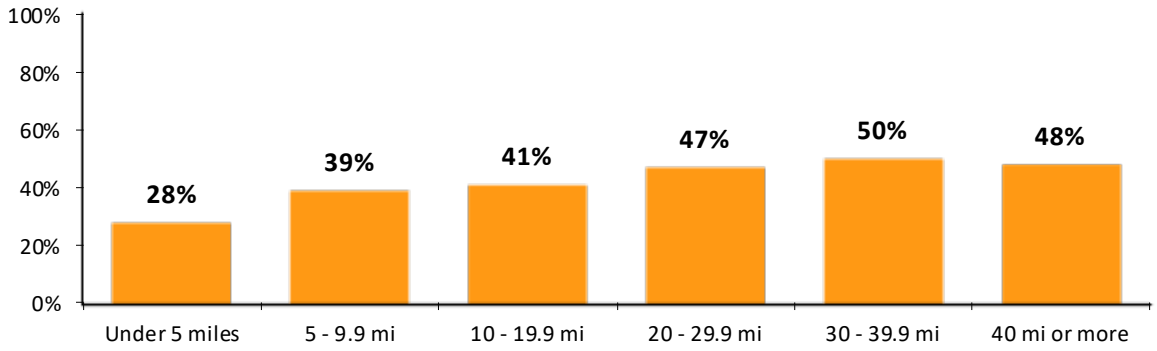
Teleworker: Telework 1+ day/week (44%) vs Not teleworking (32%)

Home Area: Outer Ring (45%) and Middle Ring (41%) vs Core (30%)

Work Area: Outer Ring (40%) and Middle Ring (42%) vs Core (37%)

Awareness of Commuter Connections also showed a strong relationship to both commute time and distance, with respondents who traveled longer distances and times more likely to know about the program. More than four in ten (42%) respondents who traveled 30 or more minutes to work had heard of Commuter Connections, while only 34% of respondents with shorter commutes had heard of the program. And fewer than three in ten (28%) respondents who traveled less than five miles to work knew of Commuter Connections, compared with four in ten respondents who traveled between 5 and 19.9 miles and nearly half who commuted 20 miles or more (Figure 70).

Figure 70
Awareness of Commuter Connections by Commute Travel Distance (miles)
(Under 5 mi n=1,221, 5–9.9 mi n=1,395, 10–19.9 mi n=1,756, 20–29.9 mi n=1,234, 30-39.9 mi n=897, 40+ mi n=770)



Referral Sources to Commuter Connections Program

Table 38 lists the methods by which respondents reported learning about Commuter Connections in 2022, with comparisons to sources named in the four previous SOC surveys. In 2022, about two in ten (21%) respondents cited the radio as their source of information. Other common sources included employer (7%), mail/postcard/brochure (7%), sign on transit vehicle/stop (4%), word of mouth/referral (4%), television (3%), and Internet (3%). More than four in ten (43%) respondents who knew of Commuter Connections did not remember how they learned of the organization.

Table 38
Commuter Connections Program Referral Sources – 2010 to 2022
(Yellow shading indicates sources with declining patterns and blue shading shows sources with increasing pattern)
(2010 n = 4,398, 2013 n = 4,046, 2016 n = 3,875, 2019 n = 4,484, 2022 n = 3,781)

Information Source	2010	2013	2016	2019	2022
Radio	48%	42%	41%	31%	21%
Employer	4%	5%	6%	8%	7%
Mail/postcard/brochure	1%	2%	4%	7%	7%
Sign on transit vehicle, bus stop	4%	3%	2%	6%	4%
Word of mouth, friend, co-worker	9%	10%	9%	5%	4%
Television	15%	14%	13%	5%	3%
Internet	4%	6%	5%	5%	3%
Sign/billboard	7%	7%	7%	3%	1%
Newspaper ads/article	6%	6%	5%	1%	0%
Don't know	11%	11%	10%	32%	43%

As indicated by the year-to-year comparisons, several referral sources, such as employers, mail/postcards, and Internet appear to have gained importance since 2010, while traditional media sources of radio and television as well as signs/billboards and newspaper ads and articles, have declined.

The shift from traditional media to digital media and targeted geographic and mode advertising is consistent with Commuter Connections' marketing plans, but traditional media still play a role in raising respondents' awareness. Awareness of Commuter Connections was nearly twice as high (57%) for respondents who recalled hearing or seeing commute advertising as for respondents who did not recall advertising (31%). The much higher percentage of "don't know" responses in 2019 and 2022 likely resulted from the use of the Internet, self-administered survey method. SOC surveys prior to 2016 were conducted primarily by telephone and interviewers would have prompted respondents whose initial response was "don't know" to attempt to recall the source.

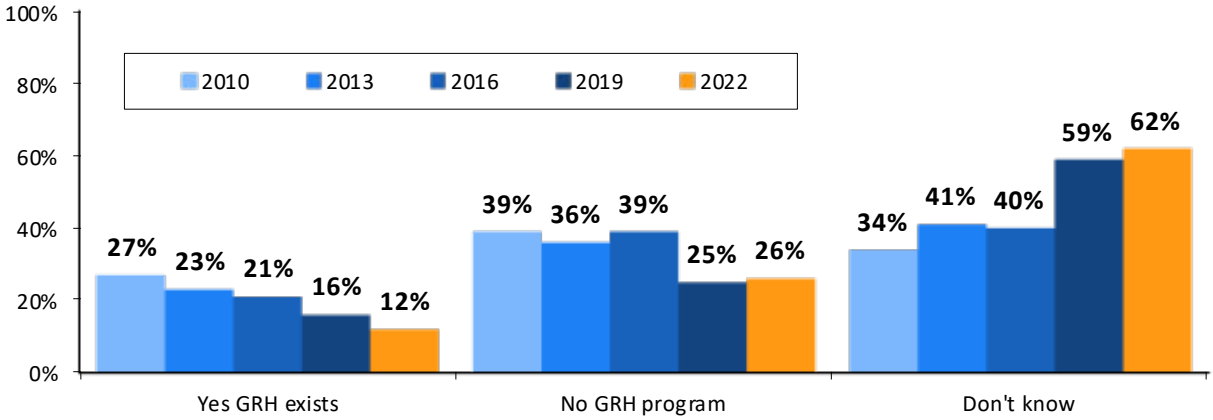
About 5% of respondents who knew of Commuter Connections said they contacted the program or visited a Commuter Connections or COG website in the past year. These respondents represented about 2% of all regional workers. Commuters who used alternative modes at the time of the survey were most likely to have made contact. Seventeen percent of commuters who were carpooling/vanpooling and 16% of transit riders who knew of Commuter Connections contacted the organization in the past year. By contrast, only 3% of drive alone commuters made a contact. The survey did not ask what modes these respondents were using before they contacted Commuter Connections. So it is not possible to say if any of these contacts with Commuter Connections led respondents to start or increase alternative mode use but some might have assisted or encouraged such a change.

Awareness of Regional Guaranteed Ride Home (GRH)

Since 1997, Commuter Connections has offered Guaranteed Ride Home to eliminate alternative mode users' fear of being without transportation in the case of an emergency. The program provides free rides in a taxi, ridehail service, or rental car in the event of an unexpected personal emergency or unscheduled overtime.

Survey respondents who were not teleworking/working from home full-time were asked if they knew of a regional GRH program available for commuters who rideshare or use public transportation. Twelve percent thought there was such a program, 26% said there was no such program, and the remaining 62% were unsure (Figure 71). Awareness of GRH has been steadily dropping since 2010, when 27% of respondents said they knew of a regional program.

Figure 71
Awareness of Regional GRH Program – 2010 to 2022
(2010 n = 6,084, 2013 n = 5,738, 2016 n = 5,266, 2019 n = 7,974, 2022 n = 5,279)



Awareness of regional GRH was strongly tied to respondents' awareness of Commuter Connections; 23% of commuters who said they had heard of Commuter Connections knew a regional GRH program existed, compared with only 5% of commuters who did not know Commuter Connections.

Awareness of GRH by Commute Mode – GRH awareness was highest among respondents who rode a commuter train to work; 47% of these respondents knew of the GRH program (Table 39). About two in ten ridesharers (22%) and bus riders (19%) knew that a regional GRH program existed. Among commuters who drove alone, only 10% knew of GRH. Program awareness among Metrorail riders (13%) and bikers/walkers (8%) was about the same as for drive alone commuters.

Table 39
Awareness of Regional GRH Program by Primary Commute Mode – 2010 to 2022

Current Primary Mode	2010	2013	2016	2019	2022
Drive alone (2022 n = 3,418)	27%	21%	19%	14%	**10%**
Commuter train (2022 n = 47)	67%	70%	57%	26%	**47%**
Bus (2022 n = 212)	32%	34%	20%	20%	**22%**
Carpool/vanpool (2022 n = 121)	39%	29%	25%	29%	**19%**
Metrorail (2022 n = 1,180)	31%	23%	23%	14%	**13%**
Bike/walk (202 n = 302)	26%	16%	16%	17%	**8%**

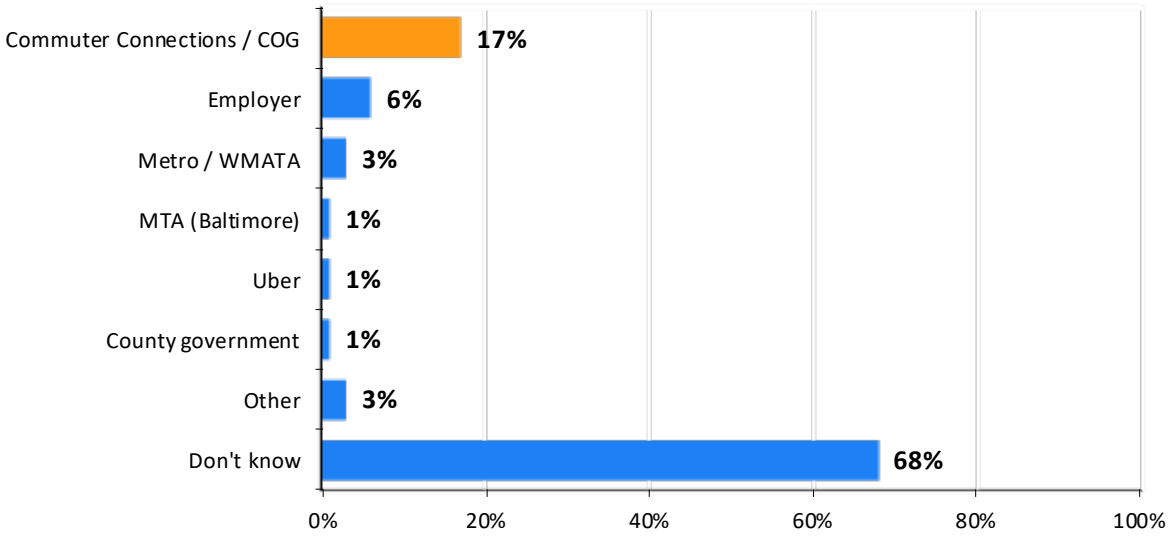
Awareness of GRH by Home and Work Location – Respondents who lived in the Outer Ring demonstrated slightly higher awareness of GRH (13%) than did Core area (10%) residents (Table 40). An opposite pattern was clear for work location; respondents who worked in the Core (13%) and Middle Ring (12%) areas were more likely to know about GRH than were respondents who worked in the Outer Ring (7%) sub-area.

Table 40
Awareness of Regional GRH Program by Home and Work Area

Location – Ring Designation	Percentage
Home Location	
Core (n = 1,492)	10%
Middle Ring (n = 1,617)	12%
Outer Ring (n = 2,170)	13%
Work Location	
Core (n = 2,316)	13%
Middle Ring (n = 1,871)	12%
Outer Ring (n = 729)	7%

GRH Program Sponsor – Respondents who said they believed there was a regional GRH program were asked who sponsored this service. Two-thirds (68%) said they did not know who operated the program. Just under two in ten (17%) said Commuter Connections or COG/Council of Governments sponsored the program (Figure 72). This was lower than the 26% who mentioned Commuter Connections as the sponsor in the 2019 SOC survey. Small shares of respondents mentioned other sponsors.

Figure 72
Awareness of Regional GRH Program Sponsor
Of Respondents who said a Regional GRH Program Existed
(n = 664)



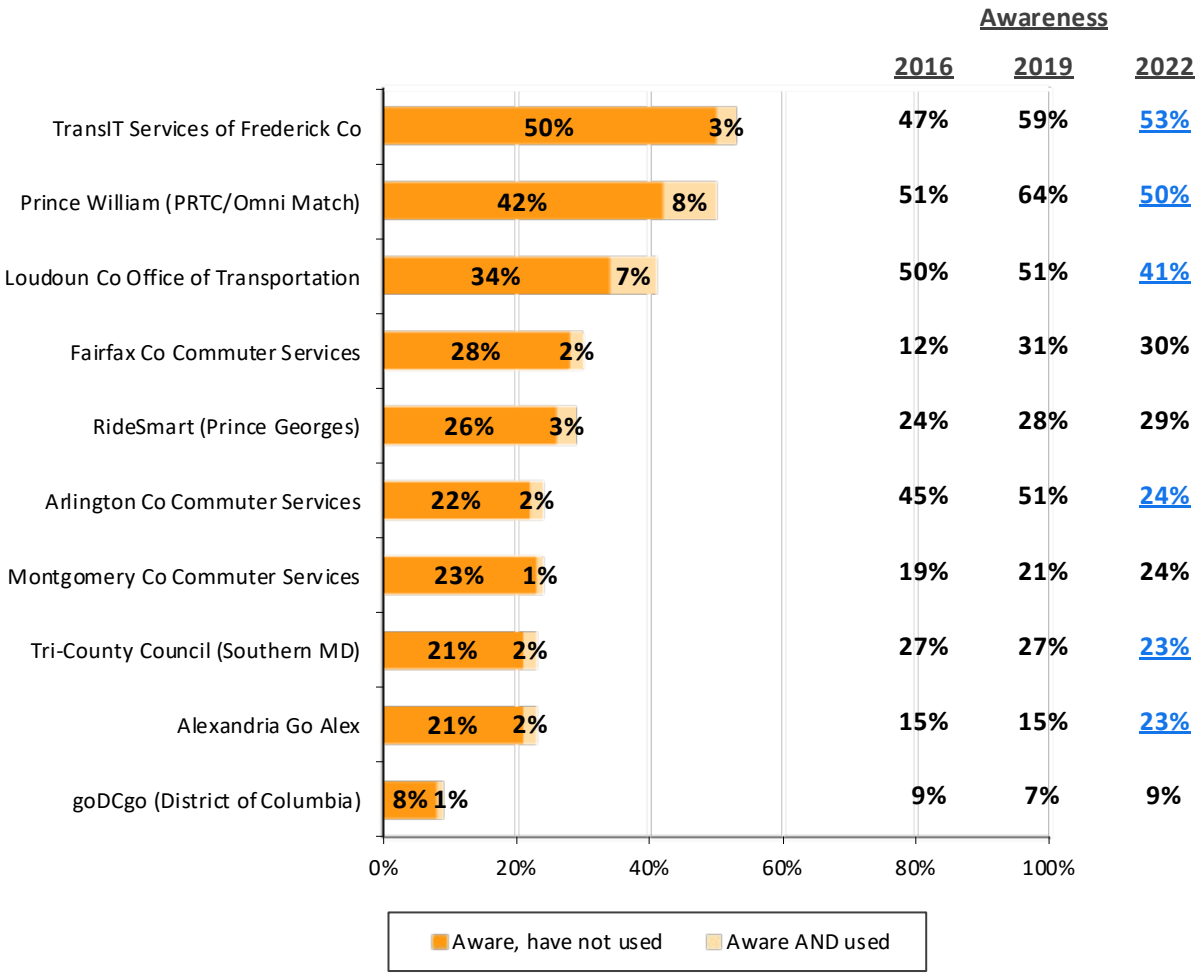
Awareness and Use of Local Commute Assistance Programs

Many of the commute services offered in the Washington region are promoted, supported, or administered by local commute program organizations. Ten organizations operate as Commuter Connections program partners, each serving a separate county or independent city. To test awareness and use of these programs, respondents who lived in an organization's service area were asked if they had heard of the organization and if they had used any services of the program. Commuters who worked in different jurisdictions than where they lived also were asked about the organization in their work area. Commuters were not asked about programs that did not serve their home area or work area.

Figure 73 presents the percentage of respondents who said they had heard of the organization, when prompted with the organization's name. Program awareness ranged from 9% to 53% of respondents who were asked about the organization. Two of ten programs were known to at least half of the target area respondents and three other programs were known to about three or four in ten target area respondents.

Figure 73
Heard of/Used Local Jurisdiction Commute Assistance Program

(2022: Frederick n = 652, Prince William n = 726; Loudoun n = 700, Fairfax n = 1,746, Prince George's n = 1,141, Arlington n = 1,369, Montgomery n = 1,316, Southern Maryland n = 1,218; Alexandria n = 921, District of Columbia n = 3,111)
(Blue highlighting for 2022 awareness totals denotes statistically different percentages from 2019 to 2022)



One program, Alexandria GO Alex, recorded higher awareness in 2022 than in 2019, but five programs showed a drop in awareness among targeted respondents between 2019 and 2022. Four programs had 2022 awareness levels approximately the same as in 2022.

Respondents who knew of a local organization were asked if they had contacted it. Figure 73 also shows these results. Use ranged from 1% to 8% of respondents who lived or worked in the service area. Eight percent of respondents who lived or worked in the PRTC/Omni Match area and 7% who lived or worked in Loudoun County had contacted these organizations.

Both awareness and use were generally higher for programs in outer jurisdictions (Frederick, Prince William, and Loudoun), a pattern that has held since 2007, when the question was added to the SOC survey. The relationship to the location in the region is likely because outer jurisdiction residents, many of whom work at locations that are in the Middle Ring or Core of the region, encounter more congestion in their travel and have longer commute times and distances than do residents of Core and Middle Ring

jurisdictions. These travel difficulties could encourage commuters who live in Outer Ring jurisdictions to seek non-drive alone options for travel to work.

Use also was higher for programs that are strongly associated with transit agencies (Prince William, Loudoun, Frederick, and Prince George's). This connection might be due to higher visibility of the services and/or to the broader range of services that these programs offer. In the other jurisdictions, the commuter information programs are less integrated with the organizations that provide transit service.

It also is important to note that both name recognition and service use for any of these programs is complicated by name changes for some programs in past years, as well as by the interwoven nature of these programs with Commuter Connections. For many years, the programs have been jointly branded with Commuter Connections, with the majority of commute program advertising being disseminated through regional "mass marketing" umbrella campaigns administered by Commuter Connections. Few of the local programs conduct commuter level outreach with brand name recognition as a goal. It is not surprising that awareness of specific program names was low in some areas.

Additionally, several key services that the programs promote (e.g., regional rideshare matching, Guaranteed Ride Home, Bike-to-Work Day), are publicly administered by and branded as Commuter Connections' programs. So, while each of the local programs offers independently-sponsored services, some of their most visible services would be most associated with Commuter Connections.

SECTION 8 – EMPLOYER-PROVIDED COMMUTE ASSISTANCE SERVICES

The SOC survey also inquired about commute assistance services and benefits that might be offered to employees at their worksites, either by employers or a building management company. Respondents were asked about two types of services:

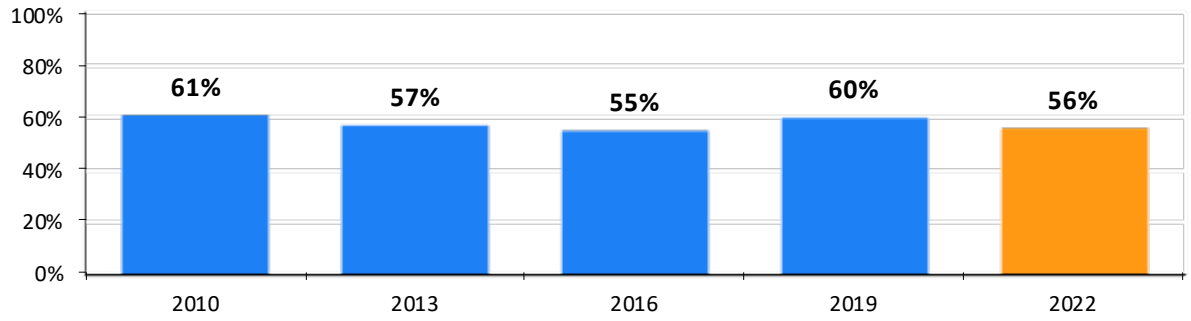
- Alternative mode support benefits and services
- Parking facilities and services

This section presents results regarding respondents' availability and use of these services in 2022. Results also are presented for some questions from previous SOC surveys.

Alternative Mode Benefits/Services

Fifty-six percent of respondents said their employers offered one or more commuter benefits or services (Figure 74). This was a slight decrease from the rate estimated in the 2019 SOC survey and approximately the percentage estimated in the 2016 survey. This could suggest some employers paused or discontinued commute services because many employees were working from home during the pandemic. However, the percentage represents employees' perceptions or awareness of service availability and could under-represent the true availability of services if employees were unaware of some services that were offered. While incorrect perceptions could have been an issue in both the current and past SOC surveys, the fact that many employees in the 2022 survey were working some or all their workdays at home could have limited their exposure to information or messaging they might have received if they were working at their usual work location.

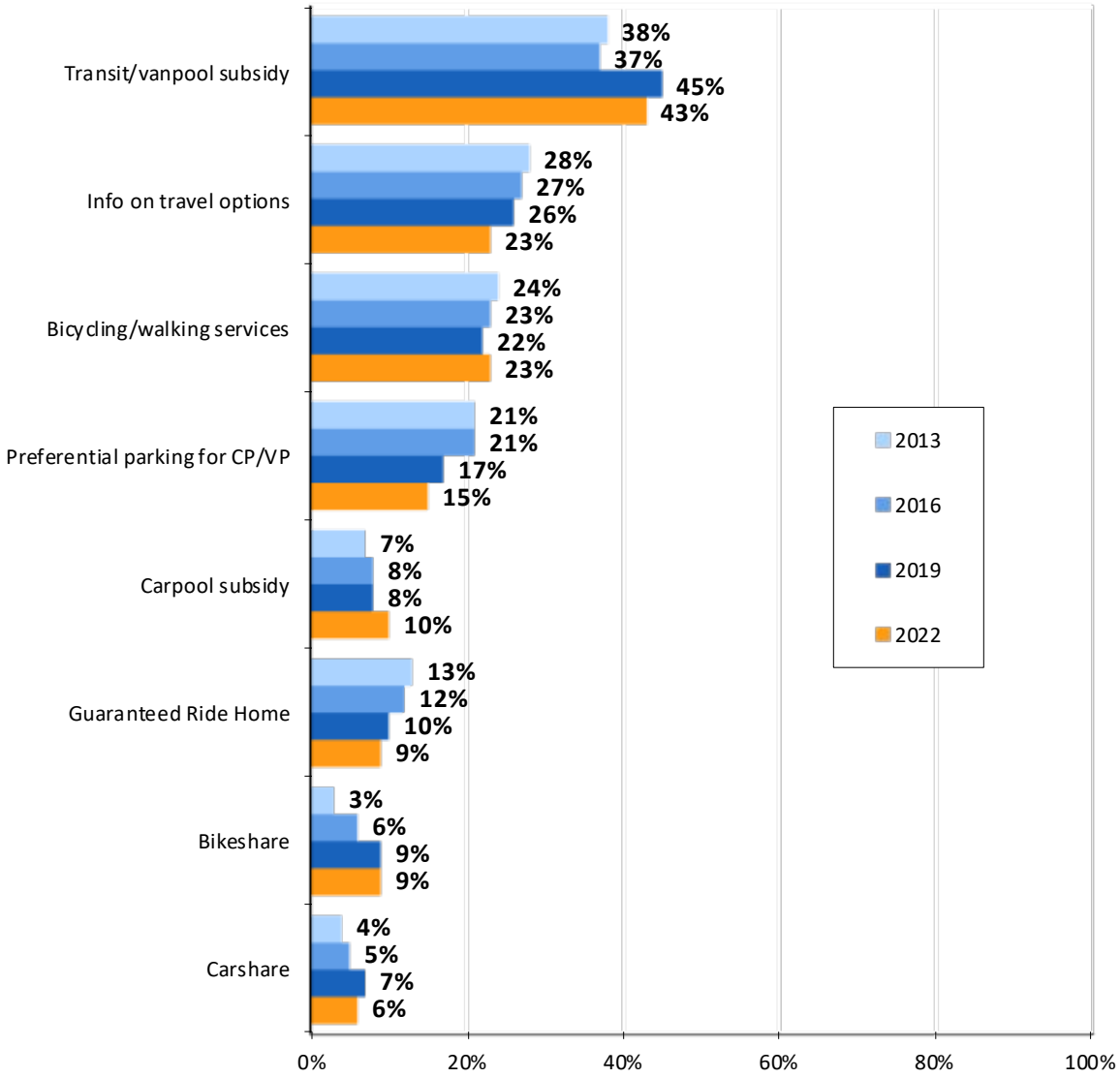
Figure 74
Employee Reports Access to any Worksite Benefits/Services – 2010 to 2022
(2010 n = 5,899, 2013 n = 5,524, 2016 n = 5,086, 2019 n = 7,991, 2022 n = 7,859)



Individual Benefits/Services Offered

The percentages for individual commute services offered are displayed in Figure 75. The most common services were SmarTrip/other subsidies for transit or vanpool, available to 43% of respondents, and information on commuter transportation options, available to 23% of respondents. Two in ten (23%) respondents said their employer offered services for bikers and walkers and 15% said preferential parking was offered to carpools and vanpools. One in ten said their employer offered carpool subsidies (10%) and Guaranteed Ride Home (9%). Memberships in two vehicle-sharing services, bikeshare membership and carshare membership, were mentioned by 9% and 6% of respondents, respectively.

Figure 75
Alternative Mode Benefits/Services Available at Worksites – 2013 to 2022
(2010 n = 5,899, 2013 n = 5,524, 2016 n = 5,086, 2019 n = 7,991, 2022 n = 7,859)

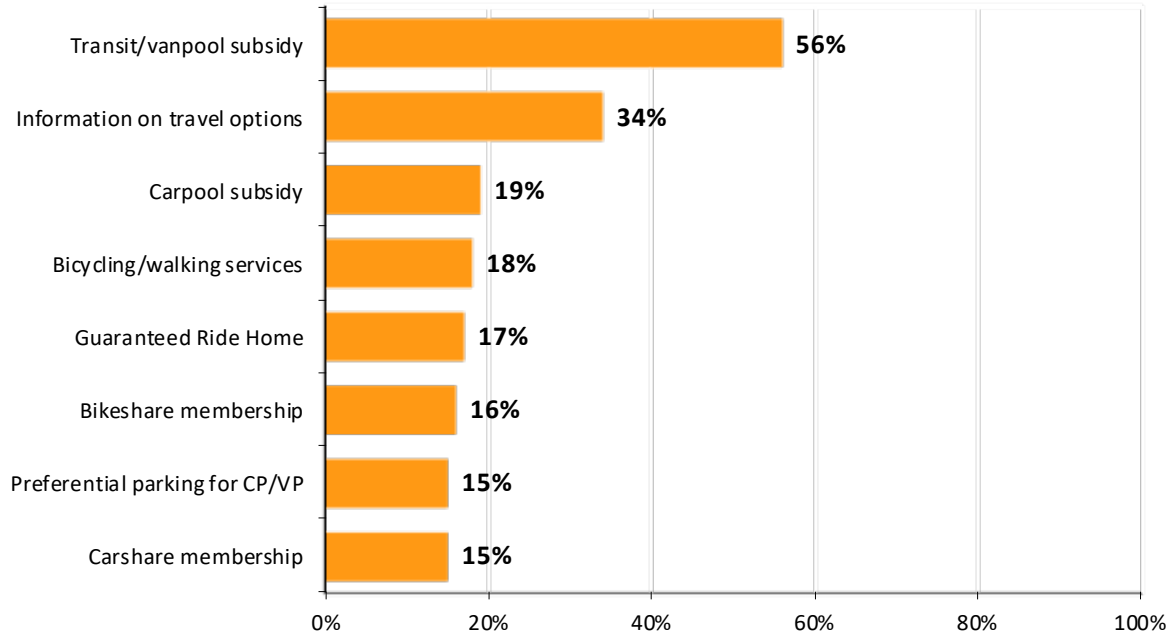


Availability of most services was not significantly different in 2022 than in 2019, typically changing only one or two percentage points. But when examining the service percentages over the years since 2013, the figure shows generally declining trends for information on travel options, preferential parking, and GRH. Conversely, access to carpool subsidies and bikeshare appears to have increased over the nine years since 2013.

Respondents whose employers offered incentives/support services were asked if they had ever used these services. Overall, 54% of respondents who said at least one of the commute services was available had used a service. This percentage represented 30% of all workers who were not self-employed.

The most used benefit or service was transit or vanpool subsidies, used by 56% of respondents whose employers offered this service (Figure 76). One-third (34%) of respondents who had access to commute information had used it and carpool subsidy was used by 19% who said it was available. The remaining services were used by fewer than two in ten respondents whose employers offered the services: bicycling or walking services (18%), Guaranteed Ride Home (17%), bikeshare membership (16%), preferential parking (15%), and carshare membership (15%).

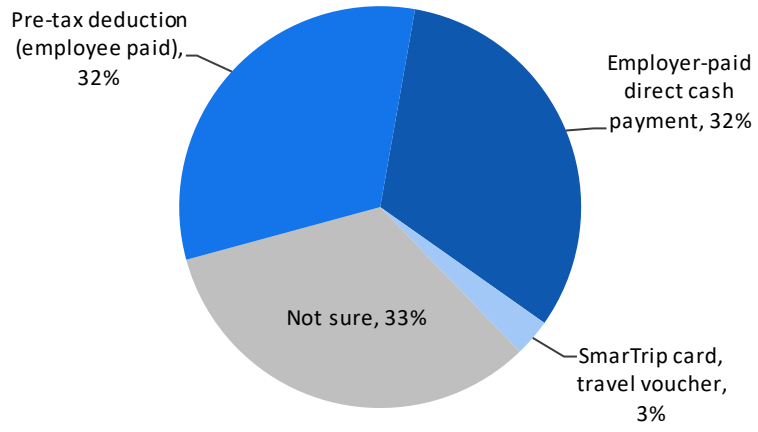
Figure 76
Use of Employer-Provided Benefits/Services
Of Employees Who had Access to Services
(Transit/vanpool subsidy n = 3,433, Information on travel options n = 1,878, Carpool subsidy n = 771, Bicycling / walking services n = 1,896, Preferential parking n = 1,292, Bikeshare membership n = 744, GRH n = 776, Carshare membership n = 431)



Form of Transit Financial Benefits – Transit/vanpool financial benefits were both available to and used by a large share of respondents. Respondents who said their employer offered this benefit were asked about the form in which it was provided. Two forms of benefits were equally common. One-third (32%) said the benefit was an employee-paid pre-tax deduction program, in which employees have the monthly cost of their transit cost deducted from their pay before taxes are deducted, reducing the amount of the tax they pay (Figure 77).

Another one-third (32%) of respondents said it was a direct cash payment or employer-paid SmartBenefits account. In this form, the employee receives the full cost of the benefit, either as an upfront payment or reimbursement for transit costs paid, as a non-taxed addition to their pay. Three percent reported that the employer offered SmarTrip cards or travel vouchers. One-third (33%) said they knew a financial benefit was available but did not know the specific type of benefit.

Figure 77
Transit Financial Benefit Types
(n = 3,415)



Benefits/Services Offered by Employer Type

Respondents who worked for Federal agencies were most likely to report availability of benefits/services at their worksites; 81% of Federal workers said they had at least one of these services (Table 41). Six in ten (60%) respondents who worked for non-profit organizations had access to services. Respondents who worked for state/local agencies and private employers were least likely to have access; about half (48%) of state/local government employees and 42% of private sector employees reported access to commuter benefits/services.

Table 41
Commute Benefits/Services Available by Employer Type

Incentives/Support Services	Employer Type			
	Federal (n = 2,236)	**Non-profit** (n = 1,237)	**State/local** (n = 787)	**Private** (n = 3,322)
Any services offered	**81%**	**60%**	**48%**	**42%**
SmartBenefits/transit/vanpool subsidy	73%	47%	33%	30%
Commute information	40%	21%	26%	16%
Bike/walk services	37%	28%	23%	16%
Preferential parking	33%	11%	12%	10%
GRH	15%	6%	11%	7%
Carpool subsidy/cash payment	18%	7%	7%	8%
Bikeshare membership	10%	10%	19%	7%
Carshare membership	7%	6%	9%	5%

Table 42 also compares the percentages of employers that offered various individual services by employer type. Not surprisingly, Federal agency workers also had greater access than did other respondents to individual services. This was especially true for transit/vanpool subsidies 73% of Federal workers said subsidies were offered, while only 47% of non-profit workers, 33% of state/local agency employees, and 30% who worked for private firms had this benefit. High availability of transit subsidies among federal agency employees is due to a federal mandate; an Executive Order signed in 2000 required Federal agencies in the National Capital Region to offer transit subsidies. In 2022, the maximum subsidy amount was $280 per month.

Benefits/Services Offered by Employer Size

Large employers were more likely to offer commuter services than were small employers (Table 42). Only 38% of respondents who worked for employers with 100 or fewer employees and 55% who worked for employers with 101-250 employees said they had any services. By contrast, 67% of respondents employed by large employers (251-999 employees) and 76% of respondents who worked for very large firms (1,000+ employees) had one or more employer-provided commuter service.

Respondents who worked for employers with 251 or more employees had greater access to most benefits/services, compared with employees of smaller firms. This trend of increasing services with increasing size was most striking with transit/vanpool subsidies, commute information, bike/walk services, and preferential parking.

Table 42
Commute Benefits/Services Available by Employer Size

Incentives/Support Services	Employer Size (number of employees)			
	1-100 (n = 2,883)	101-250 (n = 1,012)	251-999 (n = 1,282)	1,000+ (n = 2,062)
Any services offered	**38%**	**55%**	**67%**	**76%**
SmartBenefits/transit/vanpool subsidy	28%	43%	56%	62%
Commute information	12%	22%	31%	38%
Bike/walk services	12%	23%	32%	38%
Preferential parking	7%	11%	17%	31%
GRH	6%	9%	11%	14%
Carpool subsidy/cash payment	7%	10%	12%	15%
Bikeshare membership	7%	10%	12%	12%
Carshare membership	4%	6%	8%	7%

Benefits/Services Offered by Employer Location

Finally, the analysis examined availability of services by respondents' work locations, divided into the three "ring" designations described earlier: Core area (Alexandria, Arlington, and the District of Columbia), Middle Ring (Fairfax, Montgomery, and Prince George's), and Outer Ring (Calvert, Charles, Frederick, Loudoun, and Prince William). Core area respondents had greater access to benefits/services than did other respondents (Table 43).

Table 43
Commute Benefits/Services Available by Work Area

Incentives/Support Services	Work Area		
	Core (n = 3,861)	Middle Ring (n = 2,621)	Outer Ring (n = 882)
Any services offered	**72%**	**46%**	**28%**
SmartBenefits/transit/VP subsidy	64%	31%	14%
Commute information	29%	22%	11%
Bike/walk services	32%	20%	12%
Preferential parking	16%	19%	6%
GRH	11%	9%	7%
Carpool subsidy/cash payment	11%	10%	8%
Bikeshare membership	14%	7%	5%
Carshare membership	7%	6%	4%

Seven in ten (72%) Core area workers said they had commute services, while only 46% of Middle Ring workers and 28% of Outer Ring workers had services available. Availability of services as reported in 2022 was lower than in 2019 for the Core (2022 72%, 2019 76%) and the Middle Ring (2022 46%, 2019 51%). Overall service availability for the Outer Ring was the same for both years (2022 28%, 2019 28%).

The higher share of Core area workers with commute services was primarily due to their much greater access to transit subsidies; 64% of Core area workers reported this service was offered, while only 31% of Middle Ring and 14% of Outer Ring workers said it was available. This largely mirrors the availability of transit service; employers in areas with limited transit operation would understandably be less inclined to offer a subsidy for transit. The high availability of transit subsidies in the Core also reflects the concentration of federal agencies in this area. As noted earlier, Federal agencies in the National Capital Region are required to offer transit subsidies to employees.

Another factor that could influence access to transit subsidies in the Core is the DC Commuter Benefits Ordinance enacted by the District of Columbia government. Beginning in 2016, employers with 20 or more employees at District worksites were required to offer a transit benefit. The 64% share of Core area employees who said a transit benefit was offered was seven percentage points higher than the 57% reported in 2016. But Middle Ring employees reported about the same jump in subsidy availability (25% in 2016 to 31% in 2022), so it is not definitive that the ordinance was responsible for the growth.

Core area workers also had much greater access to bike/walk services and to bikeshare memberships. Again, this difference reflects the greater access to bike/walk infrastructure and to bikeshare services in the Core, when compared with the Middle Ring and Outer Ring. Differences in access to other commute services were less pronounced, particularly between Core area and Middle Ring workers. The percentages of Core area and Middle Ring workers with access to commute information, preferential parking, GRH, carpool subsidies, and carshare memberships were similar. Outer Ring workers had lower availability of all services than did commuters who worked closer to the region's urban center.

Parking Facilities and Services

Respondents who were traveling to an outside worksite at least one day per week also were asked about the parking available at their worksites. These results are displayed in Table 44 for 2010 through 2022. Nearly seven in ten (69%) respondents across the region said their employers provided "free parking to all employees" at the worksite. One percent said the employer offered "free parking off-site" and 6% said their employers did not provide free parking to all employees, but that they personally had free parking. About one-quarter said they paid at least part of the cost of parking; 22% paid the total cost and 3% paid a portion of the cost with the balance paid by their employers.

Table 44
Parking Facilities/Services Offered by Employers – 2010 to 2022
(2010 n = 5,819, 2013 n = 5,524, 2016 n = 5,093, 2019 n = 7,385, 2022 n = 7,196)

Parking Facilities and Services	2010	2013	2016	2019	2022
Free on-site parking (all employees)	63%	63%	64%	60%	**69%**
Free on-site parking (some employees)*	----	----	6%	5%	**6%**
Free off-site parking	2%	2%	1%	1%	**1%**
Employee pays all parking charges	22%	23%	24%	28%	**22%**
Employee/employer share parking charge	7%	7%	5%	5%	**3%**
Parking discounts for carpools/vanpools**	16%	14%	14%	9%	**6%**

* Follow-up question about parking offered to some employees was added in 2016
** Percentages of parking discounts for CP/VP are calculated on a base of respondents who did not have free parking. These sample sizes are (2010 n = 1,610, 2013 n = 1,438, 2016 n = 1,148, 2019 n = 1,934, 2022 n = 1,530)

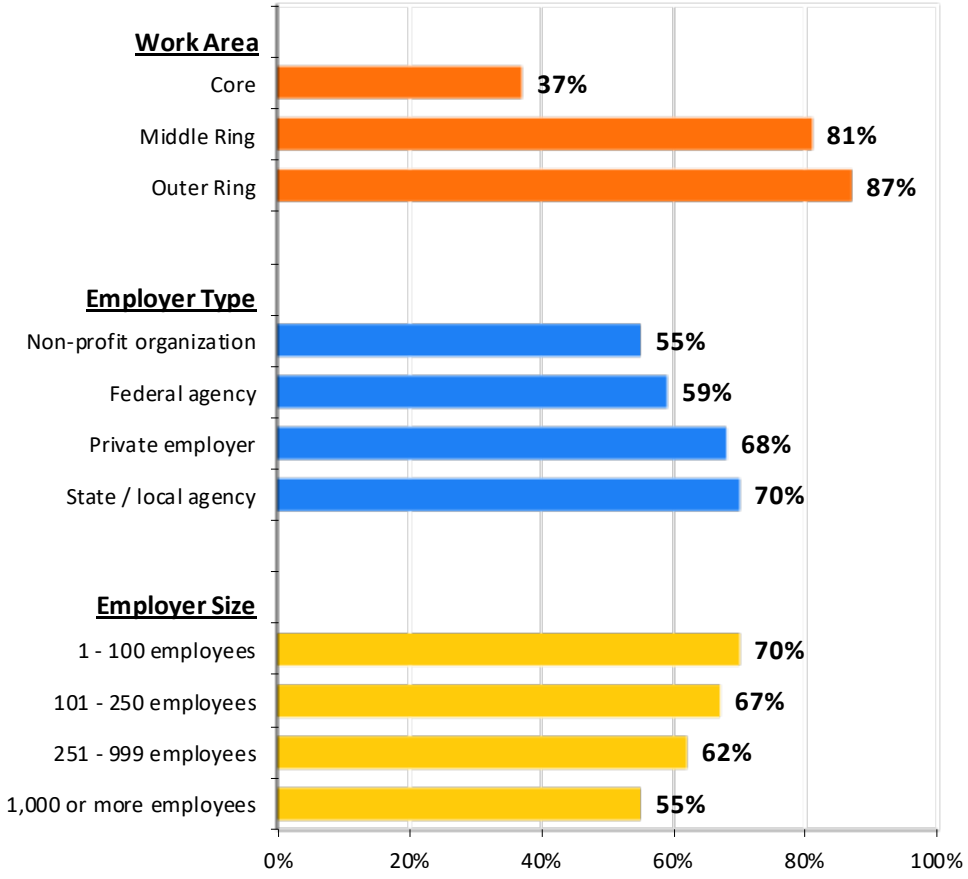
The availability of free parking remained relatively stable between 2010 and 2019 but increased between 2019 and 2022; the increase could reflect several factors. First, workers who were teleworking full-time were not asked this question and as noted earlier, a greater share of Core area workers shifted to full-time telework during the pandemic than did Middle Ring and Outer Ring workers. Because free parking was always more available for Middle Ring and Outer Ring workers, greater regional availability of free parking could reflect a different mix of respondents working at outside locations in 2022, with a higher share of Middle Ring and Outer Ring workers reporting on parking in the survey.

A second possibility is that some employers might have started offering free parking to encourage remote workers to return to the main work location. To test this possibility, the 2022 survey asked respondents who had free worksite parking if it was free before the pandemic. Most (92%) said it had been free pre-pandemic but 4% said it was not free before. The remaining 4% were not sure. Core area workers were more likely to note newly-free parking; 8% of Core workers with free parking said it was not free before the pandemic, compared with 3% of Middle Ring and 1% of Outer Ring workers.

Parking by Work Location, Employer Type, and Employer Size – Figure 78 displays free parking availability by employer type, employer size, and the location of the respondents' worksite. The most dramatic differences in free parking were evident for different parts of the region. Only 37% of Core area workers said their employers offered free parking to all employees, compared with 81% of respondents who worked in the Middle Ring and 87% of respondents who worked in the Outer Ring.

Figure 78
On-site Free Parking Availability by Work Area, Employer Type, and Employer Size

(Work Area – Core n = 2,320, Middle Ring n = 1,876, Outer Ring n = 729)
(Employer Type –Non-profit n = 829, Federal n = 1,233, Private n = 2,315, State/local n = 699)
(Employer Size – 1-100 n = 2,236, 101-250 n = 693, 251-999 n = 738, 1,000+ n = 1,231)



The 2022 Middle Ring and Outer Ring percentages were essentially the same as for 2019 (Middle Ring 80%, Outer Ring 84%) but the 37% free parking for Core area workers in 2022 was notably higher than the 23% of Core area workers who said they had free parking in 2019. Since parking had always been constrained for Core worksites, this supports the assumption that employees who were working at the main worksite were permitted to use parking that had not previously been available to them.

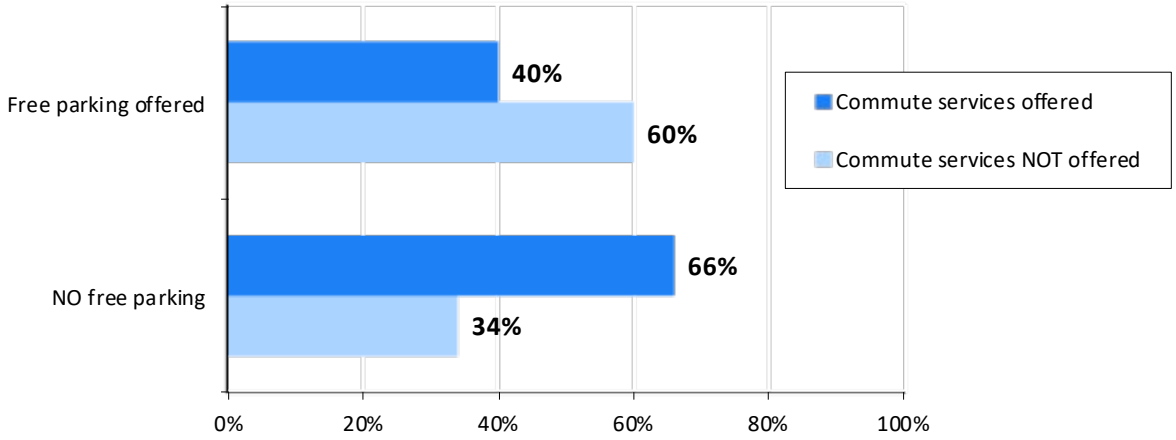
Federal agency workers and respondents who worked for non-profit organizations were least likely to have free parking at work. About 55% of respondents who worked for non-profits and 59% who worked for Federal agencies said their employers provided free on-site parking to all employees. By contrast, 68% of respondents who worked for private sector and 70% state/local agency employees said they had free parking. All employer types reported higher availability of free parking in 2022 than in 2019 but the increases were higher for Federal agencies (15 percentage points) and non-profits (13 percentage points) than for either private sector or state/local agencies (5 percentage points). Note that many federal agency and non-profit worksites are in the Core, thus both the lower 2022 parking availability for these employees compared with private and state/local employers and the greater change in availability between 2019 and 2022 could be due in part to their location.

Respondents who worked for large employers were less likely to have free parking. About six in ten respondents who were employed by employers with 251 or more employees had free parking, compared with about seven in ten respondents who worked for employers with 250 or fewer employees. Again, all employer size groups reported higher free parking percentages in 2022 than in 2019 but the relative changes were not substantially different by employer size.

Availability of Commuter Assistance Services/Benefits Offered by Availability of Free Parking

The availability of commute benefits/services was inversely related to the availability of free parking at the worksite. As shown in Figure 79, only four in ten (40%) respondents who said free parking was offered to all employees said their employers also offered commute benefits/services that would encourage or help them use alternative modes for commuting. By contrast, 66% of respondents who said free parking was not available reported having access to commute benefits/services at work.

Figure 79
Commute Benefits/Services Offered by Free Parking Available
(Free parking available n = 3,304, No free parking n = 1,637)



Impact of Commute Assistance Services and Parking

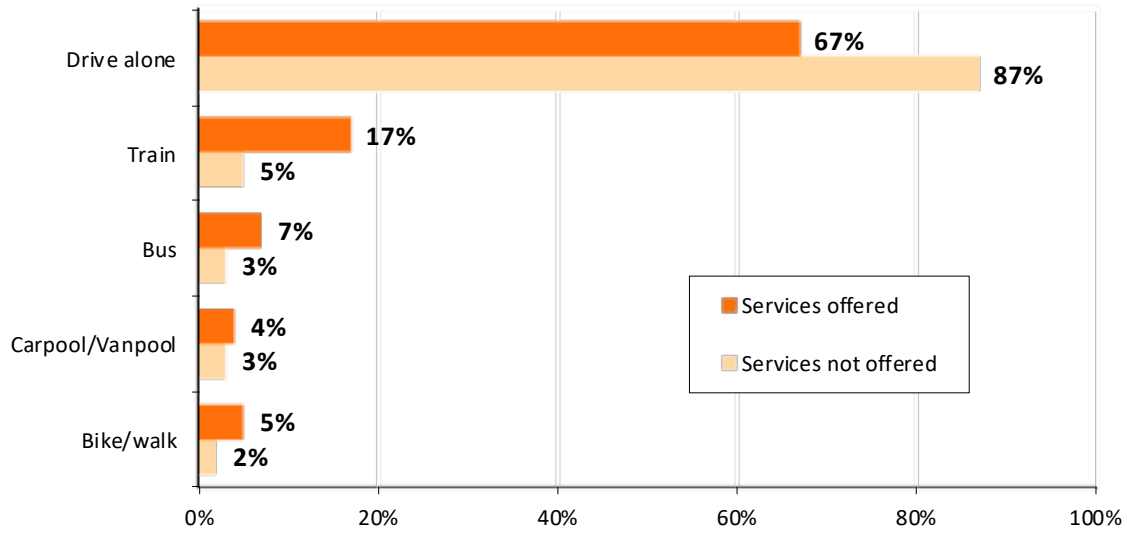
Commute Mode by Commute Assistance Benefits/ Services Offered

Figure 80 presents the share of commuters who used various commute modes by whether commute assistance benefits/services were available at their worksites. As with other distributions of primary mode in the report, the percentages are based on respondents who were not primarily teleworking.

A much lower share of respondents who had access to alternative mode benefits/services drove alone (67%), when compared with respondents whose employers did not provide these services (87%). Train use was particularly higher for respondents with commute services; 17% of respondents whose employers offered commute benefits/services rode the train to work, compared with 5% of respondents whose employers did not offer these services. Use of other alternative modes also was higher among respondents who had access to commute benefits/services as for respondents with no services.

Figure 80
Primary Commute Mode (Excluding Primary Telework) by Commute Benefits/Services Offered

(Services offered n = 2,041, Services not offered n = 2,350)



While the differences shown in the figure are statistically significant, it is not possible to say that the availability of these services was the only reason, or even the primary reason, for differences in mode use. Employers in the Core were much more likely than were employers in the Middle Ring and Outer Ring to offer commuter assistance services and drive alone rates were much lower for respondents who worked in the Core than for respondents who worked in the Middle Ring or Outer Ring.

However, respondents who worked in the Core also could be faced with greater impediments to driving alone. For example, Core area workers commuted an average of 42 minutes one-way, compared with 33 minutes for Middle Ring and 28 minutes for Outer Ring workers. And respondents who worked in the Core also might experience greater congestion levels and have greater availability of commute options, such as transit, than would be experienced by workers outside this area. Any of these factors might have been at least as important in influencing respondents' commute mode choices and encouraging greater use of modes other than driving alone.

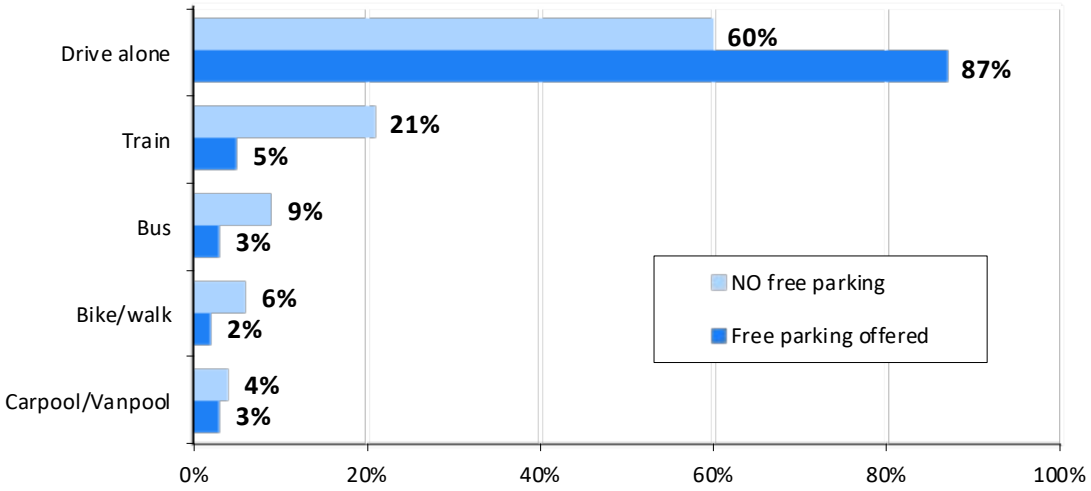
Commute Mode by Parking Services Offered

Figure 81 compares mode use rates for respondents who had free on-site parking at work and those who pay or would have to pay for parking. The difference in drive alone rates for these two groups was substantial; 87% of respondents whose employers offered free parking drove alone, compared with 60% of respondents who did not have this benefit.

Respondents who had to pay to park used all alternative modes at higher rates than did respondents with free parking. The difference was especially striking for use of transit; train mode share was more than four times as high for respondents who had to pay to park as for respondents who had free parking. Use of bus, carpool/vanpool, and bike/walk also were higher for respondents who did not have free parking. Many other surveys and research studies have documented the important role parking availability and cost play in commute decisions.

Figure 81
Primary Commute Mode (Excluding Primary Telework) by Free Parking Available at Work

(No free parking n = 2,862, Free parking offered n = 1,529)



Commute Mode by Commute Benefits/Services and Parking Services in Combination

Finally, Figure 82 presents a comparison of mode use by the combination of free parking and commute benefits/services. The top section of the figure shows the mode shares at worksites where free on-site parking was offered and commute benefits/services were and were not available. The bottom section shows the mode shares when free parking was not available and commute benefits/services were and were not offered.

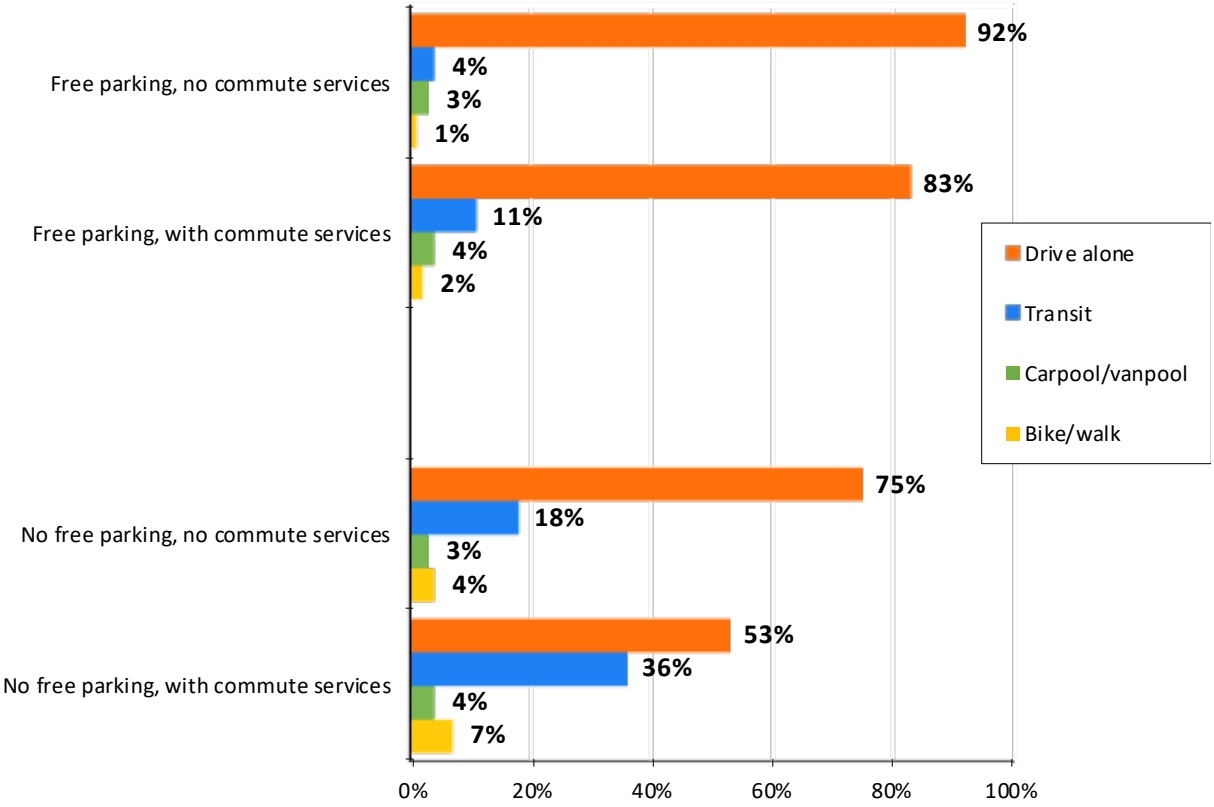
The drive alone mode share declined across the four cases, indicating that both parking cost and commute services influenced commuters' choice of driving alone. When parking was free and commute services were not offered, 92% of respondents drove alone to work. The drive alone rate dropped to 83% among respondents who had free parking, but when commute services were added.

When no free parking was available, the drive alone rate was 75% when no commute services were offered. This was 17 percentage points below the rate when parking was free and commute services were not offered, suggesting that parking charges can have a substantial impact on drive alone mode share, even in the absence of commute services. But when commute services were added, on top of parking charges, the drive alone mode share fell an additional 22 percentage points, to 53%, indicating that commute services also play a motivating role in commute mode choice.

The reverse pattern was clear for use of public transit. When free parking was offered, 4% of respondents used transit when no commute benefits/services were available and 11% used transit when they had access to commute benefits/services. At worksites where parking was not free, the transit share was 18% among respondents who did not have access to commute benefits/services and 36% when commute benefits/services were offered.

Figure 82
Mode Use by Combination of Free Parking and Commute Benefits/Services Offered

(Free parking, no commute services n = 1,320, Free parking, with commute services n = 1,541)
(No free parking, no commute services n = 444, No free parking, with commute services n = 1,083)



The figure also shows mode shares for bike/walk and carpool/vanpool. Carpool/vanpool rates were statistically the same across the four parking and commute service combinations, but there were slight differences in use of bike/walk. For respondents who reported free parking, bike/walk mode use was 1% without commute services and 2% when services were offered. Similarly, when parking was not free, bike/walk mode use was 4% without commute services and 7% when services were available.

The more dramatic differences in transit use reflect the motivating value of transit subsidies. Three-quarters of respondents who reported access to commute services said a transit subsidy was an available benefit, thus the "with commute services" categories would reflect a substantial transit motivating factor. Services, such as bike support services, bikeshare, carpool subsidies, and carpool/vanpool preferential parking, which primarily target use of bike/walk or carpool/vanpool were offered by fewer employers.

SECTION 9 – TECHNOLOGY APPLICATIONS AND DRIVERLESS CARS

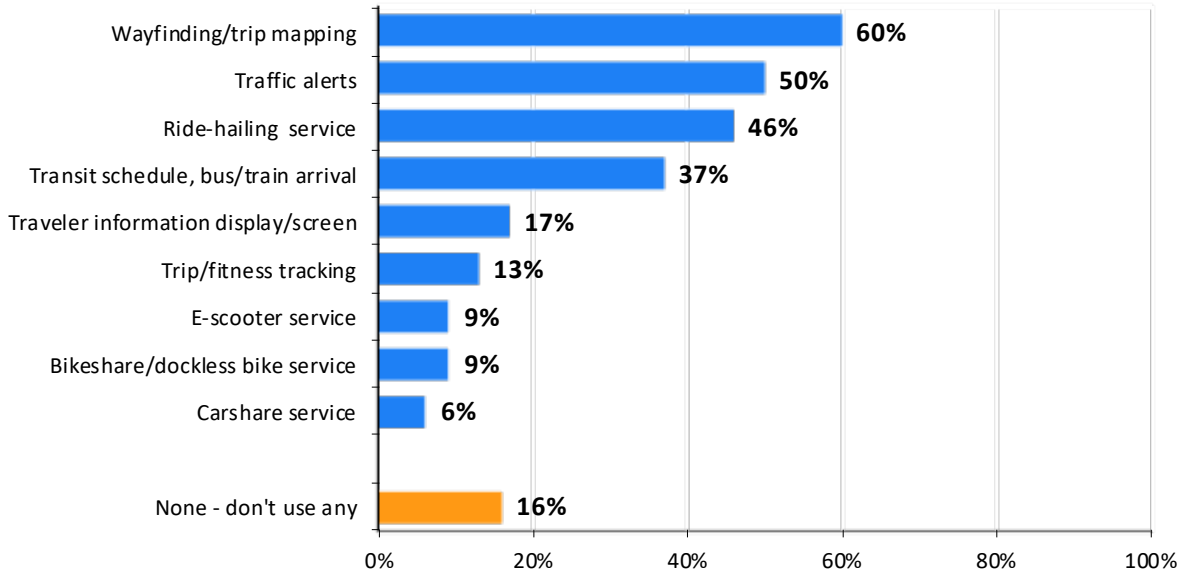
The 2019 survey added a new section of questions to examine the growing use of traveler information applications. These questions were retained in the 2022 survey. As defined in this section "applications" refers to mobile applications, but also websites, desktop, and other forms of the technology services. This section also included questions to explore awareness and interest in the concept of automated vehicles, also known as driverless cars. This section presents results for these questions.

Travel/Trip Information Applications

The wide-scale availability of smartphones and other mobile devices has created an opportunity for commute information and service organizations to deliver an extensive range of information via mobile applications, enhancing commuters' access to travel information in real time and before and during a trip. The 2022 SOC survey included a question to identify applications that regional commuters used. Survey respondents were shown a list of nine applications and asked to indicate those they had used.

Eighty-four percent of all respondents said they had used at least one of the listed applications (Figure 83). The most common application was for wayfinding or mapping applications, such as Google maps and Waze; 60% of respondents had used this type of application. Traffic alerts delivered via text message or other means had been used by 50% of respondents. Forty-six percent had used an application for a ridehail service such as Uber or Lyft and 37% had used an application that tracked transit schedules or provided "next bus/train" information on arrival time. Seventeen percent had used a traveler information display or screen located in a public location and 13% had used a trip or fitness tracking app. About one in ten respondents had used applications for e-scooter (9%), bikeshare (9%), and carshare (6%) services.

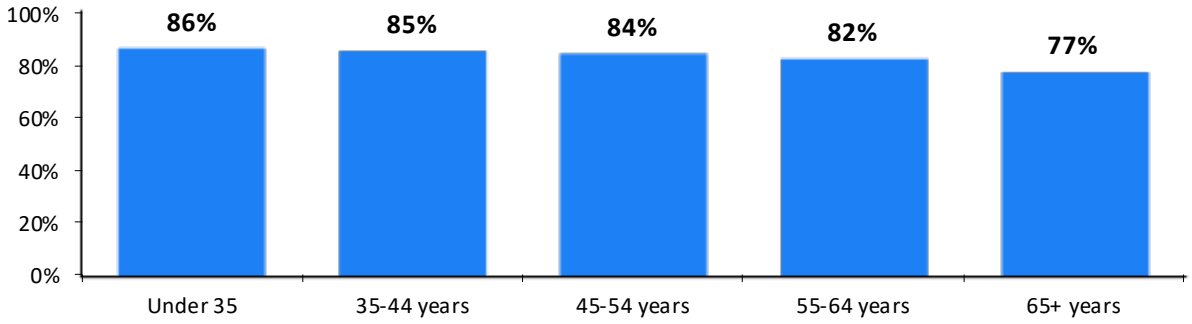
Figure 83
Travel/Trip Information Applications – Percentage Using in 2022
(n = 8,342)



Use of Travel/Trip Information Applications Among Respondent Sub-Groups

Use of Applications by Age – Use of travel/trip information applications exhibited a slight decline with increasing age (Figure 84). Use of the apps was essentially the same for respondents who were younger than 55 years. Use of the apps dropped among older respondents; 82% who were between 55 and 64 years and 77% of those who were 65 years or older had used an app.

Figure 84
Use of Travel/Trip Information Applications by Respondent Age
(Under 35 n = 1,812, 35-54 n = 1,879, 45-54 n = 1,822, 55-64 n = 1,855, 65 and older n = 664)



Use of individual applications varied substantially by age, with younger respondents nearly always using the apps more than did older respondents (Table 45). The only application that exhibited an increasing pattern with increasing age was traffic alert; 62% of respondents who were 55 years or older had used this application, compared with just 38% of respondents who were younger than 35 years.

Table 45
Use of Travel/Trip Information Applications by Respondent Age
(Shading indicates statistically higher percentages for app use)

Trip/Travel Application	Respondent Age			
	18-34 years (n = 1,812)	35 – 44 years (n = 1,879)	45 – 54 years (n = 1,822)	55+ years (n = 2,519)
Use any trip/travel info app	86%	85%	84%	81%
Transit schedule arrival	39%	40%	37%	33%
Ridehail service	59%	50%	42%	31%
Wayfinding	67%	64%	60%	48%
Trip/fitness tracking	14%	17%	13%	9%
Bikeshare service	13%	10%	5%	4%
Carshare service	9%	7%	5%	2%
E-scooter service	17%	10%	5%	2%
Traveler information display	19%	19%	15%	14%
Traffic alerts	38%	50%	57%	62%

Use of traveler information displays and bikeshare and e-scooter service apps particularly dropped off for respondents who were 45 years and older but younger respondents were less likely to have access to a personal vehicle and more likely to live in the Core, where these services are more widely available. The pattern for use of ridehail services and wayfinding applications declined steadily through all four age groups, with each age group using the application less than did the next younger group. Trip/fitness tracking apps were used at similar rates for respondents who were younger than 55 years.

Use of Applications by Other Demographics – Differences in use of the apps by other respondent demographic characteristics were small. Non-Hispanic White respondents (89%) reported higher use of apps than did Non-Hispanic Blacks (81%), Hispanics (81%) or Asian (80%) respondents. Use of the apps also appeared slightly related to income; 89% of respondents with annual household incomes of at least $100,000 had used an app, compared with 78% of respondents with incomes below $100,000. Female and male respondents were equally likely to report using apps.

Use of Applications by Home and Work Location – A slightly higher share of respondents who lived in the Core area of the region (91%) had used a travel/trip information app, compared with 83% of Middle Ring and 79% of Outer Ring respondents. Core area workers (88%) also used travel/trip apps at a higher rate than did Middle Ring (82%) or Outer Ring workers (75%).

The propensity of Core area and Middle Ring respondents to use applications likely is related somewhat to the age profiles of each area, but also to their wider availability of non-driving services, such as bikeshare and transit information, that were the subject of some of the apps. Application use was higher among young respondents than older respondents in each regional sub-area, but use dropped off for each age group among Outer Ring respondents. For example, among respondents who were younger than 35 years, 95% of Core area and 85% of Middle Ring residents had used apps, while only 76% of young Outer Ring respondents had done so. Among respondents who were 35 to 54 years, 93% of Core area residents had used apps, compared with 84% of Middle Ring residents and 81% of those who lived in the Outer Ring.

Use of Applications by Commute Mode and Commute Distance – Overall use of travel/trip information apps was high among respondents of all commute distance groups. As shown in Table 46, use was highest among alternative mode users, although nearly eight in ten drive alone commuters also used travel/trip applications. But the applications listed for the question covered all travel modes and the question did not ask if respondents had used the applications for commuting. Thus, the question covered a broad range of app types and situations for respondents to have used.

Use of individual applications, however, did vary by commute mode. Use of traffic alerts was higher among commuters who carpooled (54%) and those who drove alone (53%) than among transit riders (37%) and bike/walk commuters (36%). Most other applications had higher use rates among transit and bike/walk commuters. Commuters who rode biked or walked to work used all apps except traffic alerts at a higher rate than did other commuters, but transit riders also used traveler information displays, ridehail, bikeshare, and carshare service applications at higher rates than did carpoolers or drive alone commuters.

Table 46
Use of Travel/Trip Information Applications by Primary Commute Mode
Shading indicates statistically higher percentages)

Trip/Travel Application	Primary Commute Mode			
	Drive Alone (n = 3,716)	Carpool (n = 120)	Transit (n = 647)	Bike/Walk (n = 192)
Use any trip/travel info app	78%	84%	88%	90%
Traffic alerts	53%	54%	37%	36%
Transit schedule arrival	19%	36%	69%	56%
Traveler information display	8%	11%	26%	28%
Ridehail service	33%	32%	54%	73%
Bikeshare service	4%	7%	12%	28%
Carshare service	3%	5%	6%	16%
Wayfinding	55%	61%	47%	72%
Trip/fitness tracking	8%	5%	11%	36%
E-scooter service app	6%	7%	10%	25%

Use of Applications by Personal Vehicle Availability – One additional respondent characteristic that seemed to be associated with use of travel/trip information applications was the respondents' availability of a personal vehicle (Table 47). Respondents who had at least one vehicle per adult resident in the household were less likely to use travel/trip apps (85%) than were respondents who were car-free (92%) or who had a vehicle in the household, but fewer vehicles than adult residents (0.1 to 0.9 vehicles per adult) (88%).

As expected, respondents who were car-free or car-lite used applications for bikeshare, carshare, and e-scooter, and carshare services and for transit schedule arrival apps at statistically higher rates than did respondents with full vehicle availability, reflecting their higher use of non-driving modes overall. Car-free and car-lite respondents also used ridehail apps at a higher rate than did respondents with vehicles available, but the difference in use was less dramatic; 43% of respondents with full vehicle access had used ridehail apps, indicating the attractiveness of ridehail for some trips even among vehicle owners. Use of traffic alerts was higher among respondents with greater vehicle availability. Use of wayfinding applications was about the same across the three groups.

Table 47
Use of Travel/Trip Information Applications by Vehicles Available per Adult
Shading indicates statistically higher percentages)

Trip/Travel Application	Vehicles per Adult in Household		
	0 vehicles (n = 544)	0.1 to 0.9 vehicles (n = 1,918)	1.0+ vehicles (n = 5,573)
Use any trip/travel info app	92%	88%	85%
Traveler information display	36%	19%	15%
Bikeshare service	26%	11%	6%
E-scooter service	20%	11%	8%
Carshare service	24%	7%	4%
Transit schedule arrival	71%	41%	32%
Ridehail service	76%	50%	43%
Trip/fitness tracking	17%	12%	13%
Traffic alerts	30%	42%	56%
Wayfinding	62%	59%	61%

Driverless Cars (Automated Vehicles)

This section of the survey also explored respondents' opinions about automated vehicles, also known as driverless cars. For several years, these vehicles have been undergoing testing in several regions of the country and news media have reported on the tests. This series of questions was designed to:

- Assess baseline awareness of the concept
- Identify commuters' concerns about the vehicles
- Determine commuters' willingness to use an automated vehicle under various scenarios

Familiarity with the Concept of Driverless Cars

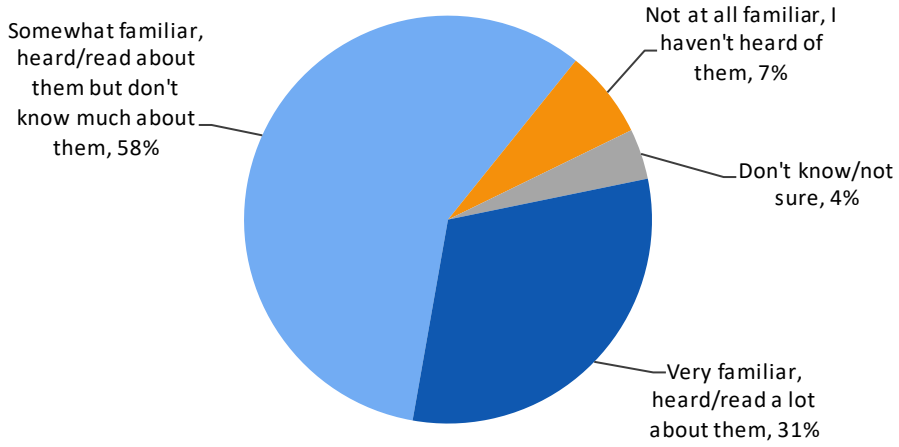
The first question asked about commuters' familiarity with driverless cars:

> *"You might have heard of self-driving cars, also known as driverless cars or automated vehicles. These are cars that can sense their surroundings and drive themselves. How familiar are you with the concept of these vehicles?"*

As displayed in Figure 85, the largest share of respondents (58%) said they were "somewhat familiar," they had heard or read about the concept, but did not know much about them. Three in ten (31%) were "very familiar," they had heard or read a lot about the concept. Seven percent had not heard about driverless vehicles at all and 4% were unsure. These results were nearly identical to respondents' self-identified familiarity in 2019, when 58% were somewhat familiar and 31% were very familiar.

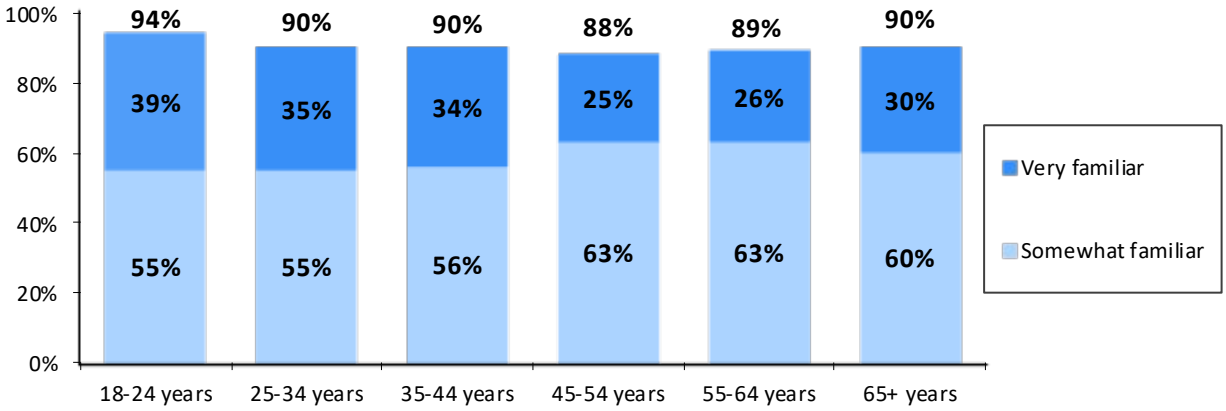
Familiarity by Home and Work Location – The concept of driverless cars was best known by respondents who lived in the Core; 35% of Core area residents were very familiar, compared with 31% of Middle Ring and 31% of Outer Ring residents. And 31% of respondents who worked in the Core or in the Middle Ring reported being very familiar with the concept, versus 28% of Outer Ring workers.

Figure 85
Familiarity with Concept of Driverless Cars
(n = 8,347)



Familiarity by Age – Unlike the results for trip/travel information applications, the pattern of driverless car familiarity by respondent age was less distinct (Figure 86). Respondents of all age groups were about equally likely to report some familiarity with driverless cars; about nine in ten in each age group said they were either somewhat or very familiar. Higher shares of young respondents said they were very familiar, however. Nearly four in ten (39%) respondents who were under 25 said they were very familiar and more than one third of respondents who were between 25 and 44 reported being very familiar. Among all other age groups, the percentages were between 25% and 30%.

Figure 86
Familiarity with Concept of Driverless Cars by Respondent Age
(18-24 n = 250, 25-34 n = 1,533, 35-44 n = 1,878, 45-54 n = 1,823, 55-64 n = 1,853, 65 and older n = 665



Familiarity by Other Demographics – Male respondents were twice as likely to say they were very familiar with driverless cars as were females (Male 42%, Female 19%). This difference was made up in the "somewhat familiar" category; 69% of females were somewhat familiar, compared with 49% of males. There also was a clear pattern by household income, with greater familiarity among higher income respondents; 37% with annual incomes of $160,000 or more said they were very familiar, versus 30% with incomes between $100,000 and $159,999, and only 27% whose incomes were under $100,000. And Non-Hispanic White (35%) and Asian (34%) respondents were more likely to say they were very familiar than were Hispanic (30%) or Non-Hispanic Black (21%) respondents.

Potential Concerns with the Concept of Driverless Cars

All respondents were next asked an open-ended question: *"What concerns, if any, do you have about driverless cars?"* Two-thirds (66%) noted at least one concern, with the primary concerns related to safety and technological reliability (Figure 87). Nearly half (48%) were concerned that driverless cars could reduce the safety of driving or increase driving crashes, 25% expressed a concern that the technology was not yet reliable enough, and 3% felt the vehicles could negatively affect pedestrian and cyclist safety. Small percentages (1% to 2%) cited other concerns, such as liability, security/privacy, high vehicle cost, and environmental concerns.

Figure 87
Respondents' Concerns Regarding Driverless Cars – 2019 and 2022
(2019 n = 7,706, 2022 n = 7,389)

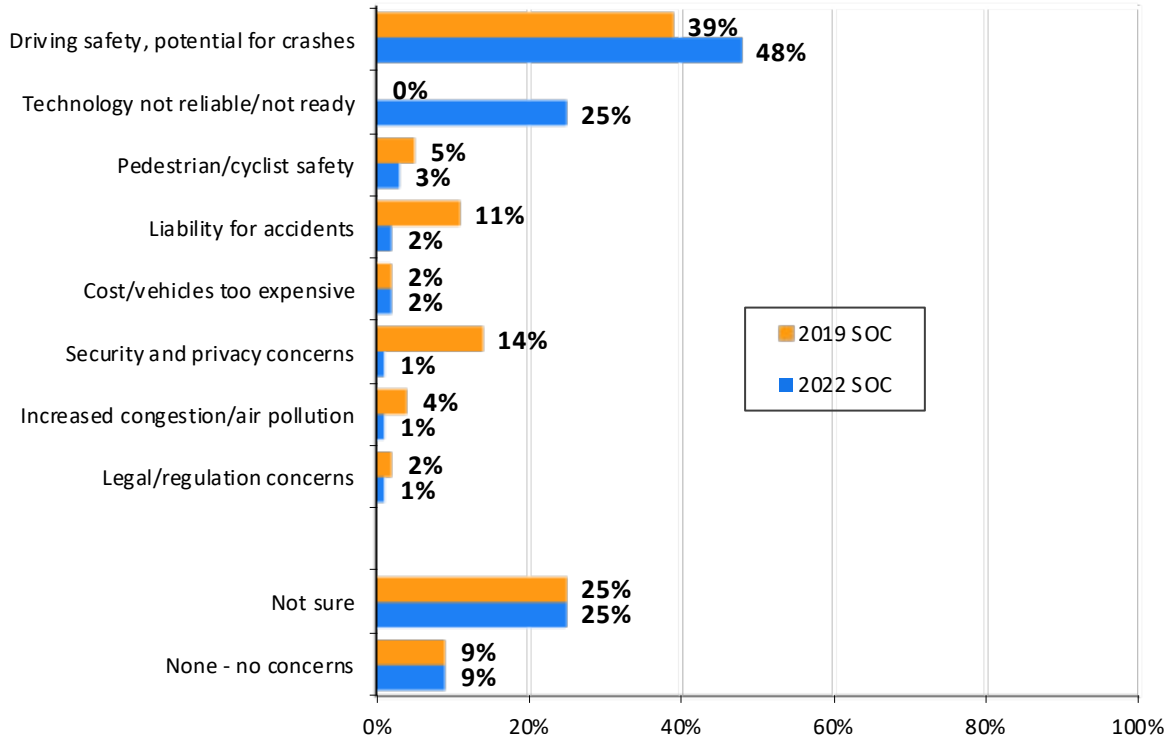


Figure 87 also shows the concerns that respondents expressed about these vehicles in the 2019 SOC. Driving safety also topped the list in 2019, but several other reasons had markedly different results in 2022 than in 2019. The reliability of technology, which was not mentioned explicitly in 2019 was an

important concern in 2022. Conversely, respondents were less concerned about liability for accidents and personal security and privacy in 2022 than they had been in 2019.

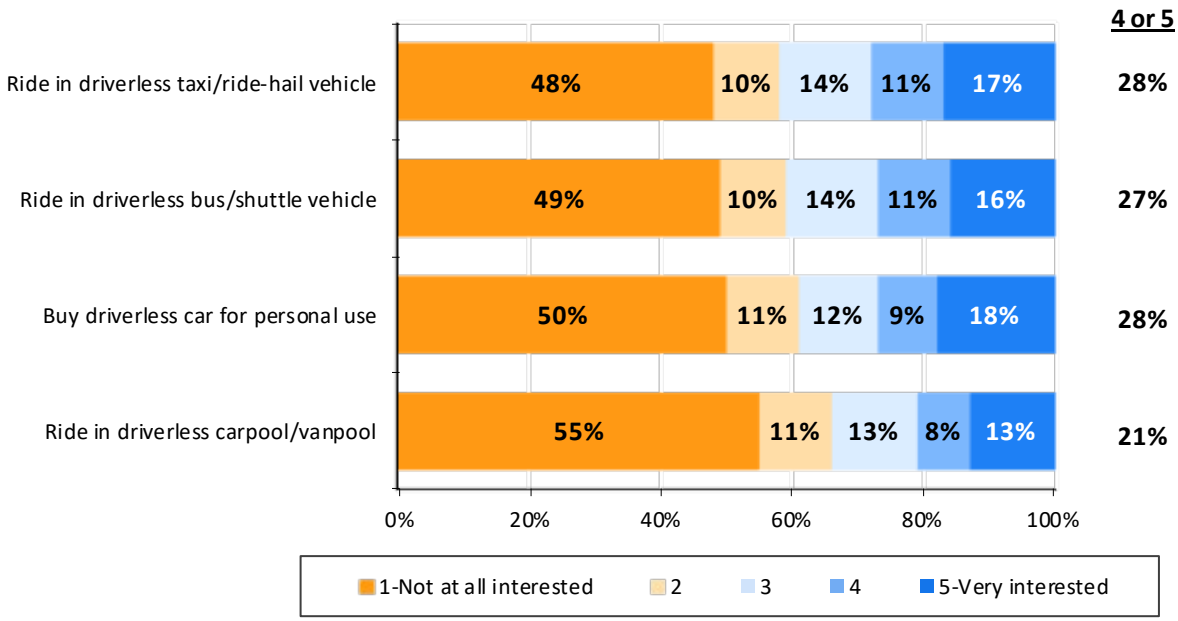
Interest in Using Driverless Cars

The final question in the section on driverless cars asked respondents how interested they would be in using a driverless car under four use scenarios:

- Buy a driverless car for personal use
- Ride in a driverless taxi/ridehail vehicle
- Ride in a driverless bus or shuttle vehicle
- Ride in a driverless carpool or vanpool

Figure 88 displays the percentages that rated each scenario on a 1 to 5 scale, where 1 meant "not at all interested" and 5 meant "very interested." The overall level of interest was quite similar across the scenarios, regardless of the type of vehicle described in the scenario and/or whether the vehicle was owned or rented by the respondent.

Figure 88
Interest in Using Driverless Cars by Use Scenario
(n = 7,670)



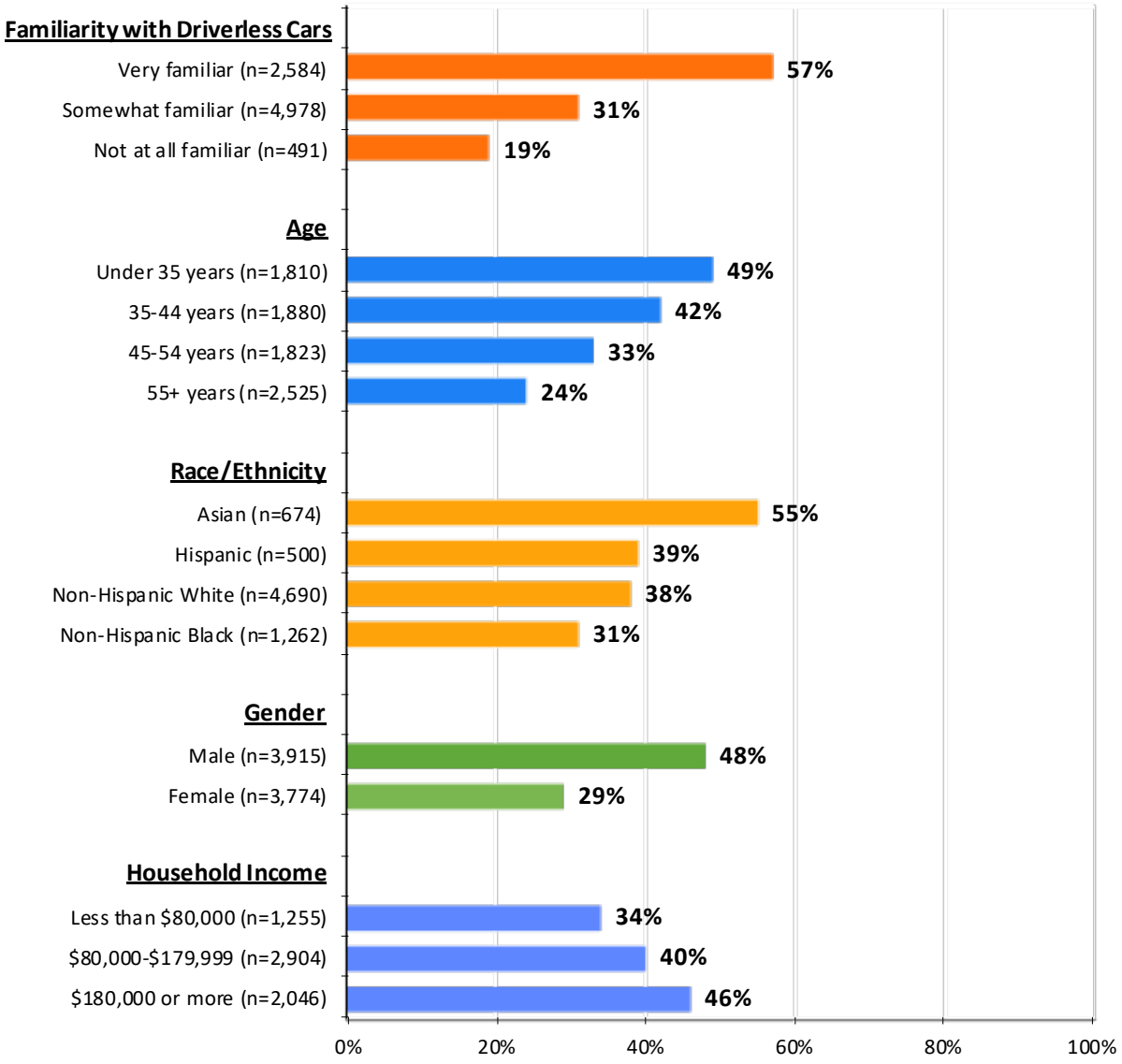
In three scenarios, more than one-quarter of respondents rated their interest as a 4 or 5 (very interested) and 16% to 18% were very interested. For the final scenario, ride in a driverless carpool or vanpool, interest was slightly lower, with 21% rating their interest as a 4 or 5. The relatively modest interest reported for using driverless vehicles could be related to the low level of familiarity many respondents indicated and the concerns that many respondents have about safety and reliability.

Interest by Familiarity with Driverless Car Concept and Demographics – While none of the individual scenarios received a high interest rating (4 or 5) from more than 28% of respondents, 38% of

respondents rated at least one of the scenarios as a 4 or 5 (very interested) and 14% rated their interest as a 3 for at least one scenario. The remaining respondents either were not interested (rating of 1 or 2) or didn't know if they were interested.

Interest in at least one scenario was notably higher among some respondent sub-group; for example, respondents who were more familiar with driverless cars (Figure 89). Nearly six in ten (57%) respondents who said they had heard or read a lot about driverless cars expressed interest in using them. Among respondents who said they had read or heard about driverless cars but did not know much about them, only 31% were interested. Interest was lower still for those who said they hadn't heard of driverless cars; only 19% were interested in using one.

Figure 89
Interest in Using Driverless Cars by Familiarity with Driverless Cars and Demographic Characteristics
Rated Interest as a 4 or 5 (Very interested)



Young respondents also expressed greater interest in using driverless cars; 49% who were under 35 years and 42% who were between 35 and 44 years rated their interest as a 4 or 5 for at least one driverless car scenario. By contrast, only one-third (33%) of respondents who were between 45 and 54 years and just 24% of respondents who were 55 years or older were interested.

The pattern of greater interest by young respondents held across all the driverless car scenarios. One-third (34%) of respondents who were younger than 45 years noted a willingness to buy a driverless car, while only 20% of respondents who were 45 or older were interested in this scenario. Younger respondents also were more willing to use a driverless taxi or ridehail vehicle and driverless bus or shuttle. Thirty-five percent of respondents under 45 years were interested in the taxi/ridehail scenario and 36% would use the bus/shuttle scenario. By contrast, 20% of respondents who were older than 45 years would be interested in using a driverless taxi/ridehail vehicle and the same 20% share would be interested in riding in a driverless bus/shuttle. One-quarter (25%) of respondents under 45 years would be willing to ride in a driverless carpool/vanpool, compared with 14% of older respondents.

Asian (55%) expressed much greater interest in using driverless cars than did other racial/ethnic groups. Male respondents (48%) were considerably more interested than were female respondents (29%). There also was a clear pattern by household income, with greater interest among higher income respondents; 46% with annual incomes of $180,000 or more said they were interested, versus 40% with incomes between $100,000 and $179,999, and only 34% whose incomes were under $100,000.

Interest by Home Location – Driverless car interest overall was greatest among respondents who lived in the Core. Four in ten (41%) Core area residents rated their interest as a 4 or 5 for at least one of the scenarios, compared with 37% of Middle Ring and 35% of Outer Ring residents. Core area residents were particularly more likely to report interest in using driverless vehicles that they did not own. One-third of Core area residents were interested in the taxi/ridehail scenario (33%) and the bus/shuttle scenario (33%). By contrast, interest in these scenarios was lower for Middle Ring (taxi/ridehail 27%; bus 27%) and Outer Ring residents (taxi/ridehail 25%; bus 23%). Core area residents also were more willing to ride in a driverless carpool/vanpool (25%) than were either Middle Ring (20%) or Outer Ring (20%) residents.

Interest by Commute Mode – Potential interest in driverless cars overall was quite similar across all commute mode categories; 29% of bus riders, 33% of train riders, 35% of drive alone commuters, and 35% of carpoolers/vanpoolers cited at least one driverless car scenario in which they were interested. The single mode exception was bike/walk; 45% of respondents who used this mode said they were interested in using a driverless car. They were no more interested in buying a driverless car than were other mode users but were more interested in riding in a driverless taxi/ridehail vehicle and riding in a driverless bus/shuttle. Thirty-four percent of bike/walk commuters would use the taxi/ridehail scenario, versus 23% to 25% of other mode users. And 37% of bike/walk commuters would be interested in using a driverless bus/shuttle, versus 21% to 29% for other mode users.

SECTION 10 – CHARACTERISTICS OF THE SAMPLE

At the end of the survey interview, respondents were asked a series of questions about their home and work locations, age, race/ethnicity, sex, income, household size, vehicle ownership, type of employer, size of employer, and occupation. These results define characteristics of the sample.

Home and Work Locations

About equal shares of respondents lived in Maryland (43%) and Virginia (45%) (Table 48). The remaining 12% of respondents lived in the District of Columbia. Because the survey only interviewed employed residents of the 11-jurisdiction area, no respondents lived outside these areas. Note also that the data expansion method defined expansion factor to align the interview counts for each of the 11 home jurisdictions to the correct representation in the region, thus the home location distribution exactly matches the percentages reported in the American Community Survey.

Table 48
Home and Work Locations

State/County	Home Location (n = 8,396)	Work Location (n = 8,290)
District of Columbia	**12%**	**34%**
Maryland Counties	**43%**	**26%**
Montgomery Co.	19%	14%
Prince Georges Co.	16%	9%
Frederick Co.	4%	2%
Charles Co.	3%	1%
Calvert Co.	1%	0%
Virginia Counties	**45%**	**37%**
Fairfax Co.	21%	19%
Arlington Co.	5%	7%
Prince William Co.	9%	3%
Loudoun Co.	7%	4%
Alexandria City	3%	4%
Other	**N/A**	**3%**

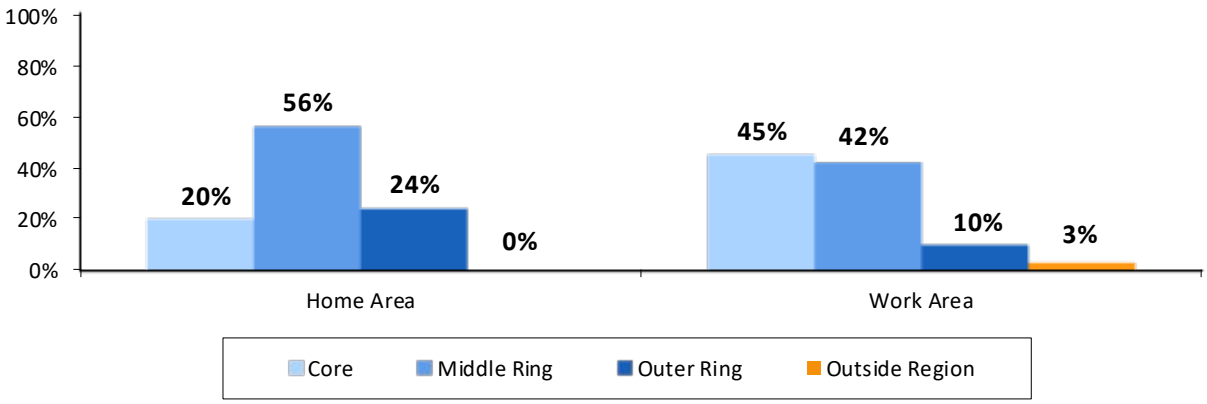
Work locations were more evenly divided. The largest number of respondents worked in Virginia (37%), but the District of Columbia, with 34%, was close behind in its share of regional employment. Slightly more than one-quarter (26%) of respondents worked in Maryland. Note that the work location percentages for Maryland and Virginia include only counties in the COG 11-jurisdiction non-attainment region. Maryland and Virginia locations outside this region are counted in the "other" category.

Nearly seven in ten respondents lived in one of four jurisdictions: Fairfax County (21%), Montgomery County, MD (19%), Prince George's County, MD (16%), and the District of Columbia (12%). Five jurisdictions accounted for more than eight in ten work locations: District of Columbia (34%), Fairfax County (19%), Montgomery County (14%), Prince George's County (9%), and Arlington County (7%).

Home and Work Areas

More than half of respondents (56%) lived in the Middle Ring (Figure 90). The remaining respondents were about evenly divided between the Core (20%) and Outer Ring (24%). Work locations, by contrast, were divided primarily between the Core (45%) and Middle Ring (42%). Ten percent of respondents worked in an Outer Ring jurisdiction. An additional 3% of respondents said their work location was outside the 11-jurisdiction region.

Figure 90
Home and Work Locations – Core, Middle Ring, and Outer Ring
(Home area n = 8,396, Work area n = 8,227)



Work Area by Home Area – Most respondents worked either in the geographic area where they lived or in an area closer to the center of the region (Table 49). More than eight in ten (83%) Core area respondents also worked in the Core and 56% of Middle Ring respondents worked in the Middle Ring. Outer Ring residents were most likely to travel to another jurisdiction to work; only 37% worked in their home area, 34% traveled inbound to the Middle Ring and 29% traveled inbound to the Core. Among Middle Ring residents, 38% traveled to the Core. Only a small share of respondents made a "reverse commute" to a more distant ring; 17% of Core area and 6% of Middle Ring residents traveled outbound.

Table 49
Work Location by Home Location

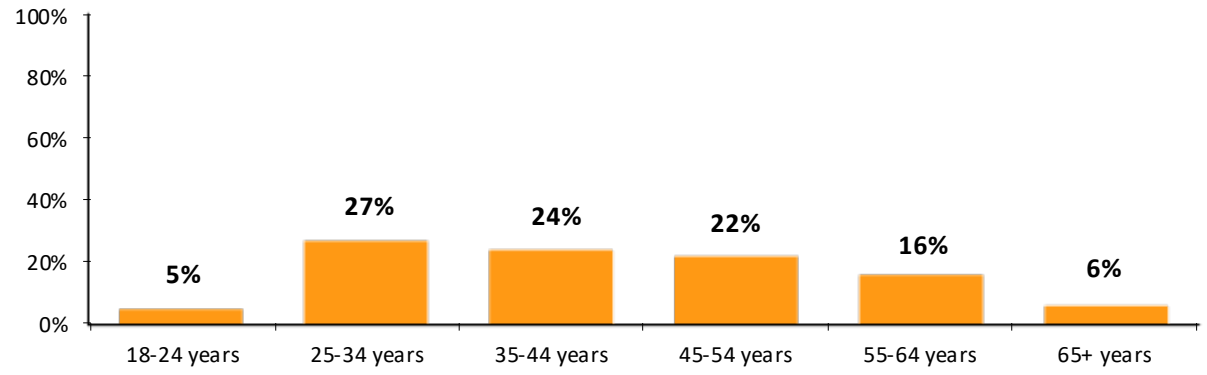
Home Area	Work Area		
	Core	Middle Ring	Outer Ring
Core (n = 2,588)	83%	14%	3%
Middle Ring (n = 2,568)	38%	56%	6%
Outer Ring (n = 3,071)	29%	34%	37%

Demographic Characteristics

Age

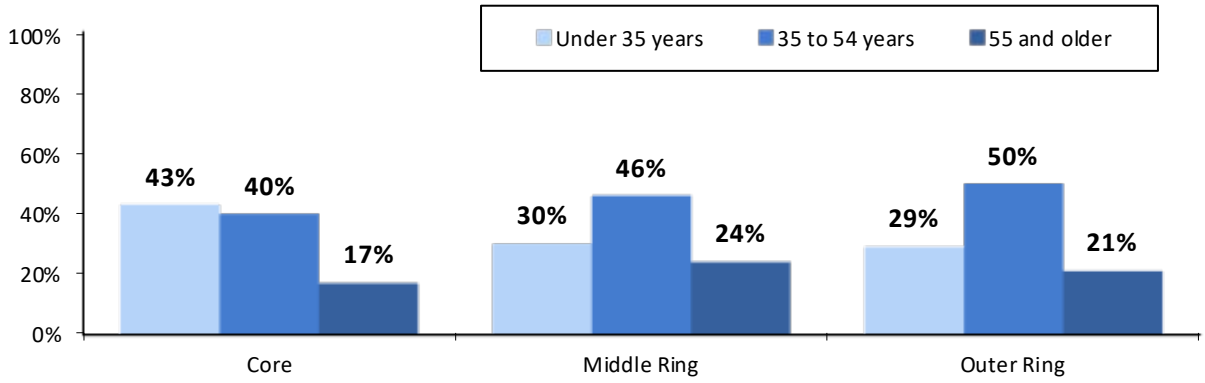
About one-third (32%) of respondents were younger than 35 years of age, 46% were between 35 and 54 years old, and 22% were 55 years of age or older (Figure 91). Note that the age distribution was adjusted during the sample weighting process, so the distribution presented in Figure 91 is exactly representative of the region, as defined in the U.S. Census American Community Survey (ACS).

Figure 91
Respondent Age Distribution
(n = 8,074)



The age distributions varied substantially by where in the region the respondents lived (Figure 92). Respondents who lived in the Core area were considerably younger than those who lived in the Middle Ring and Outer Ring. More than four in ten (43%) Core area respondents were under 35 years of age, compared with 30% of respondents who lived in the Middle Ring and 29% who lived in the Outer Ring.

Figure 92
Respondent Age by Home Area – Core, Middle Ring, and Outer Ring
(Core n = 2,567, Middle Ring n = 2,516, Outer Ring n = 2,991)



Race/Ethnicity

Non-Hispanic Whites and Non-Hispanic Blacks represented the two largest racial/ethnic groups of survey respondents, 43% and 23% respectively (Table 50). Respondents who self-identified as Hispanic accounted for about 14% and Asians/Pacific Islanders represented 15% of the total. As was noted for the age distribution, the race/ethnicity distribution was adjusted during the sample weighting process, so the distribution shown in Table 50 was representative of the region, as defined in the American Community Survey.

Table 50
Race/Ethnicity
(n = 7,693)

Race/Ethnicity	Percentage	Race/Ethnicity	Percentage
Non-Hispanic White	43%	Asian/Pacific Islander	15%
Non-Hispanic Black	23%	Other/Mixed	5%
Hispanic	14%		

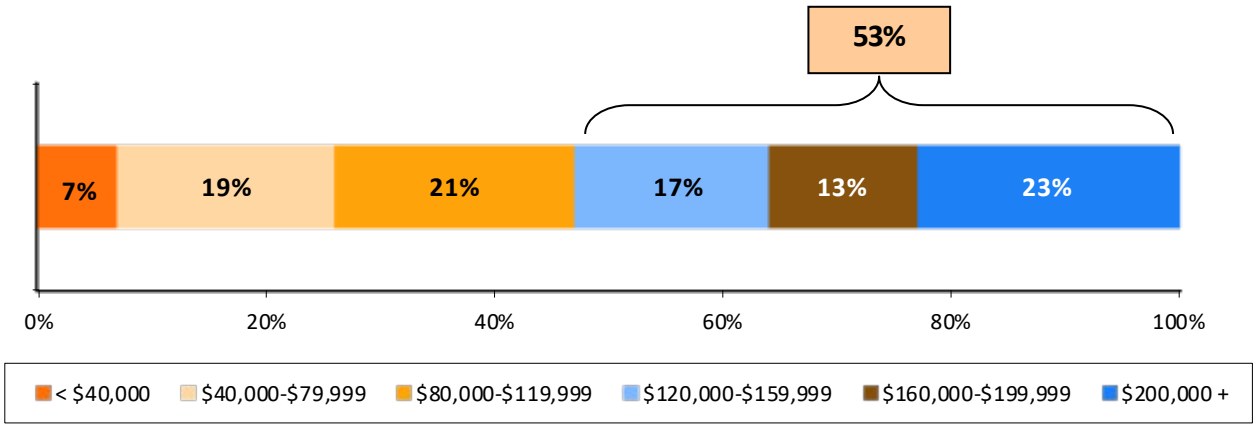
Gender

Respondents were about evenly divided between females (51%) and males (49%).

Income

Figure 93 presents the distribution of respondents' annual household income. Nearly three-quarters (74%) of respondents reported incomes of $80,000 or more and over half (53%) had incomes of $120,000 or more.

Figure 93
Annual Household Income
(n = 6,226)

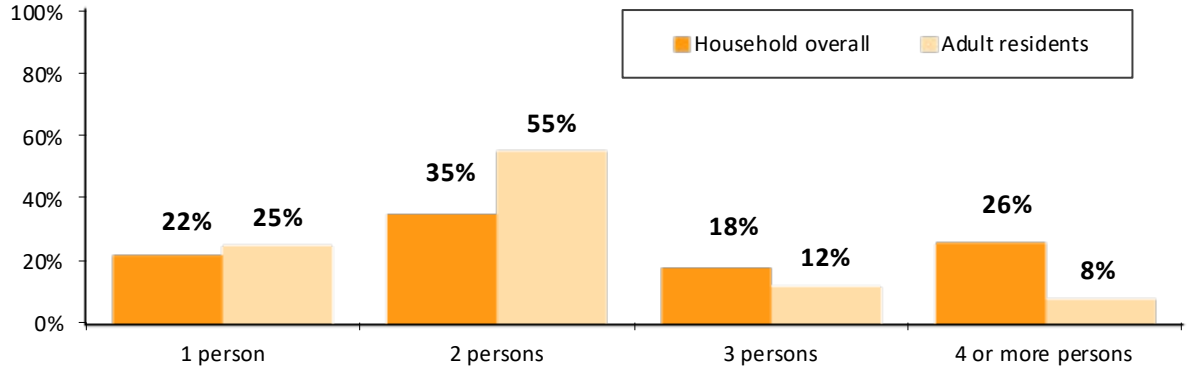


Household Size and Composition

Twenty-two percent of respondents said they were the only member of their household and 35% of respondents lived with one other person (Figure 94). The remaining respondents lived with at least two other household members. On average, respondents' households included 2.6 persons.

Most households were comprised solely of adults. Two-thirds (67%) of respondents said all household members were adults; they had no children in the household. Fifteen percent of respondents reported having one child in the household and 18% had two or more children under 18. The average household was comprised of 2.0 adults and 0.6 children.

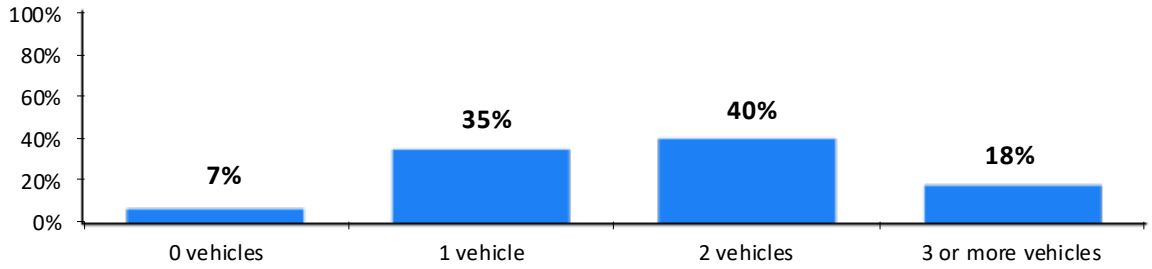
Figure 94
Household Size – Overall and Adult Residents
(n = 8,189)



Household Vehicle Ownership

Nearly all (93%) survey respondents reported having at least one household vehicle (Figure 95). Thirty-five percent had one vehicle, 40% had two vehicles, and 18% had three or more vehicles. Respondents reported an overall average of 1.7 vehicles per household.

Figure 95
Household Vehicles
(n = 8,165)

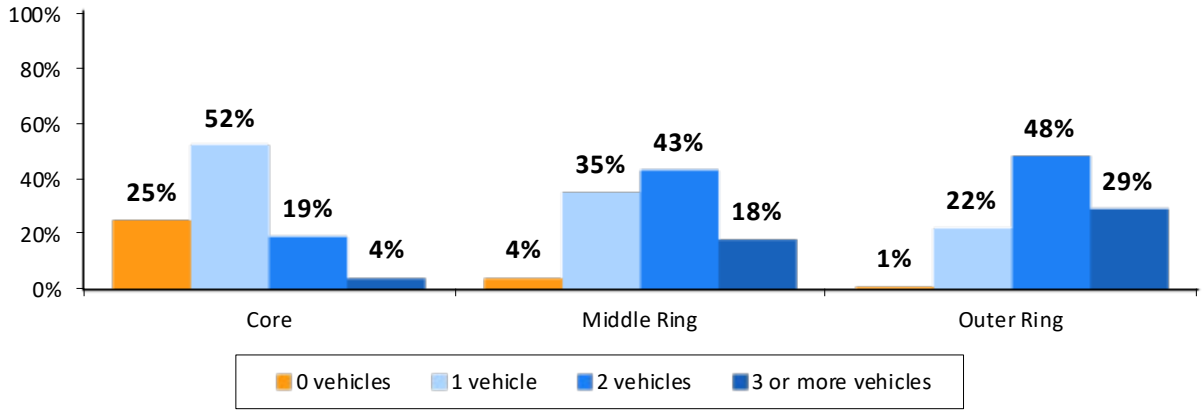


Recent Purchases of Motor Vehicles – Respondents who had at least one vehicle in the household were asked if anyone in their household had purchased, leased, or otherwise acquired any motor vehicles in the past year, and if so, was it replacing an existing vehicle or adding a new vehicle to the household. Twenty-three percent of respondents said they had acquired a vehicle; 16% replaced an existing vehicle and 7% added a new vehicle to the household.

Vehicle Ownership by Home Area – Vehicle ownership differed substantially by where respondents lived, with ownership lower among respondents who lived in the Core than in either the Middle Ring or Outer Ring (Figure 96). One-quarter (25%) of Core area respondents said they did not have a household vehicle, compared with only 4% of Middle Ring respondents and 1% of Outer Ring respondents.

Core area residents also were much less likely than were respondents who lived in other areas to have two or more vehicles per household. But this was due in part to their smaller household sizes; only 9% of Core area respondents lived in a household with three or more adult members, compared with 21% of Middle Ring respondents and 26% of Outer Ring respondents.

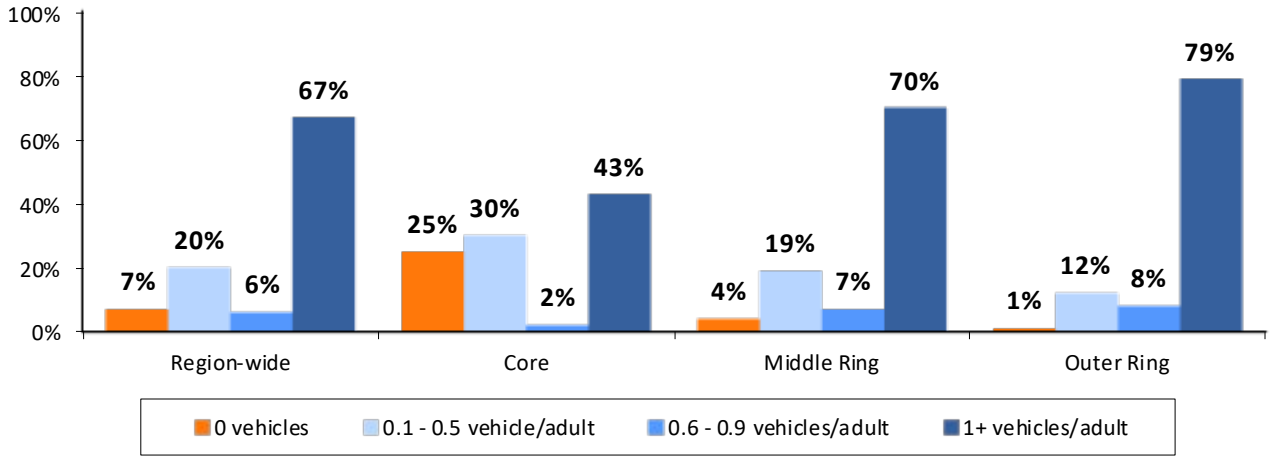
Figure 96
Household Vehicles by Home Area
(Core n = 2,568, Middle Ring n = 2,542, Outer Ring n = 3,055)



Vehicles Available Per Adult Household Member – The number of vehicles in the household is not a true measure of vehicle availability, however. Respondents who shared a vehicle with other household members might not have the vehicle available to them on a regular basis for their travel. Figure 97 presents the distribution of vehicle availability, accounting for both the number of household vehicles and number of adult household members.

As presented earlier, 7% of respondents were car-free, but an additional 26% were "car-lite," defined as having fewer vehicles than adult household members. Twenty percent had between 0.1 and 0.5 vehicles per adult, or at most one vehicle for every two adult members and 6% had between 0.6 and 0.9 vehicles per household member. Respondents had an average of 0.89 vehicles per adult household member.

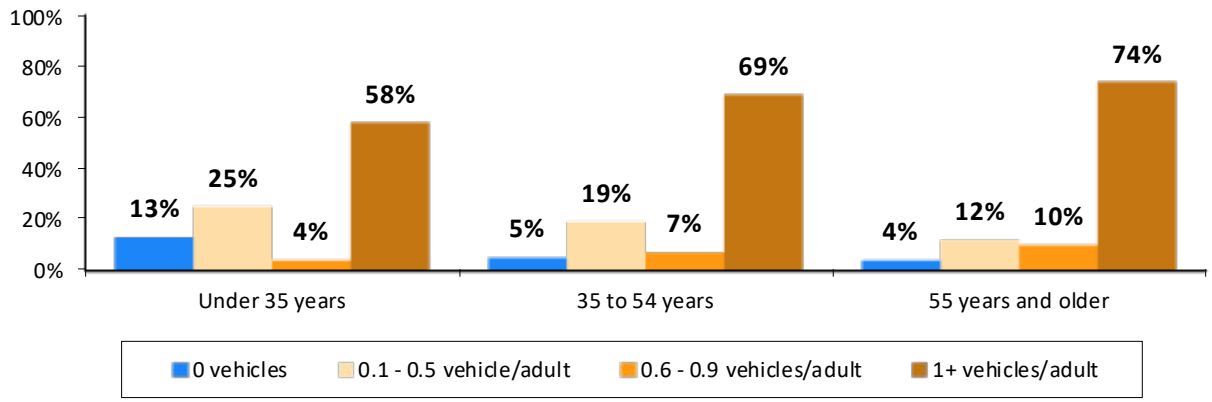
Figure 97
Vehicles Per Adult Household Member – Region-wide and by Home Area
(Region-wide n = 8,054, Core n = 2,552, Middle Ring n = 2,516, Outer Ring n = 3,006)



Vehicle availability per adult was considerably lower among respondents who lived in the Core than for those who lived in Middle Ring or Outer Ring jurisdictions. Just 43% of Core area respondents had a vehicle for each adult in the household, compared with 70% of respondents in the Middle Ring and 79% in the outer Ring. On average, Core area respondents had 0.62 vehicles per adult resident. Among Middle Ring and Outer Ring respondents, the averages were 0.93 and 1.05 vehicles per adult, respectively, essentially full availability.

Younger respondents also were much more likely to be car-free or car-lite (Figure 98). Thirteen percent of respondents who were under 35 years did not have a household vehicle and 29% had less than one vehicle per adult household member. Less than six in ten (58%) respondents in the youngest age group had a vehicle for every adult in the household. Vehicle availability was much higher among older populations. Among respondents who were 35 to 54 years, 69% had a vehicle for every adult in the household and 74% of respondents who were 55 years or older had a vehicle for each adult in the household.

Figure 98
Vehicles Per Adult Household Member by Respondent Age
(Under 35 years n = 1,774, 35 to 54 years n = 3,626, 55 years and older n = 2,495)



Vehicles Available Per Adult Household Member by Both Home Area and Age – As illustrated by Figures 97 and 98, respondents who lived in the urban center of the region and young respondents were less likely to have personal vehicles regularly available for their travel. But was age or the location the more important variable influencing their vehicle availability? Table 51 presents the percentages of respondents who were car-free (no household vehicle), car-lite (less than one vehicle per adult household member), and fully car available (one or more vehicles per adult household member) by the combination of home location and age.

Table 51
Vehicles Per Adult Household Member by Respondent Home Area and Age
Shading indicates statistically higher percentages of vehicle availability by age)

Home Area and Age		Car-free (0 vehicles)	Car-lite (0.1-0.9 vehicles per adult)	Car available (1 + vehicles per adult)
Core	**Under 35 years** (n = 965)	34%	32%	34%
	35 to 54 years (n = 1,036)	18%	33%	49%
	55 years and older (n = 516)	18%	26%	56%
Middle Ring	**Under 35 years** (n = 405)	7%	29%	64%
	35 to 54 years (n = 1,162)	2%	26%	72%
	55 years and older (n = 885)	3%	22%	75%
Outer Ring	**Under 35 years** (n = 404)	1%	25%	74%
	35 to 54 years (n = 1,428)	1%	19%	80%
	55 years and older (n = 1,094)	0%	18%	82%

In each of the three home areas, respondents who were younger than 35 years were less likely to have a vehicle always available to them than were older respondents. That is, young respondents were more likely to be car-free or car-lite than were older respondents regardless of where they lived. Among Core area respondents, only 34% of respondents who were younger than 35 years had a vehicle for each adult in the household, compared with 49% of those who were between 35 and 54 years old and 56% of respondents who were 55 or older.

Age differences in vehicle availability also were evident among Middle Ring and Outer Ring respondents but were less pronounced than for the Core. About two-thirds (64%) of Middle Ring respondents who were under 35 years old had a vehicle for each adult household member, compared with about three-quarters of respondents who were 35 years or older. In the Outer Ring, 74% of respondents who were under 35 years had a vehicle always available for their travel, versus about eight in ten older respondents who lived in the Outer Ring. This suggests that while age is a factor influencing vehicle availability, home location is more important, possibly reflecting the wider range of travel options available in the Core for residents who choose to be car-free or car-lite.

Vehicles Per Adult Household Member in 2016, 2019, and 2022 – The 2019 SOC survey report presented a comparison of vehicle availability by age and home area for 2019 versus 2016. That comparison showed that access to personal vehicles appeared to have increased. Statistically higher percentages of respondents in eight of the nine Home Area/Age categories reported having a vehicle for each adult household member in 2019 than in 2016. These results for 2016 and 2019 are presented in Table 52 along with the corresponding results for 2022.

Table 52
Respondents with One or More Vehicles Per Adult Household Member – 2016, 2019, 2022
by Respondent Home Area and Age
(Shading indicates statistically higher percentages)

Home Area and Age		1+ Vehicle Per Adult Household Member		
		2016 SOC	2019 SOC	2022 SOC
Core	**Under 35 years** (2016 n=212, 2019 n=778, 2022 n=965)	32%	40%	**34%**
	35 to 54 years (2016 n=749, 2019 n=908, 2022 n=1,036)	51%	56%	**49%**
	55+ years (2016 n=618, 2019 n=476, n=516)	57%	63%	**56%**
Middle Ring	**Under 35 years** (2016 n=218, 2019 n=417, 2022 n=405)	58%	67%	**64%**
	35 to 54 years (2016 n=719, 2019 n=1,065, 2022 n=1,163)	69%	75%	**72%**
	55+ years (2016 n=643, 2019 n=875, 2022 n=885)	73%	76%	**75%**
Outer Ring	**Under 35 years** (2016 n=272, 2019 n=483, 2022 n=404)	73%	83%	**74%**
	35 to 54 years (2016 n=1,285, 2019 n=1,746, 2022 n=1,428)	81%	87%	**80%**
	55+ years (2016 n=907, 2019 n=1,163, 2022 n=1,094)	81%	88%	**82%**

The increases in availability between 2016 and 2019 were most notable among respondents who were younger than 35. For example, in 2019, 40% of young respondents who lived in the Core reported having a vehicle for each adult household member, an increase of eight percentage points over the 32% who reported full vehicle access in 2016. The increase was nine percentage points for young respondents who lived in the Middle Ring (58% in 2016 to 67% in 2019) and ten percentage points for young respondents who lived in the Outer Ring (73% in 2016 to 83% in 2019). This suggested that the trend away from personal vehicle ownership among young residents might be reversing.

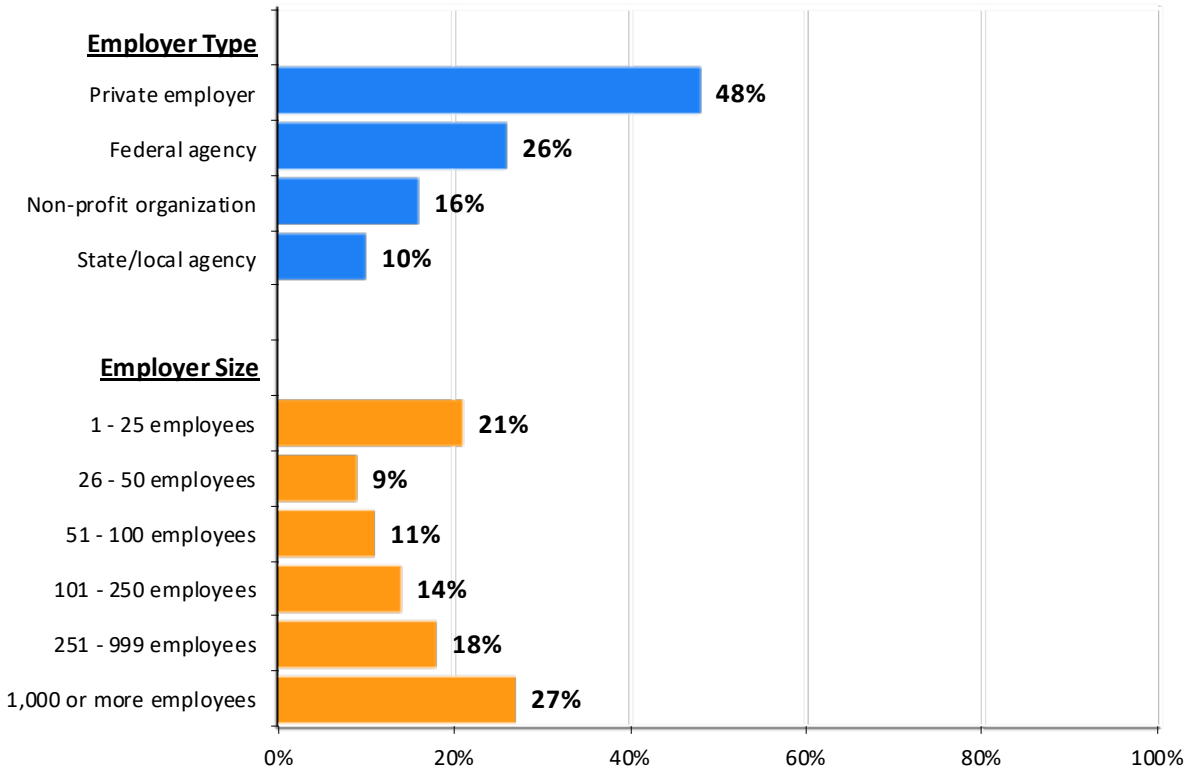
The last column of Table 53 shows the 2022 vehicle availability results, repeated from Table 52 above. In each Home Area/Age group, the percentage of respondents with one or more vehicles per adult in the household declined between 2019 and 2022 to levels that were not statistically different, in any Home Area/Age combination, from the results from 2016. This suggests the 2019 pattern might have been an anomaly. However, auto manufacturers have been greatly affected by supply chain disruptions, making vehicles less available and more expensive; this situation could have depressed auto acquisition rates.

Employment Characteristics

Type and Size of Employer

Respondents were asked the type of employer for which they worked and the number of employees at their worksites. These results are shown in Figure 99.

Figure 99
Employer Type and Size
(Type n = 8,198, Size n = 7,239)



Type – As indicated by the top section of Figure 99, nearly half (48%) of respondents worked for a private sector employer. Federal government agencies employed 26%, 16% worked for a non-profit organization, and state and local agencies employed 10%.

Size – The majority of respondents worked for employers that were either very small or very large (bottom section of Figure 99). Four in ten (41%) worked for firms with 100 or fewer employees. Slightly more than one-quarter (27%) worked for employers that employed 1,000 or more employees.

Occupations

Respondents represented many occupations (Table 53). About six in ten respondents worked in a professional (46%) or executive/managerial occupation (17%). Other common occupations included administrative support (12%), and technicians and technical support (10%).

Table 53
Occupation
(n = 7,243)

Occupation	Percentage	Income	Percentage
Professional/specialty	46%	Other service	3%
Executive/managerial	17%	Precision production, craft	1%
Administrative support	12%	Transportation/equipment	1%
Technicians/support	10%	Military	1%
Sales	4%	Handlers, helpers, laborers	1%
Protective service	3%	Other*	1%

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

APPENDICES

Appendix A – Survey and Sampling Methodology

Appendix B – Survey Data Weighting and Expansion

Appendix C – Survey Questionnaire

Appendix D – Comparison of Key SOC Results – 2022, 2019, 2016, 2013, and 2010

APPENDIX A – SURVEY AND SAMPLING METHODOLOGY

Overview

The geographic scope of COG's responsibility encompasses the 11 independent cities and counties that make up the Washington metropolitan non-attainment region. All employed residents who lived within this geographic area were eligible for selection in the study.

The 2022 survey was conducted as an Internet survey of employed adult residents. The survey used an address-based sampling (ABS) method to select a random sample of potential respondents, a postcard survey invitation that was sent through postal mail to selected addresses, and a respondent-administered Internet interview format for respondents to complete the survey. The postcards invited employed persons 18 years of age or older to participate in the survey by accessing the survey website link, www.TraveltoWork2022.org and entering one of two passwords printed on the card. Two passwords were provided to permit two adults in the household to take the survey. Appendix C presents the Internet questionnaire.

The 2019 SOC survey also collected data primarily through the ABS-Internet method, however a telephone "follow-up" survey was conducted with a small sample of residents who had received the postcard survey invitation, but who did not complete the survey via the Internet. The primary function of this component was to test for any statistical differences between responses of Internet respondents and those who had not responded.

In SOC surveys conducted prior to 2016, all SOC interviewing was conducted via telephone, using random-digit-dial (RDD) to select respondents. The 2013 and 2016 SOC surveys included a cell phone component for the sample, to address the growing component of regional residents who used a cell phone as their only telephone. The 2016 SOC survey added a pilot test of the ABS sampling with Internet interview method to determine if this could be an acceptable alternative to the telephone methodology, which had become very costly due to the need to screen for employed residents and the difficulty of reaching willing respondents.

In both the 2016 and 2019 SOC surveys, the ABS/Internet component was found to produce valid survey responses and a more demographically representative sample than the telephone survey, at a lower cost per completed interview. The ABS method also ensured full coverage of the regional residential population. For these reasons, the ABS/Internet approach was chosen as the sole method for the 2022 SOC survey.

The survey was designed to meet multiple objectives, including commute trend analysis and evaluation of Transportation Demand Management (TDM) services administered by COG/TPB's Commuter Connections Program. Wherever possible, questions used in previous SOC surveys were replicated to allow for trend analysis. Additionally, the survey included questions related to the Telework and Mass Marketing TDM program elements administered by Commuter Connections.

Questionnaire Design

The research team and COG/TPB staff prepared the survey questionnaire, with input from a TDM Evaluation Group comprised of representatives from the District of Columbia, Maryland, and Virginia. The 2022 SOC questionnaire was based on the questionnaire used in the 2019 SOC survey. Wherever possible, the study team retained the 2019 questions to allow trend analysis, but changes were made when the revisions were expected to add substantially to the accuracy of the data or to update question or response language for 2022. A small number of questions were deleted from the 2019 survey to make room for new questions of current topical interest, in particular questions on commute changes occurring during the coronavirus pandemic.

The research team developed the online questionnaire using Computer Aided Web Interviewing (CAWI) software. The online questionnaire was thoroughly tested by the research team and COG staff to ensure correct programming. When the questionnaire was finalized, it was translated into Spanish. The Spanish version of the questionnaire was made available to respondents by a toggle switch in the introduction to the online survey. A copy of the English version of the questionnaire is included in Appendix C.

Sample Areas and Sampling Methodology

The survey was conducted using a random selection of residents of the 11 independent cities and counties defined as the COG/TPB non-attainment region. Eligible respondents were at least 18 years old, employed, and living within the study area. The research team set a soft target for 8,000 completed interviews, region-wide, with a minimum target of 600 completed interviews in each of the 11 jurisdictions. Individual targets were set higher for the largest jurisdictions and for jurisdictions that were closest to the center of the region. Additionally, the research team attempted to achieve jurisdiction level samples that approximated the numbers of interviews collected for those jurisdictions in the 2019 SOC survey.

The final jurisdiction targets were broken down by three sub-regions:

- Core area (Alexandria, VA, Arlington, VA, District of Columbia) – Minimum of 700 completed interviews in each of these jurisdictions and a minimum sub-regional total of 2,300
- Middle Ring area (Fairfax VA, Montgomery MD, and Prince George's MD) – Minimum of 800 completed interviews in each of these jurisdictions and a minimum sub-region total of 2,500
- Outer Ring area (Calvert MD, Charles MD, Frederick MD, Loudoun VA, and Prince William VA) – Minimum of 600 completed interviews in each of these five jurisdictions and a minimum sub-region total of 3,200

A total of 8,396 interviews were completed for the survey. This represented a slight increase over the 8,246 total completed interviews in the 2019 survey and a substantial increase over the interview samples from 2016 (5,803) and 2013 (6,335).

On the base of 446,208 postcards that had been distributed, the 2022 sample of 8,396 resulted in a response rate of 1.88%. The confidence interval for the regional sample was 95% +/- 1.1 percentage points. Individual samples collected for each of the 11 jurisdictions ranged from a low of 511 to a high of 971. The confidence interval for the smallest jurisdiction sub-sample (664 interviews) was 95% +/- 4.3 percentage points.

ABS Sampling Method

Potential Internet survey respondents were requested to participate in the survey through a postcard, sent through the U.S. mail service. The postcard described the survey and requested their participation, provided the URL address for the survey website and two entry passwords. The postcard also informed residents that MWCOG was offering a drawing for fifty $250.00 Amazon gift cards to residents completed the survey.

To achieve a balanced sample of responses throughout the region as well as to meet the jurisdictional targets, the research team used an Address-Based Sample (ABS) method to select a random sample of households to receive the survey invitation. The list included both physical mailing addresses and post-office box addresses for residents who receive their mail at central post office locations. Household addresses were chosen randomly by jurisdiction from the ABS database maintained by SDR Consulting. The total number of addresses needed to reach the target for each jurisdiction was determined by dividing the desired final target sample by the anticipated response rate. The rate for a jurisdiction was assumed to be approximately 20% lower than that achieved during the 2019 SOC Internet survey. The survey was conducted in two waves, the first with a postcard mailing of 230,000 and the second with postcards being mailed to an additional 216,208 addresses.

Survey Administration

Internet Survey

Preparation for the Internet survey included design and printing of high-quality, two-color 4.25" x 6" survey invitation postcards. The wording on the postcards invited employed persons 18 years of age or older to participate in the survey by accessing the survey website link, www.TraveltoWork2022.org and entering one of the two passwords printed on the card. Two passwords were provided to permit two adults in the household to take the survey. The invitation to take the survey was also printed in Spanish. To reduce postal costs, COG staff used its non-profit postal rates and arranged for printing and mailing of the postcards by a local firm.

Because response rates could differ by jurisdiction, the mailing of the Internet survey invitation was accomplished in two waves. An initial order of 230,000 postcards was mailed between January 6 and January 12, 2022. The distribution of addresses by jurisdiction was determined by dividing the target for the jurisdiction by the jurisdictional response rates from the 2019 survey. In Wave 1, this distribution resulted in 49,006 cards sent to households in the Core area; 76,844 to the Middle Ring area, and 104,150 mailed to the Outer Ring area.

Two weeks after Wave 1 cards were mailed, the research team analyzed the distribution of completed interviews from Wave 1 and refined the anticipated response rates for Wave 2. The team then selected the Wave 2 mailing distribution to increase the percentage of postcards sent to jurisdictions with lower-than-expected response rates and decrease the percentage sent to high-response areas.

Wave 2 targets were set and a total of 216,208 unique, de-duplicated, addresses were purchased with a distribution of 52,486 to the Core, 67,966 to the Middle Ring, and 95,756 postcards to the Outer Ring. The desired count of new Wave 2 addresses could not be met for one jurisdiction because the total number of households was smaller than the desired sample. Because the response rate for this jurisdiction was lower than anticipated, the research team opted to send reminder cards to a sample of Wave 1 card recipients, resulting in an additional 3,778 cards being sent in Wave 2. The reminder postcards were identical to the postcards sent in Wave 1, with the sole exception that the response date was changed to match that for the other Wave 2 postcards. Wave 2 postcards were printed and distributed by postal mail between February 8 and February 14, 2022.

Wave 1 and Wave 2 combined produced 8,396 completed Internet interviews. On the postcard base of 446,208 unique addresses, this resulted in an overall response rate 1.88%. Response rates for Wave 1 and Wave 2 were approximately the same. As noted earlier, to boost survey response rates, survey respondents were offered the opportunity to participate in a random drawing for one of fifty $250 Amazon gift cards. Following each survey wave, 25 names were drawn from respondents who had completed the interview and requested to participate in the gift card drawing. Each winner was emailed a link to the gift card voucher.

Weighting of Survey Data

Upon completion of the interviews, responses were expanded to represent all employed residents in the Washington metropolitan non-attainment region. Because the jurisdiction-level samples were not collected proportionately, the survey results were expanded at the jurisdiction level to match counts of employed residents in each sample jurisdiction. The results also were adjusted to align survey results to known race/ethnicity and age distributions, an adjustment that also had been applied in the 2016 and 2019 SOC surveys. Analysis of the 2016 survey results showed a significant over-collection of older age groups and an under-collection of younger age groups. The age distribution in the 2019 and 2022 surveys also over-represented older respondents and under-represented young respondents, but to a much lesser extent than in 2016; the ABS sample frame and Internet survey captured a considerably larger share of young respondents. For this reason, the age adjustment, while still necessary in 2019 and 2022, was less extensive than had been needed in 2016.

Population statistics from the U.S. Census Bureau's American Community Survey (ACS) for combinations of employment status, race/ethnicity, and age by jurisdiction were used to calculate expansion values for each jurisdiction in the survey sample. Age categories included 18-34 years, 35-44 years, 45-54 years, and 55 years and older. Race/ethnicity categories included Hispanic, Non-Hispanic Black, Non-Hispanic White, and Other. Details of the weighting/expansion process are found in Appendix B.

This methodology was the same as had been used for the 2019 and 2016 SOC surveys, however it replaced use of employment numbers obtained from the Bureau of Labor Statistics, Local Area Unemployment Statistics (LAUS) that had been used in the 2013 SOC and earlier SOC surveys. The need for available employment statistics broken down by race/ethnicity and by age groups was the overlying reason for the change from LAUS to ACS figures.

APPENDIX B – SURVEY DATA WEIGHTING AND EXPANSION

The 2022 SOC Survey was conducted using an address-based sample (ABS), distributed to residential addresses in the 11-county/city, COG/TPB non-attainment region. Survey responses were expanded numerically by jurisdiction-level expansion factors to align them with published employment, race/ethnicity and age group statistics for the region and individual jurisdictions in the study area. The procedure for the expansion is detailed below.

The first step in the expansion process was to align the counts of persons interviewed in each jurisdiction with the total number of employed persons in those jurisdictions. Table B-1 shows the number of employed workers living in each of the 11 areas and the number of employed persons interviewed. These figures were used in computing the initial expansion factors applied to each survey response. The U.S. Census American Community Survey (ACS) data were used to calculate the expansion factor of employed persons by race/ethnicity and by age group. Dividing the ACS estimate for employed residents by the number of interviews yields the expansion factor by jurisdiction. These factors were then applied to each survey response, allowing the survey results to be expanded to the employment totals for each of the 11 areas.

Table B-1 – Estimate of Workers by Survey Area and Expansion Factors

Survey Area	Estimated Employed Workers Totals from ACS	Number of Working Persons Interviewed	Initial Adjustment and Expansion Factors
Alexandria City, VA	108,125	723	149.551
Arlington Co., VA	160,657	931	172.046
Calvert Co., MD	47,303	518	91.319
Charles Co., MD	84,295	692	121.814
District of Columbia	408,084	981	415.987
Fairfax Co., VA	687,486	930	739.232
Frederick Co., MD	141,389	638	221.612
Loudoun Co., VA	227,146	601	377.946
Montgomery Co., MD	617,200	870	709.425
Prince George's Co., MD	546,725	822	665.115
Prince William Co., VA	300,908	690	436.099
Total	3,328,834	8,396	

Second, as was done in the 2016 and 2019 SOC surveys, the research team carried out a series of chi-squared statistical analysis calculations to test the survey sample distribution for race/ethnicity and age groups against published statistics for these groupings. The majority of race/ethnicity and age distributions by jurisdictions were found to be significantly different when compared to the published ACS tables. Based upon these results, adjustments to account for race/ethnicity and age groups were added to the initial expansion factors applied to the survey results to expand the survey responses to the employed population of the region. Race/ethnicity corrections had been applied to previous SOC survey, beginning with 2007. The age adjustment was added in 2016 to correct for an age bias identified during the initial analysis.

Three tables from ACS were used for the development of expansion factors: Tables B01001, B23002, and C23002. Table B01001 contained more complete information for all jurisdiction residents by race/ethnicity and by age groups for persons 18 year of age and older, however not by employed persons. Table B23002 contained information for employed residents for persons 16 years of age and older, and race/ethnicity broken down by age groups, but some race/ethnicity groups were missing, and age categories were not completely broken down into the desired age groups. By using a third table, Table C23002, some missing data was infilled for race/ethnicity and age categories. Using Table B01001 as the base, a percentage of employment was developed from Tables B23002 and C23002 for each race/ethnicity by age groups by jurisdiction and applied to Table B01001 counts. The resulting estimates of employment for residents 18 years of age and over by race/ethnicity were finalized and applied to the SOC Survey responses. The final expansion factors are shown in Table B-2 below.

Table B-2 – Race/Ethnicity and Age Weighting Factors by Survey Area

Survey Area	Race/Ethnicity and Age Weighting Factors			
	18 – 34 Years	35 – 44 Years	45 – 54 Years	55+ Years
Alexandria City, VA				
Non-Hispanic Black	435.495	254.004	195.764	235.072
Non-Hispanic White	125.674	98.410	104.401	89.943
Hispanic	285.305	389.726	301.450	325.509
Other	243.846	163.010	322.457	163.359
Arlington Co., VA				
Non-Hispanic Black	195.193	345.947	849.218	169.158
Non-Hispanic White	154.066	160.038	136.489	106.875
Hispanic	212.226	388.684	330.677	297.938
Other	198.870	301.295	270.361	307.190
Calvert Co., MD				
Non-Hispanic Black	458.156	147.849	102.032	74.564
Non-Hispanic White	229.961	94.927	110.683	43.180
Hispanic	170.260	74.226	50.984	44.486
Other	289.603	166.929	137.015	70.873
Charles Co., MD				
Non-Hispanic Black	369.470	126.212	106.976	70.992
Non-Hispanic White	332.614	125.456	105.294	73.912
Hispanic	265.950	109.811	164.043	65.278
Other	316.169	96.308	87.125	63.479
District of Columbia				
Non-Hispanic Black	1240.954	535.832	730.408	677.982
Non-Hispanic White	326.396	245.362	298.246	210.614
Hispanic	576.424	740.249	684.471	1397.196
Other	557.905	477.885	501.502	780.938
Fairfax Co., VA				
Non-Hispanic Black	1437.381	832.129	820.122	656.521
Non-Hispanic White	814.194	559.275	482.118	439.483
Hispanic	1691.964	2125.900	2211.667	1098.228
Other	1540.276	941.394	714.479	861.939

Table B-2 continued on following page

Table B-2 – Race/Ethnicity and Age Weighting Factors by Survey Area (continued)

Survey Area	Race/Ethnicity and Age Weighting Factors			
	18 – 34 Years	35 – 44 Years	45 – 54 Years	55+ Years
Frederick Co., MD				
Non-Hispanic Black	678.039	222.608	286.866	163.581
Non-Hispanic White	322.438	153.879	194.874	170.137
Hispanic	476.408	483.215	357.763	230.365
Other	512.236	218.291	352.145	190.825
Loudoun Co., VA				
Non-Hispanic Black	1615.755	653.509	394.933	343.346
Non-Hispanic White	623.858	353.002	299.314	196.751
Hispanic	738.244	972.660	709.122	751.131
Other	873.553	353.322	330.819	297.205
Montgomery Co., MD				
Non-Hispanic Black	1718.751	974.081	813.974	568.002
Non-Hispanic White	878.800	402.594	439.255	364.907
Hispanic	1999.251	1464.906	1169.784	1404.527
Other	1533.098	1295.619	907.997	811.342
Prince George's Co., MD				
Non-Hispanic Black	1776.191	579.218	581.288	417.573
Non-Hispanic White	530.857	199.571	304.905	206.628
Hispanic	1276.110	1191.013	1032.305	1131.072
Other	2128.476	1217.548	1295.806	657.784
Prince William Co., VA				
Non-Hispanic Black	760.053	588.164	427.934	301.633
Non-Hispanic White	555.140	329.941	274.451	185.161
Hispanic	996.870	989.675	789.888	606.189
Other	897.469	556.275	504.166	352.943

The expansion factors allow for the proper representation of workers in each geographical area when analyzing the survey results. By using the expansion/weighting factors shown in the table above for each sub-area, the number of workers by race/ethnicity and age groups has been adjusted so that each worker is equally represented within the region.

Level of Confidence for Analysis

The level of confidence for analysis of the region and the county/city sub-areas will differ because the sample sizes in each category differ. Table B-3 shows the level of confidence for each of these geographic divisions for the 2022 State of the Commute survey sample. In addition, the level of confidence has been calculated for several other non-geographic key sub-populations of interest in the study. Note that some questions were answered by smaller numbers of respondents, and therefore the confidence level for these questions will be lower.

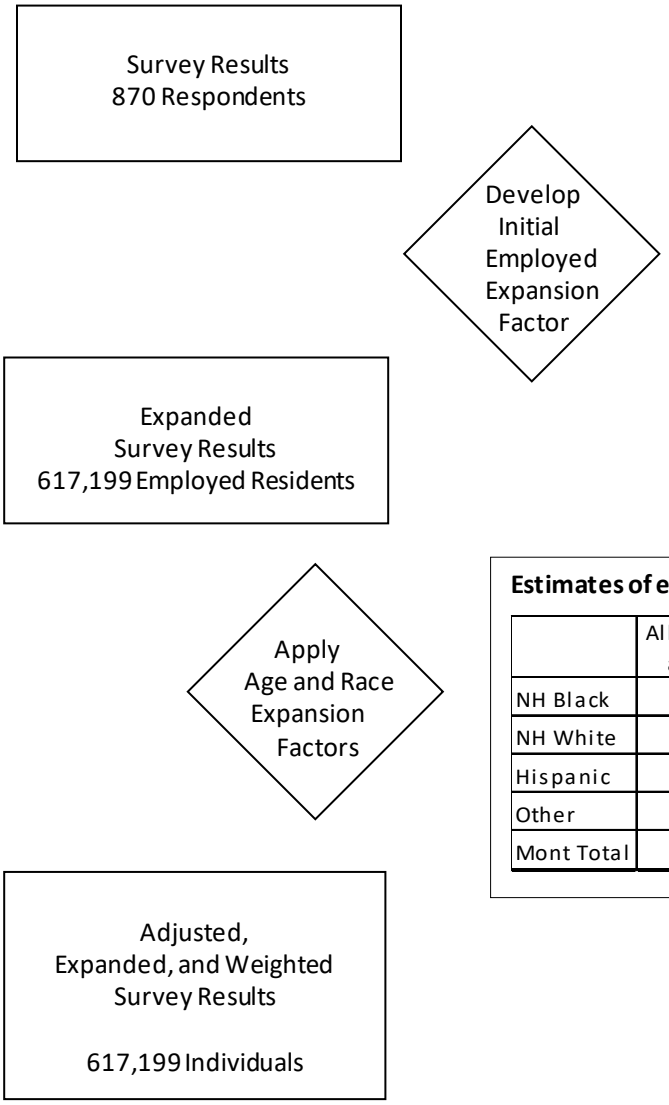
Table B-3 – Level of Confidence for Analysis

Sub-Area or Sub-Population	Sample Size	Level of Confidence
Geographic Sub-Areas		
Study Region – Eleven Areas	8,396	95% ± 1.1%
Study Portion of Virginia	3,875	95% ± 1.6%
Study Portion of Maryland	3,540	95% ± 1.6%
District of Columbia	981	95% ± 3.1%
Individual County or City Level*	518	95% ± 4.3%
Sub-Area or Sub-Population	**Sample Size**	**Level of Confidence**
Sub-Populations		
Telecommuters	5,529	95% ± 1.3%
Carpoolers (including casual)/Vanpoolers	167	95% ± 7.6%
Transit Users	903	95% ± 3.3%
Bike Users or Walkers	294	95% ± 5.7%

* Smallest sample – minimum level of confidence for jurisdiction level samples

Figure B-1. Weighting and Expansion for Working Households

Example: Montgomery County, MD
Objective: Apply the survey results (870 respondents) to the American Community Survey Statistics (617,199) for Montgomery County, MD, to equally represent employed individuals by race/ethnicity and age groups.



Estimates of employment by race/ethnicity and age for Montgomery

	All 18 and above	18 - 34	35 - 44	45 - 54	55 or older
NH Black	97,555	30,938	23,378	22,791	20,448
NH White	247,156	59,758	46,298	55,346	85,753
Hispanic	106,304	37,986	27,833	22,226	18,259
Other	166,185	52,125	42,755	37,228	34,076
Mont Total	617,199	180,807	140,265	137,591	158,536

_____
Note: 1. 870 x 709.425 = 617,199 estimated, employed individuals
2. Final expansion estimates for workers by race/ethnicity and by age group for Montgomery County.
3. Sum of Race/Ethnicity and Age Groups represents workers in Montgomery County.

APPENDIX C – SURVEY QUESTIONNAIRE

Commuter Connections State of the Commute Survey – FY22

INTRO: The Metropolitan Washington Council of Governments is conducting this online survey of residents of Maryland, Virginia, and the District of Columbia about their travel to work. Your answers will be kept completely confidential.

MWCOG is offering a drawing for $250.00 Amazon gift cards for residents who complete the survey by the response date noted on the postcard that you received in the mail. If you would like to participate in the free drawing for one of the fifty gift cards, please provide your name and email address at the end of the survey.

To begin the survey, please enter the 6-digit Password on the postcard, then click "SUBMIT." If there is more than one employed person 18 years or older in your household, they may use the other password.

PASSWORD _____
SUBMIT

Thank you for your participation.

SCREENING QUESTIONS (Age, Employment, Home location)

ASK EVERYONE:

S4. Are you an employed person who is at least 18? By employed, we mean a wage or salaried employee, military, or self-employed.

01 Yes
02 No → **THANK AND TERMINATE**

Q1. Are you employed full-time or part-time? If you work more than one job, please respond for your primary job. **(OPTIONAL.)**

01 Employed full-time
02 Employed part-time
03 Self-employed full-time
04 Self-employed part-time
05 Not employed, keeping house, retired, disabled, full-time student, looking for work → **THANK AND TERMINATE**
95 Other **(specify)**
98 Don't know
99 Left blank

EMPLEV. EMPLOYMENT LEVEL
EMPLEV (1)=Full-time (Q1(01,03))
EMPLEV (2)=Part-time (Q1(02,04))
EMPLEV (7)=Undefined (Q1(95,98,99))
EMPLEV (8)=Not employed (Q1(05))

IF EMPLEV(8) (not employed), THANK AND TERMINATE
IF EMPLEV(1,2,7) CONTINUE

Q1A. What is your home ZIP code? **(OPTIONAL.)**

_____

99 Left blank → **SKIP TO Q2**

HOME CLASSIFICATION

AUTOCODE COUNTY FOR CHANTILLY

IF Q1A = 20151, AUTOCODE Q2 = 06 (Fairfax), THEN SKIP TO Q3
IF Q1A = 20152, AUTOCODE Q2 = 08 (Loudoun), THEN SKIP TO Q3

AUTOCODE ALEXANDRIA (EXCEPT 22311)

IF Q1A = 22301, 22302, 22304, 22305, OR 22314, AUTOCODE Q2 = 01 (Alexandria), THEN SKIP TO Q3
IF Q1A = 22303, 22306, 22307, 22308, 22309, 22310, OR 22315, AUTOCODE Q2 = 06 (Fairfax), THEN SKIP TO Q3

AUTOCODE TAKOMA PARK, MD, TAKOMA DC

IF Q1A = 20903, 20912, OR 20913, AUTOCODE Q2 = 09 (Montgomery), THEN SKIP TO Q3
IF Q1A = 20011 OR 20012, AUTOCODE Q2 = 05 (DC), THEN SKIP TO Q3

AUTOCODE LAUREL

IF Q1A = 20707 OR 20708, AUTOCODE Q2 = 10 (Prince George's), THEN SKIP TO Q3
IF Q1A = 20723 OR 20724, AUTOCODE Q2 = 12 (Other–out of area), THEN THANK AND TERMINATE

AUTOCODE SILVER SPRING

IF Q1A = 20901, 20902, 20904, 20905, 20906, OR 20910, AUTOCODE Q2 = 09 (Montgomery), THEN SKIP TO Q3

AUTOCODE STERLING

IF Q1A = 20164, 20165, OR 20166, AUTOCODE Q2 = 08 (Loudoun), THEN SKIP TO Q3

AUTOCODE FAIRFAX AND FALLS CHURCH CITIES

IF Q1A = 22030, 22041, 22042, 22043, 22044, OR 22046, AUTOCODE Q2 = 06 (Fairfax), THEN SKIP TO Q3

AUTOCODE WALDORF (EXCEPT 20601)

IF Q1A = 20602 OR 20603, AUTOCODE Q2 = 04 (Charles), THEN SKIP TO Q3

AUTOCODE MANASSAS, MANASSAS PARK

IF Q1A = 20110 OR 20113, AUTOCODE Q2 = 11 (Prince William), THEN SKIP TO Q3

IF [Q1A NOT (20011-20012, 20110, 20113, 20151-20152, 20164-20166, 20602-20603, 20707-20708, 20723-20724 20901-20906, 20910, 20912-20913, 22030, 22041-22044, 22046, 22301-22310, 22314-22315)], ASK:

Q2. In what county (or Independent City) do you live now? **(ACCEPT ONE RESPONSE ONLY.) (SHOW RESPONSES 01-98.)**

1 Alexandria City, VA
2 Arlington Co., VA
3 Calvert Co., MD
4 Charles Co., MD
5 Washington, DC (District of Columbia)
6 Fairfax Co., VA (incl. City of Falls Church, City of Fairfax)
7 Frederick Co., MD (incl. City of Frederick)
8 Loudoun Co., VA
9 Montgomery Co., MD (incl. City of Rockville, City of Gaithersburg, City of Takoma Park, Silver Spring)
10 Prince George's Co., MD (incl. City of Greenbelt, City of College Park, City of Bowie)
11 Prince William Co., VA (incl. City of Manassas, City of Manassas Park)
95 Other **(specify)** → **THANK AND TERMINATE**
98 Not sure → **THANK AND TERMINATE**

HMST. HOME STATE
HMST(1)=District of Columbia (Q2(05))
HMST(2)=Maryland (Q2(03,04,07,09,10))
HMST(3)=Virginia (Q2(01,02,06,08,11))

ASK EVERYONE:

Q3. In what county (or independent city) do you work? If you are working from home full-time due to the coronavirus pandemic, indicate where you would work if you returned to an outside workplace. **(SHOW RESPONSES 1-11, 95, AND 98. DO NOT SHOW 12-20, 90, OR 99. ACCEPT ONE RESPONSE ONLY.) (OPTIONAL.)**

1 Alexandria City, VA
2 Arlington Co., VA
3 Calvert Co., MD
4 Charles Co., MD
5 Washington, DC (District of Columbia)
6 Fairfax Co., VA (incl. Fairfax City and Falls Church City)
7 Frederick Co. (MD)
8 Loudoun Co. (VA)
9 Montgomery Co. (MD)
10 Prince George's Co. (MD)
11 Prince William Co. (VA, incl Manassas City and Manassas Park City)
95 Other **(specify)**
98 Not sure
99 Left blank

DO NOT SHOW 12-90 ON SCREEN. RESERVE FOR POST-SURVEY CODING FROM OTHER RESPONSES.
12 Anne Arundel County, MD
13 Howard County, MD
14 Baltimore County, MD
15 Baltimore City, MD
16 Carroll County, MD
17 St. Mary's County, MD
18 Stafford County, VA
19 Spotsylvania County, VA
20 Fredericksburg, VA
90 Varies, all over, no set location

WKST. WORK STATE
WKST(1)=District of Columbia (Q3(05))
WKST(2)=Maryland (Q3(03,04,07,09,10,12,13,14,15,16,17))
WKST(3)=Virginia (Q3(01,02,06,08,11,18,19,20))
WKST(4)=UNDEFINED (Q3(90,95,98,99))

COMMUTE PATTERNS / WORK SCHEDULE / TW STATUS

ASK EVERYONE:

Now, please answer some questions about your commute to and from work. If you have more than one job, answer for your primary job. If your work schedule or work location has changed due to the coronavirus pandemic, please answer for your current work situation.

Q4. First, in a TYPICAL week, how many days are you assigned to work? If your work schedule varies from week to week, please indicate the number that is most typical.

01 1 day
02 2 days
03 3 days
04 4 days
05 5 days
06 6 days
07 7 days
00 0, not currently working → **THANK AND TERMINATE**

Q5. How many of those days are weekdays (Monday-Friday)? **(SHOW ONLY DAY COUNT RESPONSES THAT ARE ≤Q4.)**

01 1 day
02 2 days
03 3 days
04 4 days
05 5 days
00 0 (work only on weekends) → **SKIP TO DEFINE SURVTYPE**

IF [EMPLEV(2)], AUTOCODE Q14M(06), THEN SKIP TO Q6 INSTRUCTIONS

IF [EMPLEV(1,7)], ASK:

Q14M. Which of the following best reflects your work schedule? Please select only one. **(ACCEPT ONE RESPONSE ONLY.) (OPTIONAL.)**

1 Standard, five or more days per week
2 Work four 10-hour days per week, total of 40 hours (4/40 compressed schedule)
3 Work nine days every 2 weeks, total of 80 hours (9/80 compressed schedule)
4 Work three 12-hour days per week, total of 36 hours (3/36 compressed schedule)
95 Other **(specify)**
06 *Work part-time* ***(AUTOCODE ONLY, DON'T SHOW ON SCREEN)***
98 Not sure
99 Left blank

IF WORK AT LEAST 1 WEEKDAY, [Q5(01-05)], ASK:

Q6. At the PRESENT TIME, do you work from home or from a telework/co-working center on some or all of your regularly assigned workdays? You might call this telecommuting, teleworking, or working remotely. Please include only days that you telework during an entire workday. **(OPTIONAL.)**

01 Yes, work from home or telecommute/telework **all** of my workdays → **SKIP TO Q9**
02 Yes, work from home or telecommute/telework **some** of my workdays → **SKIP TO DEFINE SURVTYPE**
03 No, do not currently work from home or telecommute/telework any workdays → **SKIP TO DEFINE SURVTYPE**
98 Not sure
99 Left blank

IF [Q6(02 OR 03)], SKIP TO DEFINE SURVTYPE.
IF [Q6(01)], SKIP TO Q9.

IF [Q6(98 OR 99)], ASK:

Q7. To clarify, you might be working from home now, due to the pandemic or because you are self-employed and your primary work location is in your home. Please select the response that best represents your current situation, even if you expect this to be a temporary arrangement. **(OPTIONAL.)**

01 I work from home **all** of my workdays
02 I work from home **some** of my workdays → **SKIP TO DEFINE SURVTYPE**
03 I do not currently work from home any days; I go to a work location outside my home all workdays) → **SKIP TO DEFINE SURVTYPE**
98 Not sure
99 Left blank → **SKIP TO DEFINE SURVTYPE**

IF [Q7(02, 03, 99)], SKIP TO DEFINE SURVTYPE.

IF WORK AT HOME EVERY WEEKDAY THEY WORK OR NOT SURE [Q6(01) OR Q7(01, 98)], ASK:

Q9. Which of the following best describes your current work situation? **(OPTIONAL.)**

01 Self-employed with my primary work location at home
02 Work for an employer in the Washington metro region, but I work from home/telecommute all of my workdays
03 Work for an employer outside the Washington metro region, but I work from home/ telecommute all of my workdays
95 Other situation **(specify)**
99 Left blank

DEFINE SURVEY TYPE

SURVTYPE(1)=WKALL – all workdays on weekends	**(Q5(00))**
SURVTYPE(2)=SEWAH – self-employed work at home	**(Q9(01))**
SURVTYPE(3)=TELEALL – full-time telework	**(Q9(02,03))**
SURVTYPE(4)=COMMUTER – work outside home some days	**(Q6(02-03) OR Q7(02-03))**
SURVTYPE(5)=HOMEOTHER – WAH/unknown reason	**((Q6(01) OR Q7(01)) AND Q9(95,99))**
SURVTYPE(6)=SEUNK – Self-employed, unknown if home only (RESERVE FOR POST-PROCESSING)	
SURVTYPE(9)=UNDEFINED – undefined work arrangement	**(Q6(98,99) AND Q7(99)) OR (Q6(98,99) AND Q7(98) AND Q9(95,99))**

IF [SURVTYPE(1)], SKIP TO Q61
IF [SURVTYPE(2)], SKIP TO DEFINE Check Q15 Days INSTRUCTIONS

IF [SURVTYPE(3,5)], AUTOCODE Q12(07), DO NOT SHOW, THEN SKIP TO Q12A
IF [SURVTYPE(4) AND ((Q6(03) OR Q7(03))], AUTOCODE Q12(01), DO NOT SHOW,THEN SKIP TO Q12A

IF [SURVTYPE(4) AND ((Q6(02) OR Q7(02))], ASK:
IF [SURVTYPE(9), ASK:

Q12. Currently, how often do you usually telecommute/telework for an entire workday? **(OPTIONAL.)**

01 Do not currently work from home/telecommute
02 Less than one time per month/only in emergencies
03 1-3 times per month
04 1 day per week
05 2 days per week
06 3-4 days per week
07 5 or more days per week (or all of my workdays)
95 Other **(specify)**
99 Left blank

IF [SURVTYPE(3,4,5,9), ASK:

Q12A. How often did you usually telecommute/telework before the coronavirus pandemic started? **(OPTIONAL.)**

01 Never, I did not telecommute/telework before the pandemic
02 Less than 1 time per month/only in emergencies
03 1 to 3 times per month
04 1 day per week
05 2 days per week
06 3 or 4 days per week
07 5 or more days per week (or all of my workdays)
95 Other **(specify)**
99 Left blank

IF [Q12(01,99)], SKIP TO Q14D
IF [SURVTYPE(5)], SKIP TO DEFINE Check Q15 Days INSTRUCTIONS.

IF [(SURVTYPE(3,4,9) AND (Q12(02-95))], ASK:

Q44. If given a choice by your employer, how often would you want to telecommute/telework in the future?

01 Not interested in continuing to work at home/telework at all
02 Less than one day per month
03 1 to 3 days per month
04 1 to 2 days per week
05 3 to 4 days per week
06 All of my workdays (or 5 or more days per week)
98 Not sure
99 Left blank

Q13A. Does your employer have a formal telecommute/telework program at your workplace or do you telecommute under an informal arrangement between you and your supervisor? **(OPTIONAL.)**

01 Formal program
02 Informal arrangement
98 Not sure
99 Left blank

IF [(SURVTYPE(4,9) AND (Q12(02-95))], SKIP TO DEFINE Check Q15 Days INSTRUCTIONS

IF [(SURVTYPE(3), ASK:

Q13B. When you are working from home, how often do you make a trip during your usual work hours for work purposes (e.g., meeting/appointment)? How often do you make a personal trip (e.g., errand/appointment, meal) during your usual work hours? **(OPTIONAL.)**

Trip purpose	Number of workdays per week making a trip			
	Less than one day per week	One day per week	Two days per week	Three or more days per week
1 Work (e.g., meeting/appointment)	01	02	03	04
2 Personal (e.g., errand/appointment/meal)	01	02	03	04

IF [(SURVTYPE(3)], SKIP TO DEFINE Check Q15 Days INSTRUCTIONS:

IF NON TELEWORKER, [SURVTYPE(4,9) AND Q12(01,99), ASK:

Q14D. Does your employer have a formal telecommute/telework program at your workplace or permit any employees to telecommute under an informal arrangement with the supervisor? **(OPTIONAL.)**

01 Yes, formal program
02 Yes, informal arrangement
03 No, telecommuting is not permitted, neither formal or informal
98 Not sure
99 Left blank

Q14E. Considering your job responsibilities, how often would you be able to work remotely at home or at another location other than your main workplace? **(OPTIONAL.)**

1 Never → **SKIP TO DEFINE Check Q15 Days INSTRUCTIONS**
2 Less than once per month
3 1-3 days per month
4 1-2 days per week
5 3 or more days per week
98 Not sure → **SKIP TO DEFINE Check Q15 Days INSTRUCTIONS**
99 Left blank → **SKIP TO DEFINE Check Q15 Days INSTRUCTIONS**

THOSE WHO COULD WORK REMOTELY [Q14E(02-05)] ASK:

Q14F. Would you be interested in telecommuting/teleworking on an occasional or regular basis? **(OPTIONAL.)**

1 Yes, occasional basis
2 Yes, regular basis
3 Not interested in telecommuting
98 Not sure
99 Left blank

Q14K. In the past year, about how many days did you work at home all day on a regular workday, instead of traveling to your main workplace? **(OPTIONAL.)**

01 0, never worked at home during the past year
02 1 - 2 days
03 3 - 4 days
04 5 - 6 days
05 7 - 9 days
06 10 – 30 days
07 More than 30 days (or all or most of my workdays)
98 Not sure
99 Left blank

CURRENT COMMUTE PATTERNS

[SURVTYPE(2,3,4,5,9):

DEFINE Check Q15 Days
CKQ15DAYS. CHECK Q15 DAYS
IF Q14M(02,03,04), SET CKQ15DAYS = 5
IF Q14M(01,06,95,98,99), SET CKQ15DAYS = Q5

IF [SURVTYPE(2)], DO NOT SHOW Q15. AUTOCODE TO RESPONSE 18 IN Q15 – RANDOMLY CODE ENOUGH DAYS TO EQUAL CKQ15DAYS. IF CKQ15DAYS(01-04), CODE REMAINING DAYS TO RESPONSE 20, TO EQUAL TOTAL OF 5 DAYS. THEN SKIP TO DEFINE Q15 MODES USED.

IF [SURVTYPE(3,5)] DO NOT SHOW Q15. AUTOCODE TO RESPONSE 16 IN Q15 – RANDOMLY CODE ENOUGH DAYS TO EQUAL CKQ15DAYS. IF CKQ15DAYS(01-04), CODE REMAINING DAYS TO RESPONSE 20, TO EQUAL TOTAL OF 5 DAYS. THEN SKIP TO DEFINE Q15 MODES USED.

IF [SURVTYPE(4,9)], ASK:

Q15. Next, please think about your travel to work. In a typical work week, what type of transportation do you use on each of the days you work? If your travel to work varies from week to week, report for the MOST typical week.

- If you use more than one type of transportation on a single day (e.g., walk to the bus stop then ride the bus), check only the type you use for the longest distance part of your trip.
- For any days that you typically work from home all day on an assigned workday, check telecommute/telework.
- ***[IF Q14M(02,03,04):*** *For any weekdays that you are not assigned to work, check compressed schedule (e.g., 4/40, 9/80) day off.**]***

PROGRAMMER NOTES ON CHECK OF Q15 WITH Q5 AND PROMPTS TO RESPONDENTS
ALLOW ONLY ONE MODE RESPONSE FOR EACH DAY

Check workdays reported Q15WORK = sum of Mon-Fri responses to modes 1-18 plus 95.

IF RESPONDENT ENTERS TOO FEW TRAVEL MODE DAYS - TOTAL Q15 DAYS IS LESS THAN CKQ15DAYS WEEKDAYS WORKED, [IF Q15WORK < CKQ15DAYS], SHOW PROMPT: Please report for a total of **[CKQ15DAYS]** workdays. If you typically telecommute/work from home or work a compressed schedule (e.g., 4/40, 9/80) day off, please count those as workdays. Check regular day off for any other days you are not assigned to work.

IF CKQ15DAYS= 5 AND RESPONDENT CHECKS MORE THAN ONE TRAVEL MODE ON A SINGLE DAY (E.G., TRAIN AND WALK ENTERED ON MONDAY), SHOW PROMPT FOR THAT DAY: Please check only one box for (list day or days with more than one mode checked).

IF CKQ15DAYS< 5 AND RESPONDENT ENTERS TOO MANY TRAVEL MODE DAYS - TOTAL Q15 DAYS IS MORE THAN CKQ15DAYS, [IF CKQ15DAYS < 5 AND Q15WORK > CKQ15DAYS], SHOW PROMPT: Please report how you travel only on the **[CKQ15DAYS]** days that you work Monday through Friday and report only one transportation type for each day. If you typically telecommute/work from home or have a compressed schedule day off, please count those as workdays. For all other days that you do not work, indicate regular day off.

SHOW MODES IN MON-FRI GRID FORMAT IN ORDER SHOWN (ALLOW ONLY ONE MODE FOR EACH DAY MON-FRI)

Type of transportation	(Check only one Button for each day)				
	Mon	Tues	Wed	Thur	Fri
1 Drive alone in a car, truck, SUV, or van	01	02	03	04	05
2 Taxi	01	02	03	04	05
3 Uber, Lyft, Via	01	02	03	04	05
4 Motorcycle	01	02	03	04	05
5 Carpool (Including carpool w/family member, dropped off)	01	02	03	04	05
6 Casual carpool (slugging)	01	02	03	04	05
7 Vanpool	01	02	03	04	05
8 Buspool (including commuter bus, subscription bus)	01	02	03	04	05
9 Bus (public bus, shuttle)	01	02	03	04	05
10 Metrorail	01	02	03	04	05
11 MARC (MD commuter rail)	01	02	03	04	05
12 VRE (Virginia commuter rail)	01	02	03	04	05
13 Amtrak/other train	01	02	03	04	05
14 Bicycle/scooter/e-scooter (including bikeshare, dockless) bike)	01	02	03	04	05
15 Walk (entire trip from home to work)	01	02	03	04	05
95 Other **(specify)**	01	02	03	04	05
16 Telecommute/telework	01	02	03	04	05
17 Compressed schedule day off	01	02	03	04	05
20 Regular day off (not compressed schedule)	01	02	03	04	05
21 NA – do not show on screen, do not reuse number					
18 SE-WAH days, other than telework **(AUTOCODE ONLY)**	01	02	03	04	05

IF [SURVTYPE(2,3,4,5,9)]:
DEFINE Q15 MODES USED (ALLOW MULTIPLE MODES) – AUTOCODE ONLY:

Individual modes (valid codes = 0, 1, 2, 3, 4, 5)
PVDAYS = SUM OF Q15.1
TXDAYS = SUM OF Q15.2
ULDAYS = SUM OF Q15.3
MCDAYS = SUM OF Q15.4
RCDAYS = SUM OF Q15.5
CCDAYS = SUM OF Q15.6
VPDAYS = SUM OF Q15.7
BPDAYS = SUM OF Q15.8
RBDAYS = SUM OF Q15.9
MRDAYS = SUM OF Q15.10
MDDAYS = SUM OF Q15.11
VRDAYS = SUM OF Q15.12
AMDAYS = SUM OF Q15.13
BKDAYS = SUM OF Q15.14
WKDAYS = SUM OF Q15.15
OTDAYS = SUM OF Q15.95
TWDAYS = SUM OF Q15.16
CWDAYS = SUM OF Q15.17
SEDAYS = SUM OF Q15.18

Grouped modes (drive alone, carpool, bus, commuter rail, train, public transit)
DADAYS (Total drive alone) = SUM OF (Q15.1 + Q15.2 + Q15.3 + Q15.4) – MODES 1, 2, 3, 4
CPDAYS (Total carpool) = SUM OF (Q15.5 + Q15.6) – MODES 5, 6
BUDAYS (Total bus) = SUM OF (Q15.8 + Q15.9) – MODES 8, 9
CRDAYS (Total commuter rail) = SUM OF (Q15.11 + Q15.12 + Q15.13) – MODES 11, 12, 13
TRDAYS (Total train) = SUM OF (Q15.10 + Q15.11 + Q15.12 + Q15.13) – modes 10, 11, 12, 13
PTDAYS (Total public transportation) = SUM OF (Q15.8 + Q15.9 + Q15.10 + Q15.11 + Q15.12 + Q15.13) – modes 8, 9, 10, 11, 12, 13

DEFINE Q15 MODES – MULTI-PUNCH VARIABLE
IF CWDAYS > 0, Q15 MODE = 1 COMPRESSED SCHEDULE
IF TWDAYS > 0, Q15 MODE = 2 TELECOMMUTE
IF DADAYS > 0, Q15 MODE = 3 DRIVE ALONE
IF CPDAYS > 0, Q15 MODE = 4 CARPOOL
IF VPDAYS > 0, Q15 MODE = 5 VANPOOL
IF BUDAYS > 0, Q15 MODE = 6 BUS
IF MRDAYS > 0, Q15 MODE = 7 METRORAIL
IF CRDAYS > 0, Q15 MODE = 8 COMMUTER TRAIN
IF BKDAYS > 0, Q15 MODE = 9 BICYCLE/SCOOTER
IF WKDAYS > 0, Q15 MODE = 10 WALKING
IF OTDAYS > 0, Q15 MODE = 11 OTHER
IF SEDAYS > 0, Q15 MODE = 18 SELF-EMPLOYED, WORK AT HOME

DEFINE PRIMARY MODE

CODE Q15 MODE WITH HIGHEST NUMBER OF DAYS AS "PRIMARY MODE" (PRMODE). IF TIE FOR HIGHEST NUMBER, CHOOSE PRIMARY MODE FROM THE FOLLOWING PRIORITY ORDER.
IF A RESPONDENT HAS A TIE FOR PRIMARY MODE WITH Q15 MODE=COMPRESSED (1), DO NOT CHOOSE COMPRESSED(1).

5 VANPOOL
4 CARPOOL
7 METRORAIL
6 BUS
8 COMMUTER RAIL
9 BICYCLE/SCOOTER
10 WALKING
2 TELECOMMUTE
3 DRIVE ALONE
11 OTHER
18 SELF-EMPLOYED, WORK AT HOME

DEFINE CALTDAYS = TOTAL Q15 DAYS USING MODES 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 = SUM OF (Q15.5 + Q15.6 + Q15.7 + Q15.8 + Q15.9 + Q15.10 + Q15.11 + Q15.12 + Q15.13 + Q15.14 + Q15.15)

DEFINE TELEWORKER USING Q15.16 (number of TW days reported in Q15) and Q12
TELEWORKER.
TELEWORKER(1)=Yes (TWDAYS > 0 OR Q12(02,03,04,05,06,07,95)
TELEWORKER(2)=No (TWDAYS = 0 AND Q12(01,99)

IF [SURVTYPE(2,3,5)], SKIP TO Q15E INSTRUCTIONS.
IF [SURVTYPE(4,9) AND BKDAYS = 0], SKIP TO Q15B INSTRUCTIONS.
IF [SURVTYPE(4,9) AND BKDAYS > 0], ASK:

Q15A. On the day(s) that you bike or ride a scooter/e-scooter to work, is it a…? Select all that apply. **(MULTIPLE RESPONSES ACCEPTED.) (OPTIONAL.)**

01 Capital Bikeshare bike
02 Personal bike (including bike borrowed from friend or family member)
03 Dockless bike
04 Rented scooter/e-scooter
05 Personal scooter/e-scooter
98 Not Sure
99 Left Blank

IF [SURVTYPE(4,9) AND ULDAYS = 0], SKIP TO Q15E INSTRUCTIONS.
IF [SURVTYPE(4,9) AND ULDAYS > 0], ASK:

Q15B. You mentioned using Uber, Lyft, or Via for some of your trips to work. Which of these ride-hailing services do you use for these trips? Select all that apply. **(MULTIPLE RESPONSES ACCEPTED.) (OPTIONAL.)**

01 Lyft (riding alone as a passenger)
02 Uber (riding alone as a passenger)
03 UberPool or Uber Express Pool (riding with other passengers)
04 Via
05 Lyft Shared Ride or Lyft XL
95 Other **(specify)**
98 Not sure
99 Left blank

Q15C. How would you likely have made these trips if this/these ride-hailing services were not available? Select all that apply. **(MULTIPLE RESPONSES ACCEPTED.) (OPTIONAL.)**

01 Drive alone (personal car, SUV, truck, van, motorcycle)
02 Taxi
03 Public transit (bus, buspool, Metrorail, commuter train)
04 Carpool or vanpool, casual carpool/slug
05 Bicycle
06 Walk
95 Other **(specify)**
98 Not sure
99 Left blank

IFONLY RESPONSES TO [Q15B(01,02,95,98,99)], SKIP TO Q15E INSTRUCTIONS.

IF TAKE AN UBER POOL, VIA, OR LYFT SHARED RIDE TO WORK AT LEAST ONCE A WEEK AND NEVER TAKE A CARPOOL OR VANPOOL [Q15B(03,04,05) AND CPDAYS = 0 AND VPDAYS = 0], ASK:

Q15D. On the days that you ride UberPool, Uber Express Pool, Via, Lyft Shared Ride, or Lyft XL to or from work, how many people, including yourself, but excluding the driver, usually ride in the vehicle?

_____ total people in pool **(RANGE 1-10.) (OPTIONAL.)**

998 Not sure
999 Left blank

IF [SURVTYPE(2)], DO NOT SHOW Q15E. AUTOCODE Q15E(05), THEN SKIP TO DEFINE COMMSTAT (DEFINE COMMUTER STATUS).

IF [SURVTYPE(3,5) AND Q12A(07)], DO NOT SHOW Q15E. AUTOCODE Q15E(01), THEN SKIP TO DEFINE COMMSTAT (DEFINE COMMUTER STATUS).

IF [SURVTYPE(3,5) AND Q12A(01,02,03,04,05,06,95,99)], DO NOT SHOW Q15E. AUTOCODE Q15E(02), THEN SKIP TO DEFINE COMMSTAT (DEFINE COMMUTER STATUS).

IF [SURVTYPE(4,9)] ASK:

Q15E. Is your current travel to work as you just described it about the same as your commute before the coronavirus pandemic began, or is it different than before the pandemic? (**SHOW RESPONSES 03, 04, 98 ON SCREEN; DO NOT SHOW 01, 02, 05, OR 99)**

01 Full-time telework now, full-time TW pre-pandemic (AUTOCODE…)
02 Full-time telework now, NOT full-time TW pre-pandemic (AUTOCODE…)
03 Current commute is about the same now as before the pandemic
04 Current commute is substantially different than before the pandemic
05 Self-employed, work at home (AUTOCODE…)
98 Not sure
99 Left blank

IF [SURVTYPE(2,3,4,5,9)]:

DEFINE COMMSTAT. COMMUTER STATUS

COMMSTAT(1)=NONTW-SAME (Q15E(03))
COMMSTAT(2)=FTTW-DIFF (Q15E(02))
COMMSTAT(3)=NONTW-DIFF (Q15E(04,98,99))
COMMSTAT(4)=FTTW-SAME (Q15E(01))
COMMSTAT(5)=SEWAH-SAME (Q15E(05))

IF [COMMSTAT(5)], SKIP TO Q61.
IF [COMMSTAT(4)], SKIP TO Q34 INSTRUCTIONS.

IF [COMMSTAT(1,2,3)] ASK:

Q15F. The coronavirus pandemic has disrupted work schedules and work places for many people. Is your **current** work situation or commute different in any of the following ways, compared with the time before the pandemic began in early 2020? Select all that apply. **(ACCEPT MULTIPLE RESPONSES FOR 1-95) (OPTIONAL.)**

1 Now working from home/telecommuting
2 Work from home/telecommute more days per week
3 Use different type(s) of transportation to get to work
4 Work at a different job/employer
5 Work different days or hours, increased/decreased work hours
95 Some other change **(please describe)** _____
97 Have not made any changes in my work situation or commute
99 Left blank

Q15H. Please think back to early 2020, before the pandemic began. In a typical week then, what types of transportation did you use at least one day per week **for your trip to work**? Select all that apply. **(OPTIONAL.)**

01 Drive alone in a car, truck, SUV, van, or motorcycle
02 Taxi, Uber, Lyft, Via
03 Carpool, casual carpool/slug, or vanpool
04 Bus, buspool/commuter bus
05 Metrorail
06 Commuter train (MARC, VRE, Amtrak)
07 Bicycle/scooter/e-scooter
08 Walk (entire distance from home to work)
09 Telecommute/telework (all day)
95 Other **(specify)**
99 Left blank

If MORE THAN ONE RESPONSE IN Q15H, ASK:

Q15J. Of the types of transportation that you just checked, which single type of transportation did you use MOST days for your trip to work before the pandemic. Select only one option. If you usually used two or more types on the same day (e.g., bus and train or bicycle and bus), please select the type that you used for the longest distance part of your trip. **(ACCEPT ONE RESPONSE ONLY.) (SHOW ONLY OPTIONS REPORTED IN Q15H.) (OPTIONAL.)**

01 Drive alone in a car, truck, SUV, van, or motorcycle
02 Taxi, Uber, Lyft, Via
03 Carpool, casual carpool/slug, or vanpool
04 Bus, buspool/commuter bus
05 Metrorail
06 Commuter train (MARC, VRE, Amtrak)
07 Bicycle/scooter/e-scooter
08 Walk (entire distance from home to work)
09 Telecommute/telework (all day)
95 Other **(specify)** _____
99 Left blank

IF [COMMSTAT(1,3)], SKIP TO Q16.

IF [COMMSTAT(2)], ASK Q15M, THEN SKIP TO Q34 INSTRUCTIONS:

Q15M. You said you are working from home full-time now. How many miles is it one-way from your home to where you would work if you were not working from home? **(PERMIT UP TO ONE DECIMAL PLACE) (OPTIONAL.)**

Number of miles _____
998 Not sure
999 Left blank

IF [COMMSTAT(1,3)], ASK:

Q16. How long is your typical daily commute one-way? First, how many miles? Please enter numeric value only. **(OPTIONAL.)**

Number of miles _____ **(ALLOW FOR ONE DECIMAL PLACE.)**

998 Not sure
999 Left blank

Q16A. How many minutes does it typically take you to travel from home to work? If the time varies from day to day, enter what would be most typical. **(OPTIONAL.)**

Number of minutes _____ **(WHOLE NUMBERS ONLY.)**

998 Not sure
999 Left blank

Q17A. At what time do you typically arrive at work? If your schedule varies, please select what is most typical. **(OPTIONAL.)**

01 12:01 am – 5:59 am
02 6:00 am – 6:29 am
03 6:30 am – 6:59 am
04 7:00 am – 7:29 am
05 7:30 am – 7:59 am
06 8:00 am – 8:29 am
07 8:30 am – 8:59 am
08 9:00 am – 9:29 am
09 9:30 am – 9:59 am
10 10:00 am – 5:59 pm
11 6:00 pm – 12 midnight
98 Not sure
99 Left blank

USE OF ALTERNATIVE MODES

IF [SURVTYPE(2)], SKIP TO Q61.
IF [SURVTYPE(3,5)], SKIP TO INSTRUCTIONS BEFORE Q34.

IF [SURVTYPE(4,9) AND (ALL OF (Q15.1, Q15.2, Q15.3, Q15.4, 15.5, Q15.6, Q15.7, Q15.8, Q15.9, Q15.10, Q15.11, Q15.12, Q15.13, Q15.14, Q15.15)=(0))], SKIP TO Q34 INSTRUCTIONS. (THAT IS, Q15 RESPONSES = ONLY 16, 17, 18, 20, 95)

IF [SURVTYPE(4,9) AND (ANY OF (Q15.1, Q15.2, Q15.3, Q15.4, 15.5, Q15.6, Q15.7, Q15.8, Q15.9, Q15.10, Q15.11, Q15.12, Q15.13, Q15.14, Q15.15) > 0))], ASK:

Q18. How long have you been using the type or types of transportation shown below to get to work? Please enter the number of months. **Hover here for a years-to-months conversion table. (INSERT MODES USED IN Q15, EXCLUDING 16,17,18,20,95. USE THE MODE NAMES SHOWN.)**

Type of transportation	Number of months	Don't recall
1 Drive alone in a car, truck, SUV, or van		998
2 Taxi		998
3 Uber, Lyft, Via		998
4 Motorcycle		998
5 Carpool (Including carpool w/family member, dropped off)		998
6 Casual carpool (slugging)		998
7 Vanpool		998
8 Buspool (including commuter bus, subscription bus)		998
9 Bus (public bus, shuttle)		998
10 Metrorail		998
11 MARC (MD commuter rail)		998
12 VRE (Virginia commuter rail)		998
13 Amtrak/other train		998
14 Bicycle/scooter/e-scooter (including bikeshare, dockless) bike)		998
15 Walk		998

DEFINE MOST RECENT MODE = Q18 MODE WITH FEWEST NUMBER OF MONTHS
IF TIE FOR RECENT MODE, DESIGNATE BOTH MODES AS MOST RECENT MODE

IF MOST RECENT MODE DURATION Q18 ≥ 36 MONTHS, SKIP TO INSTRUCTIONS BEFORE Q28
IF MOST RECENT MODE DURATION < 36, ASK:
INSERT MODE NAME AS FOLLOWS:
IF MOST RECENT MODE IS 1 (DRIVE ALONE), INSERT " driving alone"
IF MOST RECENT MODE IS 2 (TAXI), INSERT "riding in a taxi"
IF MOST RECENT MODE IS 3 (UBER/LYFT/VIA), INSERT "riding Uber, Lyft, or Via"
IF MOST RECENT MODE IS 4 (MOTORCYCLE), INSERT "riding a morotcycle"
IF MOST RECENT MODE IS 5 (CARPOOL) OR 6 (CASUAL CARPOOL), INSERT "carpooling"
IF MOST RECENT MODE IS 7 (VANPOOL), INSERT "vanpooling"
IF MOST RECENT MODE IS 8 (BUSPOOL) OR 9 (BUS), INSERT "riding a bus"
IF MOST RECENT MODE IS 10 (METRORAIL), INSERT "riding Metrorail"
IF MOST RECENT MODE IS 11 (MARC), 12 (VRE), OR 13 (Amtrak), INSERT "riding commuter rail"
IF MOST RECENT MODE IS 14 (BIKE), INSERT "riding a bicycle or scooter"
IF MOST RECENT MODE IS 15 (WALK), INSERT "walking"

Q20. You began **[INSERT MOST RECENT MODE FROM TABLE BELOW]** *riding Metrorail, riding a bus, riding a bicycle or scooter, walking, carpooling, vanpooling, riding commuter rail, driving alone, riding a motorcycle, riding in a taxi, riding Uber, Lyft, or Via* > in the past three years for your trip to work. For what reasons did you make this change? **(OPTIONAL.) (LIST MOST RECENT MODE(S).)**

_____

Q20 OPEN-ENDED RESPONSE – CODE IN POST-PROCESSING INTO THE FOLLOWING CATEGORIES; ADD OTHERS AS NECESSARY

Personal circumstances/preferences

1 Changed jobs/work hours
2 Moved to a different residence
3 Employer or worksite moved
4 Spouse started new job
5 Save money
6 Save time
7 Gas prices too high
8 Tired of driving
9 Prefer to drive, wanted to drive
10 Safety
11 No vehicle available
12 Car became available, additional car in household
13 To stay with family/children
14 HOV lanes available
50 Express lanes available
15 Congestion (other)
16 Always used
17 Close to work or transportation pick up/drop off location
18 Afraid of or didn't like previous form of transportation
19 Stress
20 Weather
21 Bought hybrid vehicle
22 Convenient
23 To get exercise
24 Concerned about the environment, global warming
53 Coronavirus pandemic, job/work location closed

Commuter Services/Programs
- 25 New option that became available
- 26 Protected bike lanes available
- 27 Pressure or encouragement from employer, special program at work
- 28 GRH
- 29 Air Quality Action Days
- 30 No parking
- 31 Parking expense, parking cost too high
- 32 Found carpool partner (Commuter Connections, ZimRide, Waze, UberPool, craigslist, other)
- 33 NuRide (VA carpool incentive)
- 34 SmartTrip/SmartBenefit, transit subsidy, vanpool subsidy, Commuter Choice Maryland
- 35 'Pool Rewards carpool/vanpool incentive
- 50 Flextime Reward
- 51 CarpoolNow mobile app
- 52 incenTrip

Information/Promotion
- 36 Advertising
- 37 Initiated request/looked for information on my own
- 38 Info. From Commuter Connections/Council of Governments/COG/800 number
- 39 Commuter Connections Website
- 40 Other Website
- 41 Word of mouth/recommendation
- 42 Information from transit agency
- 43 Saw highway sign
- 44 Social media – Facebook, Twitter, Instagram, YouTube
- 95 Other
- 98 Not sure
- 99 Left blank

ALTERNATIVE MODE PATTERNS

IF (CPDAYS = 0 AND VPDAYS = 0 AND BUDAYS = 0 AND MRDAYS = 0 AND CRDAYS = 0), SKIP TO INSTRUCTIONS BEFORE Q34
IF CPDAYS = 0 AND VPDAYS = 0 AND (BUDAYS > 0 OR MRDAYS > 0 OR CRDAYS > 0), SKIP TO INSTRUCTIONS BEFORE Q29

IF [(CPDAYS > 0 OR VPDAYS > 0)],ASK:

Q28. On the days that you **[IF CPDAYS > 0 AND VPDAYS = 0:** carpool/slug**][IF CPDAYS ≥ 0 AND VPDAYS > 0:** vanpool**],** how many people, including yourself, usually ride in the vehicle? **(OPTIONAL.)**

_____total people in pool **(RANGE 1-16)**
999 Left blank

IF [(CPDAYS ≥ 0 AND VPDAYS > 0)], SKIP TO INSTRUCTIONS BEFORE Q29

IF [(CPDAYS > 0 AND VPDAYS = 0)], ASK:

Q28A. How did you find the people with whom you now carpool? Select all that apply. **(MULTIPLE RESPONSES ACCEPTED.) (OPTIONAL.)**

01 I carpool with family members
02 Referral/asked or was asked by a friend, co-worker, or neighbor
03 Regional or local public agency that helps find carpool partners
04 Through my employer
05 Waze
06 UberPool/Uber Express Pool
07 ZimRide
08 Craigslist
09 Via
10 Slug/casual carpool, so different people each day
95 Other **(specify)**
98 Not sure, don't recall
99 Left blank

IF [(CPDAYS = 0 OR VPDAYS = 0) AND (BUDAYS > 0 OR MRDAYS > 0 OR CRDAYS > 0)) OR (CPDAYS > 0 OR VPDAYS > 0)], ASK:

MODE SELECT FOR Q29-Q31:
IF [CPDAYS = 0 AND VPDAYS = 0 AND BUDAYS ≥ (MRDAYS + CRDAYS)], USE BUS
IF [CPDAYS = 0 AND VPDAYS = 0 AND BUDAYS < (MRDAYS + CRDAYS)], USE TRAIN
IF [CPDAYS > 0 AND VPDAYS = 0], USE CARPOOL
IF [CPDAYS ≥0 AND VPDAYS > 0], USE VANPOOL

Q29. How do you get from home to where you meet your **[INSERT SELECTED MODE:** carpool, vanpool, bus, train**]**? **(IF SELECTED MODE IS TRAIN OR BUS, DO NOT SHOW RESPONSES 01, 02, OR 03.) (OPTIONAL.)**

1 Picked up at home by car/van pool or leave from home with household member → **SKIP TO INSTRUCTIONS BEFORE Q34**
2 I always drive the carpool/van pool and pick up riders → **SKIP TO Q31 INSTRUCTIONS**
3 Drive alone to driver's home or drive alone to passenger's home
4 Drive to a central location, like park & ride, or train or subway station
5 Dropped off or ride in another car/van pool → **SKIP TO Q31 INSTRUCTIONS**
6 Bicycle
07 Walk
08 Bus/Transit
95 Other **(specify)**
99 Left blank → **SKIP TO Q31 INSTRUCTIONS**

THOSE WHO DRIVE, BICYCLE, WALK, OR TAKE ANOTHER FORM OF TRANSIT TO THEIR CARPOOL, VANPOOL, BUS, OR TRAIN [Q29(02,03,04,06,07,08,95)], ASK:

Q30. How many miles is it one way from your home to where you meet your **[INSERT SELECTED MODE:** carpool, vanpool, bus, train**]**? **(ALLOW ONLY NUMERIC ENTRIES, ALLOW ONE DECIMAL PLACE.) (OPTIONAL.)**

_____miles
998 Not sure
999 Left blank

IF [CPDAYS > 0 OR VPDAYS > 0], SKIP TO Q34 INSTRUCTIONS

IF [CPDAYS = 0 AND VPDAYS = 0 AND (BUDAYS > 0 OR MRDAYS > 0 OR CRDAYS > 0)], ASK:

Q31. And how do you get from where you get off the **[IF BUDAYS ≥ (MRDAYS + CRDAYS):** bus**][IF BUDAYS < (MRDAYS + CRDAYS):** train**]** to your workplace? If you take more than one bus or train on your trip, answer for when you get off the final bus or train of your trip. **(OPTIONAL.)**

1 Walk
2 Taxi
3 Uber, Lyft, or Via
4 Capital Bikeshare bike
5 Personal bike
6 Dockless bike
7 Scooter/e-scooter
95 Other **(specify)**
99 Left blank

TELECOMMUTE

Programmer note: SURVTYPE = 1 and 2 have already been skipped out of this section. The following instructions clarify skips for SURVTYPES 3, 4, 5, 9

IF NOT TELEWORKER [TELEWORKER (2) AND SURVTYPE (3,4,5,9)], SKIP TO Q45 INTRO.

IF [TELEWORKER(1) AND (SURVTYPE(3,4,5,9)], ASK:

Q34. Next, please answer a few more questions about telecommuting/teleworking or working from home. How long have you been telecommuting/teleworking? Please enter as the number of months.
Hover here for a years-to-months conversion table. **(RANGE 1-500.) (OPTIONAL.)**

Duration of Telework Use	Number of months
Number of months	

998 Not sure
999 Left blank

IF [Q34 > 26 MONTHS OR 998 OR 999)], SKIP TO Q36 INSTRUCTIONS

If [Q34 ≤ 26 MONTHS], ASK:

Q35. You started teleworking since the start of the coronavirus pandemic. How significant a factor was the pandemic in your decision to start telecommuting/teleworking? **(OPTIONAL.)**

01 Pandemic was the only factor
02 Pandemic was a major factor
03 Pandemic was a minor factor
04 Pandemic was not a factor at all
98 Not sure
99 Left blank

If [SURVTYPE(3,5)], DO NOT SHOW Q36. SEE BELOW FOR AUTOCODE INSTRUCTIONS

IF [SURVTYPE(4,9) AND TELEWORKER(1))], ASK:

Q36. Where do you work when you telecommute/telework? If you telecommute from multiple locations, please check the location where you telecommute most often. **(ACCEPT ONE RESPONSE ONLY.) (OPTIONAL.)**

1 **[IF SURVTYPE(3,5), AUTOCODE AS:** Always/only at home] → **SKIP TO Q41**
2 Telework or co-working center
3 Satellite office provided by employer
04 Business/retail center (FedEx/Kinkos) or library/community
95 Other location **(specify)**
19 Both at home and another location → **SKIP TO Q41**
99 Left blank → **SKIP TO Q42**

IF [Q36(01,19)], SKIP TO Q41.
IF[Q36(99)], SKIP TO Q42.

IF [Q36(02,03,04,95)], ASK:

Q38. How many miles is it one way from your home to this location? **(OPTIONAL.)**

_____ miles **(ALLOW FOR ONE DECIMAL PLACE.)**
999 Left blank

Q39. And how do you get from home to this location? Select all that apply. **(MULTIPLE RESPONSES ACCEPTED.) (OPTIONAL.)**

01 Drive alone, motorcycle, or taxi/Uber/Lyft
02 Carpool (including dropped off) or casual carpool/slug
03 Vanpool
04 Bus or train (Metrorail/commuter rail)
05 Bicycle/scooter/e-scooter (including bikeshare, dockless bike)
06 Walk
99 Left blank

IF [Q36(02,03,04,95,99)], SKIP TO Q42

IF [Q36(01,19)], ASK:

Q41. How strongly do you agree or disagree with the following statements about your experience working from home? Please rate each statement on a scale from 1 to 5, where 1 means you "strongly disagree" with the statement and 5 means you "strongly agree." **(RANDOMIZE.) (OPTIONAL.)**

		Level of agreement				
		1 – Strongly Disagree	2 Disgree	3 Neutral	4 Agree	5 – Strongly Agree
A.	I am productive working at home	01	02	03	04	05
B.	I am better able to concentrate on work tasks	01	02	03	04	05
C.	I find it difficult to unplug from work	01	02	03	04	05
D.	I am able to coordinate with co-workers on tasks	01	02	03	04	05

IF [SURVTYPE(3,4,5,9) AND TELEWORKER(1)], ASK:

Q42. Did you find out about telecommuting or obtain telecommute/telework information from any of the following sources? Select all that apply. **(ALLOW MULTIPLE RESPONSES FOR 1-95.) (OPTIONAL.)**

1 Advertising
2 Program at work, employer provided information, or employer required work from home
3 Word of mouth, referral
4 Newspaper or magazine article, radio or TV story
5 Website **(please specify)**
6 County/City or jurisdiction program **(please specify)**
7 Social media source (Twitter, Facebook, Instagram, tictok, other)
8 Business or trade/industry organization
9 Telework!VA
95 Other **(specify)**
96 Did not use any of these sources
98 Not sure
99 left blank

Q43. Did you receive any telecommute/telework information from Commuter Connections or from the Metropolitan Washington Council of Governments? **(OPTIONAL.)**

01 Yes
02 No
98 Not sure
99 left blank

AVAILABILITY OF TRANSPORTATION OPTIONS

IF [SURVTYPE(3,4,5,9)], ASK:

Next, please answer some questions about transportation services that might be available in your area.

IF [SURVTYPE(3,5)], SKIP TO Q53A INSTRUCTIONS

IF [SURVTYPE(4,9) AND (SUM OF (CPDAYS + VPDAYS + BUDAYS + MRDAYS + CRDAYS) = 0 OR 1)], SKIP TO Q46 INSTRUCTIONS.

IF [SURVTYPE(4,9) AND (SUM OF (CPDAYS + VPDAYS + BUDAYS + MRDAYS + CRDAYS) = 2-5)], ASK:

Q45. **[IF SUM OF (DADAYS + CPDAYS + VPDAYS) = 4 OR 5:** What Interstate highways or major U.S. or state routes do you use on your trip to work?**]**
[IF SUM OF (DADAYS + CPDAYS + VPDAYS) = 1, 2, OR 3: 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?**]**
[IF SUM OF (DADAYS + CPDAYS + VPDAYS) = 0: If you were to drive to work, what Interstate highways or major U.S. or state routes would you use?**] (MULTIPLE RESPONSES ACCEPTED.) (OPTIONAL.)**

Maryland/DC Roads

1 Capital Beltway (I-495) (MD)
2 I-95 (MD)
3 I-270 (MD)
4 I-295 (DC / MD)
5 I-695 (DC - Southeast-Southwest Freeway, Southwest Expressway)
6 I-695 (MD - Baltimore Beltway)
7 BW Parkway (US 295, Baltimore-Washington Parkway - MD)
8 GW Parkway (George Washington Parkway)
9 ICC (Inter-County Connector, Route 200)
10 US Route 1 (MD)
11 US Route 29 (MD - Colesville Road, Columbia Pike)
12 US Route 50 (MD – John Hanson Highway)
13 US Route 301 (MD)

Virginia Roads

14 Capital Beltway (I-495) (VA)
15 I-66 OUTSIDE the Beltway (VA)
16 I-66 INSIDE the Beltway (VA)
17 I-95 (VA)
18 I-395 (VA)
19 Dulles Toll Road (Dulles Greenway, Route 267)
20 GW Parkway (George Washington Parkway)
21 US Route 1 (VA - Richmond Highway (previously Jefferson Davis Highway))
22 US Route 29 (VA – Lee Highway)
23 US Route 50 (VA – Lee Jackson Highway, Arlington Blvd, Fairfax Blvd)

96 Do not / would not use any of these roads
99 Left blank

IF [SURVTYPE(4,9) AND DADAYS = 0 AND CPDAYS = 0 AND VPDAYS = 0 AND BUDAYS = 0 AND MRDAYS = 0 AND CRDAYS = 0], SKIP TO Q52.

IF [WKDAYS>0], AUTOCODE Q46(96), DO NOT SHOW, THEN SKIP TO Q52 INSTRUCTIONS.

IF [SURVTYPE(4,9) AND (DADAYS ≠ 0 OR CPDAYS ≠ 0 OR VPDYS ≠ 0 OR BUDAYS ≠ 0 OR MRDAYS ≠ 0 OR CRDAYS ≠ 0)], ASK:

Q46. Is there a special HOV (High Occupancy Vehicle) lane, toll lane, or express lane along your route to work? **(OPTIONAL.)**

01 HOV lane only
02 Toll lane/express lane only → **SKIP TO Q47A**
03 Both HOV lane and toll/express lane
04 No, HOV/toll/express lane not available → **SKIP TO Q52**
96 No, walk to work ***(AUTOCODE ONLY - DO NOT SHOW ON SCREEN)***
98 Not sure → **SKIP TO Q52**
99 Left blank → **SKIP TO Q52**

THOSE WITH HOV LANES ALONG THEIR ROUTE AND NOT WALKING [Q46(01,03) AND WKDAYS=0], ASK:

Q47. How often do you use the **HOV lane** to get to or from work? **(OPTIONAL.)**

1 Never
2 Less than once per month
3 1-3 days per month
4 1-2 days per week
5 3 or more days per week
99 Left blank

IF [Q46(01) AND Q47(01,99)], SKIP TO Q52.
IF [Q46(01) AND Q47(02, 03, 04, 05), SKIP TO Q47B.

THOSE WITH EXPRESS LANES ALONG THEIR ROUTE AND NOT WALKING [Q46(02,03) AND WKDAYS=0], ASK:

Q47A. How often do you use a **toll/express lane** to get to or from work? **(OPTIONAL.)**

1 Never → **SKIP TO INSTRUCTIONS BEFORE Q50**
2 Less than once per month
3 1-3 days per month
4 1-2 days per week
5 3 or more days per week
99 Left blank → **SKIP TO INSTRUCTIONS BEFORE Q50**

THOSE WHO USE HOV OR TOLL/EXPRESS LANES TO GET TO WORK [Q47(02,03,04,05) OR Q47A(02,03,04,05)], ASK:

Q47B. Which HOV and/or toll/express lanes do you use to get to or from work? Select all that apply. **(MULTIPLE RESPONSES ACCEPTED FOR 1-95.) (OPTIONAL.)**

Maryland/DC Roads
01 Capital Beltway (I-495) (MD)
02 I-270 (MD)
03 I-295 (DC / MD)
04 US Route 50 (MD)
05 ICC (Inter-County Connector, Route 200)

Virginia Roads
06 Capital Beltway (I-495) (VA)
07 I-66 OUTSIDE the Beltway (VA)
08 I-66 INSIDE the Beltway (VA)
09 I-95 (VA)
10 I-395 (VA)
11 Dulles Toll Road (Dulles Greenway, Route 267)
12 US Route 1 (VA - Richmond Highway, Jefferson Davis Highway)

95 Other road **(please specify)**
99 Left blank

IF [Q46(01)], SKIP TO Q50 INSTRUCTIONS.
IF [Q46(02,03) AND Q47A(01,99), SKIP TO Q50 INSTRUCTIONS.

THOSE WHO USE TOLL/EXPRESS LANES [Q47A(02,03,04,05)], ASK:

Q47C. On the days you use the toll/express lanes are you …? Select all that apply. **(MULTIPLE RESPONSES ACCEPTED.) (OPTIONAL.)**

1 Driving alone
2 Riding in a carpool/vanpool
3 Riding transit (bus, commuter bus)
98 Not sure
99 Left blank

IF Q47(01,96,99) AND Q47A(01,96,99), SKIP TO Q52.

THOSE WHO USE HOV OR EXPRESS LANES TO GET TO WORK [Q47(02-05) OR Q47A(02-05)], ASK:

Q50. How much time (in minutes) does the HOV or toll/express lane save you in your one-way trip to or from work? **(OPTIONAL.)**

_____ minutes
98 Not sure
99 Left blank

Q51. Did availability of the HOV or toll/express lane influence you to make any of the following changes in how you commute? Select all that apply. **(MULTIPLE RESPONSES ACCEPTED.) (OPTIONAL.)**

01 NA – DO NOT USE AND DO NOT SHOW ON SCREEN
02 No - HOV/express lanes did not influence me to make changes in my commute
03 Started carpooling, slugging, or vanpooling to use the lanes
04 Started riding a commuter/express bus to use the lanes
05 Increased the number of riders in my carpool to meet the minimum rider requirement
06 Started going to work earlier or later to avoid the lane restriction hours
07 Started/increased how often I drive alone to work, knowing I could pay the toll
95 Other action **(specify)**
99 Left blank

IF SURVTYPE(4,9), ASK:

Q52. Do you know the locations of Park 'n Ride lots along the route that you take to work? **(OPTIONAL.)**

1 Yes
2 No
3 There aren't any
98 Not sure
99 Left blank

THOSE WHO KNOW THE LOCATIONS OF PARK 'N RIDE LOTS ALONG THEIR ROUTE [Q52(01)], ASK:

Q53. In the past year have you used Park 'n Ride lots when commuting to work? **(OPTIONAL.)**

1 Yes
2 No
98 Not sure
99 Left blank

IF [SURVTYPE(3,4,5,9)], ASK:

Q53A. About how far from your home is the nearest bus stop and train station? You may report the distance in EITHER miles or blocks. **(ACCEPT MILES OR BLOCKS, NOT BOTH. ALLOW 1 DECIMAL PLACE FOR MILES.) (OPTIONAL.)**

Distance to …	Miles	Blocks	Not sure
1. Bus stop			998
2. Train station			998

ATTITUDES TOWARD TRANSPORTATION MODES

Programmer note: If respondent reported any current bus/train use in Q15 (PTDAYS > 0) or in Q29, do not ask Q53C - Q54

IF [SURVTYPE(3,5)], SKIP TO Q60 INSTRUCTIONS.
IF [SURVTYPE(4,9) AND ((PTDAYS > 0) OR Q29(08))], SKIP TO Q55 INSTRUCTIONS.

IF [SURVTYPE(4,9) AND PTDAYS = 0 AND NOT Q29(08)], ASK:

Q53C. You said earlier that you don't regularly use public transit (bus, Metrorail, or commuter rail) to get to work. In the past three years, did you ever use public transit for your commute? **(OPTIONAL.)**

1 No, didn't use transit at all → **SKIP TO Q53G INSTRUCTIONS**
2 Used transit a few times → **SKIP TO Q53G INSTRUCTIONS**
3 Used transit occasionally, but less than one day per week
4 Used transit regularly, one or more days per week
98 Not sure → **SKIP TO Q53G INSTRUCTIONS**
99 Left blank → **SKIP TO Q53G INSTRUCTIONS**

IF [Q53C(03,04)], ASK:

Q53D. How significant a factor was the coronavirus pandemic in your decision to stop riding transit for your commute? **(OPTIONAL.)**

01 Pandemic was the only factor → **SKIP TO Q53G INSTRUCTIONS**
02 Pandemic was a major factor
03 Pandemic was a minor factor
04 Pandemic was not a factor at all
98 Not sure
99 Left blank

IF [Q53D(01)], SKIP TO Q53G INSTRUCTIONS

IF [Q53D(02-99)], ASK:

Q53E. What other factors influenced your decision to stop using public transit for your commute? **(OPTIONAL.)**

_____

OPEN-ENDED RESPONSE – CODE IN POST-PROCESSING INTO THE FOLLOWING CATEGORIES; ADD OTHERS AS NECESSARY

1 I still use transit occasionally
2 Moved to different residence where transit was not available
3 Started a new job where transit was not available or did not operate at the time I needed
4 Needed my car for work
5 Needed my car before or after work or for emergencies/overtime
6 Didn't feel safe on bus/train or at bus stops or train stations
7 Bus/train was unreliable/late
8 Distance was too far
9 Took too much time
10 Prefer to be alone during commute
11 Too expensive
12 Buses/train was too uncomfortable/crowded
13 Had to transfer/too many transfers or had to wait too long between buses/trains
14 Had a bad experience with the bus or train
15 Started using Uber, Lyft, Via
16 Started bicycling/e-scooter
17 Pandemic – didn't feel safe on transit
18 Pandemic - Workplace closed, working at home, not commuting
95 Other
98 Not sure
99 Left blank

IF [SURVTYPE(4,9) AND TRDAYS = 0 AND NOT Q29(08)], ASK:

Q53G. Considering your work and personal schedules, how often might you be able to use public transit to get to work now? **(OPTIONAL.)**

1 Never
2 Occasionally, but less than one day per month
3 1 to 3 days per month
4 1 to 2 days per week
5 3 or more days per week
98 Not sure
99 Left blank

IF [Q53C(03,04)], SKIP TO Q55 INSTRUCTIONS.

THOSE WHO COMMUTE TO WORK OUTSIDE THEIR HOME SOME DAYS, DID NOT USE TRANSIT REGULARLY OR OCCASIONALLY IN THE PAST THREE YEARS TO COMMUTE OR THOSE WHO DID USE TRANSIT REGULARLY OR OCCASIONALLY IN THE PAST THREE YEARS TO COMMUTE BUT DO NOT NOW [Q53C(01,02,98,99)], ASK:

Q54. What reasons keep you from regularly using public transit for your commute to work now? **(OPTIONAL.)**

_____

OPEN-ENDED RESPONSE – CODE IN POST-PROCESSING INTO THE FOLLOWING CATEGORIES; ADD OTHERS AS NECESSARY

1 No bus service available (in home area or in work area/bus too far away
2 No train service available (in how area or in work area/train too far away)
3 Don't know if service is available/don't know location of bus stops / train stations
4 Need my car for work
5 Need car before or after work
6 Need car for emergencies/overtime
7 It might not be safe/I don't feel safe on bus or at bus stops
8 It might not be safe/I don't feel safe on trains or train stations
9 Bus / train is unreliable/late
10 Trip is too long/distance too far
11 Takes too much time
12 Don't like to ride with strangers
13 Prefer to be alone during commute
14 Work schedule irregular
15 Too expensive
16 Buses are too uncomfortable/crowded
17 Trains are too uncomfortable/crowded
18 Buses or trains too dirty
19 Have to transfer/too many transfers
20 Had a bad experience with the bus or train in the past
21 Have to wait too long for the bus or between buses
22 Have to wait too long for the train or between train
23 Prefer to use bikeshare or e-scooter
24 Prefer to use Uber, Lyft, Via
95 Other
98 Not sure
99 Left blank

If [SURVTYPE(4,9) AND (CPDAYS > 0 OR VPDAYS > 0 OR Q29(01,02,05))], SKIP TO Q56B INSTRUCTIONS.

IF [SURVTYPE(4,9) AND CPDAYS = 0 AND VPDAYS = 0 AND NOT Q29(01,02,05)], ASK:

Q55. You said earlier that you do not regularly carpool or vanpool to work. In the past three years, did you ever use carpool or vanpool for your commute? **(OPTIONAL.)**

01 No, did not carpool/vanpool to work at all → **SKIP TO Q56 INSTRUCTIONS**
02 Carpooled/vanpooled a few times → **SKIP TO Q56 INSTRUCTIONS**
03 Carpooled/vanpooled to work occasionally, but less than one day per week
04 Carpooled/vanpooled to work regularly, one or more days per week
98 Not sure → **SKIP TO Q56 INSTRUCTIONS**
99 Left blank → **SKIP TO Q56 INSTRUCTIONS**

IF [Q55(03,04)], ASK:

Q55A. How significant a factor was the coronavirus pandemic in your decision to stop carpooling/vanpooling for your commute? **(OPTIONAL.)**

01 Pandemic was the only factor → **SKIP TO Q56 INSTRUCTIONS**
02 Pandemic was a major factor
03 Pandemic was a minor factor
04 Pandemic was not a factor at all
98 Not sure
99 Left blank

IF [Q55A(02-99)], ASK:

Q55B. What other factors influenced your decision to stop carpooling/vanpooling for your commute? **(OPTIONAL.)**

_____

OPEN-ENDED RESPONSE – CODE IN POST-PROCESSING INTO THE FOLLOWING CATEGORIES; ADD OTHERS AS NECESSARY

1 Don't know anyone to carpool/vanpool with
2 Need my car for work
3 Need car before or after work
4 Need car for emergencies/overtime
5 It might not be safe/I don't feel safe
6 Carpool/vanpool partners are/could be unreliable/late
7 Trip is too long/distance too far
8 Takes too much time
9 Doesn't save time
10 Don't like to ride with strangers
11 Prefer to be alone during commute
12 Work schedule irregular
13 Too expensive
14 Had a bad experience with carpooling/vanpooling in the past
15 Pandemic – don't feel safe riding with others
16 Pandemic - Workplace closed, working at home, not commuting
95 Other (specify)_____
98 Not sure
99 Left blank

IF [Q55(03,04)], SKIP TO Q56B INSTRUCTIONS.

THOSE WHO COMMUTE TO WORK OUTSIDE THEIR HOME SOME DAYS, DID NOT USE CP/VP REGULARLY OR OCCASIONALLY IN THE PAST THREE YEARS TO COMMUTE OR THOSE WHO DID USE CP/VP REGULARLY OR OCCASIONALLY IN THE PAST THREE YEARS TO COMMUTE BUT DO NOT NOW [Q55(01,02,98,99)], ASK:

Q56. What reasons keep you from regularly using carpool/vanpool to get to work now? **(OPTIONAL.)**

_____

OPEN-ENDED RESPONSE – CODE IN POST-PROCESSING INTO THE FOLLOWING CATEGORIES; ADD OTHERS AS NECESSARY

01 Don't know anyone to carpool/vanpool with
02 Need my car for work
03 Need car before or after work
04 Need car for emergencies/overtime
05 It might not be safe/I don't feel safe
06 Carpool/vanpool partners are/could be unreliable/late
07 Trip is too long/distance too far
08 Takes too much time
09 Doesn't save time
10 Don't like to ride with strangers
11 Prefer to be alone during commute
12 Work schedule irregular
13 Too expensive
14 Had a bad experience with carpooling/vanpooling in the past
15 Pandemic – don't feel safe riding with others
16 Pandemic - Workplace closed, working at home, not commuting
95 Other
98 Not sure
99 Left blank

IF [SURVTYPE(4,9) AND CALTDAYS=0], SKIP TO Q56F.

IF [SURVTYPE(4,9) AND (BKDAYS>0 OR WKDAYS>0 OR CPDAYS>0 OR VPDAYS>0 OR BUDAYS>0 OR MRDAYS>0 OR CRDAYS>0)], ASK:

Q56B. You said you **[IF BKDAYS>0:** ride a bicycle or scooter**] [IF WKDAYS>0:** walk**] [IF CPDAYS>0:**carpool**] [IF VPDAYS>0:** vanpool**] [IF BUDAYS>0 OR MRDAYS>0 OR CRDAYS >0:** ride public transportation**]*** to work some days. What benefits have you personally received from traveling to work this way? **(*SELECT MODE BASED ON MOST USED MODE FROM Q15. IF A TIE, USE THE FOLLOWING PRIORITY: 1. BICYCLE/RIDE A SCOOTER, 2. WALK, 3. VANPOOL, 4. PUBLIC TRANSPORTATION, 5. CARPOOL) (OPTIONAL.)**

_____

OPEN-ENDED RESPONSE – CODE IN POST-PROCESSING INTO THE FOLLOWING CATEGORIES; ADD OTHERS AS NECESSARY

1 Save money
2 Avoid stress
3 Not need to have a car
4 Less wear and tear on car
5 Use travel time productively (e.g., read, work, sleep)
6 Have companionship when they travel
7 Arrive at work on time, less likely to be late
8 Get exercise, health benefits
9 Help the environment
10 Reduce greenhouse gases, reduce carbon footprint
11 Can use HOV lane
95 Other (specify)_____
96 No benefits
98 Not sure
99 Left blank

COMMUTE SATISFACTION AND CURRENT COMMUTE COMPARED TO LAST YEAR

IF [SURVTYPE(4, 9)], ASK:

Q56F. Overall, how satisfied are you with your trip to work? **(OPTIONAL.)**

1 1 – Not at all satisfied
2 2
3 3
4 4
5 5 – Very satisfied
98 Not sure
99 Left blank

Q57. Would you say your commute is easier, more difficult, or about the same now as it was one year ago? **(OPTIONAL.)**

1 Easier
2 More difficult
3 About the same
98 Not sure
99 Left blank

IF [(SURVTYPE(4,9)], ASK:

Q59. Have you changed your work location in the last two years?

01 Yes, work location is different than two years ago
02 No, work location is the same as two years ago → **SKIP TO Q60**
98 Not sure → **SKIP TO Q60**
99 Left blank → **SKIP TO Q60**

IF [Q59(01)], ASK:

Q59A. Where was your previous work location?

1 Also in the Washington metropolitan region
2 In Maryland, but outside the Washington metropolitan region
3 In Virginia, but outside the Washington metropolitan region
04 Outside the Washington metropolitan region and outside Maryland and Virginia
98 Not sure
99 Left blank

IF [SURVTYPE(3,4,5,9)], ASK:

Q60. Have you moved to a different residence in the last two years? **(OPTIONAL.)**

01 Yes
02 No
98 Not sure
99 Left blank

IF [(Q59(02,03,98,99) AND (Q60(02,98,99)], SKIP TO Q61
IF [(SURVTYPE(3,5)) AND (Q60(02,98,99)], SKIP TO Q61
IF [(Q59(01) AND (Q60(02,98,99)], SKIP TO Q60B

THOSE WHO CHANGED THEIR HOME LOCATIONS IN THE PAST YEAR [Q60(01)], ASK:

Q60A. Where was your previous residence location? **(OPTIONAL.)**

01 Also in the Washington metropolitan region
02 In Maryland, but outside the Washington metropolitan region
03 In Virginia, but outside the Washington metropolitan region
04 Outside the Washington metropolitan region and outside Maryland and Virginia
98 Not sure
99 Left blank

THOSE WHO CHANGED THEIR WORK AND/OR HOME LOCATIONS IN THE PAST YEAR [Q60(01) OR Q59(01)], ASK:

Q60B. What factors did you consider in your decision to make this home or work location change? **(ALLOW MULTIPLE RESPONSES FOR 01-95.) (OPTIONAL.)**

Commute Factors
- 1 Length of commute (distance or time)
- 16 Ease or difficulty of commute
- 2 Cost of commuting
- 3 Commuting options that would be available (e.g., transit)
- 14 Number of days working from home/teleworking

Residential Factors
- 04 Space to work from home
- 05 Cost of living, cost of housing
- 06 Size of house
- 07 Quality of neighborhood
- 08 Closeness to family or friends
- 09 Entertainment, shopping, services nearby

Job Factors
- 10 Income, salary
- 11 Job satisfaction
- 12 Career advancement, job opportunities
- 13 Office was relocating – moved to stay with my employer
- 95 Other **(specify)**
- 98 Not sure
- 99 Left blank

IF [SURVTYPE(3,5) AND COMMSTAT(4)], DO NOT SHOW Q60C AND SKIP TO Q61.
IF [((SURVTYPE(3,5) AND COMMSTAT(2)) OR SURVTYPE(4,9)) AND Q60B(01,16) ONLY, DO NOT SHOW. AUTOCODE Q60C(04), THEN SKIP TO Q60F INSTRUCTIONS.

THOSE WHO CHANGED WORK OR HOME LOCATION FOR REASONS OTHER THAN LENGTH/EASE OF COMMUTE [((SURVTYPE(3,5) AND COMMSTAT(2)) OR SURVTYPE(4,9)) AND Q60B(02-15,17-99)], ASK:

Q60C. How important to your decision was the length or ease of getting to work compared to the other factors you just mentioned? **(OPTIONAL.)**

- 01 Less important
- 02 About the same importance
- 03 More important
- 04 Commute ease/difficulty, length of commute was the only factor mentioned **(AUTOCODE ONLY – DO NOT SHOW ON SCREEN)**
- 98 Not sure
- 99 Left blank

THOSE WHO CHANGED THEIR WORK AND/OR HOME LOCATIONS IN THE PAST YEAR [Q59(01) OR Q60(01)], ASK:

Q60F. Did the change shorten either the distance or time from your home **[IF SURVTYPE(4,9):** to work**][IF SURVTYPE(3,5) AND COMMSTAT(2):** to where you would work if you were not working at home**]**? **(OPTIONAL.)**

01 Shortened the distance
02 Shortened the time
03 Shortened BOTH distance and time
04 Didn't shorten distance or time
98 Not sure
99 Left blank

Q60G. When you were considering making this change, did you consider how close your new location would be to any of the following transportation services? Select all that apply. **(ACCEPT MULTIPLE RESPONSES FOR 01-95.) (OPTIONAL.)**

01 Park & Ride lots
02 HOV lanes
03 Toll/express lanes
04 Protected bike lanes
05 Metrorail stations
06 Bus stops
07 Bikeshare stations
08 Scooter/e-scooter service
09 Dockless bike service
10 Carshare service
95 Other service **(specify)**
98 Did not consider the distance to any of these services
99 Left blank

AWARENESS OF ADVERTISING

ASK EVERYONE:

Q61. Next are a few questions about advertising messages. Have you heard, seen, or read any advertising about commuting in the past year? **(OPTIONAL.)**

01 Yes
02 No → **SKIP TO Q81**
98 Not sure → **SKIP TO Q81**
99 Left blank → **SKIP TO Q81**

THOSE WHO HAVE HEARD, SEEN, OR READ ADVERTISING ABOUT COMMUTING IN THE PAST YEAR [Q61(01)], ASK:

Q62. What messages do you recall from this advertising? **(OPTIONAL.)**

_____

96 None, don't recall specific message
98 Not sure
99 Left blank

CODE OPEN ENDED RESPONSES IN POST-PROCESSING INTO THE FOLLOWING CATEGORIES; ADD OTHERS AS NECESSARY

02 That you should rideshare, carpool, vanpool)
03 That new trains and/or buses are coming
04 That you can call for carpool or vanpool info
05 Call 1-800-745-RIDE / call Commuter Connections
06 Commuter Choice Maryland
07 Contact the Commuter Connections website (www.commuterconnections.org, www.commuterconnections.com)
08 It saves money
09 It saves time
10 It is less stressful
11 Guaranteed Ride Home (GRH)
12 Employer would give me SmartTrip/SmartBenefit benefits
13 It would help the environment
14 It reduces traffic
15 It saves wear and tear on the car
16 Ozone Action Days / Code Red Days
17 Telecommuting / telework
18 HOV lanes
19 Regional services/programs are available to help with commute
20 Use the bus or train, use Metrobus, Metrorail
21 Way to Go, Way to Go Arlington, Car Free Diet
22 Virginia MegaProjects, Dulles rail extension
23 HOT lanes / express lanes / toll roads
24 Inter-County Connector (ICC)
25 Bike to work Day
26 Car Free Day
27 Capital Bikeshare
28 Transit fare increase
29 Toll rate increase
30 Carshare, Zip car, Car2Go, Hertz on Demand
31 Coronavirus and transit (e.g., cleaning procedures, wear mask, etc)
32 Coronavirus and carpool/vanpool
95 Other
96 None
98 Not sure
99 Left blank

Q63. What organization or group sponsored the ad you recall? **(OPTIONAL.)**

_____
98 Not sure
99 Left blank

CODE OPEN ENDED RESPONSES IN POST-PROCESSING INTO THE FOLLOWING CATEGORIES; ADD OTHERS AS NECESSARY

1 Commuter Connections
2 Metropolitan Washington Council of Governments, MWCOG, COG
3 Metro, WMATA
4 MARC, Maryland Commuter Rail
5 VRE, Virginia Railway Express
6 VDOT (Virginia Department of Transportation)
7 DDOT (District of Columbia Department of Transportation)
8 MDOT (Maryland Department of Transportation)
9 VDRPT, Virginia Department of Rail and Public Transportation
10 Maryland State Highway Administration
11 MTA, Maryland Mass Transit Administration
12 WABA, Washington Area Bicycling Association
13 Arlington County Commuter Services
14 Loudoun County (Transit / Commuter services)
15 goDCgo
16 Federal government, federal agency (DOD, US DOT)
95 Other
98 Not sure
99 Left blank

Q64. Where did you see, hear, or read this advertisement? **(MULTIPLE RESPONSES ACCEPTED FOR 1-95.) (OPTIONAL.)**

1 MWCOG or Commuter Connections website
2 Other website, internet **(specify)**
3 Radio
4 TV
5 Postcard in mail
6 Newspaper
7 In train station
8 On train or bus
9 At work
10 Billboard, poster, road sign
11 Facebook / Twitter (social media)
12 Smart phone / tablet (text message, email, ad)
95 Other **(specify)**
98 Not sure
99 Left blank

Attitude changes/Actions taken after hearing ads

IF [SURVTYPE(1,2,3,5), SKIP TO Q81 INTRO.
IF [SURVTYPE(4,9) AND Q61(02, 98,99)], SKIP TO Q81 INTRO.

IF [SURVTYPE(4,9) AND Q61(01) AND (Q62 NOT 96,98,99)], ASK:

Q65. After seeing or hearing this advertising, were you more likely to consider carpooling, vanpooling, or public transportation? **(OPTIONAL.)**

01 Yes
02 No
98 Not sure
99 Left blank

Q66. After seeing or hearing this advertising, did you try or start using any of the following forms of transportation for your trip to work or increase how often you use them **for your trip to work**? **(ACCEPT MULTIPLE RESPONSES FOR 11-15.) (OPTIONAL.)**

11 Carpool
12 Vanpool
13 Bus
14 Train (Metrorail, commuter train)
15 Bicycle or walking
96 Did not try, start, or increase use of any of these types of transportation for my trip to work
99 Left blank

Q67. Did you take any other actions to try to change how you get to work? Select all that apply. **(ALLOW MULTIPLE RESPONSES WITH 02-95.) (OPTIONAL.)**

02 Looked for commute information on the internet
03 Asked friend, family member, or co-worker for commute information (referral)
04 Contacted a local or regional organization for commute information
05 Looked for a carpool or vanpool partner
06 Contacted a transit operator to ask about schedules or routes
07 Asked employer about commuter services (e.g., telework, SmartTrip, SmartBenefits),
08 Registered for Guaranteed Ride Home (GRH) program
09 Started using HOV or express lane to get to work
95 Other action **(specify)**
96 Didn't take any of these actions
98 Not sure
99 Left blank

THOSE WHO USED OTHER FORMS OF TRANSPORTATION OR TOOK OTHER ACTIONS REGARDING THEIR COMMUTE AFTER SEEING/HEARING ADVERTISING [Q66(11-15) OR Q67(02-95)], ASK:

OTHERWISE, SKIP TO Q81.

Q68. Did the advertising you saw or heard encourage you to try to change how you get to work? **(OPTIONAL.)**

01 Yes
02 No
98 Not sure
99 Left blank

IF Q66(11) AND CPDAYS > 0, DO NOT SHOW. AUTOCODE Q71.1(993)
IF Q66(12) AND VPDAYS > 0, DO NOT SHOW. AUTOCODE Q71.2(993)
IF Q66(13) AND BUDAYS > 0, DO NOT SHOW. AUTOCODE Q71.3(993)
IF Q66(14) AND (MRDAYS > 0 OR CRDAYS > 0), DO NOT SHOW. AUTOCODE Q71.4(993)
IF Q66(15) AND (BKDAYS > 0 OR WKDAYS > 0), DO NOT SHOW. AUTOCODE Q71.5(993)

AFTER ALL ELIGIBLE MODES HAVE BEEN AUTOCODED, SKIP TO Q72B INSTRUCTIONS.

THOSE WHO WERE NOT AUTOCODED IN Q71 AND USED OTHER FORMS OF TRANSPORTATION FOR THEIR COMMUTE AFTER SEEING/HEARING ADVERTISING [Q66(11-16)], ASK:
OTHERWISE, SKIP TO Q81.

Q71. You said you changed how you get to work after seeing or hearing the advertising message. How long did you use each of the following to get to work? Please enter the number of months or check one of the other options. Hover … for years to months conversion. **(INSERT MODES USED IN Q66.) (RANGE 1-500.)**

Type of transportation	Number of months used	Tried once or a few times	Still use occasionally	Still using (1+ d/wk)	Don't recall
1. Carpool or casual carpool (slug)		991	992	993	998
2. Vanpool		991	992	993	998
3. Bus		991	992	993	998
4. Train (Metrorail or commuter rail)		991	992	993	998
5. Bicycle or walk		991	992	993	998

IF Q71.1,2,3,4,AND 5(991,992,998) ONLY, SKIP TO Q81.

THOSE WHO USED NON-SOV FORMS OF TRANSPORTATION AFTER SEEING/HEARING ADVERTISING [Q66(11-15) AND Q71.1,2,3,4, OR 5(001-990,993 FOR ANY)], ASK:

Q72B. **[**You said you changed how you get to work after seeing or hearing the advertising message.**]*** Before making this change to **[INSERT MODE(S) SELECTED IN Q66/Q71**:** carpooling, vanpooling, riding a bus, riding a train, and riding a bike or walking**]**, about how many days per week did you use each of the following types of transportation for your trip to work in a typical week? **(*INSERT IF Q71 AUTOCODED.) (**IF Q71 IS AUTOCODED FOR ANY MODE, INSERT THESE MODES. IF MULTIPLE MODES SELECTED IN Q66, INSERT MODE USED FOR LONGEST TIME IN Q71. IF MORE THAN ONE MODE USED SAME AMOUNT OF TIME, INSERT ALL MODES USED THE LONGEST.)**

IF TOTAL > 5, SHOW PROMPT: "You've entered more than 5 weekdays. If you use more than one type of transportation on a single day, indicate only the type you use for the longest distance part of your trip."

IF TOTAL < 5, SHOW PROMPT: "You've entered fewer than 5 weekdays. Please also report days you teleworked and had regular days off."

Type of transportation you used for the longest distance part of your trip to work	Number of weekdays used (0-5)
1. Drive alone, motorcycle, taxi (incl. Uber, Lyft, Split)	
5. Carpool or casual carpool (slugging)	
7. Vanpool	
9. Bus (public or private bus, shuttle)	
10. Train (Metrorail or commuter rail)	
15. Bicycle or walking	
16. Telecommute/telework	
95. Other **(specify)**	
17. DO NOT SHOW ON SCREEN	
20. Regular day off	
TOTAL DAYS REPORTED	

Awareness of Commute Programs/Services

ASK EVERYONE:

Now please answer a few questions about commute information and assistance services that might be available to commuters in your home or work areas.

Q81. Is there a phone number, website or mobile app you can use to obtain information on carpooling or vanpooling, public transportation, HOV lanes, toll/express lanes, and telecommute/telework in the Washington metropolitan region? **(OPTIONAL.)**

01 Yes
02 No → **SKIP TO Q86**
98 Not sure → **SKIP TO Q86**
99 Left blank → **SKIP TO Q86**

THOSE AWARE OF TRANSPORTATION ASSISTANCE PHONE NUMBER OR WEBSITE [Q81(01)], ASK:

Q82. Have you used this number, website, or mobile app in the past year? **(OPTIONAL.)**

01 Yes
02 No → **SKIP TO Q86**
98 Not sure → **SKIP TO Q86**
99 Left blank → **SKIP TO Q86**

THOSE WHO HAVE USED TRANSPORTATION ASSISTANCE PHONE NUMBER OR WEBSITE [Q82(01)], ASK:

Q83. What was that number, website, or mobile app? **(OPTIONAL.)**

_____

98 Not sure/Don't remember
99 Left blank

CODE OPEN ENDED RESPONSES IN POST-PROCESSING INTO THE FOLLOWING CATEGORIES; ADD OTHERS AS NECESSARY

1	800-745-RIDE (7433)	Commuter Connections (COG)
2	888-730-6664	PRTC, Potomac Rappahannock Transportation
3	703-324-1111	Fairfax County RideSources
4	301-770-POOL	Montgomery County Commuter Services
5	240-777-RIDE	Montgomery County Commuter Services
6	202-637-7000	WMATA, METRO (Washington Metro. Area Transit Authority)
7	www.mwcog.org	Commuter Connections (COG)
8	www.commuterconnections.org	Commuter Connections (COG)
9	www.commuterconnections.com	Commuter Connections (COG)
10	www.vre.org	Virginia Railway Express (VRE)
11	www.commuterdirect.com	Arlington County Commuter Services
12	www.commuterpage.com	Arlington County Commuter Services
13	703-228-RIDE	Arlington County Commuter Services
14	www.maryland.com	Maryland Mass Transit Admin. (MTA), MARC Commuter Rail
13	www.wmata.com	WMATA, Metro
14	www.HOVcalculator.com	VDOT
15	www.commuterchoicemaryland.com	Maryland Mass Transit Admin (MTA)
16	866-RIDE-MTA (1-800-743-3682)	Maryland Mass Transit Admin (MTA)
17	www.metroopensdoors.org	WMATA, Metro
95	Other	
98	Not sure/Don't remember	

IF [Q43(01) OR Q64(01)], DO NOT SHOW. AUTOCODE Q86(01), THEN SKIP TO Q87.

THOSE WHO EITHER DID NOT RECEIVE INFORMATION ABOUT TELECOMMUTING OR DID NOT SEE, HEAR, OR READ ADVERTISING FROM COMMUTER CONNECTIONS OR FROM MWCOG [Q43 NOT (01) AND Q64 NOT (01)], ASK:

Q86. Have you heard of an organization in the Washington region called Commuter Connections? **(OPTIONAL.)**

01 Yes
02 No → **SKIP TO Q88C**
98 Not sure → **SKIP TO Q88C**
99 Left blank → **SKIP TO Q88C**

THOSE WHO HAVE HEARD OF COMMUTER CONNECTIONS [Q86(01)], ASK:

Q87. **[**You mentioned knowing about Commuter Connections.**]*** How did you learn about Commuter Connections? **(*INSERT IF Q43(01) OR Q64(01).) (OPTIONAL.)**

_____

98 Not sure
99 Left blank

CODE OPEN ENDED RESPONSES IN POST-PROCESSING INTO THE FOLLOWING CATEGORIES; ADD OTHERS AS NECESSARY

1 TV
2 Magazine
3 Newspaper ad
4 Newspaper article
5 Sign/billboard
6 Mail/postcard
7 Brochure
8 Transportation fair/special event
9 Radio
10 Employer
11 Library
12 Phonebook, yellow pages
13 Word of mouth (family, friend, co-worker)
14 Internet/Web
15 InfoExpress kiosks
16 Ozone Action/Code Red days
17 Smart phone/Tablet (text, email, ad)
95 Other
98 Not sure
99 Left blank

Q88A. Have you contacted Commuter Connections in the past year or visited a website sponsored by this organization? **(OPTIONAL.)**

01 Yes
02 No
98 Not sure
99 Left blank

ASK EVERYONE:

Define Local Program for Q88D

***SET ORGANIZATIONS TO ASK ABOUT IN* Q88D.**

IF Q2(01) OR Q3(01) (Alexandria), INSERT GO Alex AS <PROGRAM> IN Q88D
IF Q2(02) OR Q3(02) (Arlington), INSERT Arlington County Commuter Services AS <PROGRAM> IN Q88D
IF Q2(03) OR Q3(03) (Calvert), INSERT Tri-County Council for Southern Maryland AS <PROGRAM> IN Q88D
IF Q2(04) OR Q3(04) (Charles), INSERT Tri-County Council for Southern Maryland AS <PROGRAM> IN Q88D
IF Q2(06) OR Q3(06) (Fairfax Co, Ffx City, Falls Church), INSERT Fairfax County Commuter Services AS <PROGRAM> IN Q88D
IF Q2(07) OR Q3(07) (Frederick), INSERT TransIT Services of Frederick County AS <PROGRAM> IN Q88D
IF Q2(08) OR Q3(08) (Loudoun), INSERT Loudoun County Commuter Services AS <PROGRAM> IN Q88D
IF Q2(09) OR Q3(09) (Montgomery), INSERT Montgomery County Commuter Services AS <PROGRAM> IN Q88D
IF Q2(10) OR Q3(10) (Prince Georges), INSERT Ride Smart AS <PROGRAM> IN Q88D
IF Q2(11) OR Q3(11) (Prince William, Manassas, Manassas Park), INSERT PRTC OmniMatch AS <PROGRAM> IN Q88D
IF Q2(05) OR Q3(05) (District of Columbia), INSERT goDCgo AS <PROGRAM> IN Q88D

Q88D. Have you heard of the following organization(s) or service(s)? If so, have you contacted them in the past year or visited their website(s)? **(OPTIONAL.)**

Program Name	Heard of and contacted	Heard of but NOT contacted	Have not heard of this organization	Not sure	Left Blank
1 Alexandria GO Alex	01	02	03	98	99
2 Arlington County Commuter Services	01	02	03	98	99
3 Tri-County Council for Southern Maryland (Calvert, Charles)	01	02	03	98	99
4 Fairfax County Commuter Services	01	02	03	98	99
5 TransIT Services of Frederick County	01	02	03	98	99
6 Loudoun County Commuter Services	01	02	03	98	99
7 Montgomery County Commuter Services	01	02	03	98	99
8 Ride Smart (Prince Georges Commuter Solution	01	02	03	98	99
9 PRTC OmniMatch (Prince William)	01	02	03	98	99
10 goDCgo (District of Columbia)	01	02	03	98	99

Employer Services

IF [SURVTYPE(2)], SKIP TO Q105A
IF [SURVTYPE(3,5) AND (COMMSTAT(4)], SKIP TO Q105

IF [SURVTYPE(1,4,9) OR (SURVTYPE(3,5) AND (COMMSTAT(2))], ASK:

Q89. Does your employer make any of the following commuter services or benefits available to you to help with your commute, and if so, have you used the services. **(RANDOMIZE.) (OPTIONAL.)**

Employer service	Available and USED	Available but NOT USED	Not Available	Not sure
1. Information on commuter transportation options	01	02	03	98
2. Special parking spaces for carpools or vanpools	01	02	03	98
3. SmarTrip, SmartBenefit or other benefits/subsidies for public transportation or vanpooling	01	02	03	98
4. Cash payments or other subsidies for carpooling	01	02	03	98
5. Facilities or programs for employees who bike or walk to work	01	02	03	98
6. Guaranteed rides home (GRH) in case of emergencies or unscheduled overtime	01	02	03	98
7. Carshare membership (Zipcar, Turo, Free2move, getaround)	01	02	03	98
8. Bikeshare membership (Capital Bikeshare, Jump)	01	02	03	98
9. Work schedule with flexible start and end times	01	02	03	98

THOSE WHO HAVE SMARTRIP, SMARTBENEFIT OR OTHER SUBSIDIES AVAILABLE TO THEM [Q89.3(01,02)], ASK:

Q89B. Which of the following best describes the transit or vanpool benefit that is available to you? **(OPTIONAL.) (ALLOW MULTIPLES FOR 01-95.)**

01 Employer-paid direct cash payment or reimbursement
02 Pre-tax deduction for employee-paid transit or vanpool costs
95 Another arrangement **(specify)**
98 Not sure
99 Left blank

IF [SURVTYPE(3,5)], SKIP TO Q105A
IF [SURVTYPE(1,4,9)], ASK:

Q90. Does your employer make free on-site parking available to all employees at your worksite? **(OPTIONAL.)**

01 Yes → **SKIP TO Q90B**
02 No
98 Not sure
99 Left blank

THOSE WHO COMMUTE AND THEIR EMPLOYER MAY NOT OFFER FREE ONSITE PARKING TO ALL EMPLOYEES [Q90(02-99)], ASK:

Q90A. Does your employer make free on-site parking available to YOU? **(OPTIONAL.)**

01 Yes
02 No → **SKIP TO Q91**
98 Not sure → **SKIP TO Q102**
99 Left blank → **SKIP TO Q102**

THOSE WITH COMMUTE WHO HAVE FREE ONSITE PARKING AVAILABLE [Q90(01) OR Q90A(01)], ASK:

Q90B. Was on-site parking free before the pandemic?

01 Yes
02 No
98 Not sure
99 Left blank

Q90C. Have you used this free parking?

01 Yes → **SKIP TO Q102**
02 No → **SKIP TO Q102**
98 Not sure → **SKIP TO Q102**
99 Left blank → **SKIP TO Q102**

THOSE WHO COMMUTE WITHOUT FREE ONSITE PARKING AVAILABLE TO THEM [Q90A(02)], ASK:

Q91. Does your employer pay part of your parking cost or do you have to pay the entire cost if you drive to work? **(OPTIONAL.)**

1 Employer pays part and I pay part
2 I pay the entire cost
3 Employer offers free offsite parking
98 Not sure
99 Left blank

Q92. Does your employer offer parking discounts for carpools or vanpools? **(OPTIONAL.)**

01 Yes
02 No
98 Not sure
99 Left blank

Guaranteed Ride Home

IF [SURVTYPE(1,4,9)], ASK:

Q102. Do you know if there is a regional GRH or Guaranteed Ride Home program available in the event of unexpected emergencies and unscheduled overtime for commuters who carpool, vanpool, use public transportation, or bicycle to work? **(OPTIONAL.)**

01 Yes, there is
02 No, there isn't → **SKIP TO Q105A**
98 Not sure → **SKIP TO Q105A**
99 Left blank → **SKIP TO Q105A**

THOSE AWARE OF GRH [Q102(01)], ASK:

Q104. Who sponsors or offers the service? **(OPTIONAL.)**

_____
98 Not sure
99 Left blank

CODE OPEN ENDED RESPONSES IN POST-PROCESSING INTO THE FOLLOWING CATEGORIES; ADD OTHERS AS NECESSARY

1 Commuter Connections/Council of Governments/COG
2 Employer
3 VRE
4 TMA (TyTran)
95 Other _____
98 Not sure

Social Media, Travel Apps, and Driverless Cars

ASK EVERYONE:

Q105A. Have you used any of the following types of travel or trip information services or mobile applications? Select all that apply. **(MULTIPLE RESPONSES ACCEPTED FOR 01-95.) (OPTIONAL.)**

1 Traffic alerts (e.g., radio, TV, text)
2 Ride-hailing apps (ex., Uber, Lyft, Via)
3 Wayfinding apps (ex., Waze, Google maps)
4 Trip/fitness tracking apps (ex., Strava, Map My Ride)
5 Transit schedule, bus/train arrival mobile apps (ex. Next Bus, Next Train, Transit)
6 Traveler information displays (e.g. screen at workplaces and public locations)
7 Bikeshare/dockless bike service apps (e.g., Capital Bikeshare, Jump)
8 E-scooter service apps (e.g.,Bird, Skip, Lime, Spin)
9 Carshare service apps (e.g., Zipcar, Turo, Free2move, getaround)
95 Other **(specify)**
96 None of these, I don't use those types of services or applications
99 Left blank

Q106. You might have heard of self-driving cars, also known as driverless cars or automated vehicles. These are cars that can sense their surroundings and drive themselves. How familiar are you with the concept of these vehicles? **(OPTIONAL.)**

1 Not at all, I haven't heard of them
2 Somewhat familiar, I have read or heard of them, but do not know much about them
3 Very familiar, I have read or heard a lot about them
98 Not sure
99 Left blank

Q106B. What concerns, if any, do you have about driverless cars? **(OPTIONAL.)**

_____
98 Not sure
99 Left blank

CODE OPEN ENDED RESPONSES IN POST-PROCESSING INTO THE FOLLOWING CATEGORIES; ADD OTHERS AS NECESSARY
1 No concerns
2 Driving safety
3 Pedestrian safety
4 Security/privacy concerns
5 Legal/regulations
6 Liability for accidents
7 Cost/vehicles too expensive
98 Not sure
99 Left blank

Q106C. How interested would you be in using a driverless car in the following situations or conditions? Please use a scale from 1 (not at all interested) to 5 (very interested). (RANDOMIZE.) (OPTIONAL.)

	1 – Not at all interested	2	3	4	5 – Very interested	Not sure
1 Buy a driverless car for personal use	01	02	03	04	05	98
2 Ride in a driverless taxi/Uber/Via vehicle	01	02	03	04	05	98
3 Ride in a driverless bus or shuttle vehicle	01	02	03	04	05	98
4 Ride in a driverless carpool or vanpool	01	02	03	04	05	98

Demographics

EVERYONE:

The last few questions are for classification purposes only.

IF [(SURVTYPE(3,5)) AND (COMMSTAT(1,2,3)], SKIP TO Q110A
IF [SURVTYPE(2)], DO NOT SHOW. AUTOCODE Q110=Q1A, THEN SKIP TO Q111.
IF [(SURVTYPE(3,5)) AND (COMMSTAT(4)], DO NOT SHOW. AUTOCODE Q110=Q1A, THEN SKIP TO Q111

IF SURVTYPE(1,4,9), ASK:

Q110. What is your ZIP code at work?

_____

IF SURVTYPE(1,4,9), SKIP TO Q110B.

IF [(SURVTYPE(3,5)) AND (COMMSTAT(1,2,3)], ASK:

Q110A. You said you are teleworking full-time now. What is the zip code at the location where you would work if you were not working from home? **(OPTIONAL.)** _____

IF [SURVTYPE(1,4,9) OR ((SURVTYPE(3,5) AND COMMSTAT(2))], ASK:

Q110B. About how many employees work at that location? **(OPTIONAL.)**

01 1 – 25
02 26-50
03 51-100
04 101-250
05 251-999
06 1,000 or more
98 Not sure
99 Left blank

ASK EVERYONE:

Q111. What is your occupation? **(OPTIONAL.)**

_____

IF SURVTYPE(2), DO NOT SHOW. AUTOCODE Q112(04), THEN SKIP TO Q113.

IF SURVTYPE(1,3,4, 5,9), ASK:

Q112. What type of employer do you work for? **(OPTIONAL.)**

1 Federal agency
2 State or local government agency
3 Non-profit organization/association
4 Private sector employer
5 NA – DO NOT SHOW ON SCREEN
95 Other **(specify)**
98 Not sure
99 Left blank

ASK EVERYONE:

Q113. In total, how many motor vehicles, in working condition, including automobiles, trucks, vans, and highway motorcycles are available to your household? They could be owned or leased by members of your household or provided by a company for your use. **(OPTIONAL.)**

_____ vehicles
998 Not sure
999 Left blank

IF [Q113=0] SKIP TO Q114
IF [Q113 > 0 OR 998,999] ASK:

Q113A. In the past year, did your household buy, lease, or acquire any motor vehicles? **(OPTIONAL.)**

01 Yes, but it replaced an existing vehicle
02 Yes, acquired another vehicle, in addition to vehicles owned/leased previously
03 No, did not acquire any additional vehicles
98 Not sure
99 Left blank

Q114. How many persons live in your home at the present time? Please count yourself, family and friends, and anyone who may be unrelated to you such as live-in housekeepers or boarders. **(OPTIONAL.)**

_____ persons
998 Not sure
999 Left blank

IF Q114=1, DO NOT SHOW. AUTOFILL Q114A=1, THEN SKIP TO Q121

IF MORE THAN ONE PERSON LIVES IN THEIR HOUSEHOLD [Q114>1], ASK:

Q114A. And, including yourself, how many of these household members are 18 or older? **(OPTIONAL.)**

_____ household members
988 Not sure
999 Left blank

ASK EVERYONE:

Q121. Which of the following groups includes your age? **(OPTIONAL.)**

01 Under 18
02 18 - 24
03 25 - 34
04 35 - 44
05 45 - 54
06 55 - 64
07 65 or older
98 Prefer not to answer
99 Left blank

Q122. Do you consider yourself to be any of the following: Latino, Hispanic, or Spanish? **(OPTIONAL.)**

01 Yes
02 No
98 Prefer not to answer
99 Left blank

Q123. Which of the following best describes your race? You may select more than one category. **(ACCEPT MULTIPLES FOR 1 – 95) (OPTIONAL.)**

01 White
02 Black or African-American
03 American Indian or Alaska Native
04 Asian
05 Native Hawaiian or Other Pacific Islander
95 Other **(specify)**
98 Prefer not to answer
99 Left blank

Q123A. Are you…? **(OPTIONAL.)**

1 Female
2 Male
3 Non-binary
98 Prefer not to answer
99 Left blank

Q124. Last, is your household's total annual income…? **(OPTIONAL.)**

1 Less than $100,000
2 $100,000 or more → **SKIP TO Q124B**
98 Prefer not to answer → **SKIP TO Q126**
99 Left blank → **SKIP TO Q126**

IF HOUSEHOLD INCOME <$100,000 [Q124(01)], ASK:

Q124A. Which category best represents your household's total annual income? **(OPTIONAL.)**

1 less than $20,000
3 $20,000 - $29,999
4 $30,000 - $39,999
5 $40,000 - $59,999
6 $60,000 - $79,999
7 $80,000 - $99,999
98 Prefer not to answer
99 Left blank

IF HOUSEHOLD INCOME $100,000 OR MORE [Q124(02)], ASK:

Q124B. Which category best represents your household's total annual income? **(OPTIONAL.)**

1 $100,000 - $119,999
2 $120,000 - $139,999
3 $140,000 - $159,999
4 $160,000 - $179,999
5 $180,000 - $199,999
6 $200,000 to $249,000
7 $250,000 or more
98 Prefer not to answer
99 Left blank

EVERYONE:

Thank you very much for your time and cooperation!

Q126. The Metropolitan Washington Council of Governments is offering a drawing for fifty $250.00 Amazon gift cards for residents who respond to the survey by the response date noted on the postcard. If you would like to participate in the drawing, please provide your name and email address, so we can send you the card if you are one of the winners. Please be assured that we will not sell or use your information for anything other than sending you the gift card. **(OPTIONAL.)**

01 Yes, please include my name in the drawing
02 No, I do not want to participate in the drawing
99 Left Blank

Q127 Please provide your name and email address so we can contact you if you are one of the winners.

First Name:
Last Name:
Email Address:

98 I've changed my mind; I do not want to participate in the drawing.

Thank you for taking the time to complete this survey.

APPENDIX D – COMPARISON OF KEY SOC RESULTS
2022, 2019, 2016, 2013, and 2010

Commute Patterns

- **Current mode split** – Percentage of weekly commute trips (including CWS and TW days)

	2022	2019	2016	2013	2010
DA/Motorcycle/taxi/ridehail	41.2%	58.3%	61.0%	65.8%	64.2%
Carpool	1.7%	4.4%	5.0%	6.5%	6.9%
Vanpool	<0.1%	0.2%	0.4%	0.2%	0.1%
Bus	2.5%	5.9%	4.9%	4.7%	5.7%
Metrorail	4.8%	16.6%	14.3%	11.6%	13.5%
Commuter Rail	0.5%	1.6%	0.9%	1.0%	1.0%
Bike/walk/scooter	1.7%	3.3%	3.3%	2.2%	2.3%
Compressed work schedule	0.5%	1.7%	1.1%	1.0%	0.6%
Telework	47.1%	8.0%	9.1%	7.0%	5.7%

- **Regular mode use** – Percentages of weekly "on the road" commuter trips (excluding telework/CWS)

	2022	2019	2016	2013	2010
DA/Motorcycle/taxi/ridehail	78.4%	64.6%	67.9%	71.5%	68.5%
CP/VP	3.3%	5.1%	6.0%	7.3%	7.5%
Bus	4.8%	6.5%	5.5%	5.1%	6.0%
Train	10.2%	20.2%	16.9%	13.7%	15.5%
Bike/walk/scooter	3.3%	3.6%	3.7%	2.4%	2.5%

- **Average length of commute**

	2022	2019	2016	2013	2010
Distance	16.7 mi	17.1 mi	17.3 mi	16.0 mi	16.3 mi
Time	37 min	43 min	39 min	36 min	36 min

- **Work compressed schedules**

	2022	2019	2016	2013	2010
No	89%	88%	93%	93%	94%
Yes	11%	12%	7%	7%	6%
9/80 compressed schedule	5%	6%	4%	3%	4%
4/40 compressed schedule	4%	4%	2%	3%	2%
Other compressed schedule	2%	2%	1%	1%	---

- **Carpool/Vanpool occupancy**

	2022	2019	2016	2013	2010
Carpool/slug	2.3	2.6	2.5	2.4	2.5
Vanpool	N/A*	7.7	7.5	10.8	7.6

*Insufficient sample to calculate average vanpool occupancy in 2022.

- **Access mode to rideshare/transit modes**

	2022	2019	2016	2013	2010
Picked-up at home	13%	9%	12%	16%	10%
Drive to driver's home	1%	2%	10%	10%	10%
Drive to central location	21%	30%	16%	19%	18%
Another pool/dropped off	3%	5%	3%	2%	3%
Walk	45%	38%	40%	34%	35%
Drive CP/VP	2%	1%	5%	6%	11%
Bus/transit	13%	14%	12%	13%	12%
Other	2%	1%	2%	0%	1%
Average access distance (mi)	**2.6 mi**	**2.8 mi**	**2.8 mi**	**2.9 mi**	**2.6 mi**

Commute Changes, Ease of Commute, and Commute Satisfaction

- **Length of time using current alternative modes** – commuters who use alternative modes

	2022	2019	2016	2013	2010
1 – 11 months	28%	23%	18%	16%	18%
12 – 24 months	21%	24%	22%	17%	11%
25 – 36 months	9%	10%	9%	8%	11%
37 – 60 months	14%	13%	16%	16%	13%
More than 60 months	28%	30%	34%	43%	47%
Average duration (months)	**56**	**62**	**72**	**90**	**83**

- **Motivations to start using current alternative modes** – commuters who used alternative modes.

	2022	2019	2016	2013	2010
Save money/gas price too high	11%	16%	14%	16%	18%
Save time	6%	14%	12%	12%	10%
Changed jobs	21%	12%	14%	18%	15%
Moved residence	20%	12%	4%	10%	7%
No parking / parking expense	3%	9%	4%	6%	4%
Convenient / close to work	9%	9%	4%	5%	8%
Avoid congestion	2%	7%	6%	5%	4%
Employer/worksite moved	4%	5%	8%	6%	4%
Employer offered transit subsidy	---	5%	1%	3%	4%
No vehicle available	7%	4%	11%	11%	10%
Flexibility, need car	3%	4%	1%	---	2%
Found carpool partner	2%	3%	3%	5%	8%
Tired of driving	1%	2%	3%	2%	5%
Get exercise	3%	2%	3%	1%	3%
Avoid stress	1%	2%	3%	3%	1%
Concerned about environment	2%	2%	---	1%	3%
Reliability	2%	---	---	---	---
Reduce coronavirus exposure	4%	---	---	---	---
Coronavirus (not specific)	4%	---	---	---	---

- **Commute easier, more difficult, or same as one year ago** – all regional commuters

	2022	2019	2016	2013	2010
Easier	24%	15%	16%	17%	12%
More difficult	50%	28%	22%	23%	25%
About the same	26%	57%	62%	60%	63%

- **Satisfied with trip to work** – all regional commuters

	2022	2019	2016	2013	2010
Rating of 1 – not at all satisfied	8%	11%	9%	6%	7%
Rating of 2	12%	13%	10%	10%	9%
Rating of 3	28%	26%	23%	20%	22%
Rating of 4	26%	28%	27%	28%	24%
Rating of 5 – very satisfied	26%	22%	31%	36%	38%

- **Personal benefits of alternative mode use** – commuters who use alternative modes for commuting

	2022	2019	2016	2013	2010
Save money/receive subsidy	32%	32%	33%	39%	55%
Get exercise, health benefit	20%	12%	13%	10%	----
Less traffic, avoid traffic	17%	19%	6%	2%	4%
Save time, faster	14%	18%	7%	5%	---
Avoid stress/relax	14%	29%	22%	26%	17%
Use time productively	13%	20%	18%	17%	17%
Convenient/easy	11%	8%	---	---	---
No need to park	10%	8%	2%	0%	---
Flexible option	5%	5%	---	---	---
Reliable/arrive at work on time	5%	3%	10%	11%	5%
Reduce wear/tear on car	4%	6%	3%	7%	11%
Have companionship	4%	3%	7%	7%	10%
No need for car	3%	3%	8%	7%	6%
Help environment/save energy	3%	6%	3%	5%	15%
Reduce greenhouse gas	1%	2%	3%	2%	4%
Use HOV lane	1%	1%	2%	2%	5%
Arrive at work on time	--	3%	10%	11%	5%

Telework

- **Telework incidence in region** – all commuters (workers who are not self-employed and working only at home)

	2022	2019	2016	2013	2010
% regional commuters who telework	66.1%	34.7%	32.0%	26.5%	25.0%
Home-based teleworkers	96%	98%	98%	99%	97%

- **Employer telework programs –** all regional commuters + FT teleworkers

	2022	2019	2016	2013	2010
Employees with formal program	50%	34%	30%	30%	29%
Employees with informal TW	21%	27%	23%	21%	25%
No telework program at work	29%	39%	47%	49%	46%

- **Potential for additional regional telework –** all regional commuters

	2022	2019	2016	2013	2010
Non-TW (percent of commuters)	34%	65%	68%	73%	75%
Job tasks allow TW ("could TW")	12%	31%	27%	29%	30%
Interested in TW ("could and would TW")	9%	25%	18%	18%	21%

- **Telework frequency** – teleworkers

	2022	2019	2016	2013	2010
Less than 1 day per month	1%	17%	17%	17%	22%
1 – 3 times per month	4%	24%	25%	26%	30%
1 day per week	6%	27%	23%	25%	19%
2 days per week	14%	18%	15%	11%	12%
3 or more times per week	75%	14%	20%	21%	17%
Mean (days per week)	**3.4**	**1.2**	**1.4**	**1.4**	**1.3**

- **Length of time teleworking** – teleworkers

	2022	2019	2016	2013	2010
Less than one year	9%	17%	12%	14%	16%
One to two years	72%	24%	24%	27%	22%
More than two years	19%	59%	64%	59%	62%

- **How learned about telework** – teleworkers (multiple responses permitted)

	2022	2019	2016	2013	2010
Program at work/employer	55%	79%	73%	73%	71%
Word of mouth	8%	8%	9%	7%	5%
Initiated request on my own	---	3%	10%	17%	15%
Commuter Connections/COG	**1%**	**7%**	**9%**	**10%**	**6%**
Did not use any of these sources	32%	---	---	---	---

Awareness/Attitudes Toward Transportation Options

- **HOV/Express/Toll Lane availability and use** – all regional commuters

	2022	2019	2016	2013	2010
With HOV lane on route to work	31%	34%	30%	29%	30%
Use HOV lanes (if available)	29%	32%	34%	34%	27%
With Express/Toll Lane on route	26%	18%	15%	---	---
Use Express/Toll Lanes (if available)	54%	44%	53%	---	---
Ave time saving – one-way trip (min)	16 min	19 min	20 min	24 min	23 min

- **Park & Ride awareness and use** – all regional commuters

	2022	2019	2016	2013	2010
Know locations of P&R lots	31%	32%	38%	38%	45%
Used P&R in past year	3%	7%	6%	7%	9%

- **Reasons for not riding bus or train** – commuters who did not use bus or train in past three years

	2022	2019	2016	2013	2010
No train service, don't know service	7%	24%	55%	69%	---
No bus service, don't know service	5%	30%	41%	49%	31%
Transit schedule limited/not convenient	12%	---	---	---	---
Transit not available (general)	19%	---	---	---	---
Coronavirus pandemic (general)	4%	---	---	---	---
Trips takes too much time	26%	35%	25%	20%	32%
Need car for work	7%	12%	7%	7%	11%
Need car before or after work	4%	10%	7%	5%	9%
Trip too long – distance too far	2%	6%	5%	6%	8%
Work schedule irregular	6%	6%	5%	5%	10%
Bus unreliable/late	6%	3%	5%	4%	3%
Too expensive	6%	3%	5%	4%	5%
Don't like riding with strangers, prefer to be alone	1%	7%	4%	2%	4%
Have to transfer	1%	5%	3%	4%	4%
Didn't feel safe	2%	4%	---	2%	2%
Buses/trains uncomfortable/crowded	1%	1%	---	2%	2%
Commute too short/prefer to walk	7%	2%	3%	5%	5%
Prefer to drive/want freedom/flexibility	14%	3%	3%	4%	4%
Prefer other alternative mode	---	1%	2%	---	---
Health reasons	---	3%	---	---	---

- **Reasons for not carpooling/vanpooling** – commuters who did not CP or VP in past three years

	2022	2019	2016	2013	2010
Don't know anyone to CP/VP with	26%	32%	43%	47%	45%
No CP/VP services/options at work	9%	---	---	---	---
Don't know how to arrange CP/VP	5%	---	---	---	---
Coronavirus pandemic (general)	5%	---	---	---	---
Work schedule irregular	12%	17%	18%	23%	28%
Prefer to use transit/more convenient	5%	9%	5%	3%	---
Close to transit/close to work	6%	7%	6%	5%	6%
Not feasible/practical, not interested	---	5%	---	2%	2%
Not convenient	5%	5%	2%	---	2%
Don't like riding with strangers, prefer to be alone	5%	5%	6%	4%	6%
Need car for emergencies	---	5%	10%	---	3%
Need car before or after work	4%	5%	8%	7%	11%
Need car for work	4%	5%	7%	8%	10%
Carpool partners could be unreliable/late	2%	4%	3%	3%	2%
Takes too much time	2%	2%	6%	5%	5%
Doesn't save time	---	1%	4%	3%	2%

Advertising/Messages

- **Heard, seen, or read commute advertising in past year** – all respondents (includes both commuters and respondents who work at home/telework from home full-time)

	2022	2019	2016	2013	2010
Yes	27%	45%	54%	55%	58%
Ad messages recalled					
Metro cleaning, coronavirus safety	9%	---	---	---	---
Carpool/vanpool	8%	12%	4%	4%	5%
Use bus/train, Metro	7%	15%	13%	15%	14%
Other general WMATA/Metro	7%	---	---	---	---
WMATA service improvements	6%	---	---	---	----
Other local transit service	3%	---	---	---	----
Call CC, CC web site	3%	5%	7%	4%	4%
Transit schedule changes/road closures	3%	3%	1%	1%	1%
Ride bike to work / bike issues	2%	2%	2%	1%	1%
GRH	1%	5%	6%	5%	9%
Telecommuting	1%	0%	1%	2%	2%
New buses/trains coming	---	3%	9%	7%	6%
Be alert/See something, say something	---	3%	---	---	---
Uber/Lyft/Via ad	---	2%	---	---	---
Regional commute services available	---	2%	2%	1%	1%
HOT/Express lanes	---	2%	5%	7%	---
Capital Bikeshare ad	---	1%	2%	1%	---
You can call for CP/VP info	---	1%	8%	8%	11%
HOV lanes	---	1%	5%	6%	3%
It would help the environment	---	1%	2%	3%	6%
It reduces traffic	---	1%	2%	3%	4%
It saves money	---	1%	2%	2%	5%
It saves time	---	1%	2%	2%	2%
Employer give financial incentive	---	1%	2%	1%	2%

- **Attitudes/actions after hearing/seeing commute ads** (respondents who remembered ads)

	2022	2019	2016	2013	2010
More likely to consider RS/transit	17%	18%	25%	25%	24%
Took actions to change commute	34%	21%	10%	9%	19%
Advertising encouraged action taken (of respondents who took action)	35%	43%	61%	84%	83%

- **Actions after hearing/seeing commute ads** (all commuters regionwide)

Actions taken					
Sought commute info (internet, family, commute organization, other source)	3.6%	4.7%	1%	1%	2%
Tried alt mode	1.9%	2.7%	1%	2%	1%

- **Awareness and use of regional commute info phone/web site** – all respondents

	2022	2019	2016	2013	2010
Know regional number/web site	32%	32%	53%	62%	66%

- **Know of CC** (prompted or unprompted) – all respondents

	2022	2019	2016	2013	2010
Yes – unprompted	---	---	---	3%	2%
Yes – prompted	40%	48%	61%	62%	64%

Employer Services

- **Employer offers parking services** – all non-self-employed commuters

	2022	2019	2016	2013	2010
Free on-site parking (all employees)	69%	60%	64%	63%	63%
Free on-site parking (some employees)	6%	5%	6%	N/A	N/A
Free off-site parking	1%	1%	1%	2%	2%
Employee pays full parking charge	22%	28%	24%	23%	22%
Employer pays part of parking charge	3%	5%	5%	7%	7%
CP/VP parking discount (when parking is not free)	6%	9%	14%	14%	16%

- **Employer offers TDM services** – all non-self-employed commuters

	2022	2019	2016	2013	2010
Employer offers any services	56%	60%	55%	57%	61%
Discount/free transit pass	43%	45%	37%	38%	45%
Information on commute options	23%	26%	27%	28%	26%
Bike/ped facilities or services	23%	22%	23%	24%	24%
Preferential parking for CPVP	15%	17%	21%	21%	21%
Carpool financial incentive	10%	8%	8%	7%	7%
GRH	9%	10%	12%	13%	14%
Bikeshare	9%	9%	6%	3%	N/A
Carshare	6%	7%	5%	4%	N/A

- **Respondent used TDM services** (respondents who have access to services)

	2022	2019	2016	2013	2010
Discount/free transit pass	56%	60%	59%	57%	54%
Information on commute options	34%	39%	30%	34%	33%
Carpool financial incentive	19%	25%	12%	18%	16%
Preferential parking for CPVP	15%	19%	15%	18%	18%
Bike/ped facilities or services	18%	22%	17%	19%	18%
Bikeshare	16%	18%	25%	4%	N/A
GRH	17%	18%	15%	20%	26%
Carshare	15%	15%	15%	15%	N/A

Demographics

- **States of Residence and Employment** – all respondents

Residence	2022	2019	2016	2013	2010
District of Columbia	12%	12%	12%	12%	12%
Maryland	43%	45%	44%	44%	44%
Virginia	45%	43%	44%	44%	44%

Employment	2022	2019	2016	2013	2010
District of Columbia	34%	34%	31%	31%	34%
Maryland	26%	27%	26%	29%	27%
Virginia	37%	36%	39%	37%	37%
Other	3%	3%	4%	3%	2%

- **Employer type** – all respondents

	2022*	2019*	2016	2013	2010
Federal agency	26%	28%	22%	22%	24%
State/local government	10%	10%	11%	12%	12%
Non-profit organization	16%	16%	13%	12%	13%
Private sector	48%	46%	48%	43%	41%
Self-employed*	----	----	6%	11%	10%

*In 2019 and 2022, Self-employed respondents were combined with private sector.

- **Employer size** – all respondents

	2022	2019	2016	2013	2010
1 – 25 employees	21%	19%	27%	27%	25%
26 – 50 employees	9%	11%	11%	10%	8%
51 – 100 employees	11%	10%	10%	11%	11%
101 – 250 employees	14%	14%	13%	13%	13%
251 – 999 employees	18%	19%	15%	14%	16%
1,000 employees	27%	27%	24%	25%	27%

- **Age** – all respondents

	2022*	2019*	2016*	2013	2010
Under 24	5%	5%	9%	5%	4%
25 – 34	27%	29%	25%	12%	13%
35 – 44	24%	24%	23%	22%	24%
45 – 54	22%	22%	23%	31%	31%
55 – 64	16%	15%	15%	23%	22%
65 or older	6%	5%	5%	7%	6%

*In 2016, 2019, and 2022, survey, data were weighted to account for under-representation of respondents under 35 years old and over-representation of respondents 55 and older, compared to U.S. Census American Community Survey (ACS) data. SOC data for previous surveys were not weighted for age.

- **Gender** – all respondents

	2022	2019	2016	2013	2010
Female	51%	52%	49%	55%	56%
Male	49%	48%	51%	45%	44%

- **Income** – all respondents

	2022	2019	2016	2013	2010
Under $30,000	3%	4%	5%	5%	4%
$30,000 – $39,999	4%	2%	4%	3%	4%
$40,000 – $59,999	8%	9%	7%	9%	9%
$60,000 – $79,999	11%	12%	9%	11%	10%
$80,000 – $99,999	11%	12%	8%	8%	9%
$100,000 – $119,999	10%	11%	15%	15%	15%
$120,000 – $139,999	9%	10%	10%	12%	12%
$140,000 – $159,999	8%	10%	10%	11%	10%
$160,000 – $179,999	7%	7%	7%	7%	7%
$180,000 – $199,999	6%	6%	6%	8%	5%
$200,000 or more	23%	17%	19%	11%	15%

- **Race/Ethnicity** – all respondents

	2022	2019	2016	2013	2010
Hispanic/Latino	14%	14%	14%	13%	11%
Non-Hispanic White	43%	43%	45%	50%	53%
Non-Hispanic Black	23%	24%	23%	25%	23%
Asian	15%	15%	13%	10%	10%
Other/Mixed	5%	4%	5%	2%	3%

ITEM 9 – Information
October 19, 2022

Bus Transit Equity: 2022 Update

Background: The board will be briefed on an updated analysis of bus transit service in the National Capital Region, looking at current bus service frequency and coverage in relation to the COG Equity Emphasis Areas and demographics. A webmap will be demonstrated.

BUS TRANSIT SERVICE EQUITY – 2022 UPDATE

Overview

Eric Randall, TPB Transportation Engineer

Transportation Planning Board
October 19, 2022

Agenda Item 9

National Capital Region
Transportation Planning Board

Presentation Outline

- Purpose of 2022 Update
- Sample Map: Regional People of Color – Access to Bus Stops
- Key Findings – Regional Access
- Bus Transit Equity Webmap – *Demonstration*

Purpose of 2022 Update

- Updates the analysis prepared last year and briefed to the TPB in October 2021
- Information for long term (post-pandemic) service changes to improve the equity of bus service in the region
- The analysis evaluated the locations of select population groups (e.g., people of color, low-income households, non-native English speakers) in relation to local bus transit stop locations, frequency of service, and other factors
- Analysis and webmap prepared by ICF Consulting and Foursquare Integrated Transportation Planning

Findings – Regional Access

Sixty percent of the total population in the COG region is within a ¼ mile of a local bus stop

- Only 35% have access to 15-minute or better service in the AM peak period

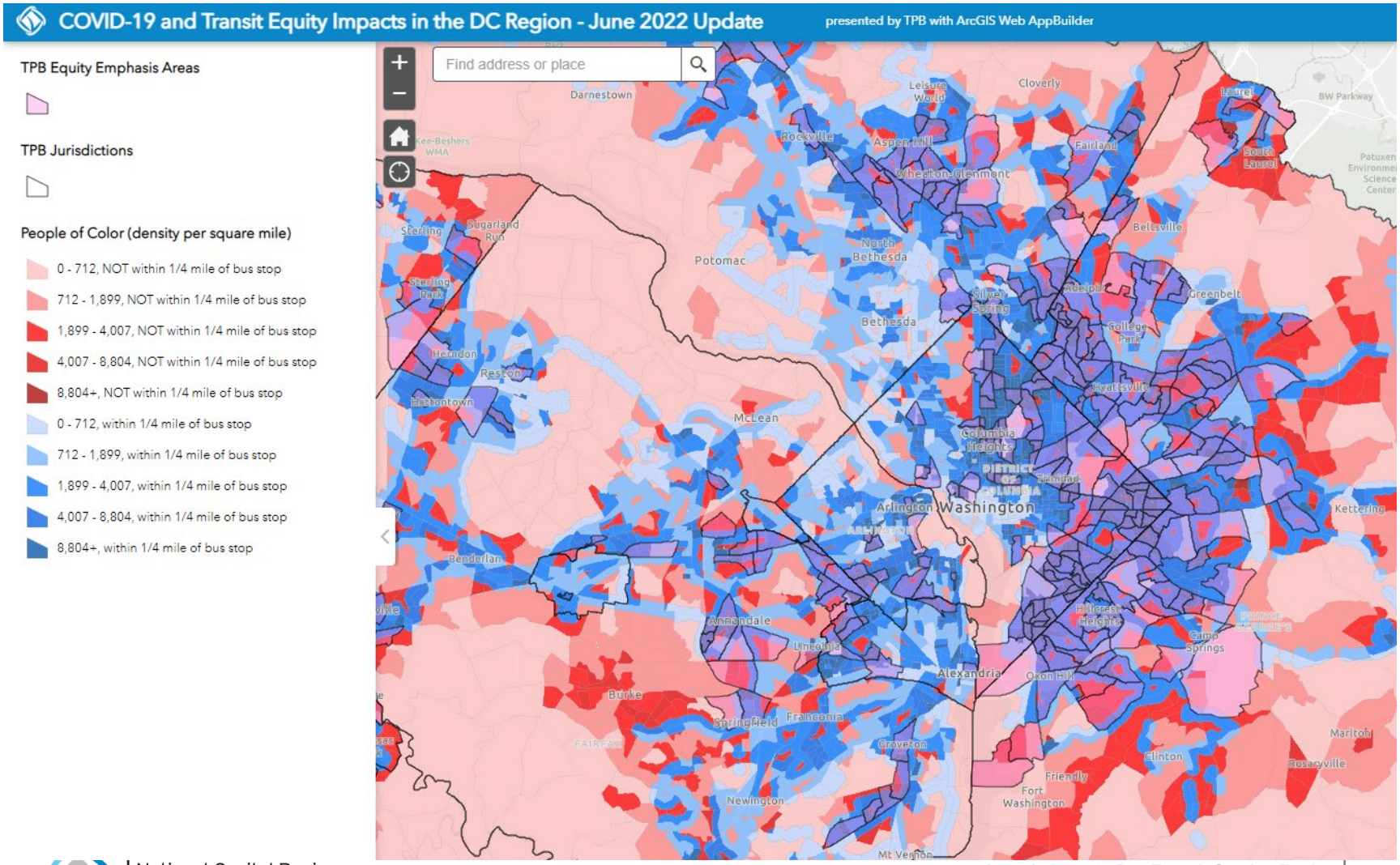
Persons of color, people with low incomes, and zero and one-car households have higher access to bus stops than the general population

- 65% of people of color and 74% of low-income households are within a ¼ mile of bus stops
- However, only 35% of people of color and 43% of low-income households have access to 15-minute or better service in the peak periods

The low percentage of access to frequent service, even in the peak periods, remains a concern, particularly for quality of life and jobs access

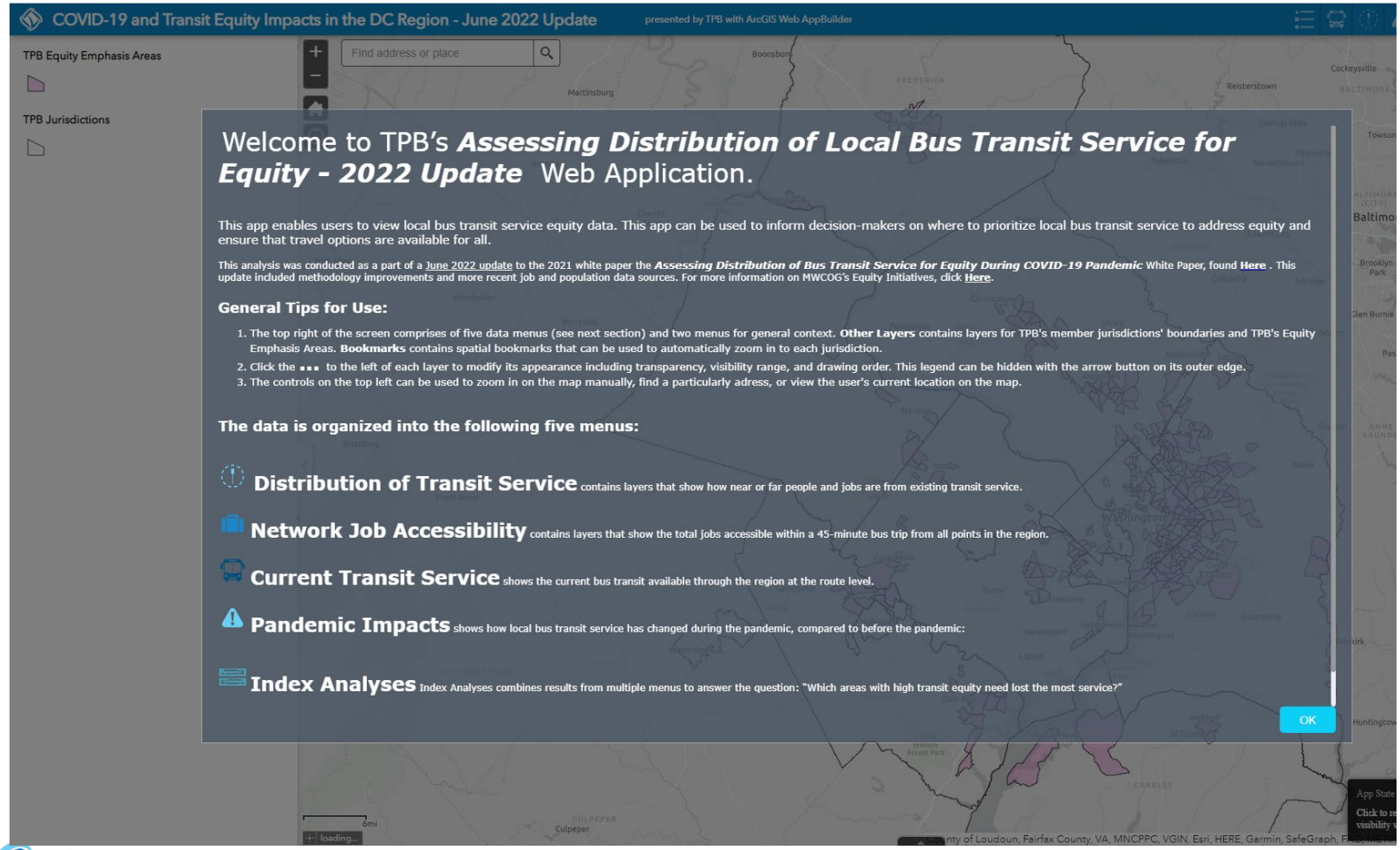
People of Color – Access to Local Bus Stops

- Any area that is dark red is of high priority for transit service



Transit Equity Webmap - *Demonstration*

https://fitp.maps.arcgis.com/apps/webappviewer/index.html?id=9947fb0f78084a06aae2e747e093964b



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National Capital Region
Transportation Planning Board

National Capital Region
Transportation Planning Board

MEMORANDUM

TO: Transportation Planning Board

FROM: Eric Randall, TPB Transportation Engineer

SUBJECT: Local Bus Transit Service Equity Analysis and Webmap – 2022 Update

DATE: October 13, 2022

In Spring 2021, consultants were engaged to conduct a white paper and technical analysis to inform regional decision makers about current bus service and equity considerations when restoring bus transit service and improving bus transit service equity in the longer-term post-pandemic.

This Spring, with most local bus service restored and with new data available, the consultants were re-engaged to update the bus service equity analysis, producing a new webmap and an updated summary of analytical findings.

PURPOSE OF THE 2021 WHITE PAPER

In March 2020, bus transit agencies across the region drastically cut bus service in response to the coronavirus pandemic. In response to requests to identify bus service that should be a priority for restoration, the firms ICF Consulting and Foursquare Integrated Transportation Planning were engaged to produce a white paper to inform regional decision makers about equity considerations when restoring transit service and improving transit service equity in the longer-term post-pandemic.

Questions addressed with the analysis included:

- How does bus transit access for traditionally underserved groups compare to the region's overall population's transit access?
- How does bus transit access for COG's Equity Emphasis Areas (EEAs) work compare to the region's overall population's transit access?
- How does bus transit access to peak, high-frequency service (15 minutes or better) compare for traditionally underserved groups?
- How does bus transit access to jobs for low-wage work and essential jobs compare to the region's overall population's transit access to jobs?

The white paper analysis assessed bus service (route coverage, frequency, time of day, and span of service) as of March 15, 2021 for those living in COG's Equity Emphasis Areas (EEAs), historically disadvantaged populations, and essential workers. The analysis assessed whether service is distributed equitably and identified gaps in that service that could be filled to improve equity, both for service as of March 15 and for pre-pandemic service.

2022 UPDATE

As of mid-2022, there has been substantial restoration of local bus service in the region to near pre-pandemic levels, as well as a restructuring of Metrobus service on high-use routes and the new

DASH (Alexandria) bus network (implemented in 2021). Thus it was thought opportune to produce a revised analysis to enable improved focus on addressing equity issues for access to bus transit service. Accordingly, the same consulting firms were engaged to conduct an updated analysis.

GEOGRAPHIC ANALYSIS AND WEBMAP TOOL

The bus transit service equity analysis examined the geographic distribution of transit service compared to various demographic and employment groups of interest. Select groups included:

- Total population density
- Total household density
- Persons of color population density
- Persons with disabilities density
- Low-income household density
- Zero/one-car household density
- Language other than English (LOTE) density
- Veteran population density
- All workers home location density
- Low-wage workers home location
- Total job density
- Density of essential service jobs
- Density of low-wage jobs

The 2022 updated dynamic webmap in ArcGIS Online format (AGOL) is available at the following link.

https://fitp.maps.arcgis.com/apps/webappviewer/index.html?id=9947fb0f78084a06aae2e747e093964b

KEY FINDINGS – 2022 UPDATE

The updated analysis had the following key findings:

Overall, transit service, major corridors, and population density are generally congruent.

- While 60 percent of the total population in the TPB region is within one quarter mile of fixed route bus service, only 35 percent of that group have access to 15-minute or better service in the AM peak period.
- There are select block groups across the region that are high in population density (both total and specific equity subgroups) that are not within one quarter mile of a bus stop. Areas with concentrations of these block groups include Prince George's County outside the Beltway (such as in Laurel and Bowie); Prince William County around Dale City and parts of Manassas; and portions of Loudoun County south of Leesburg.
- The low percentage of access to frequent service for all groups, even in the peak periods, remains a concern, particularly for quality of life and jobs access.

Regarding access to jobs

- A high density of low-wage jobs with no transit access can be seen primarily in Loudoun County around Dulles Airport and in and around Manassas and Manassas Park. Other significant areas include the edges of the City of Frederick and Prince George's County outside of the Beltway (such as Laurel and Bowie).

The complete technical memorandum summarizing the analysis is attached.

2022 TECHNICAL UPDATE: ASSESSING DISTRIBUTION OF BUS TRANSIT SERVICE FOR EQUITY

Technical Memorandum

September 2022

National Capital Region
Transportation Planning Board

ASSESSING DISTRIBUTION OF BUS TRANSIT SERVICE FOR EQUITY DURING COVID-19 PANDEMIC
September 30, 2022

ABOUT THE TPB
The National Capital Region Transportation Planning Board (TPB) is the federally designated metropolitan planning organization (MPO) for metropolitan Washington. It is responsible for developing and carrying out a continuing, cooperative, and comprehensive transportation planning process in the metropolitan area. Members of the TPB include representatives of the transportation agencies of the states of Maryland and Virginia and the District of Columbia, 24 local governments, the Washington Metropolitan Area Transit Authority, the Maryland and Virginia General Assemblies, and nonvoting members from the Metropolitan Washington Airports Authority and federal agencies. The TPB is staffed by the Department of Transportation Planning at the Metropolitan Washington Council of Governments (COG).

CREDITS
This technical memo was prepared under contract by Foursquare Integrated Transportation Planning and ICF International.

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TABLE OF CONTENTS

FIGURES AND TABLES

INTRODUCTION

In March 2020, transit service providers across the region drastically cut service in response to the coronavirus pandemic. As they began gradually restoring service, the *Assessing Distribution of Bus Transit Service for Equity During COVID-19 Pandemic* study was conducted in the Summer of 2021 to analyze and quantify the impacts of these service changes. The analysis assessed bus service (route coverage, frequency, time of day, and span of service) during the pandemic for those living in Equity Emphasis Areas (EEAs), historically disadvantaged populations[1], and low-wage and essential workers. The study produced a white paper and webmap documenting its findings.

Throughout the pandemic, the region has leaned on its essential workers, such as those in the food service and healthcare industries. Not only do many essential workers depend on transit to reach their jobs, but many are also from population groups and communities that face historical disadvantage and marginalization (such as people of color, low-income households, non-native English speakers). Inequities have been dramatically exacerbated by the pandemic's health and economic impacts; transit plays an important role in these communities social and economic mobility, so they are often disproportionately impacted by widespread service reductions like those seen during the beginning of the pandemic.

2021 Interactive Online Map

This map contains all the data from the previous version of this report.

This technical memorandum, completed in the summer of 2022, is a refresher to this study, and provides updated data to account for the following developments:

1. Many transit service providers have almost (if not entirely) restored pre-pandemic service.
2. New 2020 American Community Survey (ACS) 5-year estimates for population and demographic data are now available.
3. New 2019 Longitudinal Employer-Household Dynamics (LEHD) employment data are now available.

2022 Interactive Online Map

The Interactive Online Map, available here, contains all the map layers shown in this report plus additional detailed data that can be used for other analyses.

[1] No specific definition of traditionally underserved groups was used for this study. Groups of focus for this study included people of color and low-income populations, as well as other groups included in the map as described below. EEA's were considered as a geographic unit of analysis. See the layers included under the "Distribution of Transit Service" tab in the web map for distribution of transit service for specific population groups included within this study. https://fitp.maps.arcgis.com/apps/webappviewer/index.html?id=9947fb0f78084a06aae2e747e093964b

UPDATED GTFS SOURCES

General Transit Feed Specification (GTFS) data from transit agencies across the region are the primary source of transit availability in the region. **Table 1** contains information about GTFS feeds that were pulled and used for the service analysis. Where available, two different time periods of service were pulled: one before the pandemic, and the most recently available data (as of May 2022). In the previous iteration of this study, feeds from Spring 2021 were compared to pre-pandemic service.

This study focused on traditional local bus service that have a high proportion of minority and low-income riders. In addition to not including rail in the study, bus routes such as commuter bus routes, rail station feeders, limited stop/express routes, airport shuttles, and local shuttles (i.e., routes connecting a Metrorail station with an employment campus) were removed from each feed. The "Notes" column describes any instance where there were any issues with the available data.

Table 1: GTFS Data Sources

Agency	Pre-Pandemic GTFS	More Recent GTFS	Notes
ART	1/31/2020	3/27/2022	Latest feed available per agency.
Charles VanGo	8/27/2019	9/2021	Latest feed available per agency.
DASH	1/1/2020	2/27/2022	Latest feed available per agency.
DC Circulator	7/14/2019	4/3/2022	Latest feed available per agency.
Fairfax Connector	1/24/2020	7/10/2021	Latest feed available per agency.
Fairfax CUE	3/14/2019	1/26/2022	Latest feed available per agency.
Fauquier County	10/2/2020	3/1/2021	No earlier 2019 GTFS feed available. 2022 is latest feed available per agency.
Frederick Transit	3/27/2019	7/1/2021	Latest feed available per agency.
Loudoun County Transit	1/23/2021	12/15/2021	No earlier complete 2019 GTFS feed available. 12/15/2021 is latest feed available per agency.
PRTC Omniride	11/29/2019	2/28/2022	Latest feed available per agency.
RideOn	1/7/2020	3/13/2022	Latest feed available per agency.
TheBus	11/11/2019	10/25/2021	Latest feed available per agency (No GTFS available for May 30 service changes).
WMATA	1/31/2020	9/5/2021	WMATA returned to September 2021 service levels in late May of 2022, so recommended the September 2021 GTFS for this purpose.

At the time of this study, most transit agencies in the region had returned, or were close to returning, to full pre-pandemic service (compared to the 2021 version of this analysis). As a result, the final analysis of this technical memorandum update compares two sets of data that are more similar than was done in the 2021 study; the details of the service status by agency, as provided to the TPB via a survey of providers, or follow-up questions via email, are shown in **Table 2**.

Table 2: Agency Service Levels Status (as of May 2022)

Agency	Status of level of service as compared to pre-pandemic service
ART	Full return to pre-pandemic service
Charles VanGo	60% of pre-pandemic ridership on fixed route service; 100% on demand response service
DASH	Above pre-pandemic service levels (115%) due to funds received from I-395 Commuter Choice
DC Circulator	Full return to pre-pandemic service
Fairfax Connector	Full return to pre-pandemic service
Fairfax CUE	Full return to pre-pandemic service
Fauquier County	*Not Surveyed*
Frederick Transit	Full return to pre-pandemic service
Loudoun County Transit	Many routes yet to be restored, operating around 60% of pre-pandemic level of service
PRTC Omniride	Select trips still suspended
RideOn	89% of pre-pandemic service restored, all routes in operation.
TheBus	80% of pre-pandemic service restored; select routes still suspended
WMATA	99% of pre-pandemic service restored, but different distribution between service days and time periods

DISPARITIES IN ACCESS TO BUS TRANSIT

To understand differences in access to transit between groups, population and jobs were counted within a Euclidian one-quarter mile buffer around stops with weekday AM and PM peak period 15-minute or better service and around stops with Saturday midday 30-minute or better service.

These headways were calculated as the average time between arrivals at each stop during each time period. This analysis differs from the 2021 report, in which headways were measured as the minimum time between arrivals at each stop during a time period. Due to this methodology change[2], the calculated headway for many stops increased and fewer stops met the frequency thresholds used for this analysis. For this reason, the population and household access values were lower than in the 2021 report. Tabulations included[3]:

- Total population, percent of regional non-Hispanic white population, and percent of regional people of color population
- Population in low-income households
- People with disabilities
- People who speak languages other than English (LOTE) at home[4]
- Total households
- Zero/one-car households
- Two or more car households
- Total jobs, low-wage jobs, low-wage workers, and essential jobs (work location)

Full results for this analysis are in **Table 3** and **Table 4**. In both tables, the totals of each population group are calculated at the TPB region level and within a quarter-mile distance of all regional bus stops. For each service designation (e.g., a 15 minute or less headway or a 12 hour or less span), the total for that population group is displayed, as well as its percentage of 1) the regional population and 2) the regional population within a quarter mile of a bus stop.

[2] The headway calculation methodology was changed as the average time between arrivals was deemed a more accurate depiction of real-world conditions.

[3] Data was pulled from the 2020 ACS and 2019 LEHD data (Essential jobs are estimates, see footnote on page 15 for methodology)

[4] Count of people who do not speak 'Only English' at home

Table 3: Transit Frequency Access Summary Statistics

	Total Population	White Population	People of Color Population	Disabled Population	Language other than English Population	Veteran Population	Population in Low-Income Households	Households	Zero Car Households	One Car Households	Two or More Car Households	Total Jobs	Low Wage Jobs	Essential Jobs (Work Location)	Total Workers	Low Wage Workers
TPB Region (A)	5,608,288	2,346,297	3,261,992	602,505	1,634,330	370,112	686,876	2,021,589	213,686	690,180	1,117,722	2,901,874	1,132,705	369,009	2,673,041	1,083,353
Within 1/4 Mile Buffer of Bus Stops (B)	3,370,104	1,258,752	2,111,351	351,143	1,072,277	228,131	507,962	3,307,516	188,402	521,844	574,350	2,106,539	782,420	273,076	1,578,517	650,752
Percent of TPB Region (B/A)	60%	54%	65%	58%	66%	62%	74%	60%	88%	76%	51%	73%	69%	74%	59%	60%
15 Minute Service - AM Peak Average Weekday (C)	1,169,253	439,831	729,422	123,832	320,560	77,929	215,766	1,139,793	124,183	230,431	135,683	1,115,273	355,461	131,852	541,696	209,486
Percent of Pop. /Jobs Near Transit (C/B)	35%	35%	35%	35%	30%	34%	42%	34%	66%	44%	24%	53%	45%	48%	34%	32%
Percent of TPB Region (C/A)	21%	19%	22%	21%	20%	21%	31%	21%	58%	33%	12%	38%	31%	36%	20%	19%
15 Minute Service - PM Peak Average Weekday (D)	1,178,225	436,471	741,754	124,848	331,718	77,859	217,088	1,151,571	124,692	232,573	137,917	1,068,774	343,914	125,584	547,384	213,752
Percent of Pop. /Jobs Near Transit (D/B)	35%	35%	35%	36%	31%	34%	43%	35%	66%	45%	24%	51%	44%	46%	35%	33%
Percent of TPB Region (D/A)	21%	19%	23%	21%	20%	21%	32%	21%	58%	34%	12%	37%	30%	34%	20%	20%
30 Minute Service - Saturday Midday (E)	1,779,677	625,005	1,154,672	188,547	525,357	124,675	315,668	1,737,480	151,496	328,335	240,566	1,349,197	462,204	167,281	820,994	332,712
Percent of Pop. /Jobs Near Transit (E/B)	53%	50%	55%	54%	49%	55%	62%	53%	80%	63%	42%	64%	59%	61%	52%	51%
Percent of TPB Region (E/A)	32%	27%	35%	31%	32%	34%	46%	32%	71%	48%	22%	46%	41%	45%	31%	31%

Table 4: Transit Span Access Summary Statistics

	Total Population	White Population	People of Color Population	Disabled Population	Language other than English Population	Veteran Population	Population in Low-Income Households	Households	Zero Car Households	One Car Households	Two or More Car Households	Total Jobs	Low Wage Jobs	Essential Jobs (Work Location)	Total Workers	Low Wage Workers
TPB Region (A)	5,608,288	2,346,297	3,261,992	602,505	1,634,330	370,112	686,876	2,021,589	213,686	690,180	1,117,722	2,901,874	1,132,705	369,009	2,673,041	1,083,353
Within 1/4 Mile Buffer of Bus Stops (B)	3,370,104	1,258,752	2,111,351	351,143	1,072,277	228,131	507,962	3,307,516	188,402	521,844	574,350	2,106,539	782,420	273,076	1,578,517	650,752
Percent of TPB Region (B/A)	60%	54%	65%	58%	66%	62%	74%	60%	88%	76%	51%	73%	69%	74%	59%	60%
<6 Hours - Average Weekday Span (C)	357,652	135,735	221,917	34,783	128,442	22,131	46,611	354,150	15,732	53,613	67,138	318,336	90,889	34,478	174,365	69,071
Percent of Pop./Jobs Near Transit (C/B)	11%	11%	11%	10%	12%	10%	9%	11%	8%	10%	12%	15%	12%	13%	11%	11%
Percent of TPB Region (C/A)	6%	6%	7%	6%	8%	6%	7%	6%	7%	8%	6%	11%	8%	9%	7%	6%
<12 - Average Weekday Span (D)	714,233	255,362	458,872	72,708	237,465	45,815	97,277	706,600	30,677	107,069	133,524	503,525	173,279	60,941	350,886	146,367
Percent of Pop./Jobs Near Transit (D/B)	21%	20%	22%	21%	22%	20%	19%	21%	16%	21%	23%	24%	22%	22%	22%	22%
Percent of TPB Region (D/A)	13%	11%	14%	12%	15%	12%	14%	13%	14%	16%	12%	17%	15%	17%	13%	14%
<18 Hours - Average Weekday Span (E)	2,679,701	1,024,572	1,655,129	274,664	863,459	179,253	384,471	2,630,725	134,312	410,087	478,224	1,785,194	653,914	226,265	1,256,266	515,523
Percent of Pop./Jobs Near Transit (E/B)	80%	81%	78%	78%	81%	79%	76%	80%	71%	79%	83%	85%	84%	83%	80%	79%
Percent of TPB Region (E/A)	48%	44%	51%	46%	53%	48%	56%	48%	63%	59%	43%	62%	58%	61%	47%	48%
<21 Hours - Average Weekday Span (F)	3,296,811	1,237,198	2,059,614	342,442	1,053,422	223,250	494,716	3,235,647	183,476	510,343	563,765	2,071,139	768,199	268,361	1,544,814	635,792
Percent of Pop./Jobs Near Transit (F/B)	98%	98%	98%	98%	98%	98%	97%	98%	97%	98%	98%	98%	98%	98%	98%	98%
Percent of TPB Region (F/A)	59%	53%	63%	57%	64%	60%	72%	59%	86%	74%	50%	71%	68%	73%	58%	59%
21+ Hours - Average Weekday Span (G)	3,367,636	1,257,735	2,109,901	350,828	1,071,845	227,976	507,775	3,305,215	188,387	521,670	573,772	2,105,832	781,955	272,915	1,577,274	650,277
Percent of Pop./Jobs Near Transit (G/B)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Percent of TPB Region (G/A)	60%	54%	65%	58%	66%	62%	74%	60%	88%	76%	51%	73%	69%	74%	59%	60%

While 60 percent of the total population in the TPB region is within one-quarter mile of fixed route bus service, only 35 percent of that group have access to 15-minute or better service in the AM and PM Peak periods. Marginalized groups have more access to transit when compared to the region as a whole:

- 65 percent of people of color and 74 percent of low-income households are within a quarter mile of bus stops, compared to 60 percent of the region as a whole.
- 35 percent of people of color and 43 percent of low-income households have access to 15-minute or better service in the AM peak period, compared to 35 percent of the region as a whole.
- 88 percent of zero car households are within a quarter-mile of a bus stop and 66 percent have access to 15-minute or better service in the AM and PM peak periods, compared to 34 percent of the region as a whole.
- 69 percent of low-wage workers are within a quarter-mile of a bus stop, but only 45 percent have access to frequent service in the peak periods.

These data points illustrate that while marginalized population groups overall have more access to transit service compared to the general population, some specific sub-groups (such as veterans and LOTE speakers) have less access to high-frequency service (15 minutes or better than the AM Peak) compared to the 35 percent of the transit-accessible population overall, while others have reached parity with the overall population. This also applies to low-wage and essential jobs (45 to 48 percent having high-frequency access) compared to overall employment (53 percent).

Table 4 shows the results of an additional analysis that examines disparities between Equity Emphasis Areas and the region as a whole.

Table 5: Equity Emphasis Area Transit Access Summary Statistics

	Total Population	White Population	People of Color Population	Disabled Population	Language other than English Population	Veteran Population	Population in Low-Income Households	Households	Zero Car Households	One Car Households	Two or More Car Households	Total Jobs	Low Wage Jobs	Essential Jobs (Work Location)	Total Workers	Low Income Workers
Within All Equity Emphasis Areas (A)	1,551,167	320,794	1,230,373	165,209	567,352	119,602	349,483	1,502,429	104,625	223,332	218,854	690,535	291,937	98,682	696,281	353,641
Within EEAs within 1/4 Mile of Bus Stop (B)	1,288,593	251,277	1,037,316	136,848	466,330	99,021	303,852	1,250,478	98,337	196,133	168,582	584,183	240,944	84,586	572,045	290,379
Share of EEA Population/Jobs within 1/4 Mile of Bus Stop (B/A)	83%	78%	84%	83%	82%	83%	87%	83%	94%	88%	77%	85%	83%	86%	82%	82%
Regionwide Share of Population/Jobs within 1/4 Mile of Bus Stop	60%	54%	65%	58%	66%	62%	74%	60%	88%	76%	51%	73%	69%	74%	59%	60%

NETWORK JOB ACCESSIBILITY ANALYSIS

Disparities in access to jobs were analyzed on several dimensions:

- Jobs accessible for all workers compared to low-wage workers.
- Jobs accessible for people living within Equity Emphasis Areas (EEAs) compared to those living outside of EEAs.
- Access to essential jobs (12 percent of the region's total) compared to all jobs.
- Comparisons between four main service periods: Weekday AM peak (6:00 AM - 9:00 AM); Weekday midday (9:00 AM - 3:00 PM); Weekday late night (12:00 AM - 4:00 AM); and Saturday core (9:00 AM - 3:00 PM).

The analysis was conducted using the Conveyal accessibility analysis platform, which calculates network-based travel patterns from many origins to many destinations. Using the platform, analysts can calculate not only the accessibility to jobs or other destinations from a single point but also aggregate the results of these accessibility measures over an entire region. The platform accepts custom inputs of demographic data (such as job counts), geographic aggregations (such as Equity Emphasis Areas), and GTFS feeds that describe transit systems. Parameters that affect accessibility calculations, such as the date and time ranges used, can also be modified. The platform's methodology is described in detail on its user help site.[5]

Table 3 and **Table 4** contain the results from the Conveyal accessibility analysis for jobs accessible within a 45-minute bus trip, which are summarized in the "Network Job Accessibility Analysis" section of the report.

Table 6: Network Job Accessibility Analysis Results – Total Workers

Time Period	Job Type (Total Jobs or Essential Jobs)	Living in EEA or not Living in EEA	Jobs Accessible (Weighted Average)
Weekday AM Peak 6:00 AM - 9:00 AM	Essential Jobs	In EEA	16,121
	Essential Jobs	Not in EEA	11,506
	Total Jobs	In EEA	168,538
	Total Jobs	Not in EEA	115,793
Weekday Midday 9:00 AM - 3:00 PM	Essential Jobs	In EEA	15,068
	Essential Jobs	Not in EEA	10,694
	Total Jobs	In EEA	157,633
	Total Jobs	Not in EEA	107,930
Weekday Late Night 12:00 AM – 4:00 AM	Essential Jobs	In EEA	5,075
	Essential Jobs	Not in EEA	2,968
	Total Jobs	In EEA	55,382
	Total Jobs	Not in EEA	29,640
Weekend Core 9:00 AM - 3:00 PM	Essential Jobs	In EEA	14,906
	Essential Jobs	Not in EEA	10,408
	Total Jobs	In EEA	155,937
	Total Jobs	Not in EEA	105,213

[5] Conveyal. *Methodology.* https://docs.analysis.conveyal.com/analysis/methodology

Table 7: Network Job Accessibility Analysis Results – Low-Wage Workers

Time Period	Job Type (Total Jobs or Essential Jobs)	Living in EEA or not Living in EEA	Jobs Accessible (Weighted Average)
Weekday AM Peak 6:00 AM - 9:00 AM	Essential Jobs	In EEA	12,747
	Essential Jobs	Not in EEA	9,157
	Total Jobs	In EEA	128,159
	Total Jobs	Not in EEA	88,820
Weekday Midday 9:00 AM - 3:00 PM	Essential Jobs	In EEA	11,766
	Essential Jobs	Not in EEA	8,415
	Total Jobs	In EEA	118,843
	Total Jobs	Not in EEA	82,009
Weekday Late Night 12:00 AM – 4:00 AM	Essential Jobs	In EEA	3,740
	Essential Jobs	Not in EEA	2,209
	Total Jobs	In EEA	38,692
	Total Jobs	Not in EEA	21,097
Weekend Core 9:00 AM - 3:00 PM	Essential Jobs	In EEA	11,635
	Essential Jobs	Not in EEA	8,172
	Total Jobs	In EEA	117,531
	Total Jobs	Not in EEA	79,834

Across time periods and geographies, the average low-wage worker has access to fewer jobs than the average worker in similar conditions.

Figure 7 depicts the average jobs accessible via local bus for all workers, while **Figure 8** is limited to the average jobs accessible via local bus for low-wage workers only. Both analyses demonstrate that more jobs are accessible via local bus for people living in Equity Emphasis Areas (EEAs) compared to those not living in EEAs. The service period with the highest quantity of jobs accessible is the weekday peak period, followed by weekday midday, Saturday, and weekday late night. For all time periods, low-wage workers have access to fewer jobs compared to all workers. While the total quantities of jobs accessible increased in nearly all categories compared to the 2021 study, the trends between job types, worker incomes, periods, and EEA status all remain the same.

Trendlines in both figures show the percent change from the weekday peak period to the weekday midday period, and again from the weekday midday period to the weekday late period. There are similar rates of decrease between the weekday peak period and weekday midday period across all analysis categories in both figures, ranging from six to eight percent. There are sharper rates of decrease when comparing jobs accessible in the weekday midday period to the weekday late night period.

Figure 1: Average Jobs Available via Local Bus for All Workers

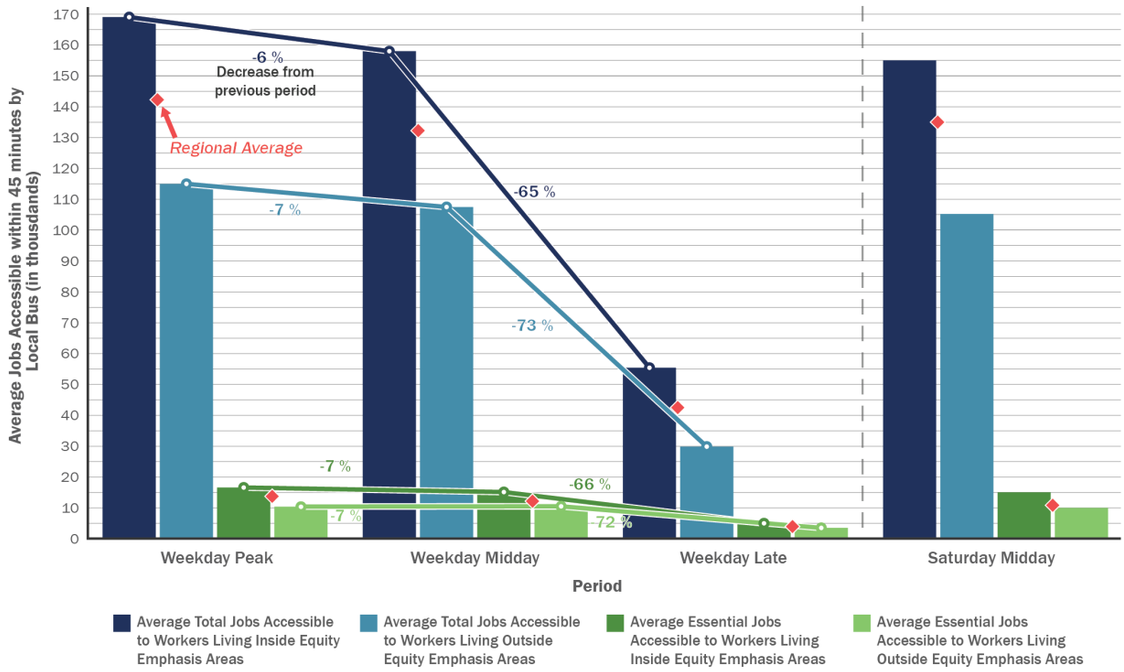
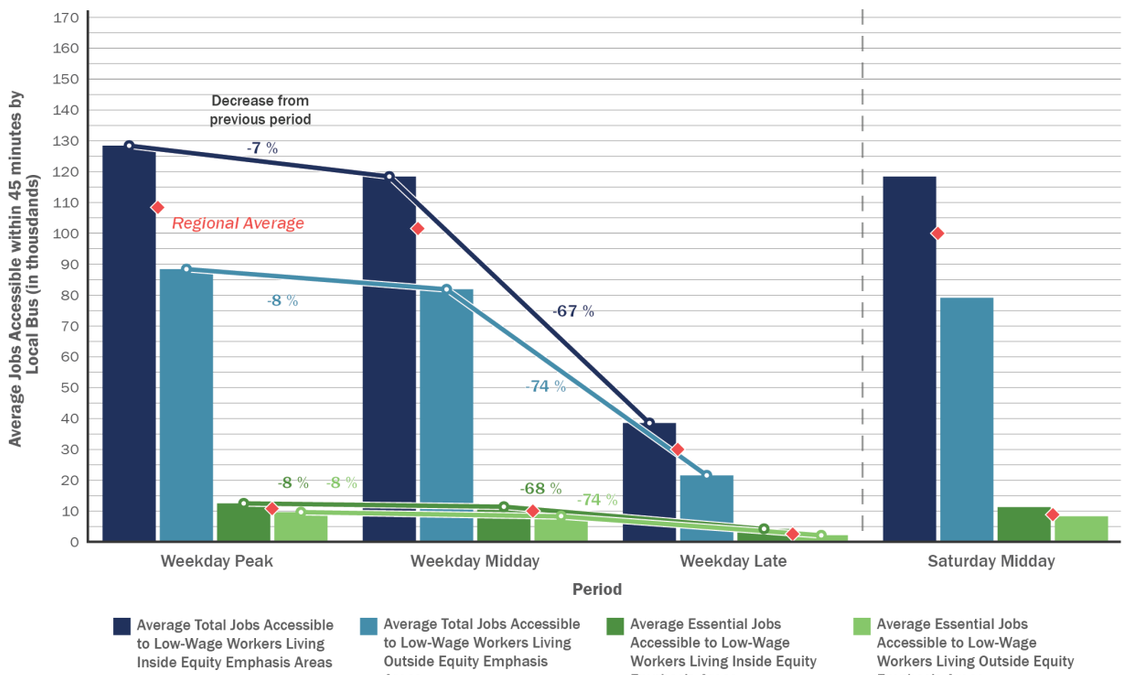


Figure 2: Average Jobs Accessible via Local Bus for Low-Wage Workers



A portion of the region's total jobs are classified as essential service jobs for the purpose of this analysis: 12.7 percent of regional jobs are considered essential (2,901,874 total jobs and 369,009 essential jobs).[6] In the late-night period, only 9.9 percent of jobs that are accessible via local bus are essential jobs, which is lower than what would be expected from the share of essential jobs regionwide.

Service restorations since 2021 have significantly increased the number of jobs available within a 45-minute bus ride in the weekday peak and midday periods, as well as the Saturday midday periods. The late-night period did not see growth compared to the other periods, increasing the job access disparity between it and the other periods. This indicates that late night period service did not see as much service restoration as the other periods. However, since the late-night period traditionally has less service even in normal (pre-pandemic) conditions, there was less service to be restored.

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[6] Essential jobs were identified using the Centers for Disease Control's (CDC) *Interim List of Categories of Essential Workers Mapped to Standardized Industry Codes and Titles.* The level of geographic specificity of the NAICS codes used by CDC are identifiable at the ZIP code level. In order to assign essential jobs at the block group level, each block group was assigned a number of essential jobs based on its share of jobs compared to the ZIP code's total. Centers for Disease Control. "Interim List of Categories of Essential Workers Mapped to Standardized Industry Codes and Titles." https://www.cdc.gov/vaccines/covid-19/categories-essential-workers.html

KEY TAKEAWAYS

Because regional transit agencies have restored most of the service to pre-pandemic levels, the key takeaways of this study no longer easily describe a single change in conditions as they did in 2021. They are now divided into two themes: *Current Transit and Equity Conditions*, which are observations of current relationships between transit and equity in the current stage of the pandemic; and *Transit and Equity Conditions Compared to Pre-COVID 19*, which take note of structural changes in where transit is provided in the region.

Current Transit and Equity Conditions

GAPS IN SERVICE VS. POPULATION

- While 60 percent of the total population in the TPB region is within one quarter mile of fixed route bus service, only 35 percent of that group have access to 15-minute or better service in the AM peak period.
- Overall, transit service, major corridors, and population density are generally congruent.
- There are select block groups across the region that are high in population density (both total and specific equity subgroups) that are not within one quarter mile of a bus stop.
    - Areas with concentrations of these block groups include Prince George's County outside the Beltway (such as in Laurel and Bowie); Prince William County around Dale City and parts of Manassas; and portions of Loudoun County south of Leesburg.

GAPS IN SERVICE VS. EMPLOYMENT

- Overall, transit service, major corridors, and job density are generally congruent, particularly in the region's core.
- Overall, 73 percent of all jobs are within a quarter-mile of a bus stop, reflecting the fact that a significant amount of transit service is directed towards job centers and jobs access.
- A higher density of low-wage jobs with no transit access can be seen primarily in Loudoun County around Dulles Airport and in and around Manassas and Manassas Park.
    - Other significant areas include the edges of the City of Frederick and Prince George's County outside of the Beltway (such as Laurel and Bowie).
        - Essential jobs follow the same patterns, but with additional underserved essential job hotspots in Fairfax County and on the eastern boundary of Prince George's County.

DISPARITIES IN ACCESS TO BUS TRANSIT

- Overall, most people of color, people with low incomes, and zero and one-car households have higher access to bus stops than their parent populations (total population and total households).
- When looking at low-wage workers, only 60 percent are within one-quarter mile of a bus stop, and only 33 percent have access to frequent peak-period service.
- Marginalized population groups overall have more access to transit service compared to the general population and their access to frequent transit service in the peak periods is on par with the general population (around 35 percent).
- Zero car and one car households have a higher percentage of access to frequent peak period transit (42 to 66 percent) compared to all households (38 percent).
- The low percentage of access to frequent service for all groups, even in the peak periods, remains a concern, particularly for quality of life and jobs access.
- Equity Emphasis Areas (EEAs) have a higher percentage of residents within one-quarter mile of a bus stop for every analyzed sub-group, often by a factor of 20 percentage points.
    - However, this is compared to the entire TPB region, which is overall less dense than the EEAs.
- When looking at low-wage jobs within a quarter mile of transit compared to all jobs, the percentage of access drops four percentage points (73 percent to 69 percent), indicating that those in this higher need category have slightly less access to their employment location.
    - When looking at essential jobs, the figure rises slightly to 74 percent.
- When evaluating the peak periods access to all jobs drops significantly, with only 53 percent of jobs within a quarter mile of 15-minute or better service in the AM peak period (and 51 percent in the PM peak period).
    - For low-wage jobs, this drops to 45 percent in the AM peak and 44 percent in the PM peak.
    - Access to essential jobs in the AM peak period is five percentage points lower than access to all jobs (48 percent compared to 53 percent).
- Access rates for all demographic and job groups quadrupled between 12 hour or less of service span and 18 hours or less of service span, indicated that a service span between 12 and 18 hours is the most common.

NETWORK JOB ACCESSIBILITY ANALYSIS

- The service period with the highest quantity of jobs accessible is the weekday peak period, followed by weekday midday, Saturday, and weekday late night.
- For all time periods, low-wage workers have access to fewer jobs compared to all workers.
- Job access for all job types and all workers decrease consistently from the peak to the midday to the late periods.
- More jobs are accessible for people living within EEAs compared to those living outside of them.
- The highest levels of job access are found in the dense core of the District of Columbia and radiate out along major corridors. However, Montgomery County shows generally better access along its corridors compared to Prince George's County and Northern Virginia.

Transit and Equity Conditions Compared to Pre-COVID 19

TRANSIT LEVEL OF SERVICE CHANGE

- Areas with the greatest service reductions that were introduced during the pandemic include:
    - Burke and McLean (Fairfax County)
    - McLean (Fairfax County)
    - Fort Washington, Upper Marlboro, and Laurel (Prince George's County)
    - Germantown, Olney, and Burtonsville (Montgomery County)
    - Almost the entire District of Columbia during the AM peak (with the exception of select areas of SE and NE near the border with Maryland)

AREAS WITH LESS HIGH-FREQUENCY SERVICE[7]

- The continuing absence of high-frequency service (service that comes every 15 minutes or better) was most prevalent:
    - Along M Street NW and North Capitol Street (District of Columbia)
    - Along Columbia Pike (Fairfax County)
- Other smaller pockets still missing high-frequency service can be found in:
    - Arlington County
    - Leesburg (Loudoun County)
    - Silver Spring (Montgomery County)

TRANSIT EQUITY NEED INDEX

- The Transit Need Equity Index measures demographic characteristics at the block group level that are known to indicate likelihood of transit use and/or transit dependency. These variables measure population and households at their home location and are therefore indicators for access on the origin side.
- There is a large degree of overlap between the areas which scored high on this index and Equity Emphasis Areas (EEAs):
    - The eastern and southwest portions of the District of Columbia
    - The inner beltway regions of Prince George's County and Montgomery County
    - Adjacent to major corridors in Northern Virginia
    - The densest areas of the region's satellite communities such as Rockville, Frederick, and Manassas.
- Clusters of high-need areas outside EEA boundaries can be found primarily in:
    - Prince George's County
    - Charles County

LEVEL OF SERVICE (LOS) CHANGE INDEX

- The Level of Service (LOS) Change Index measures how much service changed in each block group from before the pandemic until now (2022). The change in number of trips per period calculations were used to create the LOS Change Index.
- The highest scoring areas (those that are still seeing the lowest level of service compared to pre-pandemic levels) are in:
    - McLean and Burke (Northern Virginia)
    - Ashton and Burtonsville (Montgomery County)
    - Bowie and Laurel (Prince George's County)

[7] This analysis is based on the best level of service among routes at a given stop.

GAP ANALYSIS INDEX

- The Gap Analysis Index determines the areas within the region that have high transit need and are still experiencing notable reductions in service from pre-pandemic levels (measured by the number of trips). This index is calculated by taking the Transit Equity Need Index and LOS Change Index and calculating the size of the gap between them. Block groups with higher Transit Need Equity scores that experienced a larger decrease in trips resulted in larger Gap Analysis Index scores, while block groups with lower Transit Need Equity scores with a similar service reduction would yield a smaller gap.
    - The District of Columbia had many block groups with moderate scores on this index, with higher scoring gaps east of the Anacostia River, and in the District's far north and northeast regions. Most of the largest gaps were found in Maryland and Virginia.
    - The largest gaps in Maryland can be found in Laurel, Burtonsville, Olney, and the National Harbor/Fort Washington area.
    - In Virginia, major gaps exist around Annandale, Burke, and Quantico.
    - High-scoring gaps can be found both within and outside of TPB's Equity Emphasis Areas.

ITEM 10 – Information
October 19, 2022

2024 Long-Range Plan Update

Background: Ms. Cook will review considerations related to the 2024 plan update and will present the schedule for the update.

National Capital Region
Transportation Planning Board

MEMORANDUM

TO: Transportation Planning Board

FROM: Stacy Cook, TPB Transportation Planner, Long-Range Transportation Plan Program Manager

SUBJECT: 2024 LRTP Update

DATE: October 13, 2022

SUMMARY

This memo summarizes the new major activities and considerations for the 2024 update to the region's long-range transportation plan and FY 2025- FY 2028 TIP. The memorandum includes a preliminary schedule.

BACKGROUND

To ensure federal funds for transportation continue to flow through the region, a critical requirement is the approval of the Air Quality Conformity Determination of the Visualize 2045 update and the FY 2023-FY 2026 Transportation Improvement Program (TIP). The federal government requires the TPB to conduct an in-depth analysis to ensure projected emissions generated by users of the region's future transportation system will not exceed (or "conforms to") the air quality emissions budgets set forth in the region's air quality plans. This is known as air quality conformity. Based on the results of the analysis, a determination is made to confirm conformity. The federally approved conformity determination from 2018 had to be updated in 2022. **On August 25, 2022, the TPB's federal partners approved the conformity determination for the Visualize 2045 update and the FY 2023-FY 2026 TIP (see attached letter). This is the portion of the plan that receives official "approval;" the remaining federal requirements are reviewed during the quadrennial certification review.** The TPB is recognized for fulfilling its important role in ensuring that the National Capital Region's Metropolitan Planning Organization complies with its responsibilities to meet federal requirements.

Like plans that came before, the update to Visualize 2045 and the process used by the TPB to develop the plans must meet an array of federal requirements, including but not limited to compliance with performance-based planning rules, consideration of the ten federal planning factors, conducting a congestion management process, engaging in public participation, responding to concerns of non-discrimination and equity, and others. The federal agencies review the planning process as part of their Federal Certification Review, every four years. This review will begin this fall.

THE LRTP 2024 UPDATE: MAJOR ACTIVITIES AND CONSIDERATIONS

The 2022 conformity approval "resets the clock" and the TPB must obtain the same federal approval for the conformity determination for the next quadrennial plan no later than 4-years from that date (by August 25, 2026). The plan and TIP can, and will, be updated sooner. This memo reviews the new major activities and considerations for the 2024 update to the region's long-range transportation plan and FY 2025- FY 2028 TIP. The memorandum includes a preliminary schedule.

The 2024 LRTP update includes four major activities that the TPB will undertake, these are described below.

Please note: A substantial amount of TPB staff time is required to implement these activities. Additionally, the TPB members and their technical agencies must plan for additional time for their technical staff and decisionmakers to conduct these activities. While the schedule includes additional time to review existing project data and participate in policy-focused discussions about proposed projects, the level of effort will be substantially higher than it has been for past plan updates.

The TPB will:

1. Update non-transportation inputs
    - Extend outyear of Plan from 2045 to 2050
    - Update land-use and demographic assumptions (From COG's Cooperative Forecast 9.2A to 10.0) (2020 Census based; Post COVID, 2020 - 2050)
2. Develop a new financial plan
    - Updated transportation funding estimates
    - Five additional years (2046 - 2050)
    - IIJA - federal reauthorization based revenues
    - Costs reflecting latest inflation factor
3. Use new Motor Vehicle Emissions Budgets (MVEBs)
    - New MVEBs for 2015 Ozone Standards
    - Revised MVEBs for 2008 Ozone Standards
    - Required to use new emissions model (MOVES3)
4. Work with sponsoring agencies to re-examine/re-submit all projects, programs, policies
    - Re-examine/Re-submit projects, programs, policies ("zero-based budgeting")
    - Better reflecting TPB planning priorities
    - More aligned with enhanced policy framework
    - More reflective of TPB scenario findings

The following pages present a preliminary schedule for the 2024 update. This schedule is in part driven by requirements related to the air quality conformity requirements and is subject to change.

TPB's 2024 Plan and FY 2025–2028 TIP Update Schedule

Timeframe		Activity

CY 2022	Q4 CY 2022	• (October) Begin preliminary financial analysis: high-level revenue and expenditure forecast process with major agencies
		• Develop existing project listing for review and resubmission
		  ○ Examine inputs to determine which are exempt from zero-based budgeting (ZBB) approach
		  ○ Sponsor agencies review existing project records to align individual Project InfoTrak records with their "overarching" project
		  ○ Sponsor agencies plan for staff time required to execute ZBB approach in early 2023
		  ○ ZBB approach and InfoTrak training for technical staff
		• Publish comprehensive summary of TPB/COG scenario study findings
		• Publish comprehensive summary of TPB priorities
		• Develop draft Technical Inputs Solicitation document for review

CY 2023	Q1 CY 2023	• Continue financial analysis: repeat high-level revenue and expenditure forecast process with local jurisdictions and all agencies' InfoTrak project cost review • The TPB releases the Technical Inputs Solicitation document to initiate the Call for Projects • Sponsor agencies will review and consider the TPB priorities/synthesized policy framework and scenario findings as they consider what to submit for the 2024 update • TPB staff will facilitate meetings with board members and their technical agency staff to discuss potential inputs during applied ZBB approach (3 meetings, one for each DC, MD, VA)
	Q2 CY 2023	• Continue financial analysis: (through April) in tandem with InfoTrak database project cost review, (April -July) reconcile draft analysis results and produce preliminary financial plan to reflect project submission (June) • *Preliminary* inputs for the LRTP and Air Quality Conformity (AQC) analysis due to TPB staff for staff review and internal coordination (mid-May) • Sponsor agencies submit technical corrections to preliminary inputs and updates based on TPB/interagency consultation to produce final inputs for comment period • *Final* project inputs for the LRTP and Air Quality Conformity (AQC) analysis due to TPB staff for presentation in comment period documentation (early June)

	Q3 CY 2023	• Continue financial analysis: (August 2023-June 2024) final revisions, report production • The TPB Technical Committee will review the conformity project inputs table and the draft inputs to the plan and the draft AQC scope of work, as well as the results of the preliminary financial analysis • The TPB will receive a briefing on the draft inputs to the plan/AQC analysis and the draft AQC scope of work and the preliminary financial analysis • Public comment period on inputs to the plan/AQC analysis, and AQC scope of work. MWAQC TAC will review this information during its summer meeting • The TPB will receive a summary of the public comments on the draft inputs to the plan and AQC analysis; agencies sponsoring the projects will have the opportunity to discuss and advise staff on responses (July)
	Q4 CY 2023	• The TPB will review responses to comments and updates to inputs to the plan and scope of work for the AQC analysis. The TPB will be asked to accept the comments and approve the inputs and scope, authorizing staff to begin analysis • MWAQC approves updated MVEBs associated with 2008 ozone maintenance plan (December drop-dead date)
CY 2024	Q1 CY 2024	• Continue financial analysis: (August 2023-June 2024) final revisions, report production • Commence Air Quality Conformity technical analysis
	Q2 CY 2024	• Complete financial analysis: (August 2023-June 2024) final revisions, report production • Spring 2024 EPA anticipated to find MVEBs adequate for use in conformity • Continue Air Quality Conformity technical analysis
	Q3 CY 2024	• Transportation Improvement Program (TIP) inputs due for the FY 2025-2028 TIP • Complete Air Quality Conformity technical analysis • Draft performance analysis for the plan and TIP
	Q4 CY 2024	• Public comment period on the plan, TIP and the results of AQC analysis determination for the updated plan and FY 2025-2028 TIP • The TPB Technical Committee and MWAQC and MWAQC TAC will review the draft results of AQC analysis for the updated plan and FY 2025-2028 TIP during their meetings • The TPB will receive a briefing on the draft results of the AQC analysis for the plan and TIP • The TPB will receive a summary of the comments received on the analysis, the agencies sponsoring the projects will have the opportunity to advise staff on responses to comments • The TPB will review and be asked to accept the responses to the comments on the results of the AQC analysis • The TPB will be asked to approve the results of the AQC analysis and adopt the updated plan and the FY 2025-2028 TIP

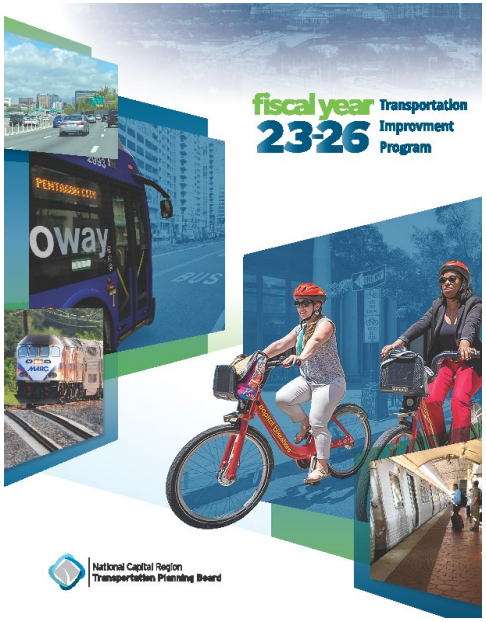
VISUALIZE 2045 AND THE 2024 PLAN UPDATE

Stacy Cook, TPB Transportation Planner

Transportation Planning Board
Agenda Item 10
October 19, 2022

National Capital Region
Transportation Planning Board

Conformity for the Visualize 2045 Update and FY23-FY26 TIP is Approved!

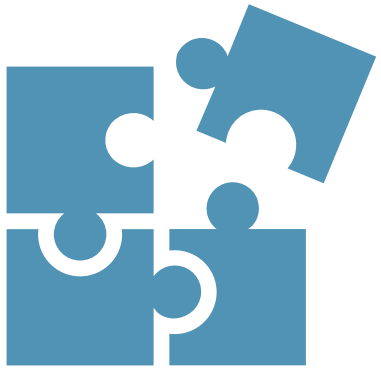


Federal Agencies Approved the Conformity Findings on August 25, 2022

This "starts the clock."
For TPB's next plan, conformity approval would need to be no later than August 25, 2026
The TPB is aiming for a 2024 Update

National Capital Region
Transportation Planning Board

2024 Plan Update: Major Changes



1. Update Non-transportation Elements
2. Financial Plan Revisions
3. New Motor Vehicle Emissions Budgets (MVEBs)
4. Projects Re-examination / Re-submission

2024 Plan Update: Major Activities

1. **Non-transportation Element Updates**
   - Extend outyear of Plan from 2045 to 2050
   - Update land-use and demographic assumptions (Population/Employment/Households) (2020 Census based; Post COVID, 2020 - 2050)
2. **Financial Plan Revisions**
   - Revenue and Costs for five additional years (2046 - 2050)
   - IIJA - federal reauthorization-based revenues
   - Project costs reflecting latest inflation factor
3. **New Motor Vehicle Emissions Budgets (MVEBs)**
   - Revised MVEBs for 2008 Ozone Standards
   - New MVEBs for 2015 Ozone Standards
4. **Re-examine/Re-submit Projects, Programs, Policies**
   - More aligned with TPB's enhanced policy priorities
   - More reflective of TPB scenario studies
   - Review /update exempt/non-exempt projects

Major Change #1: Non-transportation Updates

- Key Considerations:
  - A 2050 horizon is critical: federal requirement for a 20-year horizon; If not, plan and TIP amendments restricted as early as CY 2025
  - 2050 COG's Cooperative Forecasts: federal requirement to use latest planning assumptions (land-use and demographic inputs to match new horizon year; 2020 Census and locality updates)

Major Change #2: Financial Plan Revisions

- Key Considerations:
  - Financial plan to reflect:
    - 2050 horizon (5 additional years)
    - IIJA increased level of federal funds and new funding programs
    - Current inflation levels

Schedule:

- Fall 2022: Preliminary Staff Revenue & Expenditure Tabulation
- Winter/Early Spring 2023: Preliminary Agency Revenue & Cost Estimates
- Spring/Summer 2023 Reconciliation/Draft Financial Plan

Major Change #3: New MVEBs For Air Quality Conformity Analysis

- Key Considerations:
  - Federal requirement to use latest planning assumptions and tools (MOVES3 model)
  - Update MVEBs associated with 2008 ozone Maintenance Plan (used old EPA model)
  - Develop new MVEBs for the 2015 ozone standard
  - EPA must find the 2008 Ozone MVEBs adequate for use in conformity for TPB Plan update
  - Planning activities:
    - MVEBs Interagency consultation and coordination; MWAQC action
    - Consider new outyear emissions while setting MVEBs
    - New and Revised MVEBs identified by end of 2023; found adequate for use by the EPA by Spring 2024

Major Change #4: Project Re-submission

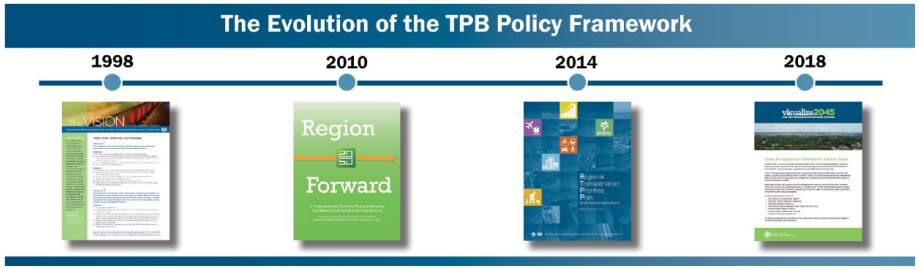
- The TPB and its member agencies will re-examine and re-submit projects, programs, and policies in current Plan
  ("scrubbing" the plan using a zero-based budgeting approach)
  - Exempt projects - under construction or currently funded with federal, state, regional, local or private funds
- TPB members inputs regarding updated projects, programs and policies
  - Staff will schedule virtual meetings between the respective DC, MD and VA board members and technical staff including WMATA staff

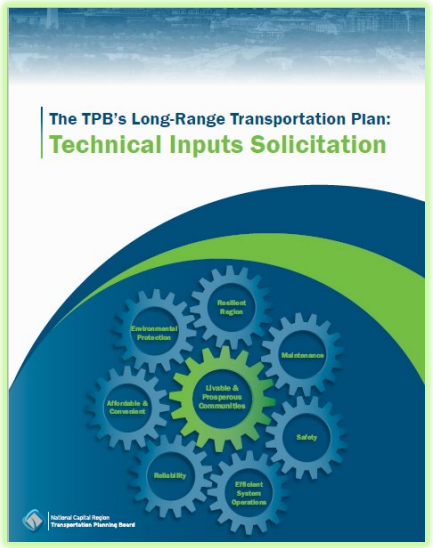
Major Change #4: "Scrubbing" the plan (cont.)

- Key Considerations: Data and Time
  - To support re-examination of projects, the TPB staff will share preliminary project list – exempt and non-exempt projects based on existing data
  - Re-submission of projects will include a "fresh start" – entering / updating all data for projects to be submitted into Project InfoTrak
  - TPB staff are building in additional time to undertake this arduous but important activity – this will be a lot of work for the TPB members' technical staff
  - TPB staff will host technical training sessions in use of InfoTrak database

Products to Support 2024 Update: Synthesized Policy Framework

- Key Considerations:
  - Reflect the main points from the hundreds of pages of various policy documents (Vision, Region Forward, RTPP, AI, CCMS)
  - Resource to support sponsoring agencies critically evaluate the projects for (re) submission
  - Draft to be presented to TPB in November for review





Products to Support 2024 Update: Summarize Scenario Findings

- Key Considerations:
  - Main findings from the hundreds of pages of 8 recent scenario analyses plus internal sensitivity-test findings
  - Resource to support sponsoring agencies critically evaluate the projects for (re) submission
  - To be presented to TPB in November for review

Past TPB/COG Scenario Studies:

- Regional Mobility and Accessibility Study: What If?
- Regional Value Pricing Study (VPL)
- What Would it Take? Scenario
- CLRP Aspirations Scenario Study
- Multi-Sector Approach to Reducing Greenhouse Gas Emissions in the Metropolitan Washington Region Final Technical Report
- Long-Range Plan Task Force (LRPTF) Phase 1 and 2
- 2030 Climate Energy and Action Plan-Risk and Vulnerability Analysis
- Climate Change Mitigation Study of 2021

Preliminary Schedule: Milestones

- Fall 2022: Initiate zero-based budgeting approach
  - Revenue/Preliminary Expenditure Determination
  - Primary project data review to determine exempt and non-exempt projects
- Winter 2023 (Jan-March)
  - January: Technical Inputs Solicitation begins
  - January-March: Sponsor agencies:
    - review and consider synthesized Policy Framework
    - review and consider Scenario findings summary
    - examine inputs re: zero-based budgeting approach
    - meet with board members, TPB staff and agency staff to discuss potential inputs during ZBB approach process

Preliminary Schedule: Milestones

- Spring 2023 (April-June)
  - May 2023: preliminary technical inputs due
  - June 2023: final technical inputs due
- Summer 2023:
  - The TPB will receive a briefing on the draft inputs to the plan/AQC analysis and the draft AQC scope of work and the preliminary financial analysis
  - Public comment period on inputs to the plan/AQC analysis, and AQC scope of work. MWAQC TAC will review this information during its summer meeting
  - The TPB will receive a summary of the public comments on the draft inputs to the plan and AQC analysis; agencies sponsoring the projects will have the opportunity to discuss and advise staff on responses

Preliminary Schedule: Milestones

- Fall 2023 (Sept.-Dec.)
  - October 2023: The TPB will review responses to comments and updates to inputs to the plan and scope of work for the AQC analysis. The TPB will be asked to accept the comments and approve the inputs and scope, authorizing staff to begin analysis
  - December 2023: MWAQC approves MVEBs (drop-dead date)
- Spring 2024:
  - EPA finds MVEBs adequate for use in conformity
  - Continue Air Quality Conformity analysis, financial analysis
- Summer 2024
  - August 2024: Transportation Improvement Program (TIP) inputs due for the FY 2025-2028 TIP

Preliminary Schedule: Milestones

- Fall 2024 (Sept.-Dec)
  - October 2024: The TPB will receive a briefing on the draft results of the AQC analysis for the plan and TIP
  - November 2024: The TPB will receive a summary of the comments received on the analysis, the agencies sponsoring the projects will have the opportunity to advise staff on responses to comments
  - December 2024:
    - The TPB will review and be asked to accept the responses to the comments on the results of the AQC analysis
    - The TPB will be asked to approve the results of the AQC analysis and adopt the updated plan and the FY 2025-2028 TIP

Stacy Cook

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NOW, THEREFORE, BE IT FURTHER RESOLVED THAT: the National Capital Region Transportation Planning Board will initiate a full update to the Long-Range Transportation Plan upon completion and adoption of the Visualize 2045 Plan with a target completion date of 2024, and that—

1. The development of such plan will include the consideration of multiple build scenarios and an analysis of each scenario's impact on the region's adopted goals and targets, including reduction of greenhouse gas emissions;
2. The development of such plan will be based on the concept of 'zero-based budgeting' where all projects, including those currently included in the Plan, must be resubmitted for consideration in such Plan, provided that projects currently under construction or currently funded with federal, state, regional, local or private funds shall be exempt from such requirement; and,
3. TPB will use the above scenario analysis to inform the development of the 2024 and future updates of the Long-Range Transportation Plan.

As revised and adopted by the Transportation Planning Board at its regular meeting on June 16, 2021

PERFORMANCE BASED PLANNING & PROGRAMMING

2022-2025 Targets:

- Highway Assets (Pavement & Bridge Condition)
- Highway System Performance: Travel Time Reliability

Eric Randall, TPB Transportation Engineer

Transportation Planning Board
October 19, 2022

Agenda Item 7

National Capital Region
Transportation Planning Board

Contents of Presentation

- Highway Asset Four-year Targets
- Data Visualization: Bridge Condition
- Highway System Performance: Travel Time Reliability Four-year Targets
- Resolution

Performance Based Planning and Programming

As briefed at September meeting:

- Federal surface transportation regulations require the implementation of performance based planning and programming (PBPP) by State DOTs, MPOs, and transit agencies
- State DOTs, MPOs, and providers of public transportation must adopt targets in the each of the required performance areas and link investment priorities to the achievement of performance targets in the TIP and the LRTP
- Next round of 4-year targets for the two areas of Highway Assets and Highway Systems Performance for the period 2022-2025 are due for adoption

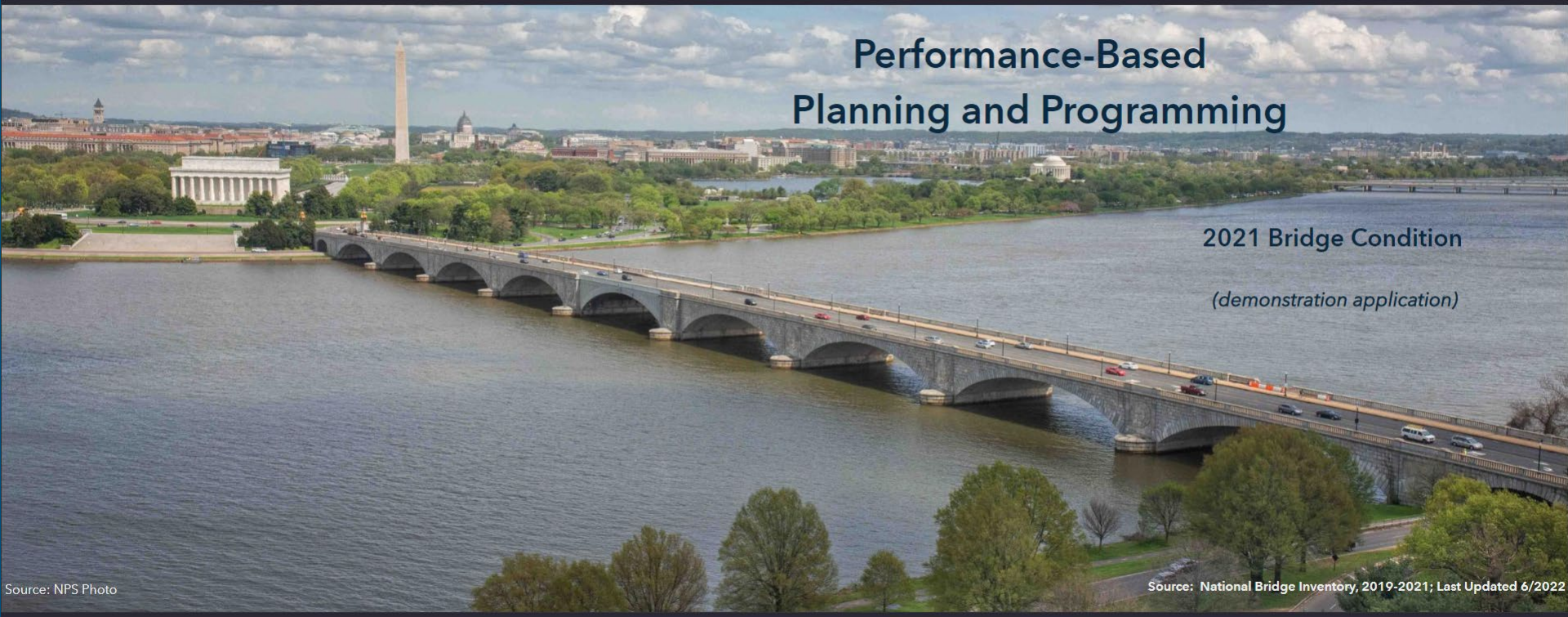
Highway Asset DRAFT 2022-2025 Targets for the NCR

Interstate Pavement	2022 – 2025 Four Year Target
(1) Percentage of pavements on the **Interstate** System in **Good** condition	**44.8%**
(2) Percentage of pavements on the **Interstate** System in **Poor** condition	**1.6%**
NHS (Non-Interstate) Pavement	
(3) Percentage of pavements on the **NHS** (excl. Interstate) in **Good** condition	**26.3%**
(4) Percentage of pavements on the **NHS** (excl. Interstate) in **Poor** condition	**7.3%**
Bridges	
(5) Percentage of **NHS Bridges** Classified as in **Good** Condition	**25.7%**
(6) Percentage of **NHS Bridges** Classified as in **Poor** Condition	**4.2%**

Data Visualization: Bridge Condition

https://gis.mwcog.org/webmaps/tpb/pbpp/highway_assets/

- Note: webmap still in development



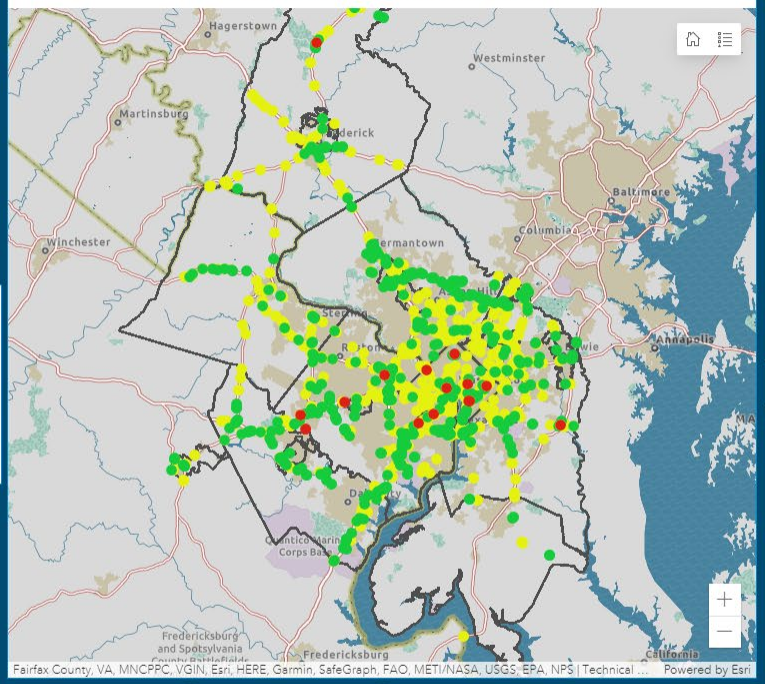
Data Visualization: Bridge Condition (2)

Performance Based Planning & Programming: Bridge Condition
2021 National Bridge Inventory

State
None

Jurisdiction
Selection required

2021 Bridges on the National Highway System



Good	Fair	Poor	Total Bridges
584	849	15	1,448

NHS Bridge Conditions by State

Selection required on one or more elements

State | Jurisdiction

NHS Bridge Ownership by State

Selection required on one or more elements

State | Jurisdiction

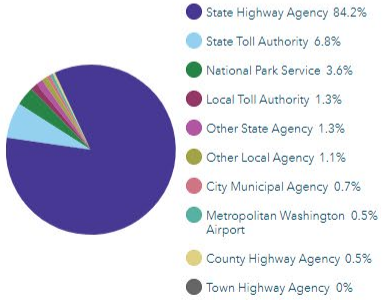
Structurally Deficient NHS Bridges by State

Selection required on one or more elements

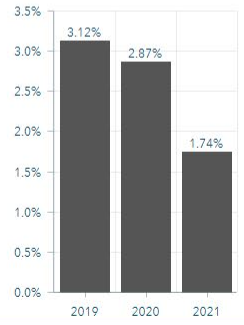
State | Jurisdiction

Regional NHS Bridge Conditions

Regional NHS Bridge Ownership



Regional Structurally Deficient NHS Bridges



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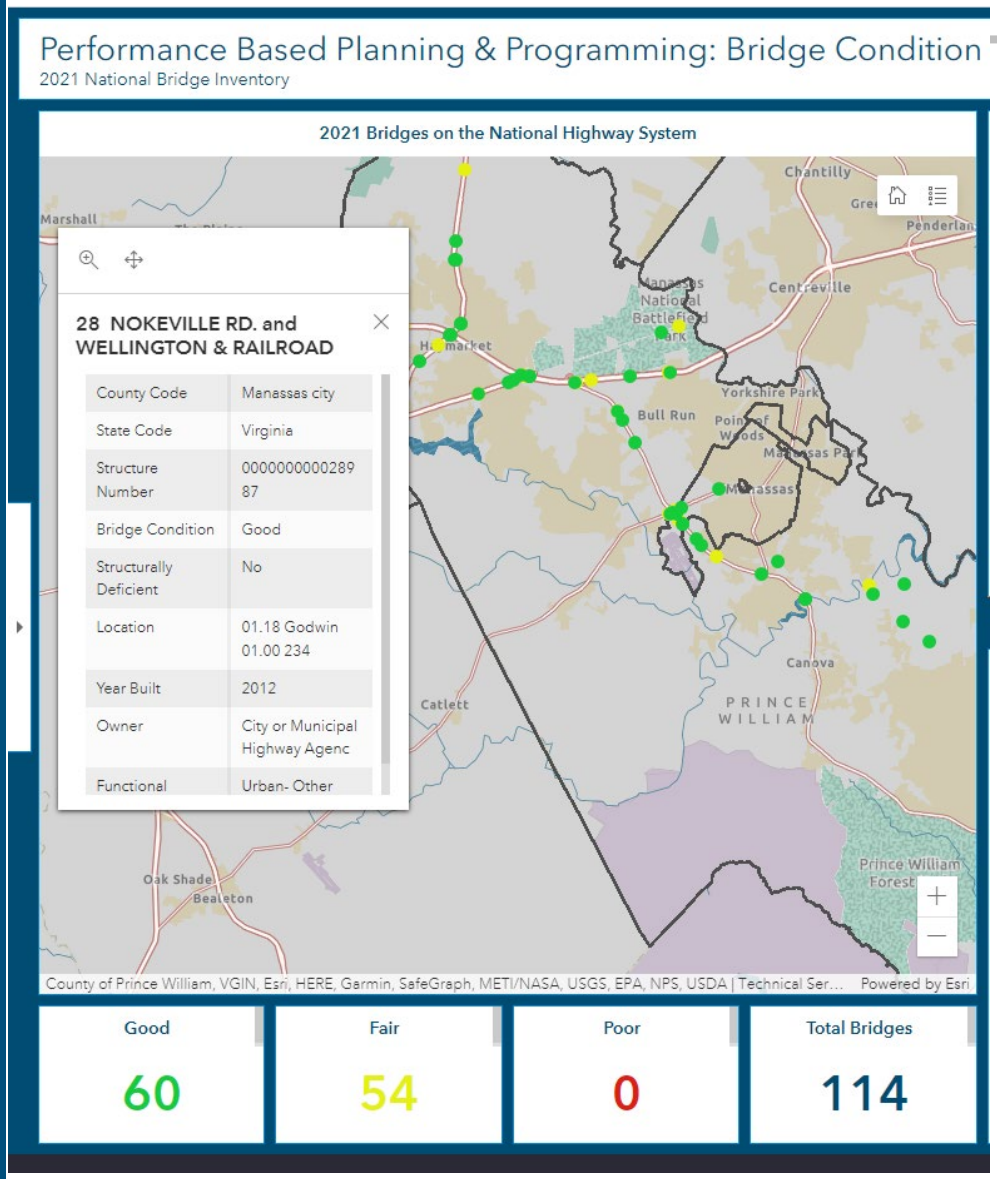
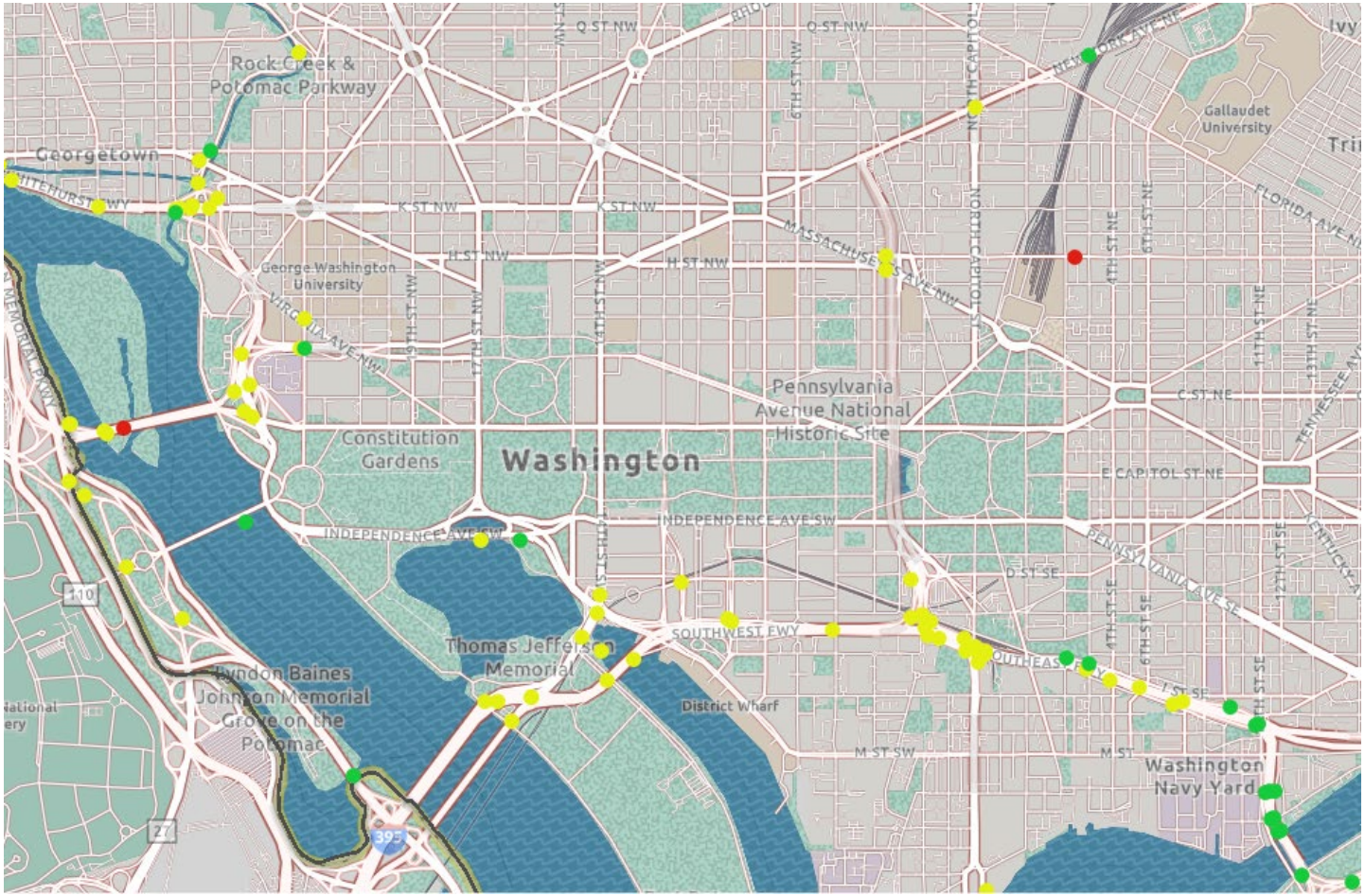
Data Visualization: Bridge Condition (3)



- Can also select state or jurisdiction for specific detail
  - ➢ Example: Prince William County and the City of Manassas
- Select specific bridge for more detail

Data Visualization: Bridge Condition (4)

- Can expand map for larger view
  - Example: two ‘Poor’ bridges: TR Bridge and H Street Bridge



Highway System Performance: Travel Time Reliability Targets

Highway System Performance: Travel Time Reliability
DRAFT 2022-2025 Targets for the NCR

Highway System Performance: Travel Time Reliability for the NCR	2022 – 2025 Four Year Target
Travel Time Reliability (TTR) – Interstate	61.1%
Travel Time Reliability (TTR) – Non-Interstate NHS	78.6%
Truck Travel Time Reliability (TTTR) Index	2.56

Resolution R3-2023

TPB staff request approval of Resolution R3-2023

- To adopt targets for Highway Assets and Highway System Performance Travel Time Reliability performance measures for the period 2022-2025 for the National Capital Region metropolitan planning area

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National Capital Region
Transportation Planning Board

2022 STATE OF THE COMMUTE SURVEY - HIGHLIGHTS

Commuter Connections TDM Evaluation

Nicholas Ramfos
Transportation Operations Programs Director

National Capital Region Transportation Planning Board
October 19, 2022

COMMUTER CONNECTIONS
A SMARTER WAY TO WORK

Survey Background

- Eighth triennial survey (2001, 04, 07, 10, 13, 16, 19, 2022)
- Interviewed 8,396 employed residents of COG region (95% +/- 1.1%)
- Address-based sample method –randomly-selected postal addresses received postcard via USPS with link to Internet survey
- Sample plan set minimum target for each jurisdiction, with higher targets for larger jurisdictions and jurisdictions in center of region
- Jurisdiction counts ranged from 511 –971 (95% +/- 4.3 for smallest sample)
- County level results were expanded to match the regional worker population
- Data also were weighted to ACS data to adjust sample for race/ethnicity and age

COMMUTER CONNECTIONS
A SMARTER WAY TO WORK

SOC 2022 Survey Topics

Continued tracking questions

- Current/past commute patterns
- Telework
- Commute satisfaction, commute ease
- Work/home location moves and impact on commute
- Access to transit, HOV/Express lanes, P&R
- Commute advertising awareness and influence
- Awareness of CC, regional and local commute services
- Employer commute assistance
- Technology initiatives and driverless cars

New questions in 2022

- Commute and TW before pandemic (early 2020)
- Pandemic significance on commute changes
- Telework experience

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Coronavirus Pandemic Disruptions To Commute Patterns

Many aspects of commuting changed but some stayed surprisingly consistent

- Widespread commute disruptions
- Telework explosion!
- Increased use of drive alone for commute trips when not teleworking
- Declines in transit use across ALL commuter characteristics
- Stable commute distance (mi) but shorter commute time (min)
- Stable commute satisfaction but higher share of workers with easier commutes
- Stable % of work location changes but higher % of home location changes

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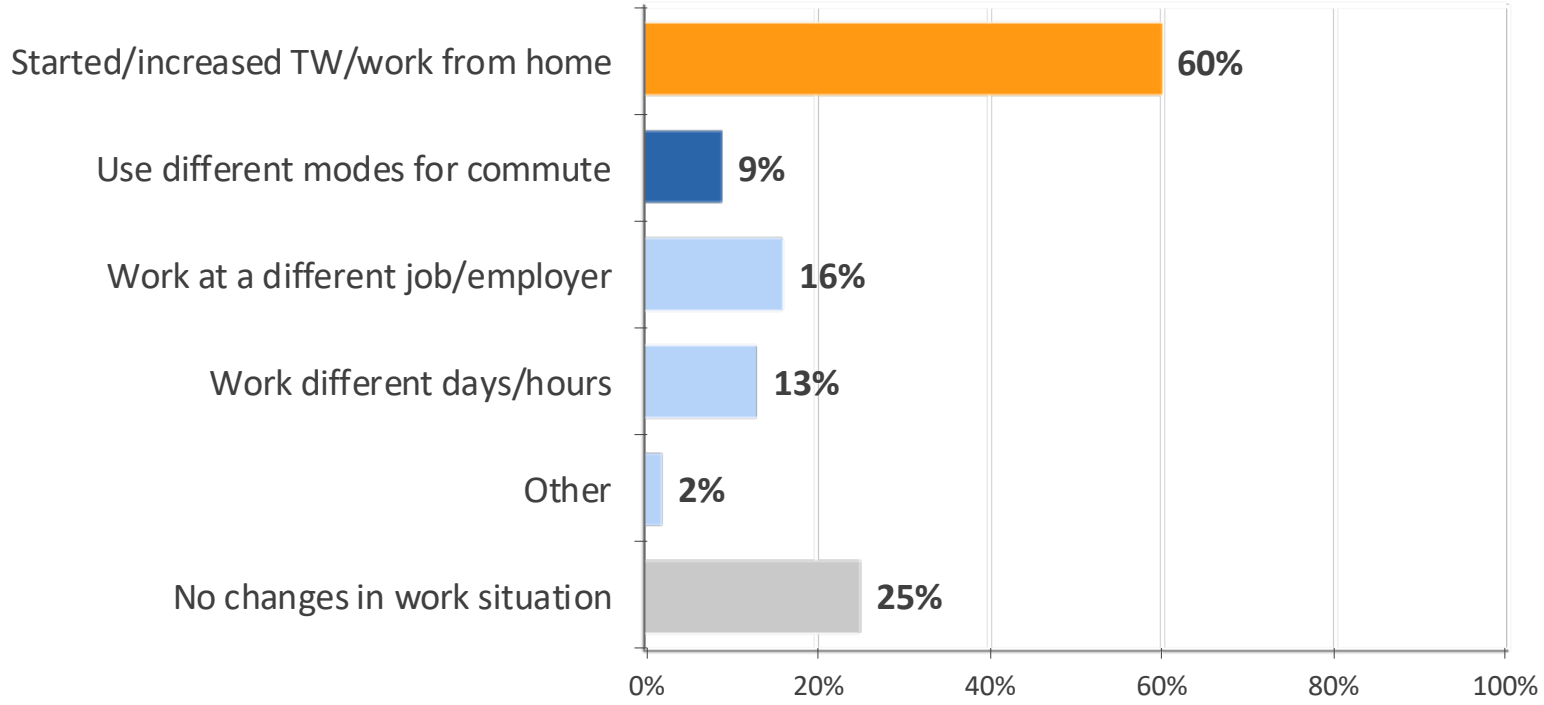
Worker Commute Changes

- 60% started or increased telework (*32% shifted to full-time telework*).
- Almost one in ten changed the travel mode on days they commute.
- Almost three in ten made change in their work arrangement



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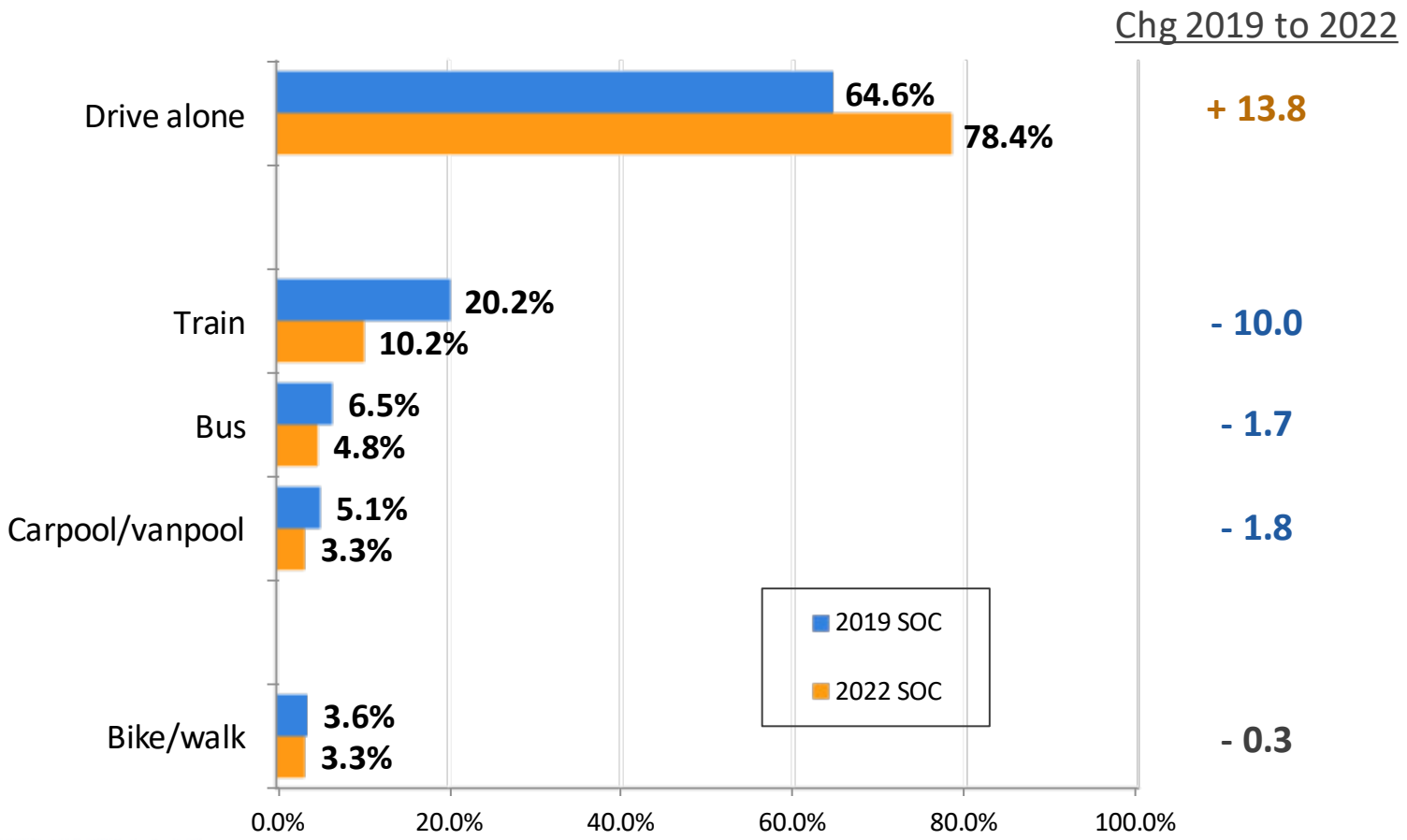
Weekly Commute Trips By Mode: Trend

Excluding teleworking as a travel mode, substantive change in commuting trend



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Changes in Commute Mode

- All non-drive alone modes of commuting lost commuters that switched to either telework OR to driving alone

Pre-pandemic Primary Mode (Early 2020)	Current Primary Commute Mode (Early 2022)					
	Telework	Drive Alone	Carpool/ Vanpool	Bus	Train	Bike/ Walk
All respondents	45%	42%	2%	3%	6%	2%
Drive alone	34%	62%	1%	1%	1%	1%
Carpool/vanpool	50%	16%	32%	1%	1%	0%
Bus	50%	14%	2%	28%	4%	2%
Train	63%	10%	1%	2%	23%	1%
Bike/walk	55%	10%	2%	1%	4%	28%
Telework	97%	3%	0%	0%	0%	0%

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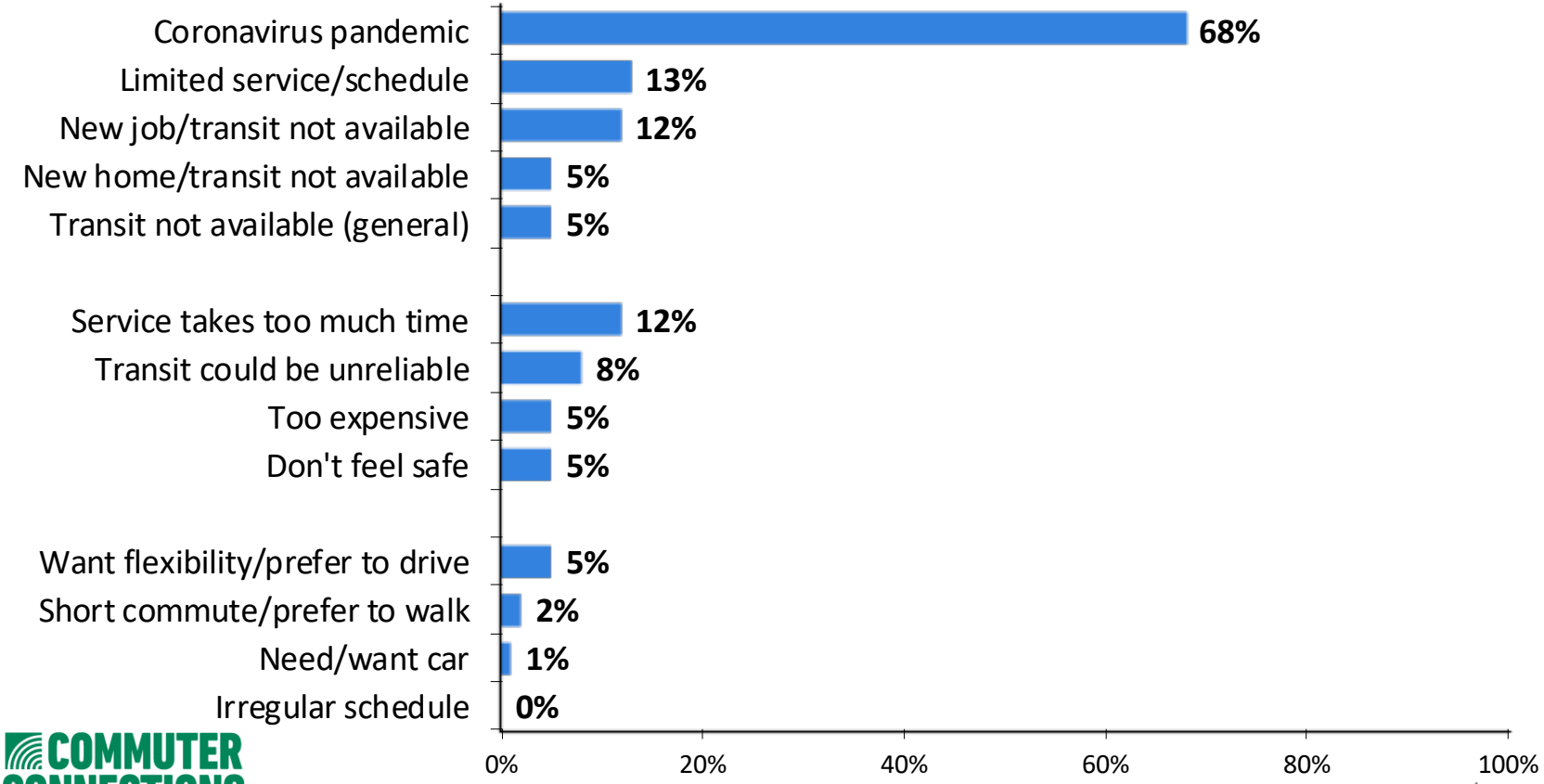
Reasons For Discontinuing Transit Use

- Pandemic related concerns by far main reason (68%)
- Limited Service/Schedule Issues (some pandemic related) next highest (13%)
- Unavailability of transit at new job (12%)
- Service taking too much time (some non-pandemic 12%)



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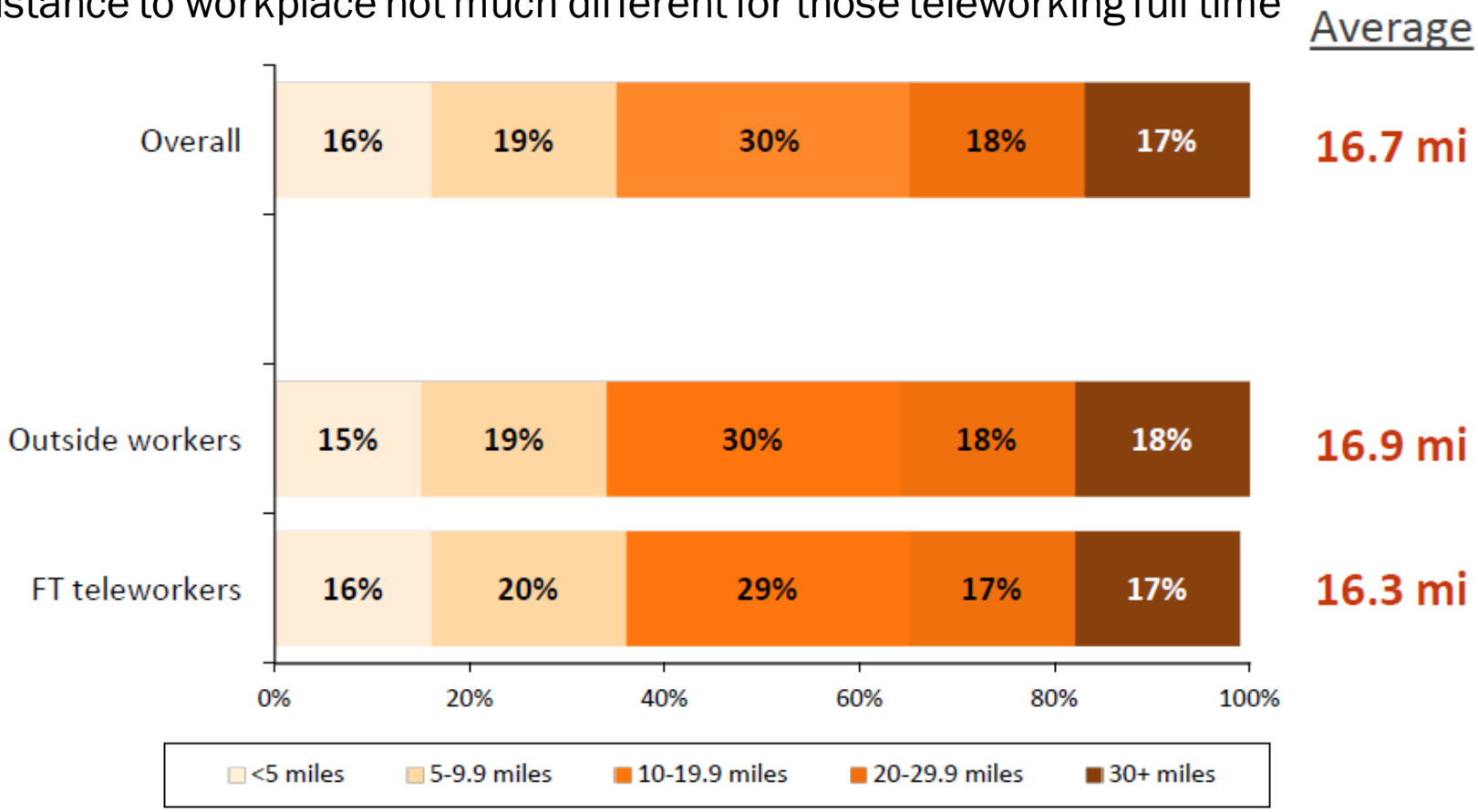
Commute Distance

- Average for those not working form home 16.9 mi. similar to pre-pandemic (17.1 mi)
- Those teleworking avoided on average 16.3 mi of travel
- Distance to workplace not much different for those teleworking full time



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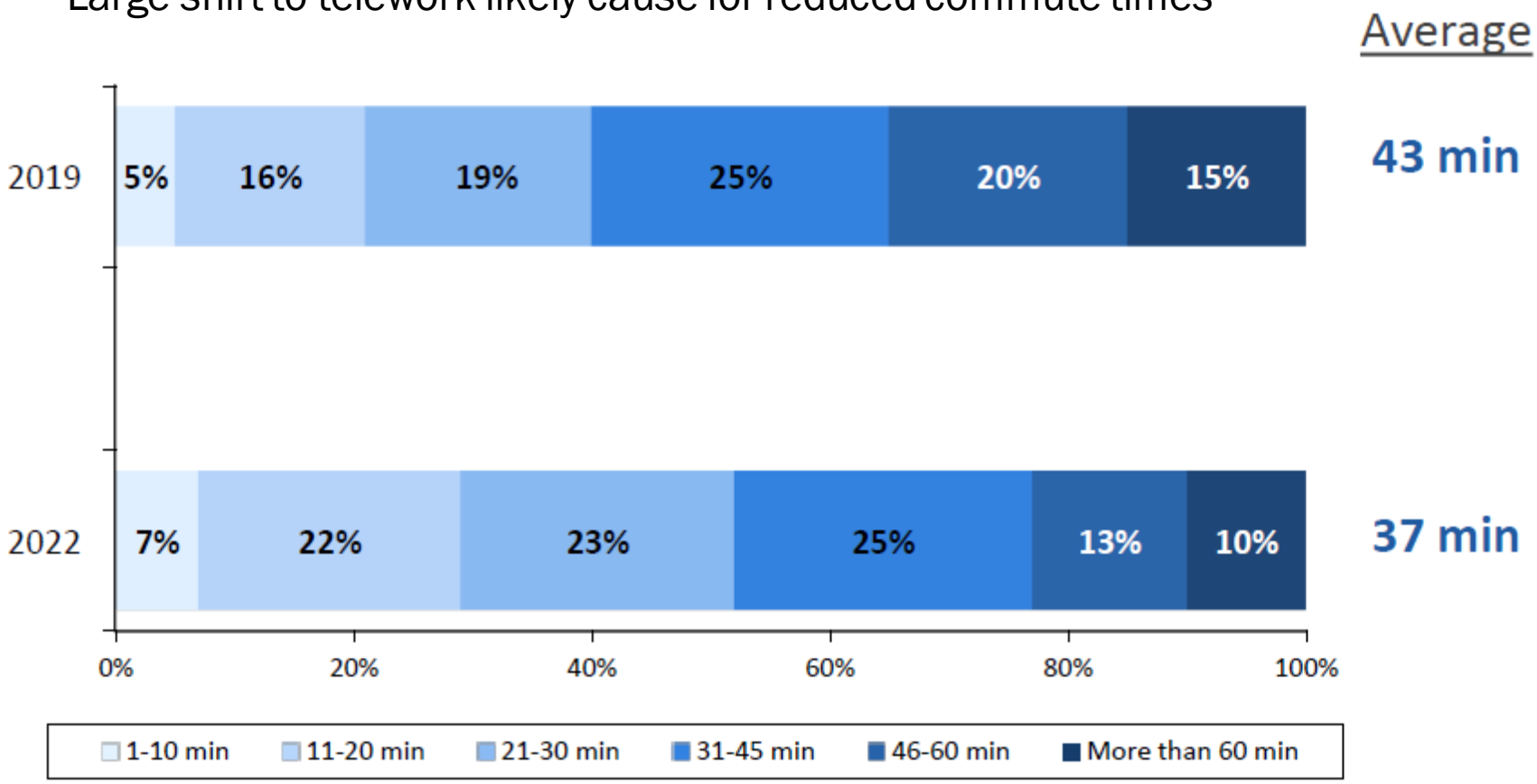
Commute Time

- Overall Average commute time dropped considerably
- Fewer commuters with commutes more than 45 minutes
- Large shift to telework likely cause for reduced commute times



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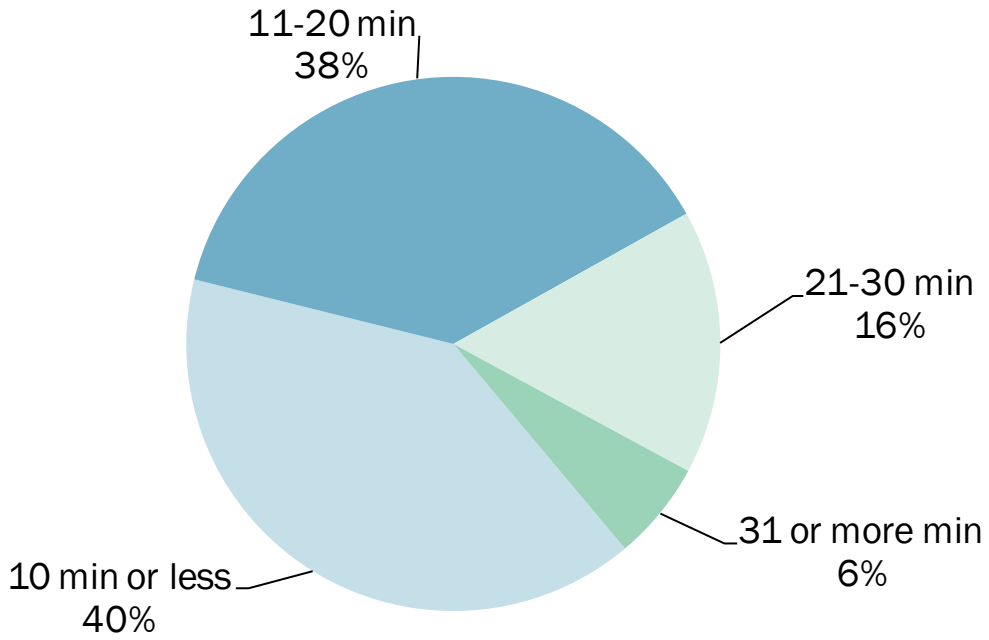
HOV and Express Lanes Time Savings

- About 60% of HOV/HOT lane users cite time savings of 11 to more than 30 minutes
- A bit more than 1 in 5 cite time savings of more than 20 minutes



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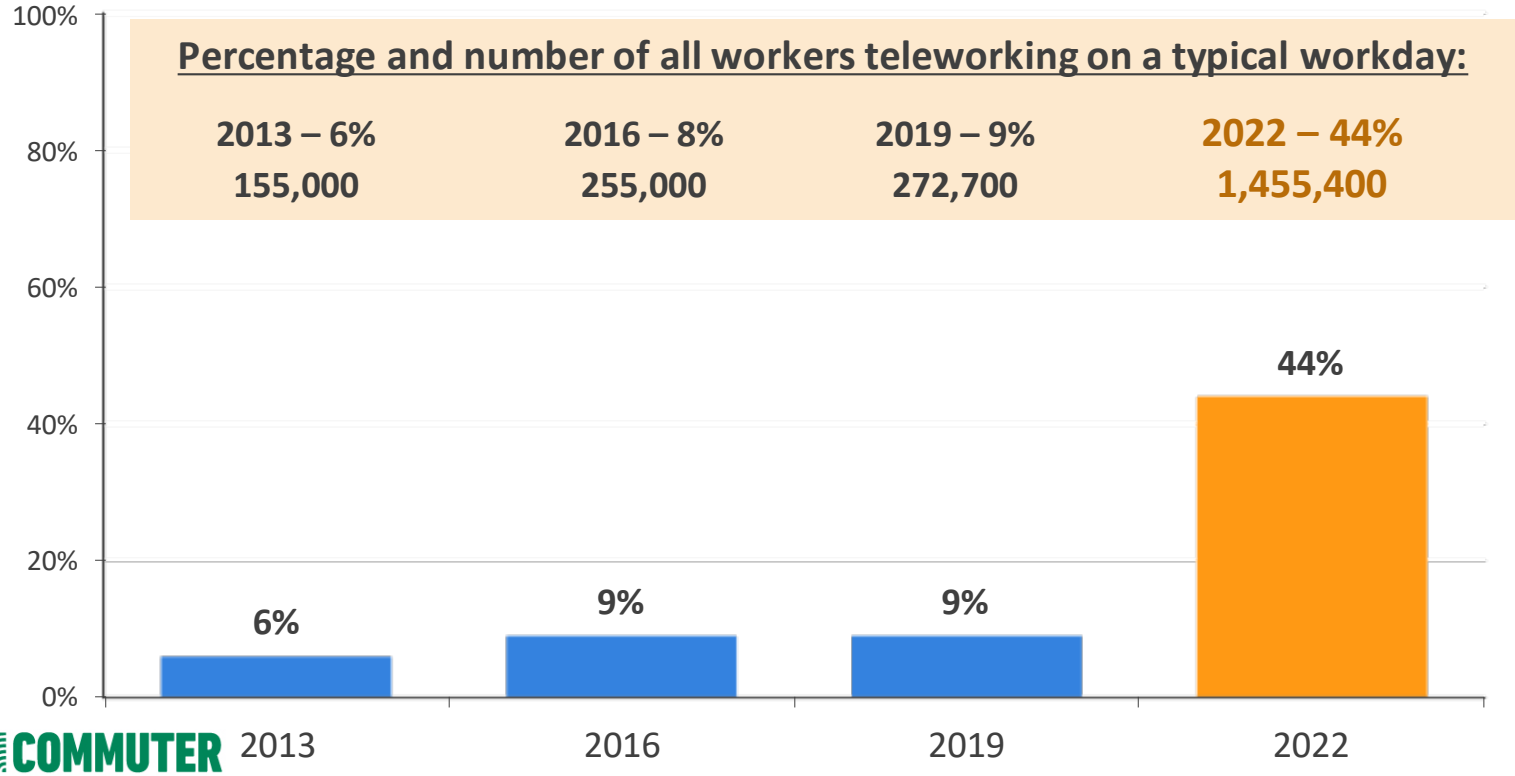
Number of Telecommuters/Teleworkers

- Typical Workday Telework has increased dramatically
  - Almost fivefold increase since 2019
  - Nearly 1.5 Million Regional Workers Telework on a Typical Workday



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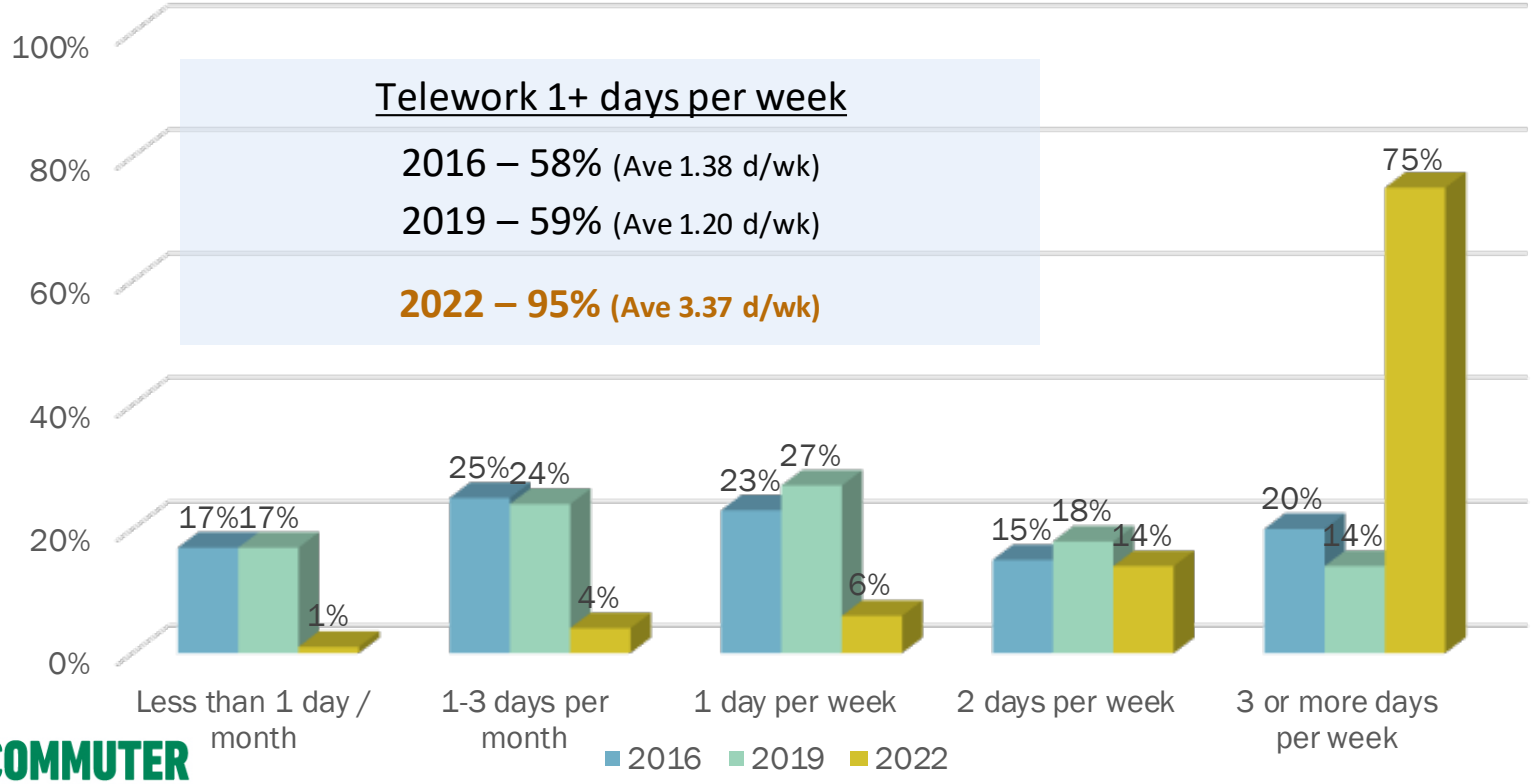
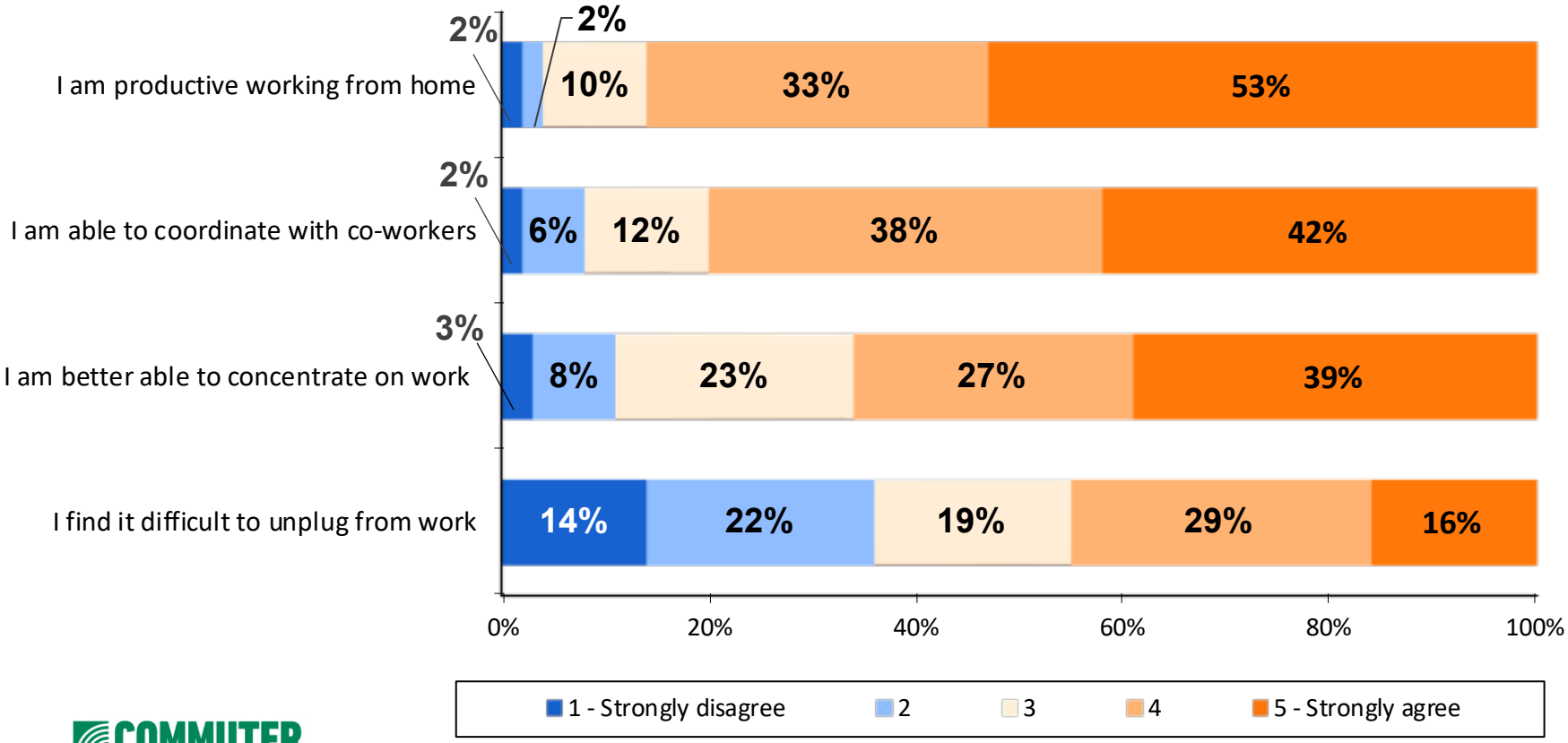
Telework Frequency

- Average Frequency of Weekly Telework almost tripled since 2019
  - From 1.2 days/week to 3.4 days/week
- Three quarters of teleworkers now telework 3 or more days / week
- Only 6% of teleworkers telework 1 day a week



Teleworking Experience

- At least 80% of Teleworkers reported being more productive and able to coordinate with co-workers
- 45% of Teleworkers reported difficulty "unplugging" from work



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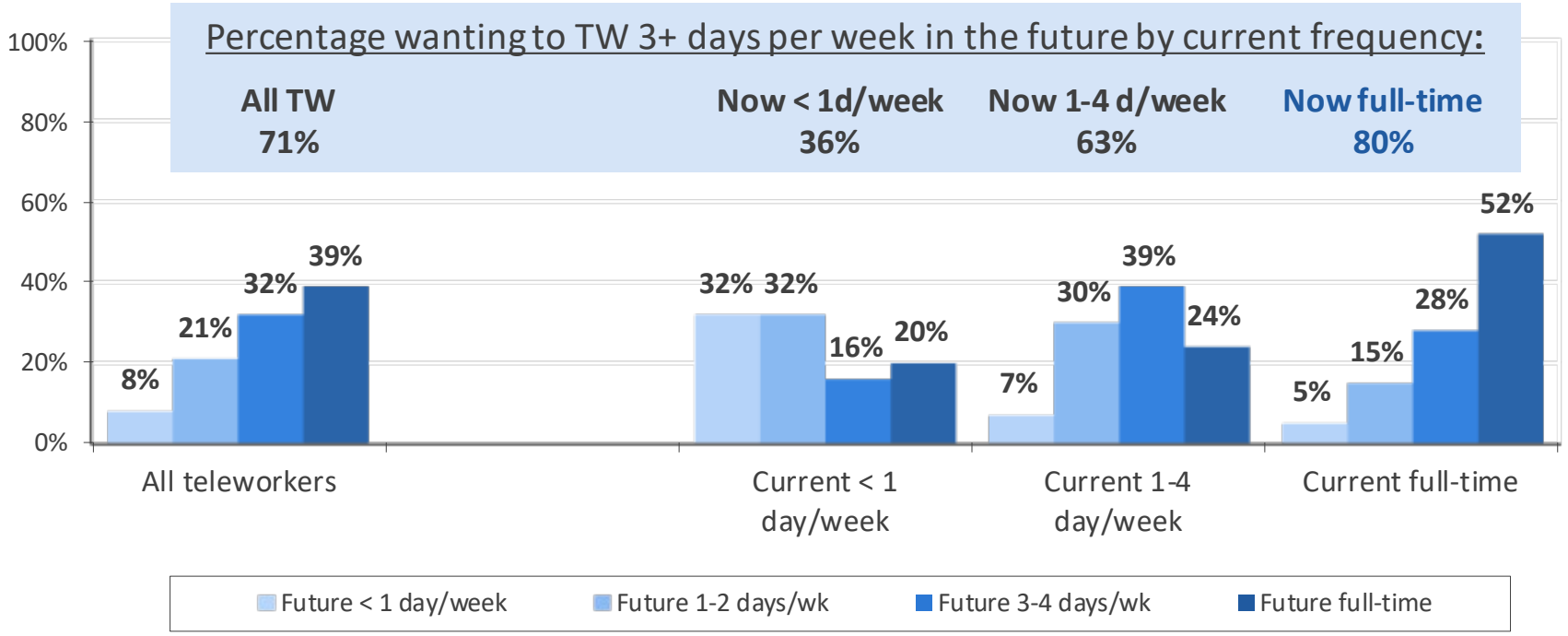
Future Teleworking

- 71% of all current Teleworkers would like to Telework 3 or more days a week
- 36% of commuters teleworking less than 1 day/week would like to Telework 3 or more days/week
- About 25% of commuters teleworking 1-4 days/week would like to Telework full-time



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Work /Home Locational Changes

- Residents in the region's core areas changed their work and home locations in greater proportion than those in the inner and outer jurisdictions

Location Changes 2019 vs 2022

Home Location

11% in 2019

19% in 2022

Work Location

13% in 2019

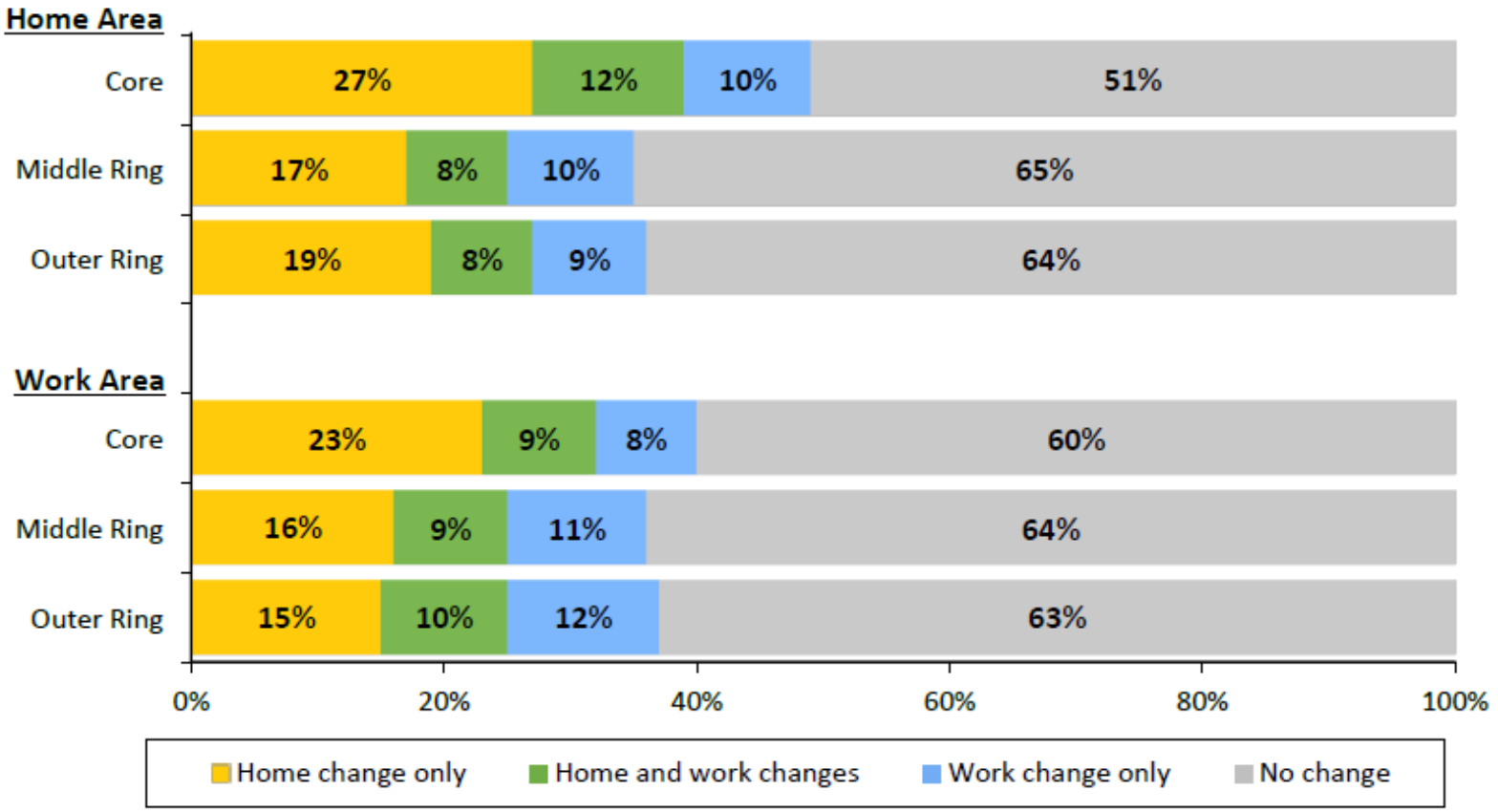
10% in 2022

Home and Work Location

7% in 2019

9% in 2022

(Work Area – Core n = 3,982, Middle Ring n = 2,700, Outer Ring n = 931)



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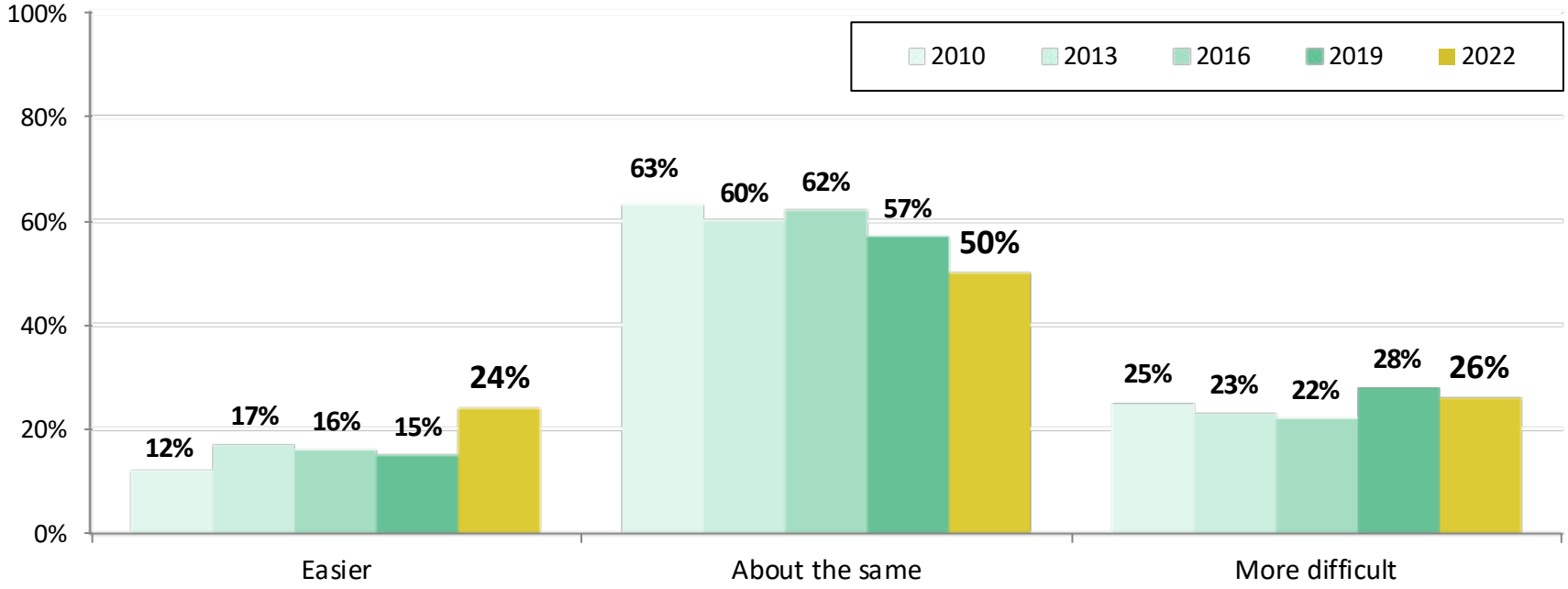
Commute Ease

- More commuters reported easier commute / Fewer reported difficult commute
- Commuters in region's core area reported more difficult commute than those in inner jurisdiction (33% Vs 24%)
- Significantly higher proportion of transit commuters reported difficult commute (42% Bus, 50% Train)



More Difficult Commute

Home Area: Inner Core – 33%, Middle Ring – 24%, Outer Ring – 35%

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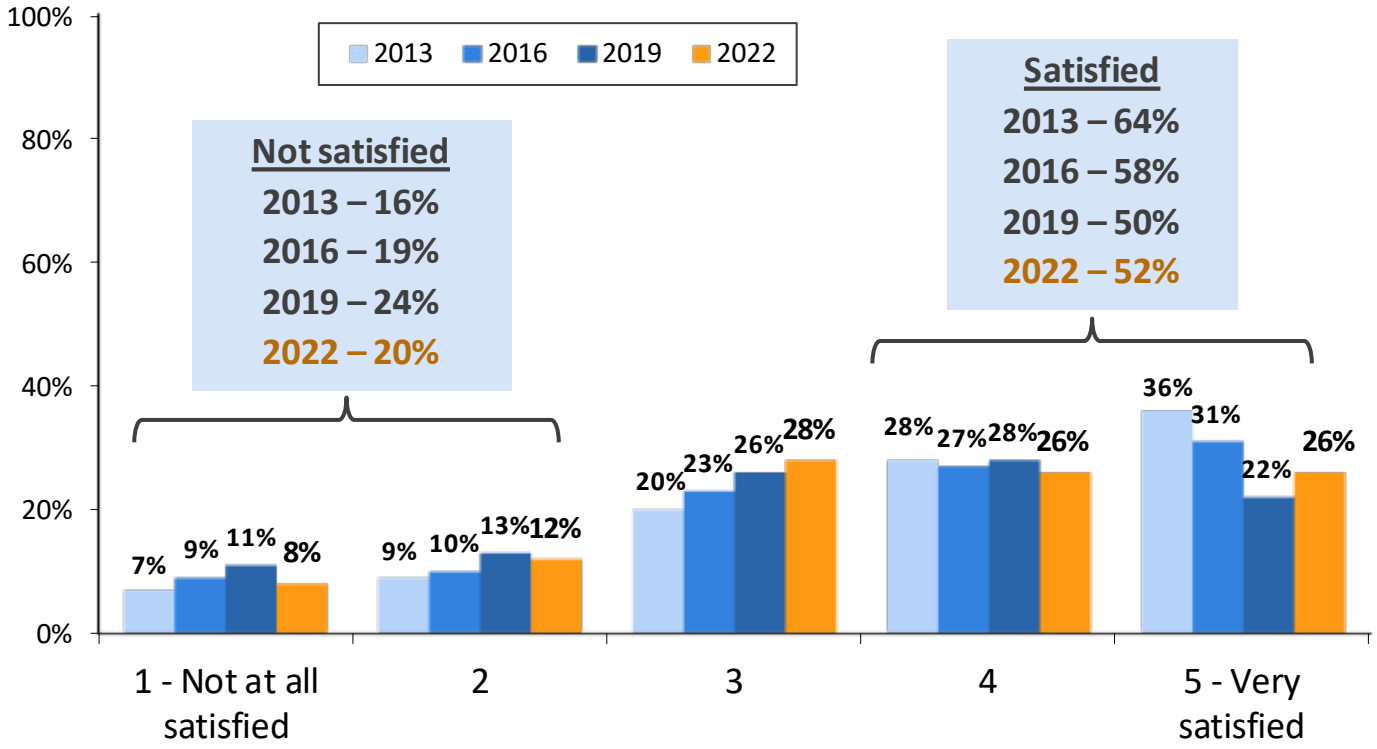
Commute Satisfaction by Location & Time

52% of 2022 Respondents Were Satisfied with their Commute, About the Same as in 2019 (50%)

Core area residents were more satisfied (60%) than were Middle Ring (54%) or Outer Ring (45%) residents; Satisfaction dropped as travel time increased.

Satisfied by Travel Time

- 1-10 min – 91%
- 11-20 min – 79%
- 21-30 min – 59%
- 31-45 min – 40%
- 46-60 min – 28%
- > 60 min – 17%



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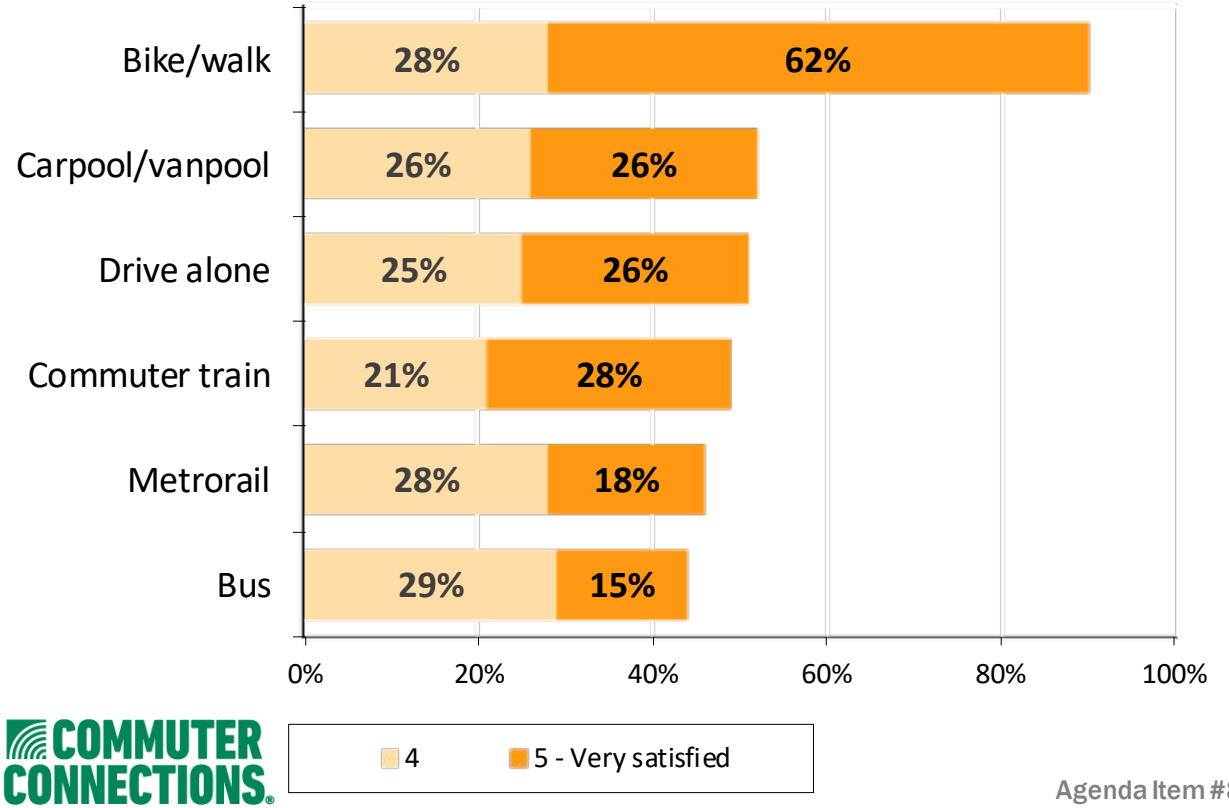
Commute Satisfaction by Mode

Bikers/Walkers Were Most Satisfied; Metrorail & Bus Riders Were Least Satisfied

Commuters who carpooled/vanpooled or drove alone reported higher satisfaction in 2022 than in 2019. Transit riders were LESS satisfied in 2022



	2016	2019	2022
Bike/walk	97%	92%	90%
Carpool/vanpool	66%	48%	**52%**
Drive alone	57%	45%	**51%**
Commuter train	70%	56%	**49%**
Metrorail	48%	56%	**46%**
Bus	66%	62%	**44%**

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Next Steps

- Received and Reviewed Comments on Technical Report which was reviewed endorsed for release by the Commuter Connections Subcommittee
- Finalize Technical Report
- Prepare General Public Report and Topic Summary brochures for distribution

Access Draft Technical Report at this link.

Additional Summary findings including Marketing and Brand Awareness and Automated Transportation at this link.

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BUS TRANSIT SERVICE EQUITY – 2022 UPDATE

Overview

Eric Randall, TPB Transportation Engineer

Transportation Planning Board
October 19, 2022

Agenda Item 9

National Capital Region
Transportation Planning Board

Presentation Outline

- Purpose of 2022 Update
- Sample Map: Regional People of Color – Access to Bus Stops
- Key Findings – Regional Access
- Bus Transit Equity Webmap – *Demonstration*

Purpose of 2022 Update

- Updates the analysis prepared last year and briefed to the TPB in October 2021
- Information for long term (post-pandemic) service changes to improve the equity of bus service in the region
- The analysis evaluated the locations of select population groups (e.g., people of color, low-income households, non-native English speakers) in relation to local bus transit stop locations, frequency of service, and other factors
- Analysis and webmap prepared by ICF Consulting and Foursquare Integrated Transportation Planning

Findings – Regional Access

Sixty percent of the total population in the COG region is within a ¼ mile of a local bus stop

- Only 35% have access to 15-minute or better service in the AM peak period

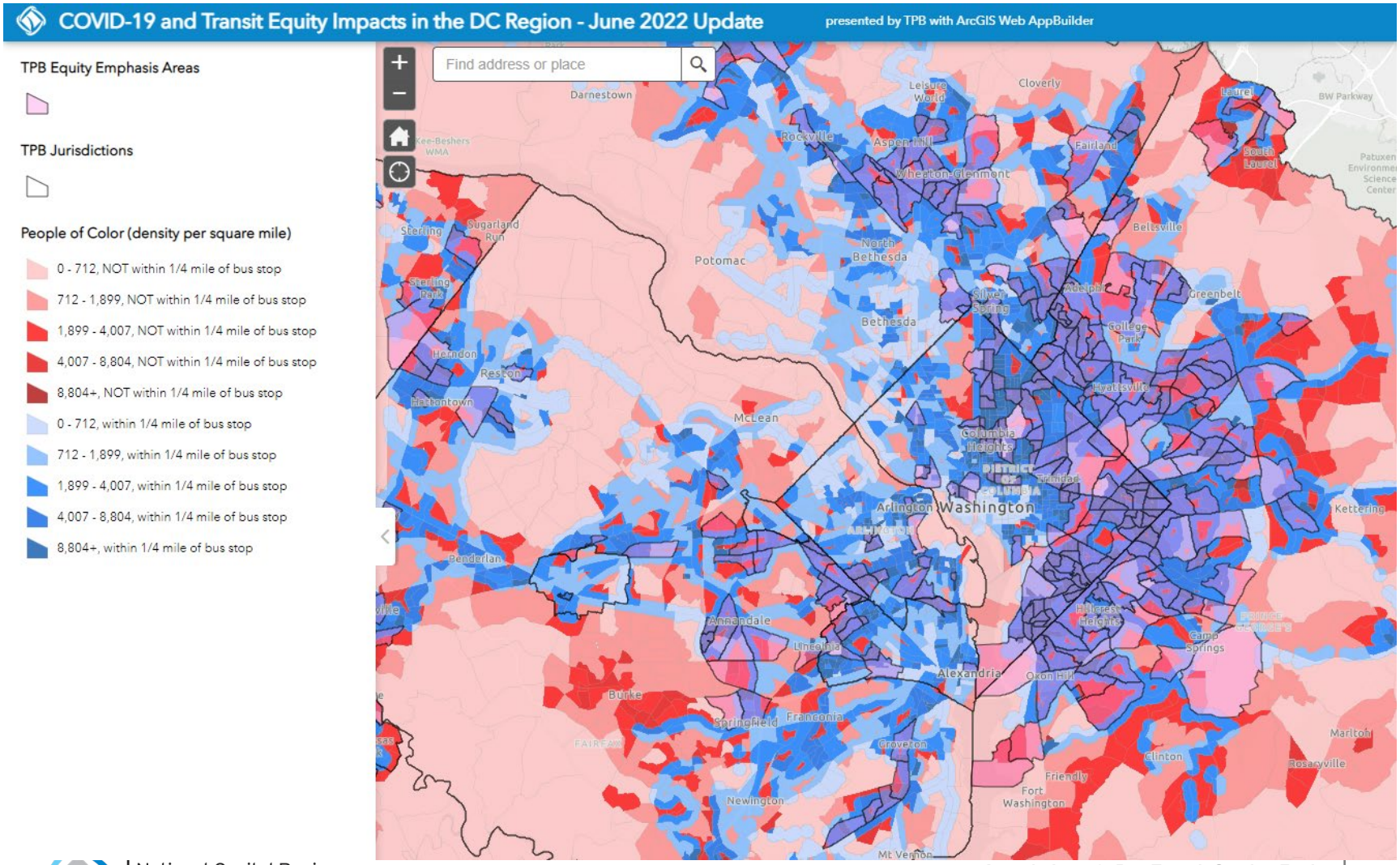
Persons of color, people with low incomes, and zero and one-car households have higher access to bus stops than the general population

- 65% of people of color and 74% of low-income households are within a ¼ mile of bus stops
- However, only 35% of people of color and 43% of low-income households have access to 15-minute or better service in the peak periods

The low percentage of access to frequent service, even in the peak periods, remains a concern, particularly for quality of life and jobs access

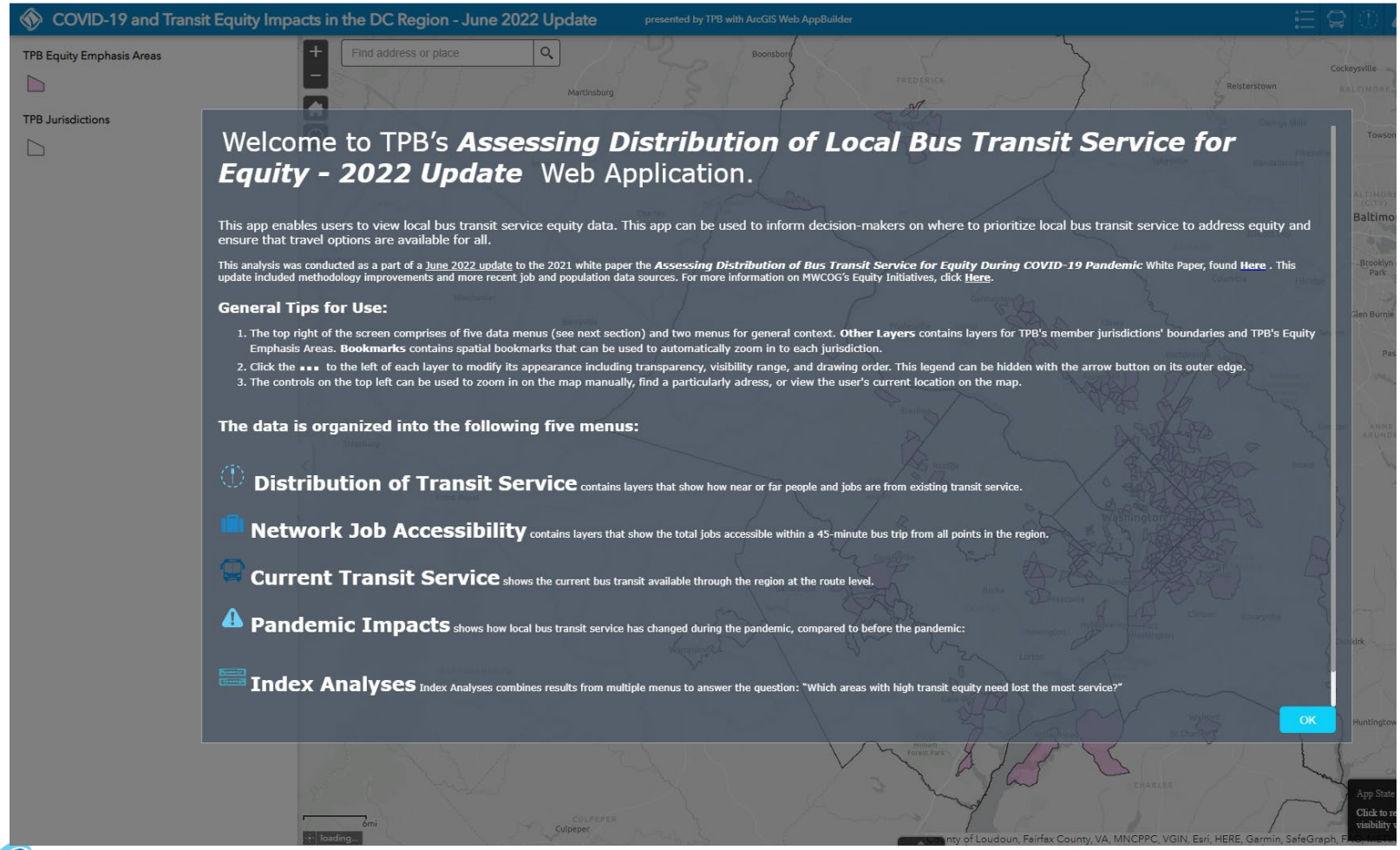
People of Color – Access to Local Bus Stops

- Any area that is dark red is of high priority for transit service



Transit Equity Webmap - *Demonstration*

https://fitp.maps.arcgis.com/apps/webappviewer/index.html?id=9947fb0f78084a06aae2e747e093964b



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National Capital Region
Transportation Planning Board

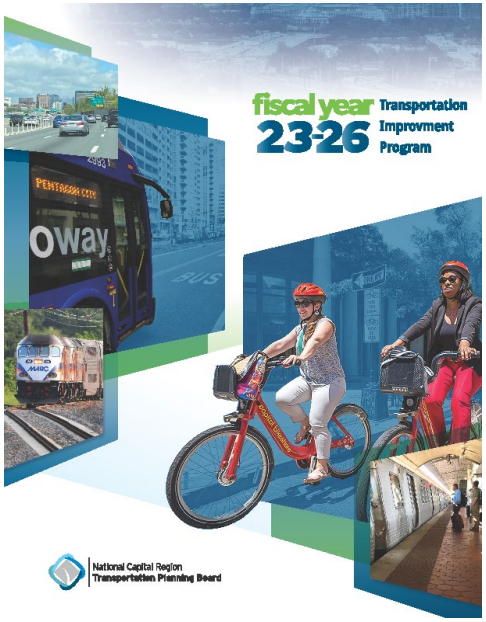
VISUALIZE 2045 AND THE 2024 PLAN UPDATE

Stacy Cook, TPB Transportation Planner

Transportation Planning Board
Agenda Item 10
October 19, 2022

National Capital Region
Transportation Planning Board

Conformity for the Visualize 2045 Update and FY23-FY26 TIP is Approved!

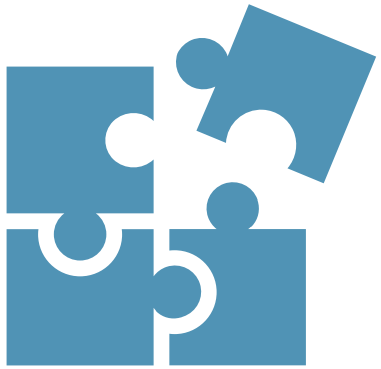


Federal Agencies Approved the Conformity Findings on August 25, 2022

This "starts the clock."
For TPB's next plan, conformity approval would need to be no later than August 25, 2026
The TPB is aiming for a 2024 Update

National Capital Region
Transportation Planning Board

2024 Plan Update: Major Changes



1. Update Non-transportation Elements
2. Financial Plan Revisions
3. New Motor Vehicle Emissions Budgets (MVEBs)
4. Projects Re-examination / Re-submission

2024 Plan Update: Major Activities

1. **Non-transportation Element Updates**
   - Extend outyear of Plan from 2045 to 2050
   - Update land-use and demographic assumptions (Population/Employment/Households) (2020 Census based; Post COVID, 2020 - 2050)
2. **Financial Plan Revisions**
   - Revenue and Costs for five additional years (2046 - 2050)
   - IIJA - federal reauthorization-based revenues
   - Project costs reflecting latest inflation factor
3. **New Motor Vehicle Emissions Budgets (MVEBs)**
   - Revised MVEBs for 2008 Ozone Standards
   - New MVEBs for 2015 Ozone Standards
4. **Re-examine/Re-submit Projects, Programs, Policies**
   - More aligned with TPB's enhanced policy priorities
   - More reflective of TPB scenario studies
   - Review /update exempt/non-exempt projects

Major Change #1: Non-transportation Updates

- Key Considerations:
  - A 2050 horizon is critical: federal requirement for a 20-year horizon; If not, plan and TIP amendments restricted as early as CY 2025
  - 2050 COG's Cooperative Forecasts: federal requirement to use latest planning assumptions (land-use and demographic inputs to match new horizon year; 2020 Census and locality updates)

Major Change #2: Financial Plan Revisions

- Key Considerations:
  - Financial plan to reflect:
    - 2050 horizon (5 additional years)
    - IIJA increased level of federal funds and new funding programs
    - Current inflation levels

Schedule:

- Fall 2022: Preliminary Staff Revenue & Expenditure Tabulation
- Winter/Early Spring 2023: Preliminary Agency Revenue & Cost Estimates
- Spring/Summer 2023 Reconciliation/Draft Financial Plan

Major Change #3: New MVEBs For Air Quality Conformity Analysis

- Key Considerations:
  - Federal requirement to use latest planning assumptions and tools (MOVES3 model)
  - Update MVEBs associated with 2008 ozone Maintenance Plan (used old EPA model)
  - Develop new MVEBs for the 2015 ozone standard
  - EPA must find the 2008 Ozone MVEBs adequate for use in conformity for TPB Plan update
  - Planning activities:
    - MVEBs Interagency consultation and coordination; MWAQC action
    - Consider new outyear emissions while setting MVEBs
    - New and Revised MVEBs identified by end of 2023; found adequate for use by the EPA by Spring 2024

Major Change #4: Project Re-submission

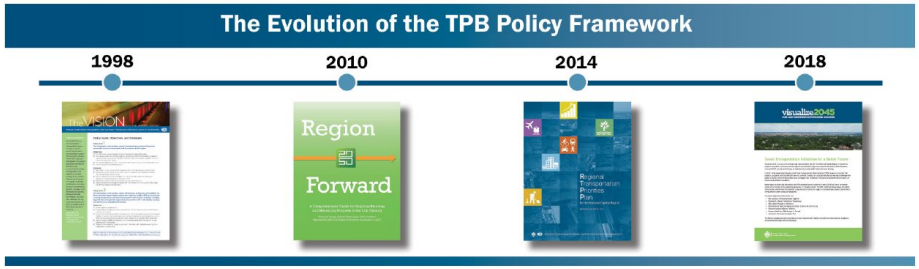
- The TPB and its member agencies will re-examine and re-submit projects, programs, and policies in current Plan
  ("scrubbing" the plan using a zero-based budgeting approach)
  - Exempt projects - under construction or currently funded with federal, state, regional, local or private funds
- TPB members inputs regarding updated projects, programs and policies
  - Staff will schedule virtual meetings between the respective DC, MD and VA board members and technical staff including WMATA staff

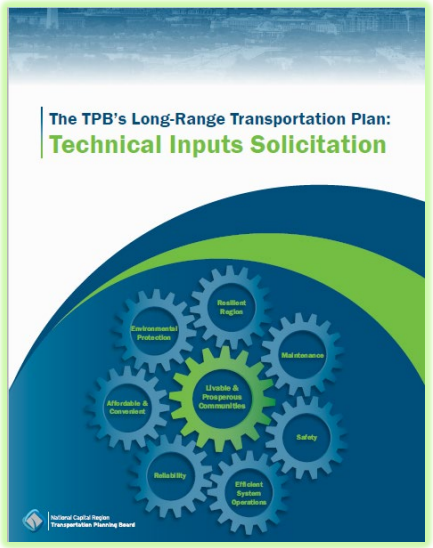
Major Change #4: "Scrubbing" the plan (cont.)

- Key Considerations: Data and Time
  - To support re-examination of projects, the TPB staff will share preliminary project list – exempt and non-exempt projects based on existing data
  - Re-submission of projects will include a "fresh start" – entering / updating all data for projects to be submitted into Project InfoTrak
  - TPB staff are building in additional time to undertake this arduous but important activity – this will be a lot of work for the TPB members' technical staff
  - TPB staff will host technical training sessions in use of InfoTrak database

Products to Support 2024 Update: Synthesized Policy Framework

- Key Considerations:
  - Reflect the main points from the hundreds of pages of various policy documents (Vision, Region Forward, RTPP, AI, CCMS)
  - Resource to support sponsoring agencies critically evaluate the projects for (re) submission
  - Draft to be presented to TPB in November for review





Products to Support 2024 Update: Summarize Scenario Findings

- Key Considerations:
  - Main findings from the hundreds of pages of 8 recent scenario analyses plus internal sensitivity-test findings
  - Resource to support sponsoring agencies critically evaluate the projects for (re) submission
  - To be presented to TPB in November for review

Past TPB/COG Scenario Studies:

- Regional Mobility and Accessibility Study: What If?
- Regional Value Pricing Study (VPL)
- What Would it Take? Scenario
- CLRP Aspirations Scenario Study
- Multi-Sector Approach to Reducing Greenhouse Gas Emissions in the Metropolitan Washington Region Final Technical Report
- Long-Range Plan Task Force (LRPTF) Phase 1 and 2
- 2030 Climate Energy and Action Plan-Risk and Vulnerability Analysis
- Climate Change Mitigation Study of 2021

Preliminary Schedule: Milestones

- Fall 2022: Initiate zero-based budgeting approach
  - Revenue/Preliminary Expenditure Determination
  - Primary project data review to determine exempt and non-exempt projects
- Winter 2023 (Jan-March)
  - January: Technical Inputs Solicitation begins
  - January-March: Sponsor agencies:
    - review and consider synthesized Policy Framework
    - review and consider Scenario findings summary
    - examine inputs re: zero-based budgeting approach
    - meet with board members, TPB staff and agency staff to discuss potential inputs during ZBB approach process

Preliminary Schedule: Milestones

- Spring 2023 (April-June)
  - May 2023: preliminary technical inputs due
  - June 2023: final technical inputs due
- Summer 2023:
  - The TPB will receive a briefing on the draft inputs to the plan/AQC analysis and the draft AQC scope of work and the preliminary financial analysis
  - Public comment period on inputs to the plan/AQC analysis, and AQC scope of work. MWAQC TAC will review this information during its summer meeting
  - The TPB will receive a summary of the public comments on the draft inputs to the plan and AQC analysis; agencies sponsoring the projects will have the opportunity to discuss and advise staff on responses

Preliminary Schedule: Milestones

- Fall 2023 (Sept.-Dec.)
  - October 2023: The TPB will review responses to comments and updates to inputs to the plan and scope of work for the AQC analysis. The TPB will be asked to accept the comments and approve the inputs and scope, authorizing staff to begin analysis
  - December 2023: MWAQC approves MVEBs (drop-dead date)
- Spring 2024:
  - EPA finds MVEBs adequate for use in conformity
  - Continue Air Quality Conformity analysis, financial analysis
- Summer 2024
  - August 2024: Transportation Improvement Program (TIP) inputs due for the FY 2025-2028 TIP

Preliminary Schedule: Milestones

- Fall 2024 (Sept.-Dec)
  - October 2024: The TPB will receive a briefing on the draft results of the AQC analysis for the plan and TIP
  - November 2024: The TPB will receive a summary of the comments received on the analysis, the agencies sponsoring the projects will have the opportunity to advise staff on responses to comments
  - December 2024:
    - The TPB will review and be asked to accept the responses to the comments on the results of the AQC analysis
    - The TPB will be asked to approve the results of the AQC analysis and adopt the updated plan and the FY 2025-2028 TIP

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NOW, THEREFORE, BE IT FURTHER RESOLVED THAT: the National Capital Region Transportation Planning Board will initiate a full update to the Long-Range Transportation Plan upon completion and adoption of the Visualize 2045 Plan with a target completion date of 2024, and that—

1. The development of such plan will include the consideration of multiple build scenarios and an analysis of each scenario's impact on the region's adopted goals and targets, including reduction of greenhouse gas emissions;
2. The development of such plan will be based on the concept of 'zero-based budgeting' where all projects, including those currently included in the Plan, must be resubmitted for consideration in such Plan, provided that projects currently under construction or currently funded with federal, state, regional, local or private funds shall be exempt from such requirement; and,
3. TPB will use the above scenario analysis to inform the development of the 2024 and future updates of the Long-Range Transportation Plan.

As revised and adopted by the Transportation Planning Board at its regular meeting on June 16, 2021