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Voices of the Region Survey Final Report

Submitted to: National Capital Region Transportation Planning Board

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HOW TO READ THIS REPORT

This report includes a brief methodological overview, followed by the survey results. A more complete description of survey methodology can be found in Appendix A. The full questionnaire is provided in Appendix B. Appendix C details the coding of open-ended responses, and Appendix D provides the letters and postcards mailed to households in the sample.

Results are presented for the Metropolitan Region as a whole. Our final response rate of 11.9% overall resulted in 2,407 completed surveys. For many variables of interest, the study team examined differences in attitudes and behaviors between demographic groups, for example by gender or racial/ethnic background. This kind of analysis allows for patterns to emerge and for a better understanding of the opportunities, barriers and experiences of residents of diverse backgrounds.

When comparing results between groups, we test for statistical significance, which indicates whether the results we observed in the sample are different beyond random variation from selecting a sample from the population. We evaluate the probability that we observe this difference in the sample if these two groups were equal in the population. If the probability of observing the difference under the assumption of equality is very low, then we reject the "null hypothesis" that they are equal. In this report, we used a probability of less than 5% ($P < 0.05$) for identifying statistically significant differences. A statistically significant result means that there is evidence that the two subgroups differ with respect to that statistic ($P < 0.05$). A nonsignificant result indicates that there is insufficient evidence to infer a difference between the two subgroups ($P \geq 0.05$).

Throughout this report, whenever there is a statistically significant difference between subgroups, it will be noted as such. One subgroup of interest comprises residents who qualify as low-income based on whether they earned less than a close approximation of 150% of the Federal Poverty Line (FPL) based on their income and the number of people living in their household. Following on this designation, 102 respondents were categorized as low-income (out of 2,407 total respondents). Despite this relatively small number of low-income respondents, significance tests could still be performed between low-income and non-low-income groups.

Results were also examined by age and geography. Respondents were asked their year of birth; for analytical purposes, the study team created three age groups based on year of birth: 30 and under; 31-64 and 65 and over. When reporting regional sub-geographies, these include: the Core includes the District of Columbia, the City of Alexandria, and Arlington, VA; Inner Suburbs include Fairfax County, VA and cities within, Montgomery County, and cities within, Prince George's County, and cities within (MD). The outer suburbs include Frederick County, the City of Frederick, and Charles County (MD) and in Virginia, Loudoun and Prince William counties and the Fauquier Urbanized Area.

This survey is one of multiple ways TPB measures travel behaviors in the metropolitan Washington region. The question wording and timeframe included in this public opinion survey may not always align with that of other TPB surveys, such as the Regional Travel Survey which reports observed travel. For questions related to daily travel behavior specifically, the questionnaire items used are different from other TPB travel behavior surveys and thus direct comparisons are not possible.

EXECUTIVE SUMMARY

The *Voices of the Region* study was a representative regional survey of residents in the TPB planning region, metropolitan Washington. The purpose of the survey was to gather information on attitudes and behaviors related to transportation topics in order to inform Visualize 2045, the long-range transportation plan for the National Capital Region, and other regional planning activities. The study focused on topics that will be addressed in the plan including equity, future technology like driverless cars, and addressing climate change. It also asked respondents about how Covid-19 has affected their views on the region's transportation system and how the system can serve them better. The data from this study will help decisionmakers in the metropolitan Washington region understand public opinion on the TPB's policy priorities and how transportation programs, policies and projects can better serve constituents.

Respondents were randomly selected using an address-based sample (ABS) of 10 county and city-level jurisdictions in the metropolitan Washington region, and were invited to participate in a web survey via a series of letters they received in the mail.

The Transportation Planning Board (TPB) within the Metropolitan Washington Council of Governments (COG) conducted this study, in collaboration with the Survey Research practice within ICF, a research and consulting firm based in Fairfax, VA.

Notable findings from the survey are included below.

GENERAL TRAVEL DURING THE PANDEMIC

- The vast majority of respondents (94%) reported that their daily travel habits, including work and non-work trips, had changed at least a little since the beginning of the COVID-19 pandemic, with two-thirds (66%) saying their habits had changed "a lot."
- Since the beginning of the pandemic, three-quarters of all residents have been driving or riding in a car less than before, with 44% saying they are driving or riding in a car "a lot less." Low-income respondents were significantly less likely to report that they drove or rode in a car "a lot" before the pandemic.
- Since the beginning of the pandemic, 63% of all respondents reported taking public transportation "a lot less, including not at all." Respondents who reported that their ridership had decreased were asked which enhancements out of a list of potential changes would make them more likely to use public transportation. The most popular change was "more frequent cleaning of buses or train cars" followed by "more spacing between people on buses or train cars."

- The pandemic has created new momentum for walking and cycling; half of the respondents reported walking more while 17% reported biking more. These included all trips, including destination oriented as well as recreational trips.
- One year after the pandemic is over, 38% of respondents said they will probably have different travel habits, while 62% said they expected to go back to the same travel habits as before.
    - Over half of those who expected their travel would be different said they would **walk more** than before the pandemic (53%).
- Respondents were asked to report which travel modes they used for commuting before and during the pandemic. They could select all modes they used at least once a week. Before the pandemic, three-quarters of commuters (who work or go to school) used a single-occupancy vehicle at least once per week to get to work or school; during the pandemic, that proportion had dropped to 46%. The proportion who telecommuted at least once per week increased from 16% pre-pandemic to 60% during the pandemic.
- Eight percent of commuters reported still using transit at least once a week during the pandemic (Metrorail, bus and Commuter Rail), compared to 40% pre-pandemic.
- These same commuters (those who work or go to school) were asked how they expected to commute one year after the COVID-19 pandemic is over. In this scenario, SOV-driving and bus riding are expected to return to very close to their pre-pandemic levels. Telecommuters expect to continue working remotely at levels more than twice as high as their pre-pandemic patterns. Metrorail users expect to return to Metrorail at levels somewhat lower than their pre-pandemic habits.
- All respondents currently telecommuting (n=1,090) were asked about their future telecommuting preferences. If given the choice to return to a work location once the COVID-19 pandemic is over, two-thirds said their preference would be to telework some days and commute to their work location some days (65%).
- Forty-three percent of respondents who work full or part-time said they needed to travel outside their home during the pandemic to economically support themselves or their families. Low-income respondents were significantly more likely to fall into this group.
- Just under half of all workers self-reported as "essential" (43%) and selected one of a list of industries, with a plurality saying they worked in government (43%).
- Essential workers were significantly less likely to telecommute at least once per week.
- One year after the pandemic is over, a majority (58%) say that they expect their online shopping habits to continue as they currently are.

IMPROVEMENTS TO VARIOUS TRANSPORTATION MODES TO ENCOURAGE USE

The second section of the public opinion survey focused on ways to improve the regional transportation system. All respondents were asked to select their top three preferred changes or improvements to various types of transportation infrastructure from a list of options, regardless of the form of transportation they used before or during the pandemic. All questions presented the scenarios as occurring one year after the COVID-19 pandemic is over.

- For all modes except rail transit, at least two in five respondents (40%) said that no change or improvement would make them more likely to use the mode in question. This means that there is a ceiling of 60% of residents who may be open to using transit or alternative modes of transportation should certain changes be implemented. For rail transit, only one quarter of respondents said that no change would induce them to ride, which shows that more of them—75%—may be willing to use this mode.

BUS: CHANGES TO BUS STOP: Regular transit users were significantly more likely to say the following changes would encourage bus ridership, relative to non-regular users:

- If the bus stop displayed real-time bus information (56% of regular transit users)
- If the bus stop provided shade or shelter from sun/rain/snow (43%)
- If the bus stop had adequate lighting at night (27%)

In regard to differences by income category, low-income respondents[1] were significantly more likely to say that they would be encouraged to use the bus more if the bus stop or station "was cleaner". Younger respondents (up to and including age 30) were significantly less likely to say that "no change" would encourage them to ride the bus, meaning they chose from possible improvements presented in greater numbers relative to older respondents. This shows that they are also more open or amenable to taking the bus should these changes or improvements be implemented.

BUS: CHANGES TO TRIP ABOARD THE BUS: The most popular option to encourage bus ridership was if "buses arrived on a reliable schedule," (40%) followed by if "buses traveled more quickly" (26%) and if "buses were less crowded" (23%). Regular transit users, defined as respondents who took public transportation at least three times per week pre-COVID, were significantly more likely to select these options relative to non-regular users.

Low-income respondents were significantly more likely to say they would be encouraged to ride if "buses were less crowded" (selected by 41% of low-income respondents versus 22% of non-low-income respondents) and if "the fare was cheaper" (40% versus 15%).

RAIL: When asked about possible improvements to rail transit, the most popular choice was for "trains [to come] more frequently" (chosen by 40%), followed by if "trains were less crowded" (35%).

WALKING/BIKING TO TRANSIT: When asked which improvements or changes would make them more likely to walk, bike, or use an e-powered or mobility device to the train station or bus stop, the most popular choice was "if there were sidewalks and safe crossings all the way there" (36%), followed by "if my route to the train or bus was quicker or more direct" (27%). Younger respondents were significantly more likely to select these changes relative to older adults. Younger respondents were also

[1] For the purposes of this report, low-income status was assigned to individuals living in households earning less than a close approximation of 150% of the Federal Poverty Line (FPL) based on total household income and the number of people living in their household. That means that the survey's low-income designation comprises those households with any number of occupants and an annual income of less than $25,000, as well as households with four or more occupants earning less than $50,000.

significantly more likely to select "if there were e-bikes or e-scooters available to get to and from the station" (35%), relative to older age groups.

BICYCLING: While 42% said that no change would make them more likely to bike, the top substantive choices were related to bicycle infrastructure: If "bicycle lanes and routes were more direct and complete" (34%), followed by if "bicycle lanes were separate from vehicles by a barrier (32%) and if "there were bike lanes or trails near my home (31%). Men were significantly more likely to select if "there was a shower or locker room at work/school" (11% versus 5% of women).

E-BIKES/E-SCOOTERS: When asked if respondents would consider using a shared e-scooter or e-bike to take short trips (less than one mile) to transit or other destinations, 36% said they would, but 45% would not. One in five (19%) said they were unsure. Younger respondents were significantly more likely to select "Yes" relative to senior respondents (56% versus 9%).

ROAD AND SIDEWALK SPACE

- New technologies and services, such as ridesharing and ride hailing (Uber and Lyft), are changing the use of the street space next to the curb. The survey gauged support for the creation of ride-hailing zones for pick-up and drop-off on the street if it meant a reduction in parking availability. Sixty-one percent of all respondents say they supported these designated zones.
- Respondents were asked if they supported the continued use of street space and parking space for expanded pedestrian access and restaurant seating after the pandemic is over. Three-quarters (75%) of all respondents said they supported this measure.
- Support for a dedicated bus lane to avoid congestion and make bus trips faster was high, with 71% supporting this measure. Support among car users was slightly lower relative to non-car users (70% versus 75%), but the difference was not significant. However, when the survey specified that the creation of this travel lane would mean the removal of a lane of on-street parking, support went down but was still in the majority, as 54% supported this measure.
- The majority of respondents supported more or wider sidewalks and bike lanes (63%), even if it meant a reduction in parking availability.

BROADER OPINION QUESTIONS

- All respondents were asked where they believe future development should be encouraged. The most popular response was "in existing core cities" (35%), followed by "in older suburbs" (31%).
- When asked where they would choose to live if they could live anywhere in the region, responses were more split, with approximately one quarter of respondents choosing new suburbs (27%), older suburbs (27%) and existing core cities (25%). Households with children were significantly less likely to want to live in existing core cities, relative to families or individuals with no children in the household (16% versus 30%). The top preference of households with children was for newer suburbs (31%).
- All respondents were asked how big of a concern traffic congestion is to them personally. Over two-thirds of respondents (69%) say that congestion is a concern that impacts the quality of their lives, with 44% saying it is a significant concern.

- More than half of residents of the Outer Suburbs said congestion was a significant concern, which is significantly higher than residents of the Core (54% versus 27%).
- Thirteen percent of residents of the Core say congestion is not a concern because they have adjusted to it, a significantly higher proportion compared to residents of other areas (only 7% of Inner Suburb residents and 5% of Outer Suburb residents chose this option).
- These findings show that the impact of congestion is correlated with the place of residence, with those living further away reporting a greater and more negative impact of congestion on their life.
- Low-income respondents were significantly less likely to say that congestion was a significant concern (26% of low-income respondents selected this option versus 46% of non-low-income residents).
- Car users were significantly more likely relative to non-car users to say that congestion was a significant concern (52% relative to 28%).

CLIMATE CHANGE

- The vast majority of the region's residents (88%) agree that human actions contribute to at least some climate change, with 73% strongly agreeing.
- A similarly high proportion of residents (84%) agreed that elected officials need to consider the impacts of climate change when planning for transportation in the future, with 72% strongly agreeing with the statement.
  - Seniors were significantly more likely to disagree with the statement relative the youngest age group (11% versus 1%). Still, a large majority of seniors (80%) agreed with the statement about climate change to some degree.

DRIVERLESS CARS

- Survey respondents were asked to select up to three ways the availability of connected and automated vehicles (driverless cars), might benefit them or others in the Washington region. The two top choices, selected by 38% of respondents each, was "not needing to park" and "better traffic flow/reduced congestion." Here again, the theme of traffic congestion rose to the surface.
  - The youngest group was significantly more like to select that a benefit of driverless cars was the ability to "do other things in the vehicle instead of actively driving," relative to seniors (36% versus 8% selected that option).
  - Families with children were significantly more likely to select "doing other things in the vehicle instead of actively driving" relative to households without children (31% vs 21%).
- The survey also asked respondents to select possible concerns they might have about connected and automated vehicles. Here again, respondents could select up to three options. Over half of respondents selected "Safety of pedestrians and bicyclists" as a concern (52%). Other top choices were "safety of other drivers" (49%) and "liability for accidents" (45%).

TRANSPORTATION EQUITY AND BARRIERS

- Transportation equity is concerned with the fair distribution of the positive and negative impacts of transportation projects and policies. The survey asked respondents to report how well they felt the region's current transportation system meets their travel needs. More than half of all respondents (55%) said the system meets their needs well, with 13% saying very well. One quarter of respondents said their needs were met neither well nor poorly (24%).
    - Differences were perhaps most striking based on subregional area of residence. Three-quarters of residents of the Core said their needs were met well (75%), versus 38% of residents of the Outer Suburbs. Only 10% of Core residents said their needs were met poorly, versus one-third of residents of the Outer Suburbs (33%).
    - Low-income respondents were significantly less likely to rate the system as meeting their needs poorly (11% selected somewhat or very poorly, versus 22% of non-low-income respondents).
    - In regard to age, the youngest respondents were significantly more likely to say the system met their needs (72%) relative to seniors (44%). Indeed, a majority of seniors report that the system does not meet their needs well.
- All respondents were asked whether they experienced any barriers to getting where they need to go from where they live. They could select up to three options. One third (33%) said they don't experience any transportation barriers. The most common substantive responses were about public transportation service:
    - Public transportation does not come frequently enough (28%)
    - Public transportation requires too many transfers (23%)
    - Public transportation does not get me to my destination on time (21%)
- A higher proportion of low-income respondents said they did not experience transportation barriers relative to higher-income respondents (43% versus 31%), though the difference was not significant. The higher income group was significantly more likely to say they could not afford tolls to avoid traffic congestion (selected by 17% versus 5% of low-income). Residents of the Outer Suburbs were significantly more likely to say they could not afford tolls, relative to residents of other regions (23% versus 11% in the Core and 14% in the Inner Suburbs).
- When asked how well they felt their transportation needs and concerns were being addressed by decision makers, a plurality of respondents selected "neither well nor poorly" (39%). Thirty-two percent said their needs were being addressed well, with 7% saying very well.
    - Low-income respondents were significantly less likely to say their needs and concerns were being addressed poorly (16% versus 26% of higher income respondents).
    - In regards to place of residence, those living in the Core were significantly more likely to say their needs were addressed very or somewhat well (45%) and residents of the Outer Suburbs were significantly more likely to say their concerns were being addressed very or somewhat poorly (35%). A plurality of residents in the Inner Suburbs say their needs were being addressed neither well nor poorly (42%).
    - This shows that satisfaction with how their needs are being addressed decreases as the place of residence moves away from the Core.

MEETING PARTICIPATION

- Respondents could select up to three options that would make them more likely to participate in public meetings about transportation. The top choices were related to remote participation: "if I could obtain information and provide feedback online" (45%) followed by "if I could call in to listen or speak" (35%). Just under one-third of respondents said that no changes would make them more likely to participate (31%).
  - Seniors were significantly more likely to say that no changes would make them more likely to participate in these meetings (48%) relative to younger age groups (27% of the youngest respondents and 28% of middle-age respondents chose this option).

METHODOLOGY

The *Voices of the Region Study* used a mail-push-to-web design that included up to three mail contacts sent to a random selection of 22,334 residential addresses in the metropolitan Washington, DC region Each mailed communication directed respondents to a web survey. The contacts included an invitation letter, reminder postcard and reminder letter. The study utilized an address-based sample (ABS), which provided access to a comprehensive sampling frame of mailing addresses and ability to target specific geographies.

The survey questionnaire included four sections covering a broad range of transportation topics. TPB and ICF developed the survey and mail materials collaboratively. The survey was then programmed and tested before launching on September 22, 2020.

The study closed on November 2, 2020 after the overall target of 2,000 completed surveys was reached and surpassed. The final observed response rate was 11.9%, which provided a margin of error of +/-2.5% overall (+/-4-5% by subregion, and +/-7-9% by jurisdiction) at 95% confidence.

Completed interviews for the different geographies of interest are shown in Table 1 below. While the original sample included 10 jurisdictions, a small number of records were added to cover Fauquier Urbanized Area. Within each jurisdiction, the study aimed to achieve 200 completed surveys.

Table 1: Completes by Jurisdiction Geographies

	Completed Surveys	Sample Size	Undeliverable	Response Rate
Metropolitan Washington	**2,407***	**22,333**	**2,102**	**11.9%**
Core	**722**	**5,707**	**967**	**15.2%**
District of Columbia	305	2,661	542	14.4%
Arlington County	190	1,417	173	15.3%
City of Alexandria	227	1,629	252	16.5%
Inner Suburbs	**741**	**7,031**	**618**	**11.6%**
Montgomery County	216	1,789	123	13.0%
Prince George's County	281	3,637	386	8.6%

Fairfax County†	244	1,605	109	16.3%
Outer Suburbs	**944**	**9,595**	**517**	**10.4%**
Loudoun County	278	2,273	95	12.8%
Prince William County‡	219	2,273	107	10.1%
Frederick County	182	1,653	140	12.0%
Charles County	260	3,306	174	8.3%
Fauquier County	5	90	1	5.6%

*Counts include 7 partial completes which reached the end of the third survey section and were included in the analysis.
†Fairfax County includes FIPS codes for Fairfax City and Falls Church City
‡Prince William County includes FIPs codes for Manassas Park City and Manassas City.

Survey data was processed and weighted by ICF and analyzed for inclusion in this report as well as two virtual presentations which occurred in February 2021. Please see Appendix A: Detailed Methodology for a full methodological overview of the study.

RESULTS

SECTION 1: TRAVEL DURING THE COVID-19 PANDEMIC

The first section of the survey covered *general travel habits* during the ongoing COVID-19 pandemic. For these questions, "travel" referred to all the different ways people may get around, whether driving, walking, biking, taking public transportation, scooters, skateboards, etc. for whatever purpose, including commuting for work, visiting friends, going to the grocery store, and anywhere else they might travel.

Respondents were asked in various ways how their travel behaviors have changed and how they expect them to change in the future. For these questions about future behavior, we asked them to think about their situation one year after the COVID-19 pandemic is over.

The topic of self-reported future behavior or intentions is well-studied. Two areas that have received particular attention by researchers are self-reported voting intentions and purchasing behavior. In general, when people predict their future behavior, they tend to place too much weight on their current intentions. Often times there may be barriers or competing demands which would temper individuals' predictions, however even if they acknowledge these factors, people don't necessarily change the bias for reporting behaviors associated with strong current intentions.[2] In regards to voting, individuals may over-report voting intention because of social desirability bias or possibly because individuals who participate in surveys may themselves be more likely to vote.[3] Extending this research to transportation topics, individuals may over-estimate their post-pandemic walking behavior, for example, because they have strong current intentions to walk more, perhaps related to health or other factors. They may fail to

[2] Poon, CSK; Koehler, DJ; Buehler, R. "On the psychology of self-prediction: Consideration of situational barriers to intended actions." *Judgment and Decision Making*, Vol. 9, No. 3, May 2014, pp. 207-225.

[3] Krosnick, J. A., Presser, S., Fealing, K. H., & Ruggles, S. (2015). The future of survey research: challenges and opportunities. The National Science Foundation Advisory Committee for the Social, Behavioral and Economic Sciences Subcommittee on Advancing SBE Survey Research.

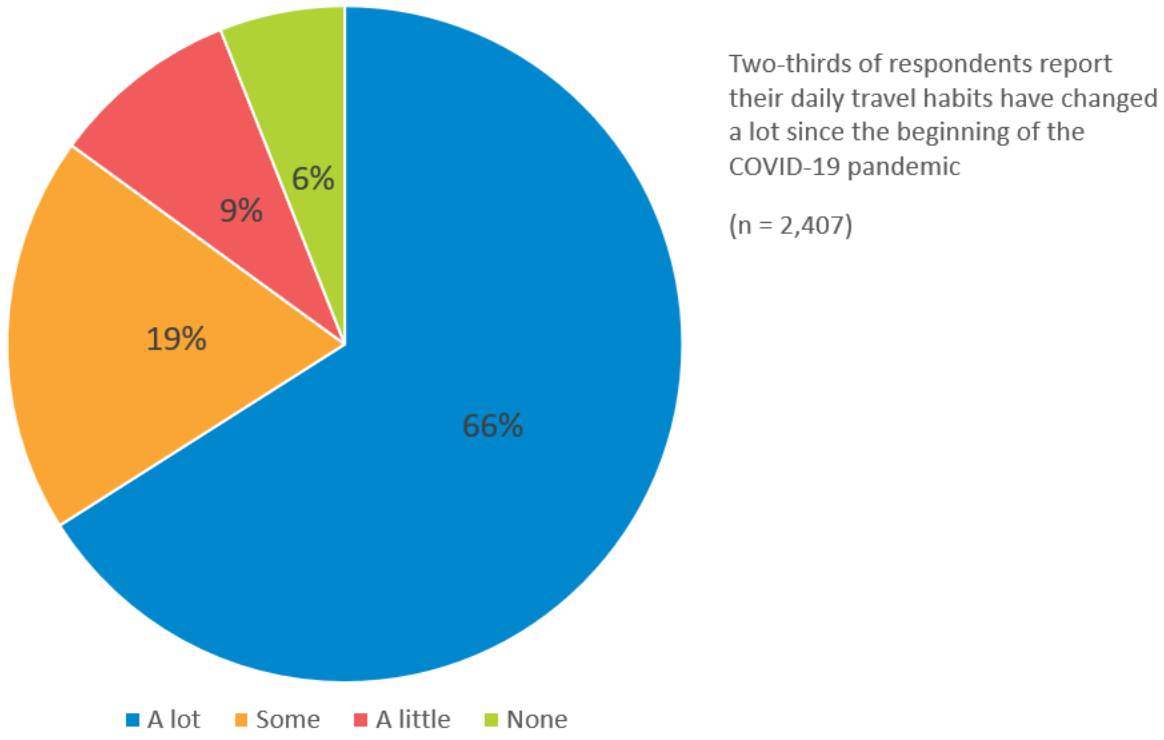
consider barriers to walking, such as their lives becoming busier, children going back to school, or returning to a long commute.

While there were many uncertainties related to the state of the COVID-19 pandemic when the survey was in field, cognitive interviews that were conducted to test the survey before it was launched revealed that respondents were generally able to answer questions about their post-pandemic behavior quite easily; despite some level of uncertainty, they *were* able to visualize what their situation would be like. We believe that these self-reported future behaviors are appropriate inputs for the development of the 2045 Long-Range Transportation Plan, because unlike voting or purchasing a specific product, traveling for one's work or personal needs must occur, and this survey provided respondents with the opportunity to objectively report on what that travel behavior may look like.

CHANGE IN DAILY TRAVEL

The vast majority of respondents (94%) reported that their general daily travel habits had changed at least a little since the beginning of the COVID-19 pandemic, with two-thirds (66%) saying their habits had changed "a lot."

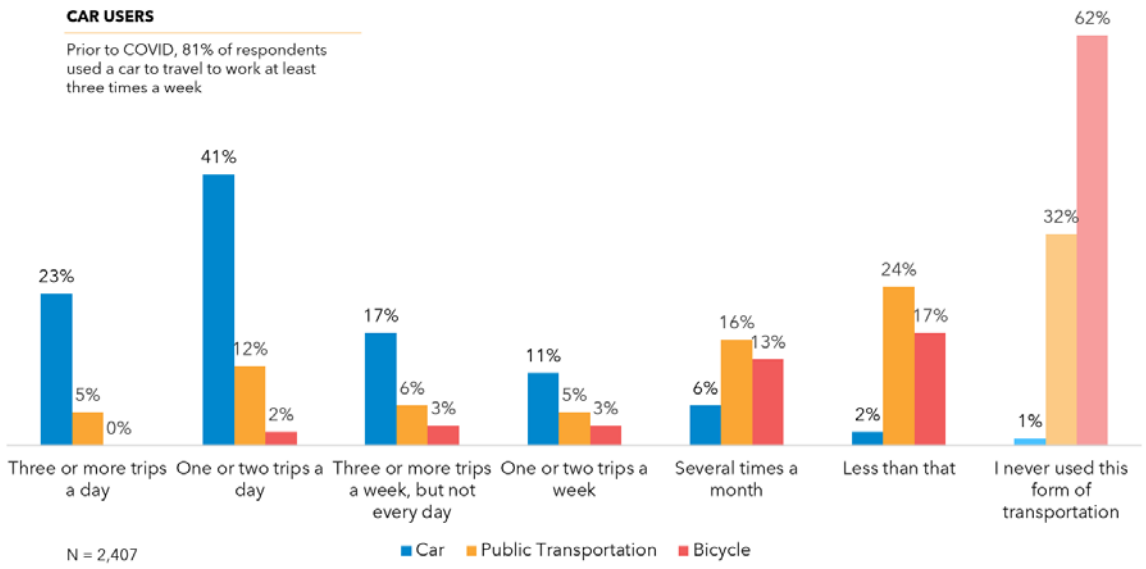
Figure 1: Change in General Daily Travel during the Pandemic (Question S1Q1)



Before the pandemic, 81% of residents drove or rode in a car[4] at least three times a week – for all trips, including work and non-work purposes. This group constituted a "baseline" number of car users used for analysis in future questions. Almost two-thirds (64%) drove every day. Since the beginning of the pandemic, three-quarters of all residents have been using a car less than before, with 44% saying they are driving or riding in a car "a lot less, including no car use."

Low-income respondents were significantly less likely to report that they drove "a lot" before the pandemic. Half of low-income respondents[5] drove "a lot" (49%) versus over two-thirds of non-low-income respondents (68%). Rather, low-income respondents were significantly more likely than the higher-income group to say they drove "a little" (24% versus 7%).

Figure 2: Travel Habits Before the Pandemic (S1Q2, S1Q4, S1Q8)



Over one-quarter (28%) of respondents took public transportation[6] at least once a week before the pandemic, with 17% using it every day. As shown in Figure 3, since the beginning of the pandemic, 63% of all respondents reported taking public transportation "a lot less, including not at all." This question

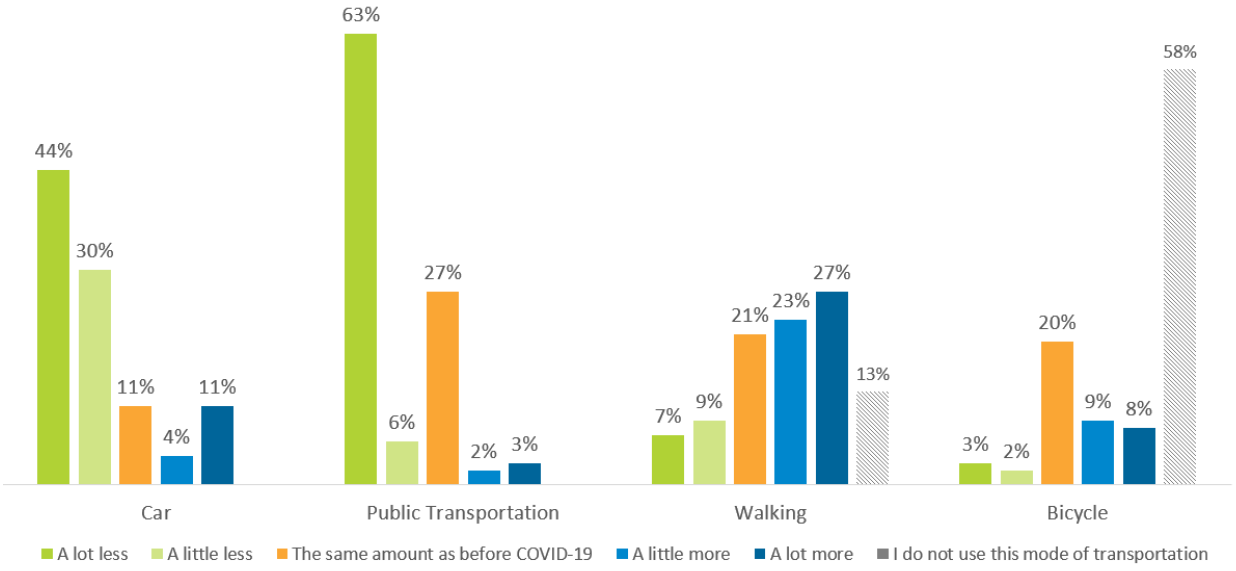
[4] Car was defined in the questionnaire as "single motor vehicle such as a car, SUV, pick-up truck, etc."

[5] For the purposes of this report, low-income status was assigned to individuals living in households earning less than a close approximation of 150% of the Federal Poverty Line (FPL) based on total household income and the number of people living in their household. That means that the survey's low-income designation comprises those households with any number of occupants and an annual income of less than $25,000, as well as households with four or more occupants earning less than $50,000.

[6] Public transportation was defined in the questionnaire as referring "to things like Metrobus or other local buses, subway and Metro rail, commuter trains, and commuter buses."

was asked of all respondents, so non-transit users may also have selected this option. When looking at only prior transit users,[7] three-quarters say they are using public transit a lot less (76%).

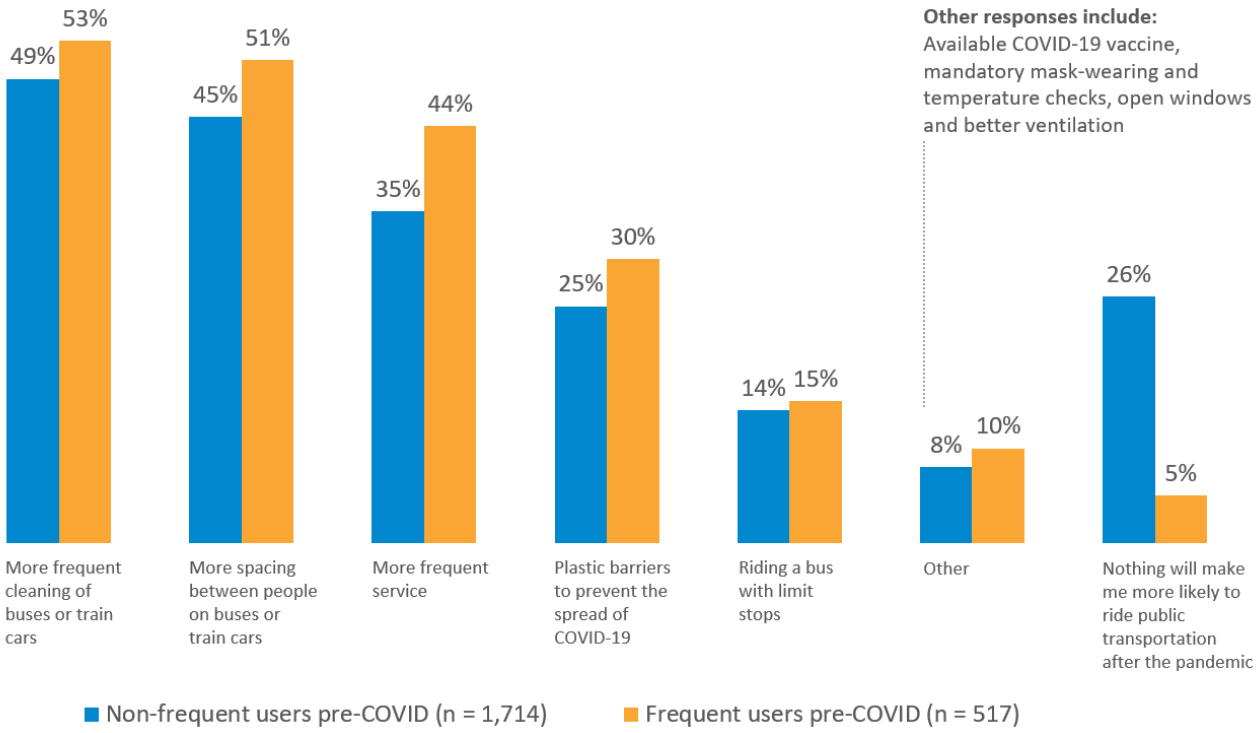
Figure 3: Change in Travel Habits During the Pandemic (S1Q3, S1Q5, S1Q7, S1Q9)



A decrease in transit ridership was foreseen and widely reported throughout the pandemic. As a result, the study team was interested in gauging the level of support for various changes to public transportation that may encourage ridership after the pandemic is over. Respondents who reported that their ridership had decreased, including those who do not use transit, were asked which of a list of changes would make them more likely to use public transportation.

[7] Prior transit users were defined as those who used transit at least once a week before COVID (S1Q4 = 1,2,3,4).

Figure 4: Changes to Encourage Transit Ridership (S1Q6)



The most popular change was "more frequent cleaning of buses or train cars" followed by "more spacing between people on buses or train cars." Regular transit users selected these same options in even higher numbers, with more than half of them saying "more frequent cleaning of buses or train cars" would make them more likely to use public transportation (53%). In the "Other" category, selected by 8% of respondents overall, ideas included an available COVID-19 vaccine, mandatory mask-wearing and temperature checks, open windows and better ventilation/filtration, hand sanitizers on buses and trains, affordable fares, better safety and fewer delays.

The pandemic has created new momentum for walking and cycling, with some cities closing streets to encourage residents to exercise while maintaining social distancing. There have been documented bicycle shortages across the country as demand has surged.[8] All respondents were asked to describe how their walking and biking habits have changed since the beginning of the pandemic. The survey questions were general and did not limit the purposes for walking and biking. Half of the respondents reported walking more, while 17% reported biking

Half of respondents (50%) indicated that they have been **walking more** since the COVID-19 pandemic.

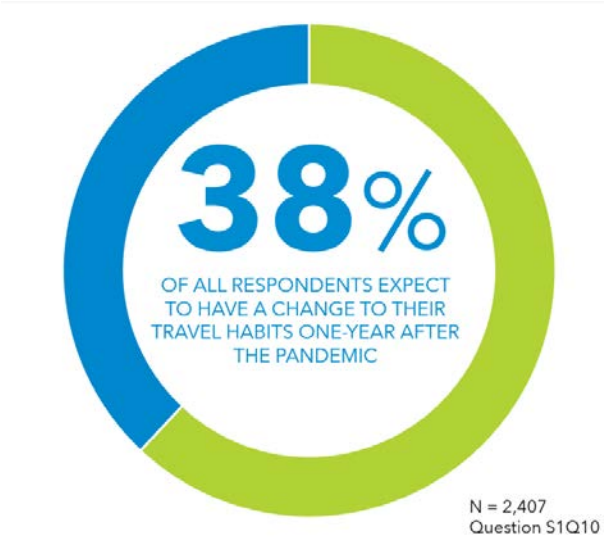
One in six respondents (17%) indicated that they have been **biking more** since the COVID-19 pandemic.

[8] Goldbaum, C. "Thinking of Buying a Bike? Ger Ready for a very Long Wait." *The New York Times*, May 18, 2020. https://www.nytimes.com/2020/05/18/nyregion/bike-shortage-coronavirus.html

more (only 21% of residents biked at least once a month before the pandemic).

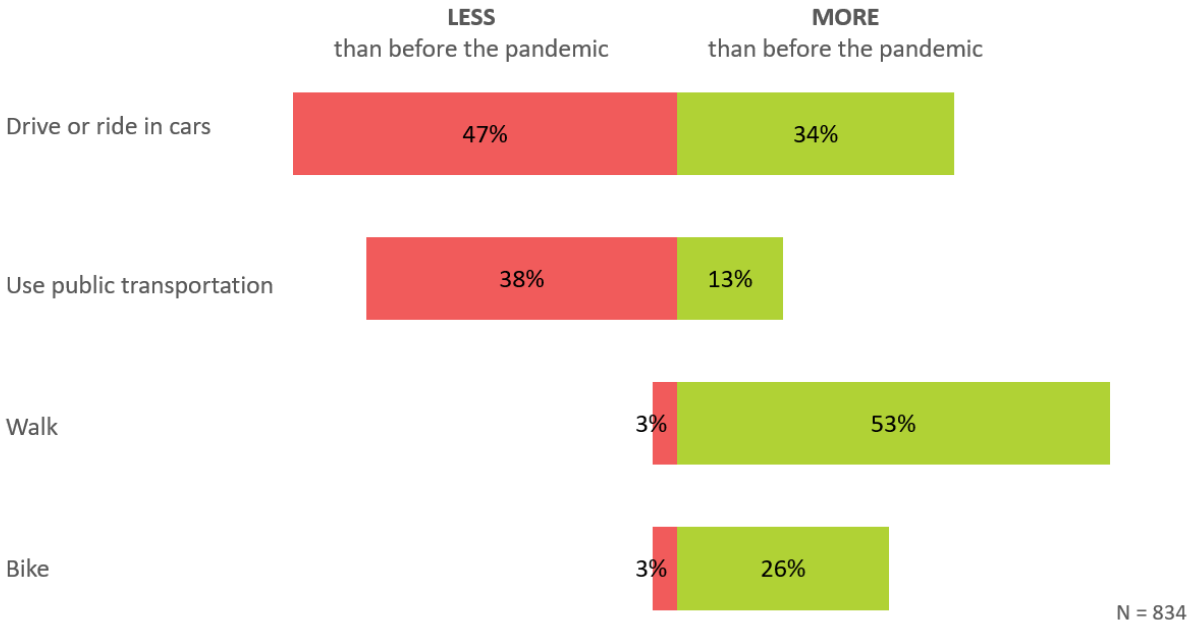
FUTURE TRAVEL INTENTIONS

All respondents were asked to think about their travel habits one year *after* the COVID-19 pandemic is over. Thirty-eight percent of respondents said they will probably have different travel habits, while 62% said they expected they would go back to the same travel habits as before. Those who expected to make a change were asked to describe *how* they expected their travel would be different.



Over half of those who expected their travel would be different (n=834) said they would **walk more** than before the pandemic (53%) – the most common option selected. This indicates that the increases in walking and biking observed during the pandemic and noted earlier may continue long after the pandemic is over. Somewhat smaller proportions said they expected to use cars less (47%) and use public transportation less (38%). One-third said they expected to use cars more (34%). The seemingly conflicting choices to use cars both less and more may reflect the choices of different groups: those who may expect to telecommute would drive less while those who may move away from transit may choose to drive more.

Figure 5: Travel Expectations after the Pandemic (S1Q11)



Over half of low-income respondents who will make a change said they would drive or ride in cars more than before (55%), compared to 32% of non-low-income respondents. Higher proportions of non-low-income respondents said they would drive less relative to low-income respondents (48% versus 33%), perhaps reflecting their ability to telecommute. Higher proportions of non-low-income respondents also said they would walk more and bike more post-pandemic. None of the differences based on income were statistically significant.[9]

The pandemic has not affected the travel habits of all racial/ethnic groups in the same way. African Americans, especially African American women, have been more dependent on public transit during COVID compared to other groups.[10] African American and Hispanic workers are more likely to work in industries such as service, sales, construction and transportation, where telecommuting is not feasible.[11] For these reasons, it is critical to examine differences in transportation experiences by demographic subgroups.

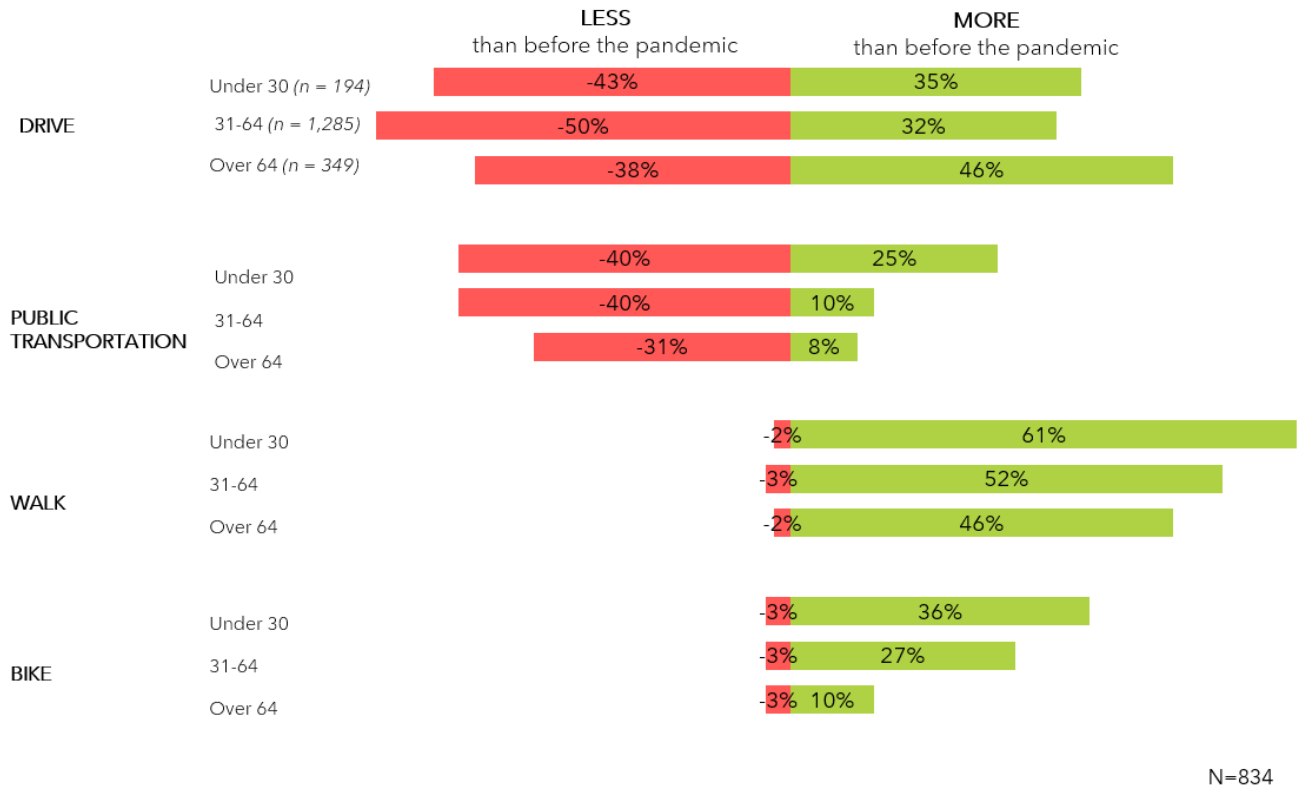
In the *Voices of the Region* Survey, African American respondents were significantly more likely to say they would drive or ride in cars more post-pandemic relative to White respondents (48% of those making a change versus 24%). In regard to age, respondents 65 and over were significantly less likely to say that they would bike more post-pandemic (10% of those making a change), relative to those in younger age groups.

[9] See *How to Read This Report* section on p. 6 for more information on significance testing.

[10] Grabmeier, Jeff, "Pandemic has surprising impacts on public transit demand." OSU News. Nov 18, 2020. https://news.osu.edu/pandemic-has-surprising-impacts-on-public-transit-demand/

[11] Bureau of Labor Statistics Monthly Labor Review. "Ability to work from home: evidence from two surveys and implications for the labor market in the COVID-19 pandemic." June 2020. https://www.bls.gov/opub/mlr/2020/article/ability-to-work-from-home.htm

Figure 6: Travel Expectations after the Pandemic - By Age Group (S1Q11, D5)

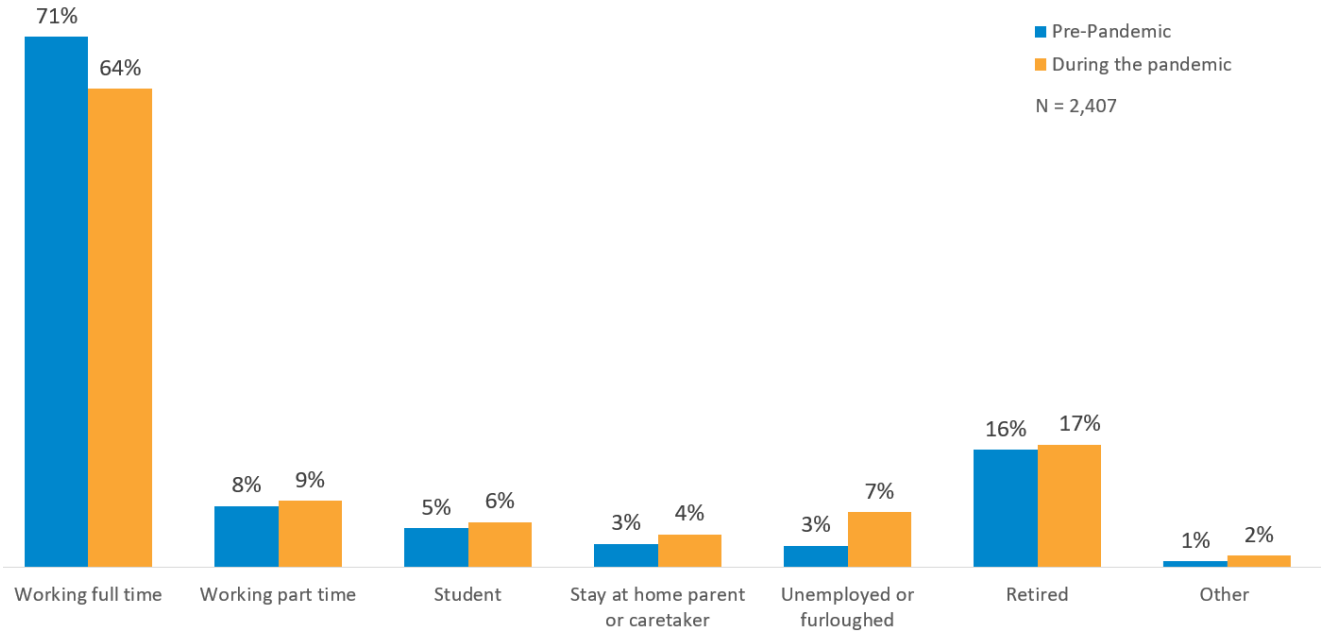


JOB-RELATED TRAVEL

EMPLOYMENT STATUS

Before the pandemic, 71% of respondents reported working full-time, while during the pandemic, that proportion decreased to 64%. The proportion of respondents who worked part-time, were students, stay-at-home parents, unemployed, retired or in an "Other" category all went up during the pandemic.

Figure 7: Employment Status - Before & During the Pandemic (S1Q13, S1Q14)

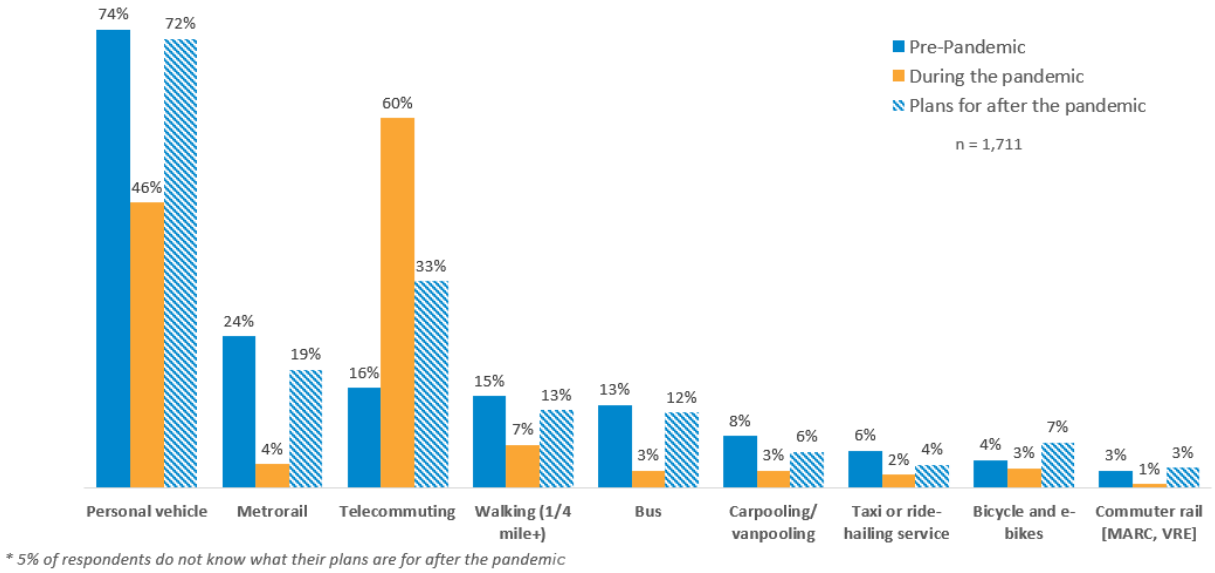


PRE-AND POST COVID COMMUTES

Respondents who reported currently working full or part time or were students (n=1,711) were asked how they commuted to work or school. They could select all the modes that applied to their trip and which they used at least once per week. Before the pandemic, three-quarters of commuters used a single-occupancy vehicle to get to work or school (74%); during the pandemic, that proportion had dropped to 46%. The proportion who telecommuted increased from 16% pre-pandemic to 60% during the pandemic.

Eight percent of these commuters were still using transit during the pandemic (Metrorail, bus and Commuter Rail), compared to 40% pre-pandemic.

Figure 8: Commuting Habits Before, During and After the Pandemic (S1Q17, S1Q18, S1Q19)



** 5% of respondents do not know what their plans are for after the pandemic*

These same commuters were asked how they expected to travel to work or school one year after the COVID-19 pandemic is over. In this scenario, SOV-driving and bus riding are expected to return to very close to their pre-pandemic levels. Use of Metrorail would bounce back considerably, but would still be lower than pre-pandemic levels.

According to respondent expectations, telecommuting one year after the pandemic would be much less common than during COVID-19, but nonetheless it would be twice as high as it was before the pandemic. Because respondents selected all the modes they expected to use at least once per week, many may expect to telecommute only on certain days. Less than 5% of respondents here said they did not know or did not have guidance from their employer.

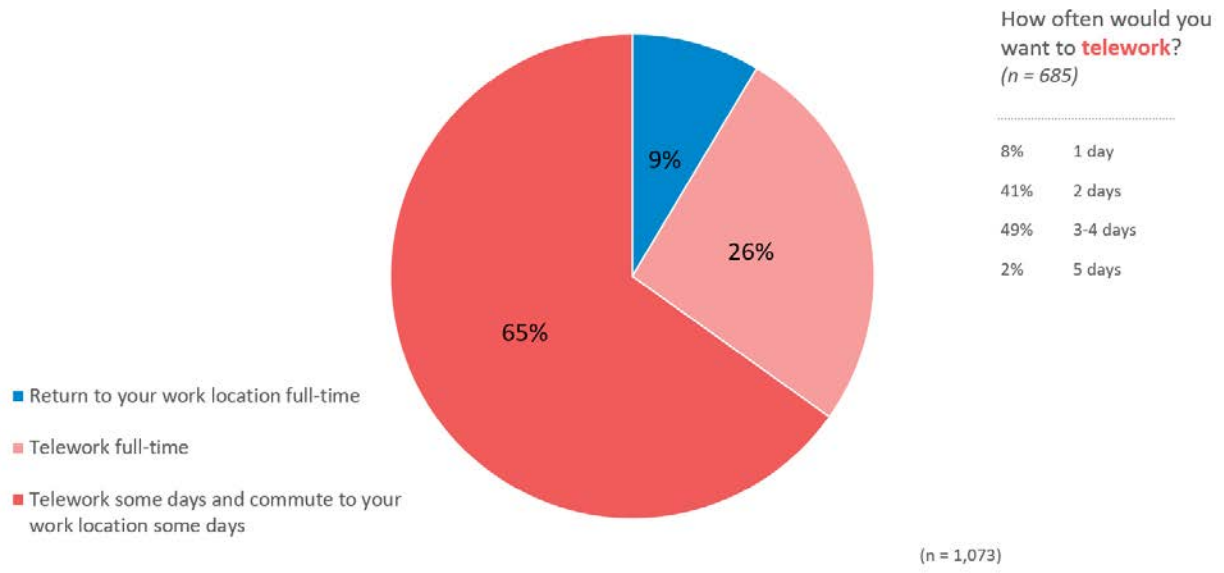
In terms of differences between groups, low-income respondents in this category (n=55) were significantly more likely to walk to work or school during the pandemic, relative to non-low-income respondents (21% versus 6% of higher-income respondents). They were also significantly less likely to telecommute (21% versus 62% of higher-income respondents). In regard to age, younger respondents (aged 30 and under) said they expected to use transit or walk in higher proportions than older age groups, but the differences with older age groups were not statistically significant.

TELECOMMUTING PREFERENCES

All respondents currently telecommuting (n=1,090) were asked about their future telecommuting preferences. If given the choice to return to a work location once the COVID-19 pandemic is over, two-thirds said their preference would be to telework some days and commute to their work location some days (65%). One quarter wanted to telework full time (26%) and only 9% wanted to return to their work location full-time. Those who wanted to telecommute some days were asked how many days they

would ideally want to stay home. Half wanted to telework 3-4 days (49%) and 41% wanted to telework for 2 days.

Figure 9: Telecommuting Preferences (S1Q20, S1Q21)



When examining the number of current telecommuters who want to continue telecommuting full time or for 3 or more days per week, we see that a majority of people currently teleworking would like to continue spending most of their time teleworking even after the pandemic. This shows that those who have tried teleworking during the pandemic want to continue doing so most of the time.

ESSENTIAL WORKER STATUS

Essential workers are individuals who conduct a range of operations and services in industries that are essential to ensuring the continuity of critical functions in the US.[12] While the Federal government maintains a list of critical jobs and industries, the standards for what constitutes essential work under COVID-19 pandemic rules are not uniform across states, cities or even over time.[13] Some essential workers may be able to work from home depending on their job duties. At the same time, while employers have been encouraged to allow non-essential workers to work remotely, many non-essential workers are in jobs that cannot be performed from home.[14] Because of these nuances, the survey aimed to measure individuals' essential status and ability to work from home in two ways:

[12] Centers for Disease Control and Prevention, "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

[13] Povich, Elaine, "What's Essential? Confusion Clouds Workers, Employers" April 1, 2020. *Pew Stateline News.* https://www.pewtrusts.org/en/research-and-analysis/blogs/stateline/2020/04/01/whats-essential-confusion-clouds-workers-employers

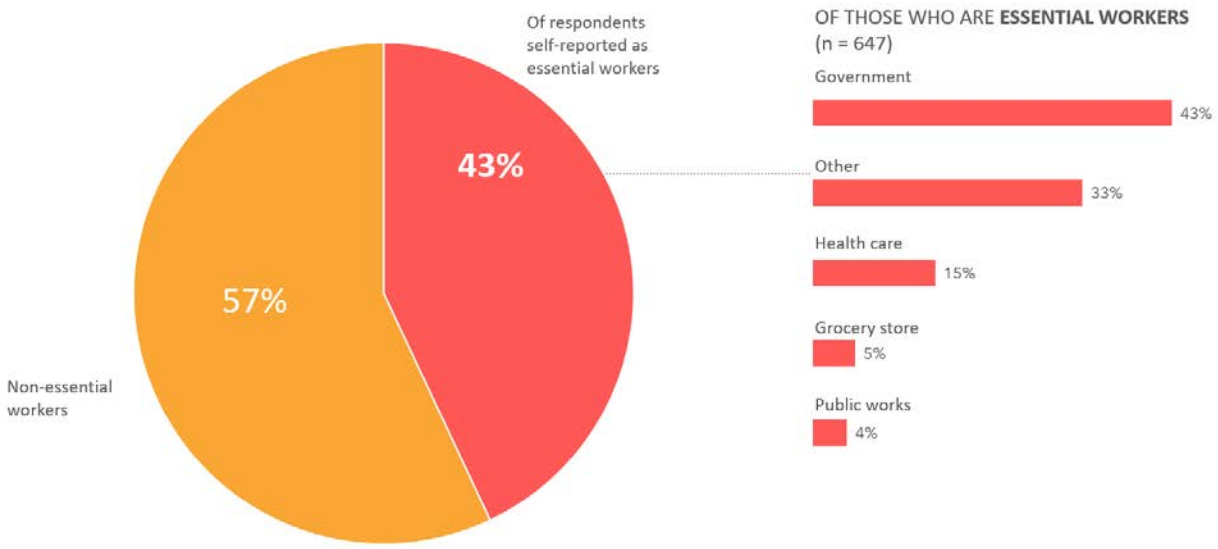
[14] State of California Department of Industrial Relations, "FAQs on Essential and Non-Essential Workers." https://www.dir.ca.gov/dlse/Essential-and-Non-essential-Workers.htm

- First, all respondents who currently work were asked whether they needed to travel outside their home during the pandemic to economically support themselves or their family.
- Next, all respondents who currently work were asked if they are considered essential workers who are required to travel outside their home for a job in specific industries. The term "essential worker" was not defined for respondents.

By considering these two groups, the study team hoped to capture the vulnerability status of workers who may not be classified as "essential," but nonetheless have no choice but to work outside the home.

Forty-three percent of respondents who work full or part-time (n=1,687) said they needed to travel outside their home during the pandemic to economically support themselves or their families. Low-income respondents were significantly more likely to fall into this group (two-thirds or 67% are in this category, compared to 41% of non-low-income respondents). In a separate question, just under half of all workers self-reported as "essential" (43%) and selected one of a list of available industries, with a plurality saying they worked in government (43%).[15] One-third of essential workers (33%) described themselves as working in another field not listed. This included teaching, childcare, construction, food service, government contractors, police/fire/EMT, real estate, banking/finance, and IT.

Figure 10: Composition of Essential Workers (S1Q16)

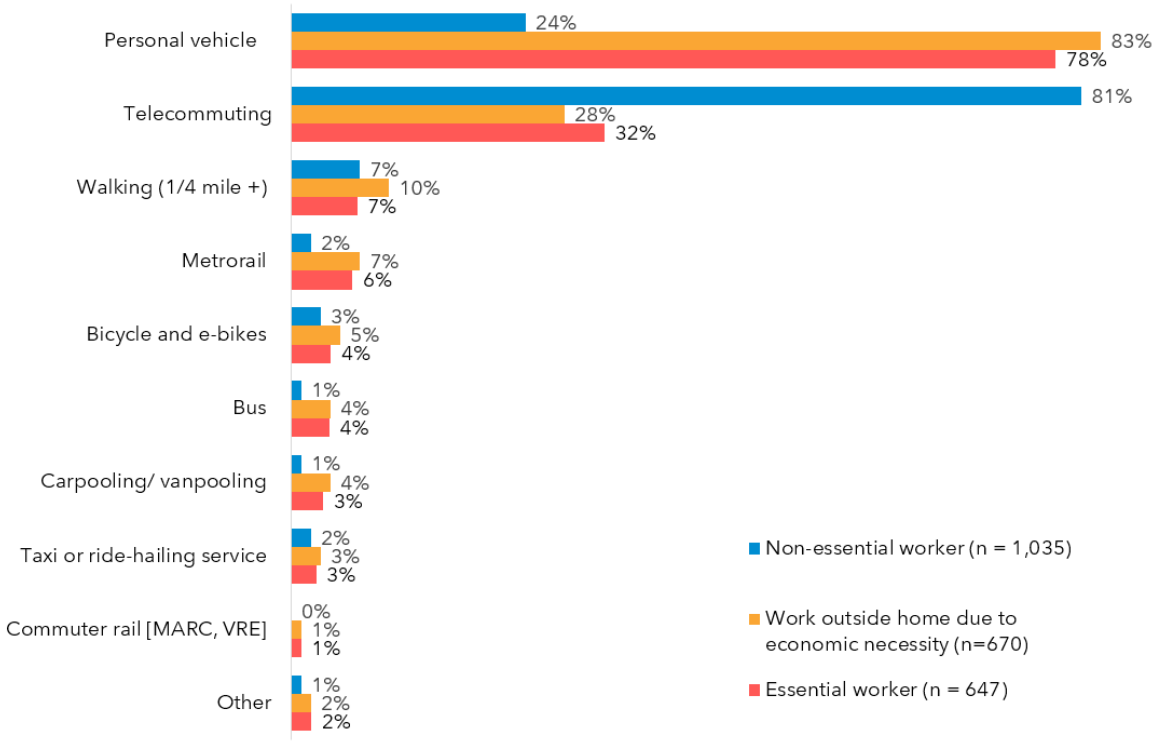


Looking at commuting behaviors by worker status, those who self-defined as essential workers were significantly more likely to drive alone to work, carpool/vanpool and use Metro relative to non-essential workers. Those working outside the home due to economic necessity used these modes in even greater

[15] Coincidentally, the percentage number was the same – 43% -- both for respondents who said they needed to travel outside the home for economic necessity and those that classified themselves as "essential workers." While there likely is considerable overlap between these groups, they are not necessarily the same individuals.

numbers. Unsurprisingly, both groups (essential workers and those who worked outside the home due to economic necessity) were significantly less likely to telecommute at least once per week.

Figure 11: Commuting Habits of Different Groups of Workers during the Pandemic (S1Q15, S1Q16, S1Q18)



DELIVERIES AND ONLINE SHOPPING

Many online retailers have reported increases in sales throughout the course of the pandemic. This trend is accelerating changes that have been observed over the last decade, and market research suggests that at least part of this increase is here to stay.[16] The survey included questions on changes to online shopping behavior since the beginning of the pandemic. Seventy percent of respondents say their online ordering has increased during the pandemic, with 39% saying it increased a lot. One year after the pandemic is over, a majority (58%) say that they expect their online shopping habits to continue as they currently are. The continuation of these habits could have lasting impacts on long-range regional planning, including addressing changing demands for retail space and freight-related needs.

[16] Riley, Charles, "Online shopping has been turbocharged by the pandemic. There's no going back." October 13, 2020. CNN Business. https://www.cnn.com/2020/10/11/investing/stocks-week-ahead/index.html

Figure 12: Online Shopping Habits (S1Q22, S1Q23)

SECTION 2: OUR TRANSPORTATION FUTURE

CHANGES AND IMPROVEMENTS TO VARIOUS MODES

The second section of the public opinion survey focused on ways to improve the regional transportation system. All respondents were asked to select their top three preferred changes or improvements to various types of transportation infrastructure from a list of options, regardless of whether they used public transportation before or during the pandemic. Respondents were asked to think about all the ways in which they travel, not just work-related travel. Finally, all questions presented the scenarios as occurring one year after the COVID-19 pandemic is over.

As in Section I, these results should be read with consideration for the limitations of questions about future behaviors. While respondents may be biased toward reporting more optimistically about their future behaviors, cognitive interviews that tested the survey questionnaire before it was launched indicated that participants were able to clearly express their preferences. Stated preference surveys, involving presenting respondents with a list of options and having them select their preferences, have a long history of use in transportation planning.[17] Responses to stated preference questions, such as the ones included in the current study, can be seen as analogous to behavioral intention.

For all modes except rail transit, at least two in five respondents (40%) said that no change or improvement would make them more likely to use the mode in question. This means that there is a ceiling of 60% of residents who may be open to using transit or alternative modes of transportation should certain changes be implemented. For rail transit, only one quarter of respondents said that no change would induce them to ride, which shows that more of them—75%—may be willing to use this mode.

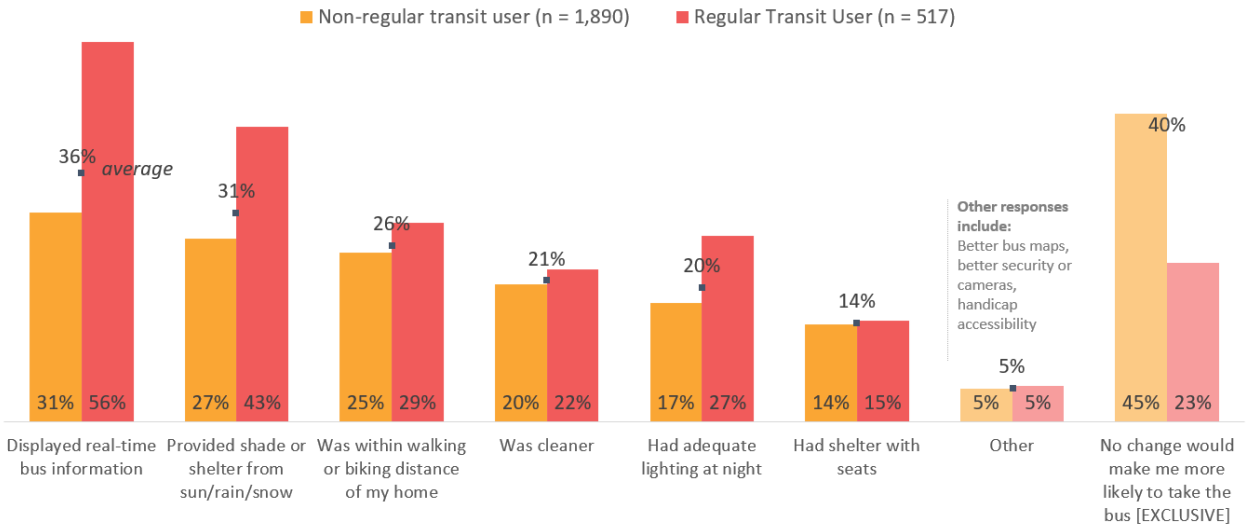
CHANGES TO THE BUS STATION OR BUS STOP

When asked which changes *to the bus stop or bus station* would make them more likely to take a bus, a top choice for all respondents was if the bus stop "displayed real-time bus information" (selected by 36%). As shown in Figure 13, other popular choices included: if the bus station "provided shade or shelter from sun/rain/snow" (31%) and if the bus station "was within walking or biking distance of my

[17] Kroes, E., & Sheldon, R. (1988). Stated Preference Methods: An Introduction. Journal of Transport Economics and Policy, 22(1), 11-25.

home" (26%). Forty percent of respondents stated that no change would make them more likely to take the bus. In the "other" open-ended category, respondents wrote that they wanted to see "better bus maps," "better security" and "handicap accessibility."[18]

Figure 13: Changes to Bus Stop or Station (S2Q1)



**Each respondent could select up to three options*

Regular transit users[19] were significantly more likely to select the following changes, relative to non-regular users:

- If the bus displayed real-time bus information (56% of regular transit users)
- If the bus provided shade or shelter from sun/rain/snow (43%)
- If the bus had adequate lighting at night (27%)

Respondents of the Core region were significantly more likely to select the real-time bus information option (53%) as well as adequate lighting (27%). These changes may represent the low-hanging fruit to encourage existing transit users to take the bus. Not surprisingly, respondents who were not regular transit users were significantly more likely to choose "No change" as an exclusive response. Respondents aged 65 and over and residents of the Outer Suburbs were significantly more likely to select this option relative to other groups.

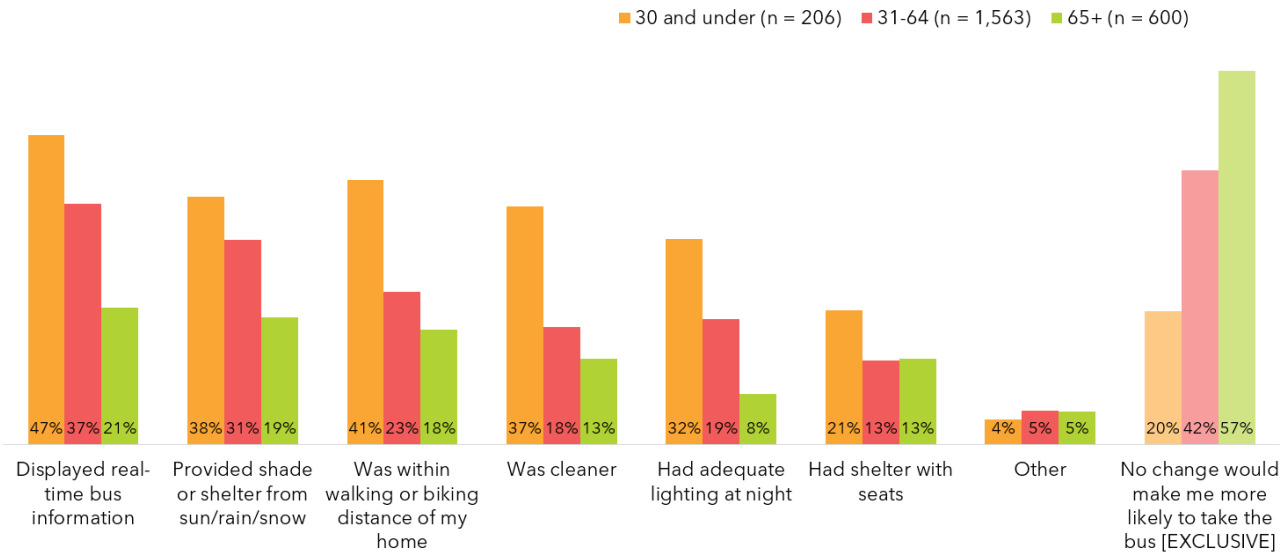
In regard to differences by income category, low-income respondents were significantly more likely to say that they would be encouraged if the bus stop or station "was cleaner" (selected by 46% of low-income respondents, compared to 19% of non-low-income respondents). This choice may also be a low-hanging fruit, especially if anecdotal evidence reveals that the condition or cleanliness of bus stations in low-income areas need improvement. Lower income respondents selected "No change" in smaller

[18] Most of these open-end responses included items related to the trop aboard the bus and were covered by the next question.

[19] Pre-COVID transit user defined as S1Q4 = 1, 2, 3, i.e. respondent took public transportation at least three times per week.

numbers, showing more general openness in taking the bus, relative to higher-income respondents, though the difference was not statistically significant (26% versus 41%). [20]

Figure 14: Changes to the Bus Stop or Station (by Age – S2Q1, D5)



Because younger respondents (up to and including age 30) were significantly less likely to select "no change," they chose from the options presented in greater numbers relative to older respondents, showing that they also are more open or amenable to taking the bus should these changes or improvements be implemented. This may present an opportunity to bring in more transit riders. These preferences by age group are clearly shown in Figure 14 above.

There were no notable differences in preferences based on gender or presence of children in households.

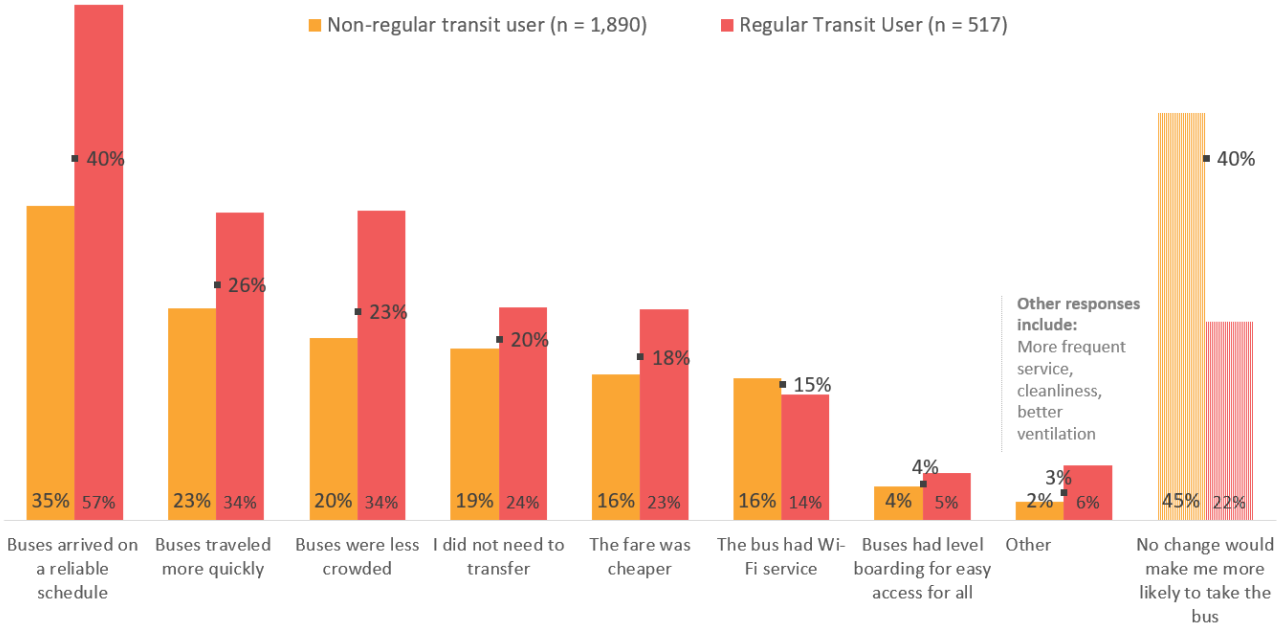
CHANGES TO BUS TRIP/EXPERIENCE

When asked about possible changes or improvements to the *trip aboard the bus*, 40% of respondents stated that no change would encourage their ridership, with non-transit users and older respondents (65+) significantly more likely to select this option. The most popular option was if "buses arrived on a reliable schedule," (40%) followed by if "buses traveled more quickly" (26%) and if "buses were less crowded" (23%). As shown in Figure 15, regular transit users were significantly more likely to select these options relative to non-regular users. Regular users were also significantly more likely to select "Other" (6% versus 2% of non-regular riders) and to write in their own suggestion, the most common of which was "more frequent service."

[20] For more information about significance testing, please refer to *How to Read this Report* on page 6 and the Analysis section on p. 63.

Residents of the Core were significantly more likely to suggest a number of options relative to residents of the Outer Suburbs, including: "Buses arriving on a reliable schedule" (53% versus 24%), "Buses traveling more quickly" (38% versus 18%) and "Less crowded buses" (30% versus 18%).

Figure 15: Changes to Ride Aboard the Bus by Transit User Status (S2Q2)



Low-income respondents were significantly more likely to say they would be encouraged to ride if "buses were less crowded" (selected by 41% of low-income respondents versus 22% of non-low-income respondents) and if "the fare was cheaper" (40% versus 15%). Adults with children in their household were significantly more likely to say they would be encouraged if "buses arrived on a reliable schedule" (48% versus 36% of households with no children).

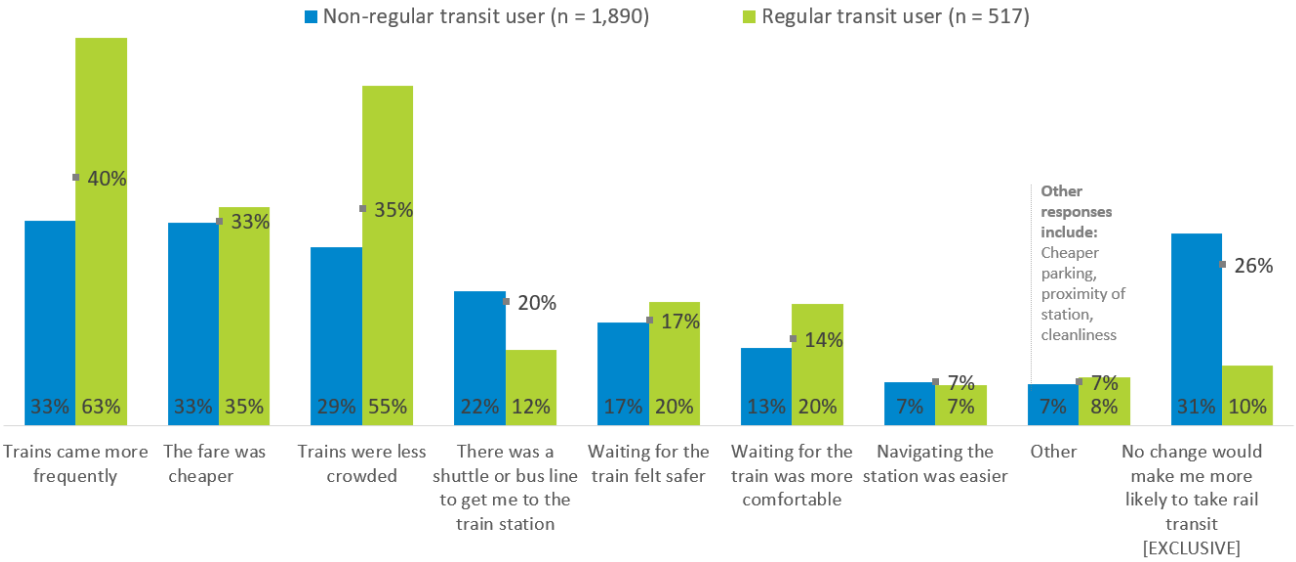
Younger respondents (age 30 and under) were significantly more likely to choose "buses arrived on a reliable schedule," (63%) "buses traveled more quickly" (36%) and "the fare was cheaper" (31%) relative to older groups of respondents.

CHANGES TO RAIL TRANSIT

When asked about possible improvements to rail transit, the most popular choice was for "trains [to come] more frequently" (chosen by 40%), followed by if "trains were less crowded" (35%). These two choices are closely related. As shown in Figure 16 on the next page, regular transit users were significantly more likely to select both of these options than non-regular riders. Regular riders were also significantly more likely to select if "waiting for the train was more comfortable." A popular choice among all respondents was if "the fare was cheaper" (33%). Residents of the Inner Suburbs were significantly more likely to select this option (38%) relative to residents of other regions. Relative to residents of the Outer Suburbs, residents of the Core were significantly more likely to select "Trains coming more frequently" (52% versus 31%) and "Less crowded trains," (46% versus 21%).

There was no statistically significant difference by income category, presence of children in the household or gender.

Figure 16: Changes to Rail Transit (S2Q3)



One quarter of all respondents said that no change would make them more likely to take rail transit (26%). Here again, non-regular transit users, older respondents (65+) and residents of the Outer Suburbs were significantly more likely to select this option.

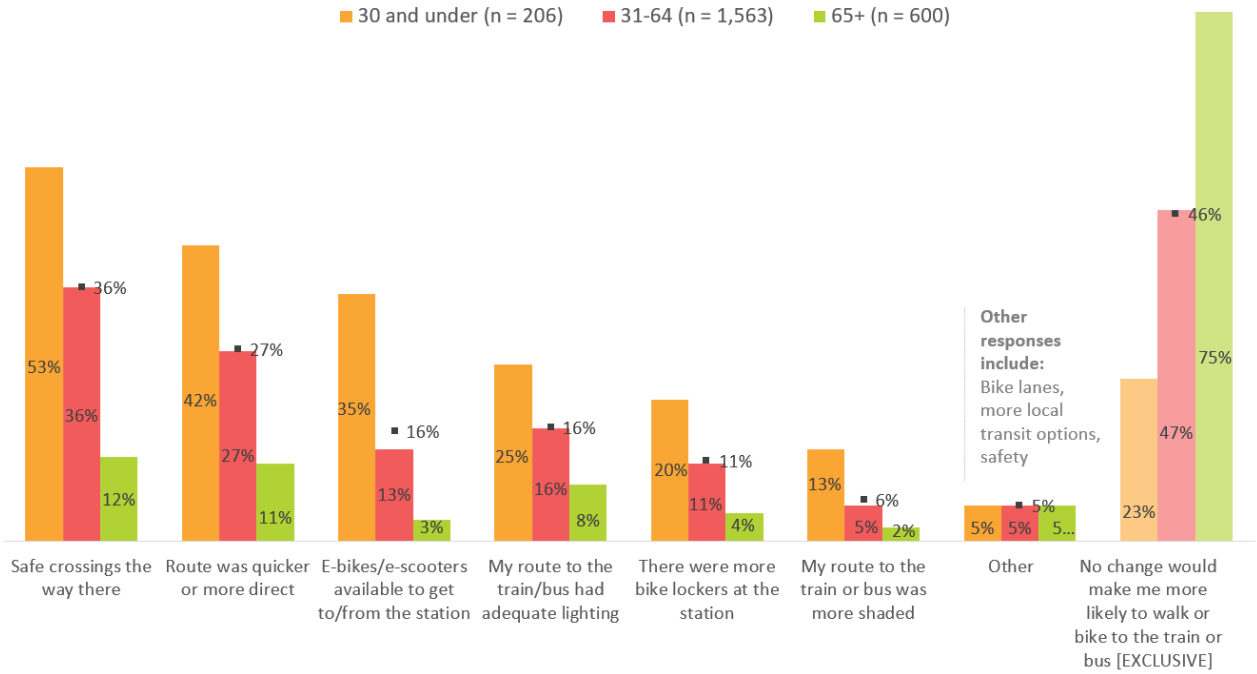
Relative to seniors, the youngest respondents were significantly more likely to select if "trains came more frequently" (54%), the "fare was cheaper" (47%) and "waiting for the train felt safer" (29%).

ENCOURAGING WALKING, BIKING OR USING E-POWERED MOBILITY DEVICES TO TRANSIT

When asked which improvements or changes would make them more likely to walk, bike, or use an e-powered or mobility device to the train station or bus stop, the most popular choice was "if there were sidewalks and safe crossings all the way there" (36%), followed by if "my route to the train or bus was quicker or more direct" (27%). This shows that residents may experience a certain number of obstacles to getting to transit in a direct or safe way, for example if there are streets that are difficult to cross to get to a bus stop.

Younger respondents were significantly more likely to select these options relative to seniors. Younger respondents were also significantly more likely to select "if there were e-bikes or e-scooters available to get to and from the station" (35%), relative to older age groups.

Figure 17: Changes to Encourage Walking, Biking to Transit (S2Q4)



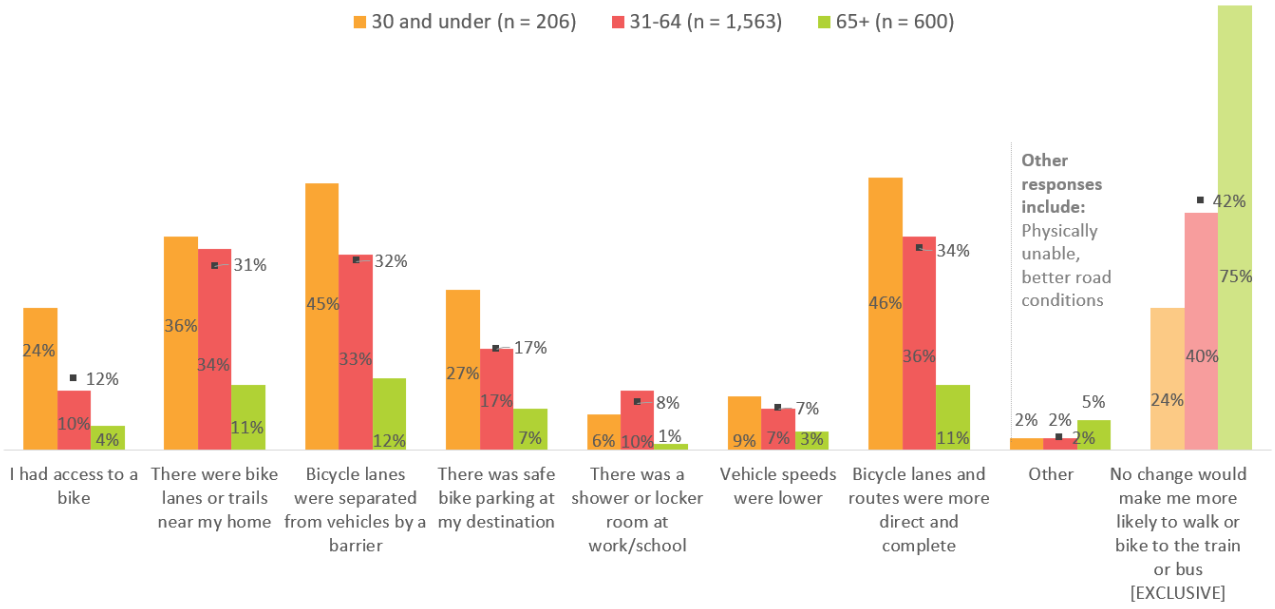
Almost half of all respondents (46%) said that no change would encourage this behavior, and three-quarters of seniors selected this option (75%). Residents of the Core were significantly less likely to select this "no change" option, showing either more openness or fewer obstacles to reaching transit.

Adults with children were significantly more likely to select a variety of options here compared to households without children, including if "my route to transit was quicker or more direct," "if there were more bike lockers at the station" and "if there were e-bikes or e-scooters available to get to and from the station." There were no notable differences by income category or gender.

ENCOURAGING BICYCLING

The final question in this series asked respondents which improvements would make them more likely to use a bicycle. While 42% said that no change would make a difference to them, the top substantive choices were related to bicycle infrastructure: If "bicycle lanes and routes were more direct and complete" (34%), followed by if "bicycle lanes were separate from vehicles by a barrier" (32%) and if "there were bike lanes or trails near my home" (31%). Men were significantly more likely to select if "there was a shower or locker room at work/school" (11% versus 5% of women). Adults with children were significantly more likely to select "bike lanes or trails near my home" (chosen by 40% versus 27% of households without children.)

Figure 18: Changes to Encourage Bicycling (S2Q6)

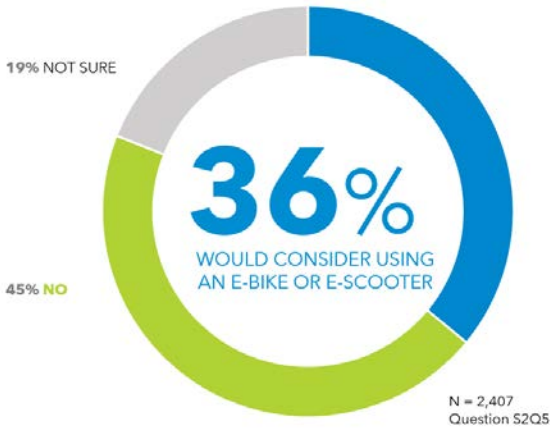


Older respondents were significantly more likely to say that no change would make them more likely to ride a bike, and to enter a separate suggestion in the "Other" category, including: "If I was physically able/younger" or "if it were safer." Younger respondents were significantly less likely to select this exclusive option, showing more openness to biking provided certain changes or improvements. One quarter of the younger respondents said they would bike more if they had access to a bike (24%), compared to 10% of the middle age category and 4% of seniors.

There were no differences in this measure by income category or region of residence.

E-BIKES AND E-SCOOTERS

Electric scooters or e-scooters are scooters that one can stand or sit on and are powered by an electric motor. Electric bikes or e-bikes are bicycles with a battery-powered "assist" that amplifies the pedaling effort and gives the rider a boost. Multiple companies are allowed to operate a total of 7,000 scooters and 4,000 e-bikes within the Washington region. The technology offers important benefits including expanded access to short-range destinations and to transit. However, there have been reports of riders ignoring safety rules and blocking sidewalk access.[21]



[21] Pascale J. "DC Council Approves Bill that Makes Locking Electric Scooters, Limiting Speed on e-bikes a Requirement." WAMU American University Radio, 10.20.2020. https://wamu.org/story/20/10/20/new-dc-rules-on-scooters-and-ebikes/

When asked if respondents would consider using a shared e-scooter or e-bike to take short trips (less than one mile) to transit or other destinations, 36% said they would, but 45% would not. One in five (19%) said they were unsure.

There were no notable differences by income category or gender. In line with their response to the previous question, younger respondents were significantly more likely to select "Yes" relative to senior respondents (56% versus 9%). Families with children were also more likely to say "Yes" here (45% versus 31% of households without children).

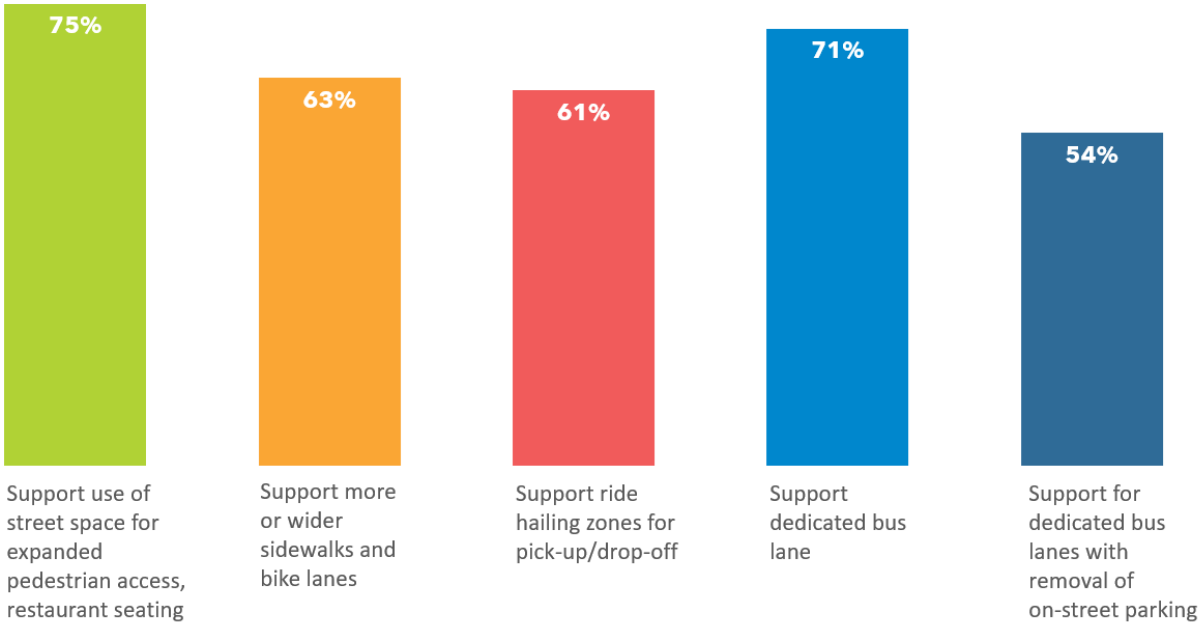
ROAD AND SIDEWALK SPACE

The survey was interested in gauging support for various uses of street and sidewalk space. During the pandemic, street space and parking spaces have been used for expanded pedestrian access and restaurant seating. Respondents were asked if they supported the *continued* use of street space for these kinds of purposes one year after the pandemic is over. As shown in Figure 19, three-quarters (75%) of all respondents said they supported this measure.

A majority of respondents supported more or wider sidewalks and bike lanes (63%), even if it meant a reduction in parking availability. There were no notable differences by income status, racial/ethnic background, or car user status. A majority of seniors (59%) did not support the measure, a statistically significant difference relative to the middle-age category (68% of whom support the measure).

New technologies and services, such as ridesharing and ride hailing (Uber and Lyft), are affecting demand for the street space next to the curb. As shown in Figure 19, 61% of all respondents say they supported the creation of ride-hailing zones for pick-up and drop-off on the street if it meant a reduction in parking availability. There were no differences in support based on income, age, or racial/ethnic background. Interestingly, there was also no difference in support based on whether respondents were frequent car users before the pandemic. Even among those who drove or rode in a car at least once a day, 61% supported the creation of these ride-hailing zones.

Figure 19: Support for Various Sidewalk and Street Space Uses (S1Q24, S2Q8, S2Q7, S2Q12, S2Q13)



Support for a dedicated bus lane to avoid congestion and make bus trips faster was high, with 71% supporting this measure. Support among car users was slightly lower relative to non-car users (70% versus 75%), but the difference was not statistically significant. However, when the survey specified that the creation of this travel lane would mean the removal of a lane of on-street parking, support went down but was still in the majority, as 54% of all respondents support this measure.

There was no difference based on racial/ethnic background or by age for the removal on street parking to create a dedicated bus lane, though a majority of those aged 65 and over did not support the measure (53%) while a majority of other age groups did. Finally, a slight majority of car users supported the dedicated bus lane even if it meant removing parking (51%). This support was significantly lower than the support from non-car-users (61%).[22]

BROADER OPINION QUESTIONS

FUTURE DEVELOPMENT AND PREFERRED PLACE TO LIVE

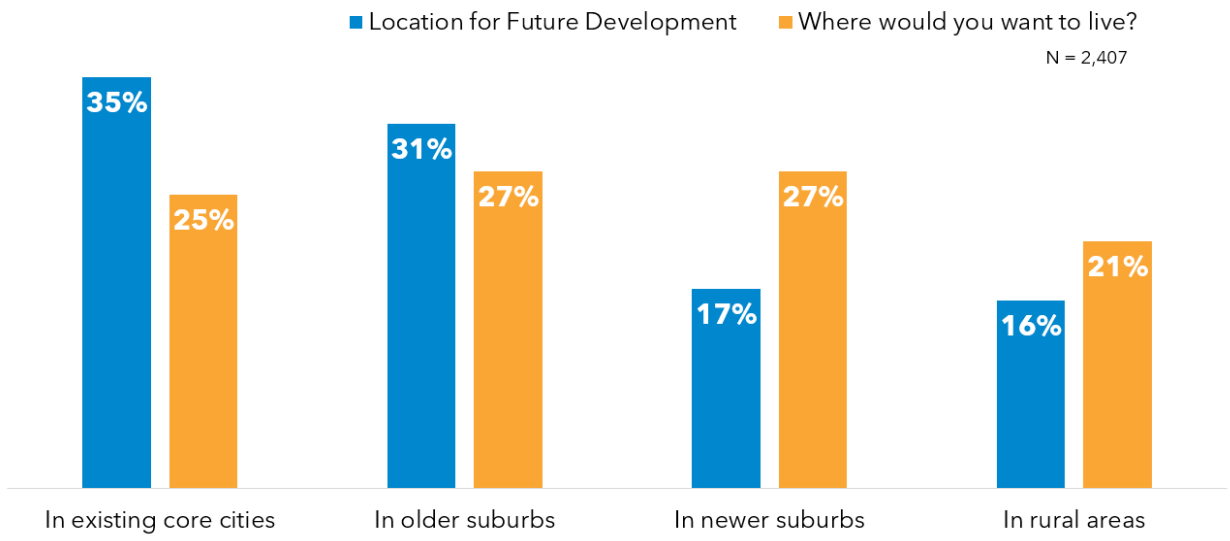
All respondents were asked where they believe future development should be encouraged. The options included generic types of places that were not geographically defined: existing core cities, older suburbs, new suburbs, and rural areas. Where people choose to live and work within the region has important land use considerations, which in turn will affect transportation planning. While media narratives have focused on the flight of residents away from dense urban areas during the pandemic, it is also clear that

[22] Here again, car users are defined by S1Q2 = 1 or 2, i.e. respondent drove or rode in a vehicle at least once per day.

the phenomenon primarily affects a small minority of wealthier residents. It is also not clear how permanent this migration may be.[23]

The most popular response to where development should be encouraged was "in existing core cities" (35%), followed by "in older suburbs" (31%). Higher proportions of low-income respondents believed that development should occur in existing core cities relative to non-low-income respondents, though the difference was not statistically significant (44% versus 34%). There were no statistically significant differences by age or family composition, though the plurality of families with children wanted to see development in the older suburbs (34%).

Figure 20: Location of Future Development and Ideal Place to Live (S2Q9, S2Q10)



Next, respondents were asked where they would choose to live if they could live anywhere in the region. Here again, the options included the same list of generic locations (existing core cities, older suburbs, new suburbs, and rural areas).

Responses here were divided, with approximately one quarter of responses each choosing new suburbs (27%), older suburbs (27%) and existing core cities (25%). A plurality of low-income respondents chose to live in new suburbs relative to non-low-income respondents, though the difference was not statistically significant (37% versus 26%). A plurality of younger respondents also preferred to live in newer suburbs, which was significantly lower relative to seniors (only 13% of whom wanted to live there). The preference for seniors was for the older suburbs (36% of seniors selected this option, significantly more than other age groups). Families with children were significantly less likely to want to

[23] Robert, JJ, "Are people really fleeing cities because of COVID? Here's what the data shows." July 17, 2020. *Fortune*. https://fortune.com/2020/07/17/people-leaving-cities-coronavirus-data-population-millennials-marriage-families-housing-real-estate-suburbs/

live in existing core cities, relative to families or individuals with no children in the household (16% versus 30%). The preference of families with children was for newer suburbs (31%).

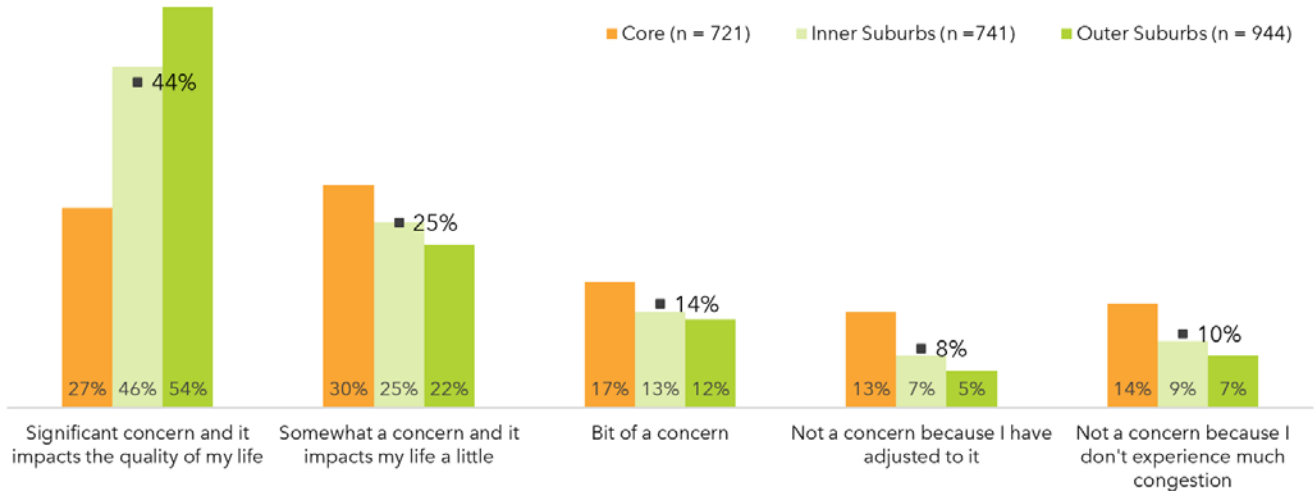
When looking at results by current housing type, we see the following alignment: individuals living in single-family detached homes preferred to live in older suburbs (33%) or rural areas (27%) whereas those living in townhouses preferred the newer suburbs (29%) and those in condos or apartments preferred the existing core cities (38%). The differences between the preferences of single-family home residents and apartment dwellers are statistically significant.

TRAFFIC CONGESTION

Traffic congestion is a situation where there is an excess of vehicles on a portion of roadway at a particular time resulting in speeds that are slower—sometimes much slower—than normal.[24] All respondents were asked how big of a concern traffic congestion is to them personally. Over two-thirds of respondents (69%) say that congestion is a concern that impacts the quality of their lives, with 44% saying it is a significant concern.

More than half of residents of the Outer Suburbs said congestion was a significant concern, which is significantly higher than residents of the Core (54% versus 27%). Thirteen percent of residents of the Core say congestion is not a concern because they have adjusted to it, a significantly higher proportion compared to residents of other areas (only 7% of Inner Suburb residents and 5% of Outer Suburb residents chose this option). As shown in the Figure below, the impact of congestion is felt very differently based on the respondent's place of residence, with those living farther away from the core reporting a greater and more negative impact of congestion on their quality of life.

Figure 21: Impact on Traffic Congestion on Quality of Life (S2Q11)



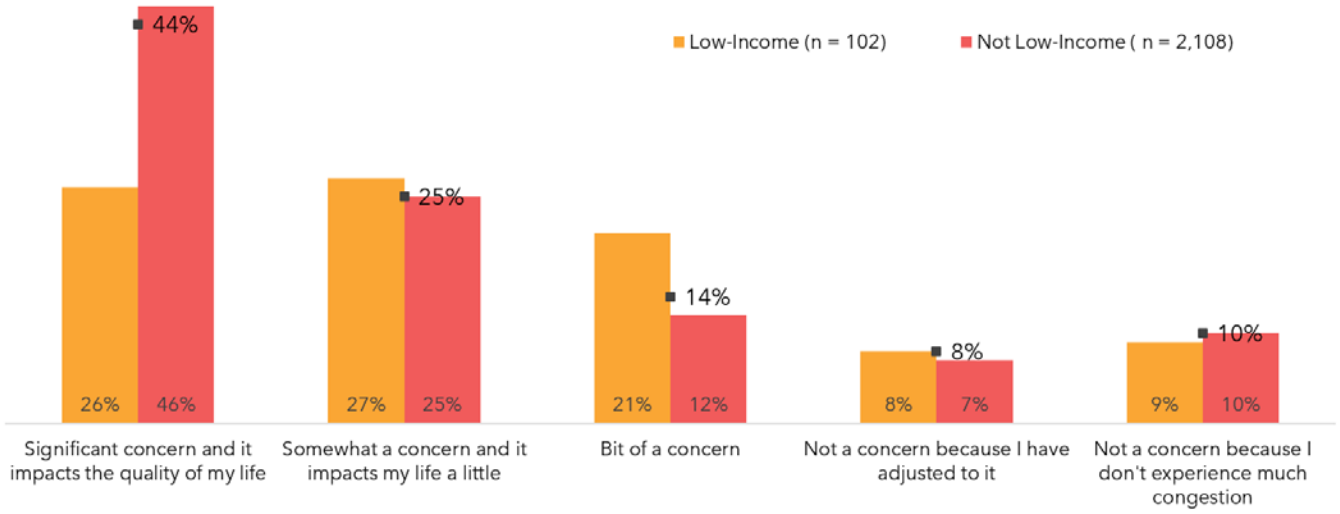
[24] USDOT, Federal Highway Administration, Traffic Congestion and Reliability: Trends and Advanced Strategies for Congestion Mitigation https://ops.fhwa.dot.gov/congestion_report/chapter2.htm

Low-income neighborhoods have traditionally experienced higher numbers of traffic injuries, poor street conditions and traffic volumes.[25] Low-income and minority communities are more likely to be located near highways and other facilities that reduce air quality. At the same time, low-income households tend to own fewer vehicles.[26] As shown in Section 1 of this report, low-income respondents to this survey were significantly less likely to be frequent drivers, relative to higher-income respondents.

For this question about the impact of traffic congestion, low-income respondents were significantly less likely to say that congestion was a significant concern (26% versus 46% of non-low-income residents). This finding may partially be explained by place of residence considering the low weighted share of low-income respondents from the Outer Suburbs (13%), where the concern is highest.

There were no statistically significant differences by racial/ethnic background, though higher proportions of black and Hispanic residents said that congestion is not a concern to them.[27]

Figure 22: Traffic Congestion Concerns by Income Category (S2Q11, D9)



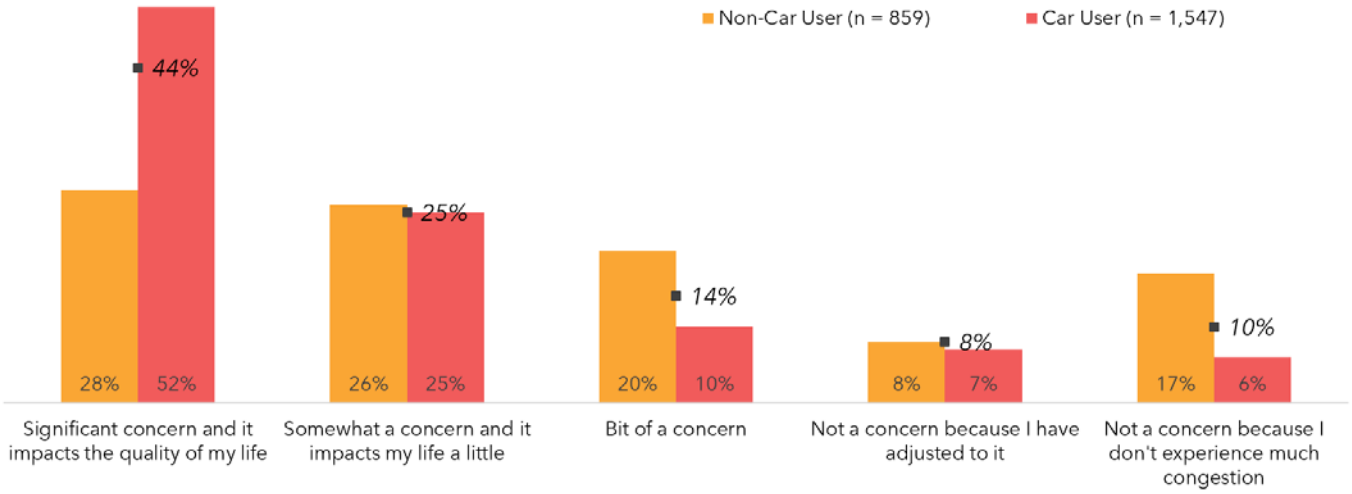
Car users were significantly more likely relative to non-car users to say that traffic congestion was a concern (52% relative to 28%), and non-car users were significantly more likely to say it was not a concern (17% versus 6%).

[25] Love, Hanna and Vey, Jennifer, "To build safe streets, we need to address racism in urban design." August 28, 2019. Brookings Institution. https://www.brookings.edu/blog/the-avenue/2019/08/28/to-build-safe-streets-we-need-to-address-racism-in-urban-design/; Houston, Douglas et al. "Walkability, transit access, and traffic exposure for low-income residents with subsidized housing." *American Journal of Public Health* vol. 103,4 (2013): 673-8. doi:10.2105/AJPH.2012.300734 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3673237/

[26] US Department of Transportation, "Equity." Last updated December 17, 2013. www.transportation.gov/mission/health/equity

[27] For an overview of the low-income respondents in this study, and how significance was calculated, please see *How to Read this Report.*

Figure 23: Traffic Congestion Concerns by Car User Status (S2Q11, S1Q2)



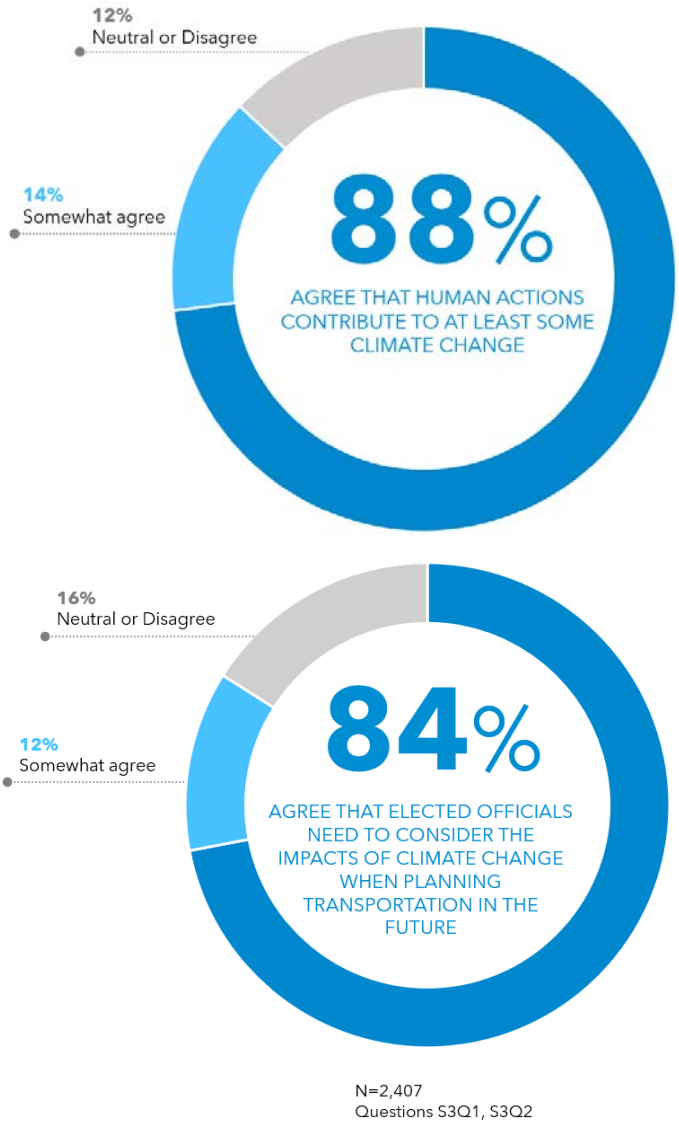
SECTION 3: FUTURE FACTORS & EXTERNAL FORCES

CLIMATE CHANGE

Human activities such as the burning of fossil fuels has increased the concentration of atmospheric CO2, leading to a number of climate changes including warmer temperatures, more evaporation and precipitation, warmer and rising oceans and more extreme weather.[28] While the Intergovernmental Panel on Climate Change has concluded that human activities over the past 50 years have warmed our planet, the issue of climate change has been challenged and politicized.

Greenhouse gas emissions from transportation have been steadily rising and now account for 28% of total US emissions.[29] For this reason, the survey set up to gauge residents' views on climate change.

The vast majority of the region's residents (88%) agree that human actions contribute to at least some climate change, with 73% strongly agreeing. A similarly high proportion of residents (84%) agreed that elected officials need to consider the impacts of climate change when planning for transportation in the future, with 72% strongly agreeing with the statement.

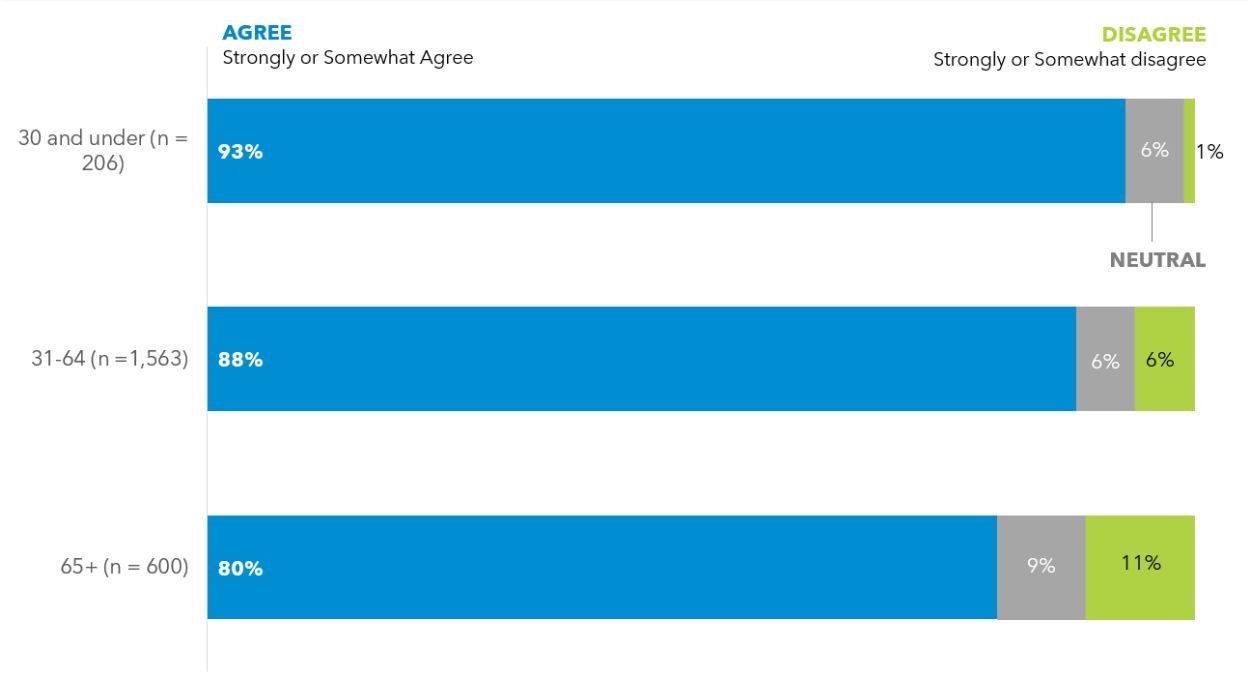


Because the TPB Plan covers the next 25 years, there is value in looking at the views of residents of different age groups. Seniors were significantly more likely to disagree with the statement about human actions driving climate change relative the youngest age group (11% versus 1%). Still, the vast majority of seniors (80%) agreed with the statement about climate change to some degree.

[28] NASA Global Climate Change Panel, "The Causes of Climate Change." https://climate.nasa.gov/causes/

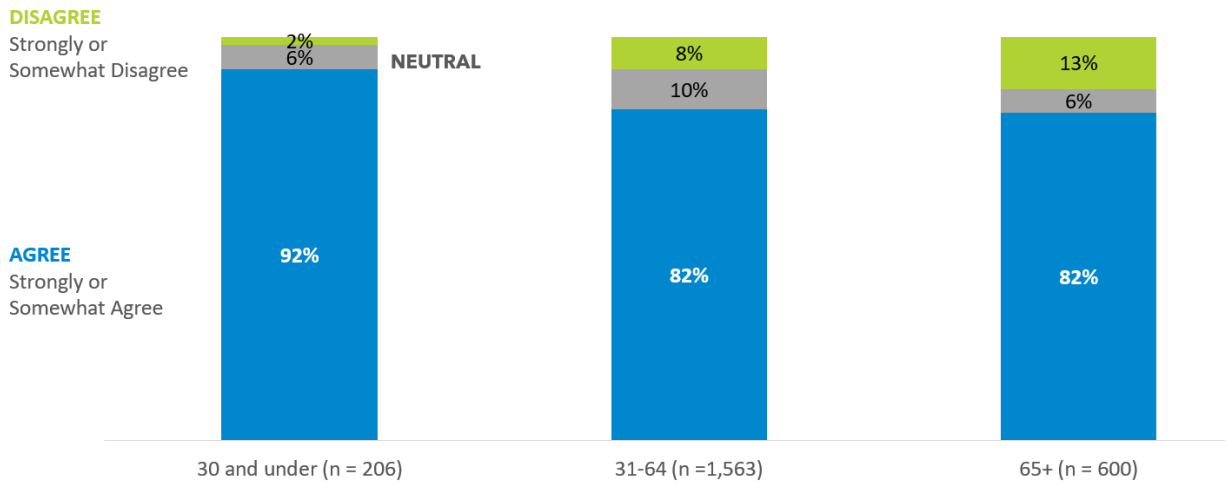
[29] US Department of Environmental Protection, "Carbon Pollution from Transportation. https://www.epa.gov/transportation-air-pollution-and-climate-change/carbon-pollution-transportation; Liberman, Bruce, "A Brief Introduction to Climate Change and Transportation." September 22, 2019. *Yale Climate Connections*. https://yaleclimateconnections.org/2019/09/a-brief-introduction-to-climate-change-and-transportation/

Figure 24: Human Actions Contribute to Climate Change - Agree/Disagree (S3Q2, D5)



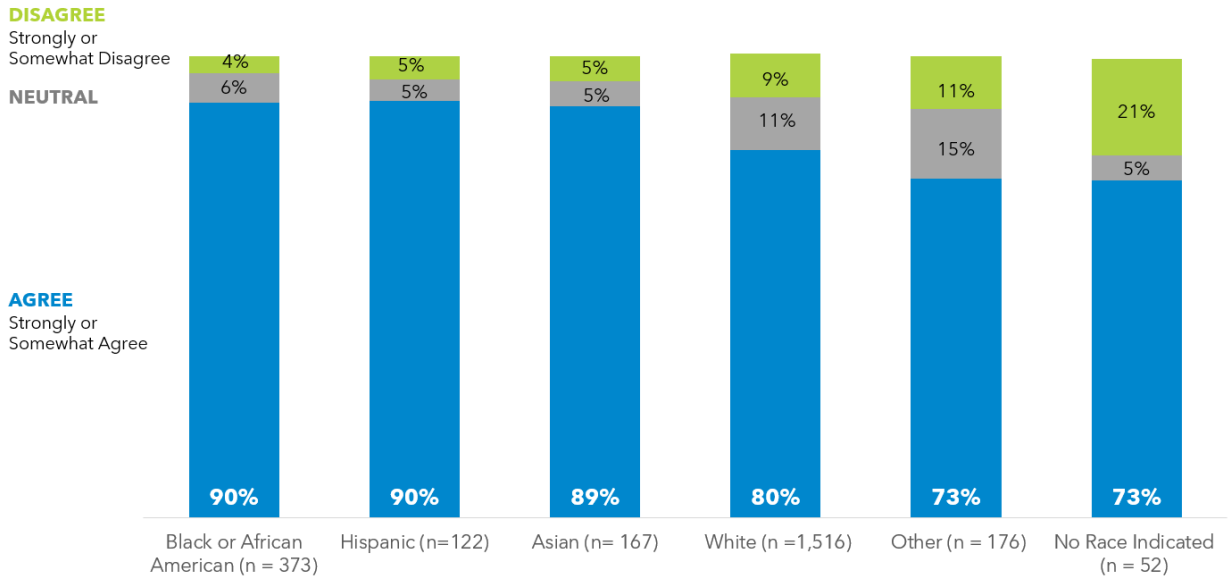
Residents aged 65 and older were also significantly more likely to disagree with the statement that elected officials should consider the impacts of climate change compared to the youngest residents, though only 12% of seniors were in that category (compared to 2% of 30 and under residents).

Figure 25: Elected Officials Should Consider Impacts of Climate Change - Agree/Disagree by Age Category (S3Q1, D5)



In regard to the views of different demographic groups, non-Hispanic White respondents were significantly less likely to agree with the statement that elected officials should consider the impacts of climate change relative to respondents of other backgrounds (80% of White respondents agreed versus 90% of African Americans and Hispanics).

Figure 26: Elected Officials Should Consider Impacts of Climate Change - Agree/Disagree by Race/Ethnicity (S3Q1, D7)



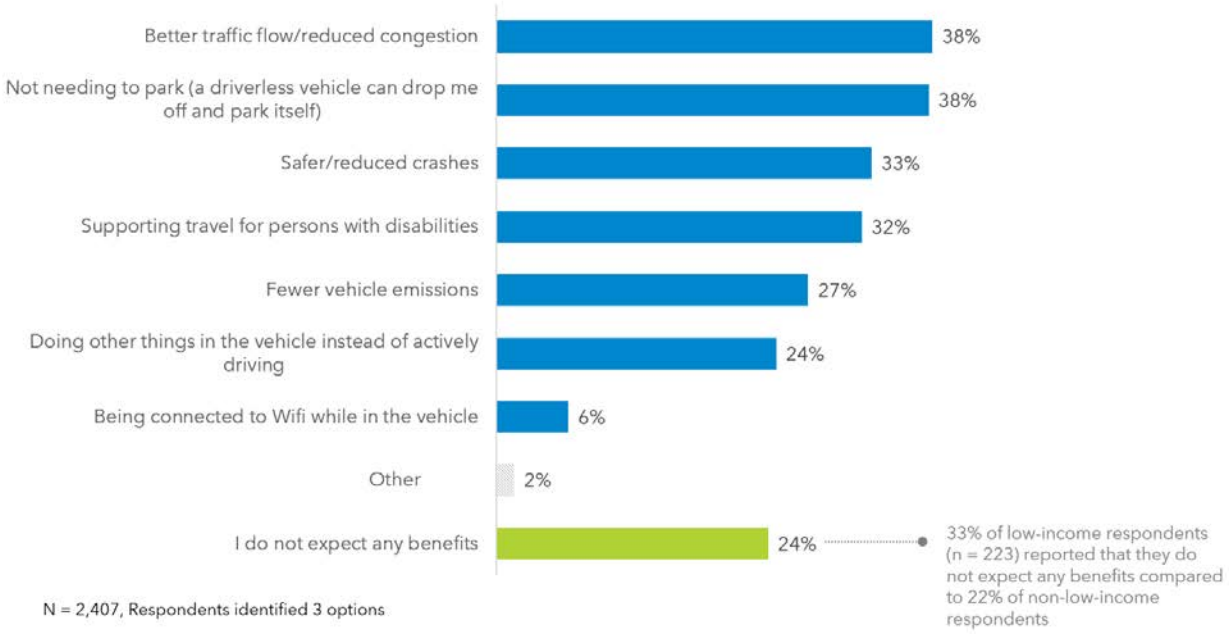
DRIVERLESS CARS

Fully autonomous cars and trucks already exist in a testing capacity on certain roadways. These vehicles operate independently and are capable of performing all driving functions under all conditions, without a human driver.[30]

Survey respondents were asked to select up to three ways the availability of driverless cars might benefit them or others in the Washington region. The two top choices, selected by 38% of respondents each, were "not needing to park" and "better traffic flow/reduced congestion."

[30] National Highway Traffic Safety Administration, "Automated Vehicles for Safety," Last updated 11/19/2020. https://www.nhtsa.gov/technology-innovation/automated-vehicles-safety#topic-road-self-driving

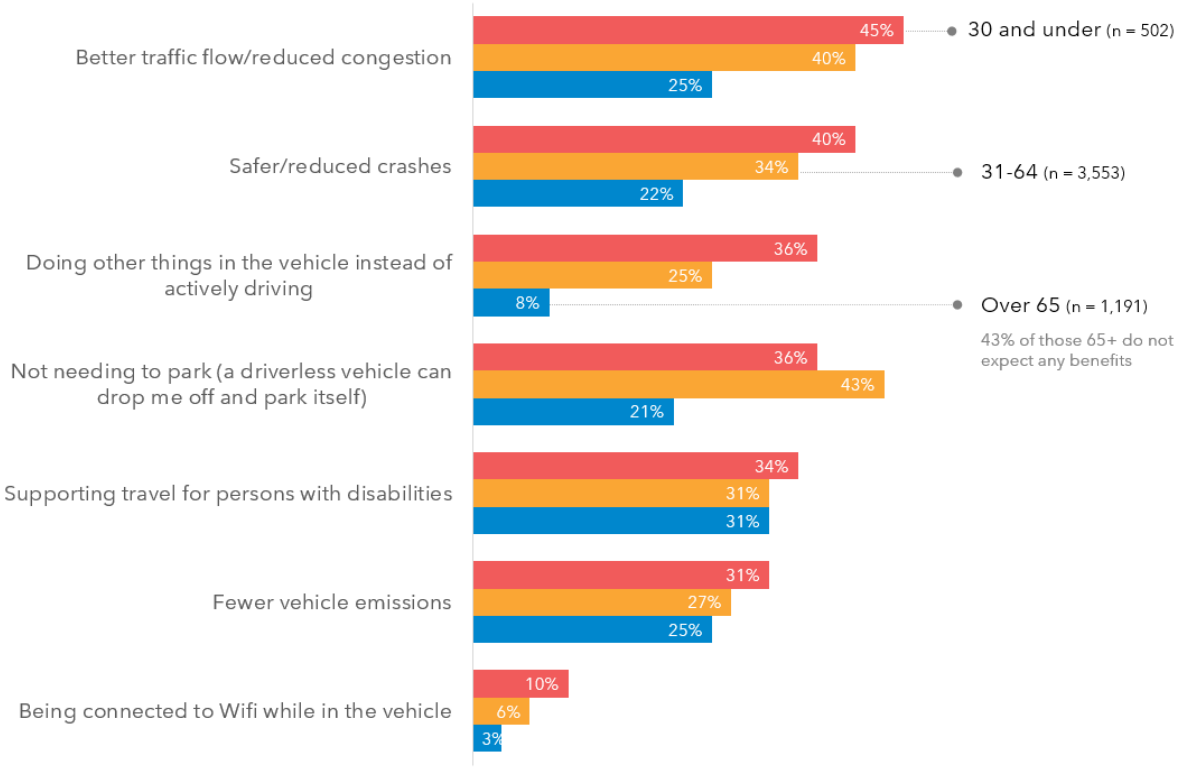
Figure 27: Benefits of Driverless Cars (S3Q4)



There were no statistically significant differences based on income, however it should be noted that a higher proportion of low-income respondents said they did not expect any benefits from driverless cars (33% versus 22% of non-low-income respondents). Similarly, while there were no statistically significant differences by racial/ethnic background, a higher proportion of African American respondents said they did not expect any benefits. Higher proportions of Hispanics selected "safer/reduced crashes" and "better traffic flow/reduced congestion" relative to respondents from other backgrounds.

Senior respondents were significantly more likely to say they did not expect any benefits from driverless cars, relative to the youngest group (43% versus 14%). There were also significantly more likely to select "Other," where they wrote in suggestions such as: "Can provide transportation for the elderly who are no longer able to drive," or statements that they were not in favor of them or thought they were dangerous.

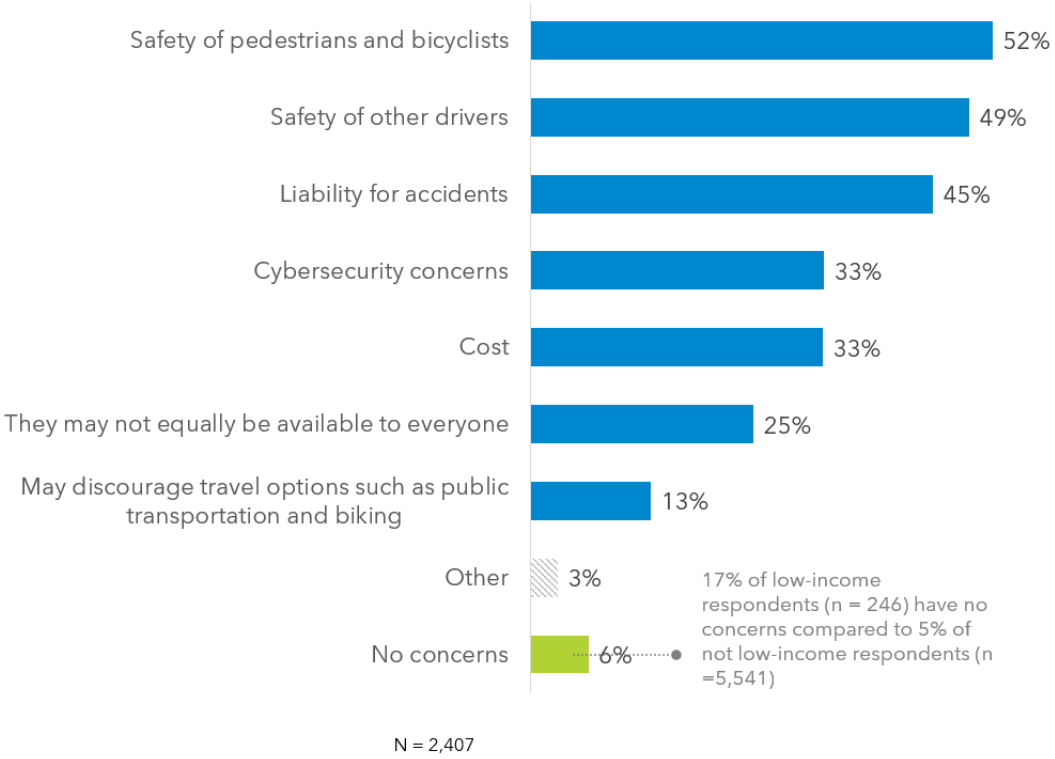
Figure 28: Benefits of Driverless Cars by Age Category (S3Q4)



The youngest group was significantly more like to select that a benefit was the ability to "do other things in the vehicle instead of actively driving," relative to seniors (36% versus 8% selected that option). The middle-age group was significantly more likely to select "not needing to park" as a benefit relative to the senior group (43% versus 21%). Families with children were significantly more likely to select "doing other things in the vehicle instead of actively driving" relative to households with no children (31% versus 21%).

After asking about perceived benefits, the survey also asked respondents to consider possible concerns they might have about autonomous vehicles. Here again, respondents could select up to three options. Over half of respondents selected "Safety of pedestrians and bicyclists" as a concern (52%). Other top choices were "safety of other drivers" (49%) and "liability for accidents" (45%).

Figure 29: Concerns about Driverless Cars (S3Q5)



Low-income respondents were significantly more likely to say they had "no concerns" (17% versus 5% of higher-income respondents). As mentioned earlier, a higher proportion of low-income respondents said they did not expect a benefit from the technology. The upshot may be that that low-income respondents are neutral or feel generally unaffected by driverless cars.

Asian respondents were significantly less likely than other groups to have no concerns (1% versus 10% for African Americans, for example). Older respondents were significantly less likely to have cybersecurity concerns, or to be concerned that driverless cars may discouraged other travel options. There were no statistically significant differences by family composition.

In the Other category, selected by 3% of respondents, people cited concerns such as "increased congestion," "lost jobs for taxi drivers," and "safety of occupants."

TRANSPORTATION EQUITY

Transportation equity is concerned with the fair distribution of the positive and negative impacts of transportation projects and policies.[31] In looking at transportation issues from an equity perspective, the study team examined the attitudes of different demographic groups who have historically been kept out of the decision-making process surrounding transportation service and infrastructure, including low-income residents, residents of minority racial/ethnic backgrounds, seniors and individuals with disabilities.

The table below provides an overview of the demographic subgroups of interest and the total numbers of survey respondents in each group. Certain demographic groups were under-represented in our survey sample due to non-response. This under-representation was corrected through weighting, which corrects for the selection probabilities in each County and differential nonresponse based on geography and demographic characteristics. The weighted percent is the proportion of respondents in each category after the data has been weighted.

When isolating the responses of under-represented groups and comparing them with other groups (for example, Hispanic respondents and non-Hispanic respondents), we recognize that some differences may seem large, but these may not statistically significant due to small sample size. At the same time, some of the differences are so large that they are statistically significant despite the small sample size. Please see the section on *How to Read this Report* for more information on the significance testing that was performed relative to different groups of respondents.

Table 2: Completed Surveys by Demographic Group

Demographic group	Number of respondents	Weighted Percent
Low-income respondents	102	11%
Black or African American respondents (Non-Hispanic)	373	28%
Hispanic respondents	122	14%
Asian respondents (Non-Hispanic)	167	9%

At the beginning of a series of questions about transportation equity, the survey asked respondents to report how well they felt the region's current transportation system met their travel needs.

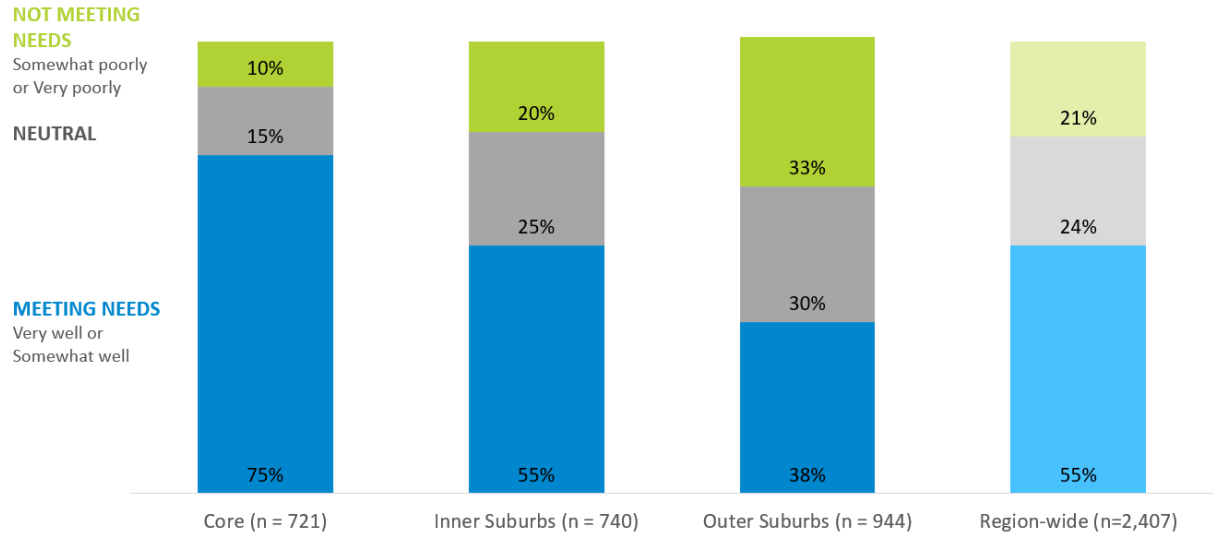
More than half of all respondents (55%) said the system meets their needs well, including 13% saying very well. One quarter of respondents said their needs were met neither well nor poorly (24%).

Differences were perhaps most striking based on region of residence. Three-quarters of residents of the Core said their needs were met well (75%), versus 38% of residents of the Outer Suburbs. Only 10% of

[31] Miller, Kristine, "Chapter 5: Transportation Equity," *Introduction to Design Equity*, Creative Commons Attribution 4.0 International License. https://open.lib.umn.edu/designequity/chapter/chapter-5-transportation-equity/

Core residents said their needs were met poorly, versus one-third of residents of the Outer Suburbs (33%). Satisfaction ratings of residents of the Inner Suburbs were consistently in the middle of these two extremes. These discrepancies are clearly illustrated in Figure 30.

Figure 30: System Meeting Needs by Region (S3Q6)

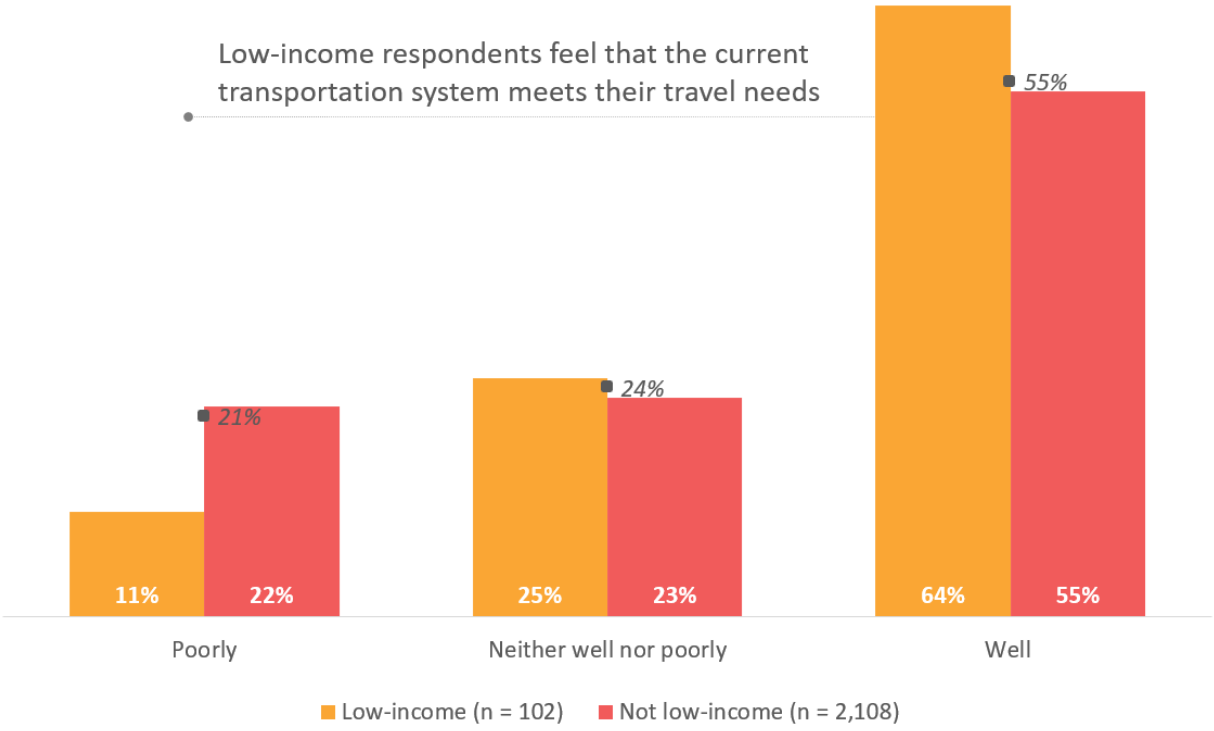


Transportation equity research shows that low-income households tend to own fewer vehicles, have longer commutes and spend a higher percentage of their incomes on transportation.[32] For this question about how well the transportation system met their needs, low-income respondents were significantly less likely to rate the system as meeting their needs poorly (11% selected somewhat or very poorly, versus 22% of non-low-income respondents). This may be a result of place of residence: the weighted share of low-income respondents in this survey was less concentrated in the Outer Suburbs—where satisfaction with the transportation system is lowest. Only 13% of low-income respondents lived in the Outer Suburbs, compared to one-quarter of higher-income respondents (25%).

People who identified as essential workers during COVID were significantly less likely to say the system met their needs very or somewhat well, relative to non-essential workers. Among essential workers, 25% said their needs were met poorly or very poorly, with 46% saying their needs were met well or very well. Among non-essential workers, 20% said their need were met poorly or very poorly and 63% said their needs were met well or very well. In part, this higher level of dissatisfaction may be linked to the fact that essential workers have been more likely to drive to work during the pandemic. As noted earlier, drivers tend to be more concerned with congestion than respondents overall.

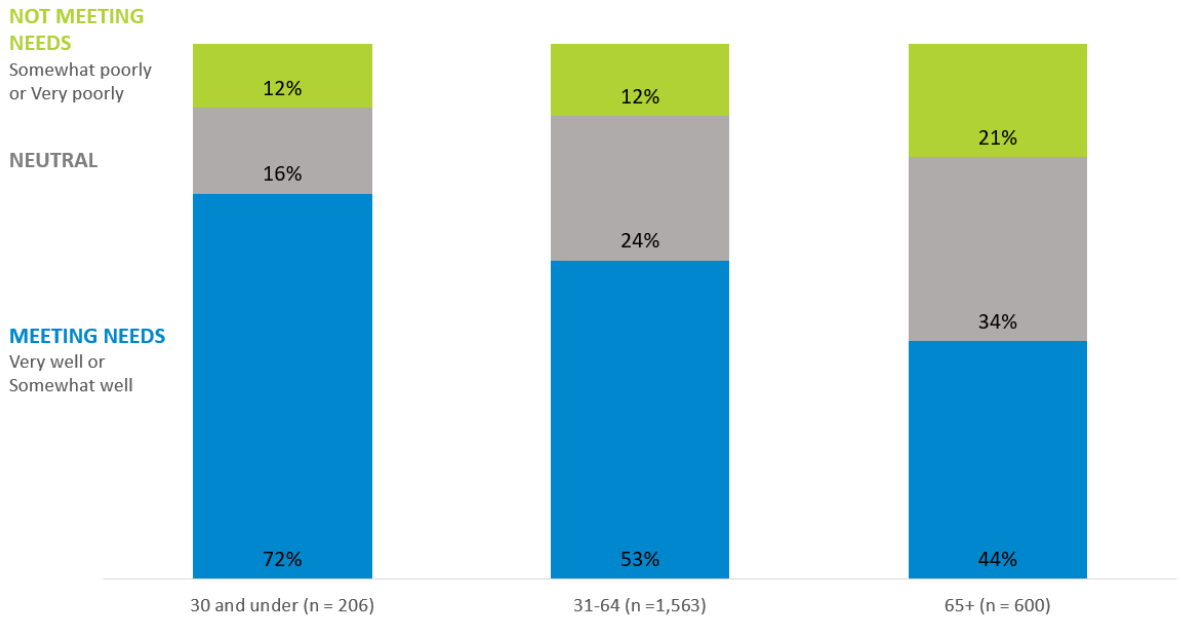
[32] US Department of Transportation, "Equity." Last updated December 17, 2013. www.transportation.gov/mission/health/equity

Figure 31: System Meeting Needs by Income Category (S3Q6, D9)



In regard to age, the youngest respondents were significantly more likely to say the system met their needs (72%) relative to seniors (44%). Indeed, a majority of seniors report that the system does not meet their needs well. Respondents aged 65 and over were also significantly more likely to say the system meets their needs neither well nor poorly, relative to the youngest group (34% versus 16%).

Figure 32: System Meeting Needs by Age Group (S3Q6, D5)



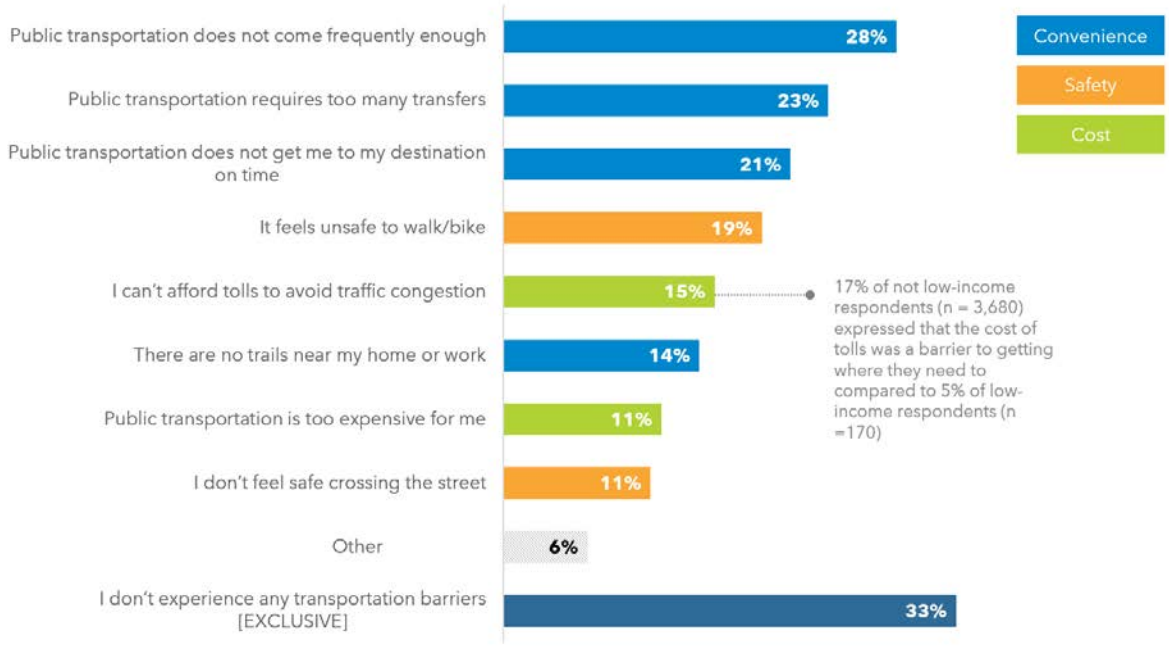
There were no statistically significant differences in this measure based on gender, family composition or racial/ethnic background.

All respondents were asked whether they experienced any transportation barriers to getting where they need to go from where they live. They could select up to three options here. One third (33%) said they don't experience any transportation barriers. The most selected substantive responses were about public transportation:

- Public transportation does not come frequently enough (28%)
- Public transportation requires too many transfers (23%)
- Public transportation does not get me to my destination on time (21%)

Figure 33 on the next page shows the three types of barriers respondents could choose from: convenience, safety, and cost.

Figure 33: Experience with Transportation Barriers (S3Q7)

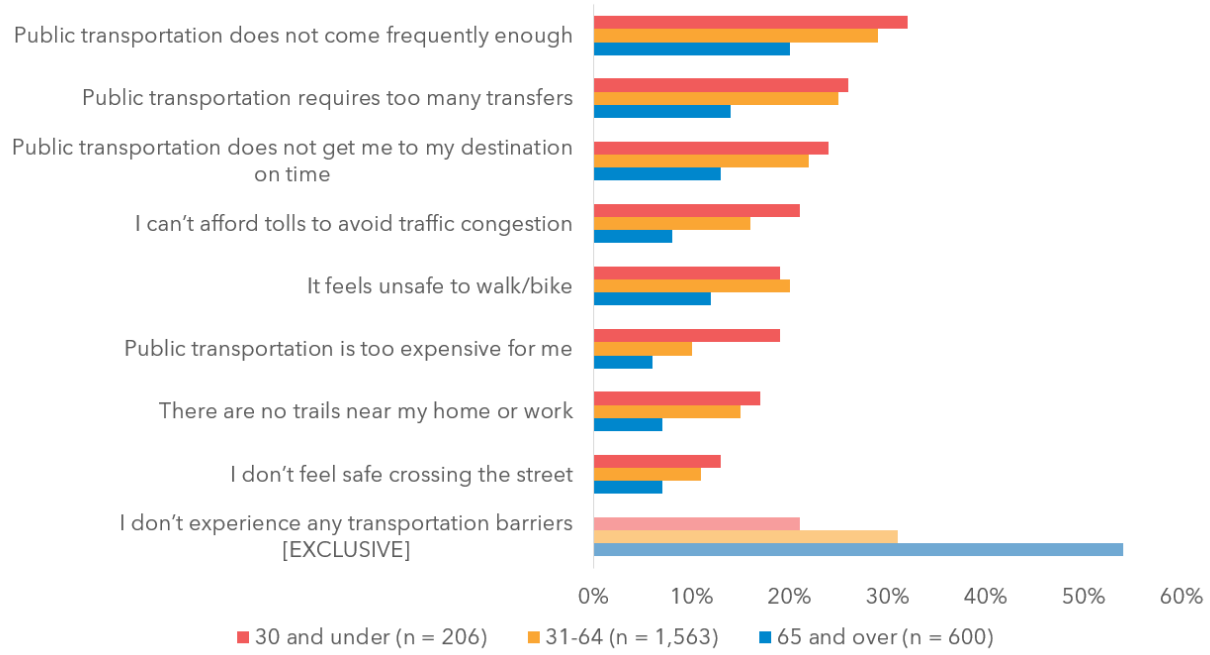


A higher proportion of low-income respondents said they did not experience transportation barriers relative to higher income respondents (43% versus 31%) though the difference was not statistically significant. The higher income group was significantly more likely to say they could not afford tolls to avoid traffic congestion (selected by 17% versus 5% of low-income). Residents of the Outer Suburbs were significantly more likely to say they could not afford tolls, relative to residents of other subregions (23% versus 11% of residents of the Core and 14% of residents of the Inner Suburbs).

Respondents aged 65 and older were significantly more likely to say they did not experience any transportation barriers (54% versus 21% of young respondents). There were no significant differences by racial/ethnic background.

People who identified as essential workers during the COVID-19 pandemic were more likely to note the inconvenience and expense of transit, with 28% indicating that public transportation requires too many transfers and 15% saying "public transportation is too expensive for me." In addition, essential workers were also more likely to find the high price of tolls to be a barrier, with 23% indicating they "can't afford tolls to avoid traffic congestion," compared to 15% of non-essential workers. As noted in Section 1, essential workers and those who need to travel outside the home due to economic necessity during the pandemic have been much more likely to drive to work and much less likely to telework.

Figure 34: Transportation Barriers by Age Group (S3Q7, D5)



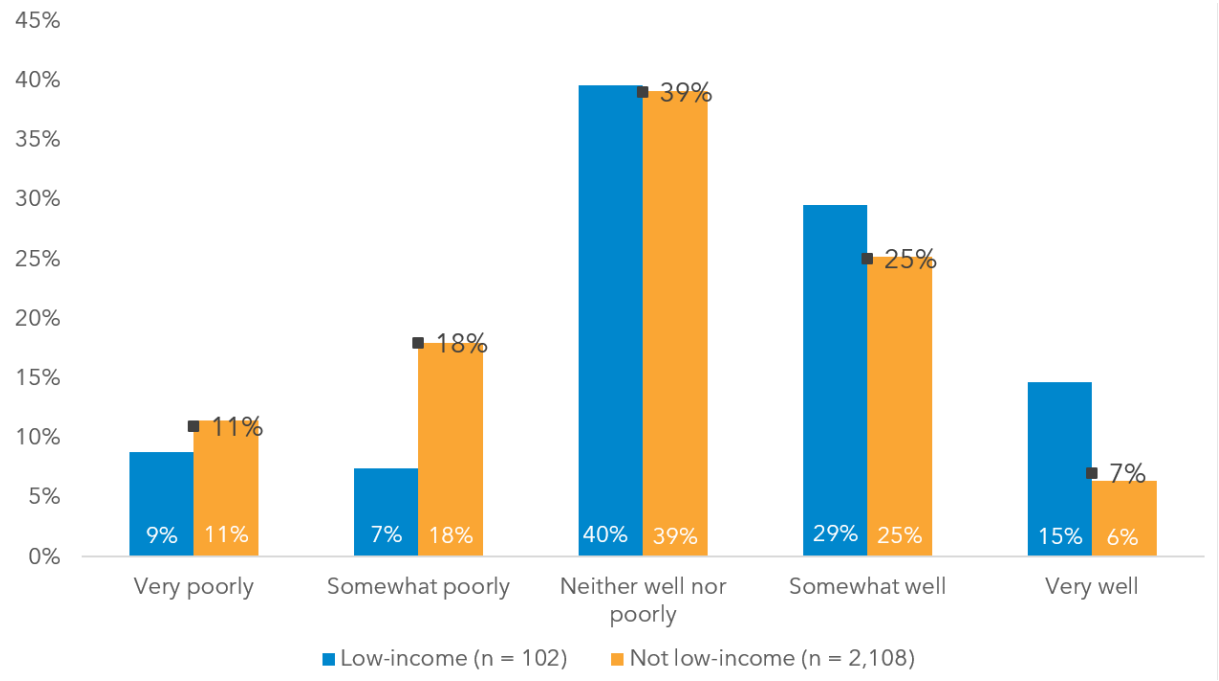
In the "Other" category (selected by 6%), respondents said they experienced barriers related to: limited public transportation hours or limited service in their area, concerns about safety and virus spread on public transportation and traffic congestion.

When asked how well they felt their transportation needs and concerns were being addressed by decision makers, a plurality of respondents selected "neither well nor poorly" (39%), perhaps showing that they don't know or can't evaluate this. Thirty-two percent said their needs were being addressed well, with 7% saying very well.

As with the earlier question about how well the transportation system was meeting their needs, low-income respondents were significantly less likely to say their needs and concerns were being addressed poorly (16% versus 26% of higher income respondents). White respondents were significantly less likely to say "very well" relative to respondents from other ethnic backgrounds.

In regards to place of residence, those living in the Core were significantly more likely to say their needs were addressed very or somewhat well (45%) and residents of the Outer Suburbs were significantly more likely to say their concerns were being addressed very or somewhat poorly (35%). A plurality of residents in the Inner Suburbs say their needs were being addressed neither well nor poorly (42%). As with the question about transportation needs being met, this shows that satisfaction with how needs are being addressed by decision-makers decreases as the place of residence moves away from the Core.

Figure 35: Needs Addressed by Decision-Makers by Income Category (S3Q8, D9)



Access to reliable and affordable transportation options is essential to addressing poverty and unemployment. While the survey included a dedicated section on transportation equity topics, many other findings from this survey have equity implications, including the following:

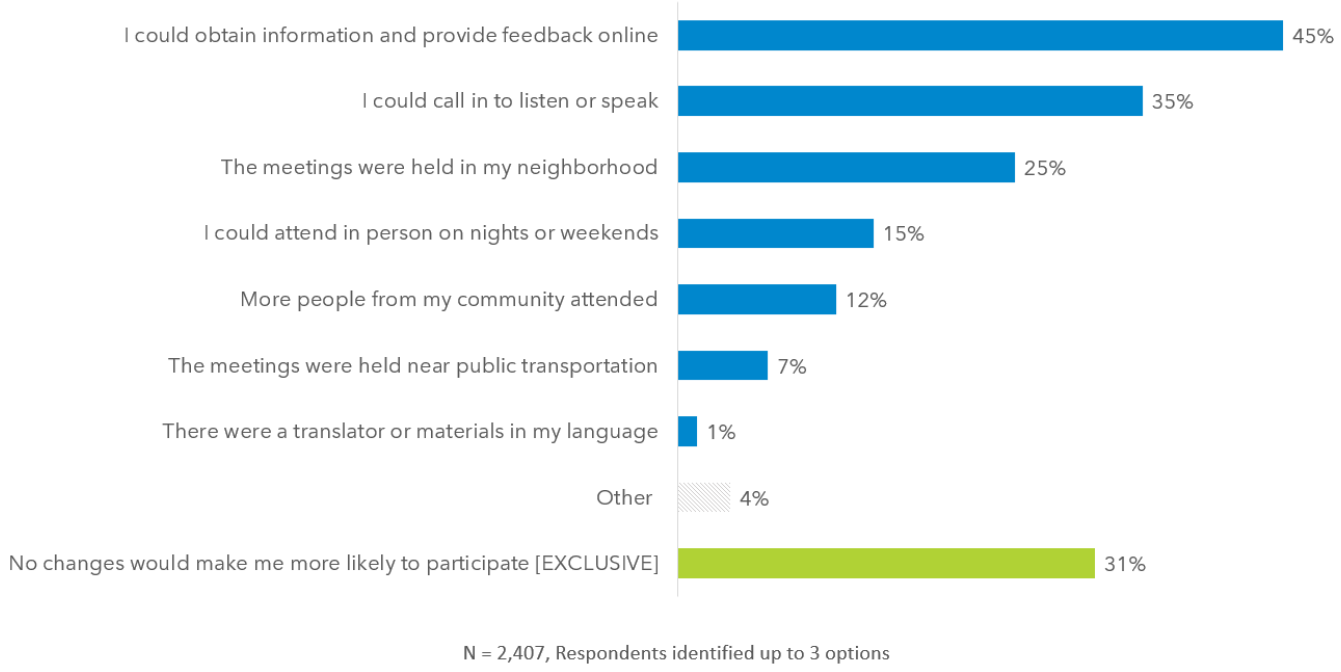
- Low-income respondents who commute were significantly more likely to walk to work or school during the pandemic, relative to non-low-income respondents. They were also significantly less likely to telecommute.
- Over half-of low-income respondents who will make a change to their commute post-pandemic said they would drive or ride in cars more than before (55%), compared to 32% of non-low-income respondents.
- Forty-three percent of respondents who work full or part-time said they needed to travel outside their home during the pandemic to economically support themselves or their families. Low-income respondents were significantly more likely to fall into this group.
- Low income respondents were significantly more likely to say they would be encouraged to ride the bus if the stops or stations were cleaner, if buses were less crowded and if the fare was cheaper.
- Low-income respondents were significantly more likely to say they had "no concerns" about driverless cars; they may feel more neutral or generally unaffected by this emerging technology.

PARTICIPATION IN PUBLIC MEETINGS

Respondents could select up to three options that would make them more likely to participate in public meetings about transportation. The top choices were related to remote participation: "if I could obtain information and provide feedback online" (45%) followed by "if I could call in to listen or speak" (35%). Just under one-third of respondents said that no changes would make them more likely to participate (31%).

Seniors were significantly more likely to say that no changes would make them more likely to participate in these meetings (48%) relative to younger age groups (27% of the youngest respondents and 28% of middle-age respondents chose this option).

Figure 36: Changes to Encourage Participation in Public Meetings (S3Q9)



TRANSPORTATION INVESTMENTS FOR THE FUTURE

The survey included a broad open-ended question which asked respondents to consider: *What transportation investments should we make today that future generations will thank us for tomorrow?*

They could provide their response in an open-ended field, which was then analyzed and coded using qualitative data analysis techniques. Ninety-five percent provided a response to this question. Thematic analysis is a type of inductive qualitative analysis method employed to systematically identify and classify data so that thematic clusters and patterns can emerge with greater clarity. [33] Using scores, scales, or clusters to numerically represent qualitative themes allows us to more fully describe and interpret a target phenomenon, [34] which in this case is the resident's desired focus for future transportation investments. A total of 2,285 valid responses were coded into both primary and secondary codes. [35] The visualization in Figure 37 on the next page shows the most common primary themes, with the size of each bubble indicating the frequency of mentions. This allows us to see the number of values in relation to each other. Within each primary category, we coded applicable secondary themes. As we can see, respondents were most concerned about roads, clean transportation, metro, light rail/trains, and public transportation.

Within the major "Roads" category, respondents were most interested in seeing "more roads or more/wider lanes." They also wanted decision-makers to "improve road conditions" and "reduce traffic/congestion." The theme of Clean Transportation was the next most-frequently cited topic, with "electric vehicles" and "lower emissions" mentioned most often. For Metro, respondents wanted to see an expanded service area, specifically in Southern Maryland. Those who mentioned rail or train infrastructure had a similar focus on expanding the service areas offered.

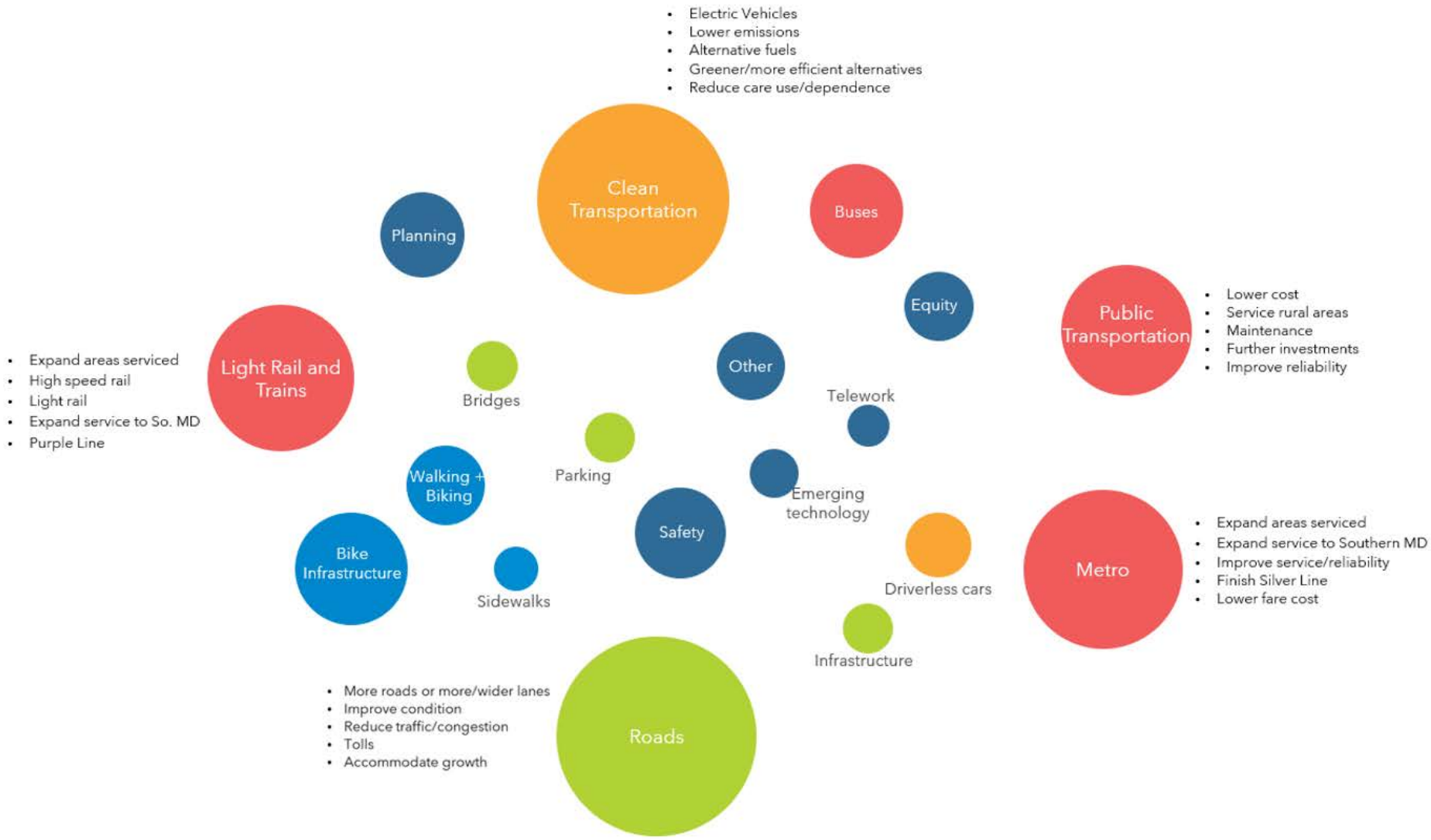
Within the theme of Public Transportation, respondents were most interested in a "lower cost" and in seeing more "service [in] rural areas/outside the Core." For Bike Infrastructure, respondents wanted to see more bike lanes and more separated bike lanes as well as better safety. Finally, within the "Equity" category, respondents highlighted the needs of low-income residents, those with disabilities, seniors. They also mentioned a broader need for there to be transportation opportunities for all and for access to be improved.

[33] Judith C. Lapadat, "Thematic Analysis," in *Encyclopedia of Case Study Research* (Thousand Oaks: SAGE Publications, Inc., 2010), 926–27, https://doi.org/10.4135/9781412957397.

[34] Margarete Sandelowski, "Real Qualitative Researchers Do Not Count: The Use of Numbers in Qualitative Research," *Research in Nursing & Health*, 2001, 24, 230-240. https://onlinelibrary.wiley.com/doi/pdf/10.1002/nur.1025

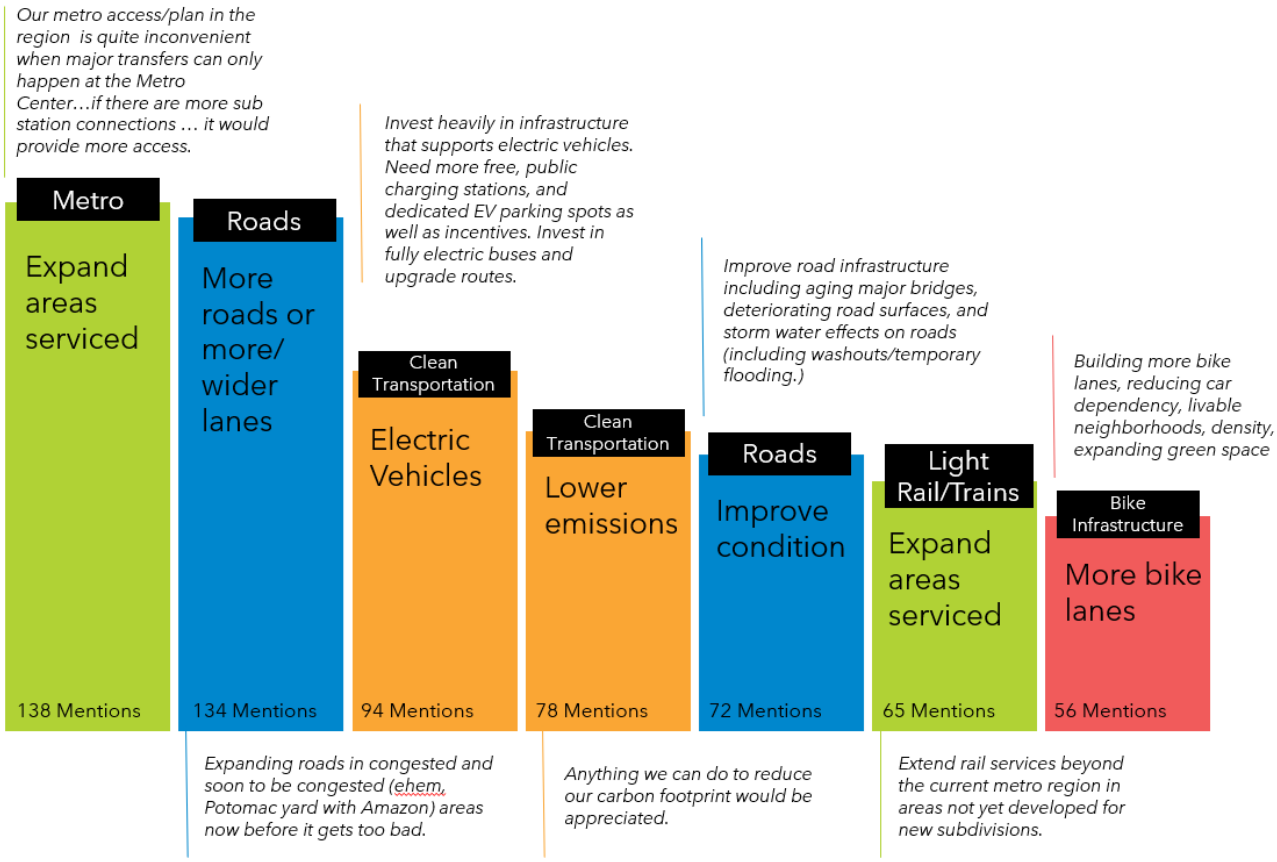
[35] If a respondent mentioned multiple themes in their response, only the primary or most prominent theme was coded.

Figure 37: Focus of Future Transportation Investments – Primary Codes (S3Q10)



When looking at the most frequently cited secondary codes, we can see the specific topics that are of greatest interest or concern to residents of the region. As shown in Figure 38 below, "expanding the areas serviced" for Metro was the single biggest topic wishlist item raised in this open-ended question, followed by investing in "more roads of more/wider lanes."

Figure 38: Focus of Future Transportation Investments – Greatest Concerns (S3Q10)



These results show that there is a desire to improve mobility and expand the network of transportation across the region, particularly in the suburbs, where roads and transit options may be more limited. There is also a strong support for clean transportation options such as electric vehicles and low-emissions technology.

For a list of all primary and secondary themes from this question, see Appendix C: Open-ended Codes.

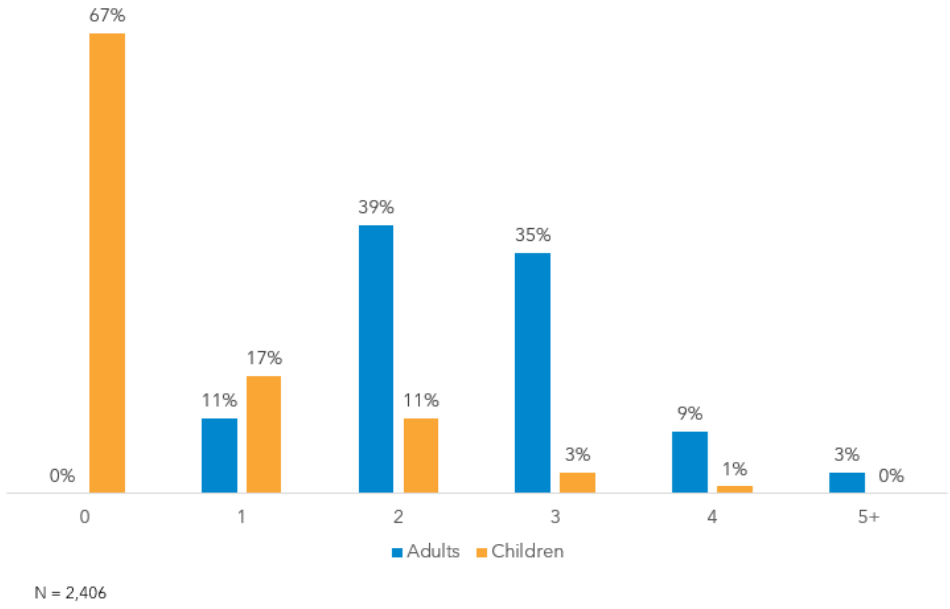
DEMOGRAPHICS

The final section of the survey included demographic and background questions which were used in the analysis to identify patterns or trends.

HOUSEHOLD SIZE

About one in ten respondents lived alone (11%) while just under 2 in 5 lived with one other adult (39%). Just over one-third lived with two other adults (35%). The remaining 15% lived with 3 or more other adults. One third of respondents indicated that they lived with one or more children under the age of 18 in their household (33%), while two-thirds had no children in the home (67%).

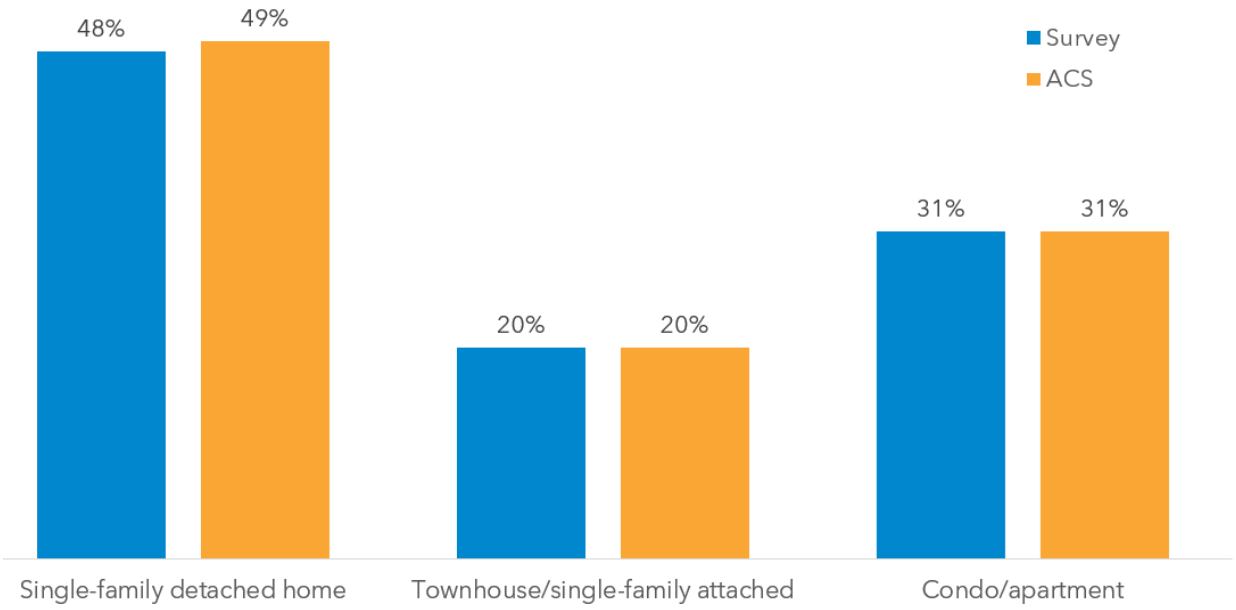
Figure 39: Household Size (D1, D2)



HOUSING TYPE

Just under half of all respondents (48%) lived in a single-family detached home. Just under one in three lived in a condo or apartment (31%) and one in five (20%) live in a townhouse. The orange bars in Figure 40 and in subsequent graphs show the population totals based on the latest data from the American Community Survey (2018).

Figure 40: Housing Type (D3)



N = 2,406

** <1% of survey respondents live in a mobile/manufactured home, 1% of respondents reported "Other" for their primary residence.*

OWN/RENT

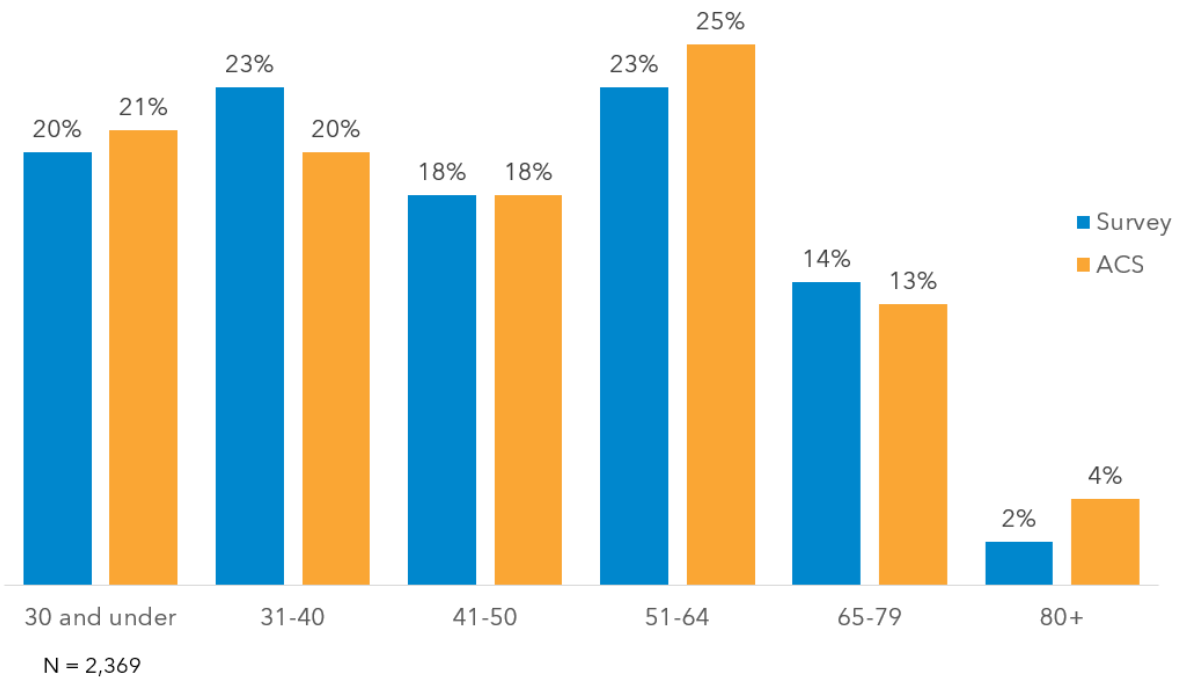
Over two-thirds of respondents owned their home (68%) while 30% rented. In the Other category (2%), some respondents explained that they lived with their parents, with friends, in a co-op, or in a retirement community. This distribution aligns with Census Bureau data: in the 2018 American Community Survey, 65% of residents of the region owned their home, compared to 35% who rented.[36]

AGE

Respondents were asked to provide their year of birth, which was organized into one of the age categories below. One in five respondents was 30 or under (20%) while two-thirds (64%) were aged 31-64 and 16% were aged 65 or more.

[36] United States Census Bureau "Summary Data File Data – 2018 ACS Estimates." https://www.census.gov/programs-surveys/acs/data/summary-file.2018.html

Figure 41: Respondent Age Categories (D5)



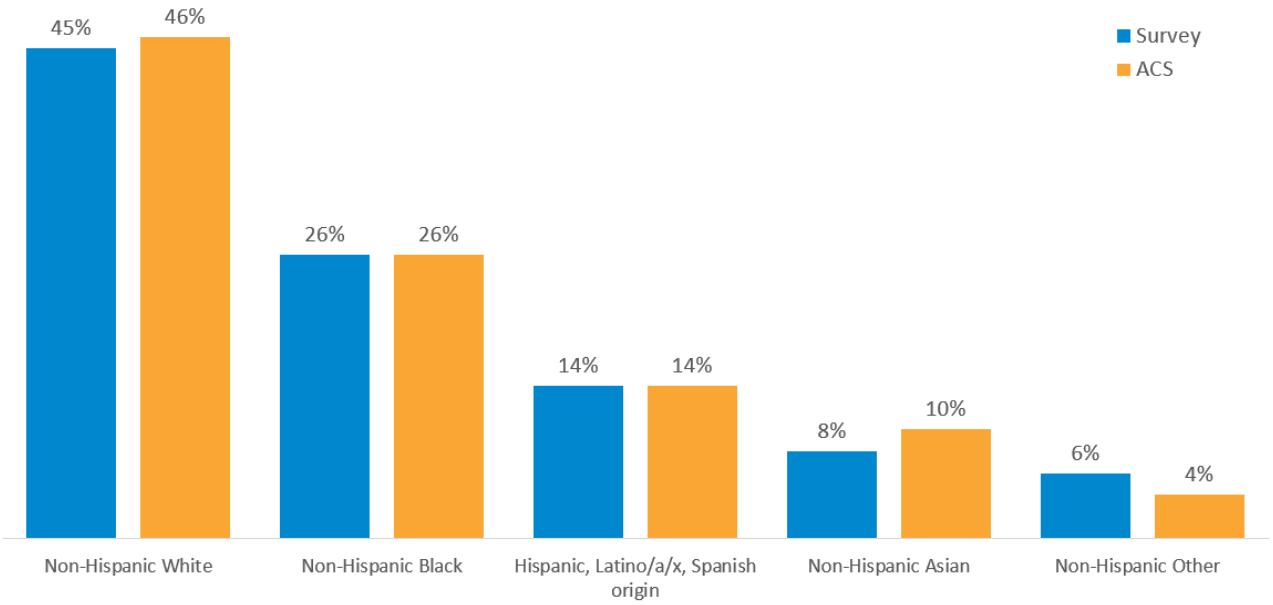
GENDER

The gender of respondents was almost evenly divided between females (50%) and males (47%). An additional 2% self-identified as non-binary. In the Other category (1%), most respondents indicated that they preferred not to answer. This distribution aligns with census data: in the 2018 American Community Survey, 48% of residents were male and 52% were female.

RACE/ETHNICITY

Just under half of the respondents identified as White (45%), 26% were African American and 14% were Hispanic. Just under one in ten (8%) identified as Asian. Respondents could select all the options that applied to them here.

Figure 42: Respondent Racial/Ethnic Background (D7)



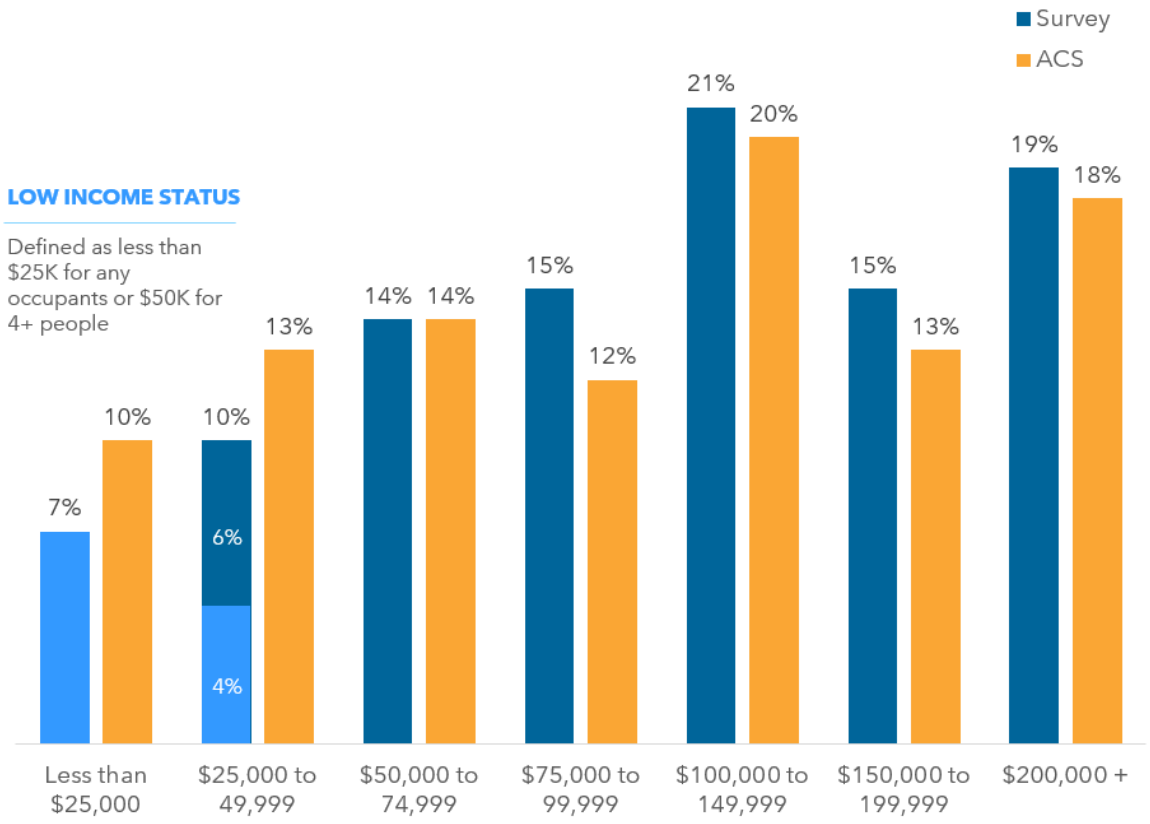
LANGUAGE AT HOME

The vast majority (92%) of respondents reported speaking mostly English at home at home, while 3% mostly spoke Spanish and 5% mostly spoke another language at home. Two respondents chose to complete the survey in Spanish. In the open-ended field, the most common "other" languages included Amharic, Bengali, Chinese, Hindi and Korean.

INCOME

The survey respondents skewed toward higher incomes, as just over half lived in households earning more than $100,000 per year. Only 16% of respondents lived in households earning less than $50,000 per year. Six percent of respondents chose not to report this information.

Figure 43: Respondent Household Income (D9)



A low-income designation was created and assigned to respondents based on whether they earned less than a close approximation of 150% of the Federal Poverty Line (FPL) based on their income and the number of people living in their household. The low-income designation was assigned as follows:

Household income	Number of occupants
<$25,000	Any number of occupants
<$50,000	4+

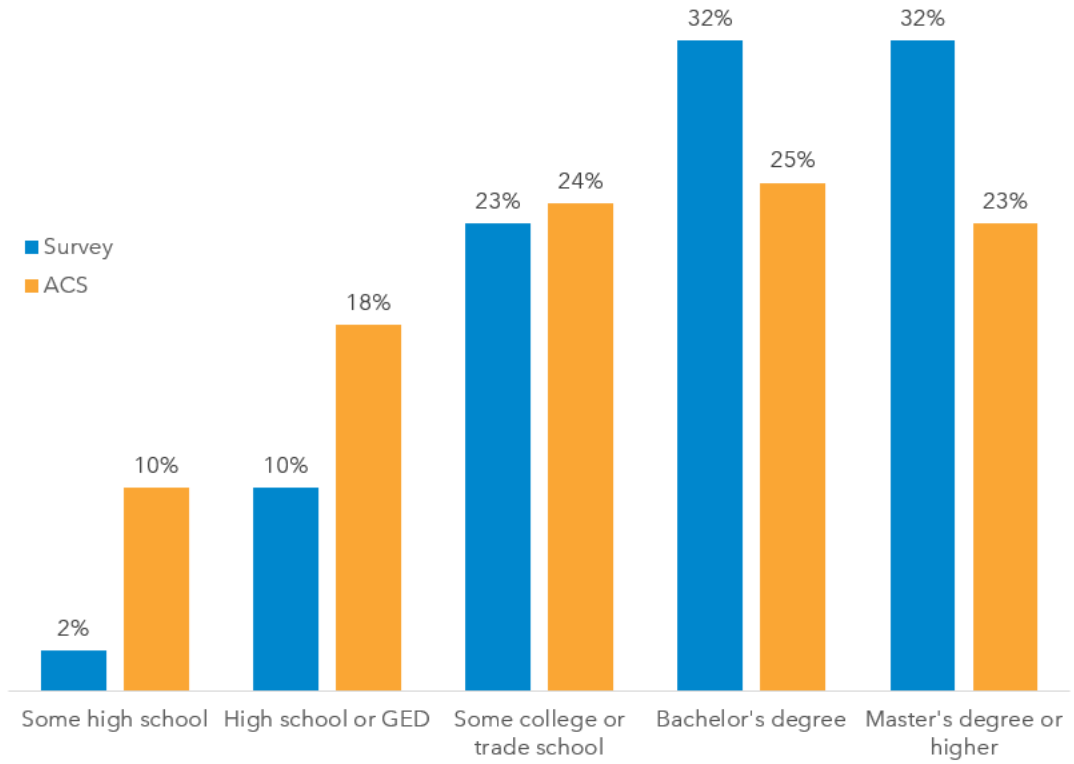
The low-income designation comprises those households with any number of occupants and an annual income of less than $25,000, as well as households with more than four people earning less than $50,000. This designation was then used throughout the report when analyzing responses to various questions of interest. Eleven percent of the respondents fell into that category.[37]

EDUCATION

[37] Throughout this report, we present weighted percentages. Percentages calculated from unweighted sample sizes may be lower or higher than the weighted percentage due to disproportionate sampling at the geographic level, as well as differential response rates to the survey.

Just under two-third of survey respondents had earned at least a Bachelors' degree. Just under one-in-four respondents had completed some college, and 12% had a high school degree or less. These results skew toward higher education levels relative to the actual population estimates in the region.

Figure 44: Respondent Educational Attainment (D10)



N = 2,400, Note: 1% of respondents provided no response to this question

APPENDIX A: DETAILED METHODOLOGY

SAMPLING

The *Voices of the Region* sample design focused on achieving statistically valid estimates for 10 geographies of interest in the metropolitan Washington region:

- The District of Columbia
- Charles County
- Frederick County (including City of Frederick)
- Montgomery County (including Gaithersburg, Rockville, and Takoma Park)
- Prince George's County (including Bowie, College Park, and Laurel)
- City of Alexandria
- Arlington County
- Fairfax County (including Falls Church and City of Fairfax)
- Loudoun County
- Prince William County (including Manassas and Manassas Park)

The survey team selected an address-based sample of households across these county and city-level jurisdictions as well as Fauquier Urbanized Area, which included 94 records.

The sampling frame was based on address data from the most recent U.S. Postal Service Computerized Delivery Sequence File (USPS CDSF) of residential addresses. The CDSF is derived from mailing addresses maintained and updated by USPS and available from commercial vendors. It provides a comprehensive frame that will reach the entire population living at an address that receives mail delivery. The survey team designed and selected the sample using Virtual Genesys, which we license from Marketing Systems Group (MSG). Selecting samples in house provides us the flexibility to design efficient sampling frames. All residential addresses, including city-style addresses, PO boxes, rural routes, and highway contracts were included in the sample frame.

ICF sent three mailings over the course of 6 weeks to 22,333 addresses with the goal of achieving 200 completes for each subregion, for a total of 2,000 completed surveys. Our final response rate of 11.9% overall provided a margin of error of +/-2.5% overall (+/-4-5% by subregion, and +/-7-9% by jurisdiction) at 95% confidence.

Table 3 presents our outgoing mail quantities as well as the expected and observed response rates and completed surveys by subregion. The sample sizes accounted for the differential response rates expected to be seen in the different geographies, based on previous research conducted by COG for a mail push-to-web survey conducted with a single mailing in 2017. Since the *Voices of the Region* Survey includes three mailings, the survey team proportionally adjusted the response rates up to reflect the expected overall response rate.

Table 3: Initial Mail Quantities, Completed Surveys, and Response Rates by Jurisdiction

	Housing Units	2017 Observed RR	2020 Expected RR	2020 Observed RR	2020 Mailout	2020 Expected Surveys	2020 Completed Surveys
Total	**2,099,065**		8.4%	11.9%	**22,333**	**2,000**	**2,407***
Region 1 – Core	**500,734**			**15.2%**	**5,707**	**600**	**722**
District of Columbia	311,545	4%	7.5%	14.4%	2661	200	305
Arlington County	113,084	8%	14.1%	15.3%	1417	200	190
City of Alexandria	76,105	7%	12.3%	16.5%	1629	200	227
Region 2 – Inner Suburbs	**1,146,907**			**11.6%**	**7,031**	**600**	**741**
Montgomery County	388,254	6%	11.2%	13.0%	1789	200	216
Prince George's County	331,272	3%	5.5%	8.6%	3637	200	281
Fairfax County	427,381	7%	12.5%	16.3%	1605	200	244
Region 3 – Outer Suburbs	**451,424**				**9,595**	**800**	**944**
Loudoun County	129,728	5%	8.8%	12.8%	2273	200	278
Prince William County	165,947	5%	8.8%	10.1%	2273	200	219
Frederick County	95,986	7%	12.1%	12.0%	1653	200	182
Charles County	59,763	3%	6.0%	8.3%	3306	200	260
Fauquier Urbanized Area	11,883	3%	5.1%	5.6%	90	No minimum expected	5

*includes 7 partials

SET-UP ACTIVITIES

QUESTIONNAIRE DEVELOPMENT

TPB and ICF collaborated on a new questionnaire instrument which was developed via multiple meetings and rounds of review. The same process was followed to finalize the three mail contacts. Once the survey team had arrived at an initial draft questionnaire, a team of ICF's qualitative interviewers cognitively tested the instrument with of 8 Washington area residents. Participants were recruited via Craigslist (using the Washington DC, Northern Virginia, and Maryland local Craigslist sites) and were asked to respond to a short screener form to confirm eligibility. The final approved questionnaire (as well as the mail materials) were translated into Spanish by the professional translation firm InLingua. The ICF Institutional Review Board (IRB) reviewed and approved the instrument and mail materials.

The final questionnaire included four sections, including a final section covering demographics.

PROGRAMMING

ICF programmed the questionnaire into a web survey format using Voxco software. The survey was hosted on a vanity URL (www.VoicesoftheRegion.com) specifically purchased for this purpose.

ICF and TPB tested the survey multiple times on various devices. The live version of the study was approved for launch after it passed quality checks. An email helpdesk was set up to respond to respondent questions (voicesoftheregion@icfsurvey.com).

FIELDING

The study's mail materials were bilingual and printed in color. The advance letter included a $1 pre-incentive to encourage response. Letters were mailed from ICF's Print & Mail Facility in Martinsville, VA. The three-contact protocol was as follows:

Table 4: Data Collection Protocol

Mail Event	Contents	Total Number	Mail Date
Advance Letter With URL (English-Spanish)	• 1-single-sided 8.5'' x 11'', color • Web URL to access survey • Unique PIN number to enter survey • $1 pre-incentive to boost response • Email helpdesk address for questions	22,333	9/22/2020
Reminder Postcard (English-Spanish)	• 1/4 page, color • Language modified to offer a different stimulus	21,631	10/1/2020
Reminder Letter (English-Spanish)	• 1-single-sided 8.5'' x 11'', color • Language modified to offer a different stimulus	20,705	10/15/2020

The survey fielding process took just under six weeks to complete and during that time twice-weekly status updates were shared with TPB. The survey launched on Sept. 22, 2020 and closed on Nov. 2, 2020.

DATA PROCESSING & WEIGHTING

INCLUSION OF PARTIAL VARIABLES

Partial records were included in the dataset if they had reached the end of the third section (S3Q10). A total of 7 records were eligible for inclusion. During data processing, counts and frequencies were developed for each variable and all open-ended responses were spell-checked.

RECODING THE RACE VARIABLE

The original race and ethnicity question in the questionnaire had seven options: White; Black or African American; American Indian or Alaska Native; Asian; Native Hawaiian or other Pacific Islander; Hispanic, Latino/a/x, Spanish origin; Other. Respondents were asked to select all options that applied to them. The survey team then recoded race and ethnicity into a five-category variable to facilitate further analysis. As long as respondents selected Hispanic, they were categorized as Hispanic no matter if they selected other options or not. If respondents did not choose Hispanic and selected only one race category, they were classified as Non-Hispanic White, Non-Hispanic Black, or Non-Hispanic Asian. Otherwise, if respondents self-identified as American Indian, Native Hawaiian, or multiple races not including Hispanic, they were categorized as Non-Hispanic Others.

WEIGHTING

Prior to analysis, we developed sampling weights to account for differential response rates and probabilities of selection. The completed interviews were weighted to correct for the selection probabilities in each county and differential nonresponse based on geography and demographic characteristics. The sampling weight was based on the inverse probability of selecting the address from the sampling frame. The weights were adjusted to match the population distribution in the region based on age, gender, race/ethnicity, educational attainment, marital status, and county. The population distributions were based on the 2014-2018 American Community Survey (ACS) 5 Year Public Use Microdata Sample (PUMs). The weighting distributions included demographics for each county as well as expanded demographics for the region as a whole.

Throughout this report, we present weighted percentages. Percentages calculated from unweighted sample sizes may be lower or higher than the weighted percentage due to disproportionate sampling at the geographic level, as well as differential response rates to the survey.

At the conclusion of fielding, the survey team delivered a final dataset to TPB in csv and SAS formats, along with a data dictionary or codebook showing the variables and associated weighted frequencies.

ANALYSIS

This report was developed after the approval on an initial outline and specific items for analysis. Throughout this report, the survey team only reported values if there were at least 5 reported cases in the numerator and a minimum overall sample size of 30.

The survey team uses Q research software to perform cross-tabulation and examine the relationships between variables. The Rao-Scott Chi-Square test was performed to test the significance of the relationship between variables. This test is a generalization of a typical Chi-Square test but accounted for design effects such as weighting. If the Rao-Scott Chi-square statistic is statistically significant at a 0.05 significance level, the team reported a statistically significant difference. [38]

When comparing two subgroups, a statistically significant result means that there is evidence that the two subgroups differ with respect to that statistic. A non-significant result indicates that there is insufficient evidence to infer a difference between the two subgroups. Statistical tests with insufficient statistical evidence could mean two things: 1) there really is no difference between the two subgroups, or 2) there is a difference between the population sub-groups, but is too small to be detected under the current sample design.

LIMITATIONS

Previous research has shown that surveys that use address-based sampling with a push-to-web option may obtain higher proportions of non-Hispanic White respondents and people with at least some college education than would be expected based on the demographic as measured by the Census. [39] The survey team encountered that issue for this study, as higher-income and higher-education respondents appeared more likely to take part. To mitigate the risk of substantive bias as a result of these observable differences, the data was weighted to better reflect the demographic profile for the region and each jurisdiction.

To ensure that the survey captures the voices and opinions of low-income residents and other underserved or underrepresented groups, TPB led a series of eleven focus group with targeted groups of residents in January 2021. All recruitment occurred via social media.

[38] Rao, J. N. K. and A. J. Scott (1984). 'On Chi-Squared Tests for Multiway Contingency Tables with Cell Proportions Estimated from Survey Data.' The Annals of Statistics 14.

[39] Michael W. Link, Michael P. Battaglia, Martin R. Frankel, Larry Osborn, Ali H. Mokdad, A Comparison of Address-Based Sampling (ABS) Versus Random-Digit Dialing (RDD) for General Population Surveys, *Public Opinion Quarterly*, Volume 72, Issue 1, Spring 2008, Pages 6–27, https://doi.org/10.1093/poq/nfn003

APPENDIX B: WEB QUESTIONNAIRE

VOICES OF THE REGION SURVEY

Contents

LANDING PAGE

ASK ALL

LANDING

Welcome to the *Voices of the Region Survey*!

This survey will help local governments across the region plan future transportation initiatives and programs. The information and opinions you share will help regional leaders adapt to unexpected events and future challenges, as well as identifying changes that can make a positive difference for the future – both next year and 25 years from now.

Thank you in advance for your cooperation in this important survey! Please enter the 9-digit PIN from the letter you received.

INCLUDE FIELD FOR RESPONDENTS TO ENTER THEIR MID.
INSTEAD OF NEXT, BUTTON SHOULD SAY "GO TO SURVEY"
INCLUDE BUTTON THAT SAYS ESPAÑOL WHICH LINKS TO SPANISH LANDING PAGE.

SECTION 1: TRAVEL DURING THE COVID-19 PANDEMIC (24 QUESTIONS)

ASK ALL

S1_INTRO1

We want to know about your travel habits in general, but we realize that COVID-19 has changed many peoples' travel habits and plans since stay-at-home orders began in March.

For this survey, "travel" refers to all the different ways you get around, whether driving, walking, biking, taking public transportation, scooters, skateboards, or anything else. We're interested in all your travel, including commuting for work, visiting friends, going to the grocery store, taking trips out of town, and anywhere else you might travel.

GENERAL TRAVEL DURING COVID

ASK ALL

S1Q1. Since the beginning of the COVID-19 pandemic, how much have your daily travel habits changed?

01	A lot
02	Some
03	A little
04	None

ASK ALL

S1Q2. Prior to the COVID-19 pandemic, how often on average did you drive or ride in a car? By car we mean a single motor vehicle such as a car, SUV, pick-up truck etc.

01	Three or more trips a day
02	One or two trips a day
03	Three or more trips a week, but not every day
04	One or two trips a week
05	Three or more trips a month, but not every week
06	One or two trips a month
07	Less than that
08	I never drove or rode in a car

ASK ALL

S1Q3. Since the beginning of the COVID-19 pandemic, how much has your car use changed? Would you say you drive or ride in a car…

01	A lot more
02	A little more

03 The same amount as before COVID-19
04 A little less
05 A lot less, including no car use

ASK ALL

S1Q4. For this survey, "public transportation" refers to things like Metro bus or other local buses, subway and Metro rail, commuter trains, and commuter buses.

Prior to the COVID-19 pandemic, how often on average did you take public transportation?

01 Three or more trips every day
02 One or two trips a day
03 Three or more trips a week, but not every day
04 One or two trips a week
05 Three or more trips a month, but not every day
06 One or two trips a month
07 Less than that

08 I never took public transportation

ASK ALL

S1Q5. Since the beginning of the COVID-19 pandemic, how has your use of public transportation changed? Would you say you take public transportation…

01 A lot more
02 A little more
03 The same amount as before COVID-19
04 A little less
05 A lot less, including no use of public transportation

ASK IF S1Q5 = 04 OR 05
[MUL=6]
[RANDOMIZE 01-05]

S1Q6. One year after the COVID-19 pandemic is over, which of these changes would make you more likely to use public transportation? (check all that apply)

01. More spacing between people on buses or train cars
02. More frequent cleaning of buses or train cars
03. More frequent service
04. Riding a bus with limited stops
05. Plastic barriers to prevent the spread of COVID-19
06. Other (Specify) [TEXT BOX]
07. Nothing will make me more likely to ride public transportation after the pandemic [EXCLUSIVE]

ASK ALL

S1Q7. Since the beginning of the COVID-19 pandemic, how has your walking changed? Would you say you walk…

01 A lot more
02 A little more

03 The same amount as before COVID-19
04 A little less
05 A lot less

06 I do not walk for transportation

ASK ALL

S1Q8. Prior to the COVID-19 pandemic, how often on average did you ride a bicycle?

01 Three or more trips a day
02 One or two trips a day
03 Three or more trips a week
04 One or two trips a week
05 Three or more trips a month
06 One or two trips a month
07 Less than that

08 I never rode a bicycle

ASK ALL

S1Q9. Since the beginning of the COVID-19 pandemic, how has your biking changed? Would you say you bike…

01 A lot more
02 A little more
03 The same amount as before COVID-19
04 A little less
05 A lot less

06 I do not bike

ASK ALL

S1Q10. Please think about your travel habits one year after the COVID-19 pandemic is over. Do you expect that your travel habits will return to your previous pattern before the pandemic?

01 Yes, I will probably go back to the same travel habits as before the pandemic
02 No, I will probably have different travel habits than before the pandemic

ASK IF S1Q10 = 02

[MUL=8]

S1Q11. How do you expect your travel will be different once the pandemic is over? I expect I will… (Select all that apply)

01 Drive or ride in **cars less** than before the pandemic
02 Drive or ride in **cars more** than before the pandemic
03 Use **public transportation less** than before the pandemic
04 Use **public transportation more** than before the pandemic
05 **Walk less** than before the pandemic
06 **Walk more** than before the pandemic
07 Will **bike less** than before the pandemic
08 Will **bike more** than before the pandemic

COMMUTING AND JOB-RELATED TRAVEL

ASK ALL
[MUL=8]

S1Q13. Before the COVID-19 pandemic, what was your employment situation? (Select all that apply)

01	Working full time
02	Working part time
03	Student
04	Stay at home parent or caretaker
05	Unemployed or furloughed
06	Retired
07	Other (Specify) [TEXT BOX]

ASK ALL
[MUL=8]

S1Q14. What is your current employment situation during the COVID-19 pandemic? (Select all that apply)

01	Working full-time
02	Working part time
03	Student
04	Stay at home parent or caretaker
05	Unemployed or furloughed
06	Retired
07	Other (Specify) [TEXT BOX]

ASK IF S1Q14 = 01 OR 02

S1Q15. Do you need to travel outside your home during the COVID-19 pandemic to economically support yourself or your family?

01	Yes
02	No

ASK IF S1Q14 = 01 OR 02
[MUL=6]

S1Q16. Are you considered an essential worker who is required to travel outside your home for a job in the following industries (check all that apply)?

01	Grocery store
02	Health care
03	Public works
04	Government
06	Other essential worker [TEXT BOX]
07	I am not an essential worker [EXCLUSIVE]

ASK IF S1Q14 = 01,02,03
[MUL=10]

S1Q17. Before the COVID-19 pandemic, how did you commute to work or school? Select all modes of transportation that you used at least once a week.

01 Personal vehicle – driving alone
02 Carpooling or vanpooling
03 Bus
04 Metrorail
05 Commuter rail [MARC, VRE]
06 Taxi or ride-hailing service (Uber, Lyft, etc.)
07 Bicycle, including e-bikes
08 Walking (1/4 mile or more)
09 Telecommuting/work from home
10 Other (Specify) [TEXT BOX]

ASK IF S1Q14 = 01,02,03
[MUL=10]

S1Q18. During the COVID-19 pandemic, how are you commuting to work or school? Select all modes of transportation that you currently use at least once a week.

01 Personal vehicle – driving alone
02 Carpooling or vanpooling
03 Bus
04 Metrorail
05 Commuter rail [VRE, MARC]
06 Taxi or ride hailing service (Uber, Lyft, etc.)
07 Bicycle, including e-bike
08 Walking (1/4 mile or more)
09 Telecommuting/work from home
10 Other (Specify) [TEXT BOX]

ASK IF S1Q14 = 01,02,03
[MUL=10]

S1Q19. How do you expect to commute to work or school one year after the COVID-19 pandemic is over? Select all modes of transportation that you expect to use at least once a week.

01 Personal vehicle – driving alone
02 Carpooling or vanpooling
03 Bus
04 Metrorail
05 Commuter rail
06 Taxi or ride hailing service (Uber, Lyft)
07 Bicycle, including e-bikes
08 Walking (1/4 mile or more)
09 Telecommuting/work from home
10 Other (Specify) [TEXT BOX]
11 I don't know or I don't yet have guidance from my employer [EXCLUSIVE]

ASK IF S1Q18 = 09

S1Q20. If given the choice to return to a work location once the COVID-19 pandemic is over, would you prefer to:

01	Return to your work location full-time
02	Telework full-time
03	Telework some days and commute to your work location some days

ASK IF S1Q20 = 03

S1Q21. How often would you want to telework?

01	1 day
02	2 days
03	3-4 days
04	5 or more days

DELIVERIES

ASK ALL

S1Q22. Since the beginning of the COVID-19 pandemic, how have your online shopping habits changed? (Please only consider items you order for delivery at your home, not curbside pick-up).

01	My online ordering has increased a lot
02	My online ordering has increased a little
03	My online ordering is the same as before
04	My online ordering has decreased a little
05	My online ordering has decreased a lot
06	I have never ordered any items online

ASK ALL

S1Q23. One year after the COVID-19 pandemic is over, what do you expect your online shopping habits to be like?

01	I will probably go back to the online shopping habits that I had before the pandemic
02	I will probably continue with my current online shopping habits

STREET USE AND DESIGN

ASK ALL

S1Q24. During the pandemic, street space and parking space has been used for expanded pedestrian access, restaurant seating, etc. One year after the COVID-19 pandemic is over, would you support the continued use of street space/parking space for these kinds of purposes?

01	Yes
02	No

SECTION 2: OUR TRANSPORTATION FUTURE

TRANSPORTATION MODES

ASK ALL

S2_INTRO1:

We are interested in what you think are the best ways to improve our regional transportation system. The transportation system includes the regional transportation infrastructure including roads and highways, mass transit systems and bicycle and pedestrian routes.

We want to know how you would act or behave one year after the COVID-19 pandemic is over. For these questions, please think about **all** the ways in which you travel, not just to or from work.

ASK ALL
[MUL=3]
[RANDOMIZE 01-06]

S2Q1. Which of the following changes to the bus stop or bus station would make you more likely to take a bus?

I would be more likely to take the bus if the bus stop… (Choose up to 3 options)

01	Had shelter with seats
02	Was cleaner
03	Had adequate lighting at night
04	Provided shade or shelter from sun/rain/snow
05	Was within walking or biking distance of my home
06	Displayed real-time bus information
07	Other (Specify) [TEXT BOX]
08	No change would make me more likely to take the bus [EXCLUSIVE]

ASK ALL
[MUL=3]
[RANDOMIZE 01-08]

S2Q2. Now please think about the trip aboard the bus. Which of the following improvements to the bus ride experience would make you more likely to take the bus?

I would be more likely to take the bus if… (Choose up to 3 options)

01	Buses arrived on a reliable schedule
03	Buses traveled more quickly
04	Buses were less crowded
05	The fare was cheaper
06	I did not need to transfer
07	The bus had Wi-Fi service
08	Buses had level boarding for easy access for all
09	Other (Specify) [TEXT BOX]
10	No change would make me more likely to take the bus [EXCLUSIVE]

ASK ALL
[MUL=3]
[RANDOMIZE 01-07]

S2Q3. Which of the following improvements would make you more likely to take rail transit (Metrorail, commuter rail, other trains)?

I would be more likely to take rail transit if… (Choose up to 3 options)

01	Trains came more frequently
02	Waiting for the train was more comfortable
03	Waiting for the train felt safer
04	Trains were less crowded
05	The fare was cheaper
06	There was a shuttle or bus line to get me to the train station
07	Navigating the station was easier
08	Other (Specify) [TEXT BOX]
09	No change would make me more likely to take rail transit [EXCLUSIVE]

ASK ALL
[MUL=3]
[RANDOMIZE 01-06]

S2Q4. Which of the following improvements would make you more likely to walk, bike or take an e-powered or mobility device to the train station or bus stop?

I would be more likely to walk, bike, or use an e-powered or mobility device to the train or bus if… (Choose up to 3 options)

01	My route to the train or bus was quicker or more direct
02	My route to the train or bus had adequate lighting
03	My route to the train or bus was more shaded
04	There were more bike lockers at the station
05	There were e-bikes or e-scooters available to get to and from the station
06	There were sidewalks and safe crossings all the way there
07	Other (Specify) [TEXT BOX]
08	No change would make me more likely to walk or bike to the train or bus [EXCLUSIVE]

ASK ALL

S2Q5. Electric scooters or E-scooters are scooters that you stand or sit on and are powered by an electric motor. Electric bikes or e-bikes are bicycles with a battery-powered "assist" that amplifies the pedaling effort and gives the rider a boost. These are available in some places as shared devices.

If they were available to you, would you consider using a shared e-scooter or e-bike to take short trips (less than one mile) to transit or other destinations?

01	Yes
02	No
03	Not sure

ASK ALL
[MUL=3]
[RANDOMIZE 01-07]

S2Q6. Which of the following improvements would make you more likely to use a bicycle?

I would be likely to bike more if… (Choose up to 3 options)

01	I had access to a bike
02	There were bike lanes or trails near my home
03	Bicycle lanes were separated from vehicles by a barrier
04	There was safe bike parking at my destination
05	There was a shower or locker room at work/school
06	Vehicle speeds were lower
07	Bicycle lanes and routes were more direct and complete
08	Other (Specify) [TEXT BOX]
09	No change would make me more likely to bike [EXCLUSIVE]

ASK ALL

S2Q7. New technologies and services, such as ridesharing and ride hailing (such as Uber and Lyft), are changing the use of the street space next to the curb. Do you support providing ride-hailing zones for pick-up and drop-off on the street if it meant a reduction in parking availability?

01	Yes
02	No

ASK ALL

S2Q8. Do you support constructing more or wider sidewalks and bike lanes if it meant a reduction in parking availability?

01	Yes
02	No

ASK ALL

S2Q9. Where in the Washington Region do you think most future development should be encouraged? (Choose one)

01	In newer suburbs
02	In older suburbs
03	In existing core cities
04	In rural areas

ASK ALL

S2Q10. If you could live anywhere in the region, where would it be? (Choose one)

01	In newer suburbs
02	In older suburbs
03	In existing core cities
04	In rural areas

ASK ALL

S2Q11. How big a concern is traffic congestion to you personally?

01	It is a significant concern and it impacts the quality of my life
02	It is somewhat a concern and it impacts my life a little
03	It is a bit of a concern
04	It is not a concern because I have adjusted to it
05	It is not a concern because I don't experience much congestion

ASK ALL

S2Q12. To avoid congestion and make bus trips faster, would you support dedicating a travel lane for mostly bus use?

01	Yes
02	No

ASK ALL

S2Q13. To enable buses to travel in their own lane, would you support the removal of a lane of on-street parking?

01	Yes
02	No

SECTION 3: FUTURE FACTORS & EXTERNAL FORCES

CLIMATE CHANGE

ASK ALL

S3Q1. The climate is changing, causing more extreme weather, such as extended periods of high heat or extreme cold, more frequent and more intense storms, hurricanes and flooding.
How much do you agree or disagree with the following statement?

Elected officials need to consider impacts of climate change when planning for transportation in the future.

01	Strongly agree
02	Somewhat agree
03	Neutral
04	Somewhat disagree
05	Strongly disagree

ASK ALL

S3Q2. How much do you agree or disagree that human actions contribute to at least some climate change?

01	Strongly agree
02	Somewhat agree
03	Neutral
04	Somewhat disagree
05	Strongly disagree

DRIVERLESS CARS

ASK ALL
[MUL=3]
[RANDOMIZE 01-07]

S3Q4. How might the availability of driverless cars benefit you or others in the Washington region? (Choose up to 3 options)

01 Not needing to park (a driverless vehicle can drop me off and park itself)
02 Safer/reduced crashes
03 Being connected to Wi-Fi while in the vehicle
04 Doing other things in the vehicle instead of actively driving
05 Supporting travel for persons with disabilities
06 Better traffic flow/reduced congestion
07 Fewer vehicle emissions
08 Other (Specify) [TEXT BOX]
09 I do not expect any benefits [EXCLUSIVE]

ASK ALL
[MUL=3]
[RANDOMIZE 01-07]

S3Q5. What concerns, if any, do you have about driverless cars? (Choose up to 3 options)

01 Safety of other drivers
02 Safety of pedestrians and bicyclists
03 Cybersecurity concerns
04 Liability for accidents
05 Cost
06 They may not equally be available to everyone
07 May discourage travel options such as public transportation and biking
08 Other (Specify) [TEXT BOX]
09 No concerns [EXCLUSIVE]

EQUITY

ASK ALL

S3Q6. How well do you feel the region's current transportation system meets your travel needs?

01 Very well
02 Somewhat well
03 Neither well nor poorly
04 Somewhat poorly
05 Very poorly

ASK ALL
[MUL=3]
[RANDOMIZE 01-08]

S3Q7. Do you experience any of the following barriers to getting where you need to go from where you live? (Choose up to 3)

01 Public transportation requires too many transfers
02 Public transportation does not come frequently enough
03 Public transportation does not get me to my destination on time
04 Public transportation is too expensive for me
05 I don't feel safe crossing the street
06 It feels unsafe to walk/bike
07 I can't afford tolls to avoid traffic congestion

08 There are no trails near my home or work
09 Other (Specify) [TEXT BOX]
10 I don't experience any transportation barriers [EXCLUSIVE]

ASK ALL

S3Q8. How well do you feel your transportation needs and concerns are being addressed by decision makers?

01 Very well
02 Somewhat well
03 Neither well nor poorly
04 Somewhat poorly
05 Very poorly

ASK ALL
[MUL=3]
[RANDOMIZE 01-07]

S3Q9. I would be more likely to participate in public meetings about transportation if: (Choose up to 3)

01 There were a translator or materials in my language
02 I could call in to listen or speak
03 I could attend in person on nights or weekends
04 The meetings were held in my neighborhood
05 The meetings were held near public transportation
06 More people from my community attended
07 I could obtain information and provide feedback online
08 Other (Specify) [TEXT BOX]
09 No changes would make me more likely to participate [EXCLUSIVE]

ASK ALL

S3Q10. What transportation investments should we make today that future generations will thank us for tomorrow?

[TEXT BOX]

DEMOGRAPHICS

ASK ALL

D_INTRO. Lastly, we'd like to ask you some questions about yourself and your household. Your answers will be combined with responses from other residents for analysis.

ASK ALL

D1. Not counting yourself, how many adults age 18 or older live in your household?
RANGE 0-10 [NUMBER BOX]

ASK ALL

D2. How many children under the age of 18 live in your household?
RANGE 0-10 [NUMBER BOX]

ASK ALL

D3. Which of the following best describes your primary residence?

1. Single family detached home
2. Townhouse
3. Condo/apartment
4. Mobile/manufactured home
5. Other (Specify) [TEXT BOX]

ASK ALL

D4. Do you currently own or rent your residence?

1. Own
2. Rent
3. Other (Specify) [TEXT BOX]

ASK ALL

D5. In what year were you born?

RANGE 1917-2002 [NUMBER BOX]

ASK ALL

D6. What is your gender?

1. Male
2. Female
3. Transgender
4. Non-binary
5. Other (Specify) [TEXT BOX]

ASK ALL
[OPTIONAL]
[MUL=7]

D7. Which of the following best describes you? Please select all that apply.

1. White
2. Black or African American
3. American Indian or Alaska Native
4. Asian
5. Native Hawaiian or other Pacific Islander
6. Hispanic, Latino/a/x, Spanish origin
7. Other (Specify) [TEXT BOX]

ASK ALL

D8. What language do you MOSTLY speak at home?

1. English
2. Spanish
3. Other (Specify) [TEXT BOX]

ASK ALL
[OPTIONAL]

D9. What was your total household income from all sources in 2019 before taxes?

1. Less than $25,000
2. $25,000 to 49,999
3. $50,000 to 74,999
4. $75,000 to 99,999
5. $100,000 to 149,999
6. $150,000 to 199,999
7. $200,000 to 299,999
8. $300,000 or more

ASK ALL

D10. Please select your highest level of education achieved.

1. Some high school
2. High school or GED
3. Some college or trade school
4. Bachelor's degree
5. Master's degree or higher

ASK ALL

CLOSE. Thank you for your participation in this important study! Your feedback will be used by local officials to plan the region's transportation future.

APPENDIX C: OPEN-ENDED CODES

Table 5 below shows the most common major themes coded in the open-ended responses to S3Q10. A total of 2,285 valid responses were coded into both primary and secondary codes. The options "N/A" and "Don't know" were not included in the visualization in the report.

Table 5: Major Themes in Descending Order

Primary Code	Count
Roads	384
Clean Transportation	354
Metro	245
Light Rail/Trains	207
Public Transportation	165
N/A or no comment	156
Bike infrastructure	121
Buses	85
Don't know	85
Safety/Security	83
Planning/Design	69
Walking/Biking	60
Equity/Access	46
Other	44
Consider environment/climate change	42
Driverless cars	41
Bridges	25
Infrastructure	24
Parking	24
Emerging technology	23
Sidewalks	19
Telecommuting	17
Ridesharing/ride-hailing	9

Table 6: Secondary Themes in Alphabetical Order

Bike infrastructure	Count
More bike lanes	56
Separated bike lanes	33
Interconnected system	11
Bike trails	7
Bike storage	2

Bridges	
Another bridge over Potomac	15
Maintenance/Repair	3
Other specific bridge request	4
Widen	2
Buses	
Lower cost	32
More frequent service	23
Dedicated bus lanes	21
Improve service/reliability	15
Expand routes	8
Better safer bus stops	7
Express buses	7
More bus stops	5
Better, safer on-board experience	4
shuttle buses	3
Clean Transportation	
Electric Vehicles	94
Lower emissions	78
Alternative fuels	37
Greener/more efficient alternatives	36
Reduce car use/dependence	29
Public transportation	22
Fewer cars	7
Emerging Technology	
Support e-scooters	8
Flying cars	5
Drones	4
Dedicated lanes for e-scooters	3
Ban e-scooters	3
e-scooters should obey traffic laws	1
Equity/Access	
Handicap Accessibility	10
low-income	10
Transportation opportunities for all	9
Improve access	7
Seniors	5
Consider needs of rural areas	2

Essential workers	1
Infrastructure	
Maintenance	20
Safety	1
Accommodate cars	1
Consider suburbs/rural areas	1
Metro	
Expand areas serviced	138
Expand service to Southern MD	27
Improve service/reliability	15
Finish Silver Line	14
Lower fare cost	13
Further investment	11
Extend orange line	6
Metro maintenance	5
More frequent service	3
Extended service hours	1
Incentives	1
More train cars	1
Other	
Taxes	4
Air travel	3
Water travel	2
Parking	
More parking	7
Free, low-cost parking	6
Parking at metro	4
Underground parking	2
Less street parking	1
More commuter lots	1
Planning/Design	
Slow/control development	11
Plan for future	10
Modernize infrastructure	1
Public Transportation	
Lower cost	32

Service rural areas/outside of core	30
Maintenance	20
Further investment in public trans	15
Improve reliability	14
More options	12
More frequent routes/stops	10
Better connectivity	6
Incentives	8
Better access to airports	7
Expand service hours	5
Cleanliness	3
Increased outreach	3
WIFI	3
Light Rail/Trains	
Expand areas serviced	65
High speed rail	38
Light rail	28
Expand service to Southern MD	27
Purple Line	14
More frequent train service	13
Improve service	6
Streetcars	6
Anti-high-speed rail	2
Extend service hours	2
Ridesharing/ride-hailing	
Support	8
Incentives for ridesharing	2
Complaint	1
Roads	
More roads or more/wider lanes	134
Improve condition	72
Reduce traffic/congestion	46
Tolls	33
Accommodate growth	25
Enforce traffic laws	12
Improve design/planning	12
Traffic lights	10
Fewer road restrictions	5
Faster construction	4

More electronic management of traffic flows	3
Shared road use	3
Dedicated truck lanes	3
Lower speed limits	2
Streetlights	2
Sidewalks	
More sidewalks	6
Wider sidewalks	5
Better connectivity	3
Safe sidewalks	3
Walking/biking	
Walkable communities	25
More mixed-use trails	15
Further investment in Ped/bike areas	7
Car-free zones	7
Pedestrian crossings	6

APPENDIX D: MAIL MATERIALS

CONTACT 1: INVITATION LETTER

National Capital Region
Transportation Planning Board

Current Resident 12345678A
980 Beaver Creek Drive
Martinsville, VA 24112
**********AUTO**MIXED AADC 270
1 1

September 21, 2020

Dear Resident,

We are asking for your help with an exciting initiative to understand the transportation needs and preferences of our residents. You can help by completing our online survey. Enclosed you will find a small token of appreciation.

Completing the survey is quick and easy. Through your participation, the transportation needs, behaviors, and preferences of people like you in the Washington, DC area will be represented in future planning efforts. Your responses will help improve transportation options in your community.

Step 1: The person in your household who is 18 years or older with the next birthday should complete the survey. Please give this letter to them.

Step 2: Access the survey online at: ***www.VoicesoftheRegion.com***

Step 3: Enter the following PIN to complete the survey: 12345678A

Your household has been randomly selected and participation in the survey is voluntary. If you do not have internet access or require accommodations, we still want you to participate! Please contact us at (202) 962-3297 or (202) 962-3213 (TDD) so that we can set up an alternative way for you to take the survey.

The survey will take approximately 15 minutes to complete. If you have any questions about the survey, please contact ICF, an independent research firm hired to conduct this study. They can be reached via email at voicesoftheregion@icfsurvey.com. Survey responses are confidential and your address will not be linked to your survey responses.

Thank you in advance for your participation.

Sincerely,

Kanti Srikanth
Staff Director of the Transportation Planning Board
Deputy Executive Director, MWCOG
Metropolitan Washington Council of Governments
777 North Capitol Street NE, Suite 300, Washington, DC 20002

Vea el reverso de la página para la versión en español.

National Capital Region
Transportation Planning Board

Estimado(a) Residente, 21 de septiembre 2020

Le pedimos su ayuda con una iniciativa que trata de entender las necesidades y preferencias de transporte de nuestros residentes. Usted puede ayudar con esta iniciativa al completar nuestra encuesta en línea. En el interior del sobre encontrará una pequeña muestra de nuestro agradecimiento por participar.

Participar es rápido y sencillo. Con su participación, las necesidades , los comportamientos y las preferencias de transporte de personas como usted en el área de Washington, DC, estarán representadas en los futuros esfuerzos de planificación. Sus respuestas ayudarán a mejorar las opciones de transporte en su comunidad.

1er paso: La persona de su hogar que tenga 18 años o más y con el próximo cumpleaños debe completar la encuesta. Por favor, entréguele esta carta.

2º paso: Acceda la encuesta en línea a través de: ***www.VoicesoftheRegion.com***

3er paso: Ingrese el siguiente PIN para completar la encuesta: 12345678A

Su hogar fue seleccionado de manera aleatoria y la participación en esta encuesta es voluntaria. Si no tiene acceso al internet o si necesita cualquier adaptación, ¡igualmente queremos que participe! Comuníquese con nosotros al (202) 962-3297 o (202) 962-3213 (TDD), para que podamos planear una forma alternativa para que usted pueda responder.

La encuesta le tomará alrededor de 15 minutos para completar. Si tiene alguna duda, por favor contacte a ICF, una empresa independiente contratada para realizar este estudio. Puede ponerse en contacto con ellos vía correo electrónico en la dirección siguiente: voicesoftheregion@icfsurvey.com. Sus respuestas son confidenciales y su dirección no será conectada a sus repuestas de la encuesta.

Gracias de antemano por su participación.

Atentamente,

Kanti Srikanth
Director, Junta de Planificación para el Transporte
Director Ejecutivo Adjunto, MWCOG
Metropolitan Washington Council of Governments
777 North Capitol Street NE, Suite 300, Washington, DC 20002

CONTACT 2: REMINDER POSTCARD

National Capital Region
Transportation Planning Board

PRESORT
FIRST CLASS
U.S. POSTAGE
PAID
MARTINSVILLE, VA
PERMIT NO. 40

12345678A
Current Resident
980 Beaver Creek Drive
Martinsville, VA 24112
**********AUTO**MIXED AADC 270
1 1

We recently invited you to participate in an important study to understand your transportation needs and preferences. Data from this survey will help the Washington DC region plan for the future. Your household was randomly selected to participate. If someone in your household has already completed the survey, please accept our thanks! If not, please follow these simple steps:

Step 1: Give this postcard to the person in your household **18 years or older** with the **next birthday**
Step 2: Go to **www.VoicesOfTheRegion.com**
Step 3: Enter your unique login ID: **12345678A**

If you do not have internet access or require accommodations, we still want you to participate! Please contact us at (202) 962-3297 or (202) 962-3213 (TDD). Thank you in advance for your help.

Sincerely,

Kanti Srikanth
Staff Director of the Transportation Planning Board
Metropolitan Washington Council of Governments

Para completar la encuesta en español, por favor visite www.VoicesoftheRegion.com

CONTACT 3: REMINDER LETTER

National Capital Region
Transportation Planning Board

Current Resident 12345678A
980 Beaver Creek Drive
Martinsville, VA 24112
**********AUTO**MIXED AADC 270
1 1

October 5, 2020

Dear Martinsville Resident,

A couple weeks ago, we invited you to participate in a new study about transportation options in the Washington, DC area. If someone in your household has already completed the survey, thank you! If not, please follow these simple instructions.

Step 1: The person in your household who is 18 years or older with the next birthday should complete the survey. Please give this letter to them.

Step 2: Access the survey online at: ***www.VoicesoftheRegion.com***

Step 3: Enter the following PIN to complete the survey: ***12345678A***

Counties, cities and towns in the Washington, DC region are working together to **plan the region's transportation future.** We are conducting a survey of households across the metropolitan area to better understand the transportation needs and preferences of all residents. Your household was randomly selected to participate. The survey should take approximately 15 minutes to complete.

If you do not have internet access or require accommodations, please contact us at (202) 962-3297 or (202) 962-3213 (TDD), so we you can take the survey over the phone or some other way.

Your participation in the survey is voluntary. If you have any questions, please contact ICF, an independent research firm hired to conduct this study. They can be reached via email at voicesoftheregion@icfsurvey.com. Survey responses are confidential: your address will not be linked to your survey responses and only aggregate data will be reported.

Thank you in advance for your participation.

Sincerely,

Director of the Transportation Planning Board
Deputy Executive Director, MWCOG
Metropolitan Washington Council of Governments
777 North Capitol Street NE, Suite 300, Washington, DC 20002

Vea el reverso de la página para la versión en español.

National Capital Region
Transportation Planning Board

5 de octubre 2020

Estimado(a) Residente de Martinsville,

Hace unos días, le invitamos a participar en una encuesta sobre las opciones de transporte en el área de Washington, DC. Si alguien en su hogar ya completó la encuesta, ¡gracias! Si no, por favor siga estas sencillas instrucciones.

1er paso: La persona de su hogar que tenga 18 años o más y con el próximo cumpleaños debe completar la encuesta. Por favor, entrégueles esta carta.

2° paso: Acceda la encuesta en línea a través de: ***www.VoicesoftheRegion.com***

3er paso: Ingrese el siguiente PIN para completar la encuesta: 12345678A

Los condados, ciudades y pueblos de la región de Washington, DC están trabajando juntos para **planificar el futuro del transporte de la región**. Estamos conduciendo una encuesta de hogares en toda el área metropolitana para comprender mejor las necesidades y preferencias de transporte de todos los residentes.
Su hogar fue seleccionado de manera aleatoria. La encuesta le tomará alrededor de 15 minutos para completar.

Si no tiene acceso al internet o si necesita cualquier adaptación, ¡igualmente queremos que participe! Comuníquese con nosotros al (202) 962-3297 o (202) 962-3213 (TDD) para que pueda completar la encuesta por internet o de otra manera.

Su participación en esta encuesta es voluntaria. Si tiene alguna duda, por favor contacte a ICF, una empresa independiente contratada para realizar este estudio. Puede ponerse en contacto con ellos vía correo electrónico en la dirección siguiente: voicesoftheregion@icfsurvey.com. Sus respuestas son confidenciales: su dirección no será conectada a sus repuestas de la encuesta y los datos serán reportados sólo de forma colectiva.

Gracias de antemano por su participación.

Atentamente,

Kanti Srikanth
Director, Junta de Planificación para el Transporte
Director Ejecutivo Adjunto, MWCOG
Metropolitan Washington Council of Governments
777 North Capitol Street NE, Suite 300, Washington, DC 20002