DALHOUSIE UNIVERSITY COMMUTER STUDY 2018-2019

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Prepared for:
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Technical Report 2019-000

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1. Introduction

Each year since 2009, the Dalhousie Office of Sustainability collects data on the university community's commuting habits with a goal to monitor our progress toward sustainability in transportation. This report presents an analysis of the results of the 2018-19 survey, one of the largest and most representative commuter surveys conducted so far.

1.1. About the university

Founded in 1818, Dalhousie University is one of Canada's oldest universities. Located on the east coast in Nova Scotia, Dalhousie is comprised of four campuses, three in Halifax and one in Truro (Figure 1-1).

In 2009, Dalhousie made a commitment to sustainability. Its Sustainability Policy pledges to "contribute to and model long-lasting sustainable solutions", recognizing the need for continual monitoring and improvement along the way. One key aim is to improve sustainable transportation. Since the introduction of the policy, Dalhousie has encouraged its community to make more sustainable transportation decisions. Through a partnership with the Halifax Regional Municipality (HRM), Dalhousie has developed approaches to incentivize more sustainable transportation choices, such as student and staff transit passes and the Dalhousie Bike Centre.

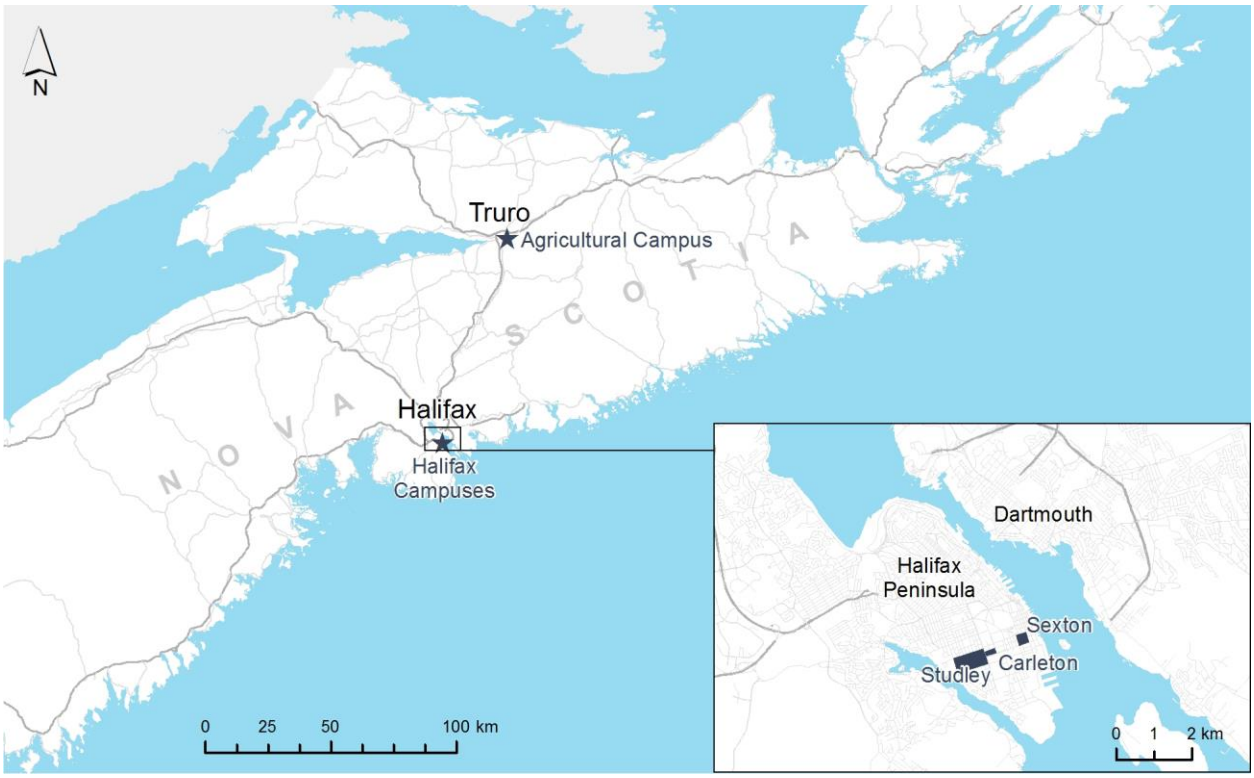

Figure 1-1. Dalhousie University campus locations

1.2. About the commuter survey

The Annual Sustainability and Commuter Survey is a tool used to monitor the success of the university's sustainability programs, collect ideas for future projects, and understand the Dalhousie community's knowledge, values, and interests in sustainable transportation. The survey annually asks respondents questions about their primary commuting mode choice, their commute duration, and their access to vehicles and bicycles. The survey also measures and compares intercampus travel, annual spending on transportation, and opinions toward sustainability and safety. Previous surveys have assisted in the implementation of sustainability programs at Dalhousie, such as the initiation of the summer student bus pass and the *Share the Road* campaign.

The survey has been conducted for the past 10 academic years (Table 1-1). The survey is typically administered in the fall semester, except from 2016-2018 when it was held in the winter semester. This year's survey (2018-2019) was conducted from October 29th, 2018 to November 12th, 2018. The survey has varied in size and representation of students, staff and faculty over the years. It typically underrepresents students relative to faculty and staff.

Table 1-1. Survey responses by academic year

Year	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19
Students	1322	315	329	713	767	719	517	865	1975	1938
Staff	1291	436	547	618	717	604	474	472	668	554
Faculty				188	252	185	139	205	204	193
Alumni/other	-	-	-	-	-	-	-	-	41	34
No answer	-	-	277	161	255	441	609	608	249	209
Responses	2613	751	1153	1680	1991	1949	1739	2150	3137	2928
Completed	-	-	-	1374	1630	1508	1110	1690	2700	2624

While the 2018-2019 Commuter Survey did not receive as many responses as the 2017-2018 survey (Table 1-1), it remains one of the largest commuter surveys the university has ever conducted with just under 3000 responses. Comparable to the 2017-2018 survey, the 2018-2019 survey is close to representing the true proportion of students at Dalhousie University, and its results are largely in line with previous surveys.

2. Respondent Information

2.1. Group, classification and campus

This survey received the highest number of responses from students, followed by staff and then faculty (Figure 2-1). The proportion of respondents is comparable to that of the 2017-2018 Commuter Survey. While student responses have more than doubled since the 2016-2017 survey, the number of faculty respondents has stayed consistent (Table 1-1).

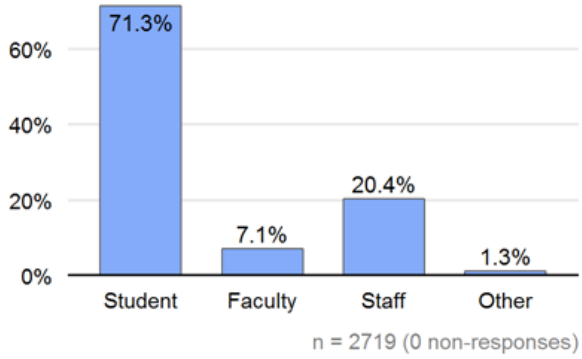

Figure 2-1. Respondent group

Most respondents classified themselves as full-time (Figure 2-2), and the majority are based on the Studley campus in Halifax (Figure 2-3). These two distributions have remained stable over the past few survey years. In the 2017/18 academic year, 88% of Dalhousie students were enrolled full-time and 12% were part time. While the commuter survey also includes staff and faculty, the distribution of full-time and part-time respondents roughly agrees with enrolment statistics.

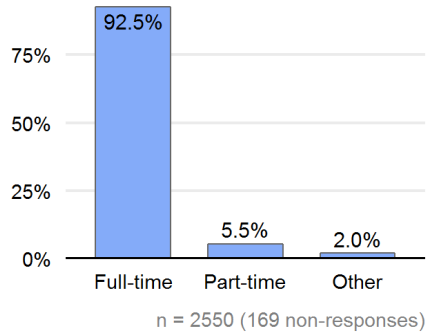

Figure 2-2. Respondent classification

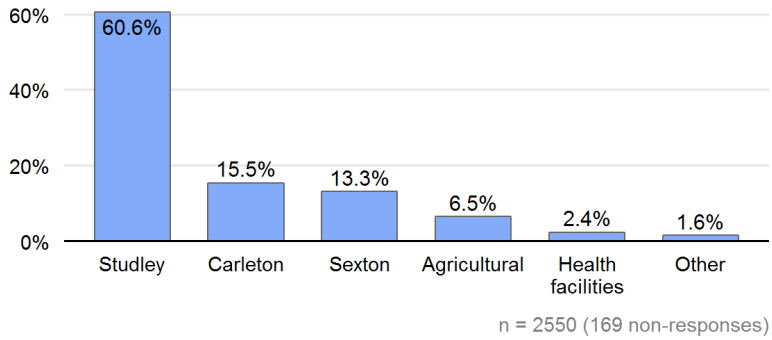

Figure 2-3. Primary campus distribution

2.2. Demographics

2.2.1. Gender

Women made up the highest proportion of respondents, with more than double the number of men in the sample (Figure 2-4). This gender imbalance is a pattern that has been repeated throughout past commuter surveys. Akin to these previous surveys, fewer than 1% of respondents have a non-binary or self-described gender.

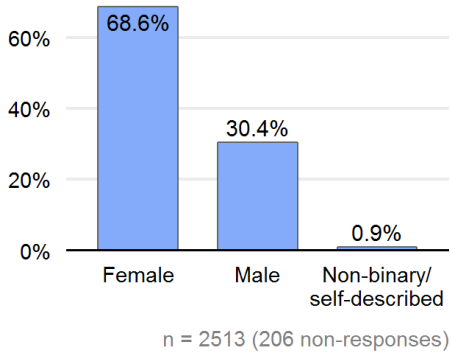

Figure 2-4. Gender distribution

Staff respondents were most likely to be female, and members of faculty were most likely to be male (Table 2-1).

Table 2-1. Gender distribution by group

	Female	Male	Non-binary/self-described
Student	67.5%	31.6%	1.0%
Faculty	60.7%	38.2%	1.1%
Staff	75.5%	23.8%	0.8%

2.2.2. Age

Most respondents are between 20 to 24 years of age (Figure 2-5). While this is consistent with the most common age of student respondents, faculty and staff tend to be between the ages of 35 and 44 (Table 2-2. Age distribution by group There is a small percentage of respondents 65 or older, most of whom are faculty members.

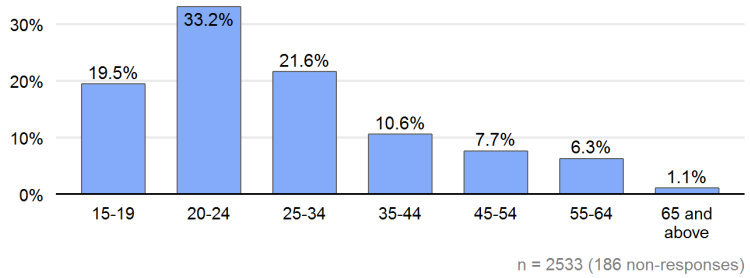

Figure 2-5. Age distribution

Table 2-2. Age distribution by group

	15-19	20-24	25-34	35-44	45-54	55-64	65 and above
Student	27.6%	44.8%	23.3%	3.2%	0.7%	0.2%	0.3%
Faculty	0.0%	0.0%	11.2%	30.7%	26.8%	23.5%	7.8%
Staff	0.0%	5.4%	18.5%	28.5%	24.8%	21.3%	1.5%

2.2.3. Household income

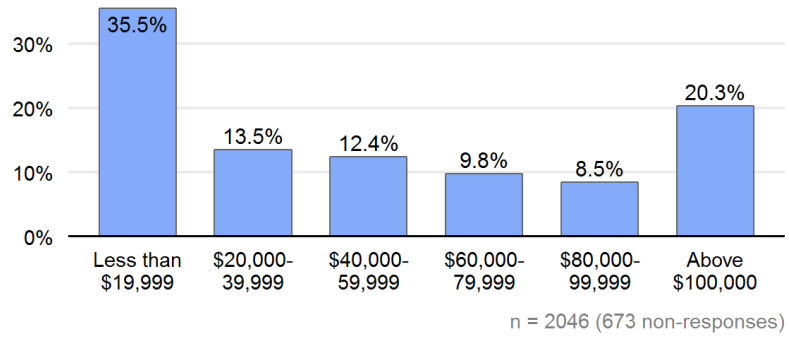

Figure 2-6. Annual household income distribution

The most common household income among respondents is less than $20,000. Table 2-3 shows that over 50% of students earn less than $20,000 annually. Meanwhile, this is reversed for faculty as almost three fourths of the faculty respondents' annual household incomes are above $100,000. The household income for staff varies, however many staff households also earn above $100,000.

Table 2-3. Annual household income by group

	Less than $19,999	$20,000-39,999	$40,000-59,999	$60,000-79,999	$80,000-99,999	Above $100,000
Student	51.10%	16.30%	9.20%	7.70%	6.10%	9.60%
Faculty	0.60%	2.50%	4.90%	6.80%	10.50%	74.70%
Staff	1.30%	9.30%	23.60%	17.10%	15.40%	33.20%

2.3. Home location

Figure 2-7 shows respondents' home locations based on their postal codes. Respondent locations tend to cluster near campus locations. Typically, people who attend Halifax campuses live closer to Halifax, and those who attend the Agricultural Campus live closer to Truro. Respondents who live further away may have given a permanent address.

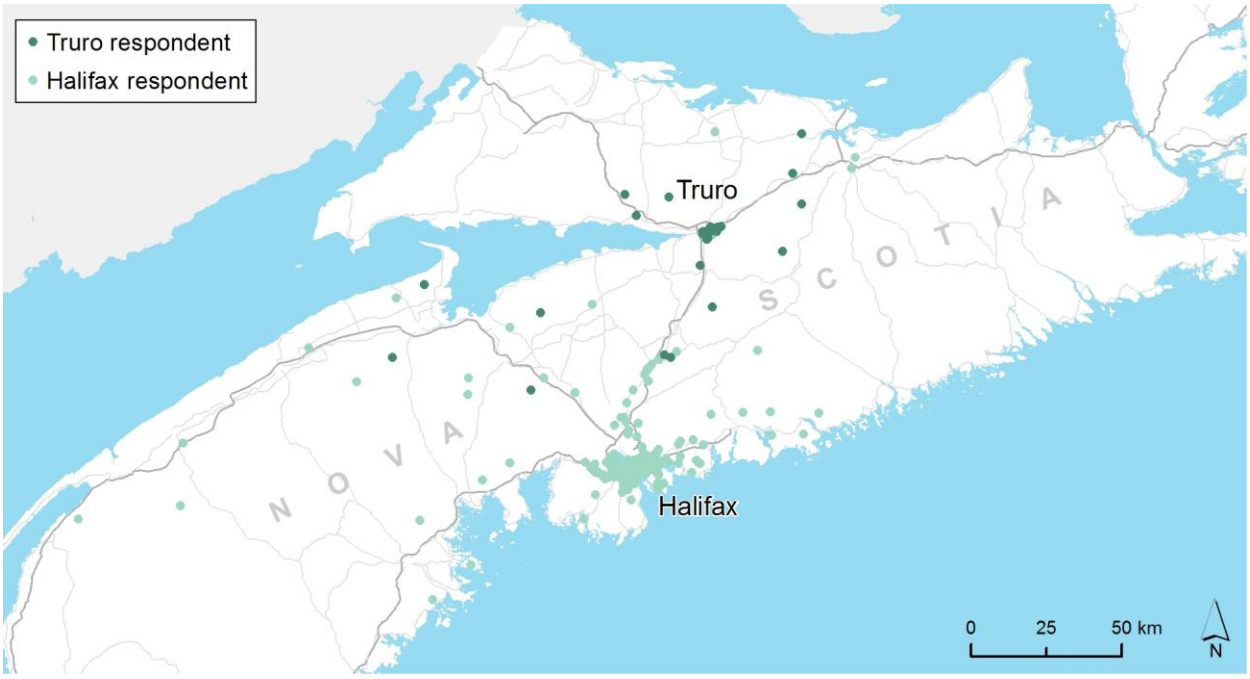

Figure 2-7. Respondents' home locations

Figure 2-8 shows the density of respondents in the Truro area. Many respondents live in Bible Hill, a village just north east of the Agricultural campus. Additionally, a high proportion of respondents live in the residential areas of Truro's downtown. This is relatively similar to the respondent density reported in the 2017-2018 Commuter Survey; however, this year there were fewer respondents living just outside of Truro (e.g. no respondents from Lower Truro, Onslow or Harmony).

A similar situation is seen with Dalhousie's Halifax Campuses (Studley, Carleton and Sexton). Figure 2-9 shows that many respondents live near the campuses on the South End of the peninsula. Respondents tend to live in areas with higher-density housing options, which is why areas around the Halifax Forum in the North End also have a high respondent density. As you move farther from the peninsula, this density lowers. For example, suburban communities such as Bedford, Spryfield and Woodlawn have fewer responses, indicating that few Dalhousie community members live in these communities.

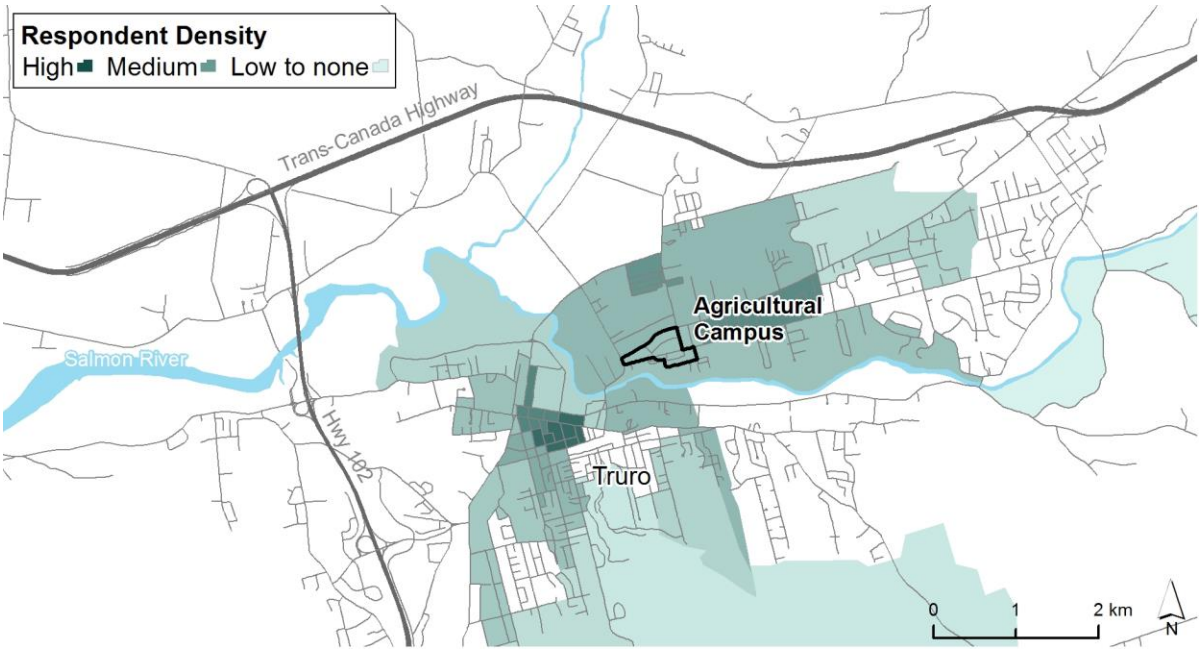

Figure 2-8. Density of Agricultural campus respondents in Truro area.

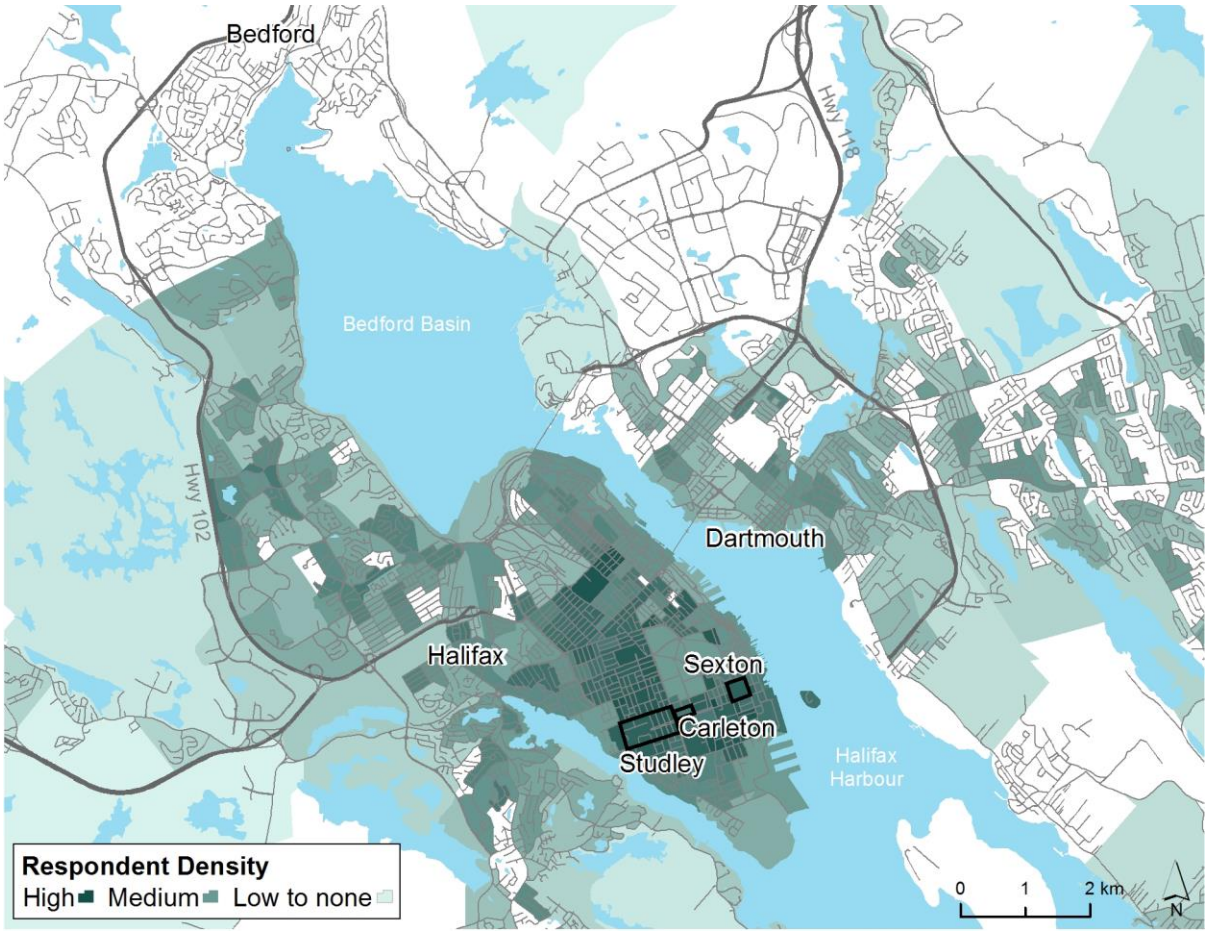

Figure 2-9. Density of Halifax campus respondents in Halifax area

2.4. Vehicle and Bicycle Access

This section presents statistics on Dalhousie community members' access to vehicles and bicycles. For questions in this section, respondents could select more than one option (e.g. own a car and belong to a car share program), so distributions may total more than 100%.

2.4.1. Vehicle

Just under half of survey respondents own a vehicle, while another quarter have access to one through a car share membership or by borrowing one (Figure 2-10). Table 2-4 shows that student access to vehicles varies widely, while most staff and faculty members own a vehicle. The proportion of people with a car share membership stayed constant from the 2017-2018 survey at 3%.

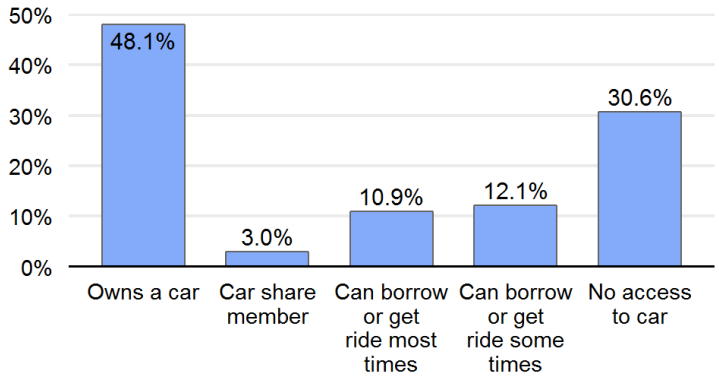

Figure 2-10. Vehicle access

Table 2-4. Vehicle access by group

	Owns a car	Member of a car sharing service	Can Borrow a car or get a ride most of the time	Can Borrow a car or get a ride some of the time	No access to a car
Student	34.1%	2.7%	13.4%	15.1%	39.9%
Faculty	84.9%	3.8%	3.2%	5.9%	5.9%
Staff	81.3%	3.5%	5.4%	4.5%	8.9%

2.4.2. Bicycle

Unlike vehicles, most respondents had no access to a bicycle (Figure 2-11). Faculty members and staff members are more likely to own a bike, while students are least likely (Table 2-5). The proportion of people who can borrow a bike is low for all groups—even lower than those who can borrow a car (Table 2-4). These numbers are consistent with the 2017-2018 Commuter Survey.

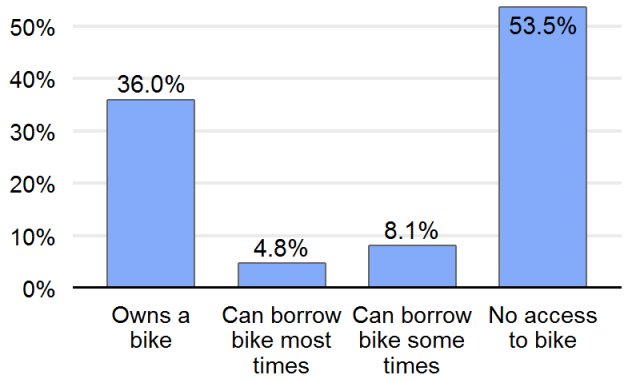

Figure 2-11. Bicycle access

Table 2-5. Bicycle access by group

	Owns a bike	Can borrow a bike most of the time	Can borrow a bike some of the time	No access to a bike
Student	28.3%	5.7%	9.9%	59.1%
Faculty	68.6%	2.7%	4.3%	24.9%
Staff	49.6%	2.4%	3.0%	45.7%

2.5. Travel Spending

Most respondents spend $20 or less monthly on travel (Figure 2-12). For the survey, travel spending includes expenses such as gas and parking and does not include the costs of owning or maintaining a vehicle. A few respondents entered values of $1000 or more, which we believe were input mistakenly as yearly totals instead of monthly. For this reason, we divided values above $1000 by 12 in our analysis.

Students spend the least on average monthly travel expenses, while staff tend to spend the most (Figure 2-13). The median monthly expenditure per group is the same as the 2017-2018 Commuter Survey aside from students, who reported spending slightly more in monthly travel expenses this year.

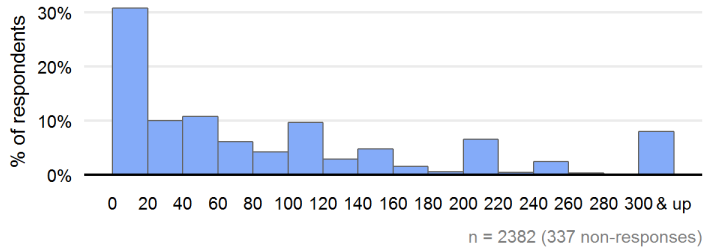

Figure 2-12. Average monthly travel spending ($)

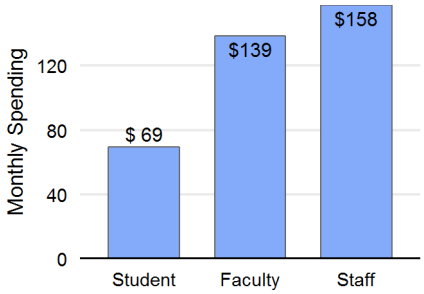

Figure 2-13. Average monthly travel spending by group

3. Commute to and from Dalhousie

The goal of the Commuter Survey is to record characteristics of trips taken by the Dalhousie community to and from campuses. This section explains elements of survey respondents' commutes, including mode choice, distance, duration and timing.

3.1. Primary mode

Primary mode is defined as the method of transportation used 70% or more of the time to get to and from campus. Figure 3-1 shows that walking is the most common mode of travel within the Dalhousie community, followed by public transit and then driving alone.

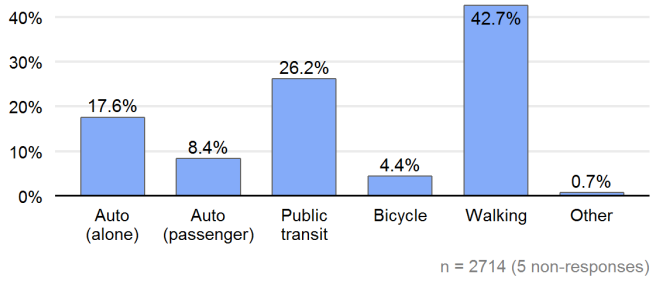

Figure 3-1. Primary commute mode

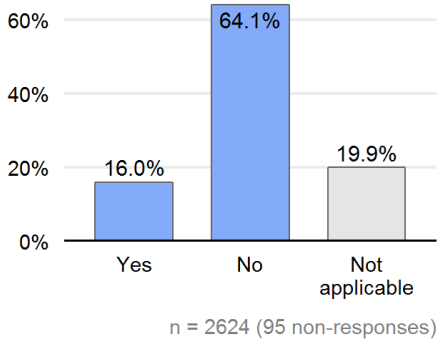

Figure 3-2. Different primary commute mode than last year

Table 3-1 breaks down primary commute mode by respondent group. Students are more likely to walk or take public transit to and from campus, while faculty and staff are more likely to drive. The proportion of commuters taking public transit in each group has increased since the last survey. Figure 3-2 explains that most respondents primary commute mode stayed similar to the previous year. Many respondents were new to campus and the question was not applicable to them.

Table 3-1. Primary commute mode by group

	Auto (alone)	Auto (passenger)	Public transit	Bicycle	Walking	Other
Student	11.0%	5.2%	28.5%	3.4%	51.5%	0.4%
Faculty	29.5%	12.4%	14.0%	14.0%	27.5%	2.6%
Staff	36.8%	18.0%	23.0%	4.4%	16.7%	1.1%

3.2. Secondary mode

Secondary mode of transportation is described as the method of transport used less than 30% of the time. The highest proportion of respondents stated that their secondary commute mode was public transit (Figure 3-3). The 2017-2018 Commuter Survey displayed a similar distribution; however, walking is slightly more popular as a secondary mode then last year.

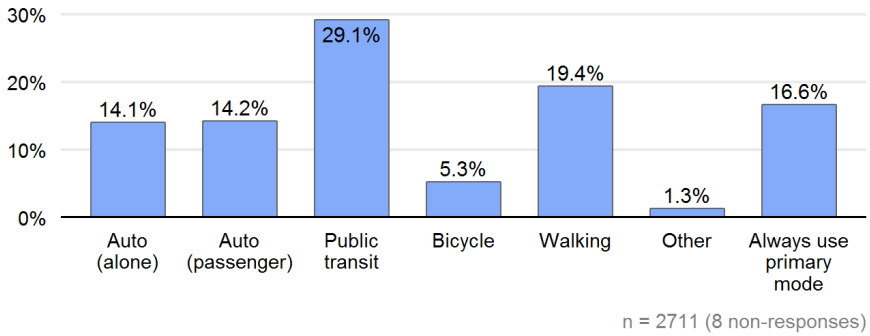

Figure 3-3. Secondary commute mode

Students are more likely to take public transit as their secondary mode, while faculty and staff are more likely to stick with their primary mode of transportation (Table 3-2).

Table 3-2. Secondary commute mode by group

	Auto (alone)	Auto (passenger)	Public transit	Bicycle	Walking	Other	Always use primary mode
Student	12.1%	13.8%	33.3%	5.0%	21.1%	1.2%	13.4%
Faculty	14.6%	18.2%	15.6%	9.9%	19.3%	0.0%	22.4%
Staff	20.1%	14.7%	18.0%	4.4%	14.2%	2.2%	26.5%

Table 3-3 compares respondents' secondary modes to their primary modes. It shows that respondents' secondary mode of transportation relies heavily on their primary mode. For example, people who drive alone to campus are less likely to have a backup transport option. Public transit is the favoured backup by respondents who primarily walk or drive as a passenger. Meanwhile, walking is the favoured means of transportation for those who primarily bike or take transit to campus.

Table 3-3. Secondary commute mode by primary mode

Primary \ Secondary	Auto (alone)	Auto (passenger)	Public transit	Bicycle	Walking	Other	Always use primary mode
Auto (alone)	12.6%	21.8%	18.5%	3.2%	13.2%	1.3%	29.4%
Auto (passenger)	27.3%	4.8%	38.3%	2.2%	11.9%	1.8%	13.7%
Public transit	19.7%	20.7%	3.1%	4.8%	44.2%	0.4%	7.0%
Bicycle	10.8%	5.0%	30.0%	3.3%	49.2%	0.8%	0.8%
Walking	8.8%	10.1%	47.8%	7.2%	5.0%	1.6%	19.4%

3.3. Commute distance

Commute distance was calculated by finding the shortest driving distance between respondents' home postal codes and their primary campus. The median respondent commute distance is 2.5 km. The median commute distance for respondents who walk to campus is 1.3 km, while for respondents who drive solo to campus it is 8.5 km. Staff tend to have the furthest commute, followed by faculty and students (Figure 3-4). The median commute distance for students is 2.0 km, 3.0 km for faculty, and 6.3 km for staff. Figure 3-5 shows that most respondents' commute distance is 4 km or less, however, a fair number of respondents travel 28 km or more to campus.

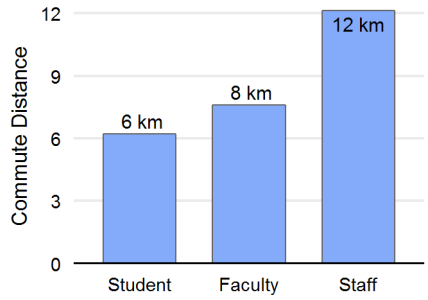

Figure 3-4. Average commute distance by group

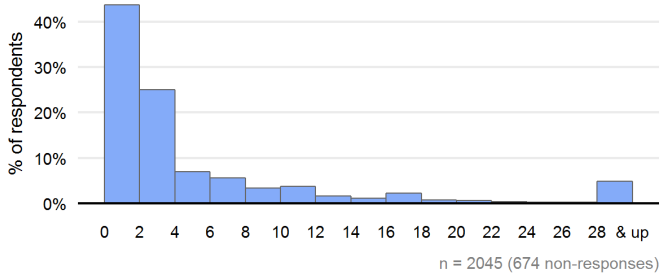

Figure 3-5. Distribution of commute distances

3.4. Commute duration

Respondents were asked to report the minimum and maximum amount of time that it took for them to commute to Dalhousie using their primary mode of transportation. Using their answers, averages were calculated to determine the average commute time (Figure 3-6). Most respondents' commute is between 5 and 20 minutes. The median commute duration is 17.5 minutes. On average, staff tend to have the longest commute, followed by faculty and students (Figure 3-7).

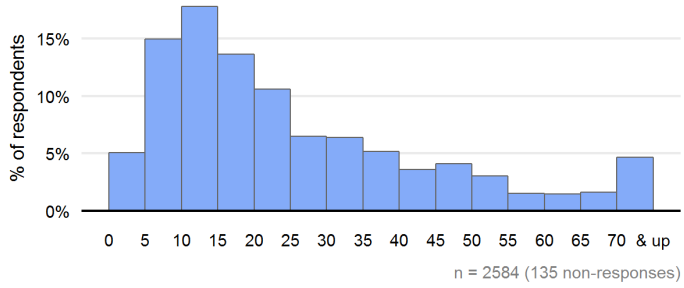

Figure 3-6. Distribution of commute duration for primary mode

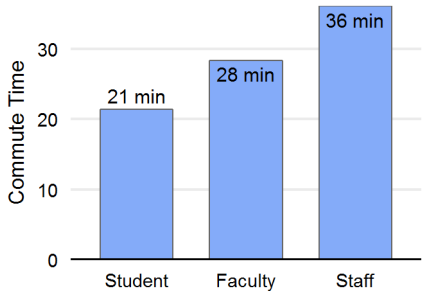

Figure 3-7. Average commute duration by group

Table 3-4 shows that out of all modes of transportation, auto drivers typically have the longest commute, often over 30 minutes. The majority of walkers and bikers commute for under 20 minutes.

Table 3-4. Average commute duration by commute mode

	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79
All	20.0%	31.4%	17.1%	11.5%	7.7%	4.5%	3.1%	4.6%
Auto (alone)	9.3%	17.7%	17.3%	20.6%	17.3%	8.2%	4.8%	4.8%
Auto (passenger)	5.0%	12.4%	23.4%	19.3%	19.3%	5.0%	4.1%	11.5%
Public transit	6.6%	24.5%	19.4%	15.4%	9.2%	9.2%	6.4%	9.5%
Bicycle	19.5%	53.4%	16.1%	7.6%	3.4%	0.0%	0.0%	0.0%
Walking	35.9%	43.3%	14.3%	4.1%	0.6%	0.5%	0.6%	0.8%

3.5. Arrival and departure time

Figure 3-8 shows that most respondents arrive on Dalhousie University campuses between 8:00 am and 10:00 am. Figure 3-9 shows that most respondents leave campus between 4:00 pm and 6:00 pm.

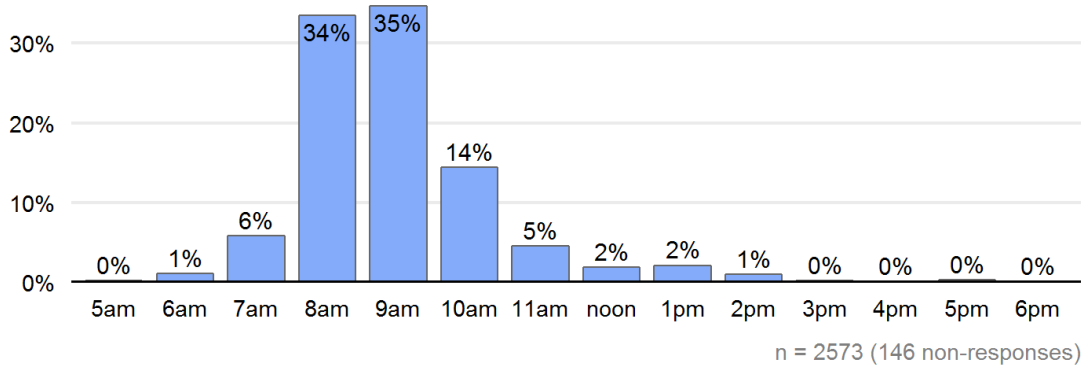

Figure 3-8. Distribution of arrival times

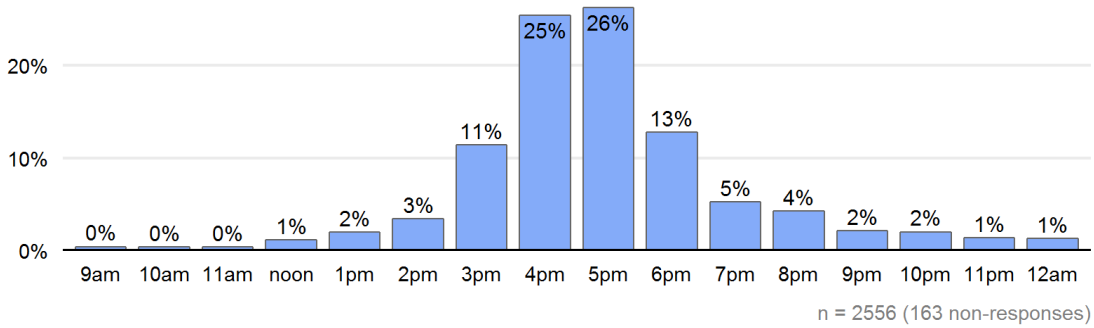

Figure 3-9. Distribution of departure times

4. Safety

The 2018-19 survey introduced several new questions regarding commuter safety and respondents' knowledge of safety policies. These were based on the respondent's primary mode of transportation.

4.1. Perception of commuter safety

Respondents' feelings of safety as a commuter vary depending on the situation. Most respondents answered that they sometimes feel unsafe as a commuter due to several factors including the behaviour of other road users (Table 4-1). Figure 4-1 and Figure 4-2 show people are more likely to feel unsafe when a vehicle driver is not following the rules of the road than when a cyclist is not.

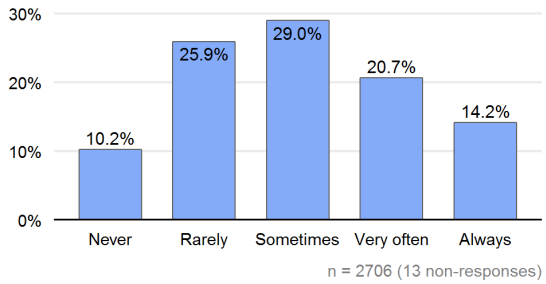

Figure 4-1. Cyclists not following the rules of the road make me feel unsafe as a commuter

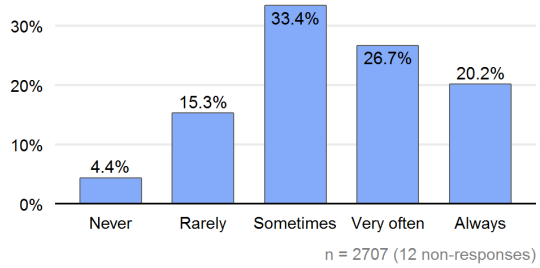

Figure 4-2. Vehicle drivers not following the rules of the road make me feel unsafe as a commuter

The survey described poor infrastructure on roads and sidewalks as a lack of bike lanes, narrow sidewalks or bad conditions and poor infrastructure. Respondents are more likely to very often or always feel unsafe when roads are in poor conditions than when sidewalks are in poor conditions (Figure 4-3 and Figure 4-4).

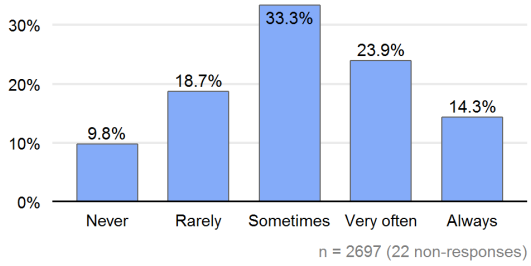

Figure 4-3. Poor infrastructure on roads makes me feel unsafe as a commuter

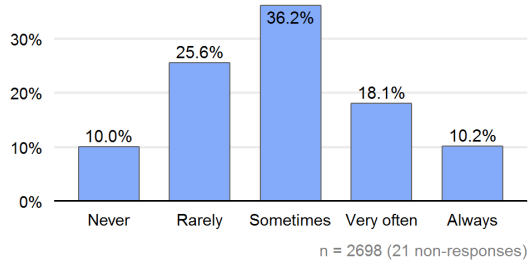

Figure 4-4. Poor infrastructure on sidewalks makes me feel unsafe as a commuter

Table 4-1. Do the following factors or behaviours make you feel unsafe as a commuter?

	Never	Rarely	Sometimes	Very often	Always
Another commuter shouting at you	31.9%	27.5%	17.1%	10.3%	13.2%
Cyclists on sidewalks	24.3%	28.2%	26.6%	13.4%	7.5%
Cyclists not following the rules of the road	10.2%	25.9%	29.0%	20.7%	14.2%
Vehicle drivers not following the rules of the road	4.4%	15.3%	33.4%	26.7%	20.2%
Pedestrians jaywalking	12.9%	26.2%	30.3%	19.4%	11.2%
Pedestrians looking at an electronic device while crossing the road	9.0%	18.8%	30.5%	25.0%	16.8%
Poor infrastructure on roads	9.8%	18.7%	33.3%	23.9%	14.3%
Poor infrastructure on sidewalks	10.0%	25.6%	36.2%	18.1%	10.2%
Ice, flooding, snow, etc. on the road or sidewalk	24.3%	28.2%	26.6%	13.4%	7.5%
Possibility of crime	19.2%	30.1%	25.5%	12.8%	12.4%
Travelling in the evening or at night	11.7%	21.0%	31.6%	21.3%	14.5%

4.2. Knowledge of transportation safety

The survey included questions to gauge respondents' knowledge of transportation safety regulations, with varied results. Most respondents knew that wearing a helmet is required while cycling in Nova Scotia (Figure 4-5), and almost all respondents agreed that it is illegal to use a cell phone and drive in the province (Figure 4-8). Respondents were less clear about whether every intersection is treated as a crosswalk (Figure 4-7), with under half correctly answering yes. About half of respondents think that it is unsafe for a car and cyclist to be side by side in the same lane (Figure 4 6).

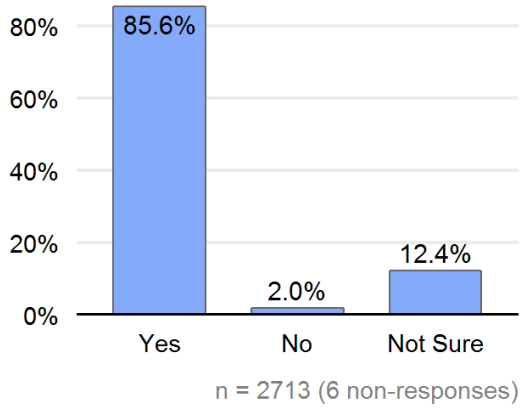

Figure 4-5. Wearing a bicycle helmet is required in Nova Scotia

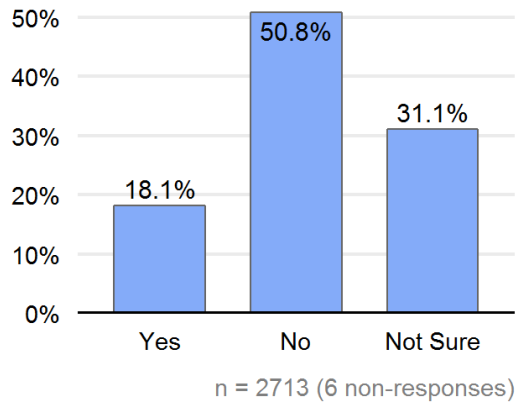

Figure 4-6. Is it safe for a car and a cyclist to be side by side in the same lane at an intersection?

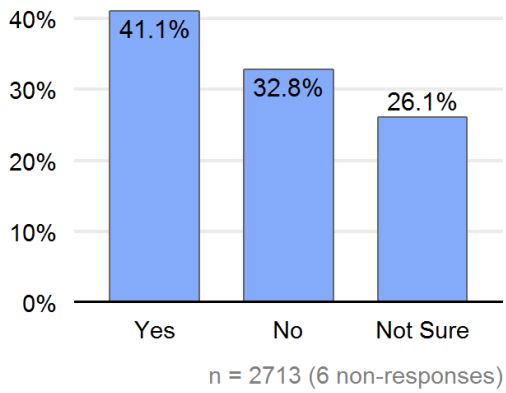

Figure 4-7. Every intersection is a crosswalk

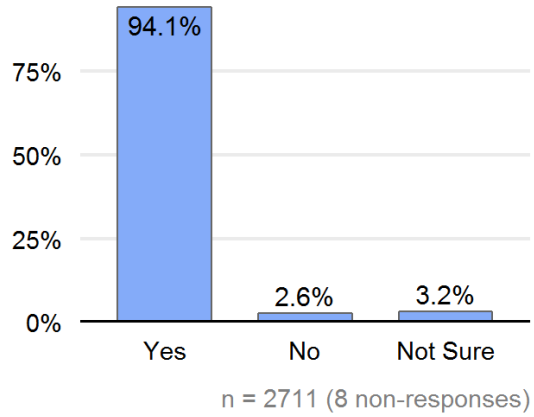

Figure 4-8. It is illegal to use a cell phone while driving in Nova Scotia

5. Intercampus Travel

Dalhousie University has several campuses located in Halifax, including Studley, Carleton, Sexton and off campus health facilities. Dalhousie's Agricultural campus is located in Truro. The Commuter Survey asked respondents questions regarding their travel between these campuses, breaking it down into inter-Halifax campus travel and Halifax-Truro travel.

Figure 2-3 depicts the primary campus for respondents. Studley Campus is the most common campus among respondents, followed by Carleton, and Sexton.

5.1. Travel among Halifax campuses

Most respondents travel among Halifax campuses; however, the frequency of these trips vary (Figure 5-1). Respondents who make these trips often do so at least once a week (Figure 5-1).

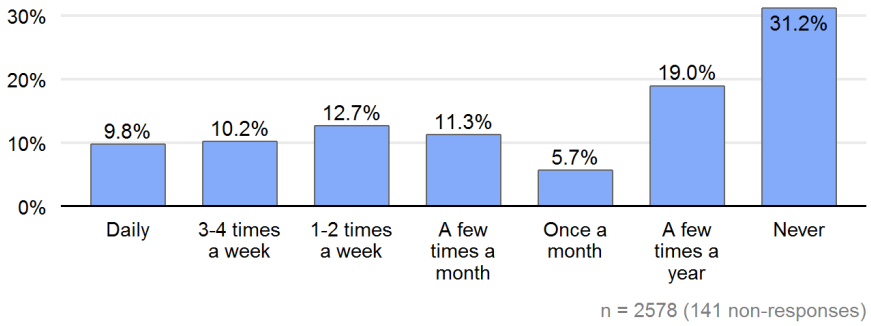

Figure 5-1. Travel frequency among Halifax campuses

Table 5-1 details that most respondent groups do travel among Halifax campuses with varying frequency. Almost the same proportion of students either never travel between Halifax campuses or travel between these campuses once or more every week. Just under half of the faculty members travel between Halifax campuses a few times a year or less. Most staff members travelled among Halifax campuses at least once a year.

Table 5-1. Travel frequency among Halifax campuses by group

	Daily	3-4 times a week	1-2 times a week	A few times a month	Once a month	A few times a year	Never
Student	11.8%	12.0%	12.9%	8.5%	4.6%	14.2%	36.0%
Faculty	4.2%	8.5%	12.7%	16.9%	9.0%	24.3%	24.3%
Staff	5.2%	4.8%	11.8%	18.7%	8.1%	33.5%	17.9%

The Dalhousie University Halifax campuses are within a few kilometers of each other, thus most intercampus travel is done by walking (Figure 5-2). This is consistent with the 2017-2018 Commuter Survey.

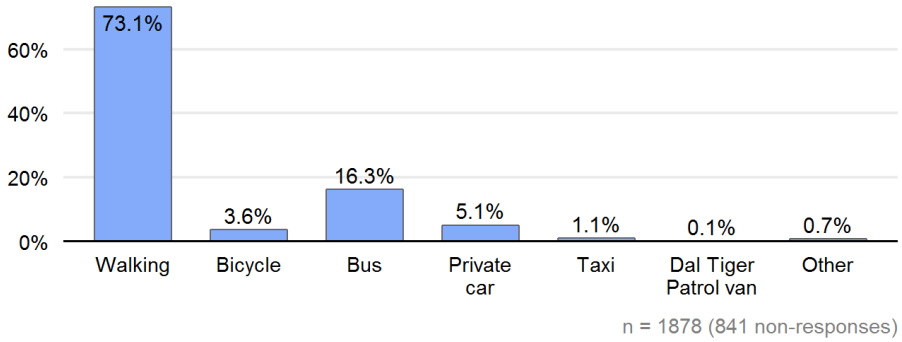

Figure 5-2. Primary travel mode between Halifax campuses

5.2. Travel between Halifax an Agricultural campuses

The majority of respondents do not travel between Dalhousie's Halifax and Truro campuses (Figure 5-3). Those that do, rarely do.

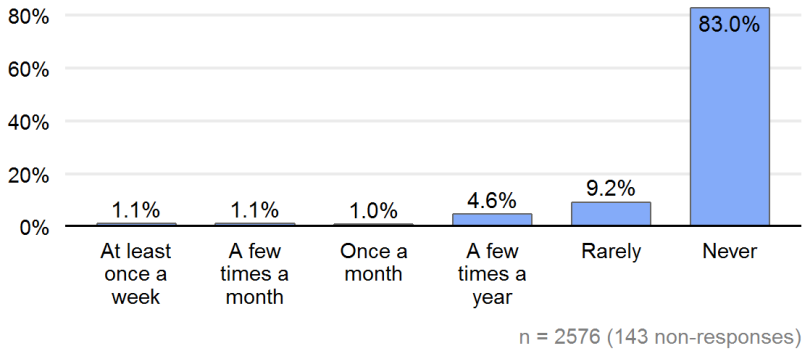

Figure 5-3. Travel frequency between Halifax and Truro campuses

Staff are most likely to travel between Halifax and Truro campuses, while students are least likely (Table 5-2).

Table 5-2. Travel frequency between Halifax and Truro campuses by group

	At least once a week	A few times a month	Once a month	A few times a year	Rarely	Never
Student	1.3%	1.1%	0.6%	2.0%	6.7%	88.4%
Faculty	0.5%	1.6%	0.0%	11.7%	16.0%	70.2%
Staff	0.6%	1.1%	2.8%	10.9%	15.7%	68.9%

Dalhousie's Halifax and Truro campuses are about 100 km apart, which impacts how people choose to travel between them. Just under half of respondents drive by themselves between campuses (Figure 5-4). Other respondents carpool or take the bus.

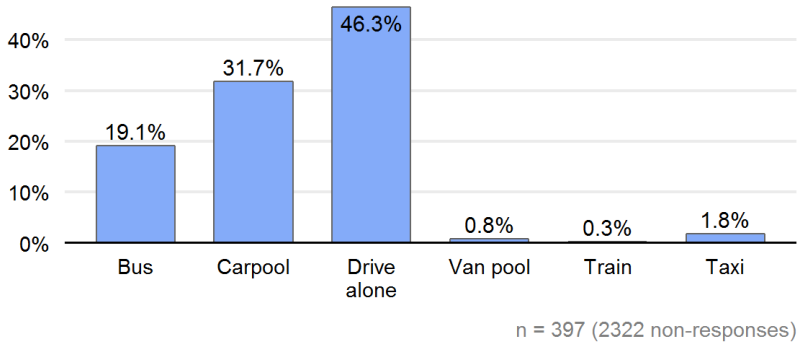

Figure 5-4. Primary travel mode between Halifax and Truro campuses

Students are more likely to take the bus as their primary mode of travel between campuses (Table 5-3). Almost three quarters of faculty members who travel between Halifax and Truro campuses use a car by themselves as their primary mode of travel. Staff members are likely to drive alone or carpool when travelling between campuses (Table 5-3).

Table 5-3. Primary travel mode between Halifax and Truro campuses by group

	Bus	Carpool	Drive alone	Van pool	Train	Taxi
Student	36.7%	26.1%	32.2%	1.1%	0.6%	3.3%
Faculty	1.8%	25.5%	70.9%	0.0%	0.0%	1.8%
Staff	5.7%	41.1%	52.5%	0.6%	0.0%	0.0%

6. Comparison by Campus

Dalhousie's campuses have geographic and demographic differences which are reflected in the commuting habits of people who attend those campuses. This section breaks down commuting characteristics (ownership, mode, distance, and duration) by campus. The Halifax campuses are most similar but have some differences which will be explored below. The Agricultural campus and the university's health facilities display divergent commuting patterns.

6.1. Vehicle and bicycle access

Figure 6-1 details how many respondents own a vehicle based on the campus they attend. Studley and Sexton campuses show a similar pattern of vehicle ownership, as most of the respondents who attend these campuses do not own a car. Most likely because it is situated in Truro (a smaller town with no transit system), the Agricultural campus has a higher rate of vehicle ownership. Dalhousie's health facilities have the highest rate of car ownership, potentially due to the substantially older student population.

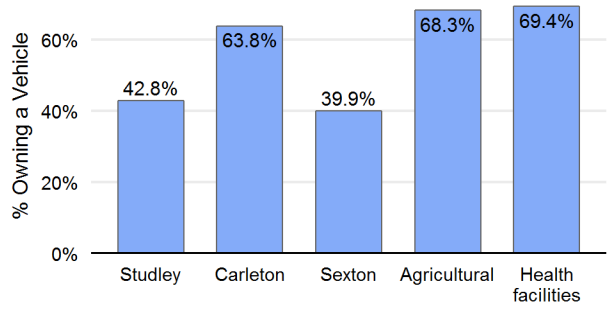

Figure 6-1. Vehicle ownership by campus

Figure 6-2 shows that respondents from health facilities are the most likely to own a bicycle. The 2017-2018 Commuter Survey showed a similar trend.

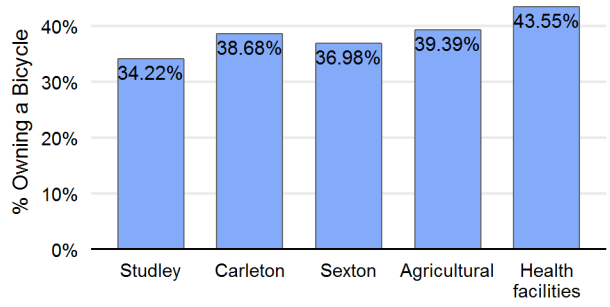

Figure 6-2. Bicycle ownership by campus

6.2. Commute mode

The primary commute modes among Halifax campuses are walking, public transit and driving. Like the 2017-2018 Commuter Survey, Sexton campus has the highest levels of public transit use, possibly due to its downtown location and proximity to transit routes (Figure 6-3). The agricultural campus has the highest rates of auto use.

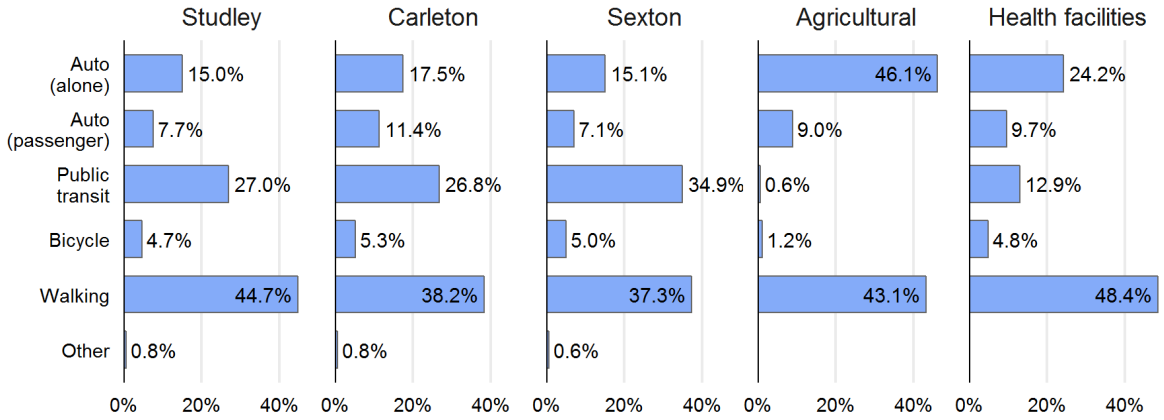

Figure 6-3. Primary commute mode by campus

6.3. Commute distance and duration

Respondents' commute distance varies by campus. Figure 6-4 shows that respondents who commute to the Agricultural campus have the longest average commute by far. Figure 6-5 displays the average commute time of respondents to their campus. Most respondents have a similar commute time regardless of the campus they attend. Respondents attending the Agriculture campus have longer commute distances but one of the shortest average commute times due primarily to much higher rates of travelling by auto.

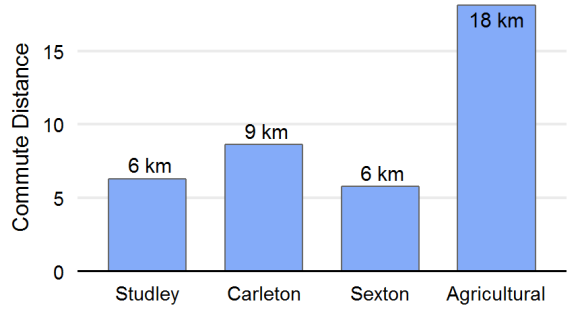

Figure 6-4. Average commute distance by campus

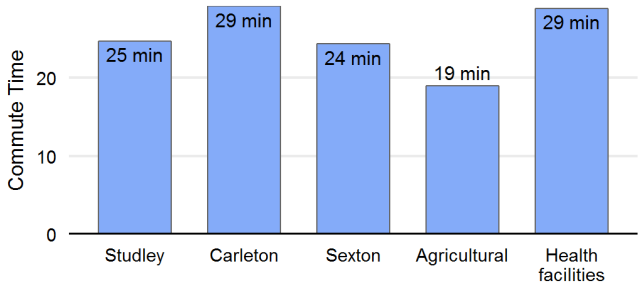

Figure 6-5. Average commute time by campus

7. Comparison by Year

This section explores the trends in commuter behaviour over the years since Dalhousie began the commuter survey. Here, we use 2012 to refer to the survey for the 2012-13 academic year. Since the survey does not take a random sample and the relative proportions of different groups varies, year-to-year variation may be due to sample composition rather than underlying trends. Small subsamples (e.g. respondents from campuses other than Studley) likely have greater sample variation. The 2010 sample was smaller than usual, which helps explain inconsistent results from that year.

7.1. Commute mode

Respondents' primary mode choices have remained stable over time (Figure 7-1). The increase in walking and transit is likely due to the increase in student survey respondents. In comparison to the 2017-2018 survey, the likelihood that a respondent would bike or carpool to campus has decreased.

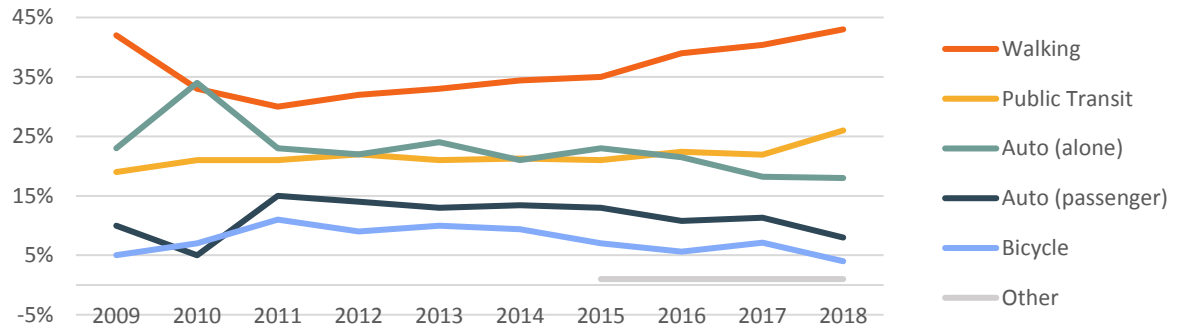

Figure 7-1. Primary commute mode by year

Figure 7-2 details that for almost every survey year, 50% or more of student respondents walk as their primary commute mode. Public transit has also always been popular among students.

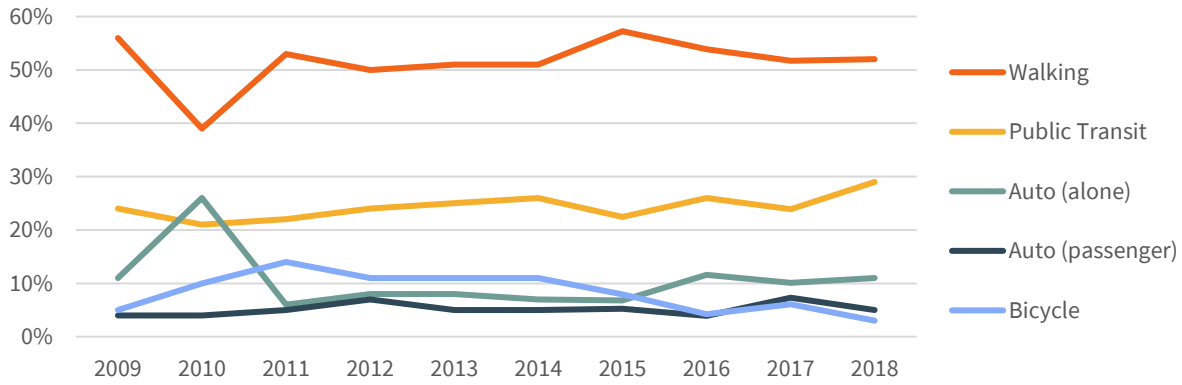

Figure 7-2. Student primary commute mode by year

Faculty and staff tend to drive solo as their primary commute mode (Figure 7-3). Auto passenger, public transit and walking historically see similar levels of use, while cycling is less popular.

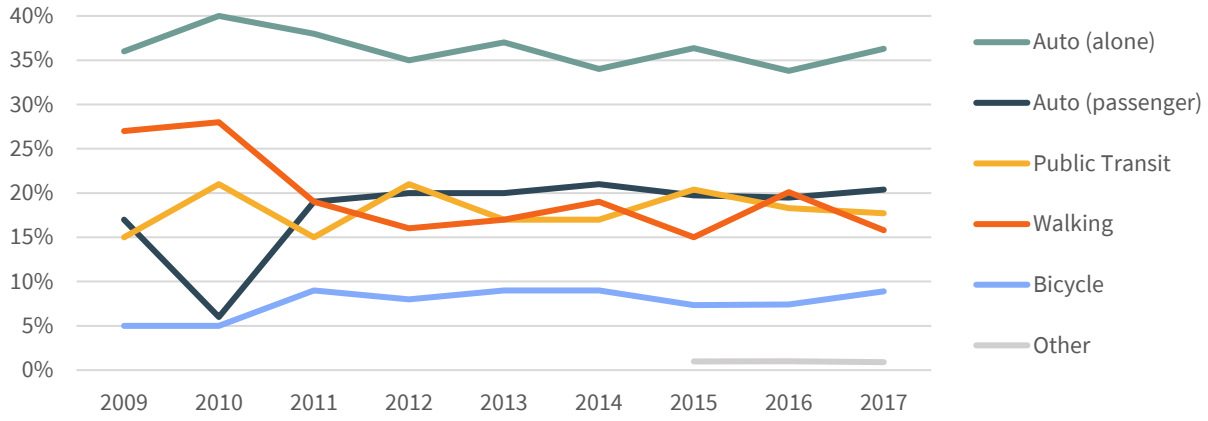

Figure 7-3. Faculty and staff primary commute mode by year

7.2. Commute distance and duration

The distribution of respondents' average commute times has remained reasonably stable throughout the last surveys (Figure 7-4). The most common commutes have always taken between 11 to 20 minutes. Most commute times for the 2018-2019 Commuter Survey were within a 5% range of the 2017-2018 Survey, other than a commute time of 10 minutes or less, which dropped by 6%.

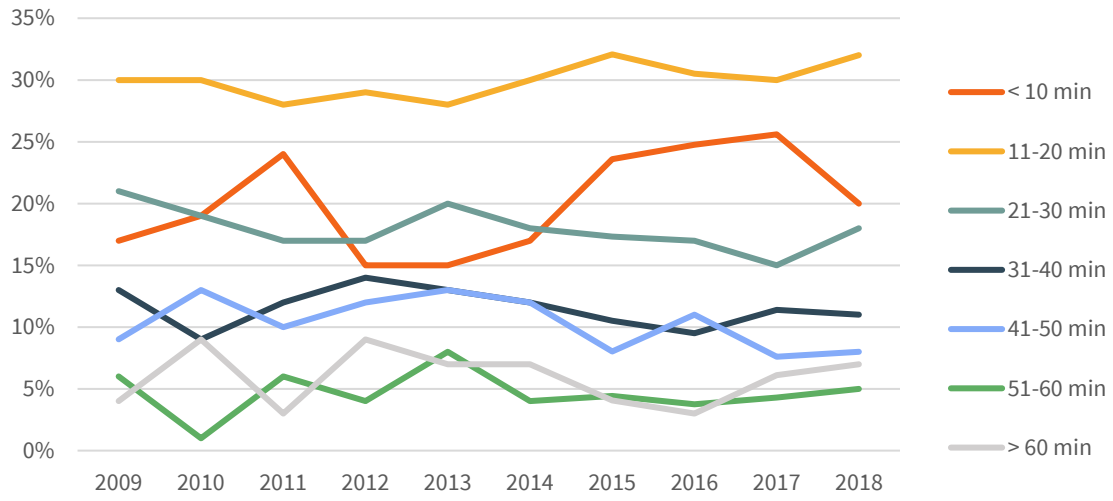

Figure 7-4. Proportion of respondents with given average commute time by year

Figure 7-5 shows that staff members' commute distances have been higher than other respondent groups for the past seven years, followed by faculty and then students. This is likely a result of students' tendency to live closer to campuses. Compared to the 2017-2018 Commuter Survey, the average commute distances for each group dropped by at least one kilometre.

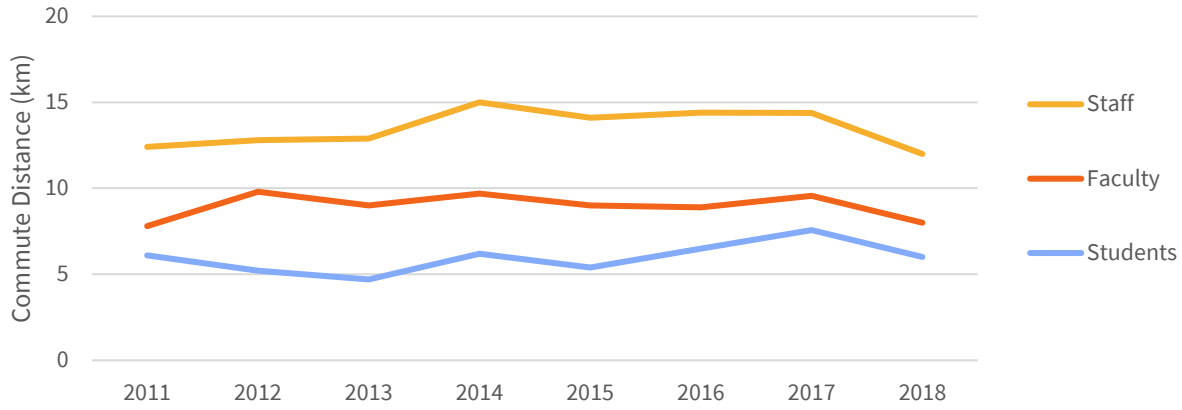

Figure 7-5. Average commute distance by year and group (km)

8. Sustainability

The data included in this report is from the Annual Sustainability and Transportation Survey administered by the Office of Sustainability. This year, DalTRAC has decided to include sustainability questions from the survey in this report. This section discusses how important sustainability and sustainability initiatives are to the survey respondents.

8.1. Campus sustainability

Overall, most respondents believe campus sustainability is crucial. Over two thirds of respondents think that sustainability should be a campus-wide goal (Figure 8-1), and more than half of respondents believe its very important that Dalhousie is an innovator in the field of green building (Figure 8-2).

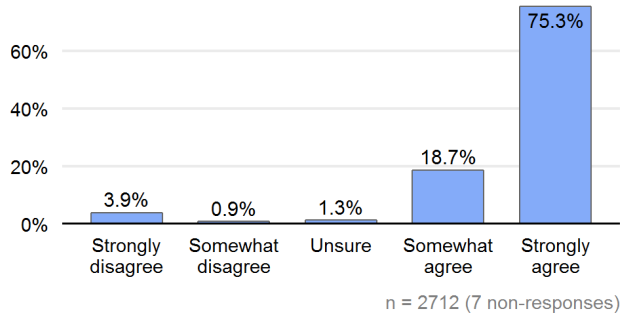

Figure 8-1. Should sustainability be a campus-wide goal?

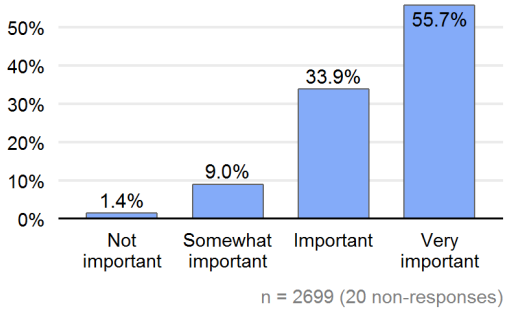

Figure 8-2. Importance of Dalhousie as an innovator in green building

Table 8-1 displays how important sustainability initiatives are to the respondents. Three fifths of respondents found climate change to be very important. Climate change had the highest rating of importance out of all the questions, and procurement had the lowest.

Table 8-1. Importance of sustainability initiatives

	Not important	Somewhat important	Moderately important	Important	Very important
Built environment	1.5%	4.6%	21.3%	42.3%	30.2%
Climate change	1.9%	2.9%	8.6%	26.5%	60.0%
Food security	1.8%	4.4%	13.3%	35.1%	45.3%
Natural environment	1.4%	3.1%	10.3%	34.6%	50.7%
Procurement	3.0%	8.8%	32.7%	36.1%	19.3%
Transportation	1.6%	6.1%	15.3%	35.1%	41.8%
Waste	1.6%	2.8%	9.7%	33.4%	52.6%

9. Conclusion

The 2018-2019 Dalhousie University Commuter Survey continues to engage approximately 3000 staff, faculty and students annually across Dalhousie's four campuses and off-campus health facilities. In addition to successfully representing the Dalhousie student population, this survey brought in focus the importance of sustainability and the feelings of safety among Dalhousie commuters.

Conclusions from this year's survey:

- The primary commute modes of Dalhousie community members are walking and public transit.
- A respondent's role at the university influences their commuting characteristics. For example, students tend to live closer to campus and are more likely to walk or take public transit than staff or faculty members.
- Most respondents from Halifax campuses rely on public transit as their secondary travel mode. This is true for all commuters except auto drivers, who likely see their primary option as reliable enough not to require a back up option.
- The feelings of safety among commuters varies greatly and depends on the situation. Most commuters sometimes feel unsafe in commuting situations.
- Respondents who attend Halifax campuses are likely to make a trip between campuses at least once a year. Respondents are unlikely to make trips between the Halifax and Truro campuses.
- Respondents who attend the Agricultural campus have limited access to public transit and therefore have different commuting habits than those who attend the Halifax campuses. Agricultural campus respondents are more likely to drive or live within walking distance of campus.
- Sustainability on campus is important to Dalhousie community members, with climate change being the primary concern.

The commuter survey is an integral part of Dalhousie's efforts to monitor its commitment to sustainability. It is an opportunity to annually check in with its community members and their transportation choices. The survey provides evidence to inform future transportation plans and policies. This report shows that there is room for improvement; however, overall it shows that the University has seen an increase in sustainable transportation choices being made among its community.

Appendix A. Comparison of Secondary and Combined Modes by Year

Contents:

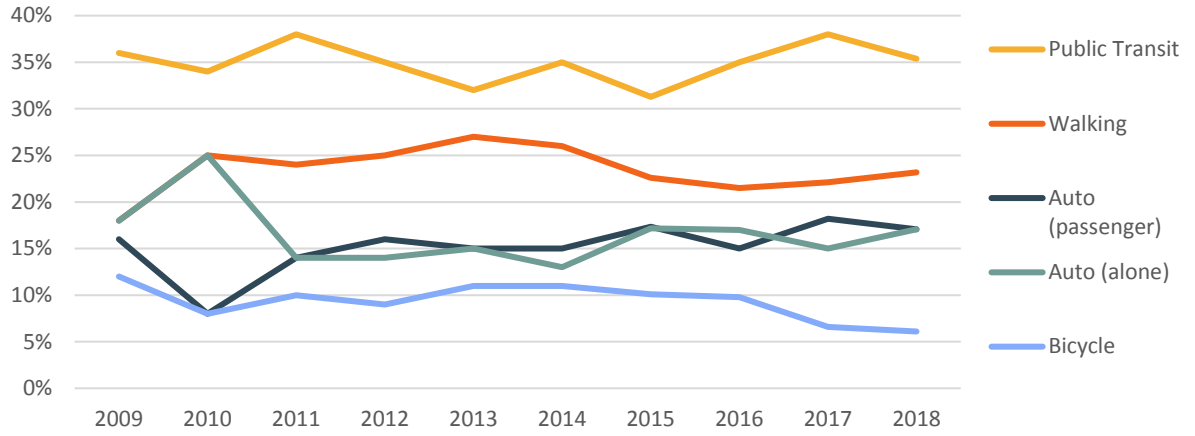

Figure A-1. Secondary mode (2009-2018)

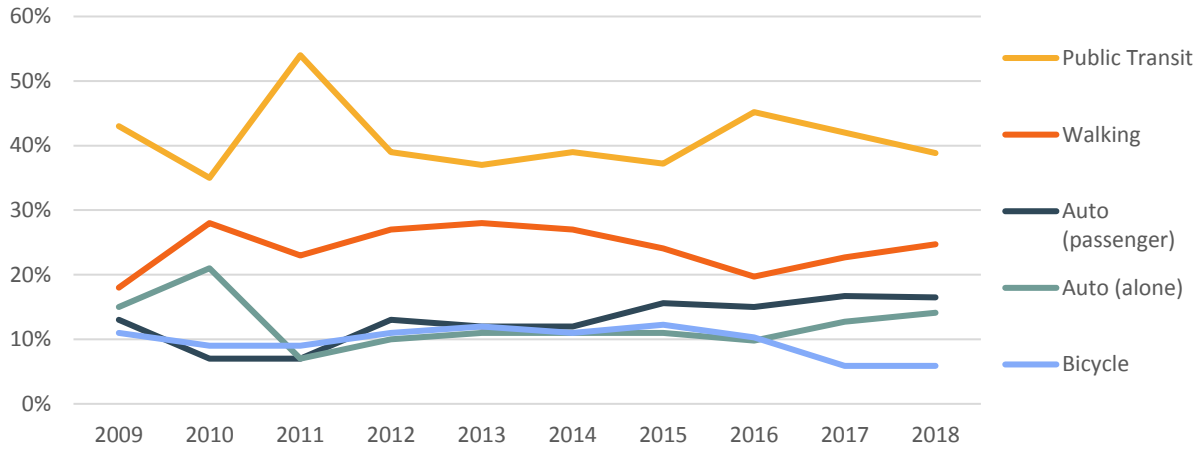

Figure A-2. Secondary mode of students (2009-2018)

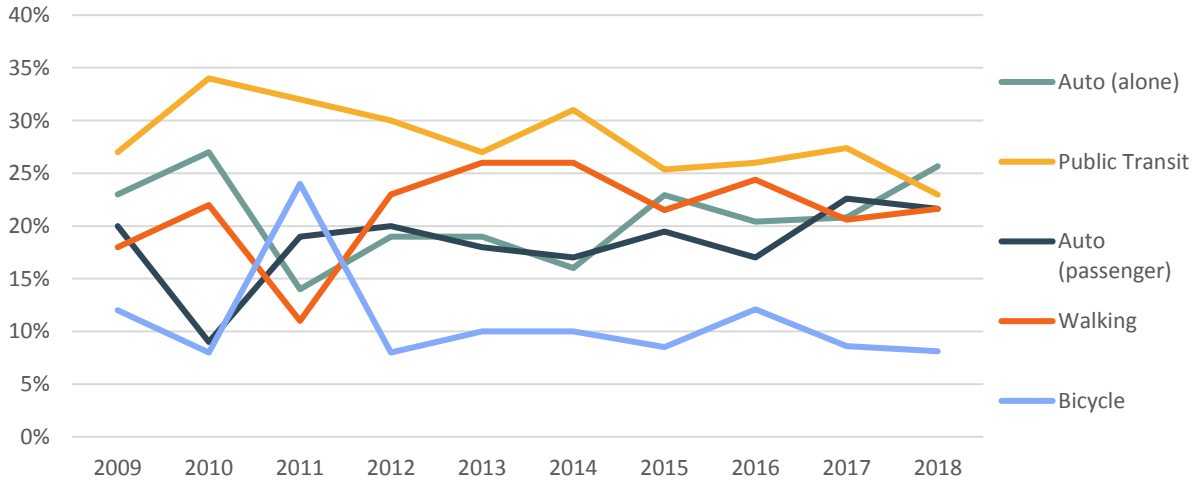

Figure A-3. Secondary mode of staff and faculty (2009-2018)

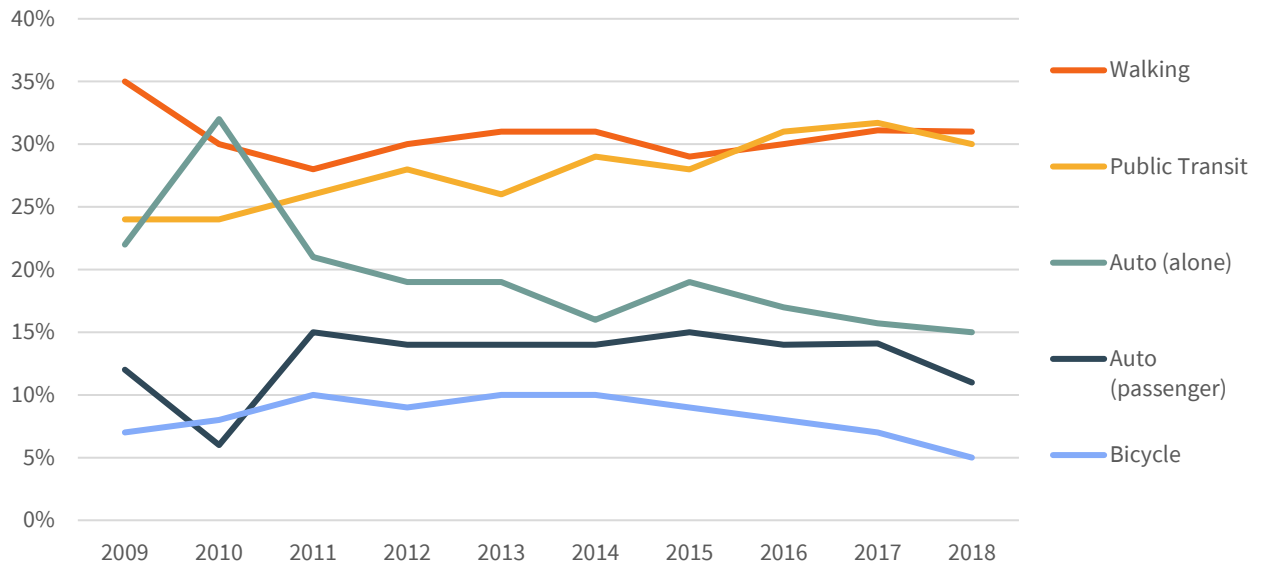

Figure A-4. Combined mode of Halifax Campuses (2009-2018)

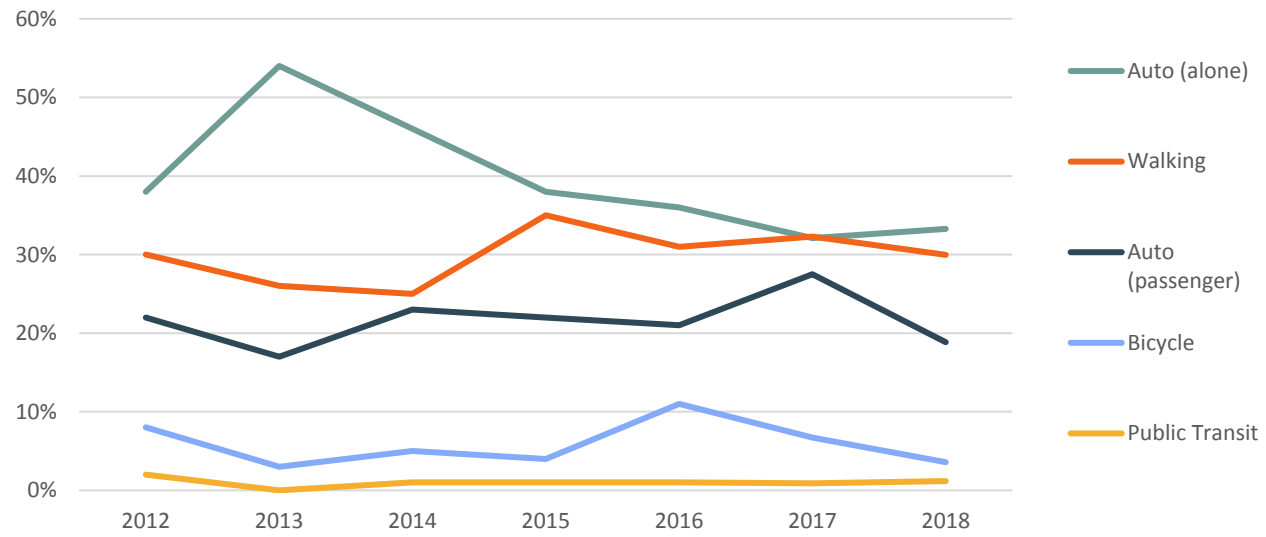

Figure A-5. Combined mode of Agriculture Campus (2012-2018)

Appendix B. Summary of 2018-2019 Survey Data

Contents:

Question	n (total 2928)	% of total
1. Which of these groups do you currently belong to?		
Students	1938	66.19
Faculty	193	6.69
Staff	554	18.92
Alumni	23	0.79
Other	11	0.38
Total	2719	92.86
Not answered	209	7.14
2. Environmental sustainability should be a campus-wide goal.		
Strongly disagree	106	3.62
Somewhat disagree	24	0.82
Unsure	34	1.16
Somewhat agree	506	17.28
Strongly agree	2042	69.74
Total	2712	92.62
Not answered	216	7.38
3. What is your primary mode of transportation (70% of the time or more) for your daily commute to campus throughout the year?		
Automobile - Drive alone	478	16.33
Automobile - Passenger (including carpooling)	227	7.75
Public transit (including ferry services)	711	24.28
Bicycle	120	4..10
Walking	1169	39.58
Skateboard/longboard	2	0.07
Other (e.g. motorcycle, electric scooter)	17	0.58
Total	2714	92.69
Not answered	214	7.31
4. What is your secondary mode of transportation (less than 30% of the time) for your daily commute to campus?		
Automobile - Drive alone	381	13.01
Automobile - Passenger (including carpooling)	385	13.15
Public transit (including ferry services)	790	26.98
Van pool	2	0.07
Bicycle	143	4.88
Walking	526	17.96
Skateboard/longboard	18	0.61
Not applicable - Always use the primary mode	451	15.4
Other (e.g. motorcycle, electric scooter)	15	0.51
Total	2711	92.59
Not answered	217	7.41

5. Do the following behaviours make you feel unsafe as a commuter?

Vehicle drivers not following the rules of the road (cutting off other commuters, going through stop signs, etc.)		
Never	120	4.10
Rarely	416	14.17
Sometimes	903	30.84
Very often	722	24.66
Always	547	18.68
Total	2707	92.45
Not answered	221	7.55
Cyclists not following the rules of the road (cutting off other commuters, going through stop signs, etc.)		
Never	277	9.46
Rarely	702	23.98
Sometimes	784	26.78
Very often	560	19.13
Always	383	13.08
Total	2706	92.42
Not answered	222	7.58
Pedestrians looking at an electronic device while crossing the road		
Never	243	8.30
Rarely	508	17.35
Sometimes	825	28.18
Very often	676	23.09
Always	456	15.57
Total	2708	92.49
Not answered	220	7.51
Pedestrians jaywalking (crossing in the middle of streets)		
Never	349	11.92
Rarely	707	24.15
Sometimes	818	27.94
Very often	524	17.90
Always	303	10.35
Total	2701	92.25
Not answered	227	7.75
Another commuter shouting at you		
Never	859	29.34
Rarely	739	25.24
Sometimes	459	15.68
Very often	276	9.43
Always	356	12.16
Total	2689	91.84
Not answered	239	8.16

Cyclists on sidewalks		
Never	653	22.30
Rarely	759	25.92
Sometimes	714	24.39
Very often	360	12.30
Always	203	6.93
Total	2689	91.84
Not answered	239	8.16

6. Do the following factors make you feel unsafe as a commuter?

Poor infrastructure on the roads (lack of bike lanes, condition, etc.)		
Never	264	9.02
Rarely	504	17.21
Sometimes	898	30.67
Very often	645	22.03
Always	386	13.18
Total	2697	92.11
Not answered	231	7.89
Poor infrastructure on sidewalks (narrow sidewalks, condition, etc.)		
Never	271	9.26
Rarely	690	23.57
Sometimes	976	33.33
Very often	487	16.63
Always	274	9.36
Total	2698	92.14
Not answered	230	7.86
Ice, flooding, snow etc. on the road or sidewalk		
Never	122	4.17
Rarely	379	12.94
Sometimes	1055	36.03
Very often	705	24.08
Always	428	14.62
Total	2689	91.84
Not answered	239	8.16
Travelling in the evening or at night		
Never	314	10.72
Rarely	564	19.26
Sometimes	850	29.03
Very often	573	19.57
Always	391	13.35
Total	2692	91.94
Not answered	236	8.06

Possibility of crime such as assault		
Never	517	17.66
Rarely	811	27.70
Sometimes	685	23.39
Very often	345	11.78
Always	333	11.37
Total	2691	91.91
Not answered	237	8.09

7. Please answer the following statements with yes, no, or not sure:

Wearing a bicycle helmet is required in Nova Scotia		
Yes	2321	79.27
No	55	1.88
Not Sure	337	11.51
Total	2713	92.66
Not answered	215	7.34
It is illegal to use a cell phone while driving in Nova Scotia		
Yes	2552	87.16
No	71	2.42
Not Sure	88	3.01
Total	2711	92.59
Not answered	217	7.41
Every intersection is a crosswalk		
Yes	1115	38.08
No	891	30.43
Not Sure	707	24.15
Total	2713	92.66
Not answered	215	7.34
Is it safe for a car and a cyclist to be side by side in the same lane at an intersection		
Yes	492	16.80
No	1377	47.03
Not Sure	844	28.83
Total	2713	92.66
Not answered	215	7.34

8. How important is it that Dalhousie is an innovator in the field of green building?

Not important	39	1.33
Somewhat important	243	8.30
Important	914	31.22
Very important	1503	51.33
Total	2699	92.18
Not answered	229	7.82

9. The Dalhousie Office of Sustainability works on a number of initiatives. Please rate the following based on how important they are to you:

Transportation		
Very important	1095	37.40
Important	920	31.42
Moderately important	402	13.73
Slightly important	161	5.50
Not important	42	1.43
Total	2620	89.48
Not answered	308	10.52
Built environment		
Very important	790	26.98
Important	1107	37.81
Moderately important	558	19.06
Slightly important	119	4.06
Not important	40	1.37
Total	2614	89.28
Not answered	314	10.72
Natural environment		
Very important	1321	45.12
Important	902	30.81
Moderately important	269	9.19
Slightly important	80	2.73
Not important	36	1.23
Total	2608	89.07
Not answered	320	10.93
Waste		
Very important	1376	46.99
Important	873	29.82
Moderately important	253	8.64
Slightly important	74	2.53
Not important	41	1.40
Total	2617	89.38
Not answered	311	10.62
Food		
Very important	1183	40.40
Important	917	31.32
Moderately important	347	11.85
Slightly important	116	3.96
Not important	48	1.64
Total	2611	89.17
Not answered	317	10.83

Procurement		
Very important	501	17.11
Important	936	31.97
Moderately important	847	28.93
Slightly important	229	7.82
Not important	77	2.63
Total	2590	88.46
Not answered	338	11.54
Energy & climate change		
Very important	1572	53.69
Important	693	23.67
Moderately important	226	7.72
Slightly important	76	2.60
Not important	51	1.74
Total	2618	89.41
Not answered	310	10.59

10. Do you use a different primary commute mode this year (in comparison to your primary commute mode in 2017-2018)?

Yes	419	14.31
No	1682	57.45
Not applicable (first year on campus)	523	17.86
Total	2624	89.62
Not answered	304	10.38

11. Considering all parts of your commute (from the time you leave your home until you arrive on campus) which of the following combination of modes do you use during a typical commute? (select all that apply)
*Note: percentages are individual and are not representative of total responses

Automobile – Drive alone	667	25.68
Automobile – Passenger (including carpooling)	417	16.06
Public transit (ferry, bus)	1034	39.82
Van pool	5	0.19
Bicycle	205	7.89
Walking (more than 10 minutes)	1582	60.92
Skateboard/longboard	19	0.73
Other (please specify)	105	4.04

12. How many minutes, on average, does it take to get from your home to Dalhousie when you use your primary mode of transportation? Please enter number only.

Minimum:		
0 - 17	1639	55.98
18 - 35	644	21.99
36 - 53	182	6.22
54 - 71	84	2.87
72 - 89	13	0.44

90 - 107	9	0.31
108 - 125	2	0.07
144 - 161	2	0.07
162 - 179	3	0.10
Total	2578	88.05
Not answered	350	11.95
Maximum:		
0 - 17	1447	49.42
18 - 35	663	22.64
36 - 53	301	10.28
54 - 71	98	3.35
72 - 89	40	1.37
90 - 107	3	0.10
108 - 125	5	0.17
144 - 161	1	0.03
162 - 179	1	0.03
Total	2559	87.40
Not answered	369	12.60

13. At what time, on average, do you arrive at Dalhousie? Please identify the time to the nearest hour.

01:00am	13	0.44
05:00am	5	0.17
06:00am	28	0.96
07:00am	140	4.78
08:00am	832	28.42
09:00am	867	29.61
10:00am	362	12.36
11:00am	117	4.00
12:00pm	47	1.61
01:00pm	42	1.43
02:00pm	25	0.85
03:00pm	5	0.17
04:00pm	2	0.07
05:00pm	9	0.31
06:00pm	2	0.07
07:00pm	10	0.34
08:00pm	30	1.02
09:00pm	26	0.89
10:00pm	9	0.31
12:00am	2	0.07
Total	2573	87.88
Not answered	355	12.12

14. At what time, on average, do you leave Dalhousie? Please identify the time to the nearest hour.

01:00am	3	0.10
02:00am	2	0.07
03:00am	26	0.89
04:00am	54	1.84
05:00am	78	2.66
06:00am	27	0.92
07:00am	5	0.17
08:00am	19	0.65
09:00am	11	0.38
10:00am	10	0.34
11:00am	10	0.34
12:00pm	29	0.99
01:00pm	48	1.64
02:00pm	85	2.90
03:00pm	265	9.05
04:00pm	595	20.32
05:00pm	593	20.25
06:00pm	299	10.21
07:00pm	130	4.44
08:00pm	90	3.07
09:00pm	55	1.88
10:00pm	52	1.78
11:00pm	36	1.23
12:00am	34	1.16
Total	2556	87.30
Not answered	372	12.70

15. How often do you travel between the Halifax campuses? (Carleton, Sexton, and Studley)

Daily	253	8.64
3-4 times a week	264	9.02
1-2 times a week	327	11.17
A few times a month	292	9.97
Once a month	147	5.02
A few times a year	490	16.73
Never	805	27.49
Total	2578	88.05
Not answered	350	11.95

16. What is your primary means of travel between Halifax campuses?

Walking	1373	46.89
Bicycle	68	2.32
Bus	306	10.45
Private car	96	3.28
Taxi	20	0.68
Dal Tiger Patrol van	1	0.03

Not applicable	692	23.63
Other (please specify)	14	0.48
Total	2570	87.77
Not answered	358	12.23

17. How often do you travel between the Halifax and Agricultural campuses?

Daily	9	0.31
3-4 times a week	10	0.34
1-2 times a week	9	0.31
A few times a month	29	0.99
Once a month	25	0.85
A few times a year	119	4.06
Rarely	238	8.13
Never	2137	72.98
Total	2576	87.98
Not answered	352	12.02

18. What is your primary means of travel between the Halifax and Agricultural campuses?

Bus	76	2.60
Carpool	126	4.30
Drive alone	184	6.28
Van Pool	3	0.10
Train	1	0.03
Taxi	7	0.24
Not applicable	2177	74.35
Total	2574	87.91
Not answered	354	12.09

20. Do you own or have access to a car? (Choose all that apply)
*Note: percentages are individual and are not representative of total responses

I own a car	1234	48.09
I am a member of a car sharing service	77	3.00
I can borrow a car or get a ride most times I need it	279	10.87
I can borrow a car or get a ride some of the time	311	12.12
I do not own or have access to a car	786	30.63

21. Do you own or have access to a bicycle? (Choose all that apply)
*Note: percentages are individual and are not representative of total responses

I own a bicycle	919	35.95
I can use or borrow a bicycle most times I need it	122	4.77
I can use or borrow a bicycle some of the times that I need it	206	8.06
I do not own or have access to a bicycle	1368	53.52

22. How much on average (in Canadian dollars) do you spend out-of-pocket on a monthly basis for transportation purposes (for gas, parking, etc.)? Costs of ownership or vehicle maintenance should not be included. Please enter a number only. Average:

0 - 699	2360	80.60
700 - 1399	15	0.51
1400 - 2099	2	0.07
2800 - 3499	2	0.07
4900 - 5599	1	0.03
5600 - 6299	1	0.03
6300 - 6999	1	0.03
Total	2382	81.35
Not answered	546	18.65

23. What is your age?

15-19	494	16.87
20-24	840	28.69
25-34	548	18.72
35-44	269	9.19
45-54	194	6.63
55-64	160	5.46
65 and above	28	0.96
Prefer not to say	15	0.51
Total	2548	87.02
Not answered	380	12.98

24. What is your gender?

Female	1725	58.91
Male	765	26.13
Non-binary/Third Gender	13	0.44
Prefer not to say	37	1.26
Prefer to self-describe	10	0.34
Total	2550	87.09
Not answered	378	12.91

25. What is your annual household income?

Less than $19,999	726	24.80
$20,000-39,999	277	9.46
$40,000-59,999	254	8.67
$60,000-79,999	200	6.83
$80,000-99,999	173	5.91
Above $100,000	416	14.21
Prefer not to say	504	17.21
Total	2550	87.09
Not answered	378	12.91

27. What is your primary campus?		
Studley	1546	52.80
Carleton	395	13.49
Sexton	338	11.54
Agricultural	167	5.70
Health facilities (off campus)	62	2.12
Other	42	1.43
Total	2550	87.09
Not answered	378	12.91

28. Are you a full-time or part-time staff, faculty, or student?		
Full-time	2359	80.57
Part-time	140	4.78
Other (please specify)	51	1.74
Total	2550	87.09
Not answered	378	12.91

29. What is your primary department and/or faculty?		
Ancillary Services	12	0.41
Athletics and Recreational Services	8	0.27
College of Continuing Education	15	0.51
College of Sustainability	19	0.65
Communications and Marketing	5	0.17
Dalhousie Arts Centre & Art Gallery	2	0.07
Dalhousie Libraries	45	1.54
Environmental Health and Safety	4	0.14
Facilities Management	70	2.39
Faculty of Agriculture	123	4.20
Faculty of Architecture and Planning	59	2.02
Faculty of Arts and Social Sciences	219	7.48
Faculty of Computer Science	137	4.68
Faculty of Dentistry	62	2.12
Faculty of Engineering	254	8.67
Faculty of Graduate Studies	85	2.90
Faculty of Health	288	9.84
Faculty of Law	62	2.12
Faculty of Management	179	6.11
Faculty of Medicine	178	6.08
Faculty of Science	488	16.67
Financial Services	23	0.79
Human Resources	11	0.38
Information Technology Services	34	1.16
Legal & Internal Audit Services	3	0.10
Office of Advancement	10	0.34
President's & Provost's Offices	11	0.38
Registrar's Office	23	0.79

Research Services	8	0.27
Student Services	24	0.82
University Food Services	2	0.07
Other	83	2.83
Total	2546	86.95
Not answered	382	13.05

30. How did you hear about this survey? (choose all that apply)
*Note: percentages are individual and are not representative of total responses

Faculty/departmental administrator	116	4.55
Office of sustainability website	18	0.71
LCD screen	12	0.47
Word of mouth	42	1.65
Direct email	2104	82.51
"Today at Dal"	99	3.88
"My Dal announcement"	131	5.14
Student society	29	1.14
Departmental newsletter	45	1.76
Facebook	74	2.90
Twitter	8	0.31
Other	54	2.12