



VIRGINIA TECH ALTERNATIVE TRANSPORTATION  
COMMUTER SURVEY RESULTS SUMMARY  
JUNE 2014

## OVERVIEW

- Based on the results of the commuter survey, 59% of campus affiliates use alternative transportation to commute to, from and around Virginia Tech's Blacksburg campus. 36% of faculty and staff, 88% of resident students (includes Oak Lane residents who are allowed to purchase a commuter parking permit), and 62% of off-campus students commute by alternative modes. Without including resident students, 55% of faculty and staff and off-campus students use alternative transportation regularly.
- Methodology: The percentage of alternative transportation commuters on campus was calculated by using the responses from the survey questions about mode use. Survey participants were asked what their primary mode(s) of transportation is (are). (Respondents were allowed to list up to two primary modes.) They were also asked to consider their average week and select their primary mode for each day. The percentages for primary mode choice and for average daily mode choice in a given week were calculated for each of the three commuter groups. The average of these percentages was calculated and then weighted based the share of survey respondents of each group.

## SURVEY & PARTICIPANTS

- Respondents to the survey were asked to complete one of three “branches” or sets of questions, depending on their primary affiliation with the university: faculty/staff, on-campus student (undergrad or graduate) or off-campus student (undergrad or graduate). The branches were intended to be as similar as possible, so as to not produce entirely different data sets for each group. Six of 13-14 questions were identical across all three branches with the others varying slightly to accommodate differences in potential transportation use.
- The commuter survey garnered an 88.6% completion rate with 1,387 respondents completing 1,229 surveys, accounting for 3.4% of the Blacksburg campus affiliates (students, faculty, and staff).
- Undergraduate students account for 67% of campus affiliates (23,976) and 61% of survey respondents (755), graduate students comprise 13% of campus affiliates (4,647) and 11% of respondents (140), and faculty and staff account for 20% of campus affiliates (7,263) and 27% of respondents (334).
- Five metrics were used to evaluate the responses: travel distance, mode access, mode use, typical time and day of travel, and campus destinations.

## TRAVEL DISTANCE

- Only faculty, staff and off-campus students were considered in this section. 78% of all non-residential students live 3 miles, or less, from campus, whereas only 28% of faculty and staff live in such close proximity. In fact, nearly as many faculty and staff live 20 or more miles away (24%) as do those that live less than 3 miles from campus (28%).

	<b>Faculty/ Staff</b>	<b>Off-campus</b>
<b>0-1 mile</b>	4%	13%
<b>1-2 miles</b>	14%	40%
<b>2-3 miles</b>	10%	25%
<b>3-4 miles</b>	8%	7%
<b>4-5 miles</b>	5%	4%
<b>5-10 miles</b>	17%	5%
<b>10-20 miles</b>	19%	2%
<b>20+ miles</b>	24%	4%
<b>Total</b>	334	655

**MODE ACCESS**

- The most accessible modes of transportation to Blacksburg campus affiliates are personal vehicles (72.1%), bus services (specifically Blacksburg Transit; 70.2%), walking (62.3%), carpooling (37.7%) and biking (30.7%).
- Campus wide the most accessible mode is personal vehicle but this average is influenced greatly by faculty and staff, 93.7% of which have access to this mode, whereas a slightly smaller amount of off-campus students (82.9%) and only 39.7% of residents have this access.
- A staggering 95.4% of residents have access to Blacksburg Transit bus routes, followed by 80.9% of off-campus students and a significantly smaller group of faculty and staff (34.1%).
- Residents also have greatest access to walking as a mode of transportation with 95% of the group having this option compared to 62.8% of off-campus students and only 29% of faculty and staff.
- Biking is more accessible for off-campus students (40.2%) than any other group (22.2% for residents and 29.6% for faculty and staff).
- The table below details mode access for each campus affiliate demographic and all, combined campus affiliates. Personal vehicles, bus services and walking are viable options to the majority of campus affiliates, with over 60% of affiliates having access to each of them.

MODE ACCESS	F/S		On-campus		Off-campus		Total
	Count	Percentage	Count	Percentage	Count	Percentage	Weighted Percentage
Personal vehicle, no passengers	313	93.7	95	39.7	544	82.9	72.1
Carpool	100	29.9	94	39.3	288	43.9	37.7
Bus (Blacksburg Transit)	114	34.1	228	95.4	531	80.9	70.2
Bus (Smart Way)	34	10.2	53	22.2	34	5.2	12.5
Bike	99	29.6	53	22.2	264	40.2	30.7
Walk	97	29.0	227	95.0	412	62.8	62.3
Scooter	8	2.4	3	1.3	10	1.5	1.7
Moped	2	0.6	2	0.8	5	0.8	0.7
Skateboard	4	1.2	10	4.2	22	3.4	2.9
Motorcycle	14	4.2	3	1.3	17	2.6	2.7
Other	6	1.8	5	2.1	6	0.9	1.6

- Of the students and staff that have access to a personal vehicle, most are likely to own a fair fuel mileage vehicle (20-29 MPG).

Type of Vehicle Available	Faculty /Staff	Students		
		On-campus	Off-campus	Total
Electric vehicle	1.0%	1.0%	0.0%	0.5%
High fuel mileage vehicle (30+ MPG)	23.0%	19.0%	24.0%	21.5%
Fair fuel mileage vehicle (20-29 MPG)	61.0%	65.0%	57.0%	61.0%
Low fuel mileage vehicle (19 MPG or under)	15.0%	15.0%	19.0%	17.0%
<b>Total</b>	<b>319</b>	<b>115</b>	<b>564</b>	<b>679</b>

MODE USE

- The primary modes of transportation for campus affiliates are personal vehicle (52.3%), walking (38.1%), Blacksburg Transit (36.3%), carpooling (13.9%), and biking (12.9%).
- Faculty and staff and off-campus students are most likely to use a personal vehicle (79.0%) and (55.2%) and residents are most likely to walk (79.5%).
- 53.6% of on-campus students and 47.4% of students use Blacksburg Transit as their primary mode. At peak travel times, 28.1% of Blacksburg Transit riders traveling to campus experienced a full bus during the 2013-2014 academic year. Of these 72.5% waited for the next bus. 27.2% used an alternate mode to travel to campus and 6.1% omitting their trip to campus, indicating that Blacksburg Transit riders are heavily reliant on the system.
- Carpool reliance, however, is disproportionately high among faculty and staff; this group reported the lowest access to the mode but also the highest use as a primary mode, indicating that faculty and staff are far more likely to use carpools when they are available.
- Overall, students, both on and off-campus, are much more heavily reliant on alternative modes of transportation than are faculty and staff. 88% of resident students (includes Oak Lane residents) and 67% of off-campus students rely on some form of alternative transportation as a primary mode whereas 42% of faculty and staff rely on alternative transportation.

	Faculty/Staff		On-campus		Off-campus		Total	
	Count	Percentage	Count	Percentage	Count	Percentage	Totals	Weighted Percentage
<b>Total</b>	334		239		656		1229	
<b>Personal vehicle, no passengers</b>	264	79.0	54	22.6	362	55.2	680	52.3
<b>Carpool</b>	60	18.0	21	8.8	98	14.9	179	13.9
<b>Bus (Blacksburg Transit)</b>	27	8.1	128	53.6	311	47.4	466	36.3
<b>Bus (Smartway)</b>	12	3.6	22	9.2	32	4.9	66	5.9
<b>Bike</b>	43	12.9	24	10.0	104	15.9	171	12.9

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<b>Walk</b>	36	10.8	190	79.5	158	24.1	384	38.1
<b>Scooter</b>	4	1.2	2	0.8	9	1.4	15	1.1
<b>Moped</b>	1	0.3	0	0.0	6	0.9	7	0.4
<b>Skateboard</b>	1	0.3	5	2.1	9	1.4	15	1.3
<b>Motorcycle</b>	8	2.4	0	0.0	14	2.1	22	1.5
<b>Other</b>	5	1.5	2	0.8	8	1.2	15	1.2

**TRAVEL TIMES & DAYS**

- The survey results indicate that mode usage remains relatively constant across all days of a typical work week (Monday through Friday). This data only represents the commuter habits of faculty, staff and off-campus students as residents do not travel to campus each day.
- Arrival and departure times are also fairly constant with the majority of each demographic arriving to campus between the hours of 7am and 12pm and leaving between the hours of 5pm and 8pm. Residential students were included in this data set but were asked when they left and returned to their dormitories, rather than campus as a whole.
- In general, traffic is highest on campus between 7am and noon and between 5pm and 8pm.

		<b>Personal vehicle</b>	<b>Carpool</b>	<b>Bus (BT)</b>	<b>Bus (Smart Way)</b>	<b>Bike</b>	<b>Walk</b>	<b>Motorcycle</b>	<b>Other</b>
<b>Faculty/ Staff</b>	Monday	233	30	12	4	24	14	3	14
	Tuesday	239	31	12	4	24	15	3	6
	Wednesday	234	33	13	3	28	11	3	7
	Thursday	236	29	12	4	28	15	4	5
	Friday	228	29	14	4	24	17	5	12
<b>Off-campus</b>	Monday	284	26	209	3	43	82	5	2
	Tuesday	271	40	207	4	40	82	6	3
	Wednesday	276	30	205	5	44	86	5	3
	Thursday	266	42	212	2	39	82	7	5
	Friday	313	20	179	4	39	79	5	15

	<b>What time do you typically arrive on campus?*</b>			<b>What time do you typically leave campus?*</b>		
	F/S	On-campus*	Off-campus	F/S	On-campus*	Off-campus
<b>Early morning (before 7am)</b>	7%	8%	3%	0%	0%	0%
<b>Morning (7am - 12pm)</b>	91%	88%	85%	0%	0%	2%
<b>Afternoon (12pm-5pm)</b>	2%	3%	11%	38%	36%	32%
<b>Evening (5pm- 8pm)</b>	0%	0%	1%	61%	42%	46%
<b>Night (8pm-10pm)</b>	0%	0%	0%	1%	13%	12%
<b>Late night (after 10pm)</b>	0%	0%	0%	0%	9%	8%
<b>Total</b>	334	237	654	332	238	656

**CAMPUS DESTINATIONS**

- The location question asked for the respondents' primary destination on campus (other than a residency). The respondent was presented with the campus relations map and asked to select the building they visited most often. The map was broken into zones (not visible to the respondent) and responses populated a database corresponding to the selected map zone. The zones used on the map were derived from the university's Bicycle Parking Master Plan; however, additional zones were added.
- The Downtown Campus (16.3% of total campus affiliates), North Drillfield (38.3% of total campus affiliates), and South Drillfield (15.6% of total campus affiliates) zones hold the most primary campus destinations for all demographics. 70.2% of total campus affiliates' primary campus destinations are in these 3 zones.

<b>Zone</b>	<b>Faculty/ Staff</b>	<b>On- campus</b>	<b>Off- campus</b>	<b>Weighted Percentage</b>
<b>Air Port Zone</b>	0.3	0.0	0.2	0.2
<b>Athletic Zone</b>	1.5	1.3	0.9	1.2
<b>CRC Zone</b>	7.2	0.4	0.8	2.8
<b>Dairy Science Complex Zone</b>	0.3	0.0	0.0	0.1
<b>Downtown Campus Zone</b>	12.6	20.9	15.5	16.3
<b>International Affairs Zone</b>	1.5	0.0	0.0	0.5
<b>Math Empo Zone</b>	2.1	0.0	0.5	0.9
<b>North Drillfield Zone</b>	22.2	45.2	47.4	38.3
<b>Other</b>	5.1	0.8	2.6	2.8
<b>South Drillfield Zone</b>	14.7	19.2	13.0	15.6
<b>"Tin City" Zone</b>	0.3	0.0	0.0	0.1
<b>UCB Zone</b>	0.0	0.0	0.0	0.0
<b>Upper Quad Zone</b>	13.8	7.5	9.0	10.1
<b>West Campus Zone</b>	18.9	5.9	10.2	11.6
<b>Total</b>	334	239	656	1229

**CONCLUSION**

- Overall Virginia Tech's Blacksburg campus has shown a great propensity for alternative transportation use, especially by its student population.
- It is useful to evaluate mode share in terms of different types of campus affiliates and consider how the unique conditions associated with college campuses (such as a-typical work weeks, residency options and transportation mode options) affect commuting patterns.