OFFICE OF SUSTAINABILITY

2019 Commuter Habits Survey Summary Report

Contents

Executive Summary[1]

In September 2019, a voluntary survey was launched as part of a joint effort between the Office of Institutional Planning and Analysis and the Office of Sustainability at Concordia University.

A representative sample of students, faculty, and staff were invited to participate by email. Of the overall sample, 1718 respondents completed the survey, generating a response rate of 11.3%. The margin of error was established at ± 2.2% at the 95% confidence interval.

The results showed that the Concordia community commutes mainly by public transportation, followed by single occupancy automobiles, with walking /running and bicycling to campus both comprising the third largest category. The average emissions per person associated with the Concordia population is estimated as 0.46 kg CO_2E, resulting in university-wide emissions from commuting equal to 15,893.51 $mtCO_2E$ per year.

Based on these results, we recommend that the University dedicate more resources to supporting active transportation initiatives on both campuses and continue to prioritize more sustainable alternatives to single occupancy driving. As faculty and staff are associated with the highest emissions per person on both campuses, future sustainable transportation initiatives should focus on encouraging a modal shift among this population.

[1] *If you would like to obtain a copy of the full Commuter Habits Survey Report, please email sustainability@concordia.ca*

1. Respondent Characteristics

Table 1. Average age of respondents

University role	Average age
Students	26
Staff/Faculty	47

Table 2. Response rate by University role

University role	Survey Response Rates (%)
Undergraduate Students	43%
Graduate Students	13%
Staff Members	30%
Faculty Members	14%

Table 3. Transportation passes and memberships

Transportation Passes and Membership Types	Respondents (% of total)
Monthly transit pass on an Opus card (for Montreal only)	44%
Monthly transit pass on an Opus card (for Montreal and surrounding areas)	12%
A 12-month subscription to OPUS (Montreal only)	6%
A 12-month subscription to OPUS (Montreal and surrounding areas)	4%
A monthly or yearly membership with a car sharing company	4%
A Circuit Éléctrique Membership	0%
An Uber account (to rent power-assist Jump bikes)[2]	4%
A BIXI membership	5%
A Lime Access Membership[1]	1%
None	19%

Of respondents who indicated that they ever cycle to campus, 20% have a BIXI membership and 10% do not own their own bicycle.

[2] At the time of the 2019 Commuter Habits Survey in September, both Uber Jump Bikes and Lime scooters had only been launched several months previously. These and other electric scooter/cycling options may see higher or lower membership ratings in the future.

2. Commuter Habits

This section refers to all responses that describe the type of trip respondents take on their one-way commute from home to their primary Concordia campus in the Spring / Fall.

2.1 Travel Time and Distance

Table 4. Average travel time and distance for university community

University Role	Average Travel Times (minutes)	Average Distance Travelled (km)
Loyola Students	38	13.4
Loyola Staff / Faculty	34	12.5
SGW Students	28	11.3
SGW Staff / Faculty	25	12.4

2.2 Modal Share Spring / Fall

Respondents were asked to indicate their primary mode of transportation in Spring / Fall (the mode they most frequently use to commute to their primary Concordia campus). The table below reflects these primary modes of transportation only.

Table 5. Modal Share Spring / Fall 2019

Category	Mode	Loyola Campus		SGW Campus	
		Students	Staff / Faculty	Students	Staff / Faculty
Active Transportation		**13%**	**25%**	**17%**	**19%**
	Walking/Running	*7%*	*14%*	*8%*	*7%*
	Bicycling	*6%*	*11%*	*9%*	*12%*
Collective Transportation		**62%**	**29%**	**64%**	**56%**
	Public Transit	*54%*	*25%*	*63%*	*50%*
	Carpooling	*1%*	*2%*	*0%*	*3%*
	Concordia Shuttle	*7%*	*2%*	*1%*	*3%*
Motorized Vehicles		**7%**	**36%**	**5%**	**9%**
	Automobile (Single Occupancy)	*7%*	*34%*	*5%*	*9%*
	Car Sharing	*0%*	*1%*	*0%*	*0%*
	Motorcycle / Scooter	*0%*	*1%*	*0%*	*0%*
	Taxi / Uber	*0%*	*0%*	*0%*	*0%*
Multiple Modes		**18%**	**10%**	**14%**	**16%**

Overall, 26% of respondents indicated that they "ever" commute to Concordia by bicycle in Spring/Fall and 10% of respondents indicated that this is their primary mode of commuting.

Of those respondents who indicated that they experience accessibility barriers due to disability (2% of respondents) 46% commute by public transportation, and 23% commute by single occupancy automobile.

2.3 Factors influencing use of active transportation

This section refers to all responses that describe which factors encourage respondents to adopt an active mode of transportation. It also refers to the factors that would increase the frequency and/or likelihood that respondents would adopt a particular mode of transportation.

Table 6. Factors that would increase the likelihood and/or frequency of walking to campus (both campuses)

Factors for encouraging walking	**Total response rate**
Availability of free or discounted access to showers, lockers and/or changing rooms	22%
Increased access to pedestrian safety features (sidewalks, pedestrian cross lights, cross walks...)	19%
Better incentives to engage in active transportation	20%

Table 7. Factors that would increase the likelihood and/or frequency of cycling to campus (per campus)

Factors for encouraging cycling	**Loyola Campus**	**SGW Campus**
Availability of free or discounted access to showers, lockers and/or changing rooms	11.5%	12%
Access to a secure bike parking facility on campus	14%	13%
Increased availability of covered outdoor bike parking on campus	9%	8%
Availability of a free bicycle repair station on campus[3]	8%	7%
Safer bicycle paths / network	19%	5%
Availability of bicycle repair / safety workshops	4%	19%

Staff /Faculty in general are more interested in the availability of free or discounted access to showers, locker and/or changing rooms (14% compared to 10% of students).

Among all populations, there is a notable concern regarding safety when it comes to the adoption of active forms of transportation amongst survey respondents (for both walking and cycling). Implementation of a comprehensive bike partner matching system and the continued provision of safety workshops on an annual to semi-annual basis are potential solutions.

[3] On campus refers to the primary campus selected by the respondent as part of their survey response

There are a number of comments from both the 2017 and 2019 survey regarding interest in bringing bicycles into individual offices, where possible.

2.4 Factors influencing use of motorized transportation

This section refers to all responses that describe which factors that encourage respondents to adopt a motorized mode of transportation. It also refers to the factors that would increase the frequency and/or likelihood that respondents would adopt a more sustainable type of motorized transportation.

Single Occupancy Automobile

Table 8. Most important factors that influence the use of single occupancy vehicles

Factors influencing use of single use vehicles	Staff/Faculty	Students
Other modes of transit are not easily accessible from my home address	6%	10%
Faster than other modes of transportation	14%	19%
Flexible departure and arrival times	17%	20%
Have multiple destinations before, during and/or after commute	14%	7%

A review of the commentary from the commuter habits survey additionally indicated that a number of respondents choose to drive to campus because the cost of a public transportation pass for every member of their family would be more expensive than driving.

Hybrid / Electric Vehicles

Table 9. Factors that would increase the likelihood and/or frequency of driving a hybrid/electric vehicle to campus

Factors for encouraging electric/hybrid vehicles	Total response rate
Dedicated parking for hybrid / electric cars on both campuses	25%
Discounted Parking for hybrid / electric vehicles	24%

Overall, 7% of respondents indicated that they drive a hybrid / electric vehicle. A number of comments from the Commuter Habits Survey suggested prioritized parking for hybrid/electric vehicles, as they have to move their cars once they are charged and they sometimes have trouble finding parking afterwards.

Carpooling

Table 10. Factors that would increase the likelihood and/or frequency of carpooling to campus

Factors for encouraging carpooling	Loyola Campus	SGW Campus
A comprehensive carpooling system for Concordia staff and faculty	13%	15%
A comprehensive carpooling system for Concordia students	19%	13%
Preferred parking at Concordia for carpooling vehicles	14%	17%
Reduced parking fees for carpooling vehicles	17%	18%
Additional dedicated carpool lanes to avoid traffic	12%	12%

In the 2019 commuter habits survey, carpooling was defined as "a situation in which two adults are sharing all or a portion of their commute in the same motorized vehicle".

Based on the survey results, 17% of respondents who reported carpooling also reported that they did not have a driver's license. Based on this information, we can conclude that 83% percent of carpoolers who completed the survey are actively reducing their commuting emissions by choosing to carpool instead of drive their own vehicle alone.

A comprehensive carpooling platform was cited as one of the most important factors in increasing carpooling frequency.

Public Transportation

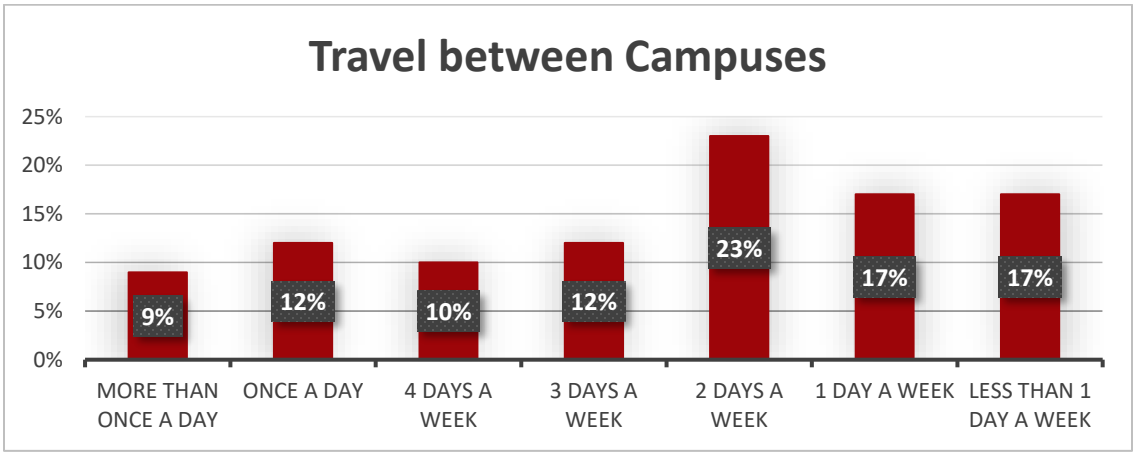
Table 11. Factors that would increase the likelihood and/or frequency of respondents taking public transportation to campus

Factors for encouraging public transit	Loyola Campus		SGW Campus	
	Staff/Faculty	Students	Staff/Faculty	Students
A reduction on the current transit fare for staff/faculty	14%	12%	22%	13%
A faster commute to Concordia	17%	20%	13%	17%
Better incentives to bundle my public transit pass with a car sharing or BIXI membership	7%	2%	4%	5%

Concordia Shuttle Bus

This portion of the survey refers to respondents who indicated that they "ever" use the Concordia shuttle bus, either to commute to campus or to travel between campuses during the day.

Figure 1. Number of days a week respondents travel between campuses (of those who indicated that they "ever" travel between campuses)



Of our participants, 15% of respondents indicated that they travel between campuses.

Table 12. Most important factors in respondents' choice to use the Concordia shuttle bus

Factors influencing use of the Concordia shuttle bus	**Total response rate**
Least expensive option	28%
Faster than other modes of transportation	22%
Can do other things (e.g., read, use mobile devices, etc.)	15%

Table 13. Factors that would increase the likelihood and/or frequency of shuttle service use among respondents

Factors for encouraging Concordia shuttle bus	**Staff / Faculty**	**Students**
Less crowded buses	8%	12%
More frequent buses (includes responses for more frequent buses during morning and afternoon rush hour)	26%	31%
If the fuel option for the shuttle bus was more sustainable (a hybrid or electric bus)	2%	6%
An added stop along the shuttle bus route at Vendome Metro Station	8%	10%
WiFi on the shuttle bus	4%	9%

3. Encouraging a modal shift in the target population

Respondents with the highest levels of greenhouse gas emissions belong to the single occupant automobile category. The following maps (figures 2 and 3) depict home addresses of respondents who indicated that they primarily use a motorized vehicle to commute to campus in the Spring/Fall.

These addresses have been situated within theoretical "active transportation zones", each zone representing an area of Montreal accessible by walking /running or cycling from each Concordia campus within the timeframes listed in the map legends. These timeframes were established by classifying travel time data of pedestrians and cyclists in the survey using the Jenks Natural Breaks data classification method in QGIS.

Figure 2. Active Transit zones and motorists near Sir George Williams Campus

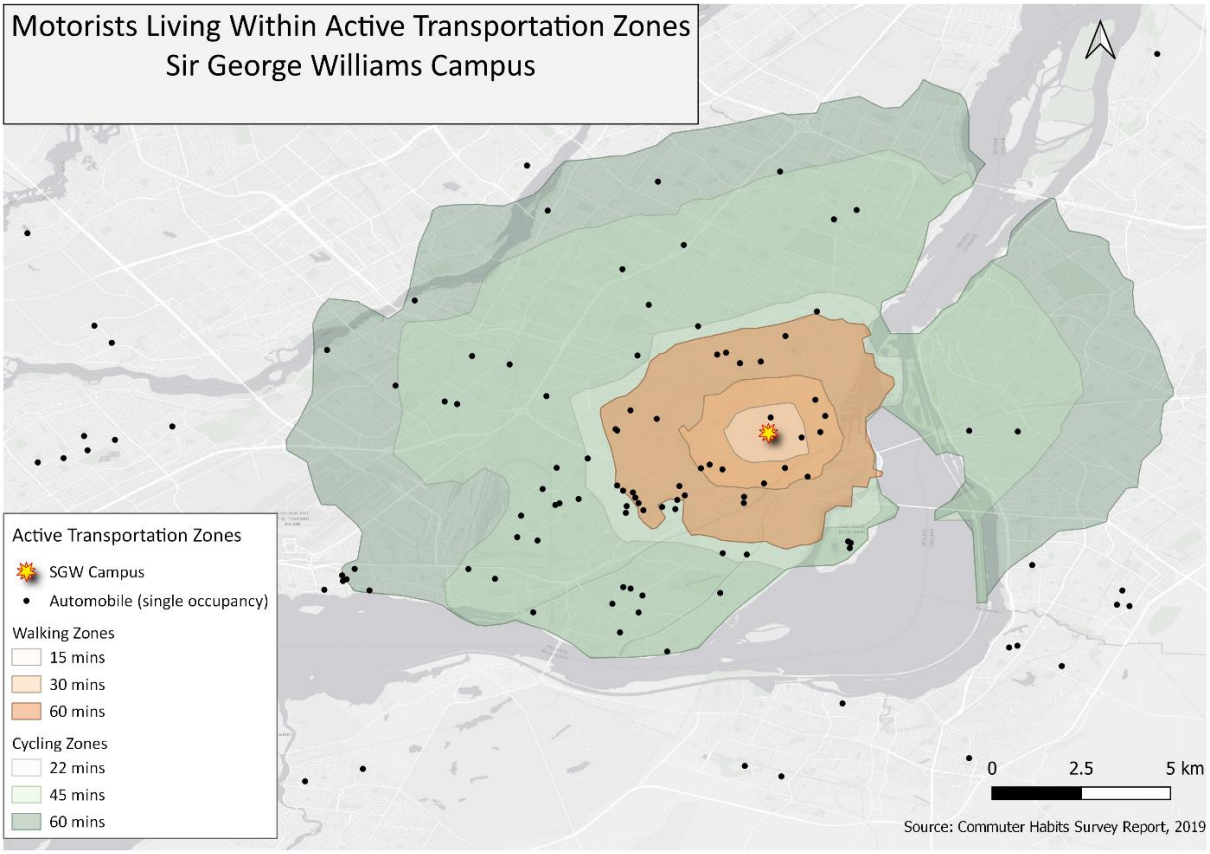
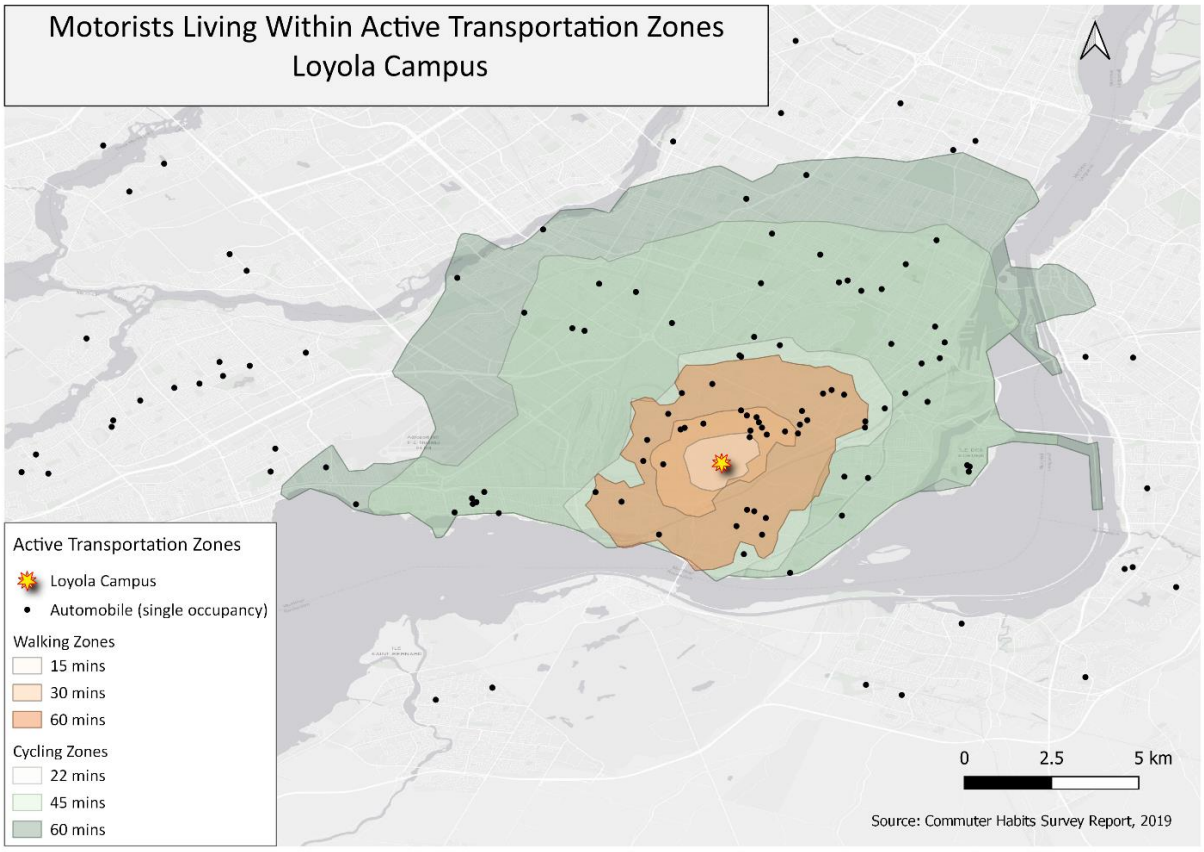


Figure 3. Active transportation zones and motorists near Loyola campus



Both maps depict a number of Concordia staff/faculty and students who commute to their primary Concordia campus by motorized vehicle, despite living within areas accessible within the walking or cycling ranges indicated in the map legends. Of this population, many respondents indicated that their main concerns with cycling were due to safety.

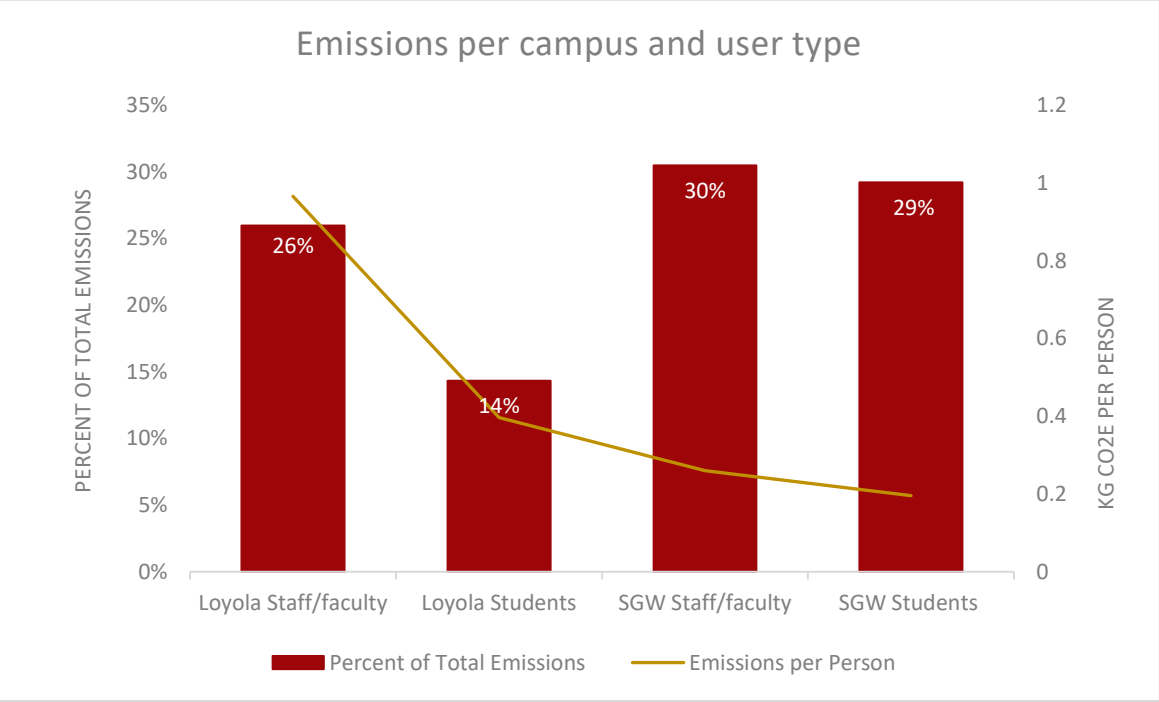
When all forms of motorized transportation are included in a single category, trips by motorized vehicle within the active transportation zone make up 9% of commutes. This represents the target population for a modal shift towards more sustainable transportation.

In the future, incentives and programming should be directed towards staff and faculty groups within Concordia in order to encourage a modal shift away from emissions-intensive modes of transport, as these groups are associated with the highest levels of commuting emissions.

4. Emissions Analysis

Emissions associated with the travel of our community to and from campus are part of Concordia's carbon footprint. In this section, we discuss the calculation of Concordia's total carbon footprint from commuting as an interpolation from data obtained through the Commuter Habits Survey.

Figure 4. Total emissions per campus (denoted by the red bars and left axis) and the average emissions per person (denoted by the gold lines and right axis) associated with each sub population and campus



Although SGW campus users make up a larger proportion of Concordia's total emissions, they have lower per capita emissions than for Loyola. This is because: (1) Loyola commuters typically have longer travel times (table 4); and (2) Loyola campus users are more likely to use single occupancy vehicles.

On both campuses, staff/faculty emissions from commuting are higher than for students.

Table 14. Commuting emissions (scope 3) of respondents from the Commuter Habits Survey Results

Campus	**Total Emissions from the Commuter Habits Survey ($mtCO_2e$)**
SGW Campus	341.04 $mtCO_2E$
Loyola Campus	191.84 $mtCO_2E$
Total	**532.88 $mtCO_2E$**

Based on the estimates from our survey sample, we estimate that total annual commuting emissions for the entire Concordia University population are approximately *15,893.51 $mtCO_2E$*.