



TRANSPORTATION SERVICES
VIRGINIA TECH

2021

VIRGINIA TECH
BIENNIAL PARKING SURVEY



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INTRODUCTION AND INITIAL FINDINGS

Parking Services Overview

Formed in 1988, Parking Services is an auxiliary of Virginia Tech that oversees more than 16,400 parking spaces and a motorist assistance program. As an auxiliary, Virginia law¹ requires Parking Services to be fully self-funded with no tuition, mandatory student fees, or funds from the Commonwealth contributing to its operations. Parking Services must therefore generate its own revenue to provide, maintain, and regulate parking for those who use its services. Prior to fiscal year 2021 (FY21), the burden of generating this revenue fell solely on student and employee parking permit holders. Beginning in FY21, Parking Services increased its revenue stream to include everyone who utilizes its services, striving to keep parking costs down for all and keeping its services as equitable as possible.

In 2014, facing extraordinary construction challenges on campus, Parking Services administered a parking survey to gather feedback to help better utilize the limited parking resources available. The purpose of the 2014 survey was to help shape the future of parking and the transportation management system at Virginia Tech. Results of the survey helped the department plan and implement the following changes: FY16 — (Faculty and Staff) F/S Remote permit and Graduate Preferred permit; and FY19 — bike share program, Student Remote permit, and Perry Street Student Preferred permit. The 2014 survey was also the foundation for the 2021 Parking Survey.

¹Per Virginia code §3-4.01




Beginning in 2021, Transportation Services (which includes Parking Services, Fleet Services, Alternative Transportation and Air Transportation Services) will alternate administering biennial surveys: a parking survey during odd-numbered years and a Transportation Survey during even-numbered years. These surveys will help gauge advancements and changes for the entire department as well as help the department manage the limited resources in its custody. The Parking Survey will be used to gather information pertaining to parking permits, parking policy, parking enforcement, customer service and satisfaction, and the Transportation Survey will collect data regarding how people get to, from and around campus.

Similar to 2014, Virginia Tech's Blacksburg campus is currently experiencing a boom in new construction and other campus improvement projects. Because of this, parking proximity has increasingly become a crucial part of campus life. In FY21, projects such as the Data and Decision Sciences Building and the Blacksburg Transit Multi-Modal Transit Facility removed around 1,000 parking spaces. Even though these projects are replacing parking spaces, the campus still enjoys a daily surplus of parking spaces. Prior to FY21, the Blacksburg campus had over 2,000 open spaces every day, primarily in the student and general use lots. For FY22, Parking Services anticipates a daily surplus of approximately 1,000 spaces on campus. Parking Services strives to maintain an equilibrium among its assets and those it serves by balancing the demands and availability of parking spaces on campus. When parking supply no longer meets demand, the Campus Master Plan calls for additional parking garages on campus. Due to the cost of building new parking garages², delaying construction as long as possible while maintaining a parking surplus is fiscally imperative.

² Estimates of building a parking garage show a cost around \$30,000 per parking space and building a surface parking lot around \$7,000 a space.

PARKING

A photograph of a large, open parking lot filled with numerous cars. In the foreground, a red sedan is parked, angled towards the right. To its left, a dark blue Volkswagen is parked. The lot is paved with asphalt and has white parking lines. In the background, more cars are parked, and a tall light pole is visible. The sky is overcast and hazy.

Parking Services strives to offer a range of parking options that are equitable, flexible, and convenient that meet our university community's needs.



SURVEY RESPONSE RATE

Transportation Services administered the 2021 Parking Survey from Feb. 15, 2021 through April 5, 2021. A total of 3,344 responses were received from Virginia Tech's Blacksburg campus (see Figure 1). This total does not include 222 deleted, incomplete responses. At a 99 percent confidence level, this sample size has a 2 percent margin of error.

Figure 1: Comparison of the Percentage of Campus Affiliates and Survey Respondents

	SURVEY RESPONDENTS	TOTAL AFFILIATES	RESPONSE RATE
Faculty	<i>784</i>	<i>5,002</i>	<i>16%</i>
Staff	<i>935</i>	<i>3,566</i>	<i>26%</i>
Students	<i>1,371</i>	<i>37,010</i>	<i>4%</i>
Retired Faculty / Staff	<i>35</i>	<i>N / A</i>	<i>N / A</i>
None / Visitor	<i>219</i>	<i>N / A</i>	<i>N / A</i>
Total	<i>3,344</i>	<i>45,578</i>	<i>7%</i>

A photograph of a rainy street scene. In the foreground, the hood of a red car is covered in water droplets. In the background, a dark car is parked on the side of a wet street, with trees and a building visible in the distance under an overcast sky.

78% OF EMPLOYEES
AND STUDENTS
SURVEYED

**DRIVE
ALONE**

SURVEY DEMOGRAPHICS

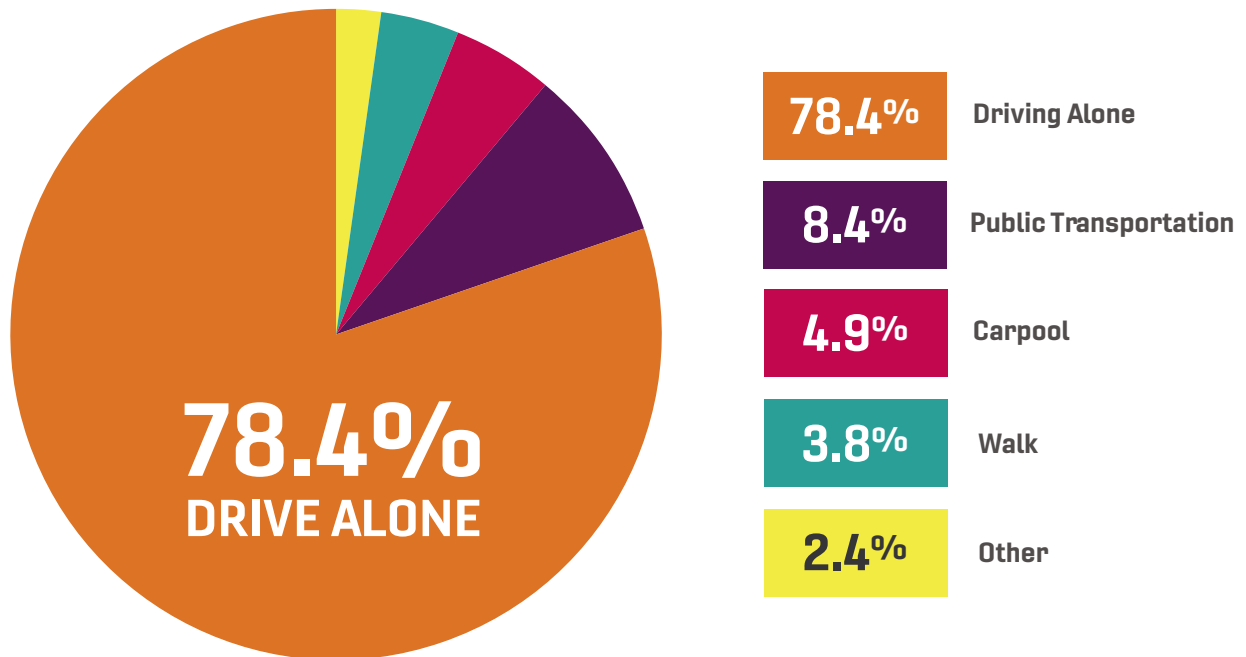
Participants for this survey are affiliated with Virginia Tech in a variety of ways. As shown in Figure 2, undergraduate students make up the largest percentage of participants. Staff and faculty round out the top three. These percentages are to be expected given the total number of affiliates in each group and the typical response rates associated with each. Breaking down the faculty and staff by employment status reveals that the overwhelming majority (96 percent) are full time. A similar breakdown for students indicates that 97 percent are full time and 73 percent reside off campus.

Figure 2: Survey Participant Breakdown by Affiliation

AFFILIATION	COUNT	PERCENTAGE
Faculty	784	23%
Staff	935	28%
Undergraduate Student	1114	33%
Graduate / Professional Student	251	8%
Retired Faculty / Staff	35	1%
Post Doctoral	6	.2%
None / Visitor	219	7%

Participants' primary mode of transportation was overwhelmingly driving alone (78 percent). While this likely is not representative of the true percentage of Virginia Tech affiliates driving alone (this would mean 35,500 people are driving alone while only approximately 14,000 permits are sold annually), it makes sense that this percentage would be higher for a survey focused on parking. Ninety-six percent of participants reported they drove a car to campus at least once in the past two years. Public transportation was the second highest at 8 percent (see Figure 3). The rest of the options were less than 5 percent. Responses tallying less than 2 percent were grouped into the Other category, which includes motorcycle, scooter, moped, and dropped off by someone ("kiss and ride").

Figure 3: Primary Mode of Transportation



CURRENT STATE OF PARKING

Faculty, staff, students, visitors, vendors, contractors, and others utilize Virginia Tech's 16,000+ parking spaces on a daily basis year-round. Managing these spaces in a fair and equitable manner is an important aspect of Parking Services' mission. One of the tools Parking Services uses to help manage campus parking is the sale of parking permits. By requiring a valid permit or the payment of a daily rate from everyone, Parking Services is able to keep the cost of parking down for all groups and ensure that everyone visiting campus is helping to cover the costs.

Parking Services offers a wide range of parking permit options including: annual; quarterly; monthly; and daily. Generally speaking, the annual permit is the most cost-effective permit available for those parking on campus for full time employees and students. Eighty percent of survey participants indicated they purchased a permit. Seventy-six percent of those permit holders indicated they were able to find a parking space in less than five minutes, and another 15 percent reported it took six to ten minutes to find a space.

However, the annual parking option is not always the best choice for everyone. Depending on how often someone needs to be on campus, other parking permit options may make more sense financially. Survey participants were asked in question 9 about their awareness of the daily parking options with 83 percent indicating they were aware of this option for occasional parking. In conjunction with our communications team, Parking Services will work to increase the percentage of respondents who are aware of the Daily permit option. The success of this awareness campaign will be gauged in future surveys.

Beginning August 2020, Parking Services started selling an Evening Only permit to provide an additional option for parking on campus. In addition to this new permit option, parking enforcement hours were extended from 5 to 10 p.m. These changes were in an effort to effectively manage parking for the growing population of permit holders who engage in university activities outside of traditional business hours. Not every customer needs to have a vehicle on campus during the day, and those customers using the campus primarily in the evenings may not always want to purchase a full-cost permit. Question 26 asked about the awareness of the Evening Only permit and 65 percent of respondents indicated they were aware of this option. Over the next two years, Parking Services will actively promote this option to educate the campus community about their various options. For the survey in 2023, a goal will be to increase the awareness of this option among all participants.

The extraordinary amount of construction taking place on the Blacksburg campus and the increasing enrollment growth, make it imperative to safeguard our finite parking resources and

ensure those resources are equitably available to people who park on campus. Parking Services must continue to be flexible and responsive, while providing multiple options, to help meet the growing needs of its customers.

HEALTH AND SATISFACTION OF PARKING

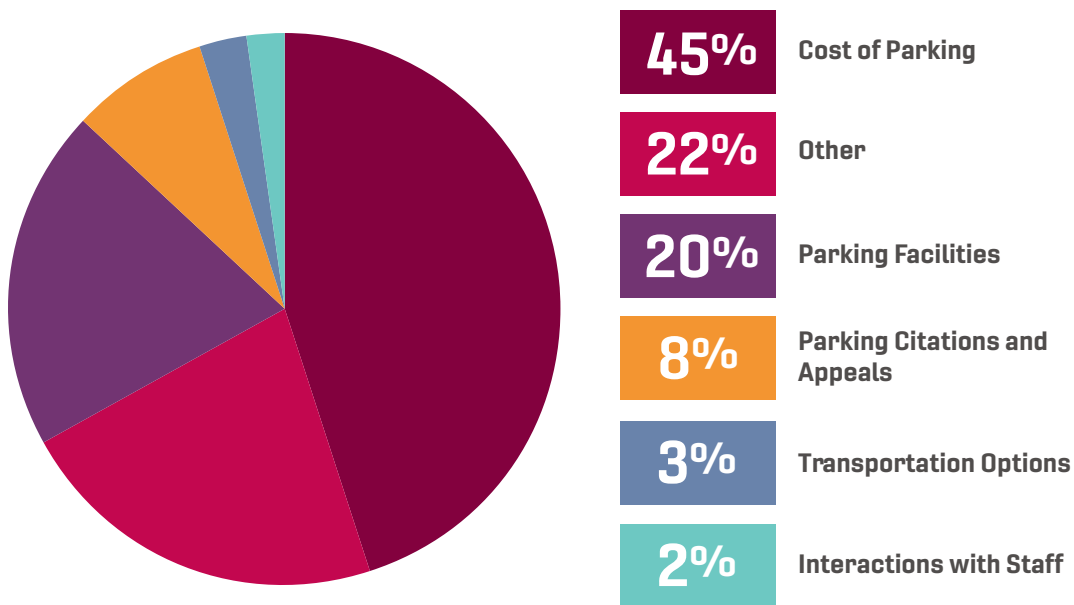
Another important aspect of the 2021 Parking Survey was to measure customers' satisfaction with Parking Services. It is important to the department to provide the highest level of customer service possible while still upholding the rules and regulations required. Questions 42 and 43 asked about interactions with Parking Services staff by phone or email, including office cashiers and parking enforcement officers. Of the 73 percent of respondents who indicated they had interacted with the department, 61 percent indicated they were extremely satisfied or somewhat satisfied with their interactions. This lets Parking Services know its staff is doing well in providing top-notch customer service. Improving this response rate will continue to be an important goal of the department.

Maintaining open and accessible parking lots and reinforcing the rules and regulations of parking on campus is an important aspect of Parking Services' mission. When asked about parking enforcement specifically, 36 percent indicated they were somewhat or extremely dissatisfied. This percentage trends more towards students being dissatisfied (61 percent) than employees (22 percent). This is most likely due to the perception that students have less convenient options and therefore may be more willing to take liberties when parking on campus, often leading to citations.

Other than permits and parking enforcement, Parking Services offers other services to those visiting the university. One of these services is the Motorist Assistance Program (MAP) which provides vehicle jump-starts and car door unlocking free of charge. Questions 39 and 40 asked if the respondents had used MAP, and if so, how satisfied they were with the service. Overwhelmingly 91 percent indicated they were extremely or somewhat satisfied with this program despite only 8 percent having used it. Question 41 asked whether or not the program should continue, and similarly 89 percent of respondents agree. Parking Services sees this as an important community engagement program and will continue to provide, as well as increase awareness of, this service across campus.

Parking Services conducts a wide array of functions on campus from selling permits, issuing citations, and even helping disabled motorists when vehicle batteries are dead or a customer has locked their keys in their vehicle. Even though these are all in place to assist motorists, Parking Services tends to elicit a negative response when customers are queried, typically based on bad interactions with any previous parking experience, not just those on campus. Question 51 asked for the respondents' satisfaction with the department. Results show that 47 percent are extremely or somewhat dissatisfied, and 36 percent are extremely or somewhat satisfied. The subsequent surveys, Parking Services hopes to improve the positive results and mitigate the more negative responses as an important goal of the department. As a follow-up to overall satisfaction, question 52 asked what factors most influenced the respondent's satisfaction level with Figure 4 showing those results.

Figure 4: What Most Influenced One's Overall Satisfaction with Parking Services.



The perceptions of the high cost of parking, condition and quantity of parking facilities, and the citations and appeals process were the biggest factors influencing overall satisfaction. Other factors influencing respondents' satisfaction level was a conglomeration of individual responses and concerns making up the Other 22 percent. Among those respondents who indicated they were dissatisfied with the parking experience on campus, 49 percent of them chose the cost of parking as the main reason why.

For those who indicated they were satisfied with the parking experience, 33 percent also chose the cost of parking as the main reason (36 percent chose parking facilities). This highlights how perception can influence one's satisfaction. Individuals who are not used to paying for parking might feel like the cost to park on campus is too high, and those who have experience paying for parking at other universities might be pleased with the comparatively low cost to park at Virginia Tech. Parking Services will continue striving to improve the overall satisfaction and needs of all its customers.

Parking Services is

100 self-supported and does
not receive funds from the
PERCENT university.

All of the revenue generated from the sale of permits and the collection of parking fines goes toward the cost of maintaining parking on campus, including the cost of two parking garages.

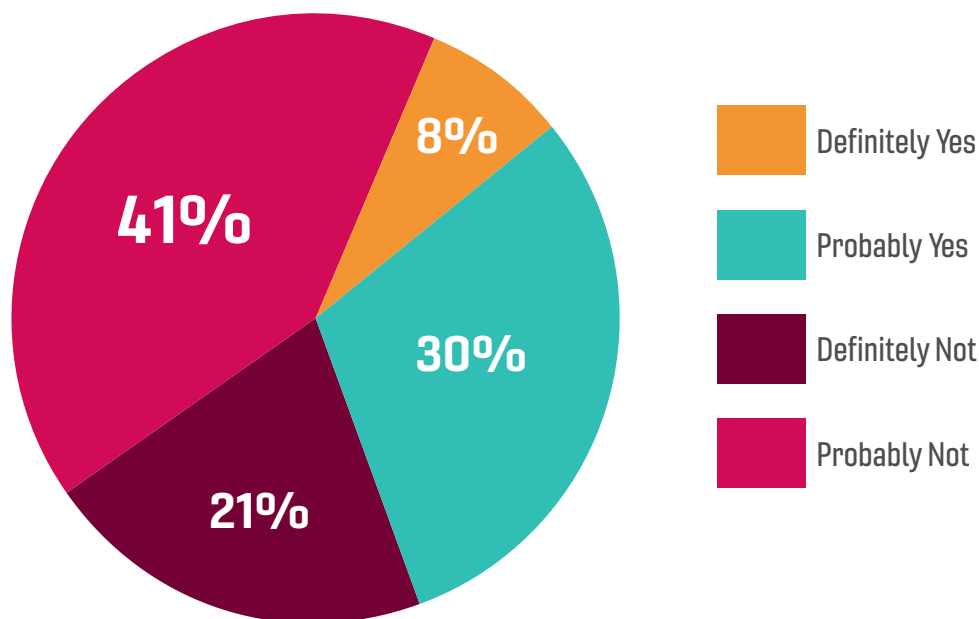


PARKING MASTER PLAN

In 2015, the university commissioned a Parking and Transportation Master Plan (completed in 2016) to help guide decisions regarding the future of parking and transportation on campus. Dovetailing with this plan, the university-wide Campus Master Plan (completed in 2018) set guideposts for the entire campus for the next 25 years. Together, these plans help weave the framework for the future of the Blacksburg Campus. Survey questions involving the Master Plan asked about perceptions of the current parking operation on campus, and the preferred direction of the future parking operation. Using the information gathered from these questions, Transportation Services will be able to tailor its communication and outreach efforts to help bolster these perceptions.

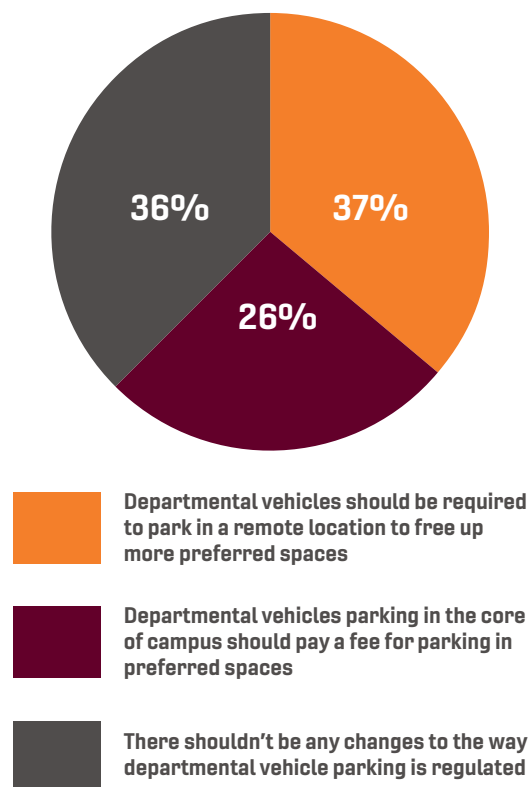
Constructing parking on campus is expensive with the most recent estimates of building a parking garage at a cost of around \$30,000 per parking space and building a surface parking lot at around \$7,000 a space. As a self-funded auxiliary, protecting current parking and limiting the need to build additional parking is an important way to hold parking costs down for everyone. Question 13 asked if garage parking should cost more than surface lot parking. Overwhelmingly, 74 percent of the respondents said no, with nearly identical percentages for both students and F/S. However, only 62 percent said they would not pay a higher fee for a guaranteed garage parking space (see Figure 5). Breaking this down by affiliation shows that 45 percent of students are willing to pay more for a guaranteed garage parking space, while only 33 percent of faculty and staff are.

Figure 5: Likelihood That Someone Would Park in a Guaranteed Parking Garage Space for a Higher Fee.



The survey asked a series of questions regarding different methods for assigning parking, to help determine if changes should be made to the current parking assignment model. The current model assigns parking to the categories: Faculty/Staff, Commuter Student, Graduate Student, Resident Student, etc. Each of these categories allows for parking at multiple locations on campus. While convenient for the permit holder, a permit that allows for parking in different locations across campus incentivizes people to hunt for a preferred parking space and creates congestion on campus. As parking availability continues to be impacted and lost to construction on campus, assigning specific areas for permit holders to park is a method to “do more with less.” Determining the best method to assign parking areas becomes challenging to ensure equity across all groups. Questions 14 and 17-21 asked about each different assignment type. Question 22 asked respondents to rank their overall top-three choices among the following: parking area tiered by Virginia Tech affiliation; parking assignments based on departmental affiliation; and parking areas tiered by the amount paid in fees. Tiered by affiliation is the current method and it ranked highest in the survey. Parking Services will investigate the impacts to the campus community if assigning parking based on departmental affiliation or amount paid in fees is implemented on campus. As changes are needed based on available parking inventory, using the results of this survey will help guide Parking Services’ design of the future of parking on campus. One factor affecting availability of parking for F/S is the large departmental and state-plated vehicles at the core of campus. Questions 24 and 25 asked F/S about the perception of these vehicles near primary academic and administrative buildings. More than 64 percent of respondents thought there should be a change to how state-plated vehicles are regulated, whether requiring them to have a permit or requiring them to park in a remote location (Figure 6). There are approximately 640 state-plated vehicles on campus, with around 160 of these parking at the core of campus. The core is defined as the portion of campus between Washington Street, West Campus Drive, Prices Fork Road, and Stanger and Kent streets. Parking Services will use this information when considering future parking changes.


Figure 6: How Departmental Vehicles should be Regulated.




When discussing parking with various constituent groups, the perception is the Blacksburg campus is “full.” The perception that “a lot” of first-year students bring vehicles and take up parking spaces others could use is prevalent, however, not accurate. In reality, the current supply of spaces is more than adequate for the current demand; however the unused spaces are in lots along the periphery of campus. Parking Services anticipates having a 1,000-space surplus campus-wide, primarily in the student and general use lots.

In FY18, only 18.9 percent of all students living on campus purchased a parking permit. In FY19 the rate of purchases dropped to 18.7 percent, and in FY20 it dropped further to 18.1 percent. For FY21 with COVID-19 restrictions limiting the number of students on campus the percentage is skewed slightly higher at 22.4 percent. While the percentage is slightly higher, Parking Services sold about the same number of parking permits as previous years, roughly 1,800, as there were fewer students living on campus.

Questions 34 and 35 asked students about the potential impact that prohibiting on-campus, first-year students from bringing cars to campus could have on them and the university. Fifty-six percent of respondents said such a ban would not have impacted their decision to attend Virginia Tech, while 17 percent said it is somewhat likely they would have chosen to attend college elsewhere and another 13 percent said it is very likely. When asked to what extent such a ban would have encouraged them to use sustainable transportation options more often, 38 percent said it would have either somewhat or greatly encouraged them (47 percent said it would have neither encouraged nor discouraged them).



There is an estimated daily surplus of over 1,000 spaces on the Blacksburg campus.



“We continue to be proactive in engaging strategies to help offset future parking displacement due to capital construction. This includes adjusting quantities of student Perry Street permits sold annually and advancing the use of our award-winning alternative transportation options.”

— Jeri Baker, senior director, Transportation Services

CLIMATE ACTION AND OTHER INITIATIVES

The Virginia Tech Climate Action Commitment serves as the university's guiding framework around sustainability and energy efficiency in campus operations, facilities, curriculum, and research. Since transportation comprises 12 percent of all campus greenhouse gas emissions, the commitment's policies and decisions impact parking and transportation on campus.

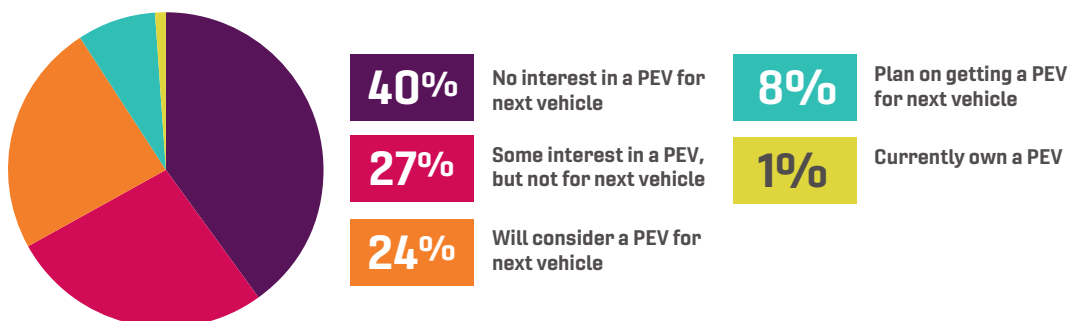
As stated previously, it is estimated that the Blacksburg campus has a surplus of approximately 1,000 parking spaces on any given day, proximate to the periphery of campus. When survey participants were asked about the extent to which they would support a university commitment to not build any additional parking on campus, even if it meant they might have to park on the periphery of campus and take a shuttle to the core, 33 percent said they support such a commitment while 46 percent said they oppose it.

Several questions were asked regarding the topic of electric vehicles (EVs). While only 1 percent of participants currently own an electric vehicle, 32 percent will at least consider one for their next vehicle (see Figure 7). Furthermore, 36 percent agreed that having publicly-available electric vehicle charging stations on campus would influence their decision to purchase an electric vehicle. Despite only a third of participants owning/being interested in an electric vehicle for their next vehicle, 60 percent of them support the university installing publicly-available electric vehicle charging stations across campus. Most electric vehicle charging currently occurs at home or work³. This can make it more difficult for people who live in multifamily housing with shared parking to charge their electric vehicles. Having charging stations on campus could help make it easier for these individuals to own an electric vehicle.

³U.S. Department of Energy's Idaho National Laboratory.

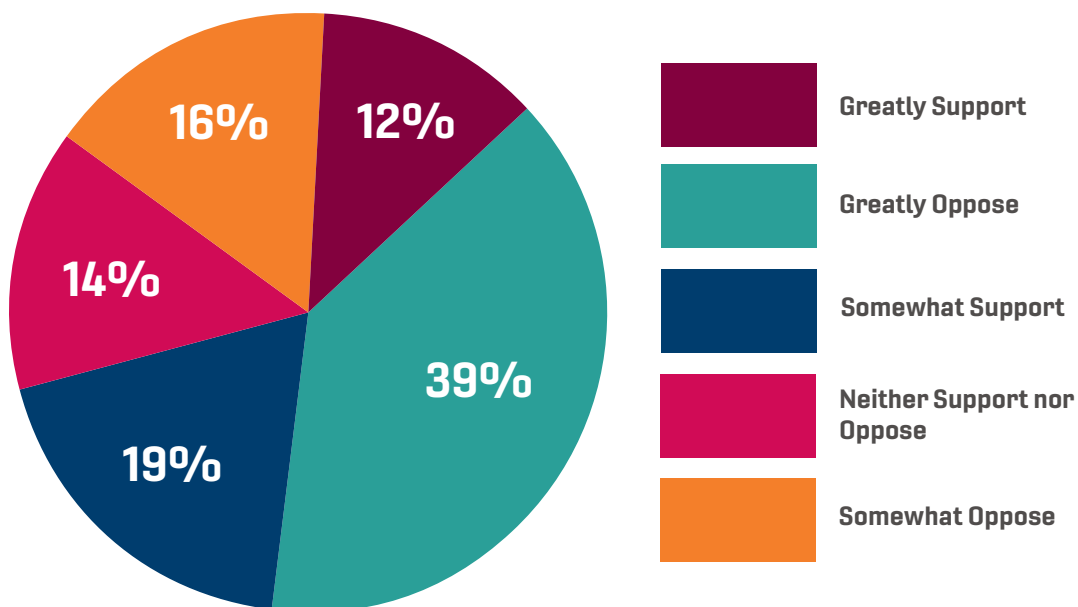
<https://inl.gov/article/charging-behavior-revealed-large-national-studies-analyze-ev-infrastructure-needs/>

Figure 7: Current/Future Interest in Owning a Plug-In Electric Vehicle (PEV).



Some universities support their alternative transportation programs entirely through increased parking permit fees. When participants were asked if they supported a 1-2 percent increase in parking permit fees to generate revenue for additional sustainable transportation improvements (EV charging stations, bike lanes/paths, expanded bike share, rideshare services, etc.), only 31 percent said yes (see Figure 8). Fifty-five percent said they opposed such a measure. Faculty and visitors were more likely to express support, while staff and students were more likely to express opposition. Over the next two years Transportation Services will highlight alternative transportation options with the goal to increase the positive response to this question.

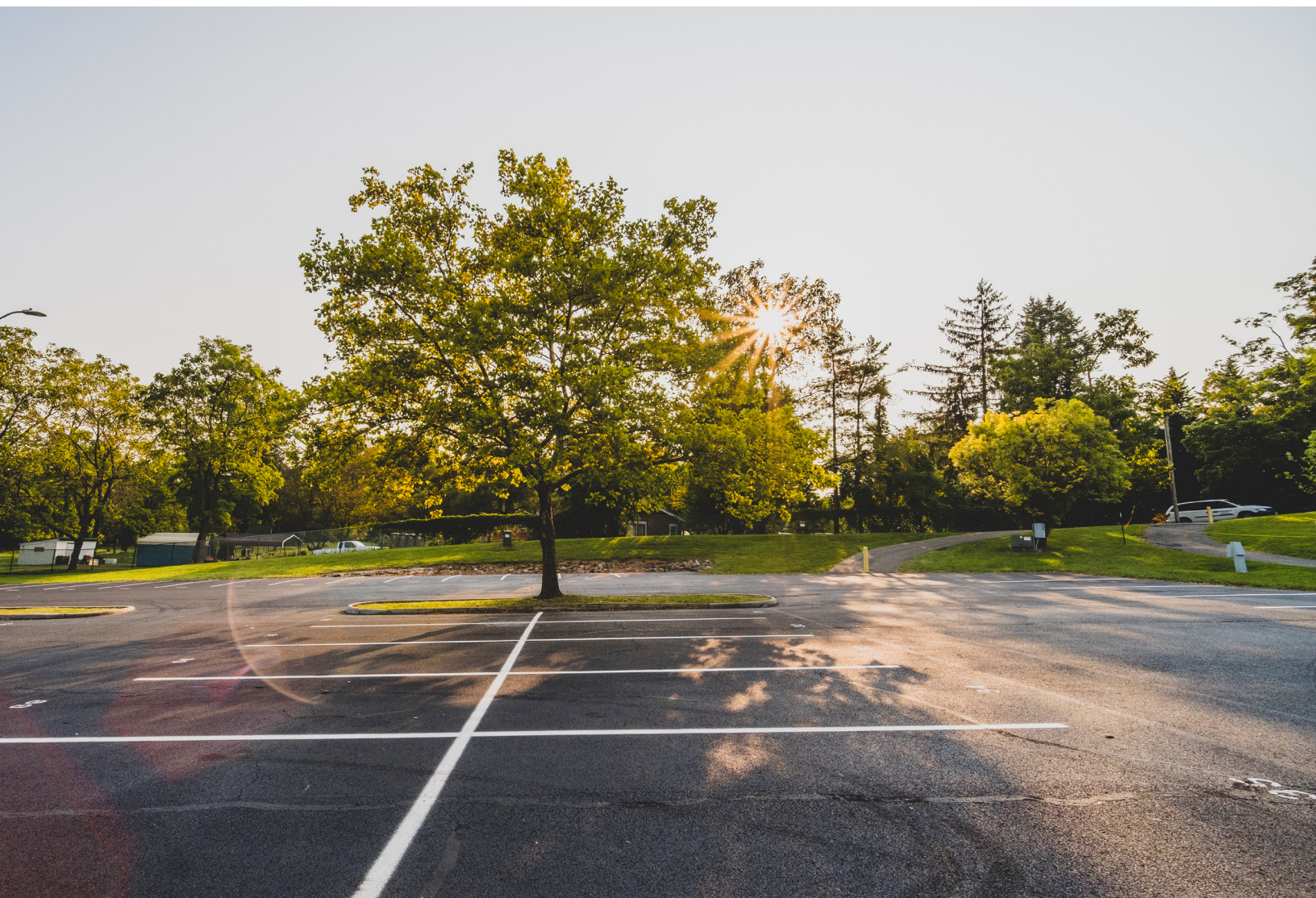
Figure 8: Support for Funding Alternative Transportation Programs through Increased Parking Permit Fees.




According to the survey results 74 percent of participants are aware of the Carpool permit. Of those who are not aware, 38 percent either have a resident permit or no permit at all. This suggests they likely are not aware of the option or it may not pertain to them as resident students are prohibited from purchasing a Carpool permit. Lowering the percentage of those who are not aware of the Carpool option will be a target for future parking surveys. Survey respondents indicated that additional reserved Carpool permit spaces added to the Perry Street Garage, Coliseum Lot, Stanger lots, Squires Lot, and Drillfield would incentivize people to carpool, each area having been chosen by 15 percent or more of respondents.

Other options to increase awareness and participation in the carpool option might include increasing the number of Daily permits offered, introducing preferred parking spaces in popular parking lots, and reaching out to groups who may be more inclined to carpool such as graduate students.

The Bike, Bus, and Walk (BB&W) permit is available to faculty, staff, and students who primarily commute via modes that are not driving alone (i.e., public transportation, bicycling, walking, etc.). The BB&W permit offers Daily permits to provide flexibility in the event that alternative transportation is not preferred for a given trip. Fifty-nine percent of survey participants said they were aware of this permit option. Breaking this out by affiliation shows that 70 percent of F/S, 40 percent of off-campus students, and 34 percent of on-campus students are aware of the BB&W permit. Raising awareness and purchases of this permit by 15 percent over the next two years is one of the goals for Parking Services. The department will continue to conduct outreach to make sure the permit meets the needs of the community. By increasing the number of those aware of alternatives, more people could choose to travel via more sustainable modes.



A photograph of a paved road with white lane markings leading towards a green field and trees under a clear sky. The road is in the foreground, with a white dashed line on the right side. The background shows a green field and trees under a clear sky.

Parking Services will continue its endeavor to be customer-focused, service-oriented, and mission-driven, all while upholding and maintaining the rules and regulations of the campus.



CONCLUSION

Utilizing the results of the 2021 survey and the dual guideposts of the 2016 Parking and Transportation Master Plan and the 2018 University Master Plan, Parking Services will continue shepherding campus parking and transportation decisions to support fiscally-responsible future growth and optimal use of the limited parking resources. The department will continue its endeavor to be customer-focused, service-oriented, and mission-driven, all the while upholding and maintaining the rules and regulations of the campus.

Parking Services must remain flexible and responsive in order to provide its customers with the necessary options for parking. Additionally, by raising awareness of alternative transportation options such as the BB&W permit, carpooling and ridesharing, and adding electric vehicle charging stations, bike lanes/paths, and expanded bike share, Transportation Services can and will increase Virginia Tech's sustainable transportation infrastructure. This will also create a more inclusive parking and transportation environment for the future of the university.

Parking Services provides a valuable service to the campus community. Parking Services' goal is to provide the best customer service in all aspects, and the department strives to do that each day by delivering timely, accurate, proficient, and respectful responses to customers. By being professional and treating each person as equitably as possible, Parking Services strives to win over its customers one at a time while fulfilling its university mission.



#9: 2020 Virginia Tech Climate Action Commitment goal

Reduce single-occupancy vehicle commuting to campus by 20 percent by 2025 and reduce transportation-related GHG emissions by 40 percent by 2030.



TRANSPORTATION SERVICES
VIRGINIA TECH.



2021 Biennial Parking Survey Revision E 11/19/2021

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