North Shore Transportation Survey:
2020 Survey

Final report
May 2021

Prepared for: City of North Vancouver,
District of North Vancouver, and
District of West Vancouver

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Executive Summary

Background and Objectives: Understanding the Impact of COVID-19 on the Travel Patterns of North Shore Residents

The North Shore Transportation Survey (NSTS) is a biennial survey of residents of the North Shore that tracks key transportation metrics associated with residents' travel patterns. The survey is an initiative of the City of North Vancouver (CNV), District of North Vancouver (DNV), and District of West Vancouver (DWV). The NSTS tracks trip rates, mode shares, vehicle kilometres travelled, and other key metrics that will help the municipalities assess the impact of transportation initiatives and plan future transportation investments. The 2019 NSTS, which was conducted in Fall 2019 with 1,901 North Shore residents, serves as a baseline measurement against which subsequent survey cycles can be compared.

The 2020 NSTS was conducted in late Fall 2020 during a period of travel and gathering restrictions related to the COVID-19 pandemic. The survey sampled 1,081 participants from the 2019 NSTS. The 2020 survey was intended to serve as an interim survey of previous participants prior to the next full survey in 2021. The goals of the 2020 survey were to collect information on the impact of the COVID-19 pandemic on the travel of North Shore residents, to the extent possible without conducting another full trip diary survey. The survey also gathered information on residents' perceived safety while using different modes of transportation on the North Shore and asked those with vehicles to report their odometer readings for use in estimating annual VKT (vehicle kilometres travelled). As this was an interim survey with a smaller sample size, the margin of sampling error increased from ±3.0% for the full sample in 2019 to ±4.4% for the subsample of 2020 participants. By municipality, the 2020 sampling errors are somewhat higher: at ±5.6% for DNV, ±6.4% for CNV, and ±7.6% for DWV.

Overall, in terms of their demographic characteristics, the subsample of 2020 panel participants is very comparable to the 2019 full survey sample. The small differences in demographics are not significant enough to raise concerns about the general representativeness of the 2020 survey participants, although it may be noted that as a panel of repeat participants who still live on the North Shore a year after the baseline survey, the sample may have some biases that could not be corrected for by the data weighting. The collection of trip data was much less detailed in 2020 than the full trip diary method used in 2019. Any interpretation of the daily travel data (trip volumes, trip rates, daily mode shares) in this report should be used with caution. Nevertheless, the comparisons should still reveal shifts in travel behaviour of magnitudes that exceed variability or error that may be due to differences in method.

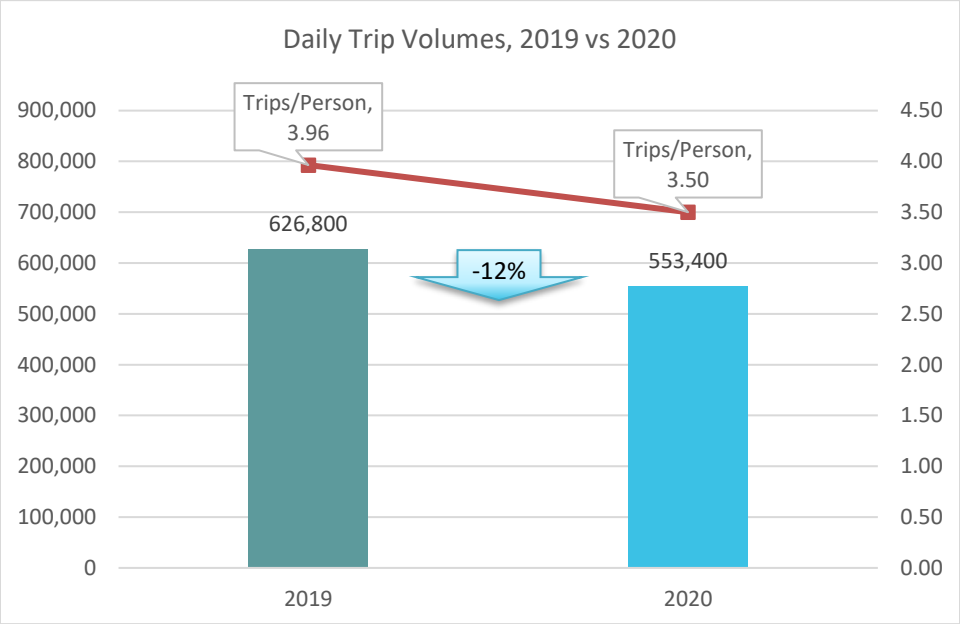
The results presented in this executive summary focus primarily on results for the North Shore as a whole. Readers are referred to **Section 10** of this report for a summary of results at the municipal level.

Trip volumes in Fall 2020 were 12% lower than those recorded in Fall 2019.

Overall, there was a 12% decline in the volume of trips made by North Shore residents from 2019 to 2020. Specifically, the survey results suggest that total daily trip volume for population aged 15+ years

declined from an estimated 626,800 daily trips in Fall 2019 to 553,400 in Fall 2020. In terms of per-person trip rates, this is change from 3.96 daily trips per person in Fall 2019 to 3.50 in Fall 2020.

Daily Trip Volumes and Person Trip Rates, 2019 vs. 2020



n=1,081; Estimated daily trips on weekdays for residents 15+ years of age.

North Shore residents had sharp declines in trips for social purposes (73% decrease), personal business (48%) and work-related trips (39% decrease).

Survey participants in the 2019 survey were asked to identify the purpose of their trips reported, and 2020 participants were asked the how many times different types of destinations were visited.[1] The results reveal that the COVID-19 pandemic has led to North Shore residents 15+ years of age curtailing many types of trips:

- There have been declines of three quarters in trips to school (down 75% for students 15+ years of age) and trips for social purposes such as visiting friends and family (down 73%).
- There has been a 39% decrease for all work-related trips (with a 27% decrease in trips to usual workplaces, and a 56% decrease in trips for other work-related purposes such as business meetings).
- Trips for personal business (such as banking, medical appointments, or haircuts) declined by 48% and trips for recreational purposes declined by 17% respectively.

[1] *The 2019 baseline survey collected details of each trip made, including trip purpose, whereas to keep the interim survey short the 2020 survey collected data based on the actual destinations to which a survey participant travelled. Given the different methods of data collection, some caution should be exercised in interpreting the results. Nevertheless, the results reveal dramatic differences in travel behaviours between the two survey cycles.*

This was offset somewhat by trip purposes with increases:

- shopping and household maintenance trips (a 9% increase);
- restaurant trips (a 23% increase) likely representing a shift towards more take-out meals; and
- passenger pick-up or drop-off (a 21% increase), which is consistent with avoidance of transit and school busses.

Daily Trip Purposes in 2019 vs. Daily Destinations Travelled to in 2020[2]

Daily Volumes	2019 Trip Purpose	2020 Destination	Percent (%) Change
School (students 15+)	8,500	2,100	-75%
Social	38,100	10,400	-73%
Work-related business*	39,400	17,200	-56%
Personal business	39,200	20,300	-48%
Work (to usual workplace)*	57,900	41,800	-27%
Recreational	42,600	35,400	-17%
Shopping, household maintenance	87,800	96,000	+9%
Pick up or drop off	55,600	67,500	+21%
Restaurant	28,300	34,800	+23%
Other	4,600	9,700	+110%
Total Estimated Daily Trips	626,800	553,400	-12%

North Shore residents' annual Vehicle Kilometres Travelled (VKT) appears to have dropped from 2019 to 2020 by 25% as a result of the pandemic.

Comparing the average annual VKT incurred over the lifetime of residents' vehicles when first surveyed in the Fall 2019 baseline survey (11,900 km per year) to that incurred in the year to Fall 2020 (8,900 km) suggests that residents travelled 25% fewer kilometers over the course of the full year from Fall 2019 to Fall 2020.

Over the shorter period from the declaration of a public health emergency in mid-March to the survey in Fall 2020 that was impacted by the COVID-19 pandemic, we can estimate that there may have been a 37% drop in VKT compared to the same period in the previous year. Caution should be exercised as this is an estimate based on several assumptions as documented in more detail in **Section 9.2** of this report.

The drop in VKT is larger than the 12% year-over-year drop in daily trip volumes on weekdays (comparing the snapshot in Fall 2019 to the snapshot in Fall 2020). This suggests that much of the drop

[2] *NB: The 2019 survey collected data based on the purpose of a daily trip, whereas the 2020 survey collected data based on the actual destinations to which a survey participant travelled.*
**The addition of the two categories of 'work-related business' and 'to usual workplace' gives a total of all work-related trips. There was an estimated total of 97,300 such trips in 2019, and an estimated total of 59,000 such destinations in 2020, for a total decrease of 39% in all work-related trips.*

in trips is in longer-distance trips, such as work trips, given the large proportion of workers who started working from home (as discussed in more detail further below), and that many trip substitutions or increases in other types of trips were likely shorter-distance trips.

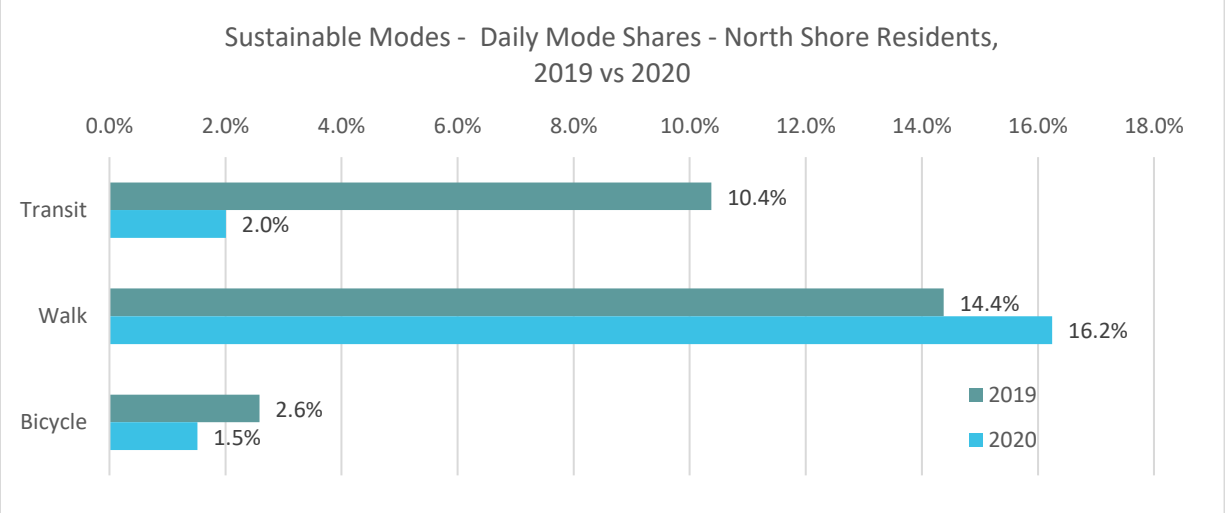
Ownership of electric and hybrid vehicles is on the rise (from 8.9% to 11.6% of usual vehicle driven).

In the 2020 survey, 11.6% of survey participants reported owning an electric or hybrid vehicle, compared to 8.9% in 2019. This represents a 31% increase in the number of electric or hybrid vehicles as estimated from the survey results, or an additional 4,000 (from about 12,600 in 2019 to 16,600 in 2020).

The pandemic has impacted sustainable mode shares. In particular, transit's share of daily trips fallen from 10% to 2% between Fall 2019 and Fall 2020. Walking as a share of total daily trips has grown slightly from 14% to 16%, although the number of walking trips has remained about the same.

The 2020 questionnaire was a shorter instrument than the 2019 questionnaire, and only gathered information on the mode shares of sustainable transportation. Combined, the three key sustainable modes, which include transit, walking and cycling, dropped from a 27% mode share in 2019 to 20% in 2020. Most affected was the transit mode share, which dropped from 10% to 2%. Cycling mode share decreased (2.6% to 1.5%), whereas walking increased modestly (14% to 16%). This is reflective of fewer cycling commutes to work and the number of walking trips remaining stable despite a drop in total trips.

Sustainable Mode Shares



n=1,011 in 2019, n=831 in 2020

39% of North Shore residents have stopped using transit entirely, while 23% use transit less often.

The survey has revealed that overall transit use, for all trips including work, has been significantly impacted by the COVID-19 Pandemic:

- 39% of all residents surveyed stated that they had stopped using transit entirely and an additional 23% reported that they use it less often.
- Only 22% reported no change in the frequency of their transit use.
- Very few (1%) reported increased frequency.

Looking across the changes:

- The proportion of residents that do not use public transit increased from 15% in 2019 to 53% in 2020.
- Overall, there is a significant decrease in those who use transit at least once per month or more, from 54% down to 16%. For those who continue to use public transit, most do so less frequently.

The most common reasons for changing transit use in 2020 were: making fewer trips (32% of the population 15+ years of age) and concerns about COVID-19 on transit (40%).

The COVID-19 pandemic has had a modest impact on total employment (3% drop). However, it has had a profound impact on work arrangements and hours of work for many workers. Most significantly, the proportion of workers who either work exclusively from home or telecommute at least two days per week, increased to 52%, up from 17% in 2019.

Overall, the 2020 survey results suggest COVID-19 has only had a modest impact on levels of employment amongst North Shore residents, with only a small net 3% loss in total employment. This is consistent with a 3% decline in employment in the Metro Vancouver area between November 2019 and November 2020 per Statistics Canada's Labour Force Survey.[3] It may also be noted that some of the job losses at North Shore businesses most affected by the pandemic (e.g., retail, service industries) may have been experienced by workers who reside outside the North Shore and commuted in for work.[4]

The COVID-19 pandemic has had a profound impact on workers and their work arrangements. Fully 62% of workers identified some kind of change to their job or to their work arrangements between Fall 2019

[3] Statistics Canada Labour Force Survey (LFS) *Labour force characteristics by Montréal, Toronto and Vancouver census metropolitan areas, monthly, seasonally adjusted*, 3.2% decrease in employment (# of employed workers), November 2019 vs November 2020. (https://www150.statcan.gc.ca/n1/daily-quotidien/201204/t008a-eng.htm, last accessed April 9, 2021).

[4] "More people are traveling, to from and around the North Shore for work each day… the North Shore has added more than twice as many jobs than working-age residents since 2011. This has resulted in more workers from elsewhere in the region commuting to work on the North Shore. The actual number of workers may be higher given fluctuations in construction-related traffic." *Integrated North Shore Transportation Planning Project (INSTPP)*, August 2018.

and Fall 2020 as a result of the COVID-19 pandemic. 8% experienced a change in employment (retired, went on leave, changed, lost, or gained work) specifically due to the pandemic. A significant proportion, 14% (about one in seven), reported working fewer hours. Just over one in ten (11%) reported working more hours. More than half of the workforce (55%) either started working from home for the first time or more frequently than they had before. 11% reported starting work at a different time of day.

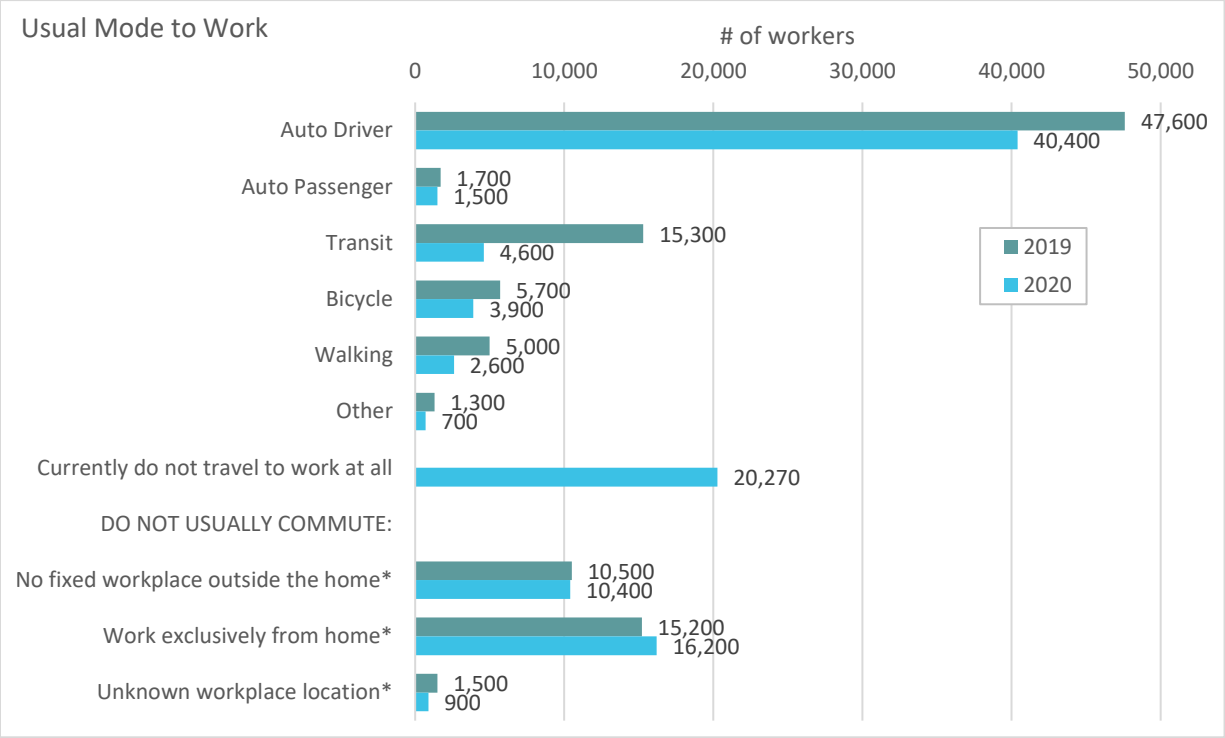
Overall, the estimated number of people who work exclusively from home (i.e., do not have a workplace outside the home) has increased only modestly from 15,200 in 2019 to 16,200 to 2020. By contrast, the estimated number of workers who have a usual workplace outside the home but currently telecommute at least two days per week has increased from 2,700 to 36,500. Combining these figures, an estimated 34,900 workers who reside on the North Shore shifted to working from home at least two days per week. Overall, the proportion of all workers who work from home or telecommute at least two days per week has increased from 17% in 2019 to 52% in 2020.

The COVID-19 pandemic has likely accelerated trends in working from home and flexible work arrangements that were emerging prior to the pandemic. In future cycles of this survey, it will be of interest to track the extent of the long-term changes in work arrangements as COVID-19 risks diminish and travel patterns stabilize to a 'new normal'.

The overall number of work commuters has decreased across all modes. Use of transit for commuting has declined significantly (70% drop in work commutes via transit).

Survey data show that commutes to work have decreased between 2019 and 2020 for every mode of transportation, which is consistent with increased work-from-home arrangements. Transit is the mode most significantly affected. The number of workers using transit has dropped from 15,300 in 2019 to 4,600 in 2020, a 70% drop in commuting via transit. Drops in other modes of transport used to travel to work were not as significant. For example, there was only a 15% decrease in the number of workers who commute as auto drivers between 2019 (46,700) and 2020 (40,400). These survey estimates are illustrated in the chart that follows.

Usual Mode of Travel to Work, 2019 and 2020 (# of workers)[5]



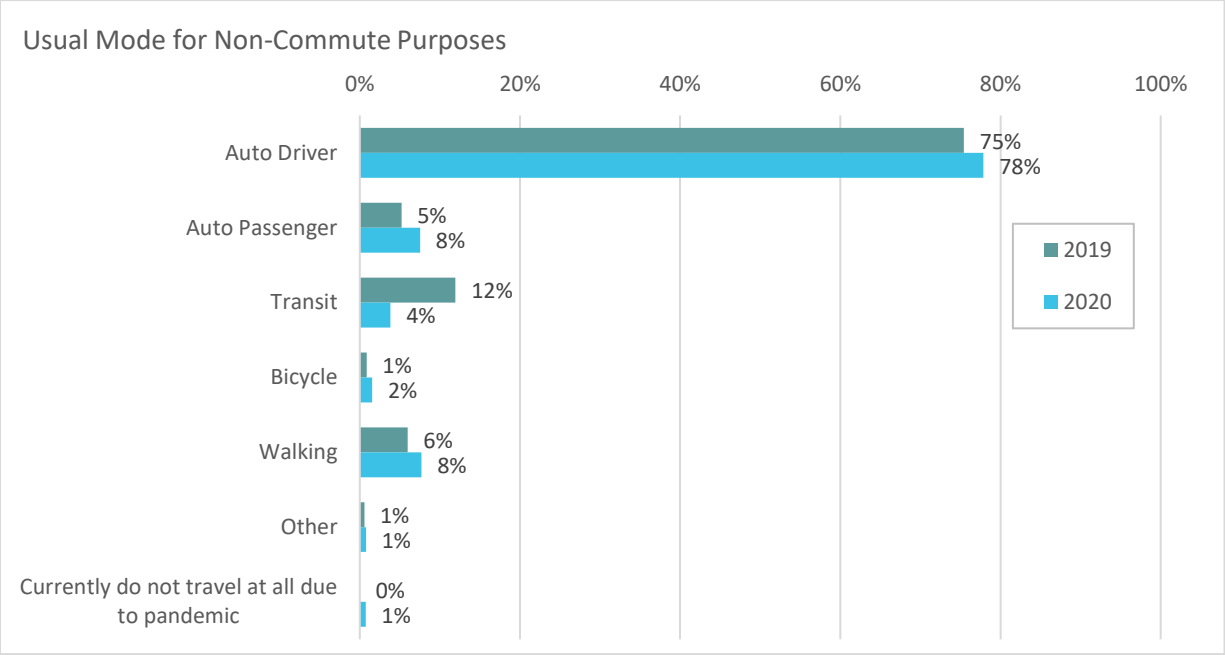
Individual percentages have been rounded and may not add to 100%
n=612 (2019), n=594 (2020)

The proportion of residents who usually use transit for non-commute trips has dropped from 12% to 4%.

Transit as the usual mode for non-commute purposes saw a significant decrease from 12% to 4%. Vehicle-based modes of auto driver and auto passenger trips both increased by three percentage points representing a six percentage-point total increase. Active modes reported a total three percentage-point increase with a two percentage-point increase of walking and one percentage point for cycling.

[5] **Currently do not travel to work at all* = have a usual workplace outside the home, but do not current travel to work;
Work exclusively from home = work from home (do not have a usual workplace outside the home);
No fixed workplace = work site varies / work on the road (do not have a usual workplace outside the home);
Unknown = unknown workplace location or usual workplace outside the home but unknown telecommute frequency

Usual Mode of Travel for Non-Commute Purposes, 2019 vs 2020 (% of population 15+)



Individual percentages have been rounded and may not add to 100%
n=1,081

Gender-Based Analysis: The COVID-19 pandemic has had different travel-related impacts on women compared to men.

The COVID-19 pandemic has impacted the daily trip and person trip rates for men and women unequally as can be seen from expanded survey results in the following table. The average woman and man in 2019 had a similar number of trips per day, with 3.98 for men and 3.95 for women. The 2020 survey results indicate that women experienced nearly five-fold greater decline in daily trips (-0.72 daily trips per person) compared to men (-0.15). Women now have a lower average daily trip rate of 3.23 trips per person on average compared to men at 3.83 trips per person.

- Examination of the trip destinations reported by men and women suggest that women experienced in greater drop in work and work-related trips, as well as for social purposes and personal business, while their volume of trips to pick up or drop off passengers stayed the same, and restaurant and shopping trips increased only slightly.

- While men's work-related trips halved, their commute trips to work diminished only modestly. Men's trips for recreational purposes remained the same, and their trips for shopping, to restaurants, and to serve passengers have all notably increased.

The differences in trips to work and for work-related purposes may be related to differences in the distributions of types of jobs worked by women and men that may be affected differently by the pandemic (with the survey data showing that, amongst survey participants, proportionately more

women work in education, law, social, community and government services, and proportionately more men work in trades, transport, or equipment-operator jobs). The varying impacts of the pandemic by occupation type are presented in Section 4.2.2 of this report and gender distributions by job type are discussed in more detail in Section 7.1.2 of this report.

Daily Trips and Person Trip Rates, by Gender, 2019 vs. 2020 [6]

	Men			Women		
	2019	2020	Change 2019-2020	2019	2020	Change 2019-2020
Sample size (persons)	n=500			n=581		
Population 15+	70,800			87,300		
Daily Trips	282,000	271,100	-10,900	344,800	282,300	-62,500
Avg. Daily Trips per Person	3.98	3.83	-0.15	3.95	3.23	-0.72

North Shore residents feel safest when walking, while a significant proportion of North Shore cyclists perceive cycling to be dangerous.

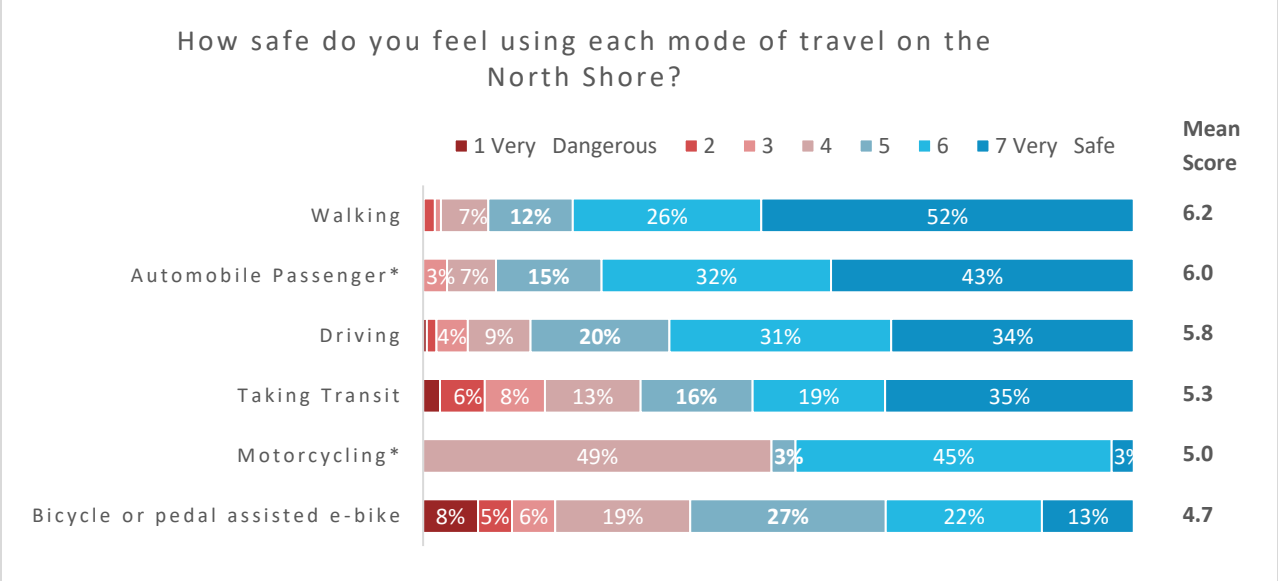
The survey asked participants to rank their perception of safety of their modes of transportation that they use as a primary or secondary mode of travel on the North Shore on a scale of 1 (very dangerous) to 7 (very safe). The figure below shows the distribution of rankings for each mode of transportation. With regards to sustainable modes, there is a large spread of perceived safety between transit, walking and cycling:

- transit had a mean score of 5.3, however it is unclear how much consideration respondents gave to the COVID-19 pandemic when giving their ranking;
- walking had the highest perceived safety with a mean score of 6.2, while
- cycling had the lowest perceived safety with a mean score of 4.7 amongst those who cycle.

These results are notable as both cyclists and pedestrians are considered vulnerable road users, but cyclists are on average considerably less confident about their own safety. Driving and being an auto passenger had high perceived safety, scoring 6.0 and 5.8, respectively. The results for motorcycle and auto passenger should be interpreted with care due to small sample sizes (n=11 and 65 respectively).

[6] For the purpose of gender-based analysis, participants who indicated their gender was non-binary, other, or who refused to say have been randomly assigned to men or women due to the very small sample sizes of such participants.

Perception of Safety of Travel Modes Used (Usual or Secondary Modes) [7]



[7] The question on perceived safety of travelling via each mode was asked of those who cited the given mode as one of their usual modes for work/school commute or non-commute purposes. Sample sizes: Walking n=358, Auto Passenger n=65 (*interpret with caution; only asked if not a driver), Driving n=953, Transit n=224, Motorcycle n=11 (*interpret with caution), Bicycle n=135. Small percentages not displayed in the chart for legibility: Walking, 0.1% with score of 1, 2% with 2, 1% with 3; Driving, 1% with score of 1, 1% with 2; Transit, 2% with score of 1. Individual %'s may not add to 100% due to rounding.
* Auto Passenger asked only of participants who cited this mode and did not cite auto driver as one of their usual modes.
* Interpret results for Motorcycling with caution due to the very small sample size (n=11).

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1 Introduction

1.1 North Shore Transportation Survey Overview

1.1.1 Background and Objectives

The North Shore Transportation Survey (NSTS) is a biennial survey of residents of the North Shore that tracks key transportation metrics associated with residents' travel patterns. The survey is an initiative of the City of North Vancouver (CNV), District of North Vancouver (DNV), and District of West Vancouver (DWV).

In 2018, the Integrated North Shore Transportation Planning Project (INSTPP) report identified several key access and mobility challenges. Identified challenges include: land use is largely car oriented; transit and alternative modes of travel are often not competitive with travel by car; measures are lacking to manage road use; road use exceeds capacity at peak times and pinch points; the road network has gaps that reduce choice and increase congestion. The North Shore municipalities, in partnership with various levels of government and stakeholders, are enacting a number of initiatives that aim to address these transportation challenges.

The NSTS is intended to track trip rates, mode shares, vehicle kilometres travelled, and other key metrics that will help the municipalities assess the impact of transportation initiatives and plan future transportation investments. The baseline survey was conducted in Fall 2019 with 1,901 residents of the North Shore. The 2019 NSTS serves as a baseline measurement against which subsequent survey cycles can be compared.

The 2020 NSTS, conducted in Fall 2020 was intended to be a short interim survey with participants of the 2019 NSTS, to keep them engaged in readiness for the 2021 NSTS (the next full survey), and to gather information on transportation issues of interest that were not asked in the 2019 survey. With the advent of the COVID-19 pandemic, the goals were adjusted to collect information on the impact of the COVID-19 pandemic on the travel of North Shore residents, to the extent possible without conducting another full trip diary survey. Comparison of the 2020 interim survey results to the 2019 results should provide valuable information on the impact of the pandemic on residents' work arrangements and travel patterns. The interim survey also gathered information on residents' perceived safety while using different modes of transportation on the North Shore and asked those with vehicles to report their odometer readings for use in estimating annual VKT (vehicle kilometres travelled).

1.1.2 Design and Administration of the 2020 Survey

The 2020 survey included questions organized into four main topic areas:

- updates to demographics and occupation status,
- self-reported usual modes of travel,
- destinations travelled to on a previous weekday,
- perceived safety of transportation modes, and
- capture of odometer readings.

Within this structure, to assess the impact of the COVID-19 pandemic, the survey asked several questions that were asked in 2019, such as: employment status, frequency of transit use; frequency of telecommuting; and usual modes of travel for work, school, and non-commute purposes. The survey also asked participants to report the number of trips they made on the most recent weekday for different purposes and the number of those trips that were via sustainable modes (transit, walk, bicycle).

The section on perceived safety asked participants who had reported use of any of the following modes of travel as 'usual' or 'secondary' modes (whether for work commutes, school commutes, and/or non-commute purposes) to rate their level of safety while travelling via that mode: auto driver, auto passenger (only asked if the participant didn't usually drive), transit, cycling, or walking.

The survey was conducted from November 24 to December 23, 2020. It may be noted that after the easing of some pandemic restrictions/guidelines through the late summer and early fall, this timeframe was within a period of somewhat increased restrictions related to the pandemic.

The survey sample frame included 1,571 participants from the 2019 NSTS who in 2019 provided valid contact information and agreed to be contacted again for the 2020 survey. New participants in the NSTS were not recruited during the administration of this interim survey.

For previous participants who provided email addresses in 2019, survey invitations were sent via email. For those with phone numbers, telephone follow-up was undertaken. Surveys were completed both online and over the phone. All participants were offered entry in a prize draw as an incentive, with a small segment of younger participants offered a direct survey completion incentive, to encourage continued participation in the NSTS, given that younger people are generally harder to recruit to surveys.

During survey administration, a total of 1,091 individuals completed the 2020 survey, 800 of which were completed online, and 291 by telephone interview. Ten individuals who completed the survey online were disqualified during screening questions due to having moved away from the North Shore. A total of 60 previous participants refused, for a 4% refusal rate. During initial telephone contact efforts, another nine were determined to be seriously ill/incapable, deceased, or had moved away from the area, while 31 had phone numbers from 2019 that were found to be incorrect or no longer in service. The remainder either could not be contacted or were unable to complete the survey within the survey timeframe.

Table 1. 2020 Survey Response by Municipality

Municipality (place of residence in 2019)	# of 2019 Participants	2020 Surveys	2020 Response Rate
District of North Vancouver	757	528	70%
City of North Vancouver	447	319	71%
District of West Vancouver	367	243	66%
Total Surveys Completed	**1,571**	**1,091**	**69%**
Moved outside North Shore		-10	
Total Valid Surveys Analysed		**1,081**	

Excluding those who were screened out for having moved away, the 2020 survey obtained a valid sample of 1,081 survey completions. This represents response rate of 69% (relative to the 1,572 who agreed in 2019 to participate again). By municipality, response was slightly higher for the City of North Vancouver (71%) and District of North Vancouver (71%) compared to the City of West Vancouver (66%).

Overall, taking into account the 2019 participants who in the 2019 baseline survey declined to be contacted again, the 2020 sample represents a retention rate of 57% relative to the size of the original 2019 sample of 1,901 participants.

Of the 1,081 North Shore residents surveyed in 2020, a total of 1,031 (95%) agreed to be contacted again in 2021 for the next full cycle of the NSTS.

1.1.3 Analysis of the Survey Results

After survey administration was completed, data cleaning and coding was undertaken. Participants who had moved within the North Shore had their new addresses geocoded to reassign the data expansion, report zone, and municipality if necessary. Open-ended responses were reviewed, and where necessary adjustments were made to the survey data and/or new response codes were created to reflect themes in the open-ended responses.

The 2020 survey participants were weighted to reflect the distribution of population by geography, household size, dwelling type, age, and gender using the same iterative proportional fitting method as used for the 2019 NSTS and expanded to represent that total population aged 15+ years living on the North Shore. In 2019, the 2016 Census data had been projected forward to 2019 to reflect population growth. For convenience, the 2019 projections were again used for the data weighting and expansion (and thus the results in this report do not reflect population growth between 2019 and 2020).

The 2020 survey used a sample of convenience drawn from 2019 NSTS participants. **Section 3** of this report presents an exploration of the characteristics of the weighted 2020 participant sample in comparison to the 2019 participant sample. As the subsample of 2020 participants differed from the full

[8] Valid contact sample for the 2020 mini-survey = 1,571 participants from the 2019 NSTS who provided valid contact information and agreed to be contacted again (out of a total of 1,905 participants in 2019).
The number of survey completions reflects the participants' municipalities at the time of the 2019 survey. Participant municipalities were later updated to reflect any moves to other municipalities in the North Shore in 2020.

2019 participant sample in terms of the travel reported in the 2019 NSTS, the decision was made that analysis of year-over-year changes would be undertaken with comparisons against the 2019 results for the 2020 subsample. For this reason, the 2019 results presented in this report may differ from those for the 2019 NSTS report, which was based on the full sample.

When looking at the overall results for the 2020 follow-up survey, the margin of error associated with random sampling is estimated at ±4.4% at a 95% confidence level (19 times out of 20), taking into account the design effects associated with the data weighting to correct for bias. By municipality, the sampling errors are somewhat higher: at ±5.6% for DNV, ±6.4% for CNV, and ±7.6% for DWV.

1.1.4 Caveats

As discussed earlier, the 2020 survey was originally intended to be a lightweight survey to report on a few issues of interest and to engage with the panel of repeat participants but presented a unique opportunity to collect a deeper level of information on the impacts of the COVID-19 pandemic on travel patterns. The comparisons with the 2019 results for the 2020 participants are, however, subject to some caveats. In particular:

- The characteristics of the 2020 subsample of 2019 participants differ somewhat from the full 2019 participant sample. While this is mitigated by applying new data weighting to the 2020 subsample, some biases may not have been corrected for by data weighting.
- Given the interest in understanding the impacts of COVID-19 on the population, the 2020 results are scaled to the same total population base as used in 2019, and do not reflect differential population growth rates in the three municipalities and eight data expansion zones
- Trip information was captured differently in 2019 and 2020. The 2019 NSTS employed a comprehensive set of questions to capture information about each trip made on a previous weekday, whereas the 2020 interim survey asked participants to summarize the destinations they visited, and the number of destinations visited by sustainable modes. The 'summary approach' may yield different results in terms of daily trip volumes and trip rates. For example, in 2019 a trip to a mall in which various stores were visited would have been captured as a single trip, whereas in 2020 a survey participant with a similar outing may or may not have counted multiple stores within the mall when asked about total shopping destinations visited.
- The survey was also conducted a bit later in fall 2020 than for the 2019 survey so some mode choices may be affected by seasonality.
- Year-over-year comparisons for smaller geographies or population segments should be interpreted with caution given smaller sample sizes

1.1.5 Planning for the 2021 Survey Cycle

The 2021 NSTS will be undertaken in Fall 2021 and will entail the detailed capture of daily trip patterns. This survey will invite the participants in the 2020 interim survey to participate once again in the full survey, complemented by the recruitment of a new random sample of North Shore residents.

The NSTS is designed to be a program that captures detailed information on daily travel patterns every two years, with 2019 being the baseline and 2021 the first comparison point. Given that the 2020 interim survey captured some limited information on travel patterns in order to explore COVID-19

impacts, it may be useful in the 2021 analysis to also include some comparisons to 2020. This would serve to explore the extent to which travel patterns in the Fall will recover as the risks of the pandemic diminish and/or indications of more lasting impacts, such as possible changes in telecommuting and work from home that may persist long-term.

The design of the 2021 NSTS will be developed leading up to the fall survey.

1.2 Report Organization

The remainder of this report is organized into the following sections:

Section 2: Survey Geography
Section 3: Participant Characteristics
Section 4: Changes in Occupational Status and Work Arrangements
Section 5: Usual Modes of Travel
Section 6: Changes in Transit Use
Section 7: Changes in Daily Trip Patterns
Section 8: Perceptions of Safety while Travelling on the North Shore – by Mode of Travel
Section 9: Annual VKT from Odometer Readings

1.3 Interpreting the Survey Results

Readers should keep the following in mind when interpreting the survey results presented in this report:

- The survey results are based on a 0.7% sample of the population of the North Shore. **All figures should be understood to be estimates.**
- **Expanded household, person, and trip counts presented in this report have been rounded to the closest 100**, but the actual margin of error may be greater than units of 100.
- **Figures presented for individual categories may not always sum to exactly the reported total across those categories due to rounding**.
- Survey response proportions have either been rounded to the nearest percent or one-tenth of a percent. **Individual percentages may not always add to exactly 100% or 100.0% due to rounding.**
- **Certain comparisons with 2019 should be interpreted with caution**, particularly for trip volumes and mode shares, and when made using smaller population sub-samples, for reasons discussed in the caveats section of this report (Section 1.1.4). Nevertheless, the results should still provide a good indication of the kinds of impacts the COVID-19 pandemic has had on travel patterns.

1.4 Acknowledgements

The survey research was conducted by R.A. Malatest & Associates Ltd. (the Consultant) in association with Associated Engineering, with the guidance of the project partners: City of North Vancouver, District of West Vancouver, and the District of North Vancouver.

We gratefully acknowledge the direction and guidance of Banafsheh Rahmani, Transportation Engineer with the District of North Vancouver, Christopher French, Planning Assistant–Transportation with the City of North Vancouver, and Cindy Liu, Transportation Engineer with the District of West Vancouver.

This project would not be possible without the contributions of 1,081 residents of the Tsleil-Waututh Nation, Squamish Nation, City of North Vancouver, District of North Vancouver, and District of West Vancouver who completed the 2020 NSTS, as well as those who completed previous surveys. We thank all those who responded to this survey, via phone interview or online. Your participation in the North Shore Transportation Survey has contributed to transportation planning data that will be useful for years to come.

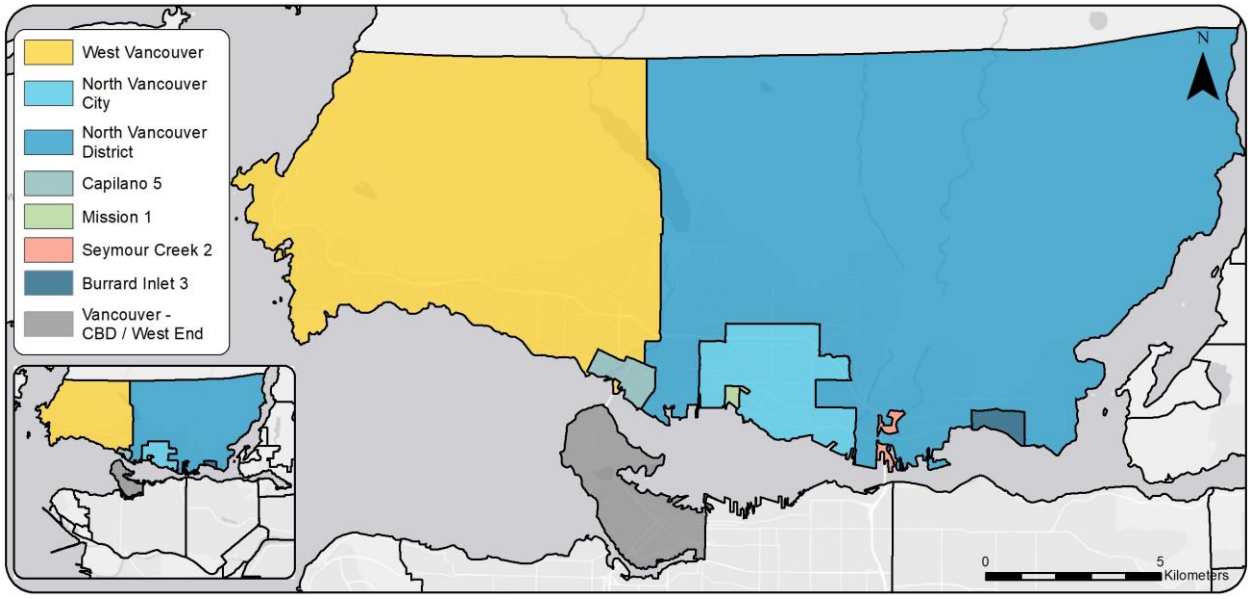
2 Survey Geography

2.1 Survey Scope

The North Shore Transportation Survey study area comprises the entire North Shore, including Tsleil-Waututh Nation (Burrard Inlet 3 Census Subdivision), Squamish Nation lands within the North Shore area (Mission 1, Seymour Creek 2, and Capilano 5 Census Subdivision), the CNV, DNV and DWV.

The study area is presented in **Figure 1** below. The Vancouver downtown CBD/West End, which is outside the study area, is included on the map for reference, as this is a common external destination for North Shore residents.

Figure 1. Map of Study Area



2.2 Survey Geographies

2.2.1 Municipal Areas

The North Shore includes several different municipalities and First Nations. For the purpose of analysis by municipal area, First Nations lands have been combined with the municipality they border or are situated within the boundaries, as outlined in **Table 2** below. The population figures in the table below are for the year 2019, the reference year the panel participant data were weighted to.

Table 2. Municipal Areas with 2019 Projections of 2016 Census Counts

Municipal Area for Analysis	Census Subdivisions in Municipal Area	Land area (sq km)	Total private dwellings	Total Population	Private Households Occupied by Usual Residents	Population 15+ Years of Age in Private Dwellings	2019 NSTS Survey Participants	2020 Survey Participants
1. District of North Vancouver (DNV)	District of North Vancouver	160.76	32,704	86,146	31,192	70,379	883	511
	Burrard Inlet 3	1.06	1,077	2,145	1,064	1,879	22	12
	Seymour Creek 2	0.49	44	134	40	114	0	0
2. City of North Vancouver (CNV)	City of North Vancouver	11.85	27,333	54,714	25,491	46,686	548	321
	Mission 1	0.28	178	577	160	476	2	0
3. District of West Vancouver (DWV)	District of West Vancouver	87.26	18,701	42,592	16,981	35,920	427	222
	Capilano 5	1.72	1,507	3,081	1,376	2,691	23	15
North Shore	**Total**	**263.42**	**81,545**	**189,390**	**76,305**	**158,146**	**1,905**	**1,081**

2.2.2 Sub-Municipal Zones

A set of eight geographies, or "sub-municipal zones", was also developed for use in data weighting and analysis at a more disaggregate level than municipality. The zones were developed looking at the North Shore as a whole, to group together similar residential and commercial areas, and in consideration of the road and transit networks available to residents, even if the boundaries of like areas sometimes bridge municipal boundaries. The map on the next page (**Figure 2**) illustrates the boundaries of the eight zones that were developed. The colouring of the map depicts population densities for Statistics Canada Dissemination Areas, one of the smallest levels at which data from the national Census are released. The eight sub-municipal zones and their populations are listed in **Table 3**, following.

Figure 2. Map of Sub-municipal Zones with Population Density by Dissemination Area (Population per Hectare)

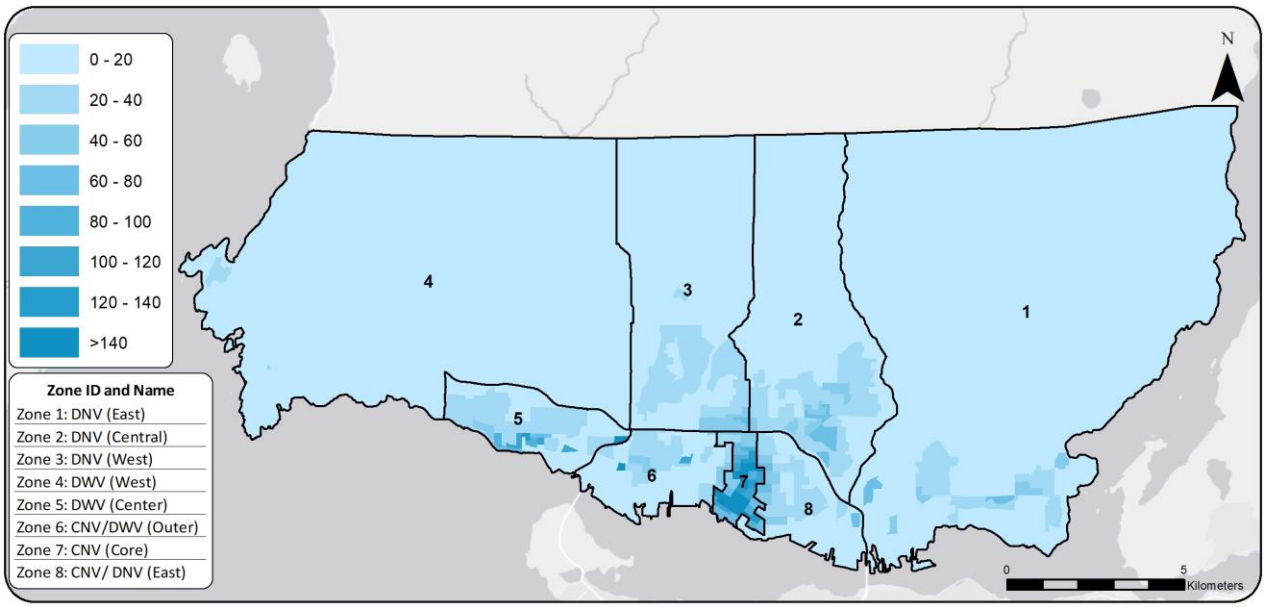


Table 3. Sub-municipal Zones with 2019 Projections of 2016 Census Counts

	Land area (sq km)	Total private dwellings	Total Population	Private Households Occupied by Usual Residents	Population 15+ Years of Age in Private Dwellings	2019 NSTS Survey Participants	2020 Survey Participants
Zone 1: DNV (East)*	101.9	10,853	28,441	10,539	23,460	299	173
Zone 2: DNV (Central)	28.1	11,141	30,430	10,710	24,576	303	177
Zone 3: DNV (West)	27.6	8,765	23,514	8,234	19,220	241	132
Zone 4: DWV (West)	79.9	9,105	22,770	8,189	19,217	214	112
Zone 5: DWV (Center)†	7.5	11,184	22,624	10,292	19,233	239	121
Zone 6: CNV / DWV (Outer)‡	8.1	6,633	15,977	6,178	13,110	159	101
Zone 7: CNV (Core)	2.7	17,204	29,667	16,060	26,248	306	176
Zone 8: CNV / DNV (East)^	7.6	6,660	15,968	6,103	13,038	144	89
North Shore Total	**263.4**	**81,545**	**189,391**	**76,305**	**158,101**	**1,905**	**1,081**

* Zone 1 also includes Burrard Inlet 3 (Tsleil-Waututh Nation) and part of Seymour Creek 2 (Squamish Nation)

† Zone 5 also includes part of Capilano 5 (Squamish Nation)

‡ Zone 6 also includes Mission 1 and part of Capilano 5 (Squamish Nation)

^ Zone 8 also includes part of Seymour Creek 2 (Squamish Nation)

3 Participant Characteristics

3.1 Demographics and Household Characteristics: Panel vs Full 2019 Sample

This section highlights key demographics of the 2020 Survey participants after data weighting was applied and explores the representativeness of this panel survey sample.

The 2020 Survey was completed in the fall of 2020 with a panel of 2019 NSTS participants who agreed to be contacted again. The 2020 survey was an interim follow-up survey intended to keep panel participants engaged in the NSTS program, also using the opportunity to also gather information on transportation issues of relevance to the North Shore municipalities. As this was a lightweight interim survey, new participants were not recruited, and the survey included topical questions without a full trip diary section. (The panel of those who agreed to participate again will be supplemented by a new random sample of the population in the next full survey in the fall of 2021.) After completion of the survey, the 2020 participant sample was weighted and expanded to represent the full population of North Shore residents 15+ years of age using the same methods as used in weighting the full 2019 survey sample. **Table 4** outlines the numbers of survey completions obtained in 2019 and 2020 and the associated margin of sampling error, which was ±3.0% for the full sample in 2019 and ±4.4% for the subsample of 2020 participants.

Table 4. Sample Sizes and Margin of Error: 2019 Full Sample vs. Subsample of 2020 Participants

	Census[9]	2019 NSTS Full Sample	Subsample of 2020 Participants
Sample Size	*n/a*	*n=1,905*	*n=1,081*
North Shore households represented	76,305	76,305	76,305
Population 15+ years of age represented	158,101	158,101	158,101
Sampling rate (% of population surveyed)	n/a	1.2%	0.7%
Effective Sampling Error	n/a	±3.0%	±4.4%

As a subset of the original random cross-sectional survey sample obtained in the 2019 NSTS, the 2020 interim survey sample is a sample of convenience. Therefore, is important to confirm whether the survey results for the subset of panel participants can be generalized to the population of the North Shore. To this end, the data were explored to determine whether, after data weighting and expansion to the size of the total population 15+ years of age, the 2020 panel is comparable, or has any biases that might reveal that panel participants have different characteristics or travel patterns than the original full 2019 sample. This will answer the question: "Are the 2020 panel participants still representative of the North Shore population as a whole?"

Table 5, **Table 6** and **Table 7** on the next pages compare the household, demographic and occupational characteristics of the full 2019 NSTS participant sample to the subset of that sample who went on to participate in the 2020 survey. The 2020 subset is presented in two ways: first, the characteristics as

[9] 2016 Census data scaled to 2019 population projections. Note: the 2020 survey dataset were not scaled to account for growth from 2019 to 2020, but for convenience were expanded to the 2019 population projections as well.

they were when originally surveyed in Fall 2019, and second, the characteristics as they were when surveyed again in 2020 (reflecting aging upwards into different age ranges, changes dwelling type and household size, and changes in school and work status). Percentage distributions have been rounded to the closest percent to make the figures simpler to review, but differences have been rounded to the nearest 0.1%.

Examining the differences between the full 2019 survey sample and the subsample of those who went on to participate in 2019, in the first few columns of each of the tables, we can make the following observations:

- The full sample and subsample are quite equivalent in terms of household size, vehicle availability, bicycle availability, and distribution of population by dwelling type.
- The are some more noticeable differences between the samples in terms of household income distribution, with a slight overall bias to higher income categories in the 2020 samples. However, these differences are relatively minor, and the overall profile is similar (including the same general bias in somewhat under-representing lower-income households when compared against the Census data).
- Gender and age profiles for are almost identical. Both the full sample and the subsample somewhat under-represent population aged 15-24 years, due to lower response from these groups, and the limits placed on extreme weights in the weighting process.
- Levels of educational attainment are almost identical, although do reveal a slight increase in the bias towards higher levels of educational attainment seen in the full 2019 sample.
- Occupational status, workplace location, and occupation type are very similar but with some differences (such as small differences in the proportions of full-time workers, part-time workers, and retirees).

Overall, we can conclude that, in terms of their demographic characteristics, the subsample of 2020 panel participants is very comparable to the 2019 full survey sample, albeit with a higher margin of sampling error due to a smaller sample size. The differences are not significant enough to raise concerns about the general representativeness of the 2020 participants.

Examining the tables further, the two left-most columns illustrate how the characteristics of the 2020 panel participants have changed since they were first surveyed in 2019. Changes in participants circumstances over the past year show only small changes on the overall composition of the sample in terms of household size, dwelling type, income, age distribution, and work characteristics (after data weighting is applied to reflect the changed characteristics). It may be noted that some differences may be the result of slight differences in the data weighting due to participants moving or aging upwards into other age groups and/or corrections made by 2020 participants when asked to review and confirm their demographic answers from 2019. Later sections of this report explore changes to labour market participation and how people work, including impacts of the pandemic.

Readers may refer to the 2019 report for a more detailed presentation of population demographics and household characteristics for the North Shore.

Table 5. Household Characteristics: 2019 Full Sample vs. 2020 Subsample in 2019 and 2020 – Weighted and Expanded Data[10]

	Census	2019 NSTS Full Sample	2019 NSTS Subsample of 2020 Participants	Difference (subsample vs full sample)	2020 Survey Participants	Change 2019 to 2020
Households by Size						
1 person	14%	14%	12%	-1.2%	14%	+1.2%
2 persons	16%	16%	16%	+0.5%	16%	-0.5%
3 persons	8%	8%	8%	+0.3%	8%	-0.3%
4 persons	8%	8%	8%	+0.4%	8%	-0.4%
5+ persons	3%	3%	4%	0.0%	3%	-0.1%
Household Transportation Options						
% of households with vehicles	n/a	94%	94%	+0.8%	n/a	n/a
Vehicles per household	n/a	1.65	1.68	+0.03	n/a	n/a
Vehicles per person 15+	n/a	0.79	0.81	+0.02	n/a	n/a
% of households with bicycles	n/a	0.58	0.60	+0.02	n/a	n/a
Adult bicycles per person 15+	n/a	0.66	0.69	+0.03	n/a	n/a
Population 15+ by Dwelling Type						
House	46%	48%	48%	-0.2%	47%	-1.0%
Apt 5+ Storeys	13%	13%	13%	-0.4%	14%	+0.6%
Apt <5 Storeys	17%	17%	17%	+0.3%	17%	+0.1%
Other Ground-Oriented	25%	22%	22%	+0.3%	22%	+0.3%
Households by Income (% of participants with valid answers)						
$0 to less than $30,000	16%	8%	7%	-1.6%	6%	-0.4%
$30,000 to less than $50,000	14%	15%	16%	+0.8%	16%	-0.5%
$50,000 to less than $80,000	18%	20%	18%	-1.9%	18%	+0.4%
$80,000 to less than $125,000	19%	22%	23%	+0.7%	24%	+0.8%
$125,000 to less than $200,000	17%	20%	22%	+1.7%	21%	-0.1%
$200,000 or more	16%	15%	15%	+0.4%	15%	-0.2%
Decline/unknown (% of all participants)	*0%*	*20%*	*17%*	*-3.3%*	*17%*	*0.0%*

Individual percentages have been rounded and may not add to 100%

[10] n/a = not available / no data / not asked in 2020

Table 6. Participant Characteristics: 2019 Full Sample vs. 2020 Subsample in 2019 and 2020 – Weighted and Expanded Data

	Census	2019 NSTS Full Sample	2019 NSTS Subsample of 2020 Participants	Difference (subsample vs full sample)	2020 Survey Participants	Change 2019 to 2020
Population 15+ by Gender						
Male	47%	46%	45%	-0.6%	45%	-0.4%
Female	53%	54%	55%	+0.6%	55%	+0.4%
Population 15+ by Age Range						
15 - 24 years[11]	14%	10%	9%	-0.2%	9%	-0.7%
25 - 34 years	12%	12%	12%	+0.1%	13%	+0.8%
35 - 44 years	15%	16%	17%	+0.9%	16%	-0.6%
45 - 54 years	19%	20%	20%	-0.1%	21%	+0.2%
55 - 64 years	17%	19%	18%	-0.1%	18%	+0.1%
75+ years	11%	10%	10%	-0.2%	10%	+0.1%
Highest Level of Education						
Have not completed high school	9%	4%	3%	-1.5%	3%	+0.7%
Completed high school (or secondary school equivalent such as ABE or GED)	24%	11%	11%	0.0%	11%	-0.2%
Trade certificate/diploma or completed apprenticeship	6%	6%	6%	-0.2%	6%	-0.1%
Non-university certificate or diploma from a community college, CEGEP, or nursing school	17%	10%	10%	-0.1%	10%	-0.6%
University certificate or diploma below bachelor's level	4%	8%	7%	-1.2%	7%	-0.1%
Bachelor's degree	25%	28%	31%	+2.2%	31%	+0.5%
University certificate or degree above bachelor level	3%	9%	9%	+0.2%	9%	+0.1%
Degree in medicine, dentistry, veterinary medicine, or optometry	1%	1%	1%	-0.2%	1%	-0.1%
Graduate degree (master's degree or doctorate)	10%	19%	21%	+1.6%	21%	0.0%
Decline / don't know	0%	3%	2%	-0.8%	2%	-0.2%

Individual percentages have been rounded and may not add to 100%

[11] Despite weighting adjustments for age, population 15-24 years of age are under-represented in the weighted data due to limits on extreme weights.

Table 7. Occupational Characteristics: 2019 Full Sample vs. 2020 Subsample in 2019 and 2020 – Weighted and Expanded Data[12]

	Census	2019 NSTS Full Sample	2019 NSTS Subsample of 2020 Participants	Difference (subsample vs full sample)	2020 Survey Participants	Change 2019 to 2020
Population 15+ by Occupation Status[13]						
Work Full-Time	n/a	49%	50%	+1.3%	50%	+0.1%
Work Part-Time	n/a	13%	15%	+2.0%	13%	-2.0%
Student Full-Time	n/a	7%	7%	-0.6%	5%	-1.5%
Student Part-Time	n/a	1%	2%	+0.8%	2%	-0.5%
Retired	n/a	26%	24%	-2.6%	26%	+1.9%
Unemployed	n/a	4%	4%	-0.2%	5%	+0.9%
Other Status	n/a	3%	3%	+0.5%	3%	-0.5%
Workers by Workplace Location						
Work exclusively from home [14]	12%	13%	15%	+1.3%	16%	+1.5%
Usual place of work outside the home	75%	77%	74%	-3.5%	70%	-3.8%
No fixed workplace address	12%	8%	10%	+2.3%	10%	+0.2%
Worked outside Canada	1%	n/a	n/a	n/a	n/a	n/a
Unknown	n/a	2%	1%	-0.2%	4.0%	+2.1%
Workers by Occupation Type						
Management Occupations	10%	9%	9%	0.0%	10%	+0.3%
Business Finance & Admin Occupations	11%	11%	11%	0.1%	11%	-0.4%
Natural & Applied Science Occupations	5%	6%	7%	1.1%	7%	+0.3%
Health Services Occupations	4%	5%	4%	-0.4%	4%	-0.2%
Education, Law & Social, Community & Government Services (responses 5,11)	8%	9%	9%	0.3%	9%	-0.2%
Performing and Facilitating Art, Culture, Recreation, and Sports	4%	4%	4%	0.3%	4%	0.0%
Sales & Service Provision	14%	10%	10%	-0.4%	9%	-0.6%
Trades, Transport & Equipment Operators (responses 8,77)	5%	4%	5%	0.7%	5%	-0.1%
Natural Resources, Agriculture & Related Production	1%	0%	0%	-0.1%	0%	0.0%
Manufacturing and Utilities	1%	1%	1%	0.3%	1%	-0.2%
Other, could not reclassify	n/a	0%	0%	-0.2%	0%	0.0%
Unknown	n/a	3%	2%	-0.5%	4%	+1.4%

Individual percentages have been rounded and may not add to 100%.

[12] n/a = not available / no data / not asked in 2020

[13] Percentages may add to greater than 100% due to multiple statuses: between 3-4% of the population 15+ years of age are students who are also workers.

[14] "Work exclusively from home" should be understood to be those who work from home without a workplace outside the home. In the 2020 survey, those who have a fixed workplace outside the home but who currently work from home due to the COVID-19 pandemic are still considered to have a location of "Usual place of work outside the home". The incidence of working from home due to telecommuting is analysed separately.

3.2 Travel Patterns in 2019: Panel vs. Full 2019 Sample

Table 8 compares the 2019 NSTS results for the full sample in that year against the 2019 NSTS results for the subsample who participated in the 2020 survey. This table does not present the 2020 survey results and how they compare to 2019, which is the subject of the analytical sections of the report that follows. As in the preceding table, the comparisons in the table below help us to better understand whether the 2020 subsample has any biases compared to the full 2019 sample from which it was drawn.

We can make the following observations:

- The subsample of 2020 panel participants is very similar to the full sample of 2019 participants in terms of reported usual mode of travel to work (albeit with slightly less reliance on transit) and usual mode of travel for non-commute purposes (albeit with slightly less reliance on walking and slightly less reliance on transit).
- The comparison for usual mode of travel to school suffers from a very small sample size: Of 54 students who participated in 2019, only 33 went on to complete the 2020 interim survey, and the comparison of the weighted 2019 results shows significant differences for students. For this reason, the 2020 survey results for students should be interpreted with caution and thus are treated as anecdotal in the analysis in this report.
- Only 1.7% more panel subsample participants reported making trips than the 2019 survey average. However, the subsample seems to have reported fully 8.2% more trips, with a trip rate of 3.96 trips per day on average, compared to 3.66 for the full sample. This suggests that either the panel participants who went on to complete the 2020 survey have more active travel days or they are more diligent in reporting their travel than those who declined to participate again or moved away from the North Shore.
- The distributions of detailed trip purposes are very similar in most respects. A lower proportion of trips to work (9.2% for the subsample vs 10.6% for the survey average) is offset somewhat by a higher proportion of work-related trips (6.1% vs 5.1%). The panel subsample also reported proportionately more shopping trips (14.2% vs. 12.7%).
- The distributions by primary mode of travel reveal only small differences, including slightly more reliance on cycling (2.6% vs. 2.3% in the full sample), and somewhat higher reliance on walking (14.4% vs. 13.9% in the full sample).
- The weighted and expanded panel subsample had 18,400 more daily transit trips as a whole (40% more) but fewer trips involving transfers, with just 7,300 more boardings (8% more).

This suggests that despite the similarity between the 2019 full sample and the panel subsamples in terms of personal characteristics, there are some modest but notable differences in terms of travel patterns, most notably in terms of daily trip rates in 2019. The differences in terms of usual modes used, actual mode shares, and trip purposes are all within the margin of error associated with randomly sampling from a population. Nevertheless, given the difference in trip rates and trip volumes and even the modest differences observed, comparison of the 2020 survey results to the 2019 NSTS would best be undertaken using the 2019 results for just the panel participants (which may differ slightly from the results present in the 2019 NSTS report).

Table 8. Travel Patterns: 2019 Full Sample vs. 2020 Subsample in 2019 – Weighted and Expanded Data [15]

	Census[16]	2019 NSTS Full Sample	2019 NSTS Subsample of 2020 Participants	Difference (subsample vs full sample)
Usual mode of travel to work				
Sample size (workers)		*n=760*	*n=442*	
Auto Driver	68%	62%	62%	+0.1%
Auto Passenger	5%	1%	2%	+0.8%
Transit	17%	23%	20%	-2.8%
Bicycle	2%	7%	7%	+0.3%
Walked	7%	6%	7%	+0.5%
Other	1%	1%	2%	+1.0%
Usual mode of travel for non-commute purposes				
Sample size (all participants)		*n=1,905*	*n=1,081*	
Auto Driver	n/a	75%	75%	+0.7%
Auto Passenger	n/a	5%	5%	-0.2%
Transit	n/a	12%	12%	-0.2%
Bicycle	n/a	1%	1%	-0.1%
Walked	n/a	6%	6%	+0.1%
Other	n/a	1%	1%	-0.3%
Usual mode of travel to school (students 15+ years of age)				
Sample size (students)		*n=54*	*n=33*	
Auto Driver	n/a	25%	25%	+0.1%
Auto Passenger	n/a	6%	0%	-6.4%
Transit	n/a	49%	59%	+10.0%
Walked	n/a	17%	16%	-0.6%
Other	n/a	3%	0%	-3.1%
Travelled on Travel day				
Yes, took trips	n/a	93%	95%	+1.7%
No trips on travel day	n/a	7%	5%	-1.7%
Trips				
Trip Sample size (trip records)		*n=6,822*	*n=4,195*	
Person Sample size (person records)		*n=1,902*	*n=1,081*	
Expanded daily trips (persons 15+)	n/a	579,200	626,800	+8.2%
Daily trip rate	n/a	3.66	3.96	+0.30

[15] n/a = not available / no data / not asked in 2020
Individual percentages have been rounded and may not add to 100%.

[16] 2016 Census data scaled to 2019 population projections, journey to work data. It may be noted that the Census asked usual mode of travel to work for anyone who works outside the home who had been employed at any time in the last 16 months, whereas the NSTS asks mode of travel to work only of those who are currently employed at the time of the survey and have a usual workplace outside the home.

	Census[16]	2019 NSTS Full Sample	2019 NSTS Subsample of 2020 Participants	Difference (subsample vs full sample)
Trip Purposes				
Travel to work (usual place of work)	n/a	10.6%	9.2%	-1.4%
Work-related trips to attend meetings etc.	n/a	5.1%	6.1%	+1.1%
Working on the road / itinerant worker	n/a	0.3%	0.2%	-0.1%
Post-secondary school	n/a	1.0%	0.8%	-0.2%
Attend school (K-12)	n/a	0.7%	0.4%	-0.3%
Restaurant (whether eat-in or take-out)	n/a	4.2%	4.6%	+0.4%
Recreation (gym, swimming, etc.)	n/a	6.7%	6.9%	+0.2%
Social outing / meet friends	n/a	5.5%	6.1%	+0.6%
Shopping	n/a	12.7%	14.2%	+1.5%
Personal business	n/a	6.6%	6.2%	-0.4%
Return Home	n/a	37.6%	36.1%	-1.5%
Pick up a passenger	n/a	3.8%	3.8%	0.0%
Drop off a passenger	n/a	4.8%	4.9%	+0.1%
Other	n/a	0.5%	0.5%	+0.1%
Detailed Mode Shares				
Auto driver – private vehicle	n/a	66.0%	65.5%	-0.5%
Auto passenger - private vehicle	n/a	6.5%	6.4%	-0.2%
Car share driver	n/a	0.2%	0.2%	0.0%
Car share passenger	n/a	0.0%	0.0%	0.0%
Transit Bus	n/a	8.0%	7.4%	-0.7%
SeaBus	n/a	0.9%	1.2%	+0.3%
SkyTrain	n/a	1.6%	1.8%	+0.3%
HandyDART	n/a	0.0%	0.0%	+0.0%
Bicycle (incl. pedal-assist e-bikes)	n/a	2.3%	2.4%	+0.1%
Rolling (incl. skateboard, rollerblades, scooter, mobility device, longboard)	n/a	0.2%	0.1%	0.0%
Walking (incl. jogging)	n/a	13.7%	14.9%	+1.1%
Taxi	n/a	0.3%	0.3%	0.0%
Motorcycle	n/a	0.0%	0.2%	+0.2%
Other	n/a	0.1%	0.1%	0.0%
Grouped Mode Share Subtotals				
Transit Total (bus, SkyTrain, SeaBus)	n/a	10.5%	10.4%	-0.2%
Bicycle (incl. pedal-assist e-bikes)	n/a	2.3%	2.6%	+0.3%
Walking and rolling	n/a	13.9%	14.4%	+0.5%
All Other Modes (driver, passenger, other)	n/a	73.2%	72.6%	-0.5%
Number of Daily Transit Trips				
Total Daily Transit Trips	n/a	46,600	65,000	+18,400
Total Transit Boardings	n/a	86,700	94,000	+7,300

4 Changes in Occupational Status and Work Arrangements

4.1 Overall Occupational Status – 2019 vs. 2020

The survey results suggest that the size of the employed labour force residing on the North Shore in 2020 is about 100,600 workers, down from an estimated 103,700 in 2019. This 3% decrease in the size of the employed labour force is consistent with that experienced in the Metro Vancouver regions a whole, which, according to Statistics Canada Labour Force Survey (LFS) figures, had a similar 3% drop in the number of employed workers between November 2019 and November 2020.[17] The drop in employment may seem low given the significant impact of COVID-19 on certain industries such as such as tourism, restaurants, accommodation, retail, recreation, sports, culture, and performing arts. However, various programs (subsidized wages, work sharing, etc.) may have helped mitigate the impacts, and increases in the need for workers in other industries, may have mitigated some job losses. In addition, it is worth noting that the North Shore is a commuting destination for a good number of people who live outside the North Shore.[18] Some of the job losses at North Shore businesses most affected by the pandemic may have been experienced by workers living elsewhere who commuted to the North Shore for work. The impacts of the pandemic on workers living on the North Shore are nevertheless profound. This is explored in more detail in the following section (**Section 4.2**).

Figure 3 shows the employment status and student status aggregate for the North Shore from the 2019 NSTS and the 2020 NSTS. The survey results suggest that 1.6% of the total population aged 15+years were previously unemployed in 2019 and gained work in 2020, while 3.5% were working in 2019 but stopped working in 2020, with most of the net job losses being part-time work. Of the survey participants who stopped working (representing about 5,600 residents):

- one-third retired,
- 15% were laid off or lost their jobs due to the COVID-19 pandemic,
- 11% quit their jobs due to concerns about the risk of exposure to COVID-19,
- 2% cited health-reasons related to the COVID-19 pandemic, and
- 17% quit for other reasons.

The reasons for stopping work should be interpreted with caution due to the small sample size on which this is based (n=31 participants who stopped working). The overall impact of the COVID-19 pandemic on the worker population, and their work arrangements, is explored in the next section of this report, and includes these former workers.

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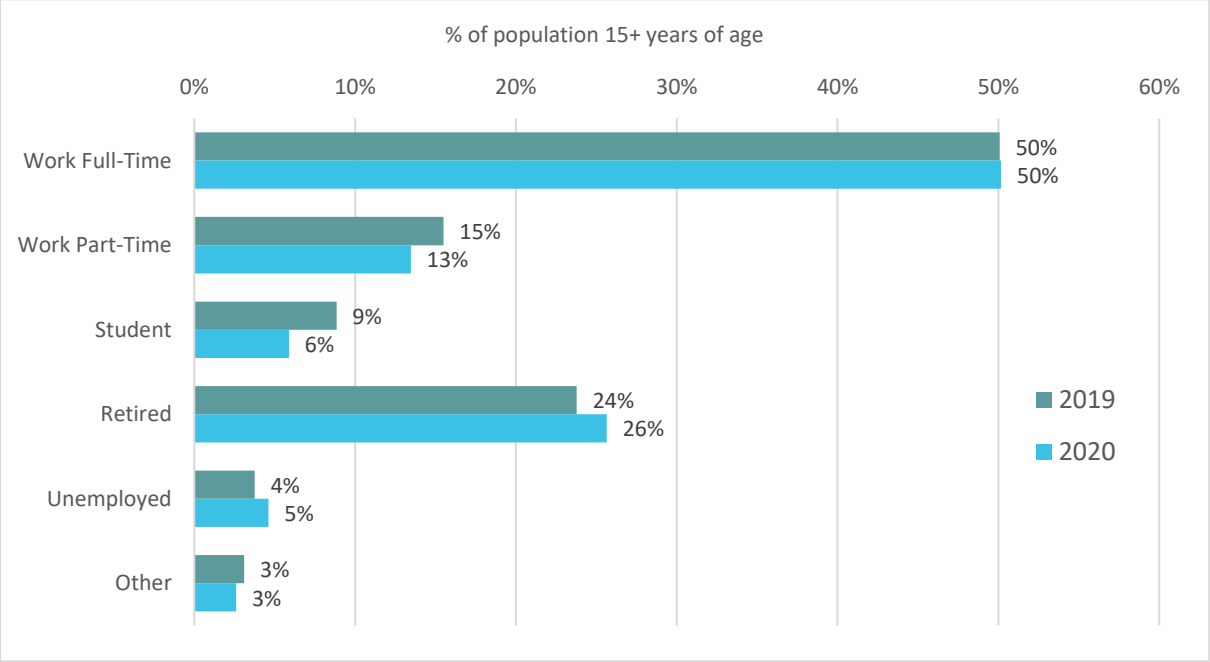
[17] Statistics Canada Labour Force Survey (LFS) *Labour force characteristics by Montréal, Toronto and Vancouver census metropolitan areas, monthly, seasonally adjusted*, Employment (# of employed workers), November 2019 vs November 2020 (https://www150.statcan.gc.ca/n1/daily-quotidien/201204/t008a-eng.htm, last accessed April 9, 2021.

[18] The INSTPP report "More people are traveling, to from and around the North Shore for work each day… the North Shore has added more than twice as many jobs than working-age residents since 2011. This has resulted in more workers from elsewhere in the region commuting to work on the North Shore. The actual number of workers may be higher given fluctuations in construction-related traffic." *Integrated North Shore Transportation Planning Project (INSTPP)*, August 2018.

The seven survey participants who were students in 2019 but not in 2020 were asked why they were not attending school. Five indicated that they graduated, one stopped attending due to the COVID-19 pandemic, and one stopped attending for other reasons. These results have not been expressed in terms of the percentage of the total population that they represent. Due to the very small sample size, these survey responses should be treated as anecdotal.

Figure 3. Occupational Status of North Shore Residents, 2019 vs. 2020 [19]



Individual percentages have been rounded and may not add to 100%
n=1,081

[19] Percentages may add to greater than 100% due to multiple statuses. For example, approximately 4% of the population 15+ years of age both worked and attended school in 2019, and 2% in 2020.

4.2 Employment and Work Arrangements

4.2.1 Changes in Employment and Work Arrangements in 2020

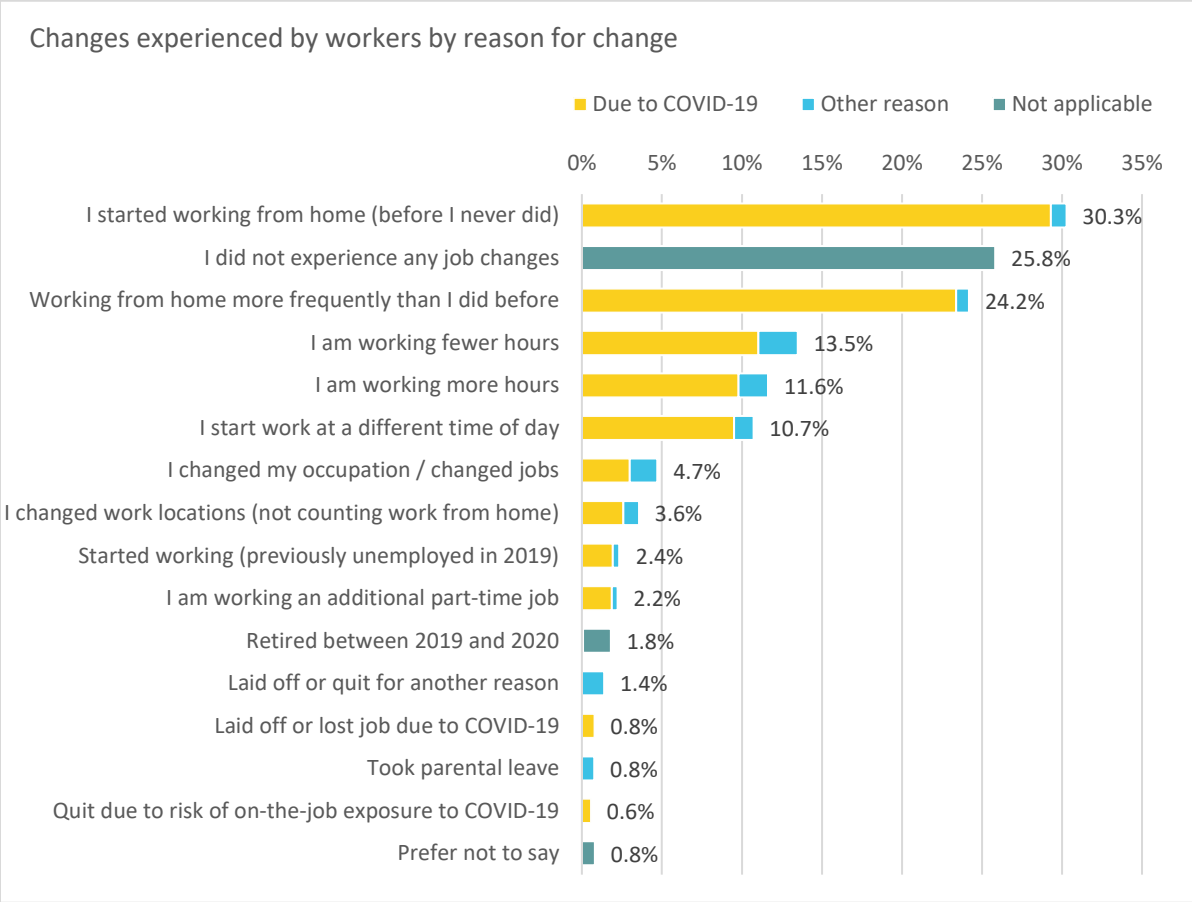
The survey asked workers about changes to their work arrangements and gathered information from those who changed employment status. Those who experienced changes to their work arrangements or employment status were asked whether the change was associated with the COVID-19 pandemic. **Figure 4** combines the responses to the various questions into one chart showing the changes experienced by the North Shore's employed labour force between 2019 and 2020. Those who did not experience any changes are included in the chart and in the denominator, i.e., the percentages are based on the total workforce.

Analysing across responses:

- 72% of those who were employed in either 2019 or 2020 experienced some kind of change either to their employment or to their work arrangements, with
    - 62% COVID-19 related, and
    - 10% other reasons.
- In total, 14% experienced a change in employment (retired, went on parental leave, or gained, changed, or lost work), with
    - 8% COVID-19 related, and
    - 6% other reasons.
- More than half of the workforce (55%) either started working from home or worked from home more frequently than before.
- Two-thirds (66%) experienced one or more changes in their work arrangements (hours worked, start time, change in work location outside the home, frequency of work from home),[20] with
    - 59% COVID-19 related, and
    - 7% other reasons.
- Of note, 30% of the workers surveyed reported starting to work from home for the first time in 2020, while another 24% indicated that they work from home more frequently.
- Other common changes to work arrangements experienced by at least one in ten workers included working fewer hours (14%), working more hours (11%), and starting work at a different time of day (11%).
- Only one-quarter (26%) of workers did not report any changes to their work arrangements.

[20] The percentages with changes in employment and with changes in work arrangements are not mutually exclusive, with some having both changes in employment and changes in work arrangements.

Figure 4. North Shore Employed Labour Force: Changes to Employment and Work Arrangements (% of workers) [21]



Individual percentages have been rounded and may not add to 100%
n=626 (workers, individuals employed in either 2019 or 2020)

4.2.2 Changes in Employment and Work Arrangements by Type of Occupation

Table 9 outlines differences in the changes in work arrangements experienced by type of occupation, yielding the following observations:

- As might be expected, people in jobs likely to be conducted in offices (management, business, finance, and administrative jobs; n=229) were most likely to report starting to work from home or working from home more often (combined, 76% of such workers), followed by workers in natural and applied science occupations (65%; n=61) education, law, social, community and government services (57% combined; n=99), with the latter two groups having more varied impacts in terms of changes to working hours, work start times, and changes in occupation.

[21] The 626 participants who were employed in either 2019 or 2020 represent about 106,200 residents in the weighted and expanded dataset. As those who lost employment are included, the base for percentages is slightly larger than the total size of the employed labour force in 2020 (by about 2%). Note: If a respondent indicated more than one response, and answered in the next question that changes were due to COVID-19, all responses were attributed to COVID-19 impacts.
Responses may not add to 100% due to multiple responses

- People in health services occupations (n=54) were more likely to report working more hours (24%) and changing work locations (13%) compared to other occupations.
- People working in the trades, transportation, or as equipment operators (n=36) were least likely to report changes in work arrangements (though the proportion experiencing some changes, 40%, is still significant). The most common impacts such workers reported were working fewer hours (18%) or working more hours (10%), while only 9% reported working from home more often. Due to the small sample size, the results for this occupational group should be interpreted with caution.
- Survey participants working in sales and service occupations (n=54) reported varied changes since the COVID-19 pandemic, with almost one-quarter (24%) working fewer hours, 26% either starting to work form home or working from home more often, 13% starting work at a different time, and 12% working more hours.

Table 9. North Shore Employed Labour Force: Changes to Employment and Work Arrangements by Type of Occupation, 2020

Top 10 Changes in Work Arrangements	Mgmt, Business, Finance and Admin Occupa-tions	Education, Law & Social, Community & Gov't Services	Natural and Applied Science Occupa-tions	Health Services Occupa-tions	Sales & Service Provision	Trades, Transport & Equipment Operators	All Other / Unknown	Total
Started working from home	42%	38%	31%	12%	13%	0%	38%	30%
Working from home more often	34%	19%	34%	14%	21%	9%	16%	24%
Working fewer hours	8%	15%	14%	5%	24%	18%	15%	13%
Working more hours	9%	16%	11%	24%	12%	10%	9%	12%
Start work at a different time	5%	22%	17%	4%	13%	5%	9%	11%
Changed occupation / changed jobs	3%	11%	4%	1%	5%	2%	6%	5%
Changed work locations	2%	4%	4%	13%	2%	2%	6%	4%
Laid off, quit, or took leave (grouped)	0%	5%	9%	0%	5%	0%	6%	4%
Working an additional part-time job	1%	2%	0%	0%	5%	7%	3%	2%
Did not experience any job changes	23%	17%	27%	33%	24%	60%	23%	26%
Sample size (n)	n=229	n=99	n=61*	n=54*	n=66*	n=36*	n=80	n=625

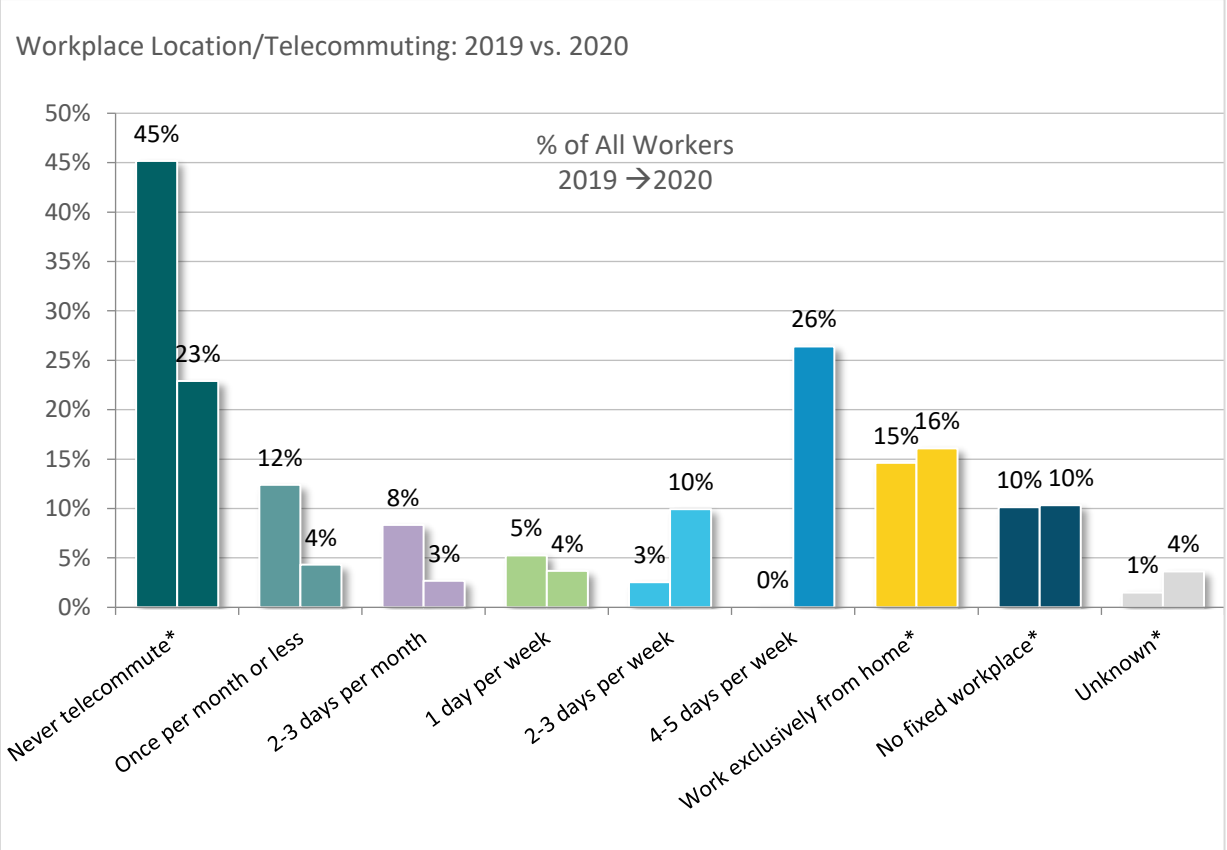
Individual percentages have been rounded and may not add to 100%

* interpret results based on smaller sample sizes with caution

4.3 Telecommuting Frequency

Figure 5 indicates usual workplace location in 2019 and in 2020, if not for COVID-19, as well as the telecommute frequency for those with a usual workplace outside the home. Overall, 16% of workers in 2020 usually work exclusively from home and 10% of workers have no fixed workplace. The rest have a usual workplace outside the home (73%) and were asked to indicate the frequency that they telecommute. The incidence of telecommuting increased significantly in 2020, with 36% of workers telecommuting two or more days per week compared with 3% in 2019 (with 26% now telecommuting four or give days per week, whereas in 2019 none did). The proportion of workers who never telecommute went down by about half, from 45% in 2019 to 23% in 2020.

Figure 5. Workplace Location / Frequency of Telecommuting, 2019 vs 2020 (% of workers) [22]



Individual percentages have been rounded and may not add to 100%
n=612 (2019), n=594 (2020)

Some expanded numbers behind the percentages are:

[22] *Never telecommute = have a usual workplace outside the home and always travel there for work
Work exclusively from home = work from home (do not have a usual workplace outside the home)
No fixed workplace = work site varies / work on the road (do not have a usual workplace outside the home)
Unknown = unknown workplace location or usual workplace outside the home but unknown telecommute frequency

- In 2019, 15,200 people worked exclusively from home and 2,700 worked from home at least 2 days per week for a total of 17,900 working from home (17% of all workers).
- In 2020, this increased to a total of 52,700 people who worked from home with 16,200 of them working exclusively from home and 36,500 who telecommuted at least twice per week. This represents 52% of all workers (up from 17%).[23]
- The net increase is that 34,900 North Shore workers have shifted to working from home at least two days per week.

Table 10 shows the municipal breakdown for usual workplace and the telecommuting frequency for workers who usually work outside the home if not for COVID-19. This data shows that in 2019, the DWV had the greatest percentage of workers who either telecommuted at least two days per week or who worked from home exclusively in 2019, approximately double the proportion in DNV (15%) and in CNV (13%). The DWV had the least change, with this proportion increasing to 54% in 2020. DNV increased to 57% of workers who telecommute at least two days per week or work from home. The CNV continued to have the lowest incidence of telecommuting and working from home, increasing to 45%.

This may be in part because the CNV has higher density residential development with better access to public transit, while age and occupation may also have a bearing. Employed survey participants have a median age of 42 in the CNV compared to 47 in the DNV and 48 in the DWV. Closer examination of the survey data revealed that workers living in the CNV are more likely to work in occupations in sales and service; arts, culture, recreation, and sport; and trades, transport, and equipment operators. Both the DNV and DWV have proportionately more workers in occupations in management, education, law, and social, community and government services, while the DWV has the highest proportion of workers in natural and applied sciences (18% of the workforce in DWV, compared to only 11% in DNV and 8% in CNV). Some occupations may be more conducive to others to working from home. Workers with a choice as to whether to work from home or in their usual workplace may have found it less attractive to work from home when living in a smaller dwelling, or the higher amount of transit service. Conversely, DWV has larger homes that may be more comfortable for working from home. People with occupations conducive to working from home may even choose to live in DWV so that they could have more space to work from home and/or are better able to afford living in the DWV.[24]

The COVID-19 pandemic has likely accelerated trends in working from home and flexible work arrangements that were emerging prior to the pandemic. In future cycles of this survey, it will be of interest to track the extent of the long-term changes in work arrangements as COVID-19 risks diminish and travel patterns stabilize to a 'new normal'.

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[23] The count of workers who work from home does not include those with no fixed workplace address / or who work on the road (e.g., trades people, taxi drivers, etc.). Some of these may work from home some of the time, but that was not tracked.

[24] The average single family home selling price in West Vancouver from January 1 to October 31, 2020 was $1,949,881, compared to $1,146,605 for North Vancouver (CNV and DNV combined). December 2020 *Housing Market Outlook* (https://blog.remax.ca/north-vancouver-housing-market-outlook-2021/, https://blog.remax.ca/west-vancouver-housing-market-outlook-2021/, last accessed May 2021).

Table 10. Usual Workplace Location and Telecommuting Frequency by Municipality, 2019 vs 2020 [25]

	DNV		CNV		DWV		North Shore	
	2019	2020	2019	2020	2019	2020	2019	2020
Total Workers	**48,100**	**46,500**	**34,900**	**33,900**	**20,600**	**20,200**	**103,700**	**100,600**
# of Workers by Workplace Location								
Usual workplace outside the home	37,400	34,400	27,300	26,600	11,800	12,100	76,500	73,200
No fixed workplace / work on the road	3,700	3,800	4,300	4,100	2,500	2,500	10,500	10,400
Work exclusively from home	6,400	8,100	3,100	3,000	5,700	5,100	15,200	16,200
Unknown workplace location	700	100	200	200	600	500	1,500	900
% of Workers								
Usual Workplace Outside the Home								
Never telecommute	46%	23%	53%	25%	29%	19%	45%	23%
Once per month or less	14%	5%	10%	3%	12%	5%	12%	4%
2 or 3 days per month	8%	2%	6%	3%	13%	3%	8%	3%
1 day per week	8%	2%	4%	5%	2%	4%	5%	4%
2 or 3 days per week	1%	9%	4%	11%	2%	10%	3%	10%
4 or 5 days per week	0%	30%	0%	26%	0%	19%	0%	26%
Work exclusively from home*	13%	17%	9%	9%	28%	25%	15%	16%
No fixed workplace*	8%	8%	12%	12%	12%	12%	10%	10%
Unknown*	1%	2%	1%	6%	3%	4%	1%	4%
Subtotal Regular Telecommuters								
% who have a usual workplace outside the home and telecommute at least 2 days per week	2%	40%	4%	36%	2%	28%	3%	36%
%-point change, 2019 to 2020		+38%		+32%		+27%		+34%
Subtotal Regularly Work from Home								
% who either telecommute at least 2 days per week or who do not have a usual workplace outside the home and work from home exclusively	15%	57%	13%	45%	29%	54%	17%	52%
%-point change, 2019 to 2020		+42%		+32%		+24%		+35%

Individual percentages have been rounded and may not add to 100%

[25] Individual percentages have been rounded and may not add to 100%

*Never telecommute = have a usual workplace outside the home and always travel there for work

Work exclusively from home = work from home (do not have a usual workplace outside the home)

No fixed workplace = work site varies / work on the road (do not have a usual workplace outside the home)

Unknown = unknown workplace location or usual workplace outside the home but unknown telecommute frequency

5 Usual Modes of Travel

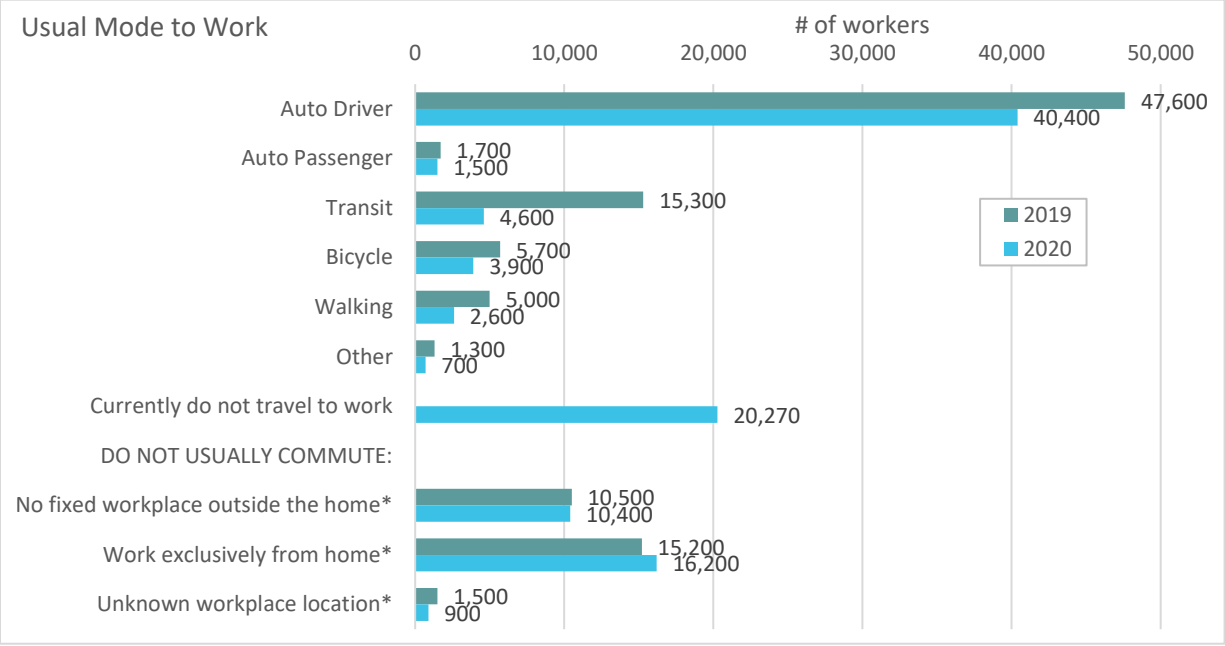
5.1 Work Commute Mode

Commute mode is a metric that is measured for workers who indicate that their usual place of work is outside the home. Those who have a usual place of work at home are not traditionally included as commuters because they are not commuting. In this section we initially show usual work patterns for all workers, then we present mode split data for those who indicated that were commuting.

5.1.1 Change in Usual Mode for Work Commute

Figure 6 shows the usual work patterns for the 103,700 workers who worked in 2019 and the 100,600 workers who worked in 2020. The survey results indicate that 20,270 workers who would usually have commuted to work in 2019 no longer commuted in 2020. This has translated to a decline in the number of workers using every commute mode from 2019 to 2020. Transit saw the largest drop with a 70% or 10,700 decline from 15,300 to 4,600 workers relying on this mode. Workers who commute as auto drivers declined by 15% or 7,300. It should be noted that the number of workers who do not usually commute (no fixed workplace, work exclusively from home, unknown workplace location) remained relatively stable, increasing slightly from 27,200 to 27,500. The number of workers that work exclusively from home increased by 7% or 1,000 to 16,200.

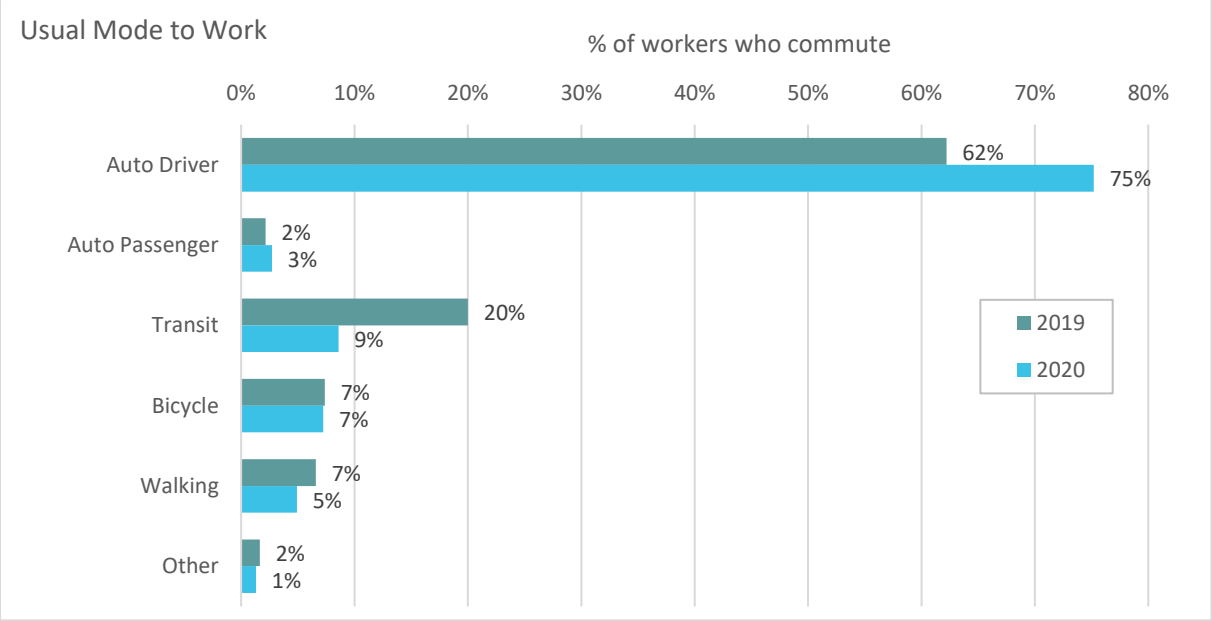
Figure 6. Usual mode of travel to work, 2019 and 2020 (# of workers) [26]



[26] n=612 (2019), n=594 (2020); Individual percentages have been rounded and may not add to 100%.
*Currently do not travel to work at all = have a usual workplace outside the home, but do not current travel to work
Work exclusively from home = work from home (do not have a usual workplace outside the home)

Figure 7 shows the distribution of usual mode of travel for commute purposes. Transit as the usual mode for non-commute purposes saw a significant decrease of 11 percentage points from 20% to 9%. For the other forms of sustainable transport, cycling remained steady at 7% while walking decreased 2 percentage points from 7% to 5%. Driving increased by 13 percentage points and is the usual commute mode for three quarters of workers who currently commute. Workers who travel to work as auto passengers increased from 2% to 3%. Readers are reminded that although the proportion of driving increased from 2019 to 2020, as seen in **Figure 7** (below), the absolute number of workers with the usually drive to work and consequently the number of commuting trips by car has decreased as shown in **Figure 6** (preceding page), due to less workers commuting overall.

Figure 7. Usual mode of travel to work, 2019 and 2020 (% of all work commuters)



Individual percentages have been rounded and may not add to 100%
n=442 (2019), n=309 (2020) (workers with usual workplace outside the home who currently commute; excludes 2020 participants who are currently working from home due to COVID-19)

No fixed workplace = work site varies / work on the road (do not have a usual workplace outside the home)
Unknown = unknown workplace location or usual workplace outside the home but unknown telecommute frequency

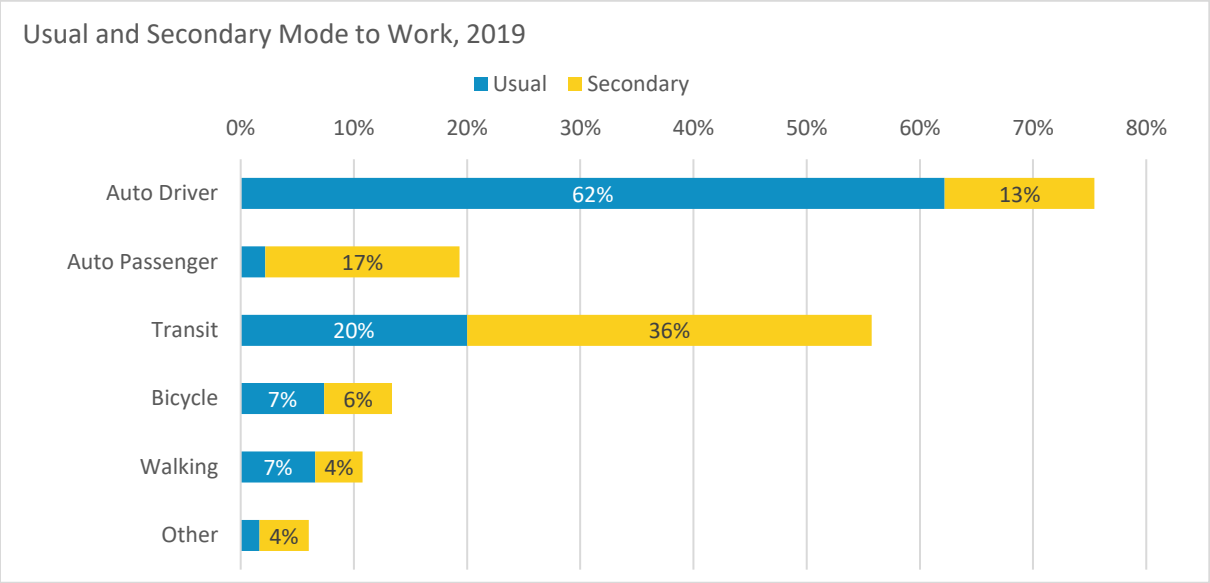
Figure 8 and **Figure 9** on the following page show the usual and secondary mode of travel for non-commute purposes from the 2019 and 2020 surveys. Readers should be aware that secondary modes do not sum to 100% as some workers stated that they did not use a secondary mode of transportation for work trips. By looking at secondary mode, we can see what mode people may have the most potential to shift to. I.e., these people have access to the mode (e.g., own a car, own a bicycle, live near transit, etc.), and either sometimes use the mode or can envision using it in a pinch when their usual mode is unavailable. Of note, in 2019, 36% of participants listed transit as their secondary mode of travel to work.

The proportion of workers who indicated a secondary mode for commuting went from 80% in 2019 down to 60% in 2020. The results show a shift from transit to auto driver not only in primary mode but also in secondary mode of travel. This speaks to the rigidity in mode choice during the COVID-19 pandemic.

A total of 23% of survey participants reported that in 2020 their secondary mode of transport for commute trips was by car (9% driver, 14% passenger), down from 30% previously (13% as driver, 17% as passenger). Of note, participants who listed an active mode as their secondary mode increased by 40% year over year from 10% to 14%. Of those, 8% listed cycling and 6% listed walking as their secondary mode, both up 2 percentage-points from 2019.

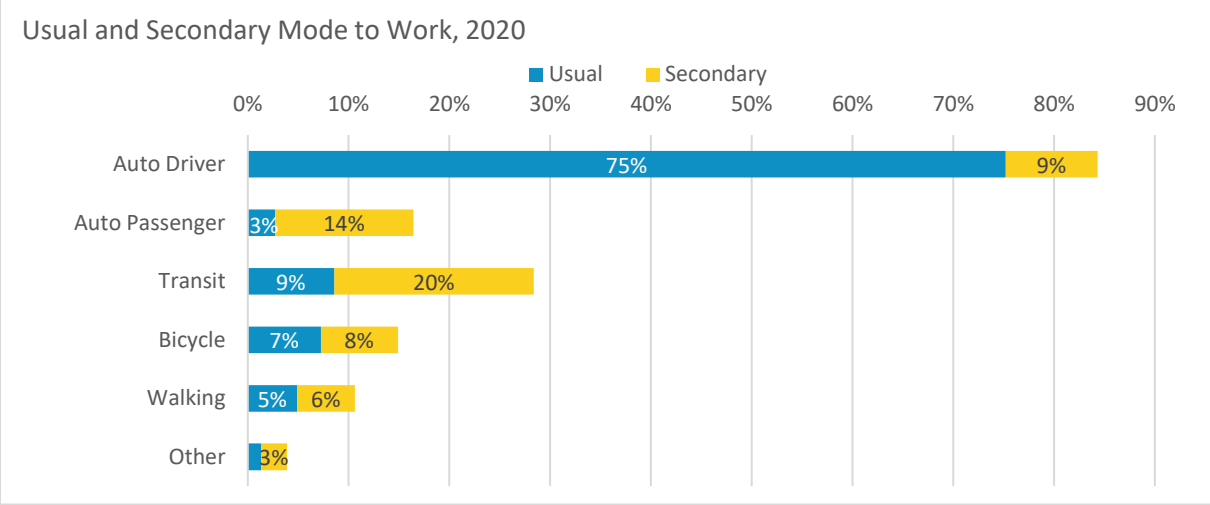
Transit comprised 20% of secondary modes in 2020, down from 36% in 2019. Looking at 2019, a total of 56% of commuters listed transit as either their usual or secondary mode for work trips. This implies that at least 56% of work commuters had some form of access to public transport and were willing to consider it. This proportion has dropped considerably to 29% in 2020.

Figure 8. Usual and secondary mode of travel to work, 2019 (% of workers with usual workplace outside the home) [27]



Individual percentages have been rounded and may not add to 100%
n=442 (workers with usual workplace outside the home)

Figure 9. Usual and secondary mode of travel to work, 2020 (% of workers who currently commute to a usual workplace outside the home) [28]



Individual percentages have been rounded and may not add to 100%
n=309 (workers with usual workplace outside the home who currently commute; excludes those who are currently working from home due to COVID-19)

[27] Bars for usual mode (blue) add to 100%. Bars for secondary mode (yellow) add to 80%, as in 2019 20% did not have a secondary mode of travel (whether by choice or not having another option).
Small percentages not displayed in the chart: Bicycle, usual mode, 2%; Other, usual mode, 2%.

[28] Bars for usual mode (blue) add to 100%. Bars for secondary mode (yellow) add to 60%, as in 2020 40% do not have a secondary mode of travel (whether by choice or not having another option).
Small percentages not displayed in the chart: Other, usual mode, 1%.

Table 11 and **Figure 10** show the usual mode of travel for commute trips by municipality. The following observations can be made:

- Driving remains the most usual commute mode for the North Shore and has increased its share in every municipality. The DWV has the largest proportion of workers that normally drive to work at 91% and saw the largest increase towards this mode, up 29 percentage-points from 63% previously. The CNV experienced the lowest change from 54% to 63%.
- Transit declined the most in DWV (-23%-pts) followed by CNV (-13%-pts) and DNV (-7%-pts).
- It is interesting to note that the usual mode percentage for walking decreased in both the CNV (-3%-pts) and DWV (-7%-pts) and increased modestly for the DNV (+1%-pts).
- Cycling remained fairly consistent in all municipalities, with CNV and DWV registering a one percentage point increase while the DNV had a one percentage point decline.

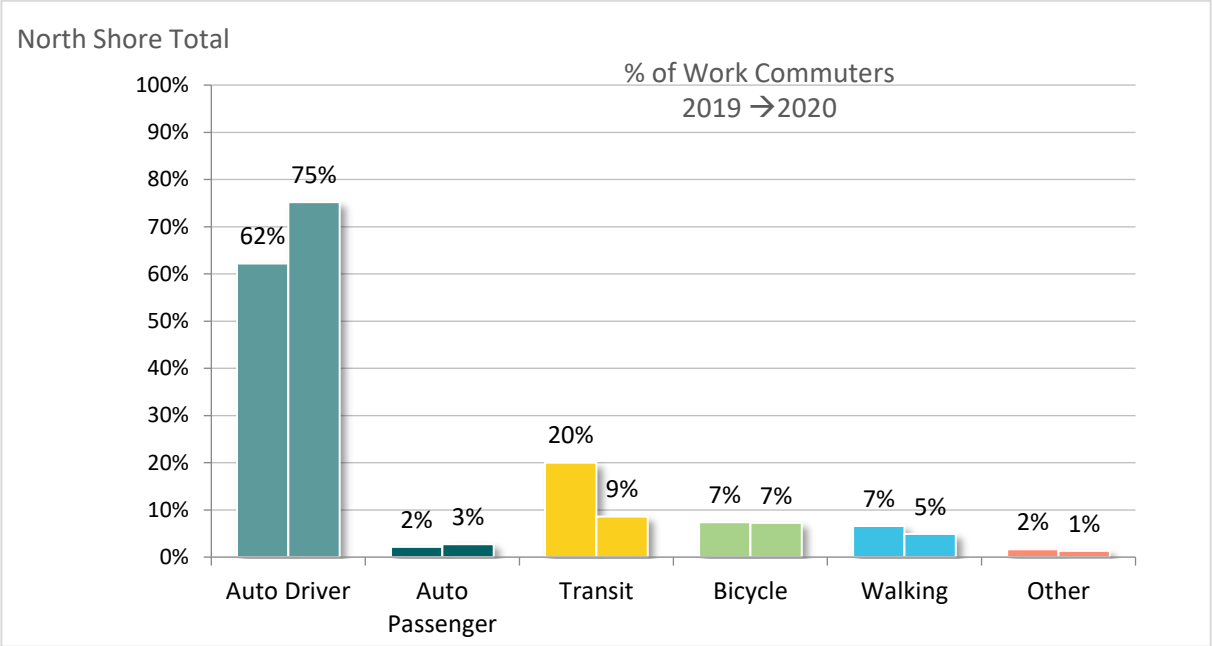
It was previously noted that DWV had the highest proportion of telecommuting in 2020, and in the below data we see that in addition to the decrease in transit, it was the only municipality that had an increase in auto driver trips. The reason for this could be due, in part, to the small sample size in DWV (n=59) and/or the limited transit service and the lower densities in the majority of DWV.

Table 11. Usual Mode of Travel to Work, by Municipality, 2019 vs 2020

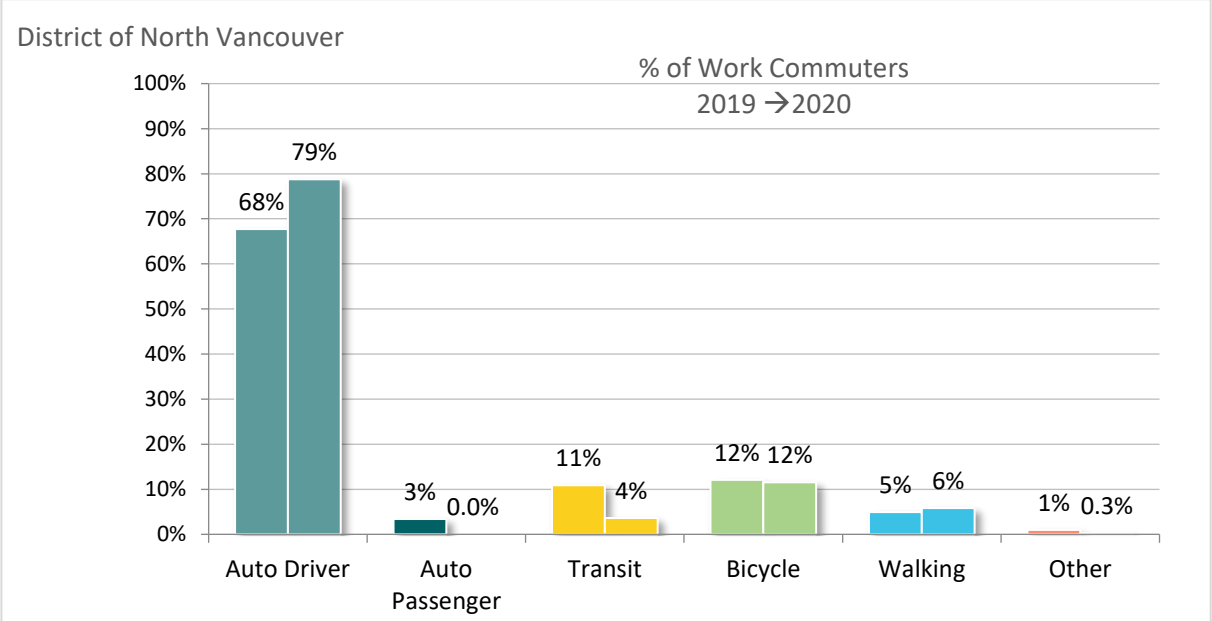
	# of workers				% of usual work travel mode for each municipality			
	DNV	CNV	DWV	North Shore	DNV	CNV	DWV	North Shore
2019								
Workers with usual place of work outside the home	37,400	27,300	11,800	76,500				
sample size (workers with usual place of work)	*n=232*	*n=151*	*n=59*	*n=442*				
Usual mode to work								
Auto Driver	25,300	14,900	7,400	47,600	68%	54%	63%	62%
Auto Passenger	1,300	300	100	1,700	3%	1%	1%	2%
Transit	4,100	8,100	3,100	15,300	11%	30%	26%	20%
Bicycle	4,500	800	300	5,700	12%	3%	3%	7%
Walking	1,800	2,300	900	5,000	5%	9%	7%	7%
Other	400	900	0	1,300	1%	3%	0%	2%
2020								
Workers with usual place of work outside the home[29]	34,600	26,800	12,600	74,000				
sample size (workers with usual place of work)	*n=214*	*n=150*	*n=62*	*n=426*				
Currently do not travel to work (always telecommute)	10,100	6,500	3,700	20,300				
Commute to work at least sometimes	24,500	20,300	8,900	54,300				
Usual mode to work (of those who currently commute)								
Auto Driver	19,300	13,000	8,200	40,400	79%	64%	91%	75%
Auto Passenger	0	1,500	0	1,500	0%	7%	0%	3%
Transit	900	3,400	300	4,600	4%	17%	4%	9%
Bicycle	2,800	700	300	3,900	12%	4%	4%	7%
Walking	1,400	1,200	0	2,600	6%	6%	0%	5%
Other	100	500	100	700	0%	2%	2%	1%
Change in workers using given mode								
Auto Driver	-6,000	-1,900	+800	-7,200	+11%	+9%	+29%	+13%
Auto Passenger	-1,300	1,200	-100	-200	-3%	+6%	-1%	+1%
Transit	-3,200	-4,700	-2,800	-10,700	-7%	-13%	-23%	-11%
Bicycle	-1,700	-100	0	-1,800	-1%	+1%	+1%	0%
Walking	-400	-1,100	-900	-2,400	+1%	-3%	-7%	-2%
Other	-300	-400	+100	-600	-1%	-1%	+2%	0%

[29] 2020 figures in this table include a small number of survey participants with an unknown workplace location who in the 2020 survey were asked about their usual mode to work.

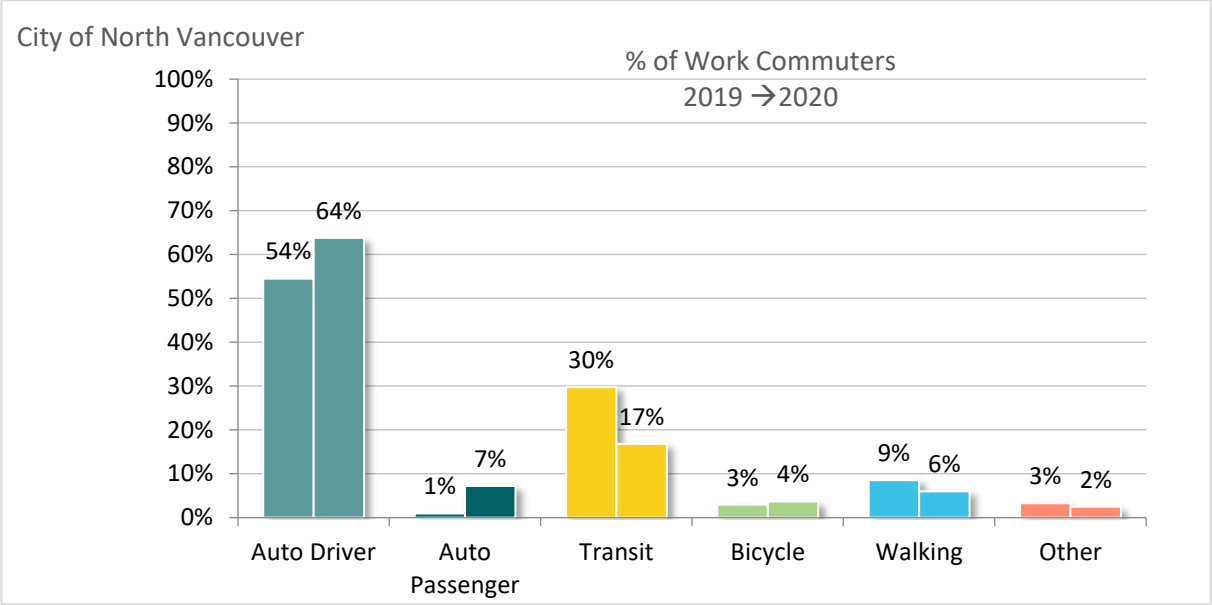
Figure 10. Usual Mode of Travel for Work Commute Overall and by Municipality, 2019 vs 2020



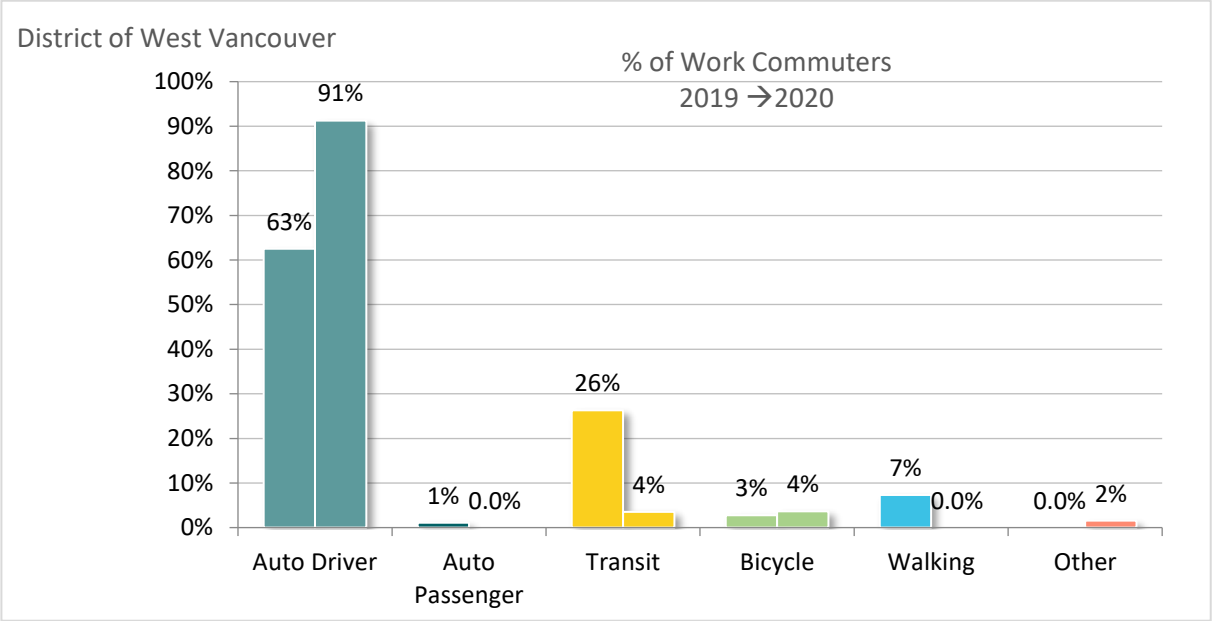
Individual percentages have been rounded and may not add to 100%
n=442 in 2019, n=309 in 2020



Individual percentages have been rounded and may not add to 100%
n=232 in 2019, n=152 in 2020



Individual percentages have been rounded and may not add to 100%
n=151 in 2019, n=112 in 2020



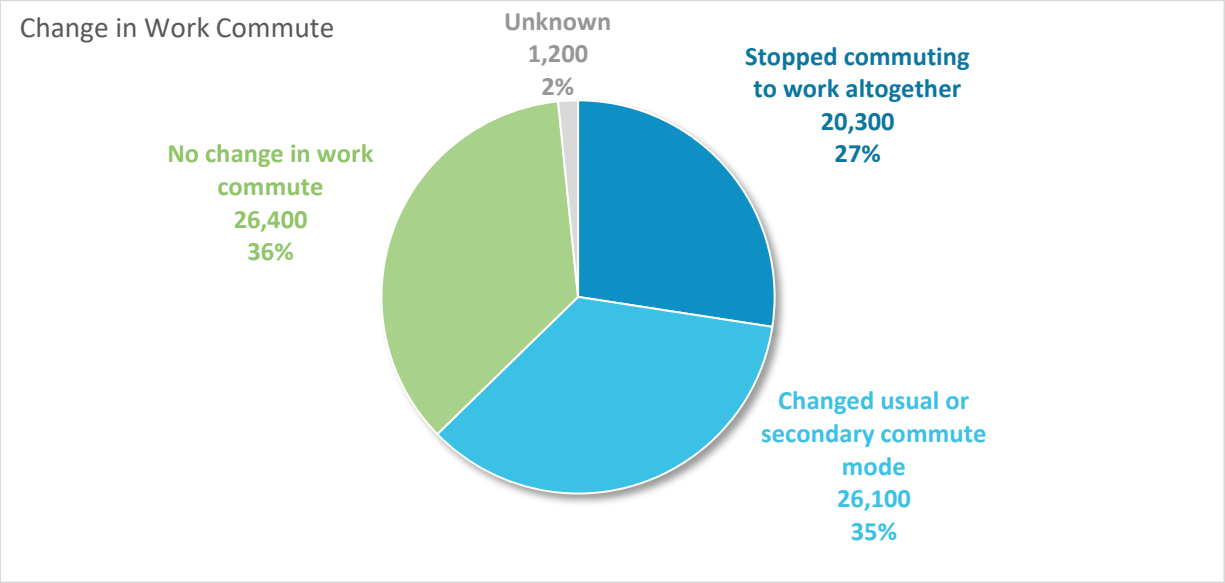
Individual percentages have been rounded and may not add to 100%
n=59 in 2019, n=45 in 2020. Interpret with caution due to modest sample sizes.

5.1.2 Reasons for Changes in Work Commute Mode

The survey asked workers who work outside the home and those with unknown workplace location if they had changed their commute modes, and, if so, what factors had contributed to those changes.

Figure 11 shows the percentage of workers who changed their usual or secondary modes for commute trips. 35% of participants, representing 26,100 residents, indicated that their usual or secondary mode had changed and 27%, or 20,300, had reported that they had stopped commuting to work altogether.

Figure 11. Change in Work Commute (% of workers with usual place of work outside the home)

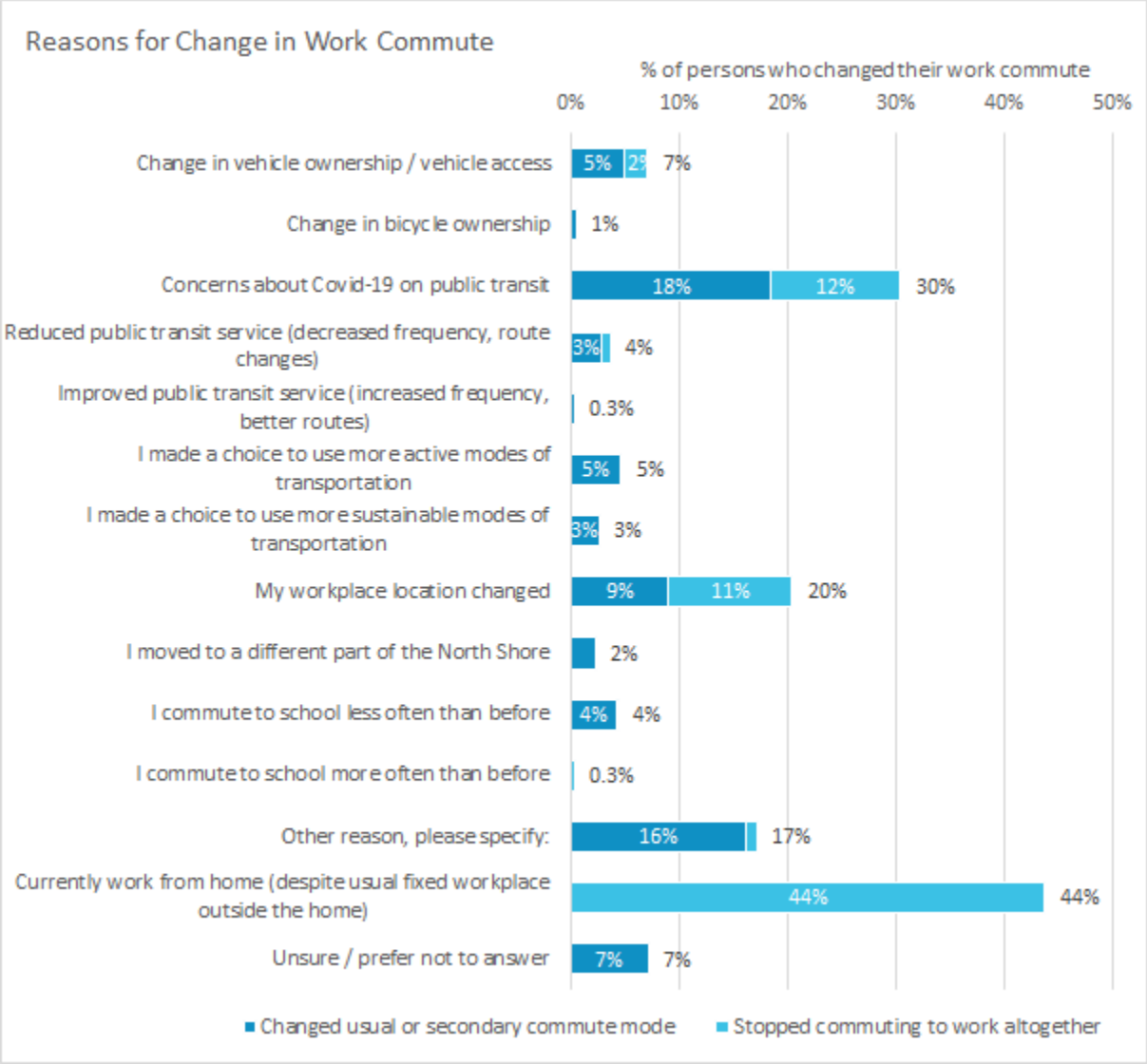


Individual percentages have been rounded and may not add to 100%
n=390

Figure 12 shows the reasons as to why those changes occurred, as cited by the survey participants representing 46,400 workers who either stopped commuting to work altogether (44% of these workers) or who changed usual or secondary commute mode (56% of these workers). Participants could provide more than one reason. 41% indicated the reason for change is that they now work from home although their usual place of work was previously outside of the home, which is nearly all of the 44% who stopped commuting altogether. Those who stopped commuting altogether additionally cited concerns about COVID-19 on transit (12%) and that their workplace location changed.

Nearly a third (30%) of those asked about the change in their work commute cited concerns about the COVID-19 pandemic and transit. A change in workplace location was reported by 20% and various "other" reasons not classifiable into the themes presented below were reported by 17%.

Figure 12. Reasons for change in usual work commute (% of workers with changed mode or who stopped commuting)



Individual percentages have been rounded and may not add to 100%

n=263

5.2 Usual Mode of Travel to School

Given the small samples of participants who were students in 2019 (n=33) or in 2020 (n=28), the survey results for students are not presented in detail. The findings that follow should be considered somewhat anecdotal and not necessarily generalizable to the entire population of secondary and post-secondary students 15+ years of age who live on the North Shore.

From the responses of 2020 survey participants who were students in 2019 (pre-COVID-19) about half used transit to get to school, just over one-quarter drove, and one-fifth walked. Of those who are currently students (during COVID-19), about half reported no longer attending classes in person; one-fifth drive; while others rely on being driven as a passenger, cycling or walking; and reliance on transit has dropped off almost entirely. Even though the sample size is small, the latter observation is notable, given that, pre-COVID, many post-secondary students relied on transit to get to school.

When asked for the reasons for the change in their commutes, the most common reasons were concerns about COVID-19 on public transit (cited by about one-third of students in 2020) and reduced public transit service (about one-eighth), with other reasons being less common (changes in vehicle or bicycle ownership and/or making a choice to use more active or more sustainable modes, amongst other reasons).

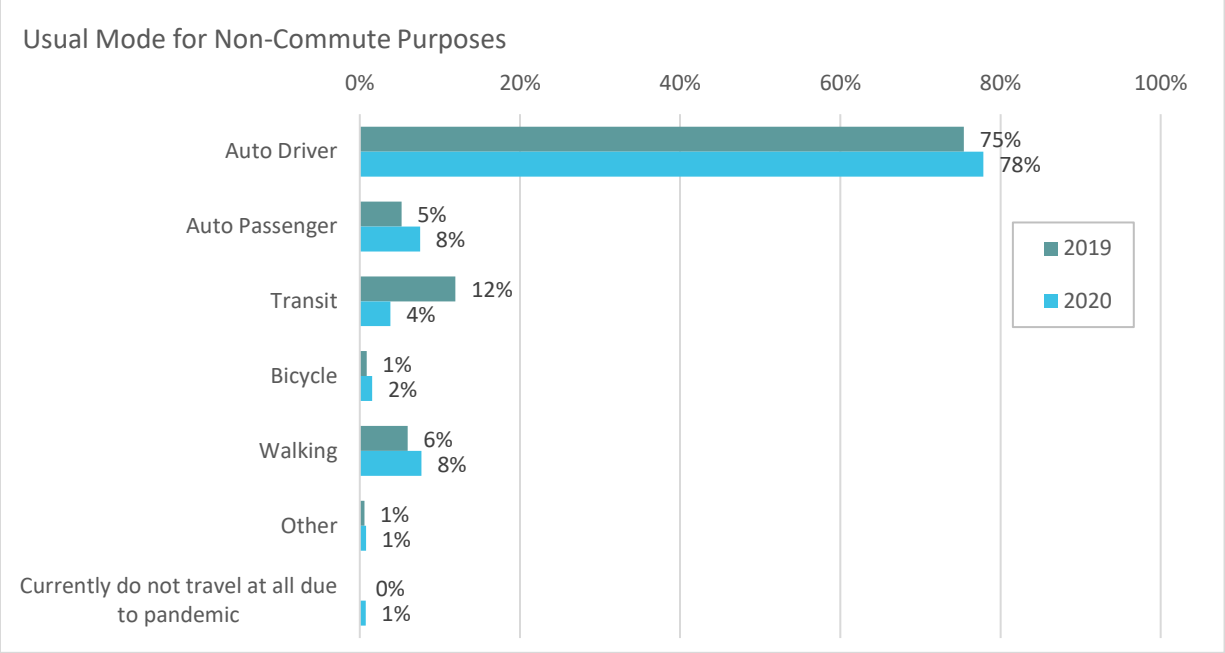
5.3 Usual Mode for Non-Commute Purposes

Usual non-commute mode is a metric that is measured for all of the North Shore population. The question identifies one mode per person and is not a count of number of trips made on the day of the survey or how often that trip is made.

5.3.1 Change in Usual Mode of Travel for Non-Commute Purposes

Figure 13 shows the usual mode of travel for non-commute purposes. Transit as the usual mode for non-commute purposes saw a significant decrease from 12% to 4%. Vehicle-based modes of Auto Driver and Auto Passenger trips both increased by three percentage points representing a six percentage-point total increase. Active modes reported a total three percentage-point increase with a two percentage-point increase of walking and one percentage point for cycling.

Figure 13. Usual Mode of Travel for Non-Commute Purposes, 2019 vs 2020 (% of population 15+)

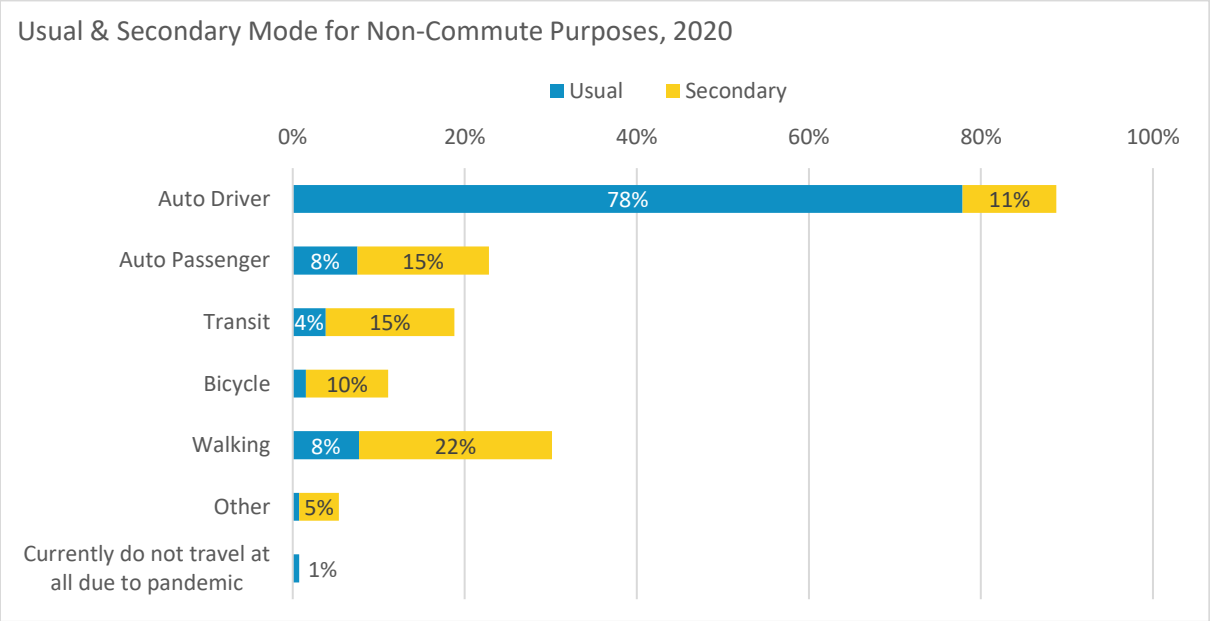


Individual percentages have been rounded and may not add to 100%
n=1,081

Figure 14 shows the usual and secondary mode of travel for non-commute purposes from the 2020 survey. By looking at secondary mode, we can see what mode people may have the most potential to change to. A total of 86% of survey participants reported that their primary mode of transport for non-commute trips was by car, with the majority of driving themselves (78%) and 8% as auto passengers. The car also accounted for 26% of secondary modes of transportation. Of note, 9% of survey participants listed an active mode as their usual mode and 37% listed it as their secondary mode of non-commute travel. Transit made up 4% of usual mode and 15% of secondary mode.

A secondary mode for non-commuting by the whole population is much more common, with a total of 78%, compared with only 42% of workers who commute currently (during COVID-19) having a secondary mode (discussed in **Section 5.1.1**). Higher proportions are seen for auto passenger (15%), cycling (10%), and walking (22%). This suggests that residents have more flexibility when not commuting. This may reflect that the locations of some non-work activities are closer to where people live and may also include recreational round trips such as going for a walk.

Figure 14. Usual and Secondary Mode of Travel for Non-Commute Purposes, 2020 (% of population 15+) [30]



Individual percentages have been rounded and may not add to 100%
n=1,081

[30] Bars for usual mode (blue) add to 100%. Bars for secondary mode (yellow) add to 78%, as 22% do not have a secondary mode of travel (whether by choice or not having another option).
Small percentages not displayed in the chart: Bicycle, usual mode, 2%; Other, usual mode, 1%.

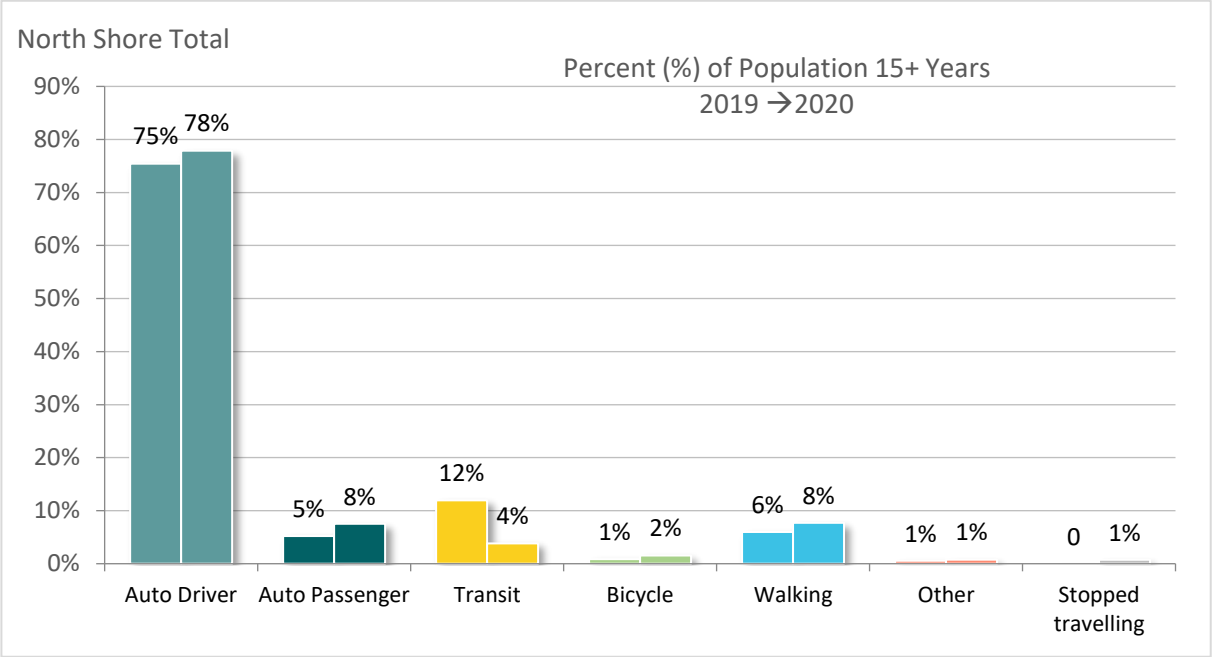
Table 12 shows the usual mode of travel for non-work trips by municipality, while Figure 15 shows this same data in bar charts for each municipality for a more visual comparison. It is interesting to note that the usual mode percentage for walking and cycling did not change significantly in either the CNV or DWV from 2019 to 2020 while DNV reported a one percentage-point increase for cycling and four percentage points for walking. Transit decreased in all three municipalities, with -5%-pts DWV, -7%-pts DNV and -12%-pts for CNV with a net decrease of -8%-pts for the North Shore. Similar to work trips, DWV has the highest usage of auto modes and smallest amount of transit trips. For this municipality, the sample size is more robust for non-commute trips (n=237) than for commute trips (n=59).

Table 12. Usual Mode for Non-Commute Purposes, by Municipality, 2019 vs 2020

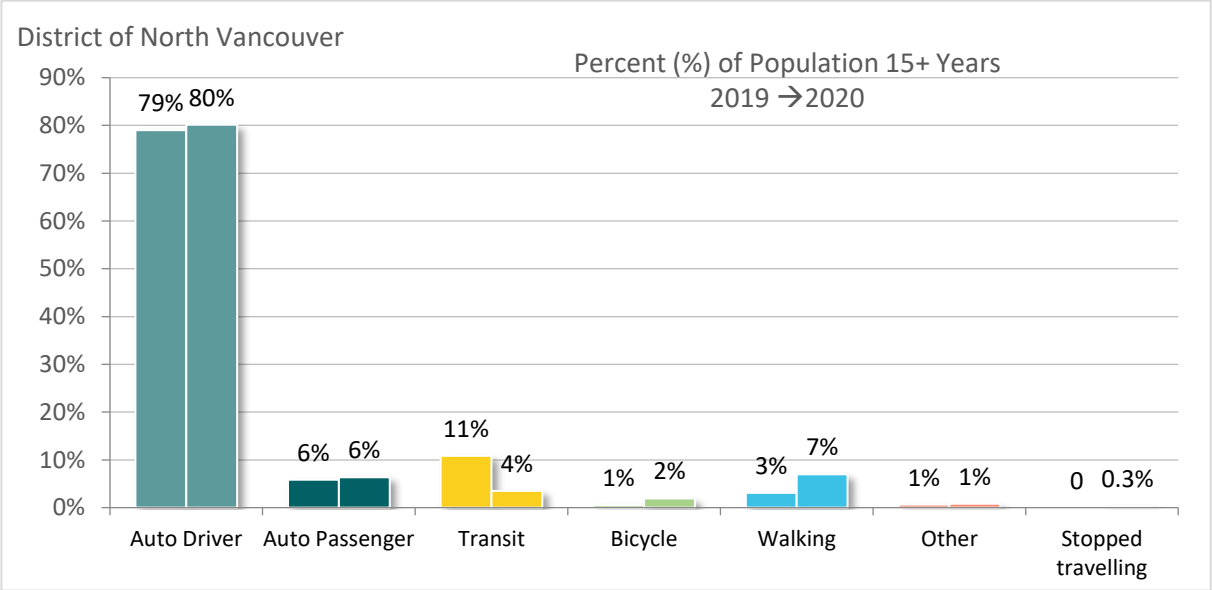
	Population 15+				% of Population 15+			
	DNV	CNV	DWV	North Shore	DNV	CNV	DWV	North Shore
Total persons 15+	**72,500**	**47,200**	**38,300**	**158,100**	**100%**	**100%**	**100%**	**100%**
sample size	*n=523*	*n=321*	*n=237*	*n=1,081*				
2019 Non-Commute Mode								
Auto Driver	57,300	30,400	31,600	119,300	79%	64%	82%	75%
Auto Passenger	4,200	1,700	2,300	8,200	6%	4%	6%	5%
Transit	7,900	8,700	2,300	18,900	11%	18%	6%	12%
Bicycle	400	800	100	1,400	1%	2%	0%	1%
Walking	2,200	5,300	1,900	9,500	3%	11%	5%	6%
Other	500	300	100	900	1%	1%	0%	1%
2020 Non-Commute Mode								
Auto Driver	58,100	32,600	32,400	123,100	80%	69%	84%	78%
Auto Passenger	4,600	5,000	2,300	11,900	6%	11%	6%	8%
Transit	2,500	3,000	500	6,100	4%	6%	1%	4%
Bicycle	1,400	800	200	2,400	2%	2%	1%	2%
Walking	5,100	5,200	1,900	12,200	7%	11%	5%	8%
Other	600	600	0	1,200	1%	1%	0%	1%
Currently do not travel at all due to pandemic	190	53	932	1,176	0%	0%	2%	1%
Change								
Auto Driver	+800	+2,200	+800	+3,800	+1%	+5%	+2%	+2%
Auto Passenger	+400	+3,300	0	+3,700	+1%	+7%	0%	+2%
Transit	-5,400	-5,700	-1,800	-12,800	-7%	-12%	-5%	-8%
Bicycle	+1,000	0	+100	+1,000	+1%	0%	0%	+1%
Walking	+2,900	-100	0	+2,700	+4%	0%	0%	+2%
Other	+100	+300	-100	+300	0%	+1%	0%	0%

Individual percentages have been rounded and may not add to 100%

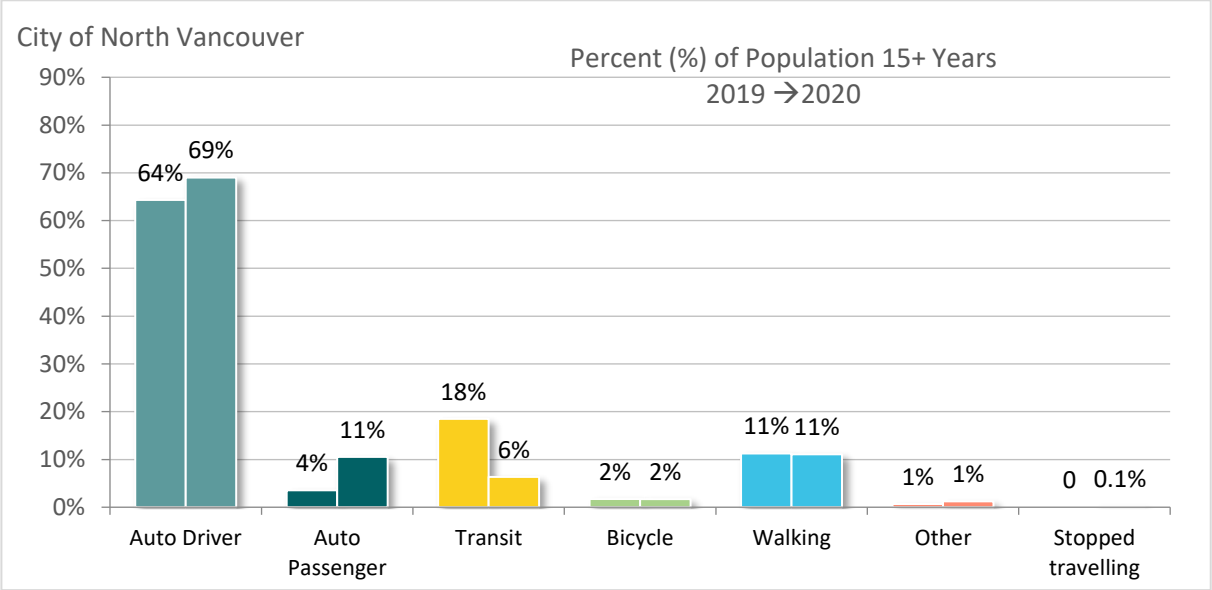
Figure 15. Usual Mode of Travel for Non-Commute Purposes Overall and by Municipality, 2019 vs 2020



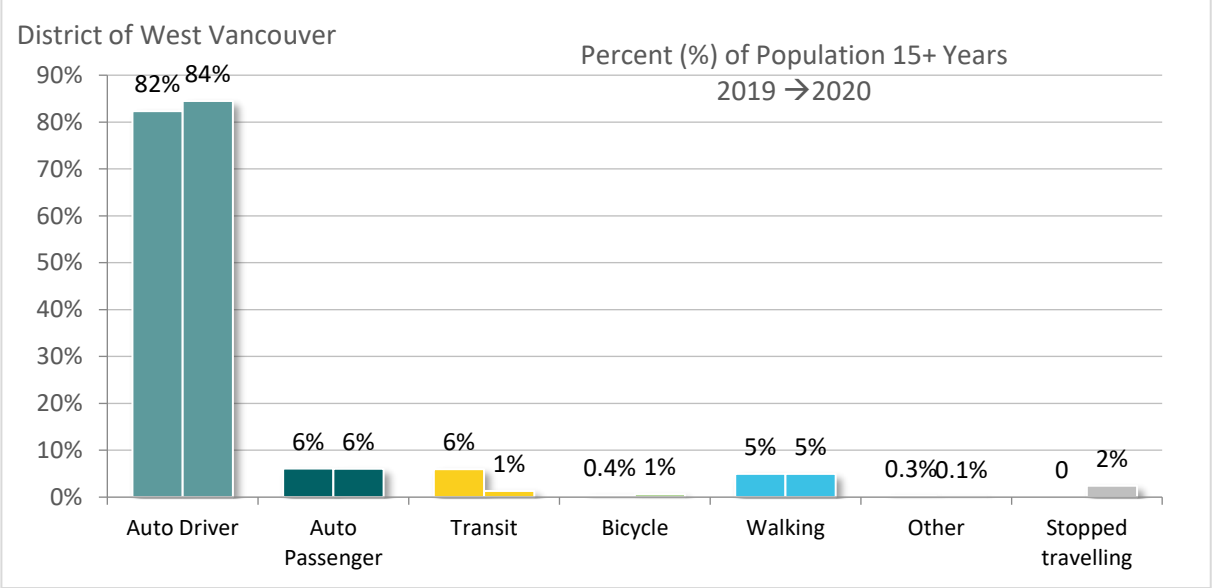
Individual percentages have been rounded and may not add to 100%
n=1081



Individual percentages have been rounded and may not add to 100%
n=523



Individual percentages have been rounded and may not add to 100%
n=321



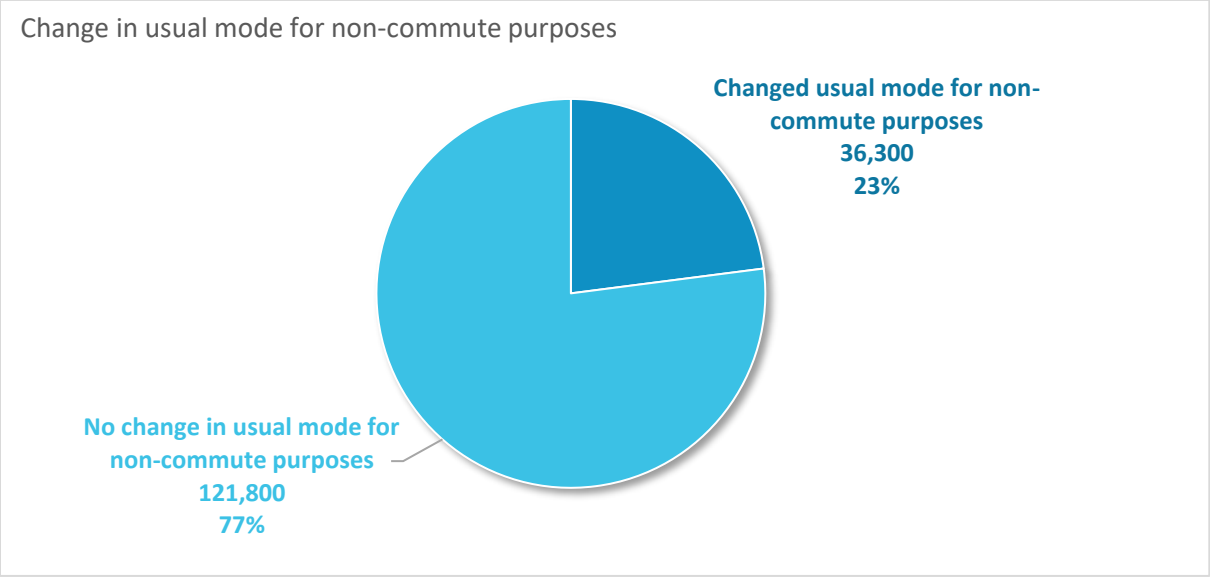
Individual percentages have been rounded and may not add to 100%
n=237

5.3.2 Reasons for Changes in Usual Non-Commute Mode

Figure 16 shows the percentage of population aged 15+ who changed their usual mode for non-commute trips. Overall, 23% of survey participants, representing 36,300 residents, indicated that their usual mode had changed. Figure 17 shows the reasons why survey participants changed their usual mode.

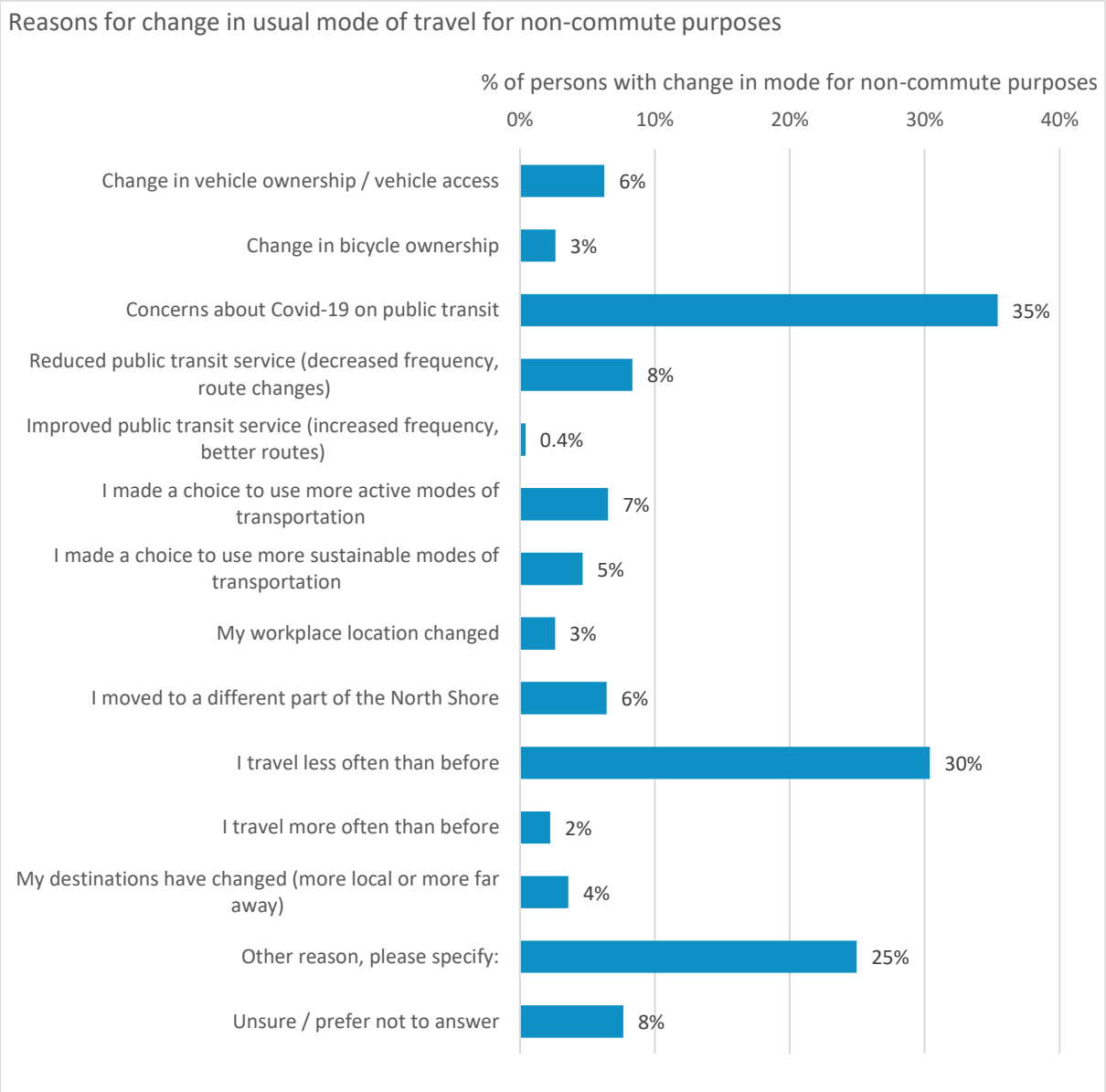
Over a third (35%) of survey participants who had a change in non-commute mode stated that concerns about COVID-19 pandemic and transit was the reason for their change. Slightly less than a third (30%) stated that their usual mode changed as a result of travelling less than previously. A quarter (25%) changed their usual mode for a variety of "other" reasons that were not classifiable into the themes presented below.

Figure 16. Change in usual mode of travel for non-commute purposes (% of population 15+)



Individual percentages have been rounded and may not add to 100%
n=1,081

Figure 17. Reasons for change in usual mode of travel for non-commute purposes (% of population 15+ who changed mode)



Individual percentages have been rounded and may not add to 100%

n=207

6 Changes in Transit Use

6.1 Frequency of Transit Use

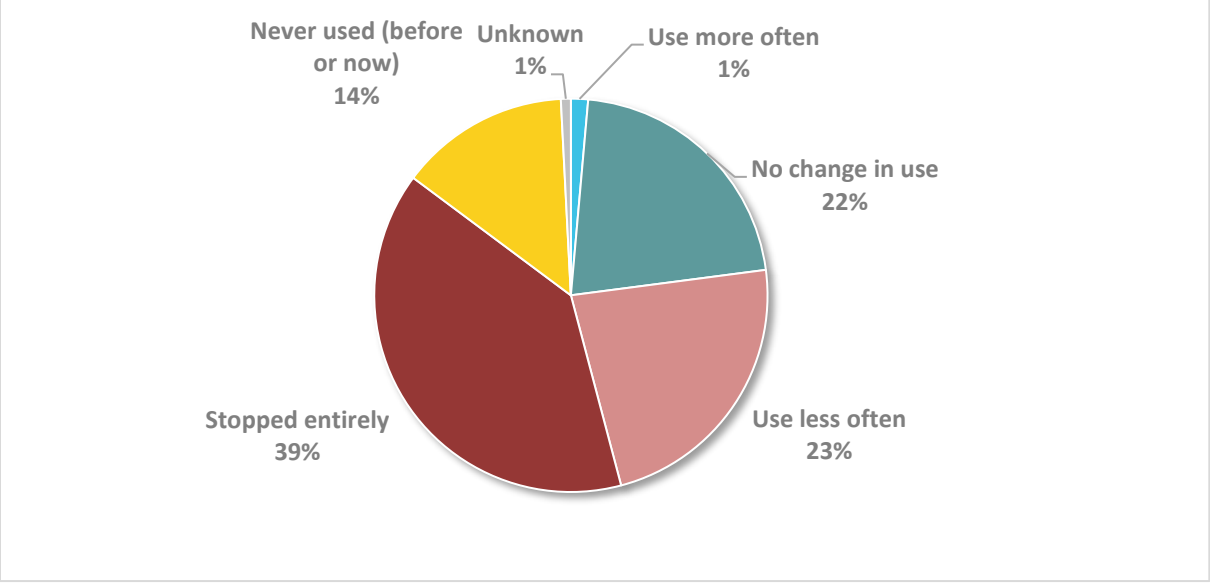
6.1.1 Changes in Frequency of Transit Use

The survey has revealed that transit use has been significantly impacted by the COVID-19 pandemic. Figure 18 illustrates the change in transit use frequency from pre-pandemic levels, with 39% of those surveyed stating that they had stopped using transit entirely and an additional 23% reporting that they use it less often. Only 22% reported no change in their how often they take transit, while very few, 1%, reported increased frequency.

As shown in Figure 19 on the next page, the percentage of survey participants that do not use public transit at all increased from 15% in 2019 to 53% in 2020. It also shows that for those who continue to use public transit, they do so less frequently, with a significant decrease in those who use transit at least once per month or more, from 54% down to 16%. It is interesting to note that use of transit less than once per month remained steady at 31%.

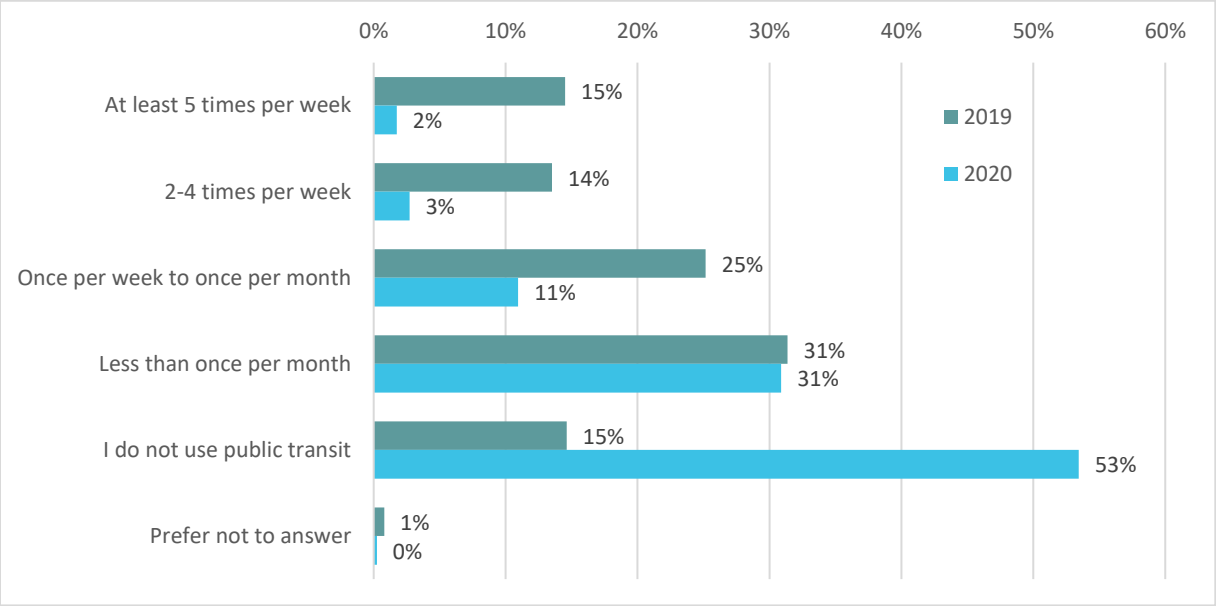
Figure 20 and Table 13 on the following pages further break out these comparisons by municipality. There was a larger increase in those reporting that they do not use public transit in the DNV (+44%-pts) when compared to the CNV (+34%-pts) and DWV (+35%-pts). The total percentage of those who take transit less frequently or stopped entirely is 62% overall, and fairly equal for DNV and CNV at about two-thirds of all residents, and lower for DWV, at 53%, though it should be noted that DWV has the highest percentage of residents who have never used transit in either 2019 or 2020 (at 23% compared to only 12% for DNV and 10% at CNV).

Figure 18. Change in Frequency of Transit Use (% of population 15+)



Individual percentages have been rounded and may not add to 100%
n=1,081

Figure 19. Frequency of Transit Use, 2019 vs. 2020 (% of population 15+)



Individual percentages have been rounded and may not add to 100%
n=1,081

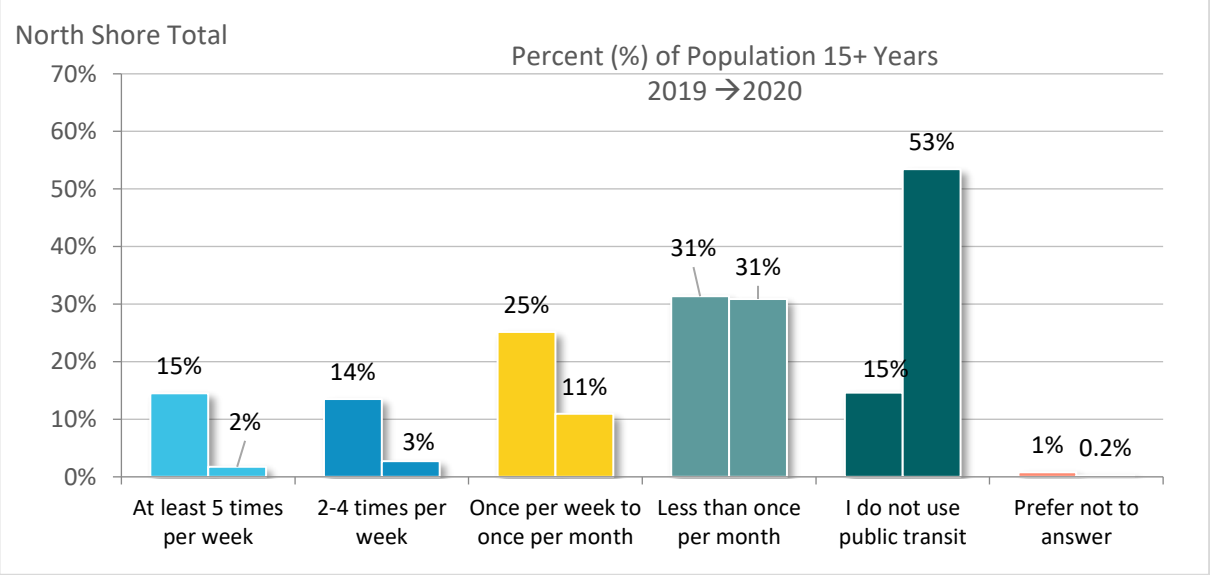
Of note, when surveyed in Fall 2020, only 20% of residents had used transit in the past month. This question was not asked of survey participants in Fall 2019, so direct comparison is not possible. However, it may be noted that in 2019, 54% did mention that they used transit at least once per month, so the percentage using transit within the last month would be at least this high. It may be useful to ask this question again in 2021 to track the change once more of the population is vaccinated, perceptions of the safety of transit change, and residents who are temporarily working from home start returning to commuting to their workplaces.

Table 13. Frequency of Transit Use, by Municipality, 2019 vs 2020

	DNV		CNV		DWV		North Shore	
	2019	2020	2019	2020	2019	2020	2019	2020
Frequency of use (% of population 15+)								
At least 5 times per week	12%	2%	23%	2%	9%	0%	15%	2%
2-4 times per week	12%	1%	17%	6%	13%	1%	14%	3%
Once per week to once per month	25%	9%	26%	12%	25%	13%	25%	11%
Less than once per month	38%	30%	24%	35%	27%	28%	31%	31%
I do not use public transit	13%	57%	10%	45%	23%	58%	15%	53%
Prefer not to answer	1%	0%	0%	0%	2%	0%	1%	0%
%-point change 2019-2020								
At least 5 times per week		-10%		-20%		-9%		-13%
2-4 times per week		-10%		-10%		-12%		-11%
Once per week to once per month		-15%		-14%		-13%		-14%
Less than once per month		-8%		+10%		0%		0%
I do not use public transit		+44%		+34%		+35%		+39%
Type of change (% of population 15+)								
Use more often		1%		2%		1%		1%
No change in use		21%		23%		21%		22%
Use less often		20%		31%		18%		23%
Stopped entirely		45%		35%		35%		39%
Never used (before or now)		12%		10%		23%		14%
Unknown		1%		0%		2%		1%
Subtotal, less often + stopped entirely		*65%*		*66%*		*53%*		*62%*

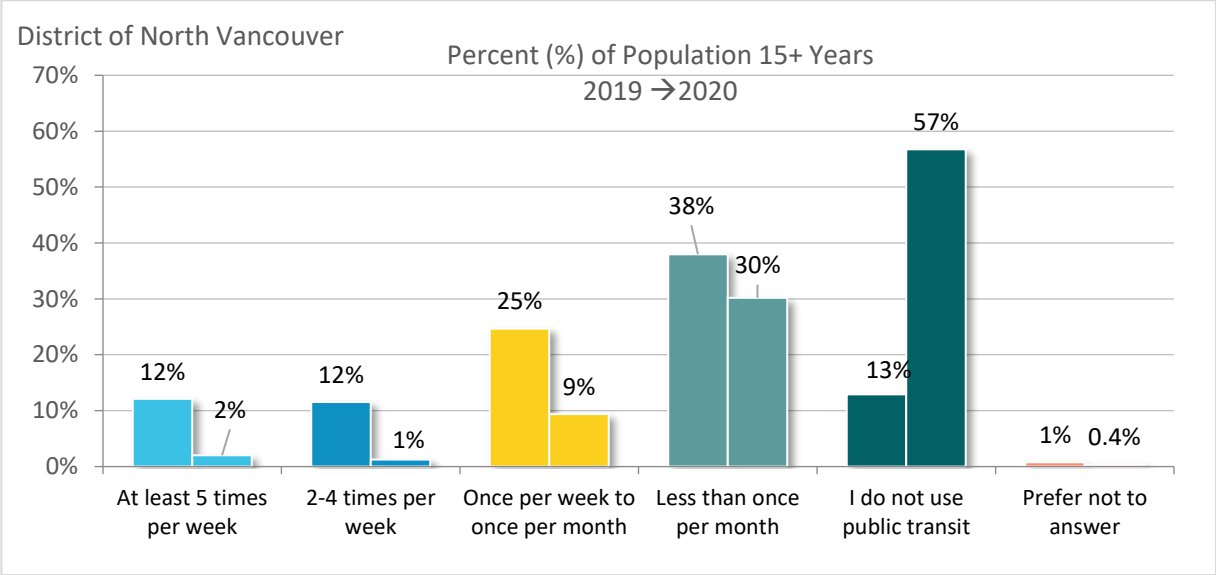
Individual percentages have been rounded and may not add to 100%

Figure 20. Frequency of Transit Use by Municipality, 2019 vs 2020

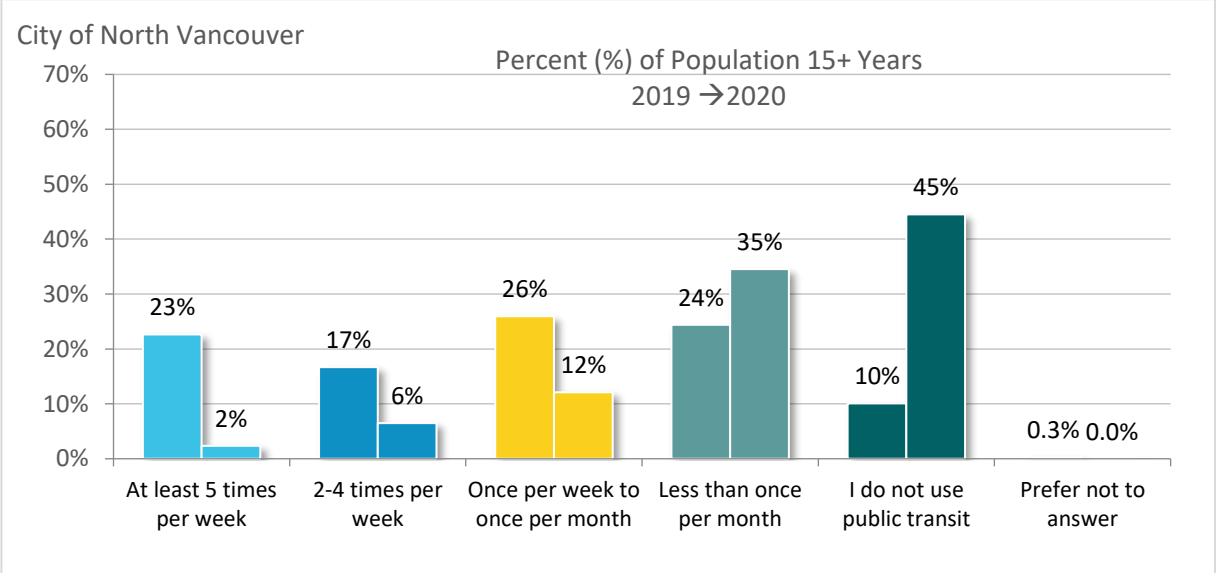


Individual percentages have been rounded and may not add to 100%

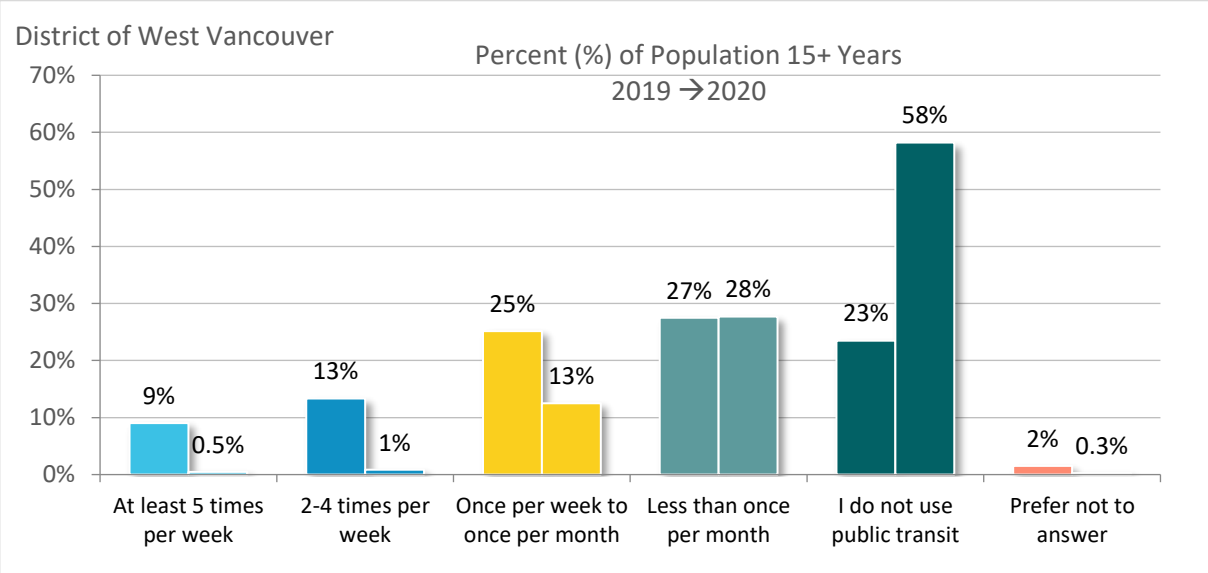
n=1,081



Individual percentages have been rounded and may not add to 100%
n=523



Individual percentages have been rounded and may not add to 100%
n=321



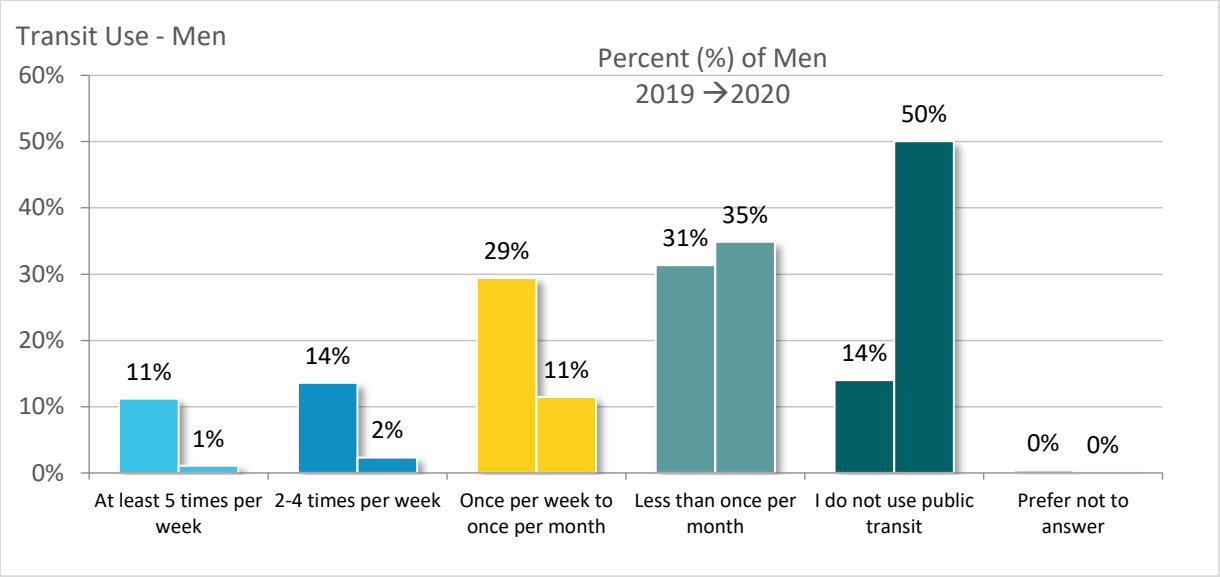
Individual percentages have been rounded and may not add to 100%

n=237

6.1.2 Changes in Frequency of Transit Use by Gender

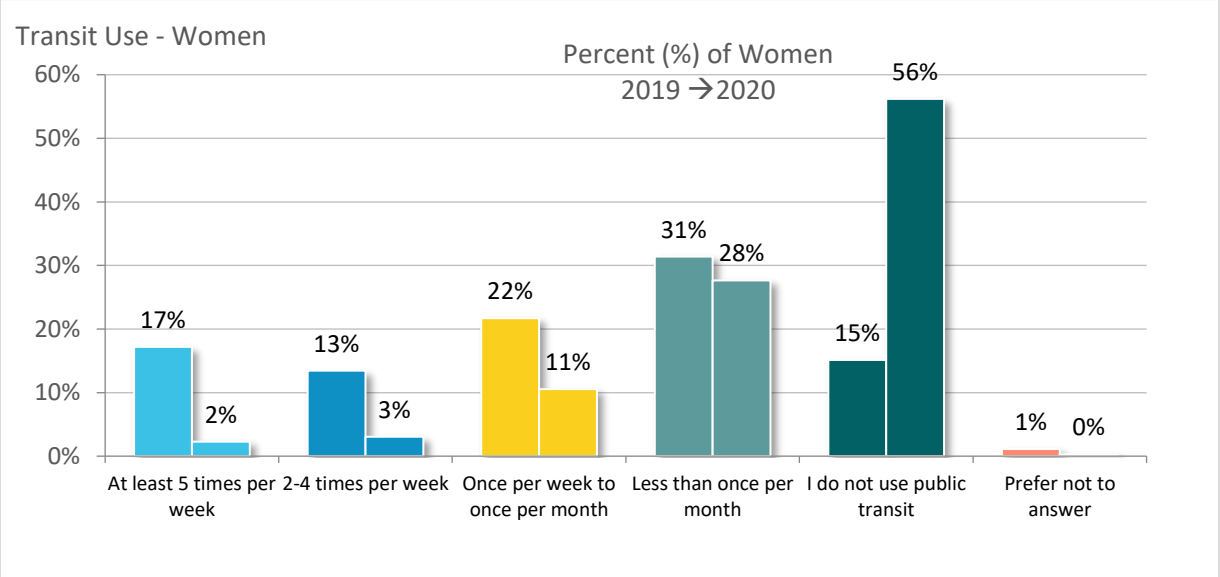
Figure 21 and Figure 22 show changes in transit use for men and women. In 2019, women were generally more likely to use transit with some frequency (30% at least twice per week, compared to 25% of men). In 2020, these percentages drop significantly for residents of both genders, to 5% for women and 3% for men.

Figure 21. Transit Use Frequency, Men, 2019 and 2020



Individual percentages have been rounded and may not add to 100%
n=500

Figure 22. Transit Use Frequency, Women, 2019 and 2020



Individual percentages have been rounded and may not add to 100%
n=581

6.2 Reasons for Changes in Transit Use

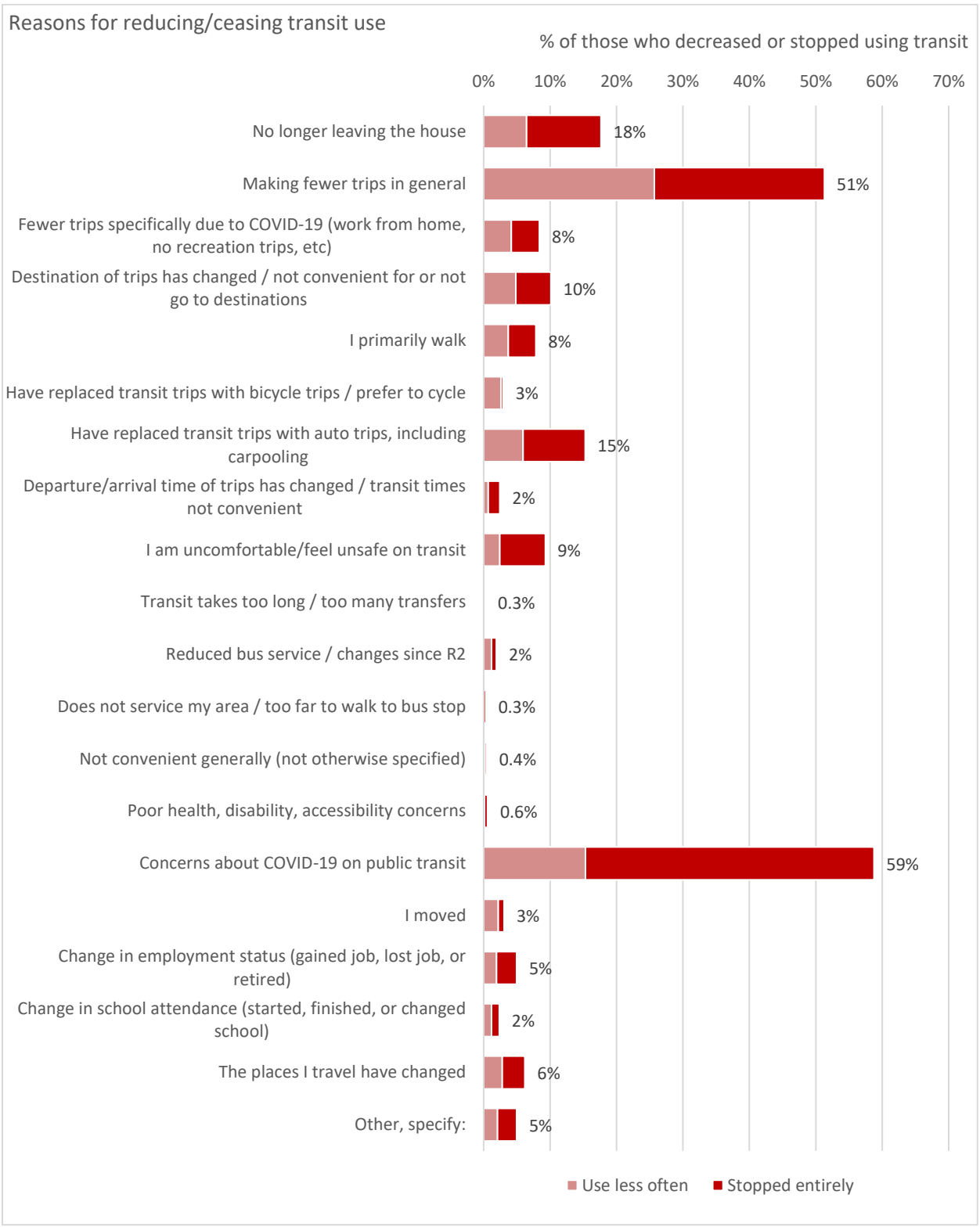
The charts on the following pages explore the reasons for changes in transit use, and for those who have never used transit, their reasons for not doing so.

Figure 23 shows the reported reason why 62% of residents decreased or stopped entirely their use of transit. Concerns about COVID-19 and transit was reported by 59%. Making fewer trips in general accounted for 51%, which is likely related to increased work from home and reduced social interaction. An additional 9% reported they did not feel comfortable or felt unsafe taking public transit. It is unclear whether this response also included some who felt uncomfortable or unsafe specifically due to COVID-19 as opposed to other reasons. Of note, 15% reported that their reduced frequency of transit use was due to replacing transit with car use.

Figure 24 shows the reasons for increased transit usage, for the 1% of participants who reported an increase in transit use as found in **Section 6.1**. The sample size for this question was small, with only 24 respondents. Of those, 23% reported a change of destination of trip or increased convenience as a reason for increased frequency. Increased sustainability was a factor for 19%. Reduced access to a vehicle or no longer driving was reported by 17%. A change in employment status was a factor for 10% of and 40% reported an “other” reason.

Figure 25 shows the reasons for not using transit given by the 14% of survey participants who indicated that they never use public transit (not in 2019 nor 2020). Overall, 23% cited concerns of COVID-19 on public transit (though it may be noted that this would not have been a factor in their non-use of transit in 2019, even if it is a reason right now). Travel time or number of transfers was a concern for 17%; general inconvenience, 15%; does not service their area, 9%; and was not convenient for or does not go to destinations, 8%. A variety of “other” reasons were listed by 32%, including simply stating that they drive or prefer driving without giving specific reasons why.

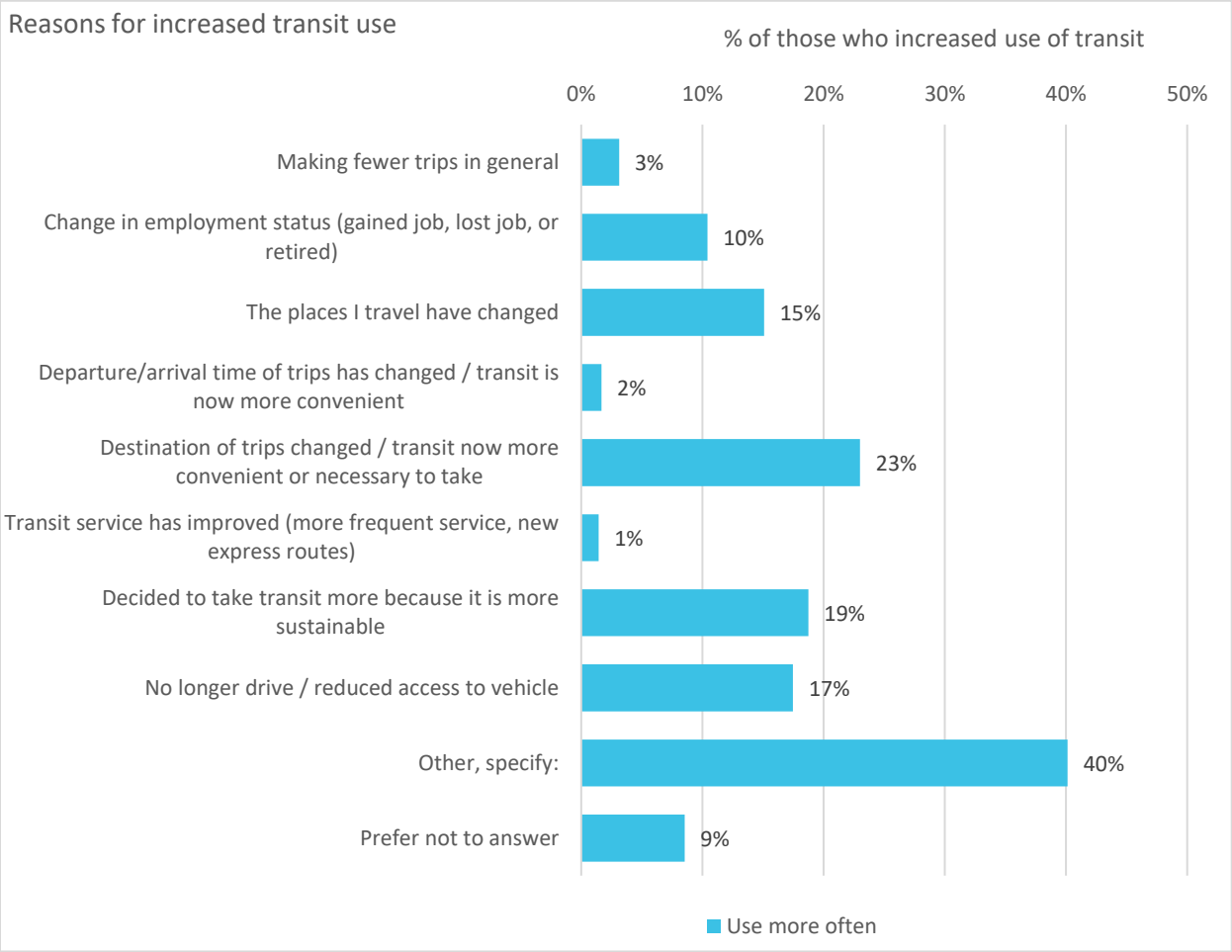
Figure 23. Reasons for Reducing or Ceasing Transit Use (% of population 15+ who reduced or stopped using transit)



Individual percentages have been rounded and may not add to 100%

n=621

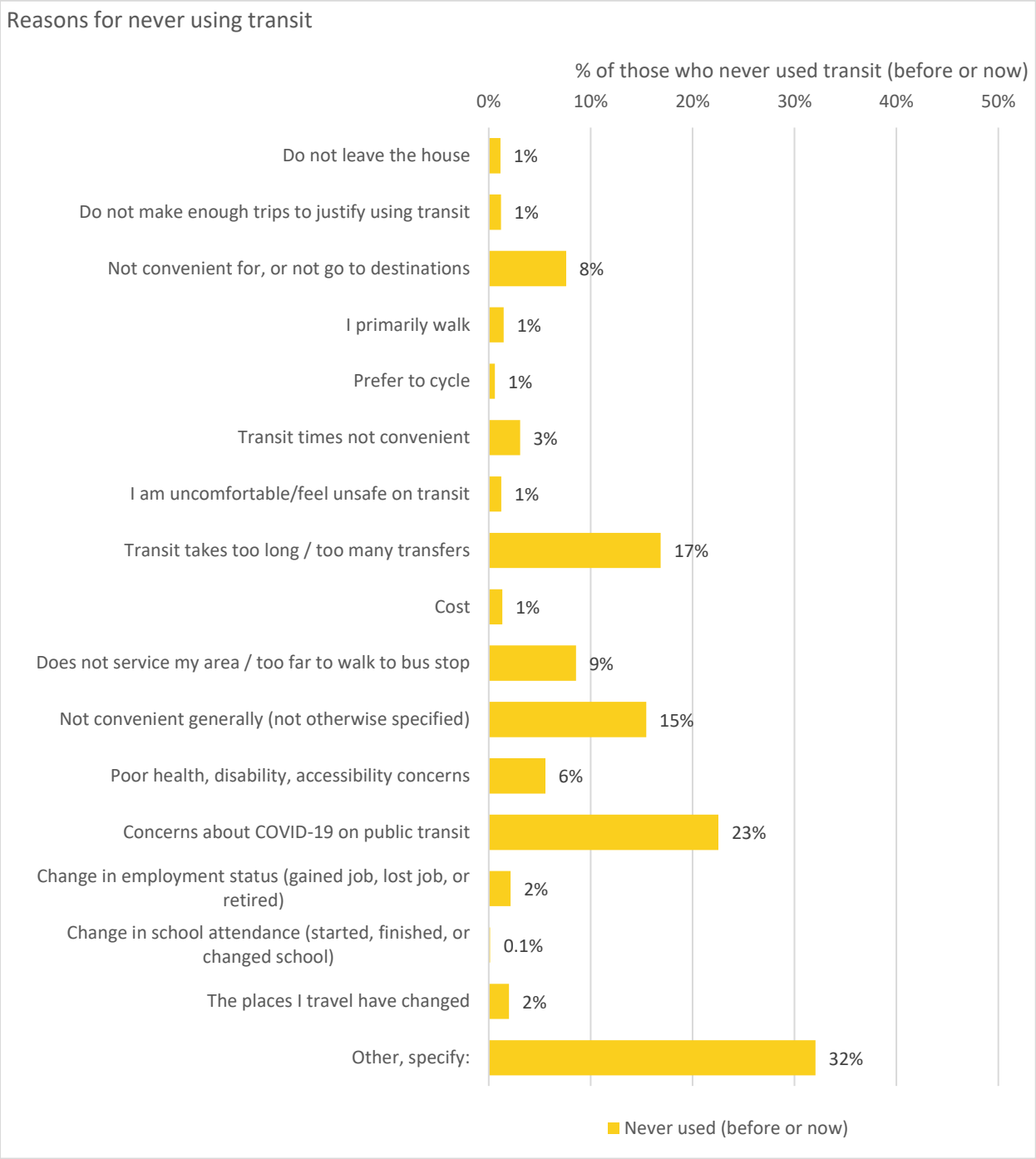
Figure 24. Reasons for Increasing Transit Use (% of population 15+ who use transit more often) – Caution: Small Sample



Individual percentages have been rounded and may not add to 100%

n=24. Interpret with caution due to small sample size.

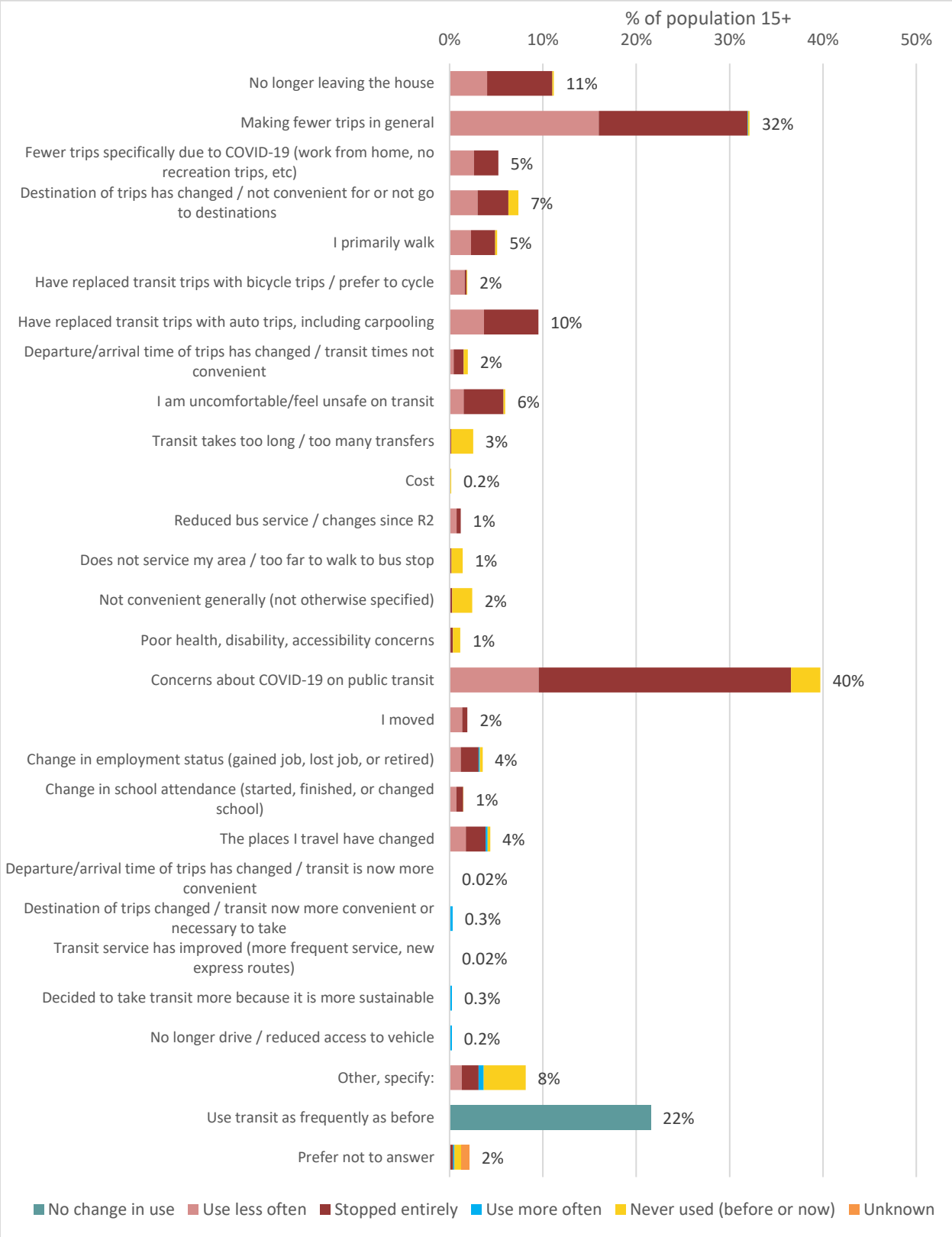
Figure 25. Reasons for Never Using Transit (% of population 15+ who indicating never using transit in either 2019 or 2020)



Individual percentages have been rounded and may not add to 100%
n=166

Figure 26 on the next page shows the compilation of all survey participants, whether they use transit or not. This helps to highlight the most common reasons for not using transit put in perspective of the total population over the age of 15, which are: making fewer trips (32% of all residents) and concerns about COVID-19 on transit (40%), with 22% of the total population not asked the question due to having no change in their frequency of transit usage.

Figure 26. Reasons for change (if any) in transit use or for not using transit (% of total population 15+)



n=1,081; Individual percentages have been rounded and may not add to 100%

7 Changes in Daily Trip Patterns

Section 7 summarizes the reported trips that were made by survey participants on the most recent weekday preceding their survey. The data collection method for the 2020 survey was to ask participants to report number of trips to different types of destinations and the number of those trips that they made by sustainable mode rather than to provide a detailed trip diary. The survey was also conducted a bit later in fall 2020 than for the 2019 survey so some modes may be affected by seasonality. These results should be interpreted with caution, but still have the potential to reveal significant changes in trip patterns and mode choice due the impact of the COVID-19 pandemic.

7.1 Daily Trip Rates

7.1.1 Trip Volumes and Trip Rates

As shown in **Table 14** the survey results suggests that there were 73,400 fewer daily trips made in 2020, which was approximately 12% less than 2019. The average resident made 3.50 trips per day compared to 3.96 in 2019 as illustrated in **Figure 27**. This decrease is thought to be largely attributed to increased work-from-home arrangements and reduced social interactions due to the COVID-19 pandemic. Readers are reminded to interpret this data with caution due to the two different data collection methods.

The fact that the survey suggests that during at this stage of the pandemic (late Fall 2020) daily trip volumes are only down by 12% year-over-year is an interesting finding. It may suggest that, rather than crippling travel as the pandemic had done in the early stages, many activities outside the home are taking place again (if perhaps some in modified form) and/or that residents are finding other reasons to travel to replace some of the activities that they can not currently engage in. The impact of the pandemic on trip purposes is explored further in **Section** 7.

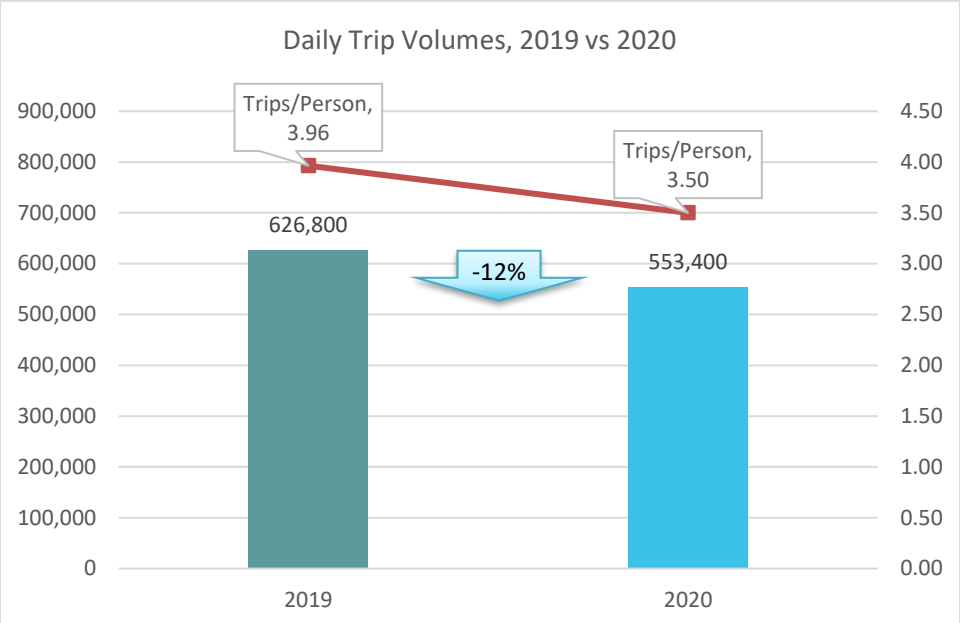
Table 14. Daily Trips and Person Trip Rates, 2019 vs. 2020

	2019	2020	Difference	% Difference
Population 15+ [31]	158,100	158,100		
Trips	626,800	553,400	-73,400	-12%
Trip Rate (trips/person)	3.96	3.50	-0.46	-12%

n=1,081 (survey participants)

[31] Note: the 2020 dataset was weighted with the same population weighting controls as 2019 and does not account for population growth or decline between 2019 and 2020.

Figure 27. Daily Trip Volumes and Person Trip Rates, 2019 vs. 2020



n=1,081

Table 15 further isolates daily trip rates by municipality. Residents of the DWV had the highest daily trip rate of 4.27 in the 2019 survey and maintain top position in 2020 with 3.90 despite a 9% decrease in trips. This is interesting because they have the highest proportion of people who were working from home in 2019, as well as proportionately more retirees, suggesting that residents of the area may engage in a higher number of non-commute discretionary trips, albeit they may be shorter local trips. The largest percentage decrease in daily trips from 2019 to 2020 occurred in the DNV with a decrease in 13% from 3.92 trips to 3.41. The CNV reported a decline of 12% (from 3.79 to 3.33), the same as the average decrease for the North Shore.

Table 15. Daily Trips and Person Trip Rates, by Municipality, 2019 vs. 2020

	DNV		CNV		DWV		North Shore	
	2019	2020	2019	2020	2019	2020	2019	2020
Sample Size (persons)		n=523		n=321		n=237		n=1,081
Population 15+		72,500		47,200		38,300		158,100
Daily Trips	284,300	247,000	178,900	157,000	163,500	149,300	626,800	553,400
Daily Trip Rate	3.92	3.41	3.79	3.33	4.27	3.90	3.96	3.50
Change in Daily Trips		-13%		-12%		-9%		-12%

7.1.2 Trip Volumes and Trip Rates by Gender

The COVID-19 pandemic has impacted the daily trip and person trip rates for men and women unequally as can be seen from survey results in **Table 16**. As shown, the average woman and man in 2019 had similar numbers of trips per day, with 3.98 for men and 3.95 for women. The 2020 survey results indicate that women experienced a nearly five times greater decline in daily trips (-0.72 trips/day) compared to men (-0.15). Women now have a significantly lower daily trip rate of 3.23 average daily trips per person compared to men with only a modest decline to 3.83.

The reasons for this may be multifold. First, while an exploration of the data revealed that women who work reported similar impacts to their work arrangements due to the pandemic as men who work, they differ in terms of the types of jobs held.

- Women are more likely than men to work part-time (15% of women vs. 11% of all men 15+ years of age) and less likely to work full-time (42% vs. 60%).
- Women are also less likely to work with no fixed workplace (7% of women who work vs. 13% of men who work).
- Furthermore, women are more likely to work in education, law, social, community and government services (20% of women who work vs. 7% of men who work) or health occupations (9% vs. 4%), somewhat less likely to work in management occupations (13% vs. 17%), and quite a bit less likely to work in trades, transport, or equipment operation (2% vs. 11%).

It stands to reason that if the COVID-19 pandemic has different impacts on both work commutes and work-related trips for different types of jobs, this would also translate into some differences for women on average as compared to men on average. Second, changes in trip making behaviours for non-work trips may also differ for some women and men. This is explored in more detail on the next section of the report, which examines changes in the number of daily trips to different types of destination.

Table 16. Daily Trips and Person Trip Rates, by Gender, 2019 vs. 2020 [32]

	Men			Women		
	2019	2020	Change 2019-2020	2019	2020	Change 2019-2020
Sample size (persons)	n=500			n=581		
Population 15+	70,800			87,300		
Daily Trips	282,000	271,100	-10,900	344,800	282,300	-62,500
Avg. Daily Trips per Person	3.98	3.83	-0.15	3.95	3.23	-0.72

[32] For the purpose of gender-based analysis, participants who indicated their gender was non-binary, other, or who refused to say have been randomly assigned to men or women due to the very small sample sizes of such participants.

7.2 Trip Destinations

7.2.1 Trip Destination Distributions and Volumes

This section compares the trip destinations by purpose for 2019 vs. 2020. This data was also collected differently in 2020 with survey participants simply reporting just the number of times they went to certain types of destination differences rather than full collection of individual trips in 2019. **Figure 28** and **Figure 29** show trip purposes as a proportion of total trips for 2019 and 2020, respectively. Trip volumes are presented as a bar chart as a side by side comparison of years in **Figure 30**, but without the return home trips, while **Table 17** details the results presented in these charts.

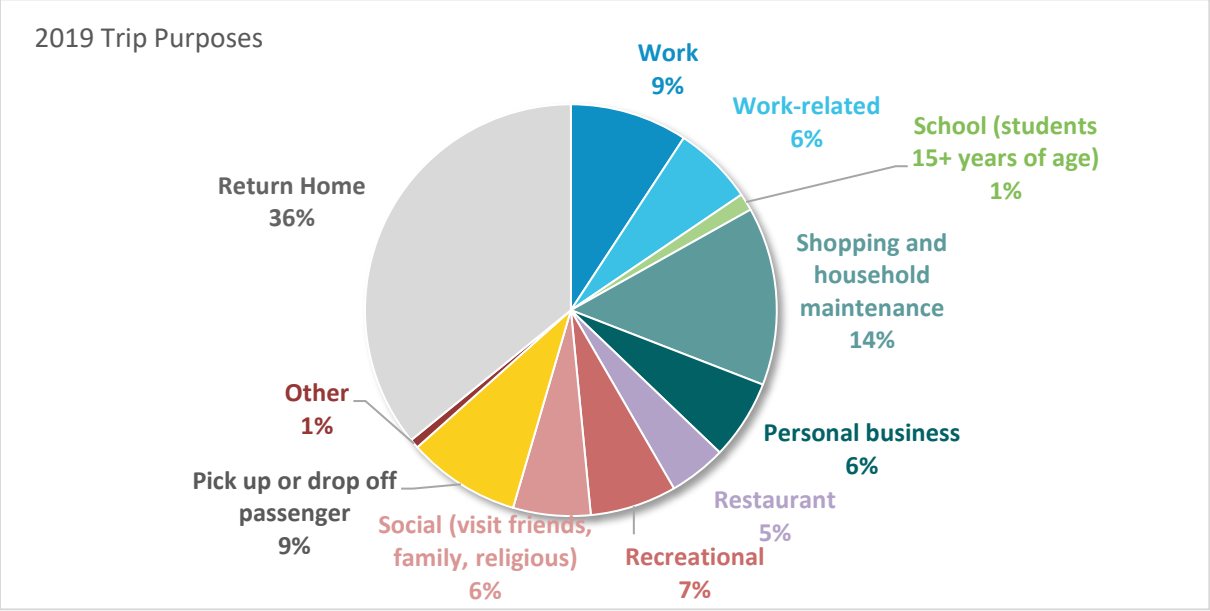
The volumes of most trip types decreased, with some exceptions. Most notably:

- Daily work trips and work-related trips decreased from an estimated 97,300 combined in 2019 to 59,000 in 2020, a 39% decline in such trips.
- Daily social trips decreased the most, going from 38,100 in 2019 down to 10,400 in 2020, which is a 73% decrease.

Trip purposes that showed apparent increases include

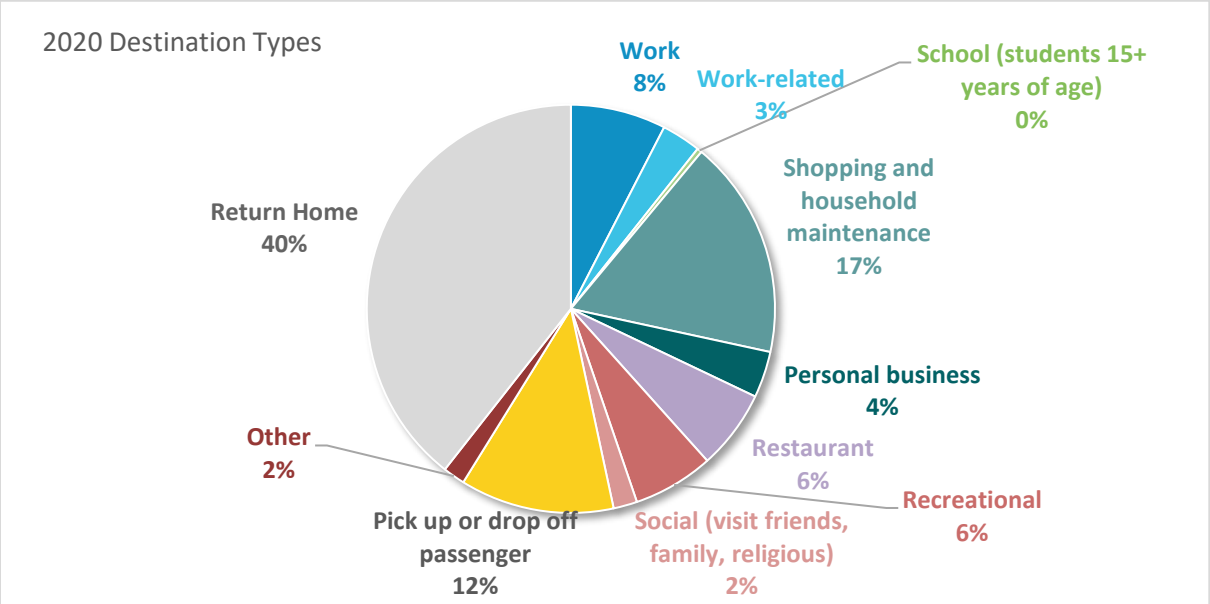
- shopping and household maintenance trips, which rose 9% from 87,800 to 96,000;
- restaurant trips, which increased 23% from 28,400 to 34,800, within which there is likely a considerable increase in take-out as opposed to eat-in meals, and with restaurant meals being a substitution for social trips to dine with others; and
- trips to pick up or drop off a passenger, which increased 21% from 55,600 to 65,700. This stands to reason for given the avoidance of communal modes of travel such as transit or children being driven to or from school rather than travelling via school bus.

Figure 28. Daily Trip Purposes, 2019



Individual percentages have been rounded and may not add to 100%
n=1,011 in 2019, n=831 in 2020 (survey participants who travelled)

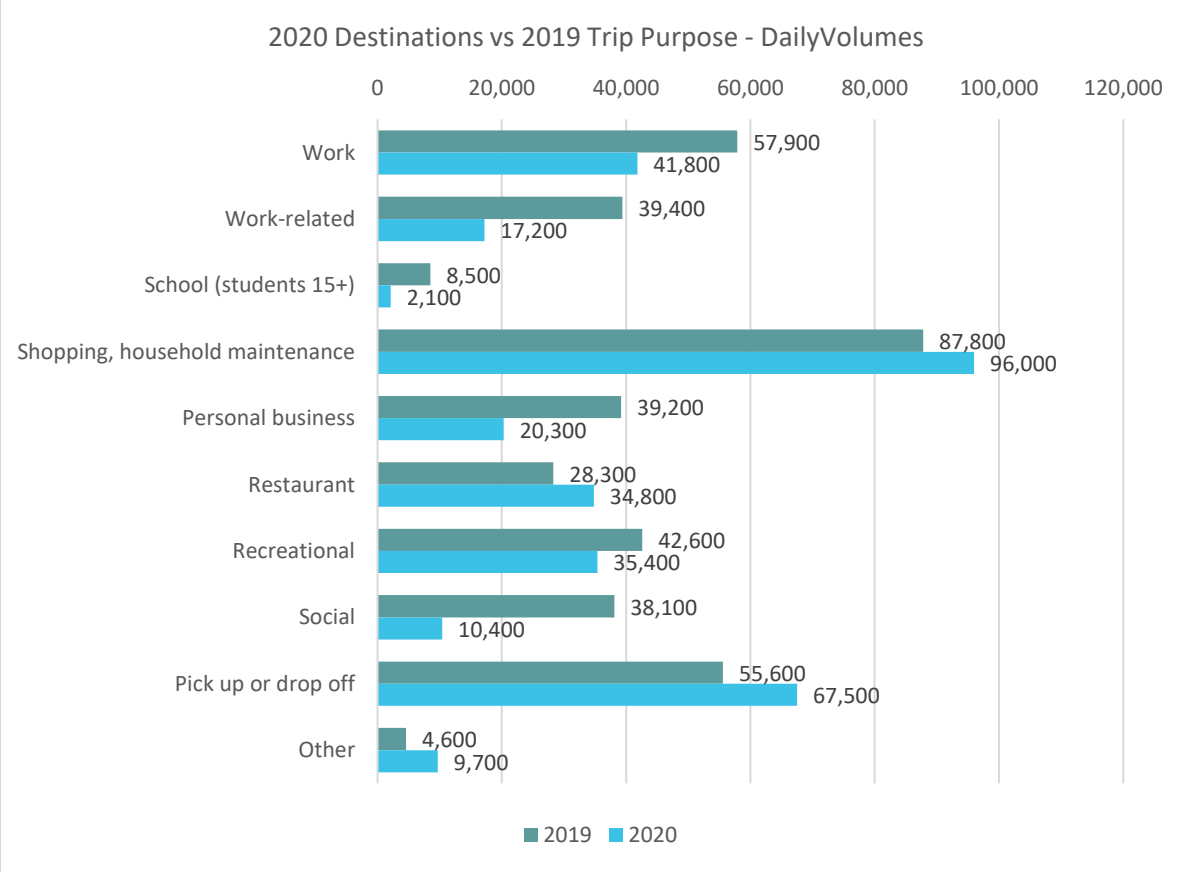
Figure 29. Daily Destinations Travelled To, 2020



Individual percentages have been rounded and may not add to 100%

n=1,011 in 2019, n=831 in 2020 (survey participants who travelled on the previous weekday)

Figure 30. Daily Trip Purposes in 2019 vs. Daily Destinations Travelled to in 2020



n=1,011 in 2019, n=831 in 2020 (survey participants who travelled on the previous weekday)

Table 17. Daily Trip Purposes / Destinations, 2019 vs. 2020

	2019 Trips	2020 Trips	Change in Volume	% Change in Volume	2019 % of Trips	2020 % of Trips	%-pt. Change
Total	**626,800**	**553,400**	**-73,400**	**-12%**			
Work	57,900	41,800	-16,100	-28%	9.2%	7.6%	-1.7%
Work-related	39,400	17,200	-22,200	-56%	6.3%	3.1%	-3.2%
School (students 15+ years of age)	8,500	2,100	-6,400	-75%	1.4%	0.4%	-1.0%
Shopping and household maintenance	87,800	96,000	+8,200	+9%	14.0%	17.4%	+3.4%
Personal business	39,200	20,300	-18,900	-48%	6.3%	3.7%	-2.6%
Restaurant	28,300	34,800	+6,500	+23%	4.5%	6.3%	+1.8%
Recreational	42,600	35,400	-7,200	-17%	6.8%	6.4%	-0.4%
Social (visit friends, family, religious)	38,100	10,400	-27,700	-73%	6.1%	1.9%	-4.2%
Pick up or drop off passenger	55,600	67,500	+11,900	+21%	8.9%	12.2%	+3.3%
Other	4,600	9,700	+5,100	+111%	0.7%	1.8%	+1.0%
Return Home	224,800	218,000	-6,800	-3%	35.9%	39.4%	+3.5%

n=1,011 in 2019, n=831 in 2020 (survey participants who travelled on the previous weekday)

Table 18 on the following page shows the daily trip purpose by municipality. Some notable figures that stand out are that DWV has the greatest shopping and household maintenance trips (19.7% in 2020) and pick up or drop off passenger trips (16.7%). The CNV has the greatest proportion of restaurant trips at 9.7%, and the lowest proportion of pick-up/drop-off trips (7.7%). DNV has the greatest decrease in the number of work and work-related trips (-21,000) compared with CNV (-9,700) and DWV (-6,700).

Table 18. Daily Trip Purposes / Destinations, by Municipality, 2019 vs. 2020

	DNV		CNV		DWV		North Shore	
	2019	2020	2019	2020	2019	2020	2019	2020
Daily Trips	284,300	247,000	178,900	157,000	163,500	149,300	626,800	553,400
Work	10.3%	8.0%	11.4%	9.9%	5.1%	4.3%	9.2%	7.6%
Work-related	6.6%	2.9%	6.3%	4.0%	5.8%	2.5%	6.3%	3.1%
School (students aged 15+)	1.7%	0.9%	1.9%	0.0%	0.2%	0.0%	1.4%	0.4%
Shopping and household maintenance	13.2%	16.3%	11.2%	16.8%	18.5%	19.7%	14.0%	17.4%
Personal business	7.1%	3.0%	4.3%	3.4%	6.9%	5.1%	6.3%	3.7%
Restaurant	3.9%	5.1%	5.4%	9.7%	4.7%	4.6%	4.5%	6.3%
Recreational	6.6%	7.9%	7.2%	7.1%	6.6%	3.1%	6.8%	6.4%
Social (visit friends, family, religious)	5.0%	2.0%	7.0%	2.0%	6.9%	1.6%	6.1%	1.9%
Pick up or drop off pssngr.	8.9%	12.4%	5.8%	7.7%	12.2%	16.7%	8.9%	12.2%
Other	0.7%	1.3%	0.7%	1.2%	0.9%	3.1%	0.7%	1.8%
Return Home	36.0%	40.3%	38.9%	38.1%	32.2%	39.2%	35.9%	39.4%
	DNV		CNV		DWV		North Shore	
Change, 2019 to 2020	change in volume	%-pt change	change in volume	%-pt change	change in volume	%-pt change	change in volume	%-pt change
Work	-9,400	-2.2%	-4,800	-1.5%	-1,900	-0.8%	-16,100	-1.7%
Work-related	-11,600	-3.7%	-4,900	-2.2%	-5,800	-3.3%	-22,200	-3.2%
School (students aged 15+)	-2,800	-0.9%	-3,400	-1.9%	-300	-0.2%	-6,400	-1.0%
Shopping and household maintenance	+2,700	+3.1%	+6,400	+5.6%	-800	+1.2%	+8,300	+3.4%
Personal business	-13,000	-4.2%	-2,300	-0.9%	-3,500	-1.7%	-18,900	-2.6%
Restaurant	+1,600	+1.2%	+5,600	+4.3%	-700	0.0%	+6,500	+1.8%
Recreational	+700	+1.3%	-1,700	-0.1%	-6,200	-3.5%	-7,200	-0.4%
Social (friends, family, religious)	-9,300	-3.0%	-9,400	-5.0%	-8,900	-5.3%	-27,700	-4.2%
Pick up or drop off pssngr.	+5,300	+3.5%	+1,600	+1.8%	+5,000	+4.5%	+11,900	+3.3%
Other	+1,400	+0.7%	+700	+0.5%	+3,100	+2.1%	+5,100	+1.0%
Return Home	-2,900	+4.3%	-9,700	-0.8%	+5,800	+7.0%	-6,800	+3.5%

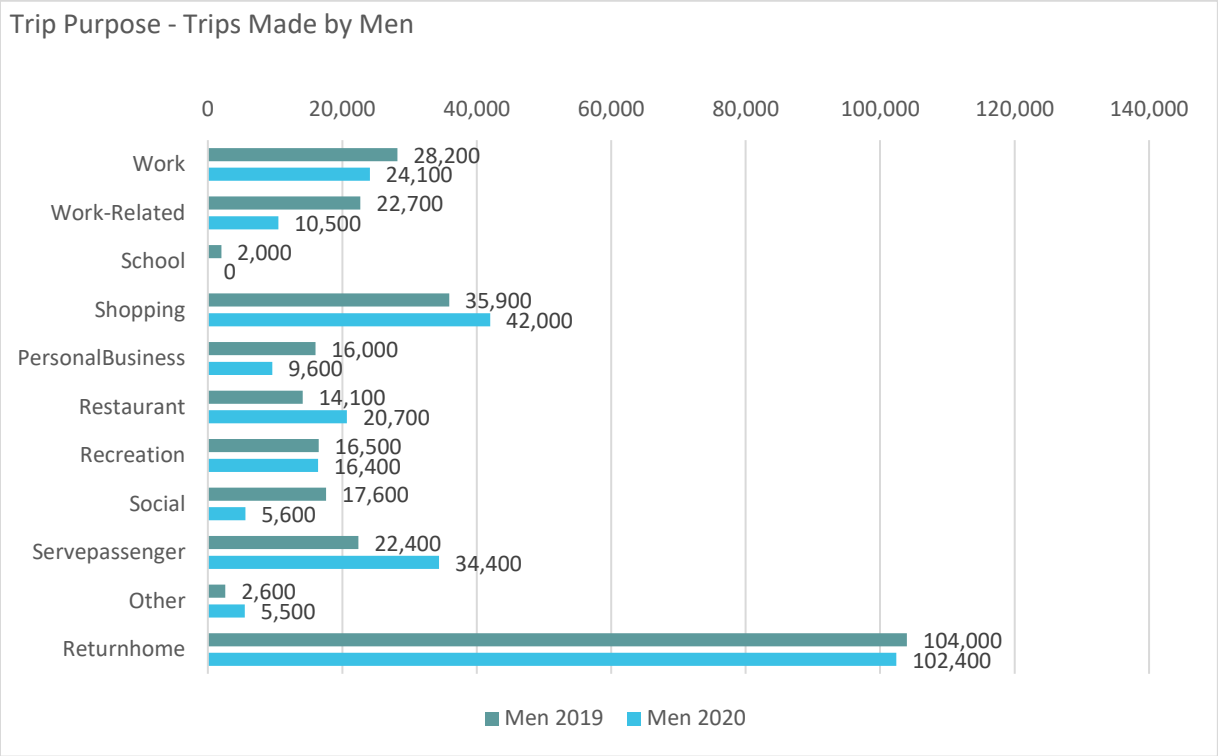
Individual percentages have been rounded and may not add to 100%

n=1,011 in 2019, n=831 in 2020 (survey participants who travelled on the previous weekday)

7.2.2 Trip Destination Volumes by Gender

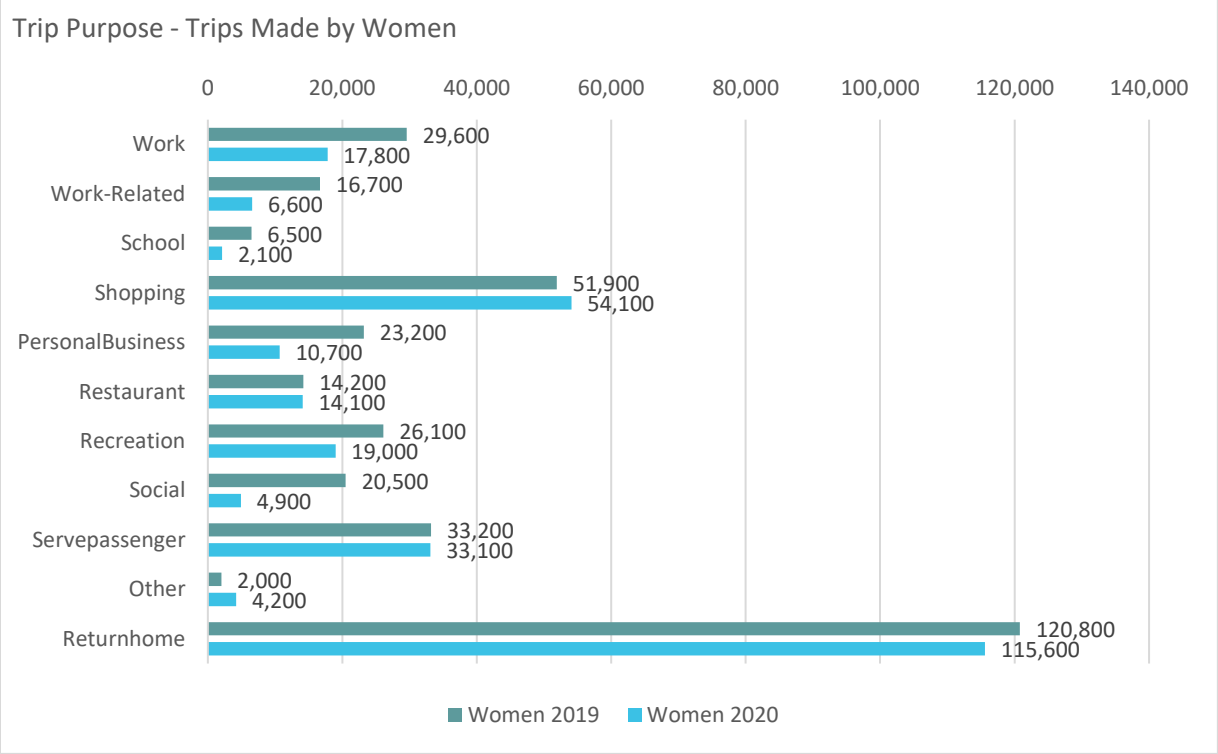
Figure 31 and Figure 32 present the changes in trip volumes for men and women by trip purpose. The survey results suggest that women experienced a greater drop in work and work-related trips, as well as in trips for social purposes and personal business. While men's work-related trips halved, their trips to work diminished only modestly, and their trips for recreational purposes have remained the same, while their trips for shopping, to restaurants, and to serve passengers have increased considerably (whereas the volume of women's serve-passenger trips appears to have remained the same).

Figure 31 Daily Trip Volume by Purpose, Men, 2019 and 2020



n=500

Figure 32 Daily Trip Volume by Purpose, Women, 2019 and 2020



n=581

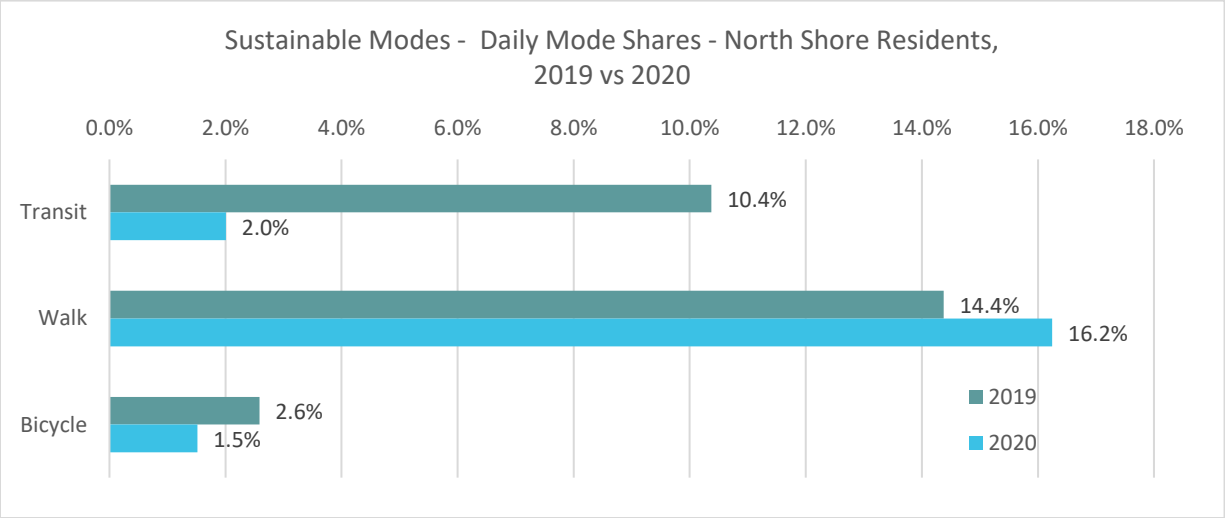
7.3 Sustainable Mode Shares

7.3.1 Changes in Sustainable Mode Shares and Volumes

In 2020 survey participants were asked how many of the total daily destinations they reported were reached by each of the following types of sustainable mode: transit, bicycling, walking. This is different than the 2019 survey, which asked participants to indicate all modes used for each individual trip. This data should be interpreted with caution due to the difference in reporting methods. It may be noted that in 2020, to keep the survey length short, the focus was on sustainable modes and we did not ask how many trips were made by other modes of travel. Other modes would include all motorized modes other than transit, primarily being auto driver trips, but also including trips as an auto passenger, via motorcycle, taxi, and so on.

Figure 33 shows the daily sustainable mode shares for 2019 and 2020, respectively. Daily transit trips went down from 10% of trips on the most recent weekday in 2019 to only 2% in 2020. Cycling mode share decreased (2.6% to 1.5%), whereas walking increased modestly (14% to 16%). This is reflective of fewer cycling commutes to work and more local walking trips by those working at home. Combined, sustainable modes were used for 27% of daily trips in 2019 and decreased to 20% in 2020. Survey participants were not asked to specify what other modes of transport were used other than the sustainable modes. All told, other modes (auto driver, auto passenger, motorcycle, taxi, and other motorized modes) saw an increase from 73% to 80% of all trips, which may be reflective of avoidance of transit.

Figure 33. Daily Sustainable Mode Shares, 2019 and 2020

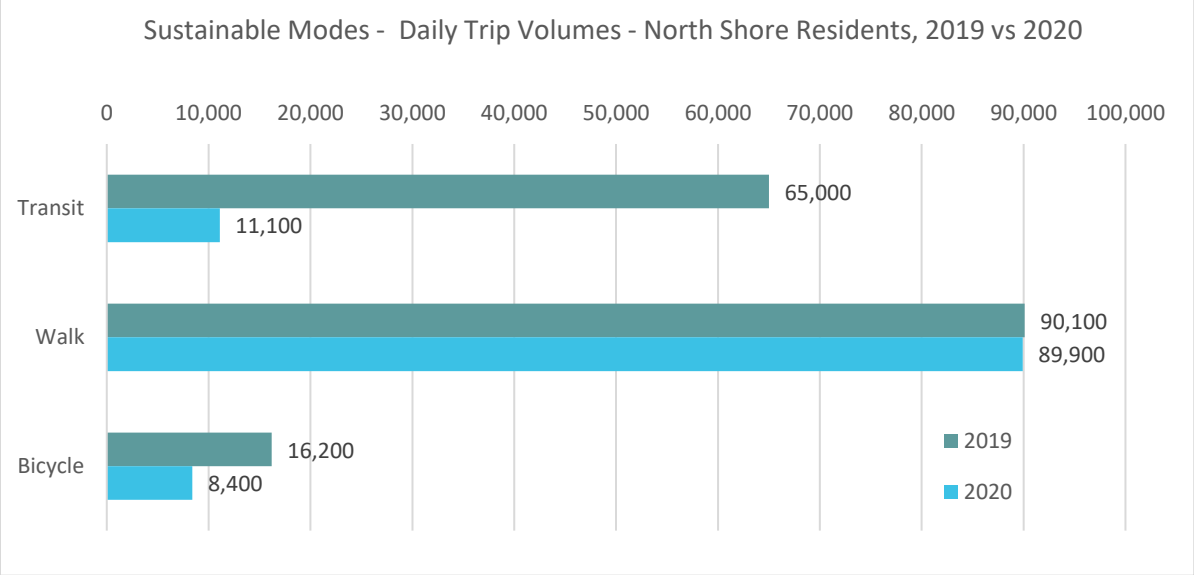


Individual percentages have been rounded and may not add to 100%
n=1,011 in 2019, n=831 in 2020

Figure 34 and Table 19 show the daily trip volumes for sustainable modes to provide a perspective on the changes in mode shares expressed in terms of the overall reduction in the number of trips. The number of walk trips remained stable. The greatest trip reduction occurred with 53,900 transit trips (from 65,000 to 11,100 daily transit trips) followed by a halving of bicycle trips (from 16,200 to 8,400),

while trips by other modes only reduced by 11,400 to 444,000. This is likely because these are the three most common modes for trips to work or for work-related purposes, whereas walking is more commonly a non-commute trip.

Figure 34. Daily Trip Volumes for Sustainable Modes, 2019 vs. 2020



n=1,011 in 2019, n=831 in 2020

Table 19. Daily Sustainable Mode Shares, 2019 vs. 2020

	2019 Trips	2020 Trips	Reduction in Volume	% Change in Volume	2019 Mode Share (% of Trips)	2020 Mode Share (% of Trips)	%-pt. Change in Mode Share
Total Trips	**626,800**	**553,400**	**-73,400**	**-12%**			
Transit	65,000	11,100	-53,900	-83%	10.4%	2.0%	-8.4%
Walk	90,100	89,900	-200	0%	14.4%	16.2%	+1.9%
Bicycle	16,200	8,400	-7,800	-48%	2.6%	1.5%	-1.1%
Other (Drive, Passenger, Other)	455,400	444,000	-11,400	-3%	72.7%	80.2%	+7.6%

n=1,011 in 2019, n=831 in 2020
Individual percentages have been rounded and may not add to 100%

Table 20 shows the daily sustainable mode shares by municipality. The DNV had a similar decrease in the number of transit trips (-17,400) and the number of trips by other modes (-18,000). The CNV only had a major decline in transit trips (-25,500) whereas trips by other modes increased by 5,900. DWV has a similar pattern as CNV with a decrease in transit trips (-10,900) and a slight increase in other modes (+800). Speculating from other data, the larger decline in other modes for the DNV is likely because it had the greatest decline in work trips and in total daily trips.

Table 20. Daily Sustainable Mode Shares, by Municipality, 2019 vs. 2020

	DNV		CNV		DWV		North Shore	
	2019	2020	2019	2020	2019	2020	2019	2020
Daily Trips	284,300	247,000	178,900	157,000	163,500	149,300	626,800	553,400
Mode Shares								
Transit	8.0%	2.2%	17.0%	3.1%	7.2%	0.6%	10.4%	2.0%
Walk	13.9%	17.4%	21.0%	23.3%	8.0%	7.0%	14.4%	16.2%
Bicycle	3.4%	1.8%	2.5%	2.1%	1.2%	0.4%	2.6%	1.5%
All Other (driver, passenger, other)	74.7%	78.7%	59.5%	71.5%	83.6%	92.0%	72.7%	80.2%
	DNV		CNV		DWV		North Shore	
Change, 2019 to 2020	change in volume	mode share %-pt. change	change in volume	mode share %-pt. change	change in volume	mode share %-pt. change	change in volume	mode share %-pt. change
Transit	-17,400	-5.8%	-25,500	-13.9%	-10,900	-6.6%	-53,900	-8.4%
Walk	+3,500	+3.5%	-1,100	+2.2%	-2,700	-1.0%	-300	+1.9%
Bicycle	-5,300	-1.6%	-1,200	-0.4%	-1,400	-0.8%	-7,900	-1.1%
All Other (driver, passenger, other)	-18,000	+4.0%	+5,900	+12.0%	+800	+8.5%	-11,400	+7.6%

Individual percentages have been rounded and may not add to 100%

7.3.2 Changes in Sustainable Mode Shares and Volumes by Gender

Table 21 shows the daily sustainable modes by gender for 2019 and 2020. The figures on the following pages illustrate these results in charts (Figure 35, Figure 36, Figure 37, and Figure 38). Women had a greater decline in total daily trips (-62,500) with fairly equal declines in transit (-33,500) and all other motorized modes (-26,400), but a modest increase in bicycle trips (+1,300). For men, more of a mode shift occurred, while the number of total trips was less affected. They had a smaller decrease in total daily trips (-10,900), a substantial decrease in transit trips (-20,500), a notable decrease in bicycle trips relative to 2019 (-9,200), and an increase in all other motorized modes (+15,000).

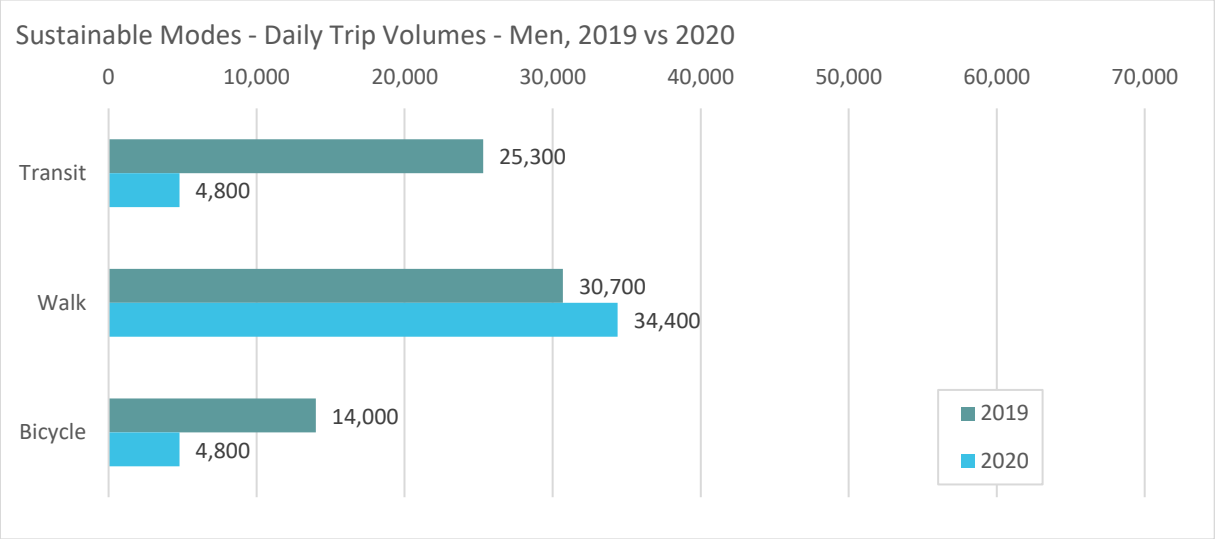
Table 21. Daily Sustainable Mode Shares, by Gender, 2019 vs. 2020 [33]

	Men			Women		
# of Trips	2019	2020	Change	2019	2020	Change
Total Daily Trips	282,000	271,100	-10,900	344,800	282,300	-62,500
Transit	25,300	4,800	-20,500	39,800	6,300	-33,500
Walk	30,700	34,400	+3,700	59,400	55,400	-4,000
Bicycle	14,000	4,800	-9,200	2,200	3,500	+1,300
All Other (driver, passenger, other)	212,000	227,000	+15,000	243,400	217,000	-26,400
Mode Shares	2019	2020	%-pt. Change	2019	2020	%-pt. Change
Transit	9.0%	1.8%	-7.2%	11.5%	2.2%	-9.3%
Walk	10.9%	12.7%	+1.8%	17.2%	19.6%	+2.4%
Bicycle	5.0%	1.8%	-3.2%	0.6%	1.3%	+0.6%
All Other (driver, passenger, other)	75.2%	83.7%	+8.6%	70.6%	76.9%	+6.3%

Individual percentages have been rounded and may not add to 100%

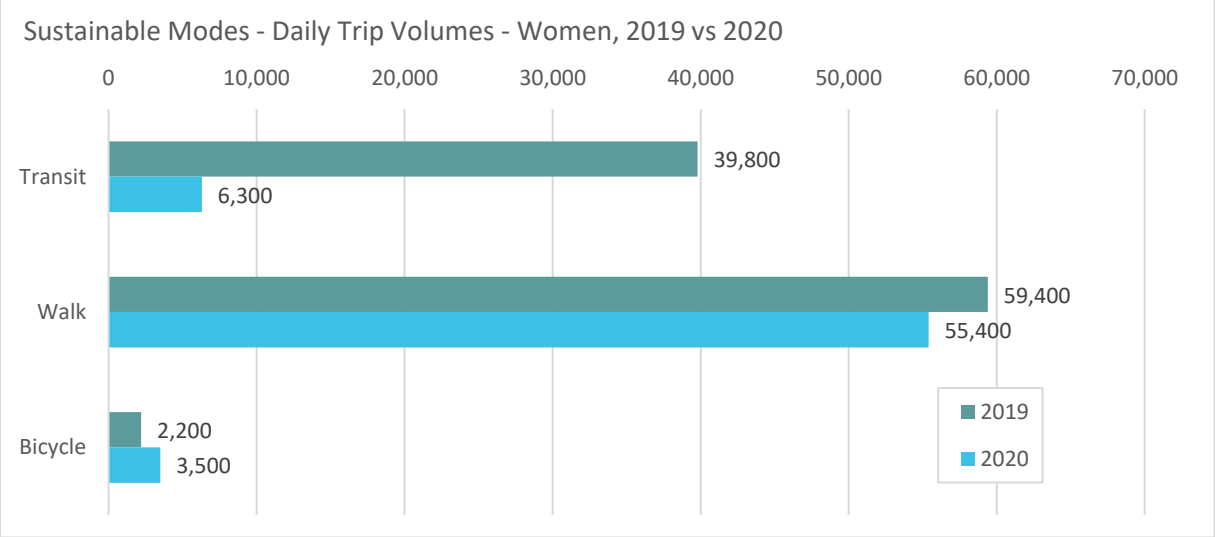
[33] For the purpose of gender-based analysis, participants who indicated their gender was non-binary, other, or who refused to say have been randomly assigned to men or women due to the very small sample sizes of such participants.

Figure 35 Daily Sustainable Mode Trip Volumes, Men, 2019 vs. 2020



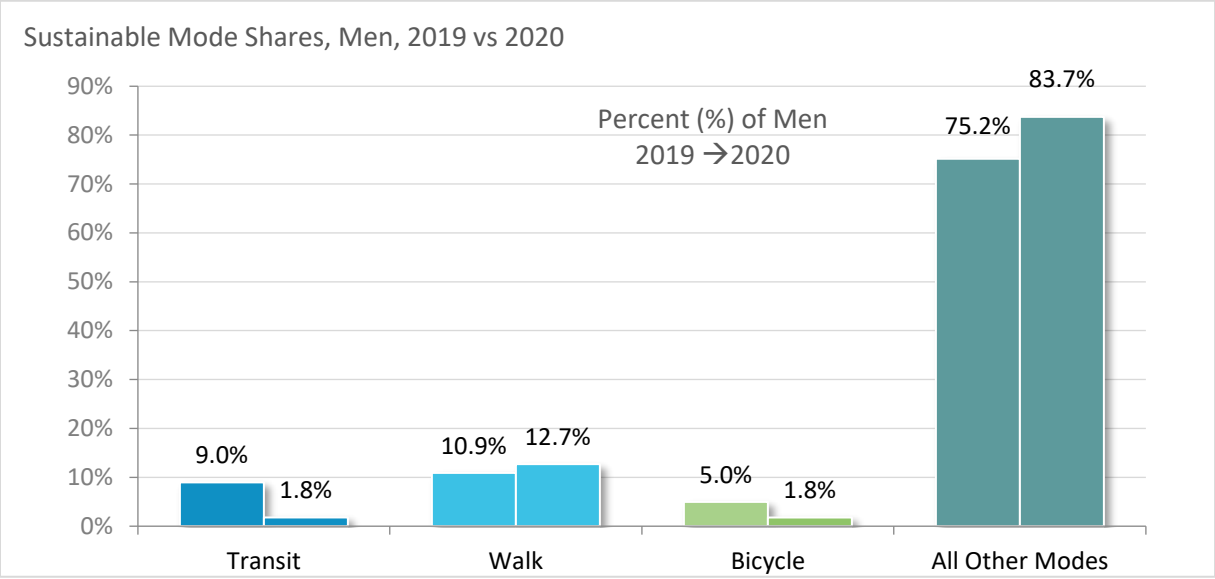
n=500

Figure 36 Daily Sustainable Mode Trip Volumes, Women, 2019 vs. 2020



n=581

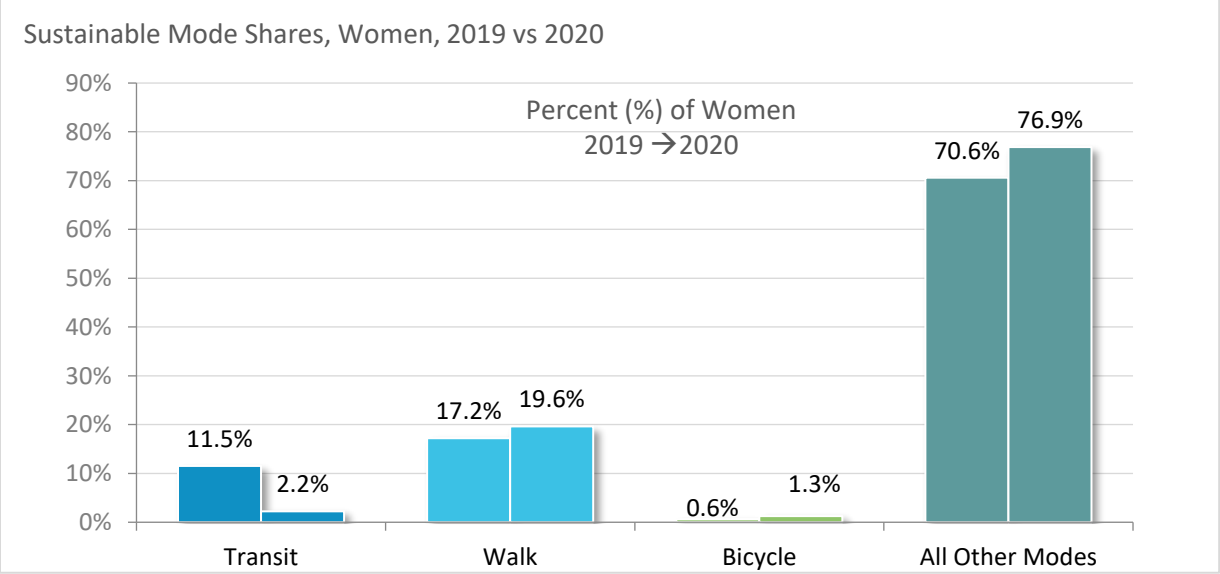
Figure 37 Daily Sustainable Mode Shares, Men, 2019 vs. 2020



Individual percentages have been rounded and may not add to 100%

n=500

Figure 38 Daily Sustainable Mode Shares, Women, 2019 vs. 2020



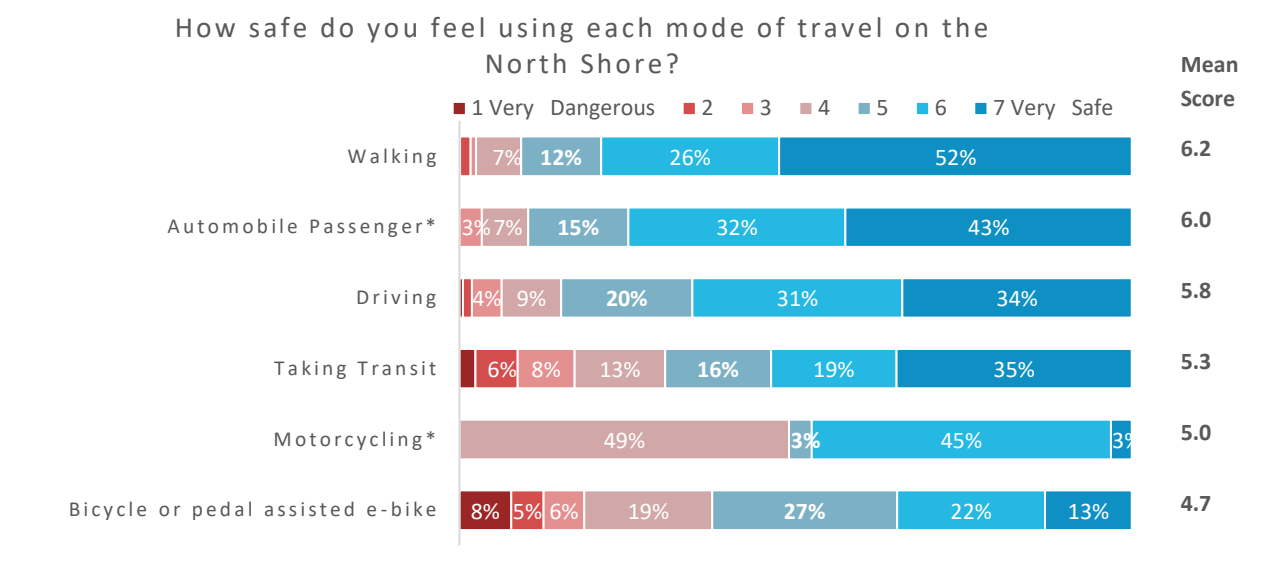
Individual percentages have been rounded and may not add to 100%

n=581

8 Perceptions of Safety while Travelling on the North Shore – by Mode of Travel

The survey asked participants to rank their perception of safety of their modes of transportation that they use as a primary or secondary mode of travel on a scale of 1 (very dangerous) to 7 (very safe). Figure 39 shows the distribution of rankings for each mode of transportation. On average, all modes were rated more safe than unsafe. With regards to sustainable modes, there is a large spread of perceived safety between transit, walking and cycling: transit had a mean score of 5.3, however it is unclear how much consideration respondents gave to the COVID-19 pandemic when giving their ranking; walking had the highest perceived safety with a mean score of 6.2; while cycling had the lowest perceived safety with a mean score of 4.7 amongst those who cycle. The differences between active modes are stark. Both cyclists and pedestrians are considered vulnerable road users, but cyclists are on average considerably less confident about their own safety. Driving and being an auto passenger had high perceived safety, scoring 6.0 and 5.8, respectively. Readers should be aware that the perceived safety of being a car passenger was ranked only by participants who report that they do not drive themselves. It is interesting that the perceived safety of car passengers is higher than that of being a driver, but these results should be interpreted with caution as the sample size of n=65 for auto passengers is modest. Readers should interpret the results for motorcycle with care as well because the sample sizes of n=11 was quite small.

Figure 39. Perception of Safety of Travel Modes Used (Usual or Secondary Modes) [34]



[34] The question on perceived safety of travelling via each mode was asked of those who cited the given mode as one of their usual modes for work/school commute or non-commute purposes.
Individual %s have been rounded and may not add to 100%. Small percentages not displayed in the chart for legibility: Walking, 0.1% with score of 1, 2% with 2, 1% with 3; Driving, 1% with score of 1, 1% with 2; Transit, 2% with score of 1.
Sample sizes: Walking n=358, Auto Passenger n=65 (*interpret with caution; asked only of those who cited this mode and did not cite auto driver as a usual mode), Driving n=953, Transit n=224, Motorcycle n=11 (*interpret with caution), Bicycle n=135.

Table 22 and Table 23 break the perceived safety of different modes of transportation down by municipality and sub-municipal zones, respectively. They also present the percentage of participants who felt confident in their safety (score of 6 or 7) and those who felt unsafe (score of 1, 2 or 3). The perception of safety for drivers varied between a high of 73% for residents of the DWV to a low of 59% for residents of the CNV. Between 4% and 8% of drivers from each municipality felt unsafe, an overall average of 6% for the North Shore as a whole. The perceived safety of Transit also varied between municipality with 66% of DWV users feeling the safe and only 47% of CNV users feeling safe. Over a quarter (26%) of CNV transit riders felt unsafe while only 14% and 11% of DWV and DNV transit riders felt the same.

Of note, 79% of those surveyed felt confident of their safety while walking on the North Shore and only 2% felt unsafe. The CNV had the most walkers feeling safe at 85% followed by DWV (82%) and DNV (74%), with those feeling unsafe below 3% in each municipality. Cycling had the lowest perceived safety with only 35% feeling confident in their safety and 19% feeling unsafe overall. However, unlike walking, there is a large variance between municipalities, with the majority of cyclists, 62%, feeling safe in the CNV while 38% did in the DWV and only 26% in the DNV. Interestingly, over a quarter of cyclists (26%) in the DWV felt unsafe, the highest of all municipalities.

Table 22. Perceptions of Safety of Travel on North Shore by Modes Used (Usual or Secondary) by Municipality[35]

	DNV			CNV			DWV			North Shore Total		
	Mean Score	Bottom Box Scores (1, 2, 3)	Top Box Scores (6, 7)	Mean Score	Bottom Box Scores (1, 2, 3)	Top Box Scores (6, 7)	Mean Score	Bottom Box Scores (1, 2, 3)	Top Box Scores (6, 7)	Mean Score	Bottom Box Scores (1, 2, 3)	Top Box Scores (6, 7)
Walking	6.1	3%	74%	6.3	3%	85%	6.3	0%	82%	6.2	2%	79%
Auto Passenger	6.5	0%	96%	6.0	3%	67%	5.0*	14%*	40%*	6.0	3%	75%
Driving	5.7	7%	65%	5.7	4%	59%	5.9	8%	73%	5.8	6%	65%
Taking Transit	5.5	11%	52%	4.9	26%	47%	5.6	14%	66%	5.3	17%	54%
Motorcycling*	-	-	-	-	-	-	-	-	-	5.0*	0%*	48%*
Bicycle or pedal assisted e-bike	4.5	20%	26%	5.5	9%	62%	4.6	26%	38%	4.7	19%	35%
Sample sizes (n) (participants who use the given mode as a usual or secondary mode for commute or non-commute travel)												
Walking	160			141			57			358		
Auto Passenger	26			29			10			65		
Driving	476			261			216			953		
Taking Transit	91			81			52			224		
Motorcycling*	5			6			-			11		
Bicycle or pedal assisted e-bike	82			27			26			135		

[35] Auto Passenger asked only of participants who cited this mode and did not cite auto driver as one of their usual modes
* Interpret results for Motorcycling with caution due to small sample size (n=11). Results by municipality for this mode are suppressed due to small sample sizes.
* Interpret results for Auto Passenger for DWV with caution due to small sample size (n=10).

The mean scores for walking and driving were similar for all sub-municipal zones. The scores for transit had more variation with Zones 1, 6 and 8 giving a mean score below 5 and Zones 2 and 4 giving the higher rating of 6.1. For cycling, Zones 1, 2, 6 and 8 gave mean scores below 5. None of the zones provided a mean score greater than 6 for cycling.

Table 23. Perceptions of Safety of Travel on North Shore by Modes Used (Usual or Secondary), Mean Scores by Zone[36]

	Zone 1: DNV (East)	Zone 2: DNV (Central)	Zone 3: DNV (West)	Zone 4: DWV (West)	Zone 5: DWV (Center)	Zone 6: CNV/DWV (Outer)	Zone 7: CNV (Core)	Zone 8: CNV/DNV (East)
Walking	6.1	6.0	6.2	-	6.3	6.2	6.3	6.2
Driving	5.6	5.8	5.9	6.0	5.8	5.6	5.6	5.5
Taking Transit	4.6	6.1	5.7	6.1	5.9	4.9	5.0	4.8*
Bicycle or pedal assisted e-bike	4.2	4.3	5.5*	4.4*	-	5.4*	5.0*	4.7*
Sample sizes (n) (persons who used the given mode as a usual or secondary mode for commute or non-commute purposes)								
Walking	42	61	43	10*	49	31	86	36
Driving	159	160	125	106	106	86	131	80
Taking Transit	22	28	26	24	25	33	47	19*
Bicycle or pedal assisted e-bike	28	22	19*	13*	10	15*	16*	12*

[36] Results for sample sizes of n<=10 respondents have been suppressed.
*Interpret results for small sample sizes (n<20) with caution.

9 Annual VKT from Odometer Readings

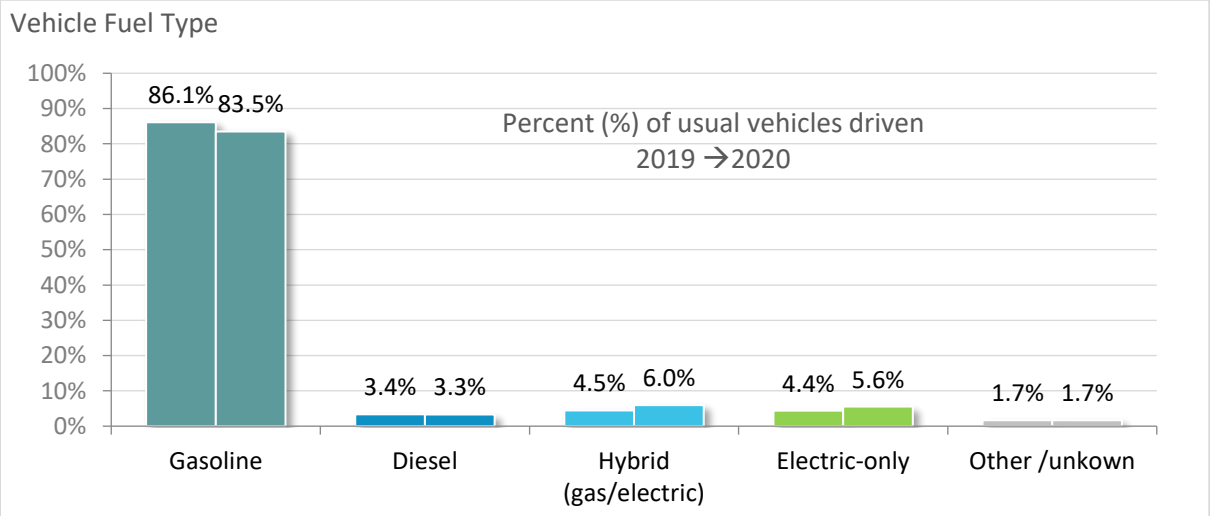
9.1 Usual Vehicles Driven

The 2020 survey asked participants who drove a usual household vehicle to confirm information about the vehicle they usually drive (vehicle type, fuel type, and model year) and to report the odometer reading for that vehicle. About 69% indicated that they still drive the same vehicle that they reported in the 2019 NSTS baseline survey, while 22% indicated usually driving a different vehicle or made a correction to their answers from 2019,[37] and another 9% reported that they either do not drive or do not regularly drive a household vehicle. The total proportion of participants who indicated that they usually drive a household vehicle increased very slightly, from 90% to 91%.

The survey results suggest that in 2020, of those who regularly drive, 57% drive a passenger vehicle, 34% an SUV, 7% a pick-up truck or van, and 2% a motorcycle, another vehicle type, or an unknown vehicle type. This is virtually unchanged since 2019, despite the notable proportion who indicated driving a different vehicle that the one they reported in the baseline survey. The median age since manufacture of participants' usual vehicles driven is seven years (the same as observed in the 2019 baseline survey).

There is an apparent increase in electric and hybrid vehicles amongst participants, from 8.9% combined in 2019 to 11.6% in 2020 (**Figure 40** and **Table 24**). This represents a 31% increase in the estimated number of such vehicles (increasing by about 4,000 from 12,600 in 2019 to 16,600 in 2020).

Figure 40. Vehicle Fuel Type (Usual Vehicle Driven), 2019 vs 2020



n=1,004 in 2019, n=1,005 in 2020; Individual percentages have been rounded and may not add to 100%

[37] This does not mean that 22% of participants purchased a vehicle to replace the vehicle they reported driving in 2019. (This would suggest average vehicle ownership of 4-5 years, which may not be likely). There may be a number of reasons for the high percentage reporting a different vehicle: in multi-vehicle households, household members may switch up which vehicle they drive; the COVID-19 pandemic may have disrupted normal commuting patterns, resulting in more changes to usual vehicle usage; residents in a good financial position spending less on vacations and other purchases may make different decisions on vehicle purchases; reduced reliance on urban transit options may resulted in different vehicle purchase decisions; and finally some differences in type or year may have stemmed from corrections participants made to the answers they provided in 2019.

Table 24. Vehicle Fuel Type (Usual Vehicle Driven), 2019 vs 2020, by Municipality

	DNV		CNV		DWV		North Shore	
	2019	2020	2019	2020	2019	2020	2019	2020
Gasoline	82.9%	79.5%	87.8%	87.0%	90.2%	87.0%	86.1%	83.5%
Diesel	3.3%	3.2%	2.0%	2.4%	4.9%	4.4%	3.4%	3.3%
Hybrid (gas/electric)	5.3%	7.3%	5.2%	6.8%	2.1%	2.6%	4.5%	6.0%
Electric-only	6.2%	6.9%	2.9%	2.8%	2.8%	6.0%	4.4%	5.6%
Other / unknown	2.4%	3.0%	2.1%	1.0%	0.0%	0.0%	1.7%	1.7%

Individual percentages have been rounded and may not add to 100%

9.2 Vehicle Kilometres Travelled

Of those who indicated they still drive the same vehicle, about two-thirds gave what appears to be a valid odometer reading in both 2020 and 2019 which could be used to determine the vehicle kilometres travelled (VKT) over the course of the previous year. The remainder either had a missing odometer reading in one of the survey years or had values that appeared to be erroneous or gave rise to unusually high differences.

Table 25 highlights the average and median annual VKT based on the cases with valid odometer readings for the same vehicle.[38] The total VKT across all vehicles is estimated by taking the average and applying it to the estimated total stock of approximately 127,800 household vehicles.[39]

Table 25. Annual VKT by Municipality, 2020

	District of North Vancouver	City of North Vancouver	District of West Vancouver	North Shore
Estimated private vehicles in households	58,900	34,300	34,600	127,700
Median annual VKT per household vehicle (km)	8,200	8,100	8,000	8,100
Average annual VKT per household vehicle (km)	9,400	8,700	8,200	8,900
Estimated total annual VKT incurred for all private vehicles (average per vehicle for those with good information applied to total estimated vehicles) (km)	554,267,000	298,016,000	282,744,000	1,136,597,000

n=514 (survey participants with valid odometer readings in both 2019 and 2020 for the same vehicle)

Comparison with the results from the 2019 NSTS may only be undertaken with caution. The 2019 NSTS was a baseline survey, and as such, it was not possible to calculate actual VKT for the past year by comparing to readings with a year earlier. Only the average annual VKT across the lifetime of the vehicle

[38] The annual VKT was computed by subtracting the 2019 reading from the 2020 reading and normalizing the difference to a 366-day year, given that the readings were not necessarily taken a full year apart.

[39] It may be noted that the total estimated number of household vehicles (127,800) is less than the total estimated 144,100 residents who usually drive a vehicle, given that some household members may share the same vehicle

could be calculated based on the 2019 odometer reading and the vehicle model year. Notwithstanding the roughness of this calculation, comparisons between this estimate from the 2019 data and the annual VKT from the 2020 survey do suggest that there has been a substantial decrease in the average annual VKT per vehicle over the past year.

The survey results presented in the **Figure 41** show an average of 11,900 km per year over the lifetime of the household vehicles reported in 2019, dropping 25% to 8,900 km in 2020. This stands to reason given diminished commuting and likely diminished overland travel for vacation and business trips during the COVID-19 pandemic. By municipality, the results are very similar, with a 24% drop in estimated annual VKT per vehicle for DNV, 25% for CNV, and 27% for DWV.

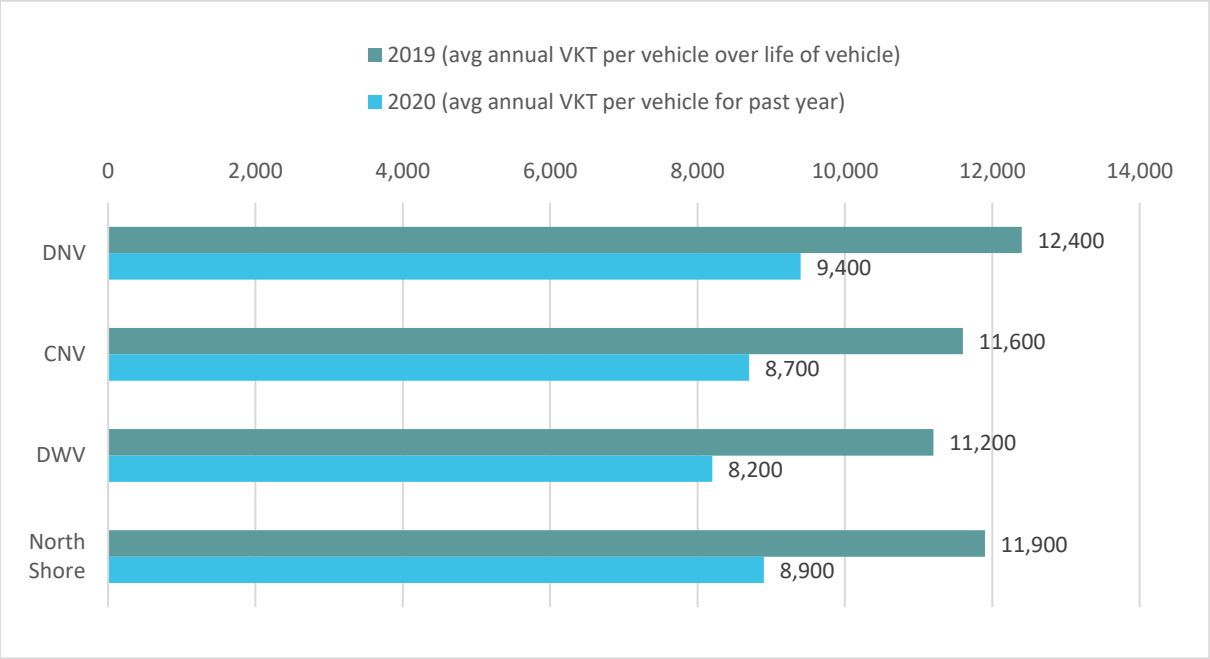
Taking into account that the interval between odometer readings included about one-third days prior to the March 2020 declaration of the COVID-19 state of emergency (in which VKT incurred may have been similar to previous years) and just over two-thirds days after this, one can extrapolate that during the portion of COVID-19 restrictions, the impact was a 37% reduction in VKT (35% in DNV, 37% in CNV, and 40% in DWV).

This drop in VKT is considerably larger than the 12% year-over-year drop in trips (**Section 7.1**).[40] The more modest drop in trips from Fall 2019 to Fall 2020 can be explained in part by the fact that trip volumes were more severely curtailed during the early stages of the pandemic, but rebounded somewhat in Fall 2020 as people and businesses found ways of conducting activities with safety precautions and as some restrictions were eased. The drop in VKT across the entire period takes includes those early stages of very little travel, whereas trip volumes are for Fall 2020 after a partial rebound in trip-making. Furthermore, decreases in work trips (which tend to be longer than trips for other purposes) and in long-distance road trips for business or vacation purposes will have contributed to the greater overall decrease in VKT.

Again, the reader is reminded that, given the differences in how the 2019 and 2020 figures are calculated, these results should not be taken to be precise. When the next full survey is conducted again in Fall 2021, it will be possible to make more reliable comparisons, although it may be noted that travel in the period between Fall 2020 and Fall 2021 will also have been affected by the pandemic.

[40] Note: Given that the 2020 data collection was limited to key questions, and data was not gathered specifically on the number of destinations travelled to as an auto driver vs. as an auto passenger or other motorized modes, we do not have metrics on the reduction in the number of vehicle trips.

Figure 41. Average Annual VKT, by Municipality, 2019 (Rough Estimate) vs 2020 (Past Year Odometer Difference)



n=393 in 2019, n=325 in 2020

10 Summary of Key Municipal Results

This section summarizes key results for the three municipal regions in the North Shore analysed in this report, where the municipal regions include the municipalities and adjacent First Nations lands. For reporting purposes, DNV comprises the Census Subdivisions of District of North Vancouver, Burrard Inlet 3, and Seymour Creek 2; CNV comprises the City of North Vancouver and Mission 1 and DWV comprises District of West Vancouver and Capilano 5.

Survey Response

The table below summarizes the response for each municipality.

Municipality	# of 2019 Participants	2020 Surveys	Valid Response	Margin of Sampling Error
District of North Vancouver	757	523	69%	±5.6%
City of North Vancouver	447	321	72%	±6.4%
District of West Vancouver	367	237	65%	±7.6%

2020 Surveys and Valid Response exclude respondents who moved outside of the North Shore. Respondents who moved from one of the municipalities between 2019 and 2020 are counted in the municipality of residence for the given year of residence.

Changes in Daily Trip Patterns

The volume of daily trips made on weekdays by North Shore residents aged 15+ years was 12% lower in 2020 compared to 2019. The reduction was 13% for DNV residents, 12% for CNV residents, and 9% for DWV residents. The estimated total daily trips is 247,000 for DNV, 157,000 for CNV, and 149,300 for CNV, down from 284,300, 178,900, and 163,500, respectively, in 2019.

Residents of the DWV had the highest daily trip rate of 4.27 in the 2019 survey and maintain top position in 2020 with 3.90 despite a 9% decrease in trips. This is interesting because they have the highest proportion of people who were working from home in 2019, as well as proportionately more retirees, suggesting that residents of the area may engage in a higher number of non-commute discretionary trips that more than makes up for the lack of work trips, albeit they may be shorter local trips. The largest percentage decrease in daily trips from 2019 to 2020 occurred in the DNV with a decrease in 13% from 3.92 trips to 3.41 per person. The CNV reported a decline of 12% (from 3.79 to 3.33), the same as the average decrease for the North Shore.

Trip Destinations

Daily work trips and work-related trips decreased from an estimated 97,300 combined in 2019 to 59,000 in 2020, a 39% decline in such trips. Daily social trips (visiting friends or family, or for religious gatherings) had the greatest proportional decrease, going from 38,100 in 2019 down to 10,400 in 2020, which is a 73% decrease. Trips for personal business declined from 39,200 to 20,300, which is a 48% decrease. Decreases were offset by modest increases in trips for shopping and household maintenance (+9%), to pick up or drop off a passenger (+21%), and to restaurants (+23%). As has been mentioned

elsewhere, some caution should be exercised in interpreting the results due to the different methods of capturing trip destinations in the 2019 and 2020 surveys.

By municipality, the distribution of trips by purpose has changed similarly, but with some differences in the extent of the changes.

Looking at work commutes and work-related trips:

- DNV residents saw trips to work and for work-related purposes drop from a combined 17% of all daily trips to 11%, which, factoring in the drop in total daily trips, represents a 44% drop in volume of such trips.
- CNV residents saw trips to work and for work-related purposes drop from 18% in to 14%, with a 31% drop in the volume of such trips, a more modest drop than the other two municipalities.
- DWV residents saw trips to work and for work-related purposes drop from 11% to 7%, with a 43% drop in the volume of such trips.

All municipalities saw similar drops in trips for social purposes to only 2% of daily trips (while in 2019 these represented 5% of all trips in DNV and 7% in CNV and DWV). Likewise, in 2020 trips for personal business only represented 3% of daily trips made by DNV residents, 3% for DNV, and 5% for DWV (dropping from 7%, 4%, and 7% respectively).

While DNV and CNV residents had increases in the daily volumes of shopping and household maintenance trips (rising to 16% and 17% of daily trips, respectively) and passenger pick-up/drop-off trips (rising to 12% and 8% of daily trips, respectively), residents of DWV reported just slightly lower volumes of such trips compared in 2019. When coupled with the overall decrease in daily trips for DWV residents, the proportion of shopping and household maintenance trips rose slightly to 20% of all daily trips and pick-up/drop-off trips rose to 17%.

Changes in Daily Vehicle Kilometres Travelled

Comparing the average annual VKT incurred over the lifetime of residents' vehicles when first surveyed in the 2019 baseline survey (11,900 km per year) to that incurred in the year to Fall 2020 (8,900 km) suggests that residents travelled 25% fewer kilometers over the course of the year (with the portion of the year from mid-March 2020 to the completion of the survey in Fall 2020 having been affected by the COVID-19 pandemic). The estimated average annual VKT for personal vehicles driven by residents dropped 24% for DNV, 25% for CNV, and 27% for DWV.

Assuming that VKT incurred from each participant's survey date in 2019 to the start of COVID-19 state of emergency in mid-March was the similar to previous year on average, we can estimate that for the portion of the year affected by COVID, the drop in VKT was 37% overall, and 35% in DNV, 37% in CNV and 40% in DWV.

Ownership of Electric and Hybrid Vehicles

In the 2020 survey, 11.6% of survey participants reported owning an electric or hybrid vehicle, compared to 8.9% in 2019. This represents a 31% increase in the number of electric or hybrid vehicles as

estimated from the survey results, or an additional 4,000 (from about 12,600 in 2019 to 16,600 in 2020). By municipality, the survey results suggest that the increase in such vehicles is from 11.5% to 14.2% of usual vehicles driven by DNV residents, 8.1% to 9.6% for CNV, and 4.9% to 8.6% for DWV.

Daily Trips by Sustainable Modes

The survey results suggest that on the North Shore, daily trip volumes for sustainable modes of travel dropped from Fall 2019 to Fall 2020, with transit seeing an 83% drop in daily trips, cycling a 48% drop, and the number of walking trips remaining steady. As a share of daily trips, transit dropped from 10.4% to only 2.0% while cycling dropped from 2.6% to 1.5%. Keeping in mind the overall drop in total trips, the walking trips (which did not change in volume) increased their share slightly from 14.4% to 16.2%.

By municipality:

- DNV saw a significant decline in daily transit trips by residents, dropping by 17,400 daily trips, for a 2020 mode share 2.2% mode share (down from 8.0% of daily trips in 2019). Cycling trips almost halved (dropping by 5,300), dropping to a 1.8% mode share (from 3.4% in 2019). The survey results suggest walking trips increased modestly (an estimated 3,500 increase) and with the reduction in trips via all other modes, walk mode share rose to 17.4% (up from 13.9%).
- CNV saw the most significant decline in transit trips, with an estimated 25,500 fewer transit trips, and a mode share of 3.1% (down from 17.0%). Cycling trips dropped by an estimated 1,200, with a mode share of 2.1% (down slightly from 2.5%), while walk trips dropped slightly by 1,100, but with a slight increase in the share of all trips to 23.3% (up from 21.0%).
- DWV survey participants reported very few transit trips, with the drop of 10,900 trips resulting in a shift in daily mode share to only 0.6% of daily trips (down from 7.2% in 2019). Cycling trips more than halved, dropping to only 0.4% of trips reported (down from 1.2%). Walk trips appear to have dropped modestly by 2,700 trips, with the mode share dropping to 7.0% (from 8.0%).

Changes in Transit Use

There was a larger increase in those reporting that they do not use public transit in the DNV (+44%-pts) when compared to the CNV (+34%-pts) and DWV (+35%-pts). In total the proportion of residents who are not currently using transit are 57%, 45%, and 58%, respectively (with the North Shore average being 53%).

The percentage of those who take transit less frequently or stopped entirely was about two-thirds for DNV and CNV residents, and 53% for DWV residents (with 62% being the North Shore average). DWV has the highest percentage of residents who have never used transit in either 2019 or 2020 (at 23% compared to only 12% for DNV and 10% at CNV). The North Shore average is 14%.

Increases in Telecommuting / Working from Home

The survey results show that in 2019, the DWV had the greatest percentage of workers who either telecommuted at least two days per week or who worked from home exclusively in 2019, approximately double the proportion in DNV (15%) and in CNV (13%). The DWV had the least change, with this

proportion increasing to 54% in 2020, while DNV had the greatest increase, to 57%, and CNV increased to 45%.

The difference impacts of COVID-19 on the shift to working from home may have to do with the different nature of the workforce in each municipality. Employed survey participants have a median age of 42 in the CNV compared to 47 in the DNV and 48 in the DWV. DWV has the highest proportion of workers in natural and applied sciences (18% of the workforce in DWV, compared to only 11% in DNV and 8% in CNV). Workers living in the CNV are more likely to work in occupations in sales and service; arts, culture, recreation, and sport; and trades, transport, and equipment operators. Both the DNV and DWV have proportionately more workers in occupations in management, education, law, and social, community and government services

Changes in Usual Modes of Travel to Work

- For DNV, the proportion of workers that normally drive to work is 74%, up 11 percentage points from 68% previously in 2019. DWV has the largest proportion work commuters who drive, at 91%, and saw the largest increase towards this mode, up 29 percentage-points from 63% previously, although some caution should be exercised due to the small sample size of current work commuters for DWV (n=59). The proportion is lowest for CNV, at 64%, which is up 11 percentage points from 54% previously.
- Transit declined the most in DWV (-23%-pts) followed by CNV (-13%-pts) and DNV (-7%-pts).
- It is interesting to note that the usual mode percentage for walking decreased in both the CNV (-3%-pts) and DWV (-7%-pts) but was stable for the DNV, with only a slight increase observed (+1%-pts).

Changes in Usual Modes of Travel for Non-Commute Purposes

- The proportion of residents reporting transit as their usual mode dropped significantly in all municipalities, to 4% in DNV (-7 %-pts), 6% in CNV (-12 %-pts), and 1% in DWV (-5 %-pts).
- Driving as the usual non-commute mode of choice saw increases overall, to 80% in DNV (+1 %-pt), 69% in CNV (+5 %-pts), and 84% in DWV (+2%-pts), as did travelling as an auto passenger, to 6% in DNV (+1 %-pt) and 11% in CNV (+7%-pts), but staying steady at 6% in DWV.
- The proportions of residents choosing other modes for non-commute purposes were relatively stable, except in DNV, which saw an increase in cycling as the usual mode to 2% (+1 %-pt) and an increase in walking as the usual mode to 7% (+3 %-pts).

Perceptions of Safety while Travelling on the North Shore – by Mode of Travel

- The perception of safety for drivers varied between a high of 73% for residents of the DWV to a low of 59% for residents of the CNV.
- The perceived safety of transit also varied between municipality with 66% of DWV users feeling safe and only 47% of CNV users feeling safe. Over a quarter (26%) of CNV transit riders felt unsafe while only 14% and 11% of DWV and DNV transit riders felt the same. Care should be taken when interpreting these results, as some participants' perception of safety on transit may have been influenced by concerns about COVID-19 when taking transit.

- The CNV had the most walkers feeling safe at 85% followed by DWV (82%) and DNV (74%), with those feeling unsafe below 3% in each municipality.
- Cycling had the lowest perceived safety with only 35% feeling confident in their safety and 19% feeling unsafe overall. The survey results show a large variance between municipalities with the majority of cyclists, 62%, feeling safe in the CNV while 38% did in the DWV and only 26% in the DNV. Over a quarter of cyclists (26%) in the DWV felt unsafe, the highest of all municipalities. Caution should be exercised when interpreting perceptions of safety for this mode for DWV and CNV given the small numbers of survey participants who cycle as a usual or secondary mode of travel (n=27 and n=26 respectively), whereas the results for DNV may be interpreted with more confidence due to the larger sample size (82 participants who regularly cycle).

Appendix A: NSTS 2020 Survey Questionnaire

North Shore Transportation Survey

2020 Survey

2020-11-18

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1. EMAIL INVITATION

Subject: 2020 North Shore Transportation Survey

Hello and welcome back to the North Shore Transportation Survey!

Last year you helped out with the North Shore Transportation Survey and agreed to be contacted again as part of an ongoing survey panel. This series of annual surveys will help the City of North Vancouver, District of North Vancouver and District of West Vancouver better understand residents' transportation needs and address transportation issues in your community.

This year we have a shorter survey for you! The 2020 North Shore Transportation Survey will include a few questions about **how safe you feel travelling** on the North Shore and **how the COVID-19 pandemic has affected your transportation habits**.

As a returning survey participant, you are eligible for a prize draw for **one of three $100.00 e-gift cards and 35 $20.00 e-gift cards to local merchants.** Your odds of winning are approximately 1 in 30. **[*IF TARGETTED DEMOGRAPHIC:* You will also receive a $20.00 e-gift card just for completing this survey!]**. Participate today and provide valuable transportation input to help your communities.

Start your survey now by clicking on your unique link to the survey:
[DIRECT LINK to SURVEY]

If you have trouble with the link to your survey, please visit www.northshoretrips.ca and enter your access code: [ACCESS CODE]

You may also complete the survey by phone by calling **1-855-412-1940**. Please quote your access code: **[ACCESS CODE]**

Thank you in advance for your continued participation in this important research.

Sincerely,
R.A. Malatest & Associates Ltd.
858 Pandora Ave, Victoria, BC V8W 1P4

Need some help? Contact our toll-free project helpline at **1-855-412-1940** or reply to this email.

We are sending you this email because you provided your e-mail address while completing the 2019 North Shore Transportation Survey and elected to participate in future research. We are committed to protecting the privacy of your information. Your e-mail address will not be used for any other purpose other than in relation to this research.

If you no longer wish to receive updates or email reminders related to this study, please reply to this email to unsubscribe.

Visit our Privacy Policy here

2. ONLINE INTRODUCTION

Welcome back to the North Shore Transportation Survey!

This series of annual surveys helps the City of North Vancouver, District of North Vancouver and District of West Vancouver better understand residents' transportation needs and make informed decisions on planning for roads, public transit, cycling, and pedestrian infrastructure.

As a returning survey participant, you'll be entered into a prize draw for **one of three $100.00 e-gift cards and 35 $20.00 e-gift cards to local merchants.** Your odds of winning are approximately 1 in 30. **[*IF TARGET_DEMOGRAPHIC=1:* You will also receive a $20.00 e-gift card just for completing this survey!]**

What questions will I be asked? This year's survey will be shorter than last year's! The 2020 survey will ask questions that will help the North Shore municipalities to understand how safe residents feel travelling on the North Shore and how COVID-19 has impacted residents' transportation patterns. You'll also be asked to update some demographic questions you answered last year.

Will my privacy be protected? Yes. Your survey responses will be combined with others' responses before they are analyzed. Your contact information will only be used to contact you for follow up about the survey. Click here to view our **Privacy Statement**.

Who is conducting the survey? The survey has been contracted to independent research firm R.A. Malatest & Associates Ltd. to conduct the survey.

Who do I contact for more information or for help?

- If you would prefer to complete the survey by telephone, please call **1-855-412-1940** (toll free).
- You may also call the number above for assistance with the online survey, or email us at info@northshoretrips.ca.
- The 2019 survey results are available here: https://www.cnv.org/city-services/streets-and-transportation/transportation-studies/north-shore-transportation-survey [PROGRAMMER: open link in new window]
- If you wish to validate the authenticity of this survey you may contact Chris French at the City of North Vancouver (cfrench@cnv.org, 604-983-7318), Banafsheh Rahmani at the District of North Vancouver (rahmanib@dnv.org, 604-990-2363) or Cindy Liu at the District of West Vancouver **(**cliu@westvancouver.ca**,** 604-925-7157**).**

Please note that your answers to the survey are saved each time you click on the Previous or Continue buttons.

Click Continue to start the survey.

3. TELEPHONE INTRODUCTION

Hello, my name is ____ and I'm calling from R.A. Malatest & Associates Ltd. to talk about the North Shore Travel Survey. This is a series of annual surveys that helps the North Shore understand residents' transportation needs and helps them make decisions on transportation infrastructure. May I please speak with _____?

Great. Do you remember completing this survey with us late last year (Fall 2019)? Okay, well this is a shorter follow-up survey to understand if and how your travel patterns have changed compared to last year. It takes about 10 minutes to complete and I'm hoping you might have the time to complete it with me right now?

Welcome back to the North Shore Transportation Survey!

This series of annual surveys helps the City of North Vancouver, District of North Vancouver and District of West Vancouver better understand residents' transportation needs and make informed decisions on planning for roads, public transit, cycling, and pedestrian infrastructure.

As a returning survey participant, you'll be entered into a prize draw for **one of three $100.00 e-gift cards and 35 $20.00 e-gift cards to local merchants.** Your odds of winning are approximately 1 in 30. **[*IF TARGET_DEMOGRAPHIC=1:* You will also receive a $20.00 e-gift card just for completing this survey!]**

INTERVIEWER READ IF NECESSARY

What questions will I be asked? This year's survey will be shorter than last year's! The 2020 survey will ask questions that will help the North Shore municipalities to understand how safe residents feel travelling on the North Shore and how COVID-19 has impacted residents' transportation patterns. You'll also be asked to update some demographic questions you answered last year.

Will my privacy be protected? Yes. Your survey responses will be combined with others' responses before they are analyzed. Your contact information will only be used to contact you for follow up about the survey. Click here to view our **Privacy Statement**.

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- You may also call the number above for assistance with the online survey, or email us at info@northshoretrips.ca.
- The 2019 survey results are available here: https://www.cnv.org/city-services/streets-and-transportation/transportation-studies/north-shore-transportation-survey [PROGRAMMER: open link in new window]
- If you wish to validate the authenticity of this survey you may contact Chris French at the City of North Vancouver (cfrench@cnv.org, 604-983-7318), Banafsheh Rahmani at the District of North

Vancouver (rahmanib@dnv.org, 604-990-2363) or Cindy Liu at the District of West Vancouver **(**cliu@westvancouver.ca**,** 604-925-7157**).**

Please note that your answers to the survey are saved as we go and this call may be recorded for quality control purposes.

[Click Continue to start the survey]

4. CONFIRM BASIC INFORMATION

A1. Do you still live on the North Shore?

The North Shore includes the City of North Vancouver, the District of North Vancouver, and the District of West Vancouver, as well as Tsleil-Waututh Nation (Burrard Inlet 3) and Squamish Nation lands on the North Shore (Mission 1, Seymour Creek 2, Capilano 5).

1. Yes
2. No

A2. [A1=no]

What city or town outside the North Shore did you move to?

_____

99. Prefer not to answer

A2X. [A1=no]

You indicated that you no longer reside on the North Shore.

This survey is intended for residents of the North Shore. We have no further questions. You will still be entered into the prize draw.

If you do live on the North Shore, click Previous to change your answers.

Click Submit to finalize your survey.

[SKIP TO PRIZE DRAW CONFIRMATION]

QCONFIRM

A3. We would like to confirm the information you provided about yourself when you participated in the 2019 North Shore Transportation Survey.

Please carefully review the information below and indicate if anything is different.

Contact Information
Name: [AQNEW_NAME_PREV]
Phone Number: [AWONLINE_PHN_PREV] ext [AQONLINE_EXT_PREV]
Email: [AQONLINE_EML_PREV]

Household Information
Address: [RECALL FROM 2019]
Number of people living in household: [AQNUM_HH1_PREV]
Annual Household Income: [INCOME_HH_PREV]

Demographics

Age Range:	[AGE RANGE FROM AGE+1 IF AGE PREVIOUSLY KNOWN, OR PREVIOUS AGE RANGE IF SPECIFIC AGE NOT PREVIOUSLY KNOWN]
Occupation Status:	[Display all categories that applied last time: Work full-time (30+ hours/week), Work part-time (<30 hours/week), Student full-time, Student part-time, Unemployed, Retired, Other: [AQSTUDENT_EMPLOY_PREV]]
School Attended:	[Recall QSCHOOL_NAME_PREV] or “None” if empty
Workplace:	[Recall if work from home, no fixed address QWORK_LOC_PREV] [Recall Workplace Address from 2019]

Is all of the above information correct?

1. Yes, everything is correct
2. No, at least one thing is different

[If QCONFIRM=YES skip past the update questions to main survey (COVID impact questions)]

5. UPDATE QUESTIONS FOR PERSONS WITH CHANGED INFORMATION

Please go through the following questions and correct any answers that have changed since the last survey. If your answer is the same, just click Continue to go to the next question.

A4. **Please confirm your contact details**

Name: [AQNEW_NAME]
Phone Number: [AWONLINE_PHN] ext [AQONLINE_EXT]
Email: [AQONLINE_EML]

A5. **Do you still live at: [RECALL LOCATION FROM 2019]**?

1. Yes
2. No

A6. [A5=2 no, not at same address]

What is your current address?

Street Address: [ADDR_ADD]
Unit: [ADDR_ADD_UNIT] [non-mandatory]
City: [ADDR_CITY]
Province: BC
Postal Code: [ADDR_POST] [non-mandatory]

QHOMETYPE, AQHOMETYPE

A7. [A5=2 no, not at same address]

What type of dwelling do you currently live in?

1 single-detached house
2 row house or townhouse
3 semi-detached house (side-by-side)
4 a secondary suite in a house (e.g., basement apartment, upstairs apartment)
5 on-campus student residence
6 apartment or condominium in a high-rise building (5 or more storeys)
7 apartment or condominium in a low-rise building (fewer than 5 storeys)
8 mobile home
9 residential care or long-term care facility
77 other, please specify: _____

AQNUM_HH

A8. **How many people are currently living in your household, including yourself?**

Total # of persons in household: __ [1-15]

INCOME_HH

A9. **Which of the following ranges corresponds to your household's total income last year?**

(Please consider all sources of income, before taxes). Your answers will remain entirely confidential. View our Privacy Statement.

1 $0 to less than $30,000
2 $30,000 to less than $50,000
3 $50,000 to less than $80,000
4 $80,000 to less than $125,000
5 $125,000 to less than $200,000
6 $200,000 or more
99 Decline / don't know

QAGE_RANGE

A10. **What age range do you belong to?**

4 15 to 17 years
5 18 to 24 years
6 25 to 34 years
7 35 to 44 years
8 45 to 54 years
9 55 to 64 years
10 65 to 74 years
11 75+ years

QSTUDENT_EMPLOY, AQSTUDENT_EMPLOY

A11. **Which of the following apply to you? Select all that apply.**

1 Work full-time (30 or more hours per week)
2 Work part-time (less than 30 hours per week)
3 Student full-time
4 Student part-time
5 Unemployed
6 Retired
77 Other, specify: _____

QSAME_JOB

A12. [If work full-time or part-time both in 2019 and now]
[QSTUDENT_EMPLOY=1|2 .and. QSTUDENT_EMPLOY_PREV=1|2]

Do you still work at the same job as you did this time last year?

1. Yes
2. No

QSAME_WORKPLACE

A13. [If QSAME_JOB=1 and QWORK_LOC_PREV=6]

Do you still work at [WORKLOC_DESC_PREV]?

1. Yes
2. No

QWORK_LOC

A14. [If now work AND do not work at the same workplace as in 2019]
[QSTUDENT_EMPLOY=1|2 .and. QSAME_WORKPLACE .ne. 1]

What is the address of your normal place of work (for your main job)?

If you are currently working from home due to the COVID-19 pandemic, but would usually work from an office or other fixed workplace outside the home, please enter 'Usual workplace away from home' and provide the address)

1 Work exclusively from home
3 No fixed workplace address / no usual place of work / work on the road
6 Usual workplace away from home (enter address: _____)

QSCHOOL_TYPE

A15. [If Student Full-Time or Student Part-Time] [QSTUDENT_EMPLOY=3|4]

What kind of school do you currently attend?

2 Secondary school (high school)
5 College or university
6 Alternate, adult basic education, or other
7 Online / distance learning only:
99 Prefer not to answer

QSCHOOL_NAME, AQSCHOOL_NAME

A16. [If Student full-time or Student Part-time] [QSTUDENT_EMPLOY=3|4]

What is the name of the school you currently attend?

(you can choose from suggestions that appear as you type, or, if none of the suggestions applies, you can type the name exactly as you know it)

1 School Name: _____
8 Home schooled (does not attend a school outside the home)
99 Prefer not to answer

6. COVID IMPACTS – WORKERS (none or 1 question if not a worker, 2-7 questions if a worker)

Job changes

Q1. [if do not work now, but worked in 2019]
[QCONFIRM=2 .and. QSTUDENT_EMPLOY neither 1 nor 2 .and. QSTUDENT_EMPLOY_PREV = 1|2)]

When we surveyed you last year, you were working. What is the <u>main reason</u> you are not currently working? *[PHONE: Interviewer, depending on the reason given, you may need to probe "Was that a result of the COVID-19 pandemic?" or read out options on the list]*

1 Laid off or lost job a result of the COVID-19 pandemic
2 Laid off or lost job for another reason
3 Quit job due to concerns about the risk of exposure to COVID-19 while on the job
4 Quit job as a result of changes to your job requirements as a result of the COVID-19 pandemic
5 Quit job for another reason
6 Could no longer work due to health reasons related to COVID-19
7 Could no longer work due to other health reasons
8 Retired
9 Other reason, please specify: _____
99 Prefer not to say

Q2. [if currently a worker]
[QSTUDENT_EMPLOY = 1|2]

Have your work arrangements changed in any of the following ways since the start of the COVID-19 pandemic? Select all that apply.
[PHONE: Interviewer, read list]

1 I changed occupations

2 I started working from home (when before I never worked from home)
3 I am working from home more frequently than I did before
4 I changed work locations (not counting working from home)
5 I start work at a different time of day
6 I am working fewer hours
7 I am working more hours
8 I am working an additional part-time job
9 None of the above apply to me
99 Prefer not to say

Q3. [if answered other than 'none of the above' or 'prefer not to say']

Were any of these changes to your work arrangements a result of the COVID-19 pandemic?

1 Yes
2 No

Working from home / telecommuting

QTELECOMM_FREQ ***[ASKED IN 2019 NSTS]***

Q4. [if a worker AND usual workplace outside the home (not work at home / no fixed workplace)] [QSTUDENT_EMPLOY=1|2 .and. QWORK_LOC=6]

"Telecommuting" is working from home instead of commuting to your usual workplace.

Do you currently ever telecommute? If so, how often?

1 No, never telecommute
2 Once per month or less
3 2 or 3 days per month
4 1 day per week
5 2 or 3 days per week
6 4 or 5 days per week
99 Prefer not to answer

Usual work mode

QWORK_COMMUTE1 ***[ASKED IN 2019 NSTS]***

Q5. [if currently a worker]
[QSTUDENT_EMPLOY = 1|2]

Currently, what is your usual mode of travel to work?

If your travel entails more than one mode of travel, please select the one used for most of the travel distance. Select one only.

78 Currently do not travel to work (work from home or telecommute all of the time)
1 Auto driver private vehicle
2 Auto passenger private vehicle
21 Car share driver (Modo, Car2Go, ZipCar, Evo, etc.)
22 Car Share passenger (Modo, Car2Go, ZipCar, Evo, etc.)
3 Transit Bus
4 SeaBus
5 SkyTrain
6 West Coast Express
7 HandyDART
8 School bus
9 Bicycle (incl. pedal-assist e-bikes)
10 Rolling (skateboard, roller-blades, scooter, mobility device, longboard)
11 Walking (incl. jogging)
12 Taxi
13 Motorcycle
14 Low speed motor vehicle (moped, limited-speed motorcycle, e-scooter)
17 Other (please specify): _____

QWORK_COMMUTE2 ***[ASKED IN 2019 NSTS]***

Q6. [if currently work FT or PT AND did not answer "currently do not travel to work"]
[QSTUDENT_EMPLOY = 1|2 .and. QWORK_COMMUTE1.ne.78]

What is your secondary mode of travel to work (on days you do not use your usual mode)?

If your travel entails more than one mode of travel, please select the one used for most of the travel distance. Select one only.

77 I never use a different mode of travel to work
78 Currently do not travel to work (work from home or telework all of the time)
[List of modes]

Q7. [if usual or secondary mode to work in 2020 is different from 2019]
[QSTUDENT_EMPLOY = 1|2 .and. QSTUDENT_EMPLOY_PREV = 1|2 .and.
(QWORK_COMMUTE1<>QWORK_COMMUTE1_PREV .or.
QWORK_COMMUTE2<>QWORK_COMMUTE2_PREV)]

When we surveyed you in the fall of 2019, you indicated your usual mode of travel to work was **[QWORK_COMMUTE1_PREV]** and when not travelling by your usual mode, your secondary mode of travel to work was: **[QWORK_COMMUTE2_PREV]**.

Now your usual mode is **[QWORK_COMMUTE1]** and your secondary mode is **[QWORK_COMMUTE2]**.

Why has your usual or secondary mode of travel to work changed? (please select all that apply)

1 Change in vehicle ownership
2 Change in bicycle ownership
3 Concerns about COVID-19 on public transit
4 Reduced public transit service (decreased frequency, route changes) [DISPLAY IF QWORK_COMMUTE1_PREV=3|4|5|6 .or. QWORK_COMMUTE2_PREV=3|4|5|6]
5 Improved public transit service (increased frequency, better routes) [DISPLAY IF QWORK_COMMUTE1=3|4|5|6 .or. QWORK_COMMUTE2=3|4|5|6]
6 I made a choice to use more active modes of transportation [DISPLAY IF QWORK_COMMUTE1=9|10|11 .or. QWORK_COMMUTE2=9|10|11]
7 I made a choice to use more sustainable modes of transportation [DISPLAY IF QWORK_COMMUTE1=3|4|5|6|9|10|11|14 .or. QWORK_COMMUTE2=3|4|5|6|9|10|11|14]
8 My workplace location changed
9 I moved to a different part of the North Shore [DISPLAY IF QCONFIRM=NO]
10 I commute to school less often than before
11 I commute to school more often than before
77 Other reason, please specify: _____
99 Unsure / prefer not to answer

Q8. [if did not work in 2019 but do work now]
[QSTUDENT_EMPLOY=1|2 .and. QSTUDENT_EMPLOY_PREV <> 1|2]

Has the COVID-19 pandemic affected your choice of your usual mode of travel to work?

1 No
2 Yes, please explain how: _____

7. COVID IMPACTS – STUDENTS (none or 1 question if not a student, 1-4 questions if a student)

School changes

Q9. [If student in 2019 but not now]
[QSTUDENT_EMPLOY_PREV=3|4 .and. QSTUDENT_EMPLOY neither 3 nor 4]

When we surveyed you in 2019, you were attending [AQSCHOOL_NAME_PREV] ([QSCHOOL_TYPE_PREV]). What is the reason you are currently not attending school?

1 Graduated program
2 Stopped attending due to COVID-19
3 Stopped attending for other reasons

Usual mode of travel to school

QSCHOOL_COMMUTE1 ***[ASKED IN 2019 NSTS]***

Q10. [if student now]
[QSTUDENT_EMPLOY=3|4]

What is your usual mode of transportation at this time of year for trips to or from school as a student? If you usually use more than one mode (such as auto and transit on the same trip), please select the one used for most of the travel distance. Select one only.

78 Currently do not travel to school / all courses are online or via distance learning
[List of modes]

QSCHOOL_COMMUTE2 ***[ASKED IN 2019 NSTS]***

Q11. [if student now and did not indicate "I do not travel to school right now"]
[QSTUDENT_EMPLOY=3|4 .and. QSCHOOL_COMMUTE<>78]

What is your secondary mode of travel to school (on days you do not use your usual mode)?

If your travel entails more than one mode of travel, please select the one used for most of the travel distance. Select one only.

77 I never use a different mode of travel to school
78 Currently do not travel to school / all courses are online or via distance learning
[List of modes]

Q12. [if usual or secondary mode to school in 2020 is different from 2019]
[QSTUDENT_EMPLOY = 3|4 .and. QSTUDENT_EMPLOY_PREV = 3|4 .and.
(QSCHOOL_COMMUTE1<>QSCHOOL_COMMUTE1_PREV .or.
QSCHOOL_COMMUTE2<>QSCHOOL_COMMUTE2_PREV)]

When we surveyed you in the fall of 2019, you indicated your usual mode of travel to school was **[QSCHOOL_COMMUTE1_PREV]** and when no travelling by your usual mode, your secondary mode of travel to work was **[QSCHOOL_COMMUTE2_PREV]**.

Now your usual mode is **[QSCHOOL_COMMUTE1]** and your secondary mode is **[QSCHOOL_COMMUTE2]**.

Why has your usual or secondary mode of travel to school changed? (please select all that apply)

1 Change in vehicle ownership
2 Change in bicycle ownership
3 Concerns about COVID-19 on public transit
4 Reduced public transit service (decreased frequency, route changes) [DISPLAY IF QSCHOOL_COMMUTE1_PREV=3|4|5|6 .or. QSCHOOL_COMMUTE2_PREV=3|4|5|6]
5 Improved public transit service (increased frequency, better routes) [DISPLAY IF QSCHOOL_COMMUTE1=3|4|5|6 .or. QSCHOOL_COMMUTE2=3|4|5|6]
6 I made a choice to use more active modes of transportation [DISPLAY IF QSCHOOL_COMMUTE1=9|10|11 .or. QSCHOOL_COMMUTE2=9|10|11]
7 I made a choice to use more sustainable modes of transportation [DISPLAY IF QSCHOOL_COMMUTE1=3|4|5|6|9|10|11|14 .or. QSCHOOL_COMMUTE2=3|4|5|6|9|10|11|14]
8 I attend a different school or campus
9 I moved to a different part of the North Shore [DISPLAY IF QCONFIRM=NO]
10 I commute to school less often than before
11 I commute to school more often than before
77 Other reason, please specify: _____
99 Unsure / prefer not to answer

Q13. [if did not have school in 2019 but do now] [255 character limit]

Has the COVID-19 pandemic affected your choice of your usual mode of travel to school?

1 No
2 Yes, please explain how: _____

8. COVID IMPACTS – USUAL NON-COMMUTE MODE (2-3 questions)

QOTHER_USUAL ***[ASKED IN 2019 NSTS]***

Q14. [all respondents]

What is your usual mode of travel for trips for shopping, meeting friends and family, recreation, and other non-commute purposes? (i.e., trips other than travel to/from work and school).

If you use more than one mode, please choose the one you use most often.

[List of modes]

Q15. [all respondents]

Is there a secondary mode of travel you use for trips for shopping, meeting friends and family, recreation, and other non-commute purposes? (i.e., trips other than travel to/from work and school).

77 I never use a different mode of travel than **[QOTHER_USUAL]**
[List of modes]

Q16. [if usual non-commute mode in 2020 is different from 2019]
[QOTHER_USUAL <> QOTHER_USUAL_PREV]

When we surveyed you in the fall of 2019, you indicated your usual mode of travel for trips other than for commuting was **[QOTHER_USUAL_PREV].** Now your most frequently used usual mode is **[QOTHER_USUAL]**.

Why has your usual mode of travel for non-commute purposes changed? (please select all that apply)

1 Change in vehicle ownership
2 Change in bicycle ownership
3 Concerns about COVID-19 on public transit
4 Reduced public transit service (decreased frequency, route changes) [DISPLAY IF QOTHER_USUAL_PREV=3|4|5|6]
5 Improved public transit service (increased frequency, better routes) [DISPLAY IF QOTHER_USUAL =3|4|5|6]
6 I made a choice to use more active modes of transportation [DISPLAY IF QOTHER_USUAL=9|10|11]
7 I made a choice to use more sustainable modes of transportation [DISPLAY IF QOTHER_USUAL =3|4|5|6|9|10|11|14]

8 The types of places I travel to have changed
9 I moved to a different part of the North Shore [DISPLAY IF QCONFIRM=NO]
10 I travel less often than before
11 I travel more often than before
77 Other reason, please specify: _____
99 Unsure / prefer not to answer

9. COVID IMPACTS – USE OF PUBLIC TRANSIT (2 questions)

QTRANS_RECENT ***[ASKED IN 2019 NSTS]***

Q17. **Have you travelled by public transit in the past month?**

Public transit includes TransLink buses, SkyTrain, SeaBus, or West Coast Express.

1 Yes
2 No

QTRANS_FREQ ***[ASKED IN 2019 NSTS]***

Q18. Right now, how often do you typically travel by public transit?

Public transit includes TransLink buses, SkyTrain, SeaBus, or West Coast Express.

1 At least 5 times per week
2 2-4 times per week
3 Once per week to once per month
4 Less than once per month
5 I do not currently use public transit
99 Prefer not to answer

Q19. [if frequency of public transit use in 2020 is different than answer in 2019]
[QTRANS_FREQ <> QTRANS_FREQ_PREV .and. QTRANS_FREQ <> 99 .and. QTRANS_FREQ_PREV <> 99]

[Options 1 to 11 – only present if transit use has declined
Options 12-15 are new – present all of the time
Options 15-20 are new – only present if transit use has increased
Options 77, 99 – present all of the time]

When we surveyed you in 2019 you indicated that you take public transit **[QTRANS_FREQ_PREV]**, and now you take public transit **[QTRANS_FREQ]**.

Why has your use of public transit changed? Please select all that apply.

1 No longer leaving the house
2 Making fewer trips in general
3 Destination of trips has changed, and transit is no longer convenient (or possible)
4 I primarily walk
5 Have replaced transit trips with bicycle trips
6 Have replaced transit trips with auto trips, including carpooling
7 Departure/arrival time of trips has changed and transit no longer convenient
8 I am uncomfortable/feel unsafe on transit
11 Concerns about COVID-19 on public transit
12 I moved
13 Change in employment status (gained job, lost job, or retired)
14 Change in school attendance (started, finished, or changed school)
15 The places I travel have changed
16 Departure/arrival time of trips has changed, and transit is now more convenient
17 Destination of trips has changed, and transit is now more convenient or necessary to take
18 Transit service has improved (e.g. more frequent service, new express routes)
19 Decided to take transit more because it is more sustainable
20 No longer drive
77 Other, specify: _____
99 Prefer not to answer

Q19. [if did not ride transit in 2019 (or unknown in 2019) and do not ride transit now]
[(QTRANS_FREQ=5 .and. QTRANS_FREQ_PREV=5|99]

Why are you not currently riding transit? Please select all that apply.

3 Transit does not go to destinations I need to go to
7 Transit does not travel at times convenient to me
9 Transit takes too long
10 Cost
8 I am uncomfortable/feel unsafe on transit
11 Concerns about COVID-19 on public transit
4 I primarily walk
77 Other, specify: _____
99 Prefer not to answer

10. SAFETY TRAVELLING VIA VARIOUS MODES (1 multi-part question)

PROGRAMMER: Computations for determining which questions to display.

QUSE_DRIVE =1 IF QWORK_COMMUTE1=1|21 .or. QWORK_COMMUTE2=1|21 .or. QSCHOOL_COMMUTE1=1|21 .or. QSCHOOL_COMMUTE2=1|21 .or. QUSUAL_COMMUTE=1|21 .or. QOTHER_USUAL1=1|21 .or. QOTHER_USUAL2=1|21)

QUSE_PASS =1 IF QWORK_COMMUTE1=2|22 .or. QWORK_COMMUTE2=2|22 .or. QSCHOOL_COMMUTE1=2|22 .or. QSCHOOL_COMMUTE2=2|22 .or. QUSUAL_COMMUTE=2|22 .or. QOTHER_USUAL1=2|22 .or. QOTHER_USUAL2=2|22)

QUSE_TRANSIT =1 IF QWORK_COMMUTE1=3|4|5 .or. QWORK_COMMUTE2=3|4|5 .or. QSCHOOL_COMMUTE1=3|4|5 .or. QSCHOOL_COMMUTE2=3|4|5 .or. QUSUAL_COMMUTE=3|4|5 .or. QOTHER_USUAL1=3|4|5 .or. QOTHER_USUAL2=3|4|5)

QUSE_BIKE =1 IF QWORK_COMMUTE1=9 .or. QWORK_COMMUTE2=9 .or. QSCHOOL_COMMUTE1=9 .or. QSCHOOL_COMMUTE2=9 .or. QUSUAL_COMMUTE=9 .or. QOTHER_USUAL1=9 .or. QOTHER_USUAL2=9)

QUSE_WALK =1 IF QWORK_COMMUTE1=11 .or. QWORK_COMMUTE2=11 .or. QSCHOOL_COMMUTE1=11 .or. QSCHOOL_COMMUTE2=11 .or. QUSUAL_COMMUTE=11 .or. QOTHER_USUAL1=11 .or. QOTHER_USUAL2=11)

QUSE_MOTORBIKE =1 IF QWORK_COMMUTE1=13 .or. QWORK_COMMUTE2=13 .or. QSCHOOL_COMMUTE1=13 .or. QSCHOOL_COMMUTE2=13 .or. QUSUAL_COMMUTE=13 .or. QOTHER_USUAL1=13 .or. QOTHER_USUAL2=13)

QUSE_LOWSPEED =1 IF QWORK_COMMUTE1=14 .or. QWORK_COMMUTE2=14 .or. QSCHOOL_COMMUTE1=14 .or. QSCHOOL_COMMUTE2=14 .or. QUSUAL_COMMUTE=14 .or. QOTHER_USUAL1=14 .or. QOTHER_USUAL2=14)

QUSE_TOTAL = QUSE_TRANSIT + QUSE_DRIVE + QUSE_PASS + QUSE_WALK + QUSE_BIKE + QUSE_MOTORBIKE + QUSE_LOWSPEED

Q20. [QUSE_TOTAL>0]

Thinking about your recent travel <u>on the North Shore</u>, how safe do you feel using each of the following modes of travel?

Please rate each mode on a scale of 1 to 7, where **1 is very dangerous** (high risk of an accident) and **7 is very safe** (low risk of an accident)?

		1 Very Dangerous	2	3	4	5	6	7 Very Safe	Unsure
QUSE_DRIVE=1	Driving	¦	¦	¦	¦	¦	¦	¦	¦
QUSE_TRANSIT=1	Taking Transit	¦	¦	¦	¦	¦	¦	¦	¦
QUSE_BIKE=1	Bicycle or pedal-assisted e-bike	¦	¦	¦	¦	¦	¦	¦	¦
QUSE_WALK=1	Walking	¦	¦	¦	¦	¦	¦	¦	¦
QUSE_MOTORBIKE=1	Motorcycling	¦	¦	¦	¦	¦	¦	¦	¦
QUSE_LOWSPEED=1	Low speed motor vehicle (moped, limited-speed motorcycle, e-scooter)	¦	¦	¦	¦	¦	¦	¦	¦
QUSE_PASS=1 and QUSE_DRIVE<>1	Travelling as an automobile passenger	¦	¦	¦	¦	¦	¦	¦	¦

[IF QUSE_TRANSIT=1:] Transit includes BC Transit Bus, SkyTrain or SeaBus

[Note: only ask about travelling as a car passenger if they have not cited driving as a usual main or secondary commute or non-commute mode. For those who are both a driver and a passenger, we will already get their perception of safety while travelling by auto from the Driving question. I.e., car passenger only asked if usual non-driver].

11. TRIPS AND TRIP PURPOSES (2-3 questions if no trips; 1-4 questions if took trips)

[PROGRAMMER: When this section is reached, assign the Travel Day as yesterday or as the previous weekday if the current day is if day is a Saturday, Sunday, or statutory holiday.]

Q21. The next questions are about your travel [yesterday / recall previous weekday] in the 24-hour hours from 4:00 a.m. on that day to 3:59 a.m. the next day.

Did you leave home yesterday for any reason? This could be for a trip by any mode of travel whether car, bus, cycling, or walking.

1 Yes
2 No, stayed at home all day
3 Not applicable, I was away from home all day and did not return home

Q22. [if left home] [do not allow unsure to be selected with a value in one of the trip fields, allow blank fields if at least one field in table has a value, allow numeric characters only]

Thinking about the places you travelled to [yesterday / recall previous weekday], how many times did you go to each of the following types of destination:

Please count each time you went to a destination.

Note: Please use whole numbers only, without leading zeros

If you are a commercial driver, you can report your first trip to start work, but do not report trips you made as part of your job. *[display if a worker (QSTUDENT_EMPLOY=1,2)]*

If you left work during the workday then returned to work, count the first time you arrived at work plus each time you arrived at work again.

a. Your usual workplace *[display if a worker]* # ___
b. Business meetings or other work-related destinations # ___
c. Your school (to attend classes) *[display if a student]* # ___
d. A place you dropped someone off (e.g., drop off a child at school or daycare) # ___
e. A place you picked someone up (e.g., pick up a child from school or daycare) # ___
f. Restaurants, coffee shops, whether for dining in or take-out food # ___
g. Recreational destinations (sports or leisure) # ___
h. Social destinations (visiting friends, family, religious) # ___
i. Shopping or household maintenance (grocery store, other goods store, auto repair, gas station) # ___
j. Places you conducted personal business such as banking, health care appointments, personal care appointments # ___
k. All other places not mentioned above # ___

¦ 99. Not sure, cannot provide an accurate answer

Q23. [if left home AND if did not answer destination types as “not sure, cannot provide an accurate answer”]

Of the total of [RECALL TOTAL # ACROSS ALL CATEGORIES] destinations outside the home that you went to yesterday, how many did you go to by public transit, by cycling, and by walking?

Transit trips:	#_____	£ All	£ None
Cycling trips:	#_____	£ All	£ None
Walking trips (walked entire way):	#_____	£ All	£ None

Note: public transit includes any trips using at least one of BC Transit Bus, SkyTrain, SeaBus.

[PROGRAMMER: ‘All’ can be chosen only for one of these modes and overrides all other answers]

Q24. [if left home AND did not answer destination types as "not sure, cannot provide an accurate answer"]

Thinking about all the trips you made, over the course of the entire day (in the 24 hours from 4:00 a.m. [yesterday/most recent previous weekday] to 3:59 a.m. the next day), how many times did you come back home?

___

Q25. [if # of trips back home >0]

Of the total of [RECALL # OF TRIPS BACK HOME] trips back home yesterday, how many did you travel by public transit, by cycling, and by walking?

Transit trips:	#_____	£ All	£ None
Cycling trips:	#_____	£ All	£ None
Walking trips (walked entire way):	#_____	£ All	£ None

[PROGRAMMER: 'All' can be chosen only for one of these modes and overrides all other answers]

QWHYNOTRIPS ***[ASKED IN 2019 NSTS]***

Q26. [If stayed at home all day]

Why did you not leave home or make any trips [yesterday/TRAVEL DAY]?

1 Out of town for entire day
2 Sick/ill or care for other sick/ill household member
3 Not scheduled for school classes or activities
4 Not scheduled for work, or on extended leave from work (paternity/maternity, short-term disability)
5 Worked from home or telecommuted, and did not leave home for any reason
8 Self-isolating due to COVID (and did not work)
6 No need to leave home
7 Could not leave home, no transportation available
77 Other reason, please specify: _____

QWHYNOWORK ***[ASKED IN 2019 NSTS]***

Q27. [If worker .AND. ((left home .AND. did not record any destinations of usual work or business meetings/did not work) .OR. (did not leave home .AND. did not answer 'not scheduled for work' .AND. did not answer 'worked from home or telecommuted' as reason for not leaving home))]

You did not report going to work [yesterday/on TRAVEL DAY].

Were you working at home?

1 Yes, worked from home (telecommuted instead of travelling to work)
2 No, away on business / working on the road

3 No, did not work
4 No, actually I worked and did take work-related trips
5 Other, specify: _____

12. ODOMETER READING (3-7 questions)

Q28. [if drove a usual vehicle in 2019]

Do you still usually drive the same vehicle as you reported in 2019?

Vehicle Year:	QVEH_YR_PREV
Type:	QVEH_TYPE_PREV
Fuel Type:	QVEH_FUEL_TYPE_PREV
2019 Odometer Reading:	QVEH_KM_PREV

1 Yes, this is the vehicle I usually drive
2 I drive a different vehicle now
3 I do not drive any more

Q29. [if did not drive a usual vehicle in 2019]

Currently, do you regularly drive a vehicle that belongs to your household?

1 Yes
2 No

QVEH_TYPE

Q30. [if now currently regularly drive or if indicated in previous question now drive a different vehicle]

What type of motor vehicle do you usually drive for personal use?

1 Passenger vehicle
2 SUV
3 Pick-up truck or van
4 Motorcycle
5 Medium duty commercial truck or cube van
6 Heavy duty truck or tractor
7 Other, please specify: -> AQVEH_TYPE; C256 L1 C30
8 Not applicable / I almost never drive
99 Prefer not to answer

QVEH_FUEL_TYPE

Q31. [if now currently regularly drive or if indicated in previous question now drive a different vehicle]

What is the fuel type of the vehicle you usually drive?

1 Gasoline
2 Diesel
3 Hybrid (gas/electric)
4 Electric-only
5 Biodiesel
6 Other, please specify: -> AQVEH_FUEL_TYPE; C256 L1 C30
99 Prefer not to answer

QVEH_YEAR

Q32. [if now currently regularly drive or if indicated in previous question now drive a different vehicle]

What is the year of manufacture of your vehicle? This will help determine how many km are driven each year, on average.

_____

99 Unsure

QVEH_KM

Q33. [if indicated drive same vehicle or indicated drive different vehicle or indicated now drive a vehicle (when did not before)]

We would like to better understand how many kilometers residents drive in a year, as it helps to provide a measure of fuel consumption and emissions, which impact air quality and climate change.

Would you like to enter your odometer reading right now, or send yourself a link to enter it later? We can email or text you a link, so that you can fill out the odometer reading in your car with your smartphone or tablet, if you choose.

1 Enter my odometer reading right now
2 Email me a link to enter my odometer reading later to this email address: _____
3 Text me a link to this phone number: _____

Q34. [if can enter odometer reading now]

Please enter the current odometer reading for your vehicle to the nearest 100 km. If unsure, you may check the vehicle and return to enter it later.

_____

13. SURVEY CONCLUSION

F0. [Only if respondent is in a targeted demographic]
You will receive a $20 e-gift card for participating in the survey again! Please select the vendor you wish to receive your $25.00 e-gift card from.

1. Mountain Equipment Coop
2. Cineplex Movie Theatres
3. Tim Horton's
4. Whole Foods
5. I prefer not to use the gift certificate (the money can be used towards conducting more research)

The e-gift certificate will be sent to the email you provided earlier. You may edit this email address or enter a new email address below:
Email: _____

PRIZEDRAW

F1. **Participants in the survey are eligible to enter a prize draw. A total of $1,000 in prizes will be awarded. Would you like to enter into the draw?**

INTERVIEWER: If more information requested

Prizes include:

- 3 $100 gift certificates to local merchants
- 35 $20 e-gift certificates to local merchants.

Your chances of winning a prize are about 1 in 30. The prize draw is administered by R.A. Malatest & Associates Ltd. and will be drawn once the survey administration period is completed.
1. Yes
2. No

PRIZE_INFO_1

F2. [If yes]
PHONE: **May I confirm your name and phone number, so that we can contact you to let you know if you have won?**

Your name and phone number will be kept confidential and will be used only to contact you in the event your name is selected in the prize draw.

WEB: **Please confirm your name and phone number, so that the survey administrator can contact you at this phone number in the event your name is selected in the prize draw.**

This personal information will not be used for any other purpose nor will it be shared with anyone else.

Name: _____ [prepopulate with first name, if respondent provided their name earlier]

Phone: _____ [prepopulated with household phone number. Allow edits in case respondent wants to be contacted at another number]

Email: _____ [prepopulate with household email, allow edits]

AGENERAL_COMMENTS

[max 1,000 characters]

F4. Do you have any comments about transportation issues on the North Shore?

QFOCUS_ASK

F3. One of the goals of this annual survey is to understand and track changes in North Shore residents' travel patterns over time.

We would like to conduct a follow-up survey with you again in another year. There will be a separate prize draw for next year's survey as well.

As a repeat participant and a member of our North Shore Transportation Survey panel, you are making an invaluable contribution to transportation planning research that will benefit the communities on the North Shore!

In order to do a follow-up survey with you next year, your contact information and linked survey responses would need to be retained by the North Shore Transportation Survey partner municipalities (City of North Vancouver, District of North Vancouver, and District of West Vancouver) until the next survey.

Your privacy is important to us. Your survey responses will be stored securely and your contact information will only be used to contact you for the follow-up survey. Click here to see our Privacy Statement.

Do you agree to allow the partner municipalities to again securely store your contact information and linked survey responses for the sole purpose of conducting a follow-up survey next year?

1 Yes
2 No

14. END PAGE

Please click on the Submit button to submit your survey answers and conclude the survey.
After you click Submit, you will no longer be able to edit your answers.

_____

PHONE ONLY: That concludes the survey. Thank you very much for your cooperation. Have a pleasant evening.

That concludes the 2020 North Shore Transportation Survey.

Thank you very much for your participation!

Your survey answers have been saved. Click here to see our Privacy Statement.

[PROGRAMMER: IF HAS VEHICLE AND ODOMETER READING IS EMPTY:
If you still need to fill in your odometer reading, you can do so here: Link]

If you wish to change any of your answers, or if you have any concerns about the survey, please contact **info@northshoretrips.ca** or **1-855-412-1940**

Check out the 2019 survey results here: https://www.cnv.org/city-services/streets-and-transportation/transportation-studies/north-shore-transportation-survey

For more information about the survey, please contact us at info@northshoretrips.ca