CAMOSUN COLLEGE

FALL 2018 MODAL SPLIT SURVEY

Summary Report

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Our File:	**2388.B01**
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CONTENTS

1.0 OVERVIEW

Watt Consulting Group ("WATT") was retained by Camosun College to complete the fall 2018 modal split counts, which took place on Tuesday October 23 and Wednesday October 24, 2018. Modal split refers to the overall distribution of trips to / from Camosun College attributed to each travel mode: single occupancy vehicle (SOV) / driving, carpooling / passenger, walking, cycling, transit, and other (drop-off, motorcycle, etc.). This information is used to understand current travel behaviour and – when observed over time – is used to track changes in travel characteristics.

WATT completed Camosun's spring 2018 modal split survey as part of preparing the Camosun College Transportation Demand Management (TDM) Strategy, which was submitted to the College in the fall of 2018 and finalized in the spring of 2019. The following sections provide an overview of the fall 2018 modal split survey and a summary of the results. Modal split data are also included for the 2018 year, which used an average of the spring 2018 and fall 2018 mode split counts. Comparisons are made to the 2012 survey.

2.0 METHODOLOGY

The 2018 modal split survey was established using a series of "screenline counts". Modal split counters were stationed at key entrances to both the Lansdowne and Interurban campuses observing the number of individuals that enter/exit the campus (i.e., crossing the "screenline") by each travel mode. Count locations are identified in **Figure 1** and **Figure 2**. Screenline counts were conducted in the morning and afternoon during the following periods:

- Tuesday, October 23, 2018: 7:30am – 10:30am and 2:30pm – 5:00pm
- Wednesday, October 24, 2018: 7:30am – 10:30am and 2:30pm – 5:00pm

The counters noted people arriving at the campus in the morning (7:30am to 10:30am) and leaving the campus in the afternoon (2:30pm to 5:00pm). The modes counted were as follows:

- Single Occupancy Vehicles (SOV, i.e. private vehicles arriving with only a driver)
- Carpooling 2+ (i.e. private vehicles arriving with two or more people)
- Transit riders
- Cyclists
- Pedestrians
- "Other" modes, which included motorcycles, skateboarders, rollerblades, and passengers of the Camosun Express

This approach is consistent with the screenline counts completed in the spring of 2018 and past years including 2014, 2012 and 2010.[1] This allows for a meaningful cross-comparison of results to assess changes in travel behaviour and progress toward mode share targets.

[1] See the previous plan: Camosun College Modal Split, 2012.

Note: Both the 2018 spring and fall modal split surveys used pole-mounted video equipment to assist with the counts. The video equipment was deployed at two distinct screenline locations – Screenline E at the Lansdowne campus and Screenline M at the Interurban campus. Screenline E was selected because it is a high traffic area with a number of pedestrians and transit riders entering / existing the campus. Therefore, there was a risk of mixing these distinct modes and inaccurately capturing mode share. By using video, the team was able to view the footage in slow-motion and rewind to ensure all counts were accurate. In situations where it was harder to differentiate between a transit rider and pedestrian at Screenline E, a larger group of people either entering or leaving campus were treated as transit users.

Screenline M at the Interurban campus was selected as it was a less busy location with mostly pedestrians / cyclists arriving and departing. Therefore, the team was able to video recording to efficiently record mode share at this location and allow counters to be deployed at busier locations.

FIGURE 1. **SCREENLINE COUNT LOCATIONS, LANSDOWNE CAMPUS**

Available online at: http://camosun.ca/documents/about/transportation/modal-split-camosun-2012.pdf

FIGURE 2. **SCREENLINE COUNT LOCATIONS, INTERURBAN CAMPUS**

3.0 RESULTS

3.1.1 Total Trips, Both Campuses

The total number of trips recorded over the two-day period was 15,046, of which 7,805 trips were at Lansdowne and 7,241 trips at Interurban. Compared to the 2018 spring modal split survey, this represents an increase of approximately 12%, where 13,462 trips were recorded as part of that survey.

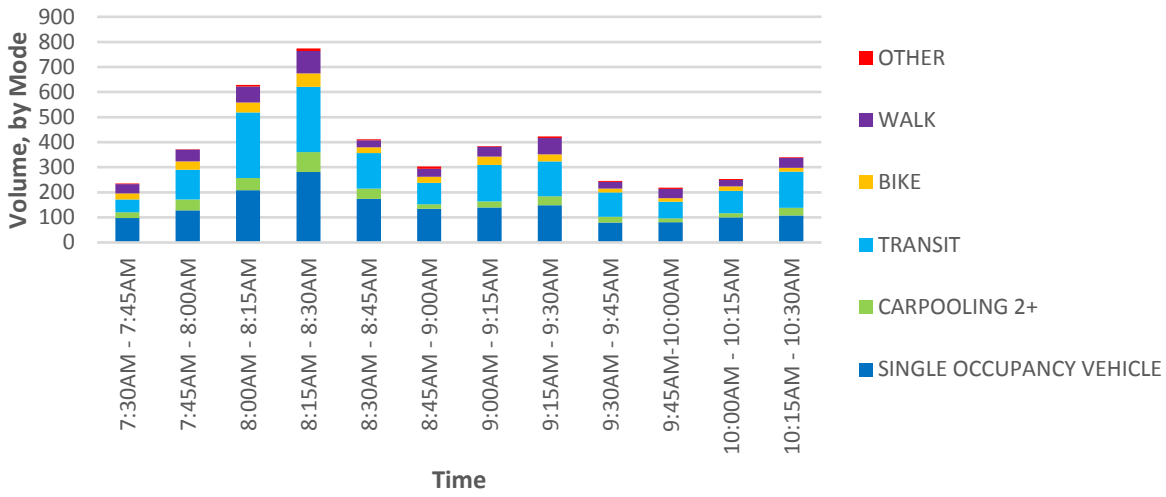
3.1.2 Peak Travel Time, Morning

The peak travel times for both the morning (AM peak) and afternoon (PM peak) were identified using 15-minute intervals. The following bar graphs indicate the total travel mode volume. The AM peak for inbound trips for the Lansdowne campus was 8:15 – 8:30am (774 trips), followed by the 8:00 – 8:15am period (629 trips). See **Figure 3**. This is consistent with the Interurban campus, findings from the 2018 spring modal split survey, and the 2012 survey.

The data indicate that transit and single occupancy vehicles represent the largest proportion of trips during the AM peak period at 34% and 36%, respectively. While these modes are fairly

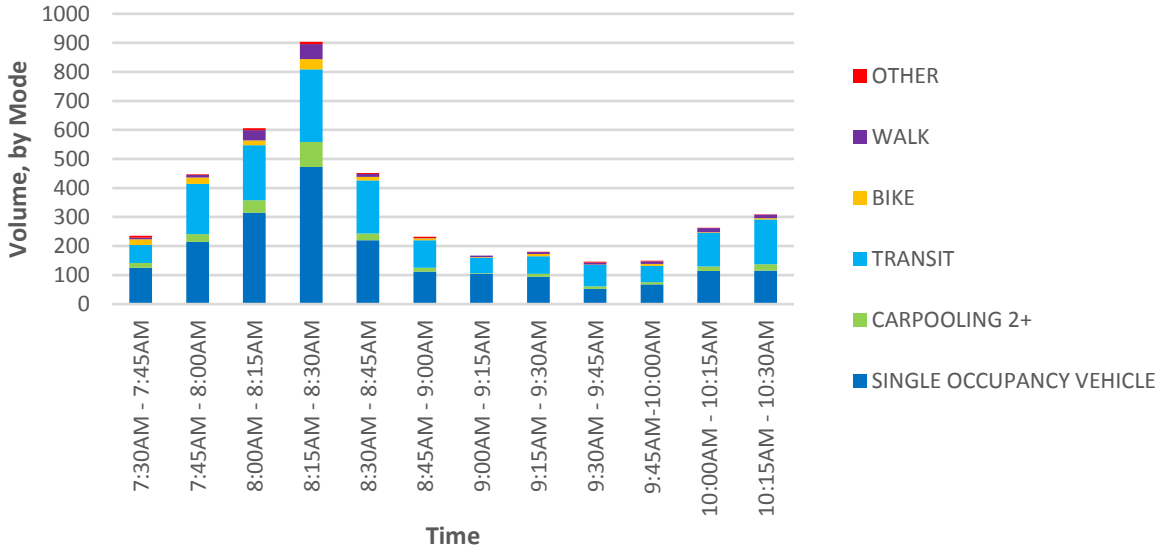
even in distribution for the peak period, during the second busiest period (8:00 – 8:15am) there were more transit trips compared to single occupancy vehicle trips at 41% and 33%, respectively.

FIGURE 3. **AM INBOUND TRIPS BY TRAVEL MODE + TIME, LANSDOWNE CAMPUS** (OCTOBER 23 + OCTOBER 24 2018)



The AM peak for inbound trips for the Interurban campus was 8:15 - 8:30am (904 trips). See **Figure 4**. This is consistent with the Lansdowne campus findings, as well as Interurban findings from the 2018 spring modal split survey and the 2012 survey. Unlike Lansdowne, however, the majority of trips during the AM peak period are single occupancy vehicles (52%), followed by transit (28%).

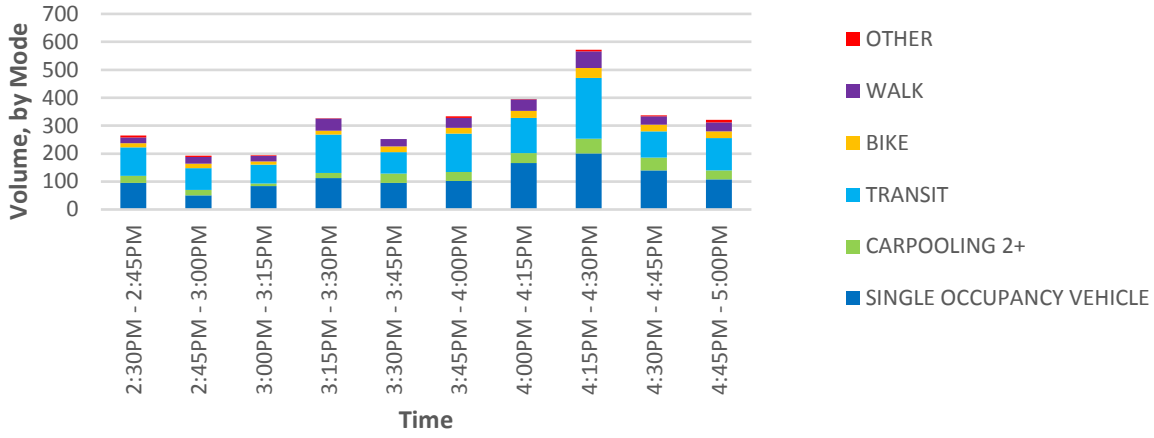
FIGURE 4. **AM INBOUND TRIPS BY TRAVEL MODE + TIME, INTERURBAN CAMPUS** (OCTOBER 23 + OCTOBER 24 2018)



3.1.3 Peak Travel Time, Afternoon

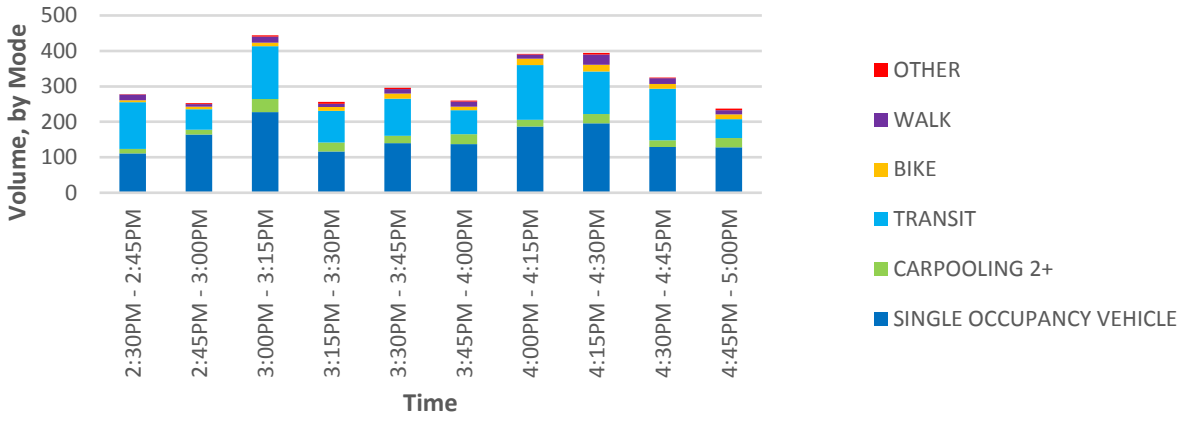
Where the AM counts result in a clear majority of inbound trips during two of the 15-minute time periods (8:00 - 8:15am, 8:15 - 8:30am), the PM counts present a more balanced distribution of outbound trips in all observation periods. The PM peak for outbound trips for the Lansdowne campus was 4:15 - 4:30pm (572 trips). See **Figure 5**. This is consistent with the 2018 spring modal split survey and the 2012 survey. Single occupancy vehicles represented the largest share of trips in the PM peak (42%) followed by transit (32%).

FIGURE 5. **PM OUTBOUND TRIPS BY TRAVEL MODE + TIME, LANSDOWNE CAMPUS** (OCTOBER 23 + OCTOBER 24 2018)



The PM peak for outbound trips at the Interurban was 3:00 – 3:15pm (444 trips), followed by the 4:15 – 4:30pm count (392 trips). See **Figure 6**. This result is different from both the 2018 spring modal split survey and the 2012 modal split survey where the PM peak occurred during the 4:00 – 4:15pm count period. Similar to the AM peak, the majority of trips during the 3:00 – 3:15pm period are single occupancy vehicles; however, there is much less variation between SOV and transit trips in the PM peak with SOV trips representing 10% more in the overall mode share. In the AM peak, SOV trips were 24% greater than transit trips.

FIGURE 6. **PM OUTBOUND TRIPS BY TRAVEL MODE + TIME, INTERURBAN CAMPUS** (OCTOBER 23 + OCTOBER 24 2018)



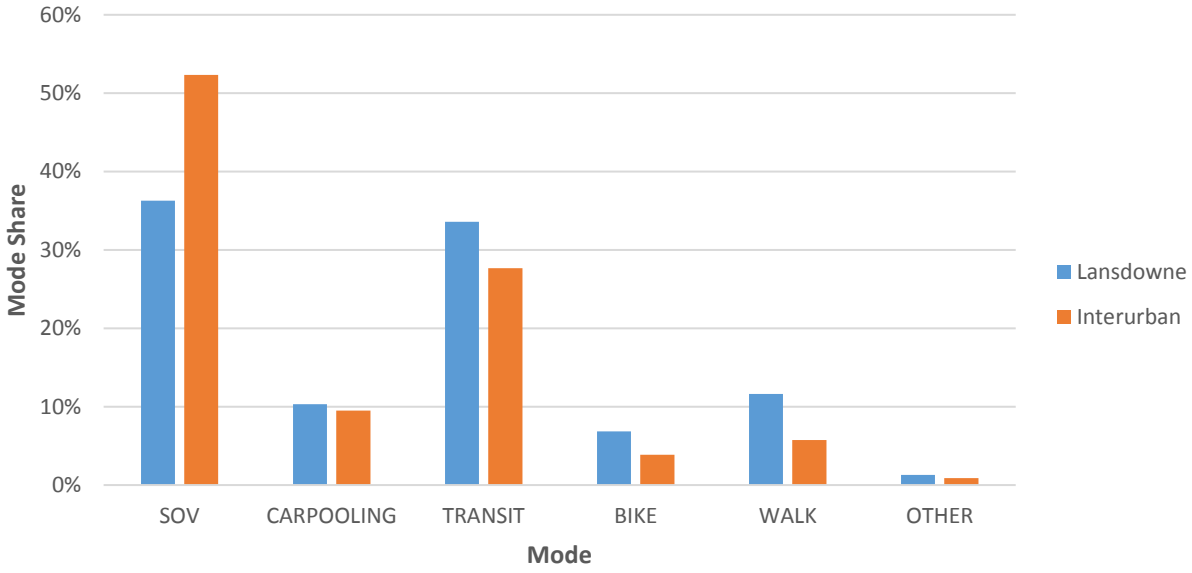
3.1.4 Peak Periods, Campus Comparison

Peak commuting times during the morning period for both Lansdowne and Interurban campuses was 8:15am – 8:30am. The Lansdowne campus had 774 trips during this period, which was much lower than Interurban with 904 trips. At both campuses, the highest mode share during the peak period was single occupancy vehicles (36% at Lansdowne and 52% at Interurban), and the second highest mode was transit (34% at Lansdowne and 28% at Interurban). See **Figure 7**.

The graph illustrates that single occupancy vehicle travel is the dominant mode share at the Interurban campus during the AM peak at 52%. The Lansdowne campus, by contrast, has a more even distribution of single occupancy vehicle and transit trips, with carpooling, walking and cycling representing 10%, 12% and 7%, respectively.

These data are similar to the 2018 spring modal split survey where SOV travel and transit represented the highest mode share at both campuses. However, one notable difference is that the bike more share during the morning period of the 2018 fall count was higher at Lansdowne compared to Interurban whereas the 2018 spring count reported the opposite. One potential explanation for this is that the 2018 spring count experienced heavy rain, particularly during the April 4th count period, which may have resulted in staff / students taking other modes who would have otherwise cycled to Lansdowne with better weather.

FIGURE 7. **INTERURBAN + LANSDOWNE PEAK TIME: AM (8:15 - 8:30AM)**



The afternoon peak time varied for the campuses; Interurban's peak commute time for outbound traffic was 3:00pm – 3:15pm, and Lansdowne's peak commute time for outbound traffic was 4:15pm-4:30pm. This difference in afternoon peak period will be useful to monitor and should be potentially considered when advocating for BC Transit or Camosun Express schedule or capacity changes.

The peak travel mode for Interurban was SOV at 48% with the next highest being transit at 39%. However, the highest mode share at Lansdowne was transit at 38% and the second highest was driving at 35%. See **Figure 8**, next page. The data also show that transit mode share at both campuses is more equal during the afternoon peak period compared to the morning peak.

With the exception of the PM peak period being different for Interurban between the 2018 spring and 2018 fall modal split surveys, the overall data are similar with SOV trips representing the highest mode share at Interurban and transit as the highest at Lansdowne. This difference in transit mode share somewhat corresponds with the significant difference in transit service between the two campuses, as shown in the figure at right that totals BC Transit trips arriving and departing each campus during the count periods.

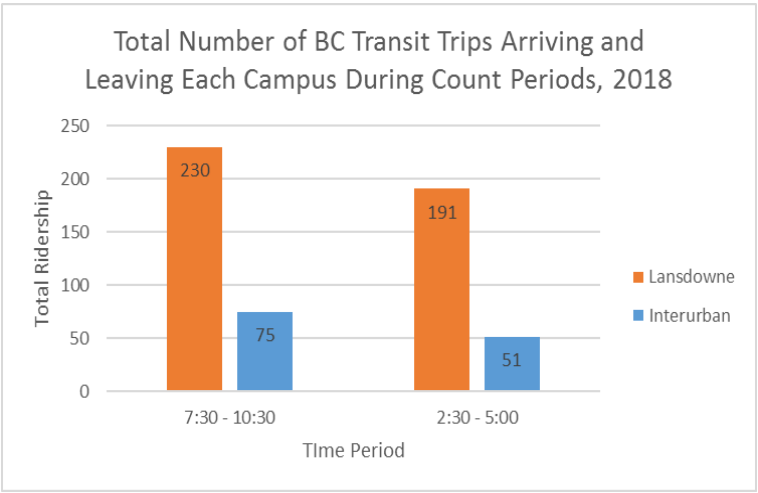
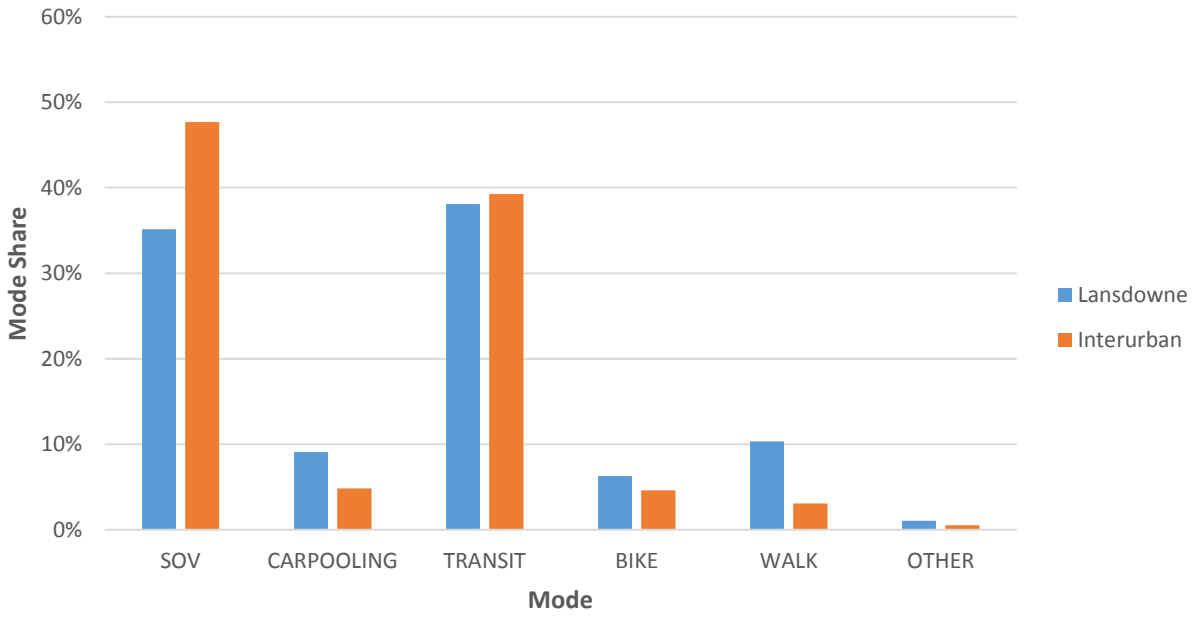


FIGURE 8. **INTERURBAN (3:00-3:15) + LANSDOWNE (4:15 - 4:30PM) PEAK TIME: PM**



3.1.5 Mode Share, By Campus

Mode share by campus is presented in **Figure 9** and **Figure 10** below. As shown in the figures, Lansdowne's single occupancy vehicle mode share is significantly lower (13%) than Interurban's. Transit trips are equal at both campuses while cycling, walking, and carpooling trips are higher at the Lansdowne campus, which may be attributed to Lansdowne's higher proportion of students living within walking distance to campus and the availability of more cycling routes to campus, as well.

FIGURE 9. **2018 FALL MODE SHARE, LANSDOWNE CAMPUS**

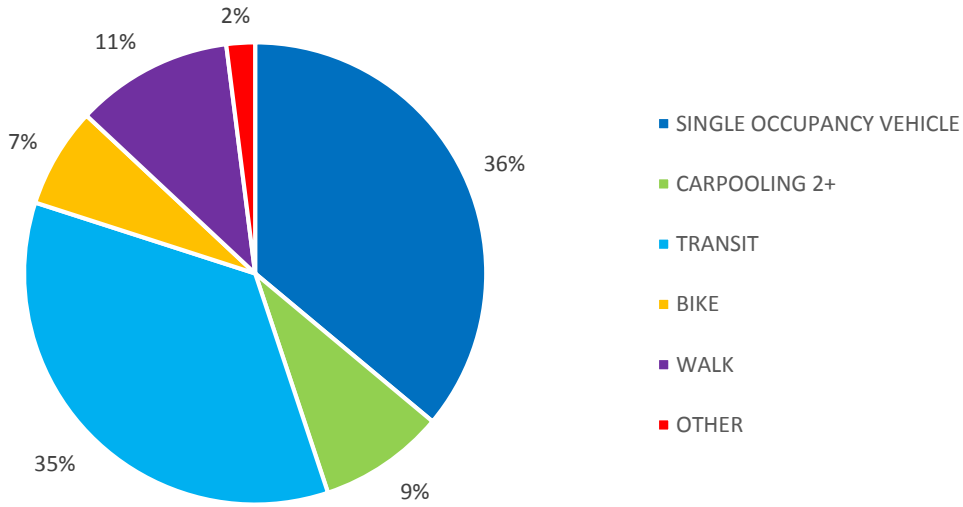
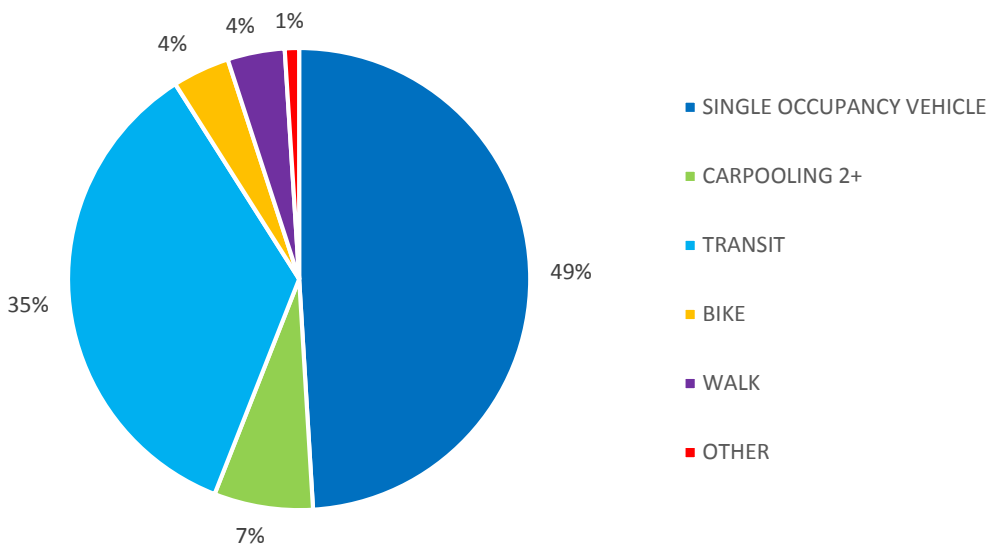


FIGURE 10. **2018 FALL MODE SHARE, INTERURBAN CAMPUS**



The overall mode share for Camosun (both campuses) is summarized in **Figure 11**. The largest proportion of trips are made by single occupant vehicle (42%) and transit (35%). All other modes in combination represent about 22% of trips – carpooling (8%), walking (8%), cycling (5%), and other (1%). **Figure 12** illustrates the mode share from the 2018 spring modal split survey. The data show that while transit mode share is similar, SOV travel decreased by 6% between the spring and fall surveys, with cycling and walking mode share increasing by 3% and 2%, respectively. This difference may be potentially attributed to weather, with the spring 2018 count period occurring during heavier rain.

FIGURE 11. **2018 FALL MODE SHARE, BOTH CAMPUSES**

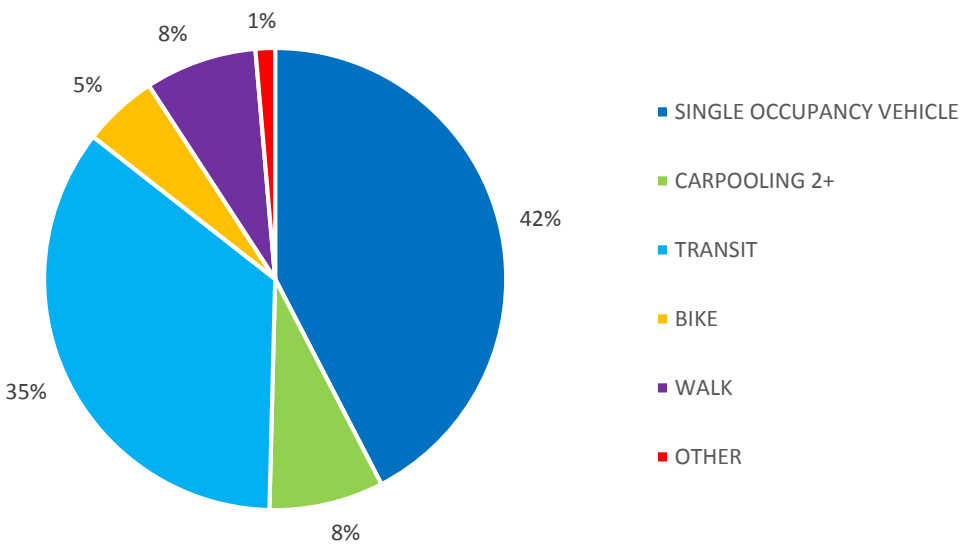
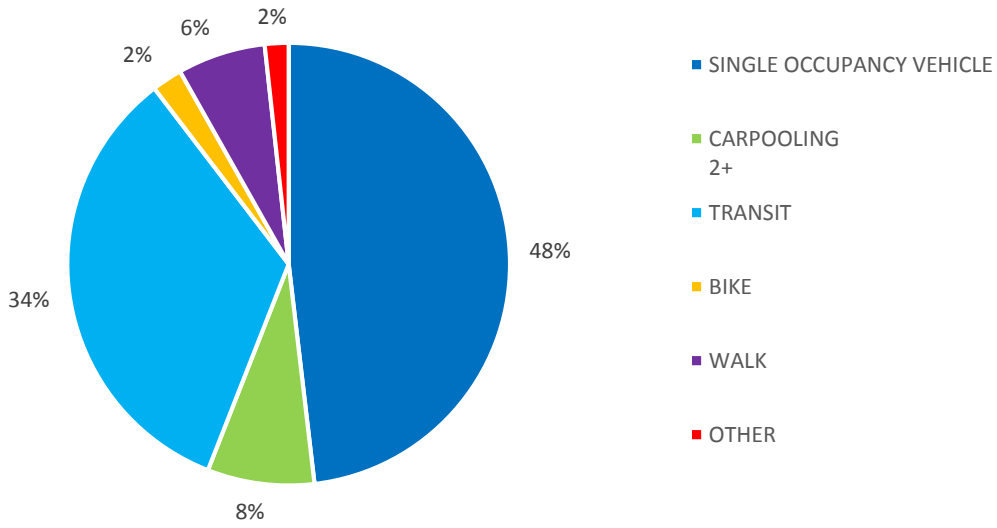


FIGURE 12. **2018 SPRING MODE SHARE, BOTH CAMPUSES**



3.1.6 Mode Share Comparison, 2018 to Previous Years

Table 1 compares the 2018 mode share (average of the spring 2018 and fall 2018 mode split counts) to previous modal split surveys conducted at the college. The most notable changes between 2012 and 2018 survey are a 7% increase in the proportion of trips made by driving, a 4% increase in the proportion of trips made by transit, and a 7% decrease in the proportion of trips made by walking.

TABLE 1. **MODE SHARE COMPARISON, 2018 TO PREVIOUS YEARS**

	2010	2012	2016	2018	Change
					2012 to 2018
SOV	44%	38%	45%	45%	**+7%**
Carpooling	12%	11%	9%	8%	**-3%**
Transit	40%	31%	27%	35%	**+4%**
Walk		14%	13%	7%	**-7%**
Bike	4%	4%	3%	4%	**No change**
Other	N/A	2%	2%	2%	**No change**

3.1.7 Mode Share, Campus Comparison

The 2012-to-2018 mode share comparison for each campus is presented in **Table 2**. The results indicate that the increase in the proportion of single occupant vehicle trips is evenly distributed between the two campuses. While cycling mode share did not see an overall increase between 2012 and 2018, the data show that cycling mode share at Lansdowne has increased marginally by 1% since 2012.

The overall 7% decrease in the proportion of walking trips is largely attributed to the Lansdowne campus, which has a significantly larger proportion of trips made by walking. The decrease in walking may be attributed to the low vacancy rate in the City of Victoria, which was 0.7% in 2017 and 2.6% in 2012.[2] A lower vacancy rate in Victoria may be resulting in students seeking housing farther away from the Lansdowne campus in places such as the West Shore. This theory, however, would need to be confirmed with data.

TABLE 2. **MODE SHARE COMPARISON FROM PREVIOUS YEARS, BOTH CAMPUSES[3]**

	Lansdowne			Interurban			Total		
	2012	2018	Change	2012	2018	Change	2012	2018	Change
SOV	32%	38%	**+6%**	48%	53%	**+5%**	38%	45%	**+7%**
Carpooling	10%	9%	**-1%**	13%	7%	**-6%**	11%	8%	**-3%**
Transit	29%	36%	**+7%**	32%	33%	**+1%**	31%	35%	**+4%**
Walk	24%	10%	**-14%**	2%	4%	**+2%**	14%	7%	**-7%**
Bike	4%	5%	**+1%**	3%	3%	**--**	4%	4%	**--**
Other	1%	3%	**+1%**	2%	1%	**-1%**	2%	2%	**--**

[2] City of Victoria. 2017). 2017 Housing Report. Available online at: https://www.victoria.ca/assets/Departments/Planning~Development/Community~Planning/Housing~Strategy/2017_Housing_Report_Final.pdf

[3] The 2018 mode split figures are an average of the spring 2018 and fall 2018 mode split counts.

3.1.8 Mode Share, Comparison to Victoria Capital Region and University of Victoria

In June 2018, the Capital Regional District released results from the 2017 CRD Origin Destination Household Travel Survey.[4] The survey study area includes all 13 municipalities in the CRD, the Juan de Fuca Electoral Area and Salt Spring Island. In total, 7,392 households were surveyed, which represents a sample rate of about 4.2% of all households in the study area. The survey includes data for a variety of trip purposes including "post-secondary school," which would capture Camosun students, but not captured international students.

The University of Victoria (UVic) also conducts bi-annual modal split surveys which they refer to as "traffic surveys".[5] Data from UVic's most recent survey (fall 2016) is also included in this section to directly compare to another post-secondary institution with similar transportation options as the Lansdowne campus.

Table 3 presents the 2018 fall modal split survey results, the 2017 CRD modal split data, and the UVic 2016 modal split survey results. The total number of post-secondary trips in the CRD survey was 18,700, which is greater than the total number of trips in the Camosun 2018 fall modal split survey (15,046).[6] The UVic 2016 modal split survey recorded a total of 44,338 trips.[7]

TABLE 3. **MODE SHARE COMPARISON, CAMOSUN COLLEGE, CRD & UVIC**

	Camoson College (2018 Fall Survey)	CRD Post-Secondary Trips (2017 CRD Household Travel Survey)[8]	UVic (2016 Fall Survey)
SOV	42%	22%	40%
Carpooling	8%	8%	10%
Transit	35%	51%	27%
Walk	8%	7%	8%
Bike	5%	11%	15%
Other	1%	1%	--

[4] Malatest. (2017). 2017 Capital Regional District Origin Destination Household Travel Survey. Available online at: https://www.crd.bc.ca/docs/default-source/regional-planning-pdf/transportation/crd-2017-od-survey-report-20180622-sm.pdf?sfvrsn=4fcbe7ca_2

[5] More information about UVic's 2016 modal split survey is available online at: https://www.uvic.ca/campusplanning/assets/docs/campus-traffic-survey-2016.pdf

[6] Note: differences in mode share data may be partially attributed to differences in the methodology between the Capital Regional District Origin Destination Household Travel Survey and the Camosun modal split survey. The CRD respondent survey captured the trips made by residents of an area over the course of a 24-hour working weekday, whereas the Camosun modal split survey physically observed trips over four count periods combining for a total of 11 hours.

[7] It should be noted that as of 2018, UVic had 27,000 FTEs (21,000 student, 6,000 employee) which is almost three times the size of Camosun College (11,074 FTEs).

[8] Mode share percentages for the CRD Household Travel Survey post-secondary trips have been rounded.

The data in **Table 3** report significant differences in mode share between Camosun and the larger Victoria region. Notably, the majority of post-secondary trips across the region are made by transit (51%), which is much higher than Camosun's transit mode share (35%). The high transit mode share may explain why SOV travel for all post-secondary trips across the region is half of what it is at Camosun (22% vs. 42%).

A number of factors might explain these mode share differences between Camosun and the larger region including [a] the more remote location of campuses such as Interurban versus the University of Victoria, [b] the availability and pricing of parking across post-secondary institutions (Camosun has cheaper daily parking rates than the University of Victoria and does not charge staff for parking), and [c] overall access to transit.

Even though transit mode share was 35% at both the Lansdowne and Interurban campuses, the *Camosun College TDM Strategy Working Paper* reported that there are a number of transit challenges at the Interurban campus, which may be inhibiting transit mode share growth at that campus. In addition, the post-secondary trip data from the CRD does not include trips from staff, which might also explain why transit mode share is significantly higher than both Camosun and UVic. All of these potential factors would need to be more carefully studied before drawing any definitive conclusions.

Camosun's mode share data is similar to the results from UVic's 2016 modal split survey; however, two important differences emerge: (1) transit mode share at Camosun is 8% higher than UVic's 2016 transit mode share, and (2) UVic's walking mode share is double Camosun's at 15%. UVic's higher walking more share might be partially attributed to on-campus housing and the availability of housing nearby campus.

4.0 CONCLUSION

The purpose of this report was to present the methodology and results of the Camosun College 2018 fall modal split survey, which was conducted on October 23 and 24, 2018. The results of the 2018 data (which used an average of the spring 2018 and fall 2018 mode split counts) were compared to the 2012 survey to understand mode share changes over time. A summary is as follows:

- Total transit trips have increased by 4% from 2012 to the 2018 surveys.
- Total SOV trips have increased by 7% 2012 to the 2018 surveys.
- Walking mode share decreased by 7% from 2012 to 2018 with the Lansdowne campus seeing the larger decrease. Walking mode share should be carefully monitored over time if and when on-campus housing becomes available at Lansdowne, and/or if more housing options are available in proximity to the Lansdowne campus (see *Camosun College Transportation Demand Management Strategy*, *Strategy 1b*).

As concluded in the Camosun College Transportation Demand Management Strategy, the College should strongly consider the continuation of its bi-annual modal split survey to track how its mode share is changing over time, and more importantly, whether it is meeting its mode share targets. Conducting the survey on a regular basis can also help “smooth out” anomalies that may occur due to weather or other changing circumstances during the count periods. Wherever possible, this count information should also continue to be related to larger regional data sources, such as the CRD Origin Destination Household Travel Survey.

Importantly, not only can such results further target actions for implementation out of the TDM Strategy, but monitoring and publishing these results can also be a key factor in promoting TDM as a college value and priority.