

# 2020 Virginia Tech Greater D.C. Area Transportation Survey Report

*December 16, 2020*

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## INTRODUCTION

From September 1-30, 2020, the Virginia Tech Innovation Campus Transportation Subcommittee conducted the University's first transportation survey for greater Washington, D.C. metro area locations. The purpose of this survey was to better understand how people travel to, from and between greater D.C. locations. It will also be used to help develop options for traveling between current and future Virginia Tech locations, and to develop parking management strategies for these locations.

There are currently three primary Virginia Tech locations in the greater D.C. area: The Virginia Tech Research Center (VTRC) in Arlington, the Northern Virginia Center (NVC) in Falls Church, and the Washington-Alexandria Architecture Center (WAAC) in Alexandria. Current parking management practices vary by location, which makes it difficult to facilitate intra-campus travel:

- **VTRC** - The underground parking structure is managed by a third party and open to the public. Virginia Tech affiliates must pay to park, and a Virginia Tech parking permit is not honored. Parking costs \$110/month (\$1,320/year) or \$10/visit over three hours.
- **NVC** - There are three parking lots (one of which is a 10-space metered lot) with spaces available for faculty, staff, students, and visitors. Virginia Tech manages and maintains all parking through a third party, and a Virginia Tech parking permit is honored. Students also have the option to pay a daily rate, set by the Washington Metropolitan Area Transit Authority (WMATA), of \$3/day.
- **WAAC** - There are two parking lots associated with the WAAC. The Virginia Tech parking permit is required at both lots, and enforcement is handled internally. The lots are treated, as much as possible, as faculty/staff lots. The cost to park is \$360/year.

Initially, 254 survey responses were collected. After cleaning the data, only 225 of those responses were valid. As you can see in Table 1, this represents 29% of all Virginia Tech affiliates in the D.C. area. It should be noted that enrollment and employment data for Virginia Tech's greater D.C. locations is not very accurate and should be taken with a grain of salt. A committee is currently working on improving the data, and their work should be complete for the Spring 2021 Semester.

	Survey Participants	Total Affiliates	Response Rate
Faculty	90	109	83%
Staff	37	57	65%
Students	98	610	16%
Total	225	776	29%

Table 1. Survey Response Rate

Faculty members make up 40% of the survey participants, and staff make up 16%. All of the students were graduate students, with 68% being full-time and 32% being part-time. At a 95% confidence level, this sample size has a 6% margin of error.

The impact the coronavirus disease 2019 (COVID-19) had on the results of this transportation survey cannot be understated. Data from the Virginia Commuter Survey details some of the impacts COVID-19 has had on people's commuting patterns.<sup>1</sup> When looking at responses from the Northern Virginia District, an area that includes the aforementioned Virginia Tech locations, 654 of the 1,379 participants said they either never teleworked before the pandemic or only did so 1-11 times per year. When answering for their current telework frequency, 655 of them said they are doing so five or more days per week. It remains to be seen what long-term effects COVID-19 will have on people's work-from-home status, but it is likely that some people will continue to telework at least a couple days per week.

For this survey, participants were asked to answer questions for their current commute. The subcommittee made this decision after deciding this survey would be administered annually. It was decided that it made more sense to compare current travel behavior to post-pandemic travel behavior, rather than comparing pre-pandemic and post-pandemic. There

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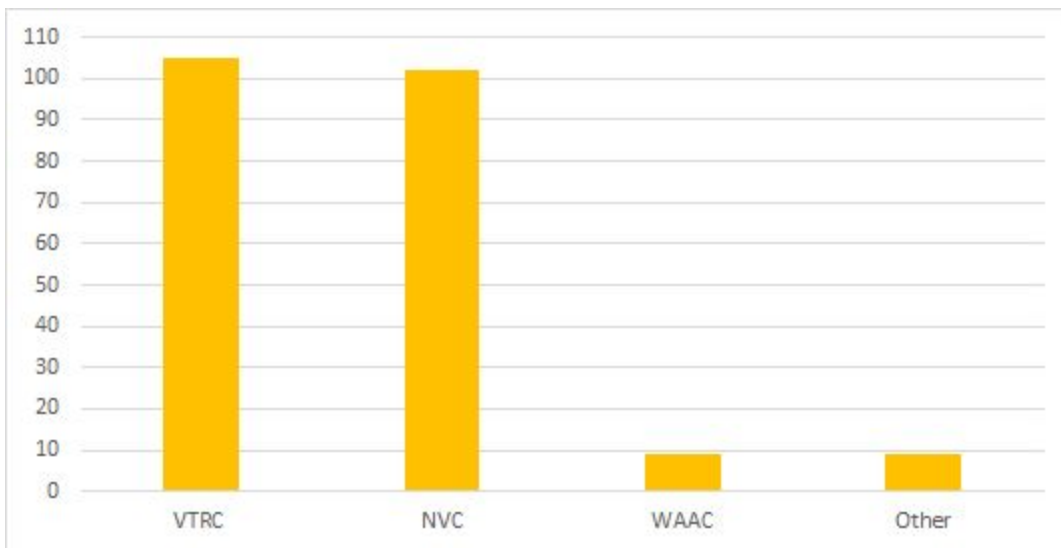
<sup>1</sup> The Virginia Department of Transportation in partnership with the Department of Rail and Public Transportation began conducting a commuter survey to better understand changes in travel behaviors. Multiple rounds of surveys are planned as the COVID-19 pandemic evolves. The first round, data from which was reported here, occurred in June/July 2020. More information is available at: <https://www.virginiadot.org/travel/commuter-survey.asp>

was also a recognition that travel patterns might never return to their pre-COVID status. That being said, six people who took this survey commented that they answered for their pre-COVID travel behavior, and there were likely others who did the same.

The survey results do present some interesting findings. Of note is evidence that parking fees impact who possesses a parking permit. Faculty are more likely to possess a parking permit than staff or students. Most of the transportation demand exists between two multidisciplinary locations, NVC and VTRC. With the introduction of another multidisciplinary location (Innovation Campus) in the coming years, travel demand will likely increase between all three of these locations. This highlights the need for a universal parking permit, which is something many survey participants requested. It also opens an opportunity for a shuttle service between locations — something a majority of participants agreed with, as long as headways are 15 minutes or less.

## PRIMARY WORK AND CLASSROOM LOCATIONS

Graph 1 shows the breakdown of where the participants usually spend their time when they travel to work or classes. VTRC and NVC heavily outweigh other locations. Out of the 98 students who were surveyed, 66% primarily spend their time at NVC, 28% spend their time at VTRC, and 3% spend their time at the WAAC, while 3% are currently attending classes virtually. Out of the 126 surveyed faculty and staff, 61% primarily spend their time at the VTRC, 29% spend their time at the NVC, and 5% spend their time at the WAAC, while 5% spend their time either at home, in a county government building, or in Manassas.



Graph 1. Primary Work/School Location

Currently, 96 faculty/staff are teleworking while 30 are not. All six faculty/staff who are primarily affiliated with the WAAC are teleworking. Mondays (22%) and Fridays (27%) are the most popular teleworking days. About half (45) of those currently teleworking anticipate doing so fewer days per week a year from now, while 12 anticipate teleworking more days, and 36 do not anticipate any change to their current schedule.

## TRAVEL INSIGHTS

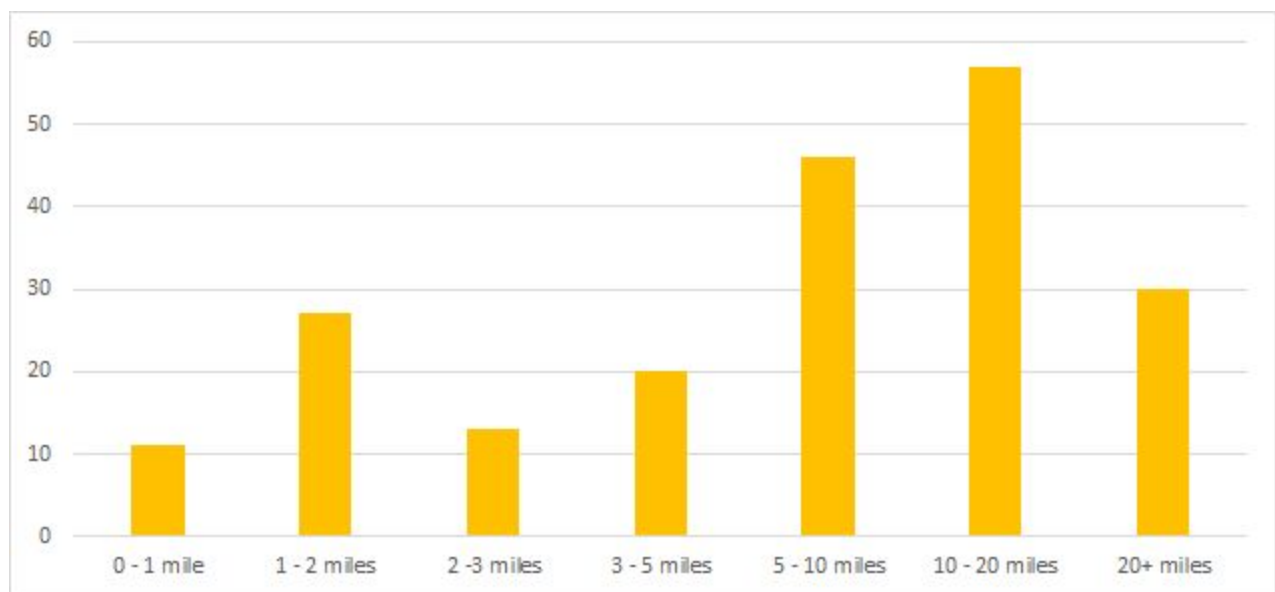
Graph 2 shows how often participants travel between the NVC, VTRC, and WAAC locations. Origins are listed in the column on the left, and destinations are on the right. The bands between indicate travel flow between destinations. The darker bands indicate daily travel, and the lighter bands indicate weekly travel. The width of the bands is proportional to the quantity represented. Similarly, the column sections are proportional to the percentage of total travel from the particular origin or to the particular destination — VTRC represents 58% of all origins and 39% of all destinations.



**Graph 2.** Travel to Other Virginia Tech Locations in Greater D.C.

NVC and VTRC are the most frequently traveled to locations, which is likely because they are multidisciplinary. However, their numbers are still very low and make it hard to justify implementing a fixed-route transit service between locations. Faculty and staff are more likely to travel between locations than students.

Three quarters of the survey participants rarely travel to the Blacksburg campus. The twenty-nine participants who do travel to this location, commute on a monthly basis, with only one commuting at least once per week. Participants are primarily traveling from VTRC.



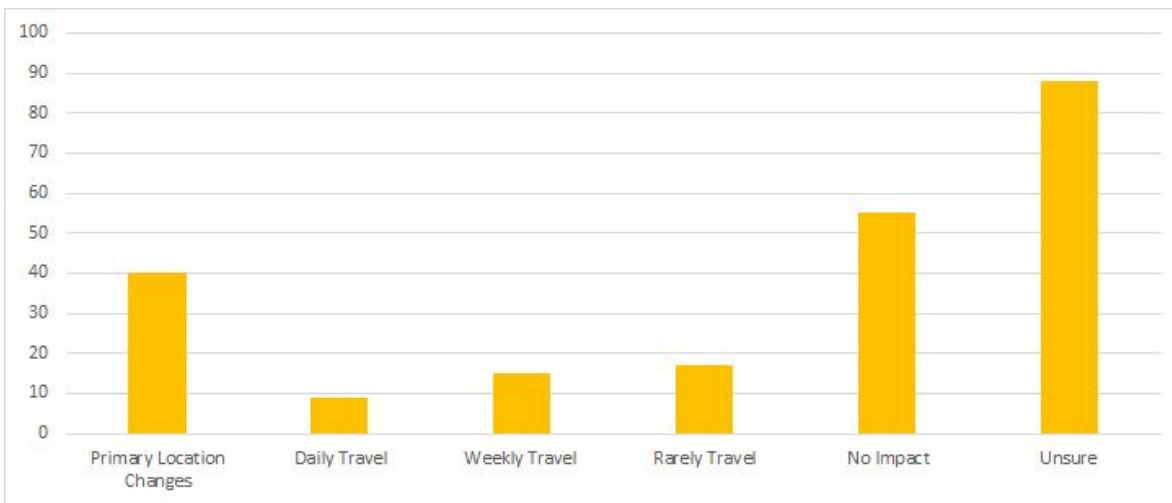
**Graph 3.** Distance Traveled to Primary Work/School Locations

Graph 3 shows how far participants commute to their primary work or school location. Faculty and staff members travel the furthest, with 133 of them (68%) traveling 5 miles or further. Active transportation (walking, bicycling or taking public transportation) is more popular when someone lives less than three miles away. Participants who live three or more miles away are two to three times more likely to drive alone. Participants are also more likely to carpool if they live at least 10 miles away.

On average, students, faculty and staff are more likely to travel to their primary work or school location during the week than they are on the weekend. Participants are typically arriving to work or class between 7:00 - 11:59 A.M. Monday through Saturday and between 12:00 - 4:59 P.M. on Sundays. Regardless of the day, faculty and staff (80-82%) are more likely than students (44-47%) to arrive between 7:00 - 11:59 A.M., while students are more likely to arrive after 12:00 P.M. and even more likely to arrive after 5:00 P.M. Before 5:00 P.M. is the latest faculty and staff are arriving to work. Participants are typically leaving from work or class between 5:00 - 7:59 P.M. during the week as well as on the weekends. Faculty and staff do not stay later than 8:00 P.M. on Fridays or after 10:00 P.M. on weekends.

**IMPACT OF INNOVATION CAMPUS ON TRAVEL**

Graph 4 shows the breakdown of how participants anticipate the opening of the Innovation Campus will affect their travel. Thirty-two faculty/staff anticipate moving to the Innovation Campus. Twenty-one of them currently work at NVC, 18 are at VTRC, and one is at the WAAC.



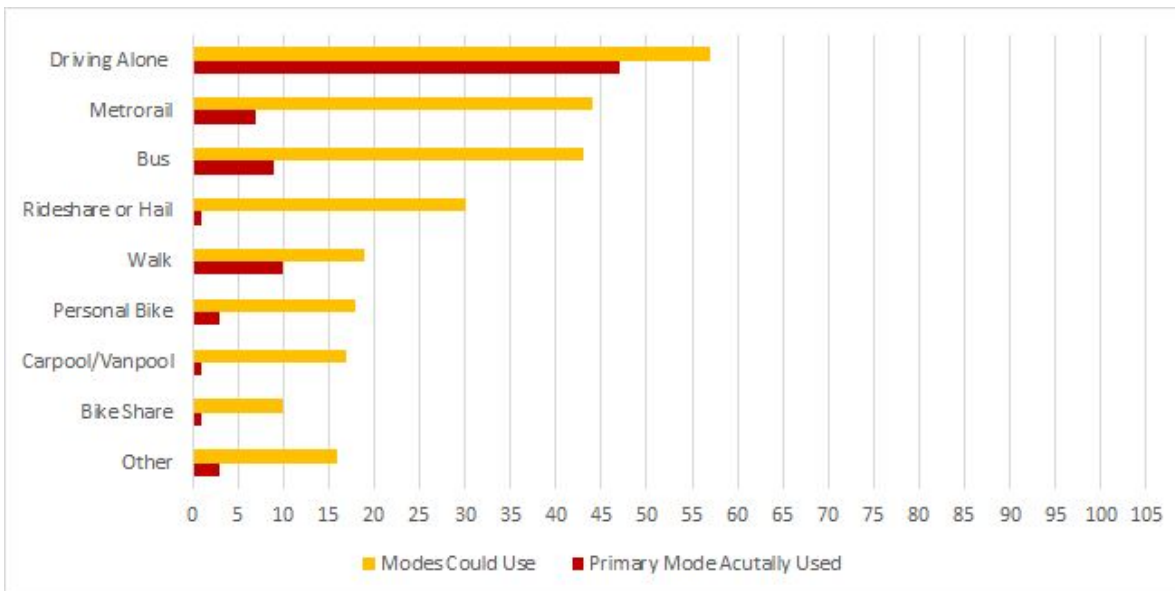
**Graph 4.** Innovation Campus Impact on Current Travel

Most of the participants were either unsure (88) of the impact of the Innovation Campus or anticipate no impact (55) on their intra-campus travel. Eighty one participants anticipate a change in their current campus travels, whether it is that their primary location will move to the Innovation Campus (40) or they will be traveling there (41) in some capacity.

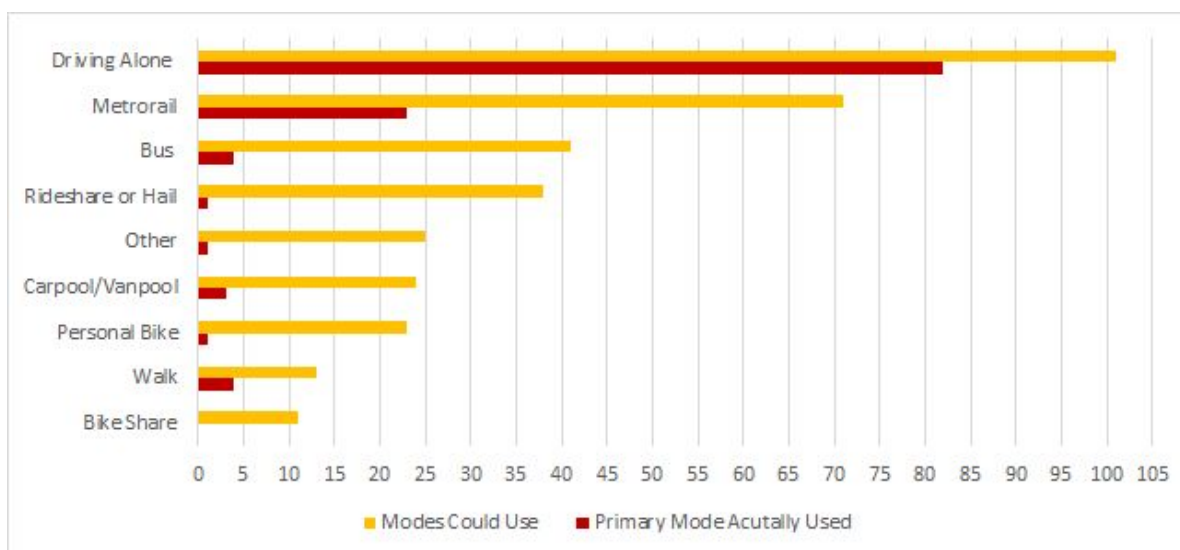
**PRIMARY MODE USAGE**

For Graphs 5 and 6, participants selected transportation modes they could take to/from their primary work/school location and the primary transportation mode they used for most of the distance traveling to/from their primary work/school location. Categories equating to less than two percent were grouped into the “other” category for better visibility of results. The commuter rail, scooter/share, moped, motorcycle, water taxi and longboard modes were grouped into this section.

Perhaps not surprisingly, driving alone came out on top for both students and faculty/staff. Walking is the second highest mode for students, and Metrorail is second highest for faculty and staff. All nine participants who are retirement age exclusively drive alone. The percentage of participants who drive alone decreases as they get younger, with only one third of 18-24 year olds doing so. Females are more likely to drive alone than males, while males are more likely to use public transportation, bicycle or walk.



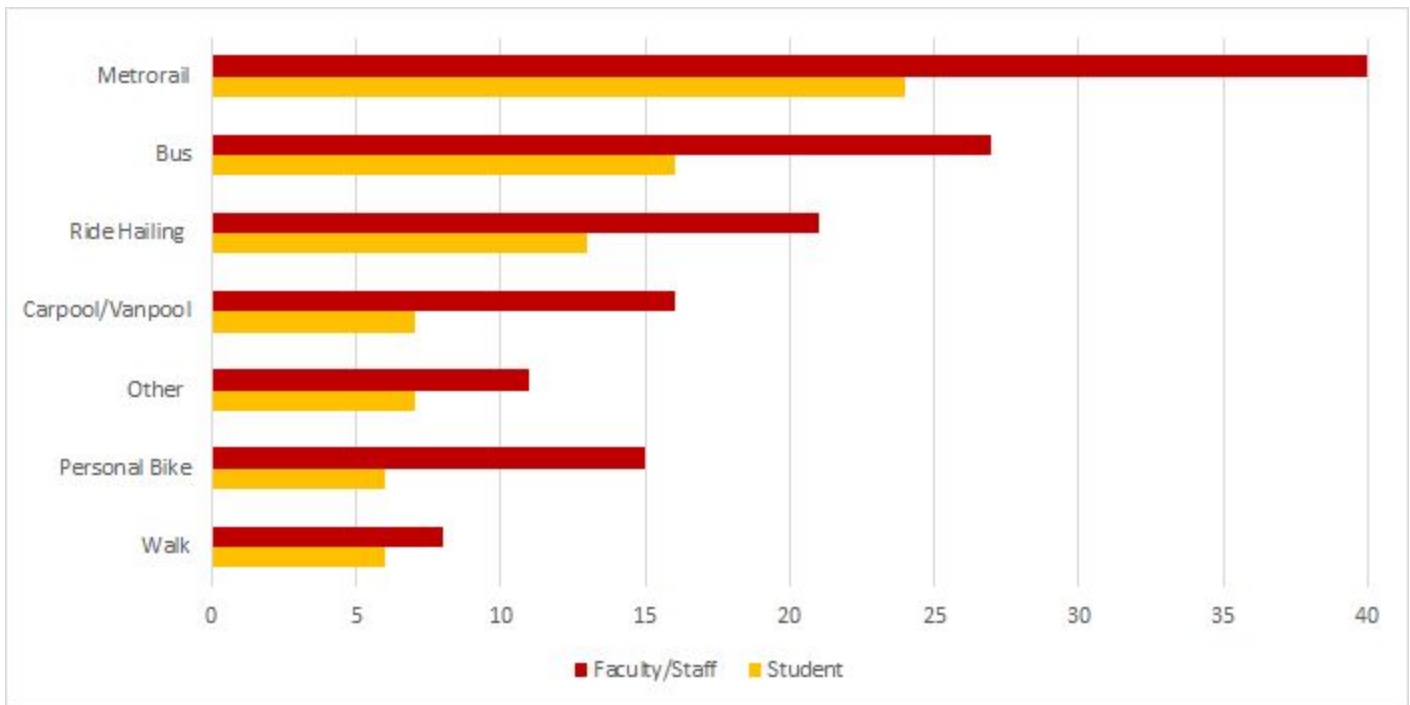
**Graph 5.** Transportation Mode Students Could Take vs. Their Primary Mode



**Graph 6.** Transportation Mode Faculty and Staff Could Take vs. Their Primary Mode

Graph 7 shows the modes available to people who primarily drive alone. Categories equating to less than two percent were grouped into the “other” category for better visibility of results. The bike share, scooter, scooter share, moped, motorcycle and commuter rail modes were grouped into this section. Ride hailing is defined here as options that include Lyft, Uber and/or Taxis.

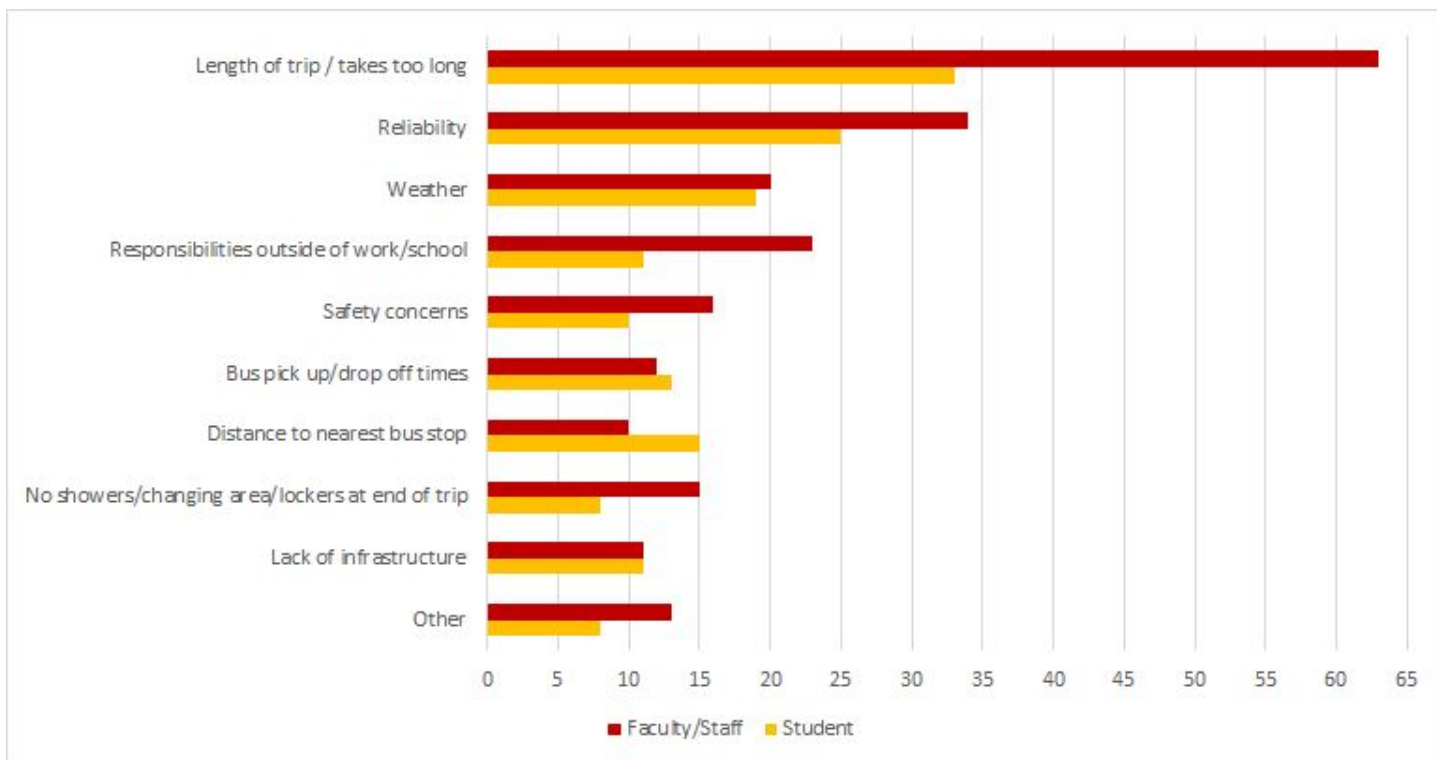
Just over half of students, and just under half of faculty and staff, could take Metro. When looking at the reasons why this group does not take alternative transportation more often, the time it takes and the poor reliability are the top two answers. If Metro were to improve its reliability, this could encourage more people to use it for commuting.



**Graph 7.** Options Available to Students Who Drive Alone compared to Faculty/Staff Who Drive Alone

Where participants' primary work and school are located can be a determining factor in the use of non-single occupancy vehicle (non-SOV) modes. Two thirds of people affiliated with NVC and the WAAC drive alone, while only 47% of people affiliated with VTRC do so. The top three primary modes participants use to travel to NVC are driving alone (49%), riding Metro (28%) and riding the bus (9%). The same is true of the primary modes used to travel to VTRC and the WAAC. However, faculty and staff are more likely to drive to the WAAC (73%) than students, with students just as likely to drive (28%), take the Metro (28%), or ride the bus (22%). When traveling to the Blacksburg campus, participants are more likely to drive (53%) or take Campus Connect (32%). While students only travel to Blacksburg by car, bus or pooling, faculty and staff (4%) also opt to take Amtrak.

As shown in Graph 8, the top three concerns preventing participants from using a transportation mode other than driving alone include the length of trip/time it takes, reliability, and weather. Faculty and staff also listed responsibilities outside of their work as a top concern. Categories equating to less than two percent were grouped into the "other" category for better visibility of results. Physically unable, bike not rideable, inadequate bike parking, bike theft concerns and stigmas associated with alternative transportation were the responses grouped into this section.



**Graph 8.** What Prevents Participants From Using Alternative Transportation More Often

## FURTHER INSIGHT INTO MOTOR VEHICLE USERS

Participants who drive to work or school are more likely (82%) to park on site than off site. The 29 people (7 faculty, 4 staff and 18 students) who park off site do not have a Virginia Tech parking permit, but two thirds of them usually commute every weekday. Eleven of them are affiliated with NVC, 16 are affiliated with VTRC, and one is affiliated with the WAAC.

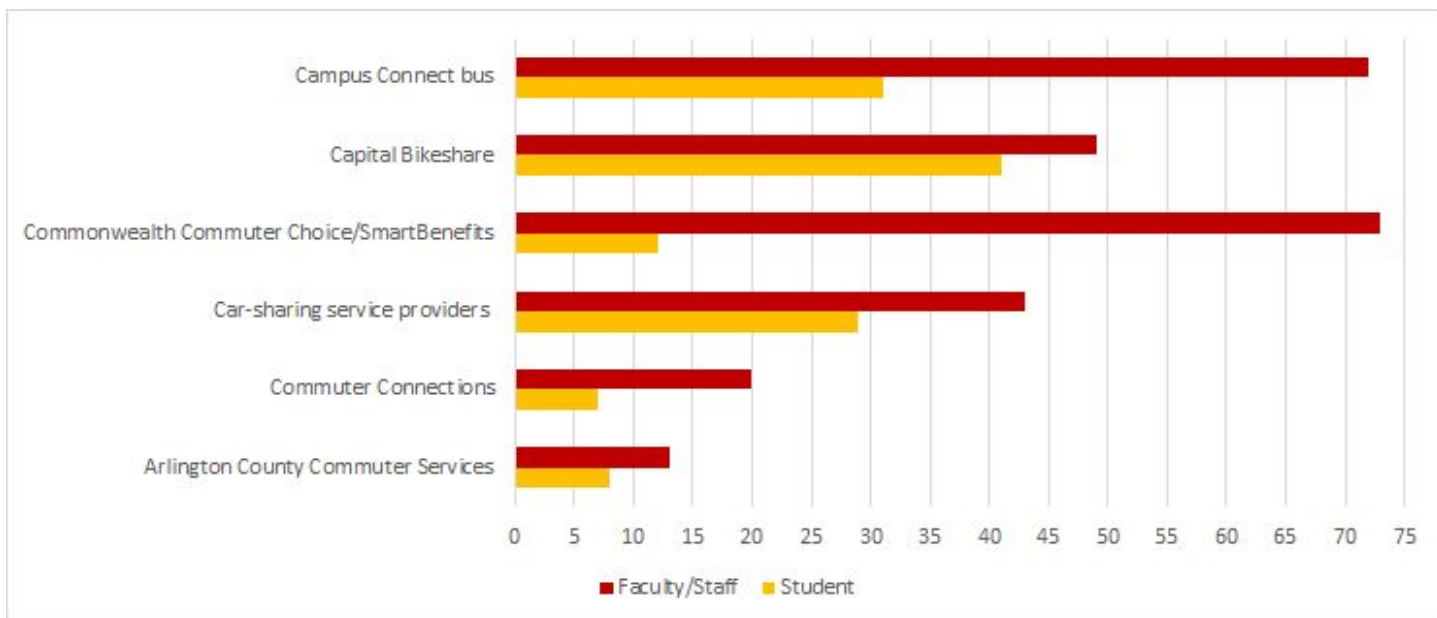
One hundred thirty-five of the participants (72%) do not have a Virginia Tech parking permit. Of those, 68 are students and 67 are faculty/staff. Eighty-two (61%) of those people are primarily affiliated with VTRC, where a Virginia Tech parking permit is not honored, so it makes sense that they would not own a permit. Of the remaining 53 people, about a third primarily commute via alternative means. Those who primarily drive alone are mostly students (78%), and the faculty and staff are teleworking a majority of the week. Interestingly, 13 faculty/staff members who are primarily affiliated with VTRC have a Virginia Tech parking permit. This is likely because they frequently travel to NVC or another Virginia Tech location where a Virginia Tech permit is required.

Of the 127 participants who primarily drive alone, 71 (56%) of them do not have a parking permit. About half (37) of those people are primarily affiliated with VTRC. All but 10 of the remaining people are teleworking a majority of the week. It is likely that they determined it was cheaper to forgo a parking pass while they were primarily teleworking.

## AWARENESS OF ALTERNATIVE TRANSPORTATION PROGRAMS

Awareness of commute assistance resources and alternative transportation programs appears to be low. Graph 9 shows that Campus Connect is the most recognized program, and awareness of it does not change much when factoring in primary work location or affiliation with the university.





**Graph 9.** Awareness of Alternative Transportation Programs

The Commonwealth Commuter Choice/SmartBenefits program is available to full-time employees who commute to certain identified Northern Virginia counties and cities. It allows them to receive a monthly transit benefit to use on public transportation or vanpool to get to work. When looking at full-time faculty and staff awareness of the program, 70 of the 111 total (63%) said they were aware.

Making employees and students more aware of these resources could increase the use of alternative transportation modes. Greater D.C. area Virginia Tech locations should consider physical and digital advertising campaigns and/or more alternative transportation-specific events to help increase awareness and mode share.

## UNIVERSITY PASS AND INTRA-CAMPUS SHUTTLE

The Washington Metropolitan Area Transit Authority's (WMATA) University Pass (U-Pass) program, only available for full-time students, provides unlimited trips on Metro for \$125 per student per semester. Forty-nine full-time students responded to the question asking if they would support Virginia Tech participating in U-Pass, accounting for 73% of all full-time students who responded to the survey. A breakdown by primary location is included below. Of those who support U-Pass, 66% commute via alternative means (41% commute via public transportation). Of those who do not support U-Pass, 80% drive alone.

	VTRC	NVC	WAAC	Total
<b>Support</b>	17	15	0	32
<b>Do not support</b>	1	4	0	5
<b>Not sure</b>	3	8	1	12
<b>Total responses</b>	21	27	1	49
<b>Did not respond</b>	4	11	2	17

**Table 2.** Student Support for WMATA's U-Pass Program

If a shuttle was available to transport people between greater D.C. Virginia Tech locations, all participants agreed that a waiting time of 15 minutes or less was acceptable. There was very little differentiation between the student and faculty/staff groups. The further the wait time goes beyond 15 minutes, the less acceptable participants found it to be.

## ADDITIONAL COMMENTS

Participants were given the option to provide any additional comments they thought were important and not covered in the survey. To make it easier to digest the comments, they have been grouped and summarized below. Some of the comments reiterate survey answers while others provide insight into sentiments towards transportation and parking.

- Typical commute:
  - Six people stated that they answered the survey for their pre-COVID travel behaviors.
- Parking:
  - Seven people commented that parking costs are too high.
  - Seven people thought parking in the region should be unified so everyone pays the same price and can park for free at other locations.
- Transportation options:
  - Six students think U-Pass is a good idea and will make transportation more affordable for them.
  - Six people praised Campus Connect. Several said the service should be restarted.
  - Six people said implementing a shuttle between greater D.C. area Virginia Tech locations would be beneficial.
  - Two people noted that it is hard to find existing carpools or form new ones.
  - Two people said there should be a shuttle between Metro and the Innovation Campus, at least until the Potomac Yard Metro Station opens.<sup>2</sup>
  - There were a lot of Metro-related complaints that primarily dealt with reliability and how long it takes to transfer.
- Survey feedback:
  - Three people commented that the survey should have asked about commuting times in addition to commuting distance. One of them noted that travel decisions are made based on time.<sup>3</sup>
- Electric vehicles:
  - One person said Virginia Tech should be planning for an increase in electric vehicles by installing more charging stations at all locations.

## CONCLUSION

This transportation survey is the first step in a multi-year process, culminating with the opening of Virginia Tech's Innovation Campus in Alexandria. At least two more surveys will be administered before the Innovation Campus opens. The hope is that concerns over COVID-19 will subside well before then, and post-COVID travel behaviors will unfold. As noted above in the Additional Comments section, six people answered this survey for their pre-COVID travel behaviors. This should be taken into account when attempting to draw any conclusions from this survey. That being said, the results from this survey still provide a solid foundation for future surveys, which will start informing decisions related to transportation and parking in the greater D.C. area.

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<sup>2</sup> As of December 2020, the Potomac Yard Metro Station is anticipated to open in 2022, two years before the first building at the Innovation Campus opens. More information is available at: <https://www.alexandriava.gov/PotomacYardMetro>

<sup>3</sup> Future iterations of this survey will include this question.