

Prepared for



CITY OF VANCOUVER

Summary Report

2018 Vancouver Panel Survey

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Executive Summary

This report summarizes the results of the City of Vancouver's sixth annual Transportation Panel Survey conducted in 2018. The Panel Survey helps to track progress towards transportation mode share targets and will be a means of assessing the vehicle-kilometres travelled (VKT) by the City's residents on an ongoing basis. These are the two principal metrics for gauging progress in sustainable transportation, as outlined in the City of Vancouver's Transportation 2040 Plan and associated policies. As this survey tracks the travel characteristics of the same group of people¹ from year to year, it will also be helpful in determining which transportation investments and policies have been the most effective in helping to provide walk/bike/transit travel options for Vancouver residents.

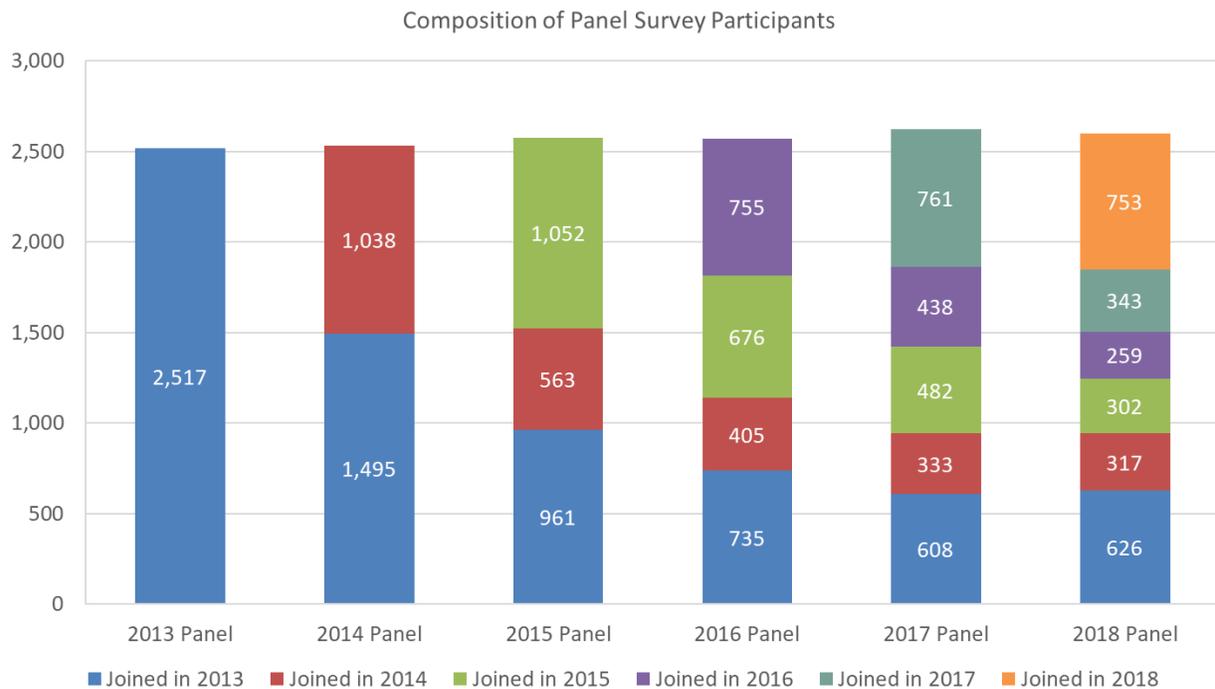
The primary component of this survey is a travel diary where individuals record the trips that they make on a given weekday. This trip data was then compared to previous panel surveys conducted from 2013 to 2017 annually which followed similar design, sampling, recruitment, and analysis methodologies, allowing for analysis of transportation trends. As was the case in 2017, and as part of the evolution of the Panel Survey, there were some changes to the demographic and trip diary components, in addition to recruiting efforts, to better reflect the City's priorities. These are explained in more detail within the report but are summarized as follows:

- 1) The 2018 survey introduced two new questions concerning business trips occurring during work hours and access to employee travel programs that support these business trips.
- 2) The 2018 survey also added a new option for the method of transit fare payment to include credit/debit transactions.
- 3) The 2018 survey also added youth referral questions as one of several measures taken to increase youth representation in the panel sample.

Along with the new youth referral process, a more effective cash-based incentive program was used in 2018 which resulted in 1,590 of 2,600 panel members returning from 2017 for the 2018 Panel. This equates to an attrition rate of 38%, with 25% of the original panel from 2013 still intact. It is important to retain as many of the previous years' panel members to effectively track changes in travel behaviour and patterns year-over-year. The complete composition of the 2013 to 2018 panelists, grouped by when they first joined, is shown in *Figure 0-1*.

¹ As opposed to the regional travel survey which randomly recruits households every three to five years.

Figure 0-1: Composition of Panel Survey Participants



Even with the minor changes to the survey instrument and composition of panel members, survey results in 2018 are similar to 2017. Some of the key highlights from the 2018 survey results include:

- 1) Transit, walking, and cycling, which all together account for 52.8% of all trips, have increased in the last year (52.8% compared to 48.4% in 2017)².
- 2) Compared to the 2017 panel survey, there is a 4% decrease in auto trips (3% auto driver, 1% auto passenger) which is largely captured by walking trips. Total trips and mode share are presented in [Figure 0-2](#). Trips and mode share to/from work are consistent with this trend, with an increase in transit and bike trips for commuting, as illustrated in [Figure 0-3](#).
- 3) Benchmarking VKT per capita using odometer readings from panel participants' vehicles indicates a further reduction in 2018 of approximately 2.9%.
- 4) Car sharing has increased further in 2018 with 34% of residents (aged 18+ including those without a valid driver license) having a car share membership, up from 31% in 2017 and 29% in 2016. Access to private vehicles across the City has remained steady from last year at 87%.

In addition to the fall panel survey, a smaller summer survey was conducted to engage panelists and ask additional questions regarding car share services and auto and bike parking facilities. The results of the summer mini survey were documented in a technical memo³ to City of Vancouver. This technical memo is included in **Appendix B**.

² Note that these values represent the midpoint of the walk/ bike/ transit mode shares based on the 95% confidence interval ranges. These are discussed in more detail in Section 4.2.

³ 2018 Vancouver Panel Summer Survey, McElhanney, September 2018.

Figure 0-2: Total Trips by Mode and Mode Share (2013-2018 Panel Surveys)

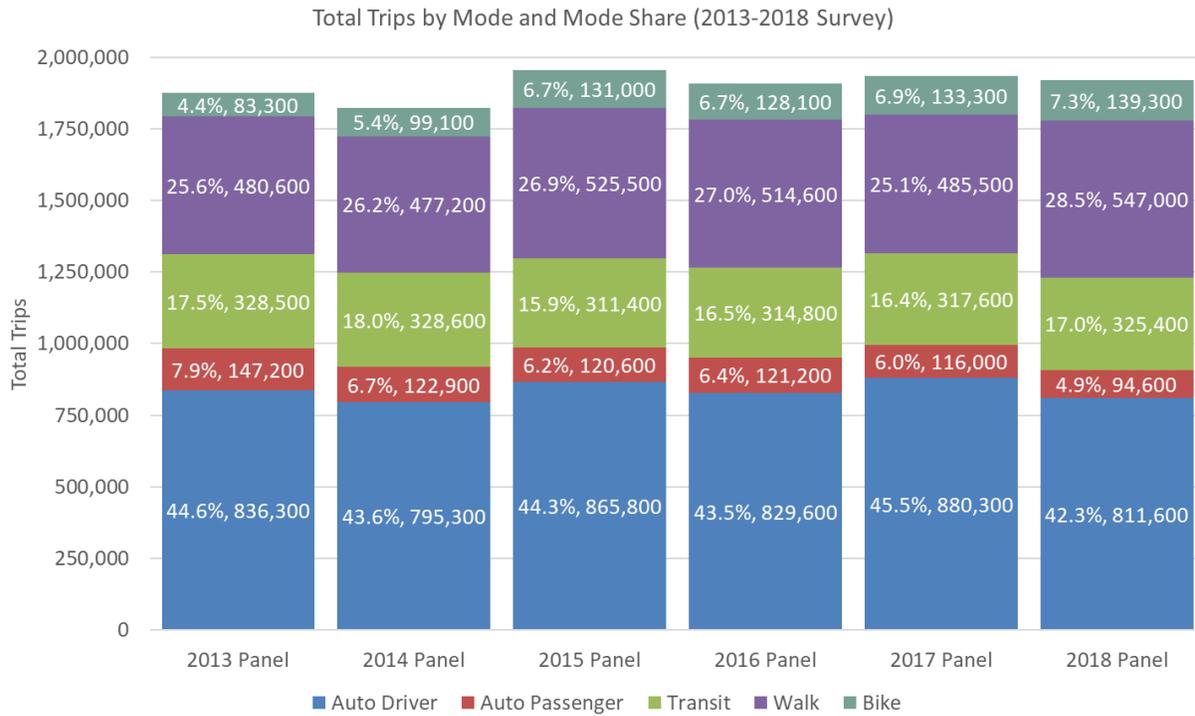


Figure 0-3: Comparison of Panel Survey Trips to Work (2013-2018 Panel Surveys)

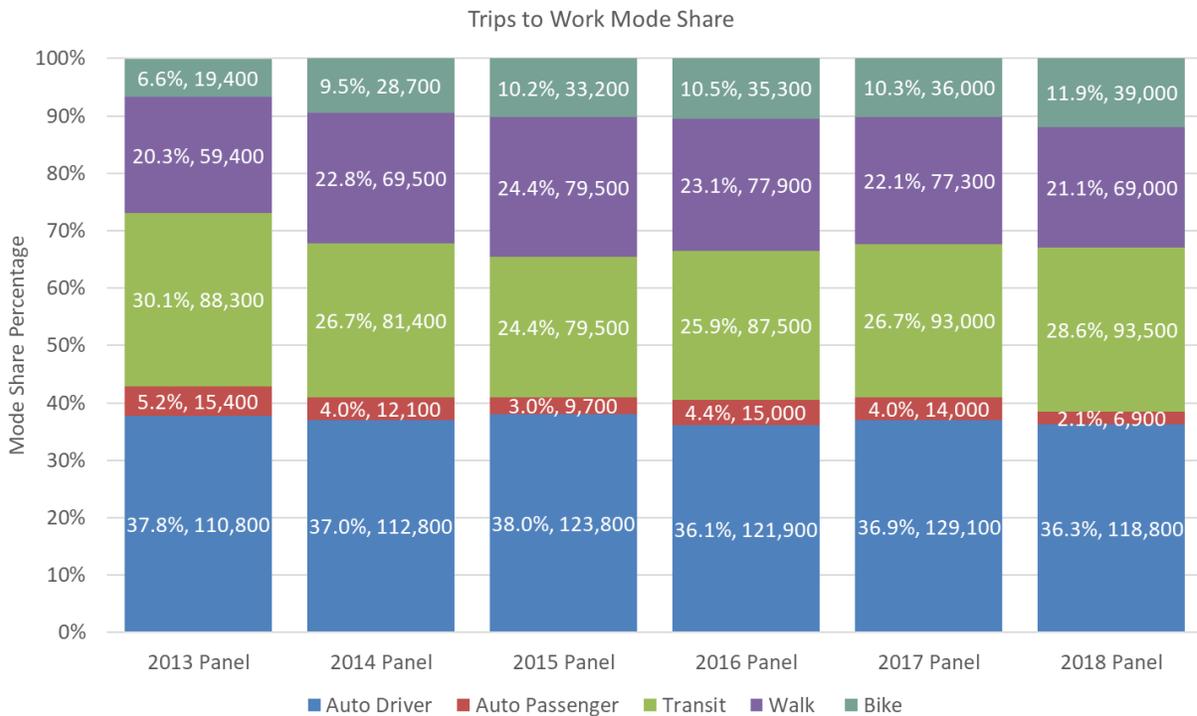


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1. Introduction

Vancouver is recognized as one of the most livable cities in the world, due in no small part to the way in which the built environment respects and magnifies its natural surroundings. This delicate balance is put under pressure as the City continues to grow and accommodate new residents and businesses. The Greenest City Action Plan and Transportation 2040 offer appealing goals of how the City of Vancouver's (the City's) transportation network plays a key role in shaping the future growth of the City.

The City's role in transportation includes building and maintaining infrastructure; shaping land use through guidelines and policies; managing demand through regulations and pricing; collaborating with adjacent communities and senior levels of government; and educating citizens.

In many respects, that goal is already taking shape, with the shifting live-work balance on the downtown peninsula supporting a greater number of short distance trips by walking, cycling, and transit. The launch of the Canada Line and the 2010 Winter Olympic Games were a proving ground for demonstrating the latent demand for walk/bike/transit modes of transportation. The City's ongoing commitment to provide bike facilities for all ages and abilities (AAA bike facilities) and transit-oriented development has also gone a long way to support more walk, bike, and transit modes of transport.

In late 2015, the City approved plans to expand the cycling network over the next five years (2016 to 2020) and to initiate a pilot project to allow those on roller blades, skateboarders, and push scooters to use AAA bike facilities.⁴ Further, the City of Vancouver launched the Mobi bike-share system on July 20, 2016 providing a transportation alternative for people who might not own a bicycle. The City has also continued to invest in and improve the Arbutus Greenway which was purchased from Canadian Pacific Railway in 2016. At a regional level, transit service continues to be improved. Recent notable improvements include the Evergreen Line and the expansion of the B-Line service.

To build off of these successes and to plan infrastructure that can get the largest gains in the percentage of people walking, cycling and taking transit and reductions in vehicle-kilometres travelled (VKT), it is critical to track the effectiveness of different initiatives as well as market conditions on changing travel behaviour. Beyond the City's current data sources including screenline traffic counts, permanent bike counters, TransLink's Regional Trip Diary Survey, and the Census Journey to Work, a Panel Survey is one of the most effective tools to capture and track such trends on an annual basis.

This is the sixth year of the City of Vancouver's annual Panel Survey. This survey is intended to be used to benchmark progress towards the Greenest City and Transportation 2040 targets. Each year, the survey is being refined to include other metrics related to health, propensity of travel by active transportation modes, and reasons for shifting travel patterns, while at its core, still being a travel survey.

⁴ Details are included in the Council report "Active Transportation Update and Pilot for Skateboarding in Protected Bike Lanes" <http://council.vancouver.ca/20151210/documents/ptec7.pdf>

1.1. Study Objectives

A panel of Vancouver residents has been recruited and is maintained to serve in the ongoing annual Transportation Panel Survey. The Panel Survey is a one-day personal travel diary covering weekday trips by any mode or purpose that also captures household and personal demographic information. This excludes commercial driver trips, such as those driving trucks, buses, and taxis, and non-Vancouver residents and tourists.

The objectives of the Panel Survey are to:

- 1) Assess the travel mode share and number of trips for nine transportation zones in the City;
- 2) Assess the average VKT by City residents; and
- 3) Determine factors that have contributed to changes in travel behaviour and travel patterns.

The inaugural 2013 Panel Survey established a benchmark of travel behaviour in the City, against which the following panel surveys are compared, allowing the City to capture trends in the key parameters of total trips, mode share, and VKT. Over time, the City can then be better positioned to determine which of its policies and projects have resulted in the desired changes in travel behaviour. This survey approach is unique to previous regional travel surveys in that this survey aims to measure relative annual change in travel behaviour amongst a group of panel members (i.e. a longitudinal survey) rather than comparing results of a new random sample of households every three to five years such as TransLink's Regional Trip Diary Survey. In this sixth year of the Panel Survey, trends can be drawn from Panel data and reasons for changes in mode share and VKT can be postulated. The Panel Survey will also be benchmarked against regional trip diary surveys and the journey to work Census survey that occurs approximately every 5 years, the latest of which was conducted in 2016.

1.2. Complementary Data Sources

The Vancouver Panel Survey is not the only survey or data collected on a regular basis. There are several other complementary data sources which add value to the Panel Survey through result comparison and supporting evidence. These complementary sources include the following:

Census & Journey to Work

Statistics Canada conducts a national census regularly every five years, with the latest survey occurring in 2016. Journey to Work is one of the topics in the long-form census and collects data specific to the commuting behaviour of Canadians. The census, including Journey to Work, collects a large volume of data, requiring significant time and effort to record, analyze, validate and present outputs. In 2016, the census day was May 10, however data was not released to the public until 2017. Journey to Work was part of the last data release at the end of November 2017, over 1.5 years after census day.

TransLink's Regional Trip Diary

The Regional Trip Diary survey administered by TransLink is a household-level travel survey representing approximately two percent of households in the Lower Mainland. This survey is performed every five to six years with the previous surveys occurring in 2008, 2011, and 2017. This survey focuses on regional issues and may not capture information on emerging trends of particular interest to Vancouver such as car-share and bike-share membership, traveller satisfaction, use of specific infrastructure within the City. Given the considerable amount of data collected for the Regional Trip Diary, release of the survey results can take over a year. The 2017 Regional Trip Diary is anticipated to be released in Fall 2019.

Talk Vancouver

The Talk Vancouver panel of residents interested in providing feedback to the City is a self-selected sample based on willingness to participate in surveys. This self selection makes it difficult to expand the data reliably due to the non-random nature of those choosing to participate and can lead to large diversions in estimated behaviour from other more statistically sound estimates.

Direct Travel Volume Measurement

Direct measurements of travel volume by mode are conducted by various agencies in the region including the City of Vancouver and TransLink. This includes auto volume counts, bike counts and transit ridership. These measurements provide useful trends on how travel is changing in the City and can be used to back-check the results from other data sources. However, these observations do not produce an overall picture as they are measuring travel not trips and can not account for the total size of the travel market. Additionally, no information on the traveller or purpose is collected.

Advantages of the City of Vancouver Panel Survey

The Vancouver Panel Survey provides an annual check-in on transportation mode shares moving towards the targets developed in the City's long-range plan, Transportation 2040. This provides short term feedback on how well the initiatives are performing in encouraging active mode share travel and decreasing vehicle-kilometres travelled. While the complementary surveys and data sources could provide similar insights into travel behaviour as the Panel Survey, there are trade-offs that should be considered. These trade-offs generally involve the following key considerations:

Frequency of Measurement

The infrequent nature of the Census Journey to Work and the Regional Trip Diary reduce the ability to measure the impacts of local and regional initiatives as multiple changes may occur between surveys. There are significant changes anticipated for the City of Vancouver in the coming years which may have impacts to travel for the City's residents. These include:

- Arbutus Greenway,
- Expansion of the City's cycling network,
- Removal of the Georgia and Dunsmuir Viaducts,
- Broadway Subway Project,
- Expansion of Mobi,
- Expansion of car-sharing services, and
- Adoption of ride-sharing services.

In the future, other significant changes could include the adoption of autonomous vehicles, TransLink's zone system switching to a distance-based fare system, mobility pricing, an economic downturn, and other technological and socio-economic factors. As the Panel Survey is conducted annually, this provides the City of Vancouver the opportunity to perform a detailed analysis to determine the correlation and possible causation of changes to travel behaviour and patterns.

Representation of Sample

Random sampling to reduce selection bias in the sample is key to reliable statistical estimates. As the Talk Vancouver survey participants are self-selected, the bike share estimates were drastically different compared to the Census Journey to Work, Regional Trip Diary, and City of Vancouver Panel Survey.

Regarding sampling boundaries, the Vancouver Panel Survey conforms to the City of Vancouver's Transportation Zones which reflect unique areas within the City. Unlike the Vancouver Panel Survey, other surveys do not necessarily conform to these boundaries and therefore limit their application within Vancouver.

Furthermore, in 2011, the Government of Canada changed the mandatory requirement to complete the long-form census, which includes the Journey to Work survey, compromising its reliability and statistical validity. As a result, some statisticians have noted that the voluntary 2011 National Household Survey results may not be dependable for trend analysis or comparison with other long-form census due to this inconsistency.

Seasonal Effects

To best reflect stable commute patterns, the Vancouver Panel Survey is conducted in the fall months when people are back to work from summer holidays and schools are in session. Similarly, the Regional Trip Diary is generally carried out in the fall period. However, it has been completed in late spring in the past after post-secondary classes have ended. On the other hand, the Census Journey to Work is a representation of summer travel and does not necessarily represent the fall commute patterns.

Responsive to Vancouver's Emerging Priorities (Health, Parking, Friendly Interaction, etc.)

The Panel Survey allows the City full control of the survey design to target specific questions relevant to the City. As the Census Journey to Work and the Regional Trip Diary are developed by external agencies, there is limited or no ability for the City to influence the survey instrument. As a result, these surveys may not align with the City's priorities or needs.

Measure of Vancouver Resident Travel and Mode Share

Since the Vancouver Panel Survey collects transportation-related information from City of Vancouver residents only, this allows the City to better understand residents' trip-making behaviour and allows for better informed decision-making. Additionally, as the survey has been conducted annually over the past six years, this data set allows for insights into how Vancouver residents' mode choice is changing on a year-to-year basis. Because other surveys are held less frequently, these do not capture the yearly changes in mode share.

Ownership of Data

As the Vancouver Panel Survey is collected for the City of Vancouver, the City has ownership of the data. This allows the City to conduct additional analysis to answer specific questions that may arise after the completion of the analysis. With the Census and Regional Trip Diary, the data is owned and held by the respective agencies.

1.3. Sustainability

Shifting mode share to active forms of transportation, including walking, cycling, and access to transit services, yields not only environmental, but also socio-economic benefits including the following:

- Climate change mitigation through reductions in fossil fuel usage and associated greenhouse gas (GHG) emissions;
- Avoided vehicle operating costs, collision costs, etc.
- Health benefits associated with:
 - Incorporating physical activity into daily routines;
 - Localized reductions in Criteria Air Contaminants.
- Enhanced community livability when taking into account:
 - Social connectedness – residents more engaged within their own neighbourhoods
 - Improved security – following Crime Prevention Through Environmental Design principles – due to greater use of the public realm;
 - Reduced transportation costs when factored into the housing affordability equation.
- Postponement of investments in infrastructure expansion or renewal due to lesser demand which can be redirected to more pressing City and regional needs.

Collecting trend data on these key areas provides evidence to support ongoing policy refinement and adjust the level of capital investment for walk/bike/transit modes as the City works towards its Transport 2040 targets.

1.4. Structure of the Report

This report is organized into seven main sections as follows:

- 1) **Introduction** – This section provides the context and outlines the purpose and goals of the study.
- 2) **Survey Methodology** – This section describes the survey instrument and the process used to recruit the panel. It also explains the weighting and expansion of the panel to be statistically representative.
- 3) **Panel Characteristics** – This section corresponds to the ‘Person File’ in the survey data, and includes general demographic information on age, gender, and household income of Panel members. This section also provides a summary of vehicle ownership, car-sharing, transit, and cycling tendencies.
- 4) **Trip Characteristics** – This section corresponds to the ‘Trip File’ in the survey data and features the bulk of the analytical work in the report which compares the 2018 Panel Survey results with previous Panel Survey data.
- 5) **Comparison of Returning Panelists** – This section provides a comparative analysis of the characteristics and travel behaviour of returning panelists who participated in the survey every year since 2013.
- 6) **Factors Affecting Growth** – This section provides high-level commentary on external and likely contributing factors that have affected mode share and VKT and other travel patterns.
- 7) **Lessons Learned and Next Steps** – This section highlights themes and lessons learned from previous Panel Surveys and lays out the work program over the coming months leading up to the fall 2019 Panel Survey.

2. Survey Methodology

2.1. Survey Instrument

The survey instrument utilized in the 2013 Panel Survey was developed to focus on the City's objectives of tracking mode share, VKT, and other key parameters. The survey was designed in collaboration with City staff and market research experts. The resulting survey instrument sought general structural alignment with TransLink's Regional Trip Diary Survey and was designed to be robust so that minimal changes would be required in future years.

In 2014, modifications were made to the survey instrument to clarify elements that were previously found to be vague. Most changes reflect a desire on the part of the City to gain a better understanding of the emerging car sharing sector, preferences by people cycling, and bicycle/vehicle parking trends. It also introduces a question that delves into social interactions during trip making and health related metrics.

Since 2015, the year by year changes include:

2015:

- Added Evo car share as an option
- Separated the question regarding usual mode of transportation into work and school purposes to eliminate confusion
- Refined the cycling questions based on weather
- Sought more in-depth understanding of the walking/cycling portion of trips. This question sheds light on health (i.e., integrating physical activity into commuting) as well as tolerance for transferring between modes
- Clarified the social interaction question

2016:

- Added a question to determine membership in Mobi, the City's new bike sharing program
- Modified / expanded response options within questions to determine most used mode of travel for trips to / from work and / or school (as well for each trip recorded within the diary component), as follows:
 - "Car, truck or van" response option changed to "Private car, truck or van" (either as driver or passenger) and added "Car share" (either as driver or passenger)
 - "Bicycle" changed to "Private bicycle", and added "Bike Share (Mobi)"
- Options for method of payment used by those travelling by transit modified to reflect TransLink's newly introduced Compass Card Program
- Modified "Single detached dwelling home" response option to include laneway houses and added "Other" as a response option
- A new question to measure incidence of Aboriginal population in the panel

2017:

- Revised gender question to include transgender/ other identity/ prefer not to say response options
- Added two questions to determine awareness and level of support for the Millennium Line Broadway Extension

- For clarity, revised “East Indian” response code in ethnic demographic question to “South Asian”

2018:

- The two questions added in 2017 to determine awareness and level of support for the Millennium Line Broadway Extension were removed.
- Added two new questions concerning trips made during work hours and access to employee programs that support or provide car pooling/ car sharing, subsidized transit passes, and subsidized bike share.
- Options for method of payment used by those travelling by transit expanded to include Cash/ Debit.
- Added youth referral questions as one of several measures taken to boost youth representation in the panel sample.

In 2017, a cash prize draw with awards ranging in amounts from \$50 to \$1,000 replaced the City facility/ attraction and \$100 Visa Gift Card incentives awarded in 2016. The draw was implemented to increase participation levels among the newly recruited, to reduce the attrition rate among returning panelists, and to streamline the administration of prizes. In addition to the random prize draw incentive, a \$20 direct incentive was also provided this year to any 15 to 34-year-olds who registered and completed their trip diary.

Residents were recruited by Mustel Group who conducted random probability sampling to best reflect the population demographics in the nine transportation zones.

As in past study waves, residents that completed the required 2017 study components were invited via email to participate in the 2018 study. In addition to this, two other measures were taken to reduce recruiting costs: first, similar to 2017, invitations were delivered to panelists that had completed all but the diary component in the previous year. Second, all lapsed panelists (those who participated in previous surveys but not in the 2017 survey) were invited to participate in the 2018 wave.

Further, as in previous waves of the research, to address the attrition levels in the 2017 random sample and boost participation of the youth cohort (15 to 34 years), Mustel Group conducted telephone (including cell phone and landline) recruitment by continuing random selection of gender, but initially focusing on residents 15 to 34 years of age and in specific transportation zones (demographics that were below target in the previous waves).

Lastly, in an effort to increase representation of the youth cohort within the panel sample, Mustel Group implemented a referral process whereby a returning panelist or new recruit could refer a 15 to 34-year-old living in the same household to participate in the survey. This resulted in 69 of the 324 total diaries completed among this age cohort (21%).

The survey had two main components; a “person component” and a “trip component”.

In the person component of the questionnaire, the participants were asked to provide the following information to assist in the expansion of the data and obtain general transportation characteristics:

- Demographic information (age, gender, employment, household income, ethnicity)
- Home and work addresses
- Degree of access to different modes of transportation (private vehicle, car share, private bicycle, bike share, transit)
- Usual travel habits

In the trip component, participants were required to provide the following details for all trips made during their assigned travel day which are used to estimate trip characteristics for the City including:

- Start/end location
- Time of day
- Purpose of trip
- Mode of transportation
- Odometer readings (for those who reported driving trips)

The complete survey instrument, for both returning panelists and new recruits, is included in **Appendix A**.

2.2. Data Collection and Sampling

The sampling strategy was designed to recruit a longitudinal panel representative of residents across Vancouver's nine transportation zones that have also been used in TransLink's Regional Trip Diary Survey. Note that new panel survey members were recruited to replace previous panel members that dropped out. *Figure 2-1* shows how Vancouver's nine transportation zones relate to the 22 neighbourhood areas within the city.

Figure 2-1: Transportation Zones and Neighbourhood Zones in Vancouver

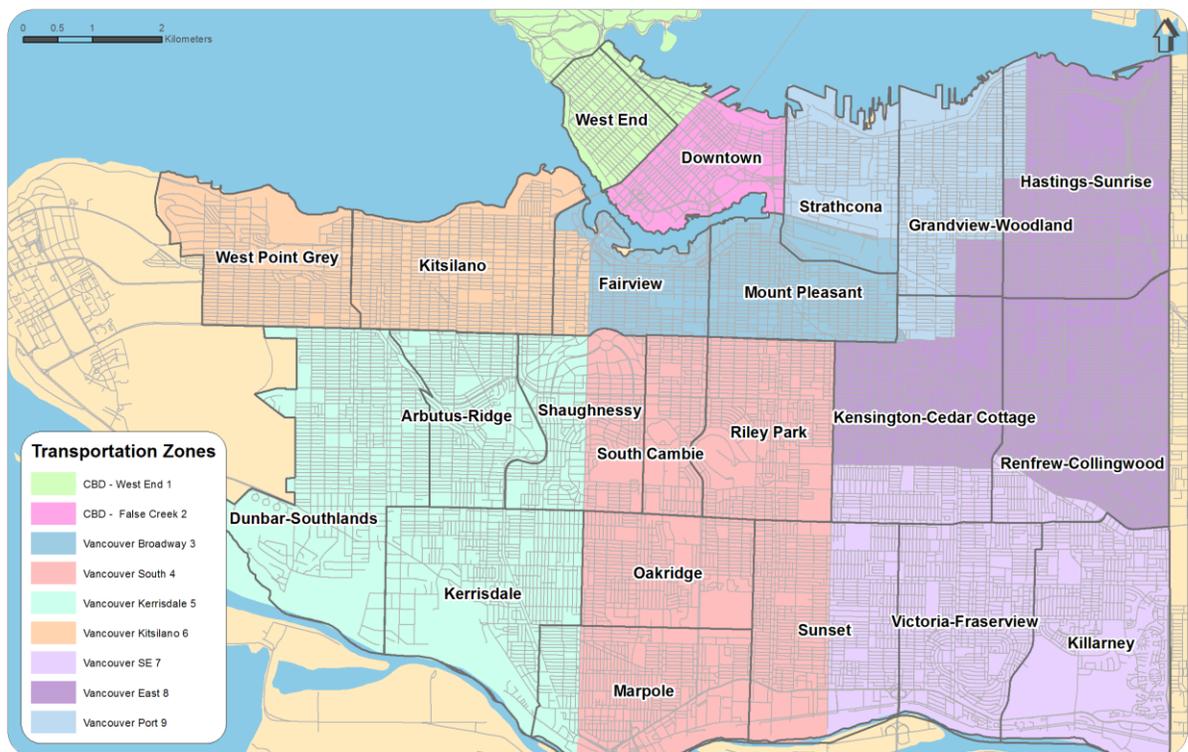


Table 2-1 shows proportionate sampling targets for the estimated 2018 population (based on a projection of 2016 Census data) required to achieve a representative total of at least 2,500 residents. Similar to previous surveys, the panel only included people 15 years and older. The total estimated population aged 15 years and older from the 2016 Census is approximately 550,784. Of the 15+ population, a 0.5% random sample of residents was achieved, similar to the previous Vancouver panel surveys.

Table 2-1: Trip Diary Targets by Transportation Zone (Population 15 years and older)

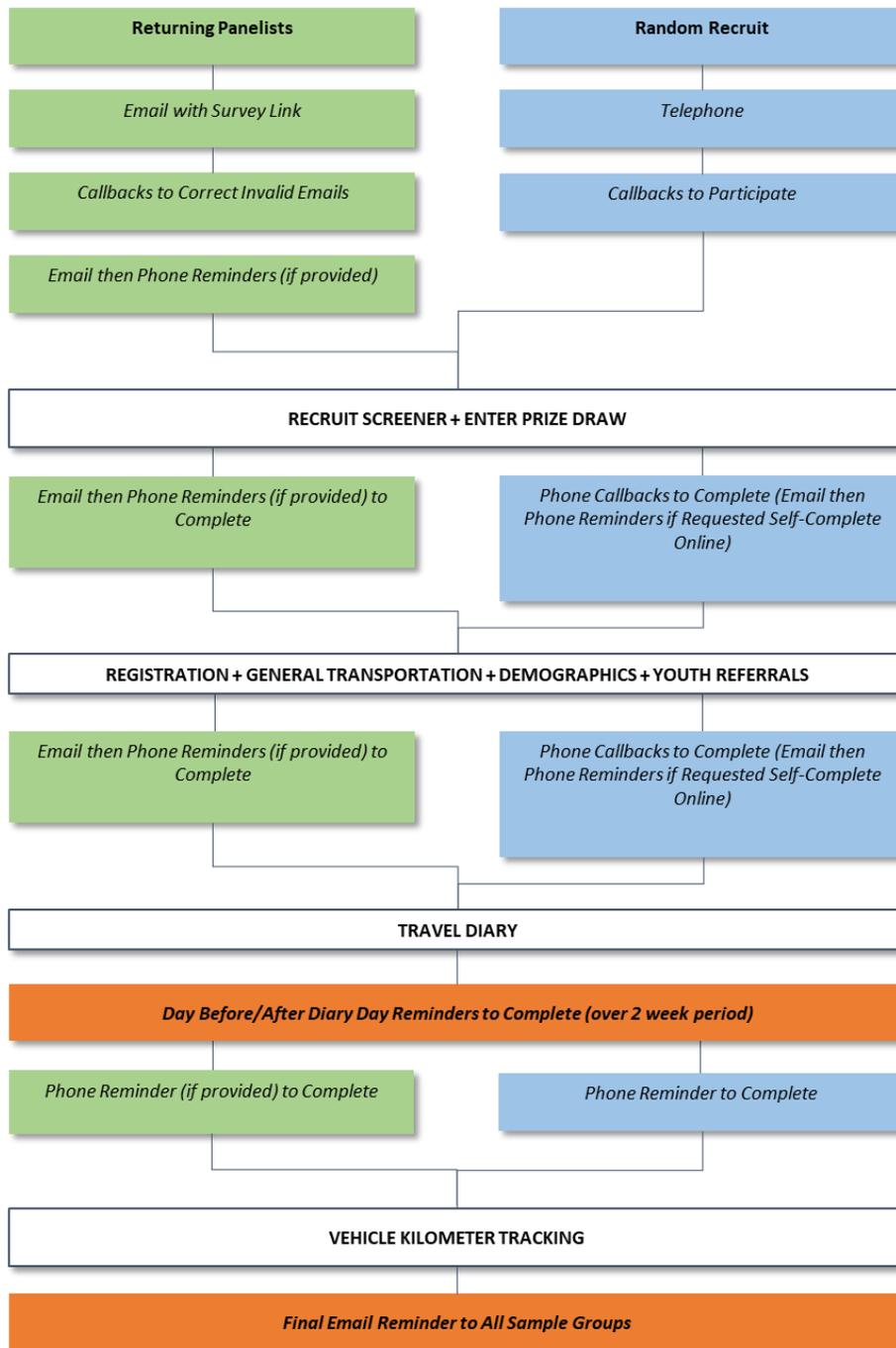
2018 Projection Based on 2016 Census Data					
Transportation Zone		Total Population	Population 15+	Proportion 15+	Proportionate Sample
1	CBD – West End	61,565	58,610	10.64%	265
2	CBD – False Creek	60,876	57,141	10.37%	259
3	Vancouver Broadway	63,039	57,414	10.42%	260
4	Vancouver South	82,972	71,998	13.07%	327
5	Vancouver Kerrisdale	61,408	52,113	9.46%	237
6	Vancouver Kitsilano	62,817	56,329	10.23%	257
7	Vancouver SE	80,362	69,308	12.58%	314
8	Vancouver East	97,950	85,183	15.47%	387
9	Vancouver Port	47,696	42,688	7.75%	194
Total		618,685	550,784		2,500

The panel recruitment process, illustrated in the flow chart in Figure 2-2, began in the last week of September, one week later than in 2017. Returning panelists were sent email invitations starting September 25th and new recruitment started on October 1st and ran until December 2nd.

The window to enter trip diaries was from September 25th to December 19th. The first trip diary completions were made within a week with a substantial portion of completions amongst returning panelists completed by mid-November (83%). The bulk of new recruit completions was entered by the first week of December to maintain 2500 sample for statistical significance.

Telephone recruitment to replenish randomly recruited panelists lost to attrition began October 1st. To offset attrition in the returning panelist sample and to encourage new recruits to follow up with their commitment, reminder calls and emails to all groups were conducted throughout the survey period.

Figure 2-2: Panel Survey Flow Chart



Although additional effort was applied to address participation rates below target in the 15 to 34 age cohort and in some of the transportation zones, continued challenges necessitated randomly recruiting all age groups in all zones to achieve the city-wide target. As indicated earlier, Mustel Group recruited panel participants using a random probability sampling method. The panel characteristics (e.g., age, gender) were closely monitored during recruitment. For the random probability sampling, Mustel Group’s sample frame consisted of: i) published landlines stratified by the City’s nine transportation zone designations and ii) random-digit generated cell phone numbers within City of Vancouver rate centres.

In an effort to boost the underrepresented youth cohort (15 to 34 years of age) and to ensure targets by transportation zones were met, Mustel Group employed the following measures:

Cell Phone Sample

The random-digit cell phone sample enables expanded coverage to include residents without landlines. While the published landline sample was pre-tagged by zone, the cell phone sample can only be tagged by zone during the interview. City residency and the geographic zone were confirmed for all respondents during the interview process. Within selected households, respondents were chosen at random (e.g., next birthday) or targeted by age/gender as required.

Incentives

As indicated earlier, a cash-based incentive design was implemented in 2017, in lieu of the combination of City based facility/ attraction and Visa gift cards awarded in 2016, and this was maintained in the 2018 wave. In addition to this draw, a direct Visa card incentive of \$20 was provided to 15 to 34-year olds who registered and completed the trip diary.

Additional measures:

In addition to inviting previous wave panelists, all participants from the 2017 wave who completed only the registration component, as well as lapsed panelists going back to survey inception in 2013, were invited to participate in this year's panel survey.

Additionally, the 2018 panel survey includes a new referral process whereby returning or new panelists 35+ years of age could refer one person from their household between 15 to 34 years of age to participate in the survey.

Of the total trip diaries completed by those within the 15 to 34 age cohort, 34% were recruited via cell phone sample, 43% via landline and 23% were referred by a returning panelist living in the same household. The youth referral process implemented this year and continued cell phone sampling will be ongoing with increasing requirements, especially in contacting the 15 to 34 age cohort, and considering the incidence of landlines is expected to decrease over time.

In contrast, for the 35 to 54 age group, only 21% were recruited by cell phone. This figure drops to 4% for the 55+ age cohort.

The cumulative effect of the above measures resulted in an increase in youth participation from 260 panelists in 2017 to 324 in 2018 (from 9.2% to 12.5% of all panelists). Although it's not possible to attribute this rise in participation among the youth cohort to a single measure, the added direct \$20 incentive and youth referral recruitment channel had a considerable impact on Mustel Group's ability to reach and include more participants in this demographic.

The attrition rate in 2018 was 38% which at first glance represents a 7% increase from 2017 and is likely due to respondent fatigue over the six-year period of the study. However, when including the total number of lapsed panelists that returned and completed the 2018 survey, the attrition rate registers 29%, an overall decrease of 2%.

Travel days for recording of trips were assigned at random with a goal to equalize the days of the week (Monday to Friday, as required).

Highlights from the 2018 sample include the following:

- A total of 2,600 respondents completed the trip diary, of which 41 respondents were aged between 15 and 17. *Table 2-2* presents a breakdown of all respondents by geographic sub-area. The target figures show the number of samples required in order to match the proportions from the census.
 - **55.7%** of respondents were female, **43.9%** were male, and **less than 1%** identified as other gender, a similar distribution as in 2017.
 - **2,050** respondents had access to a private vehicle in the random sample with the majority entering an odometer reading (**94%**).

Table 2-2 shows that some of the transportation zones were over sampled and some were under sampled. More samples provide a more statistically reliable dataset and a lower sample can compromise the confidence levels in the reported data. Improvements were made in 2018 to address under-sampling; however as in 2017, it was difficult to recruit panel members from a few transportation zones. CBD-False Creek results were combined with the CBD-West End to provide combined results for downtown to be consistent with previous measures.

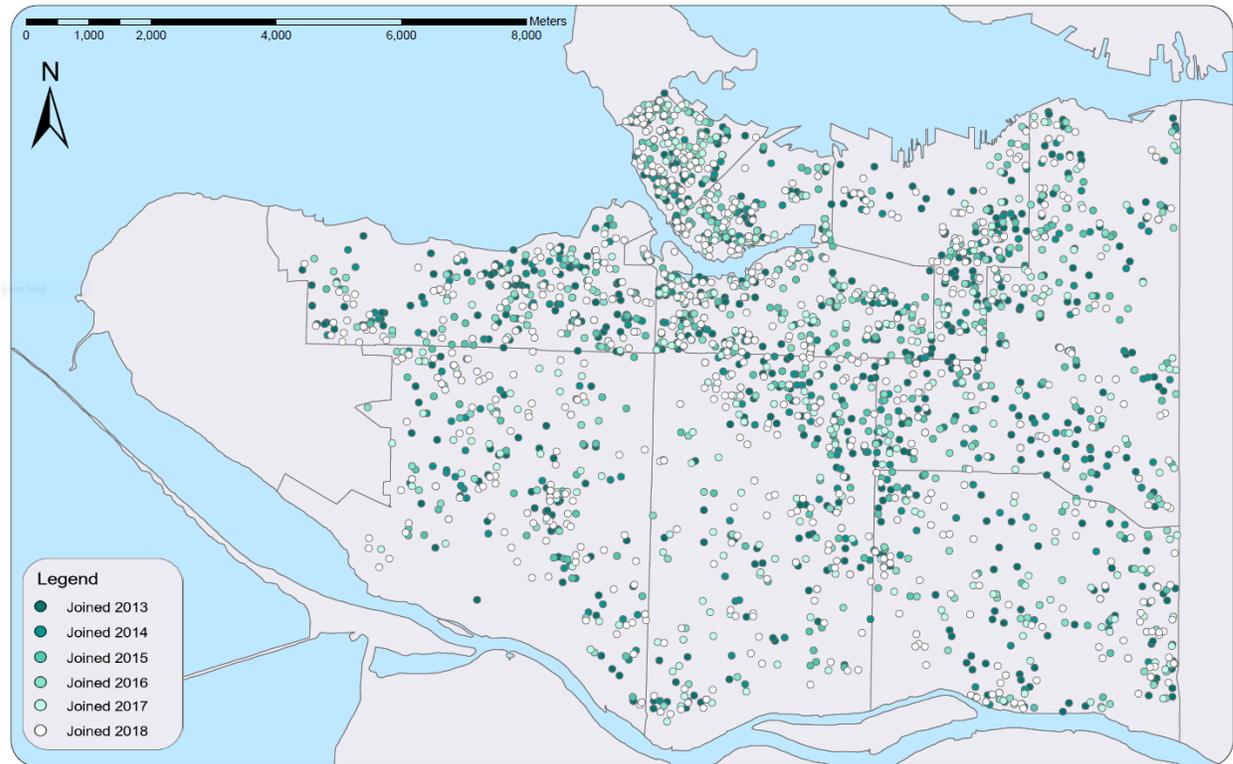
Section 4.1 provides a summary of the confidence levels of the reported mode shares by transportation zone which provides an assessment of the reliability of the data for tracking travel patterns.

Table 2-2: Completed Trip Diaries by Transportation Zone

Transportation Zone	Mustel	Target	Δ Target	% Difference
1 CBD – West End	262	265	-3	-1%
2 CBD – False Creek	209	259	-50	-19%
3 Vancouver Broadway	343	260	83	32%
4 Vancouver South	343	327	16	5%
5 Vancouver Kerrisdale	281	237	44	19%
6 Vancouver Kitsilano	300	257	43	17%
7 Vancouver SE	281	314	-33	-11%
8 Vancouver East	379	387	-8	-2%
9 Vancouver Port	202	194	8	4%
Total	2,600	2,500	100	4%

Figure 2-3 shows the distribution of participating panel members, categorized by new and returning panelists. There is an even geographic distribution of new and returning panelists through each of the transportation zones. Travel patterns, as further discussed in *Section 4*, vary significantly depending on which neighbourhood is being sampled.

Figure 2-3: Distribution of Participating Panel Members



2.3. Survey Weighting and Expansion

The final survey data for the random sample was expanded to the population of City of Vancouver residents aged 15 years and older.

A firm specializing in sampling, mapping, and census information, Environics Analytics (EA), provided the sample for survey recruitment and developed demographic projections of the current year based on 2016 Census Data. Population forecasts were derived from the 2016 Census base population data by projecting change over the period of 2016 to the current year using Canada Post's dwelling counts at the postal code level to adjust the population of the City's transportation zones.

The travel survey represents 0.50 percent random sample of the estimated 2018 population residing within the study area (2,600 respondents out of 550,784 City of Vancouver residents 15 years of age and over). As the data collected from this study is intended for transportation planning and forecasting purposes, this information must be expanded to the survey universe, that is, the total number of City of Vancouver residents of the same age group (15 years and older).

To ensure a statistically representative sample, the weighting and expansion factors developed for the person and trip data collected in the City of Vancouver Panel Survey in 2018 matched known demographic characteristics for the City of Vancouver's transportation zones as well as age within gender groups.

2.3.1. Person Expansion

For the person data collected, the random survey sample was expanded on the basis of age categories within gender as well as within the City of Vancouver’s geographic transportation zones. Note that although there are nine such zones in the City, due to limited sampling in geographic zone 2 (CBD – False Creek), this zone was combined with zone 1 (CBD West End) and treated as one to represent Downtown Vancouver in the expansion process⁵.

A total of 48 weighted expansion categories were required to cover the eight transportation zones, three age categories (15 to 34, 35 to 54, and 55 and over), and two genders. Additional expansion cells were included for respondents who identified themselves as transgender, other identity, or refused to identify their gender. These respondents were represented as their actual proportion within the corresponding zone and age category. As there were only 11 records where gender was not identified as male or female, the additional expansion process has no overall effect on gender distribution. *Table 2-3* shows the actual survey sample age and gender distribution prior to weighting. Compared to 2017, a higher proportion of 15 to 34-year-old residents participated, while a lower participation level is reported among those 55 years of age and over. *Table 2-4* shows the City’s 2018 population estimates based on 2016 Census Data.

Table 2-3: Panel Survey Age and Gender Distribution

Gender	15-17	18-24	25-34	35-44	45-54	55-64	65+	Total
Male	0.5%	1.3%	4.1%	5.5%	8.9%	8.3%	15.4%	43.9%
Female	1.1%	1.6%	3.9%	6.2%	11.0%	11.1%	20.7%	55.7%
TransGender	-	-	-	-	<1%	-	<1%	<1%
Other	<1%	-	-	-	<1%	-	-	<1%
Refused	-	-	<1%	-	<1%	<1%	<1%	<1%
Total	1.6%	2.9%	8.0%	11.7%	20.0%	20.1%	36.0%	100.0%

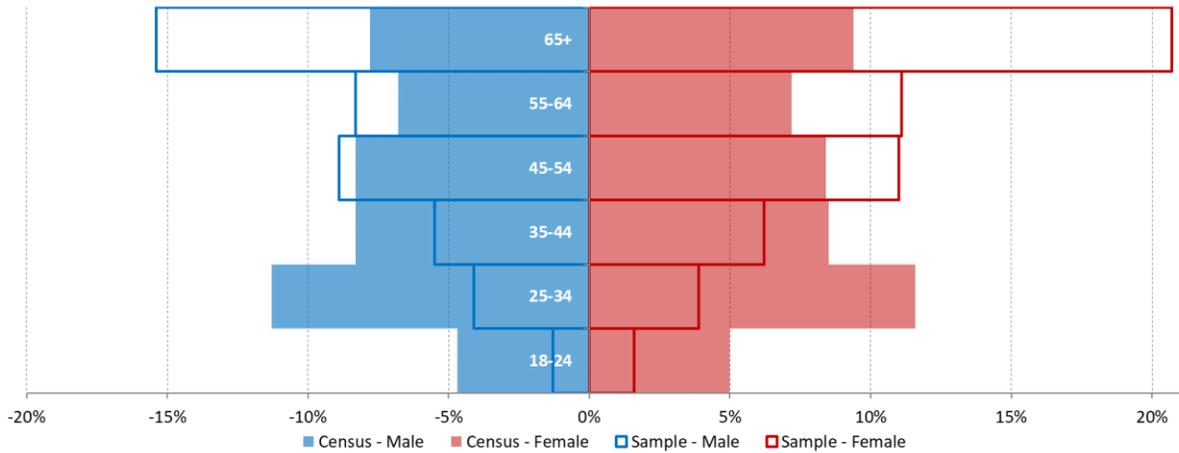
Table 2-4: 2018 Demographic Projections (based on 2016 Census)

Gender	15-17	18-24	25-34	35-44	45-54	55-64	65+	Total
Male	1.5%	4.7%	11.3%	8.3%	8.3%	6.8%	7.8%	48.6%
Female	1.5%	5.0%	11.6%	8.5%	8.4%	7.2%	9.4%	51.4%
Total	2.9%	9.7%	22.9%	16.7%	16.7%	14.0%	17.1%	100.0%

Figure 2-4 illustrates the age and gender distribution of the survey sample versus the study area universe. Although efforts to increase participation among 15 to 35-year-olds in 2018 has yielded positive results, under-sampling of this cohort and over-sampling of the 55+ age group continues. The 15 to 34-year age group is difficult to reach in any market research effort. This age group typically does not have a landline and cell phone lists do not contain the home location of cell owners, only the location where the cell phone was purchased. As such, it is expensive and difficult to target geographic transportation zones based on cell phone samples for younger age groups. This does present some challenges for tracking trends in travel behaviour, especially considering that this age group is most mobile, i.e., no children and not married.

⁵ It was also decided to show the results of CBD-West End and False Creek in the report’s analysis sections both individually and merged (Sections 3 to 5, wherever relevant) to account for the low sampling in CBD-False Creek and to be consistent with previous reporting.

Figure 2-4: Age and Gender Distribution: Survey Sample versus Study Area



The expanded person weight above was then applied to the trip data, but also included a weekday equalizer weight to balance the trips over the week (Monday to Friday). In the end, for the total sample size of 2,600 (for the random sample only) to be reflective of the entire City of Vancouver population over 15 years of age for this survey (550,784), the average expansion factor applied to the dataset was 211.8 (that is, each person's record represents the travel characteristics of over 200 Vancouver residents). The expanded population also includes people who reported 'rather not say' for the age question.

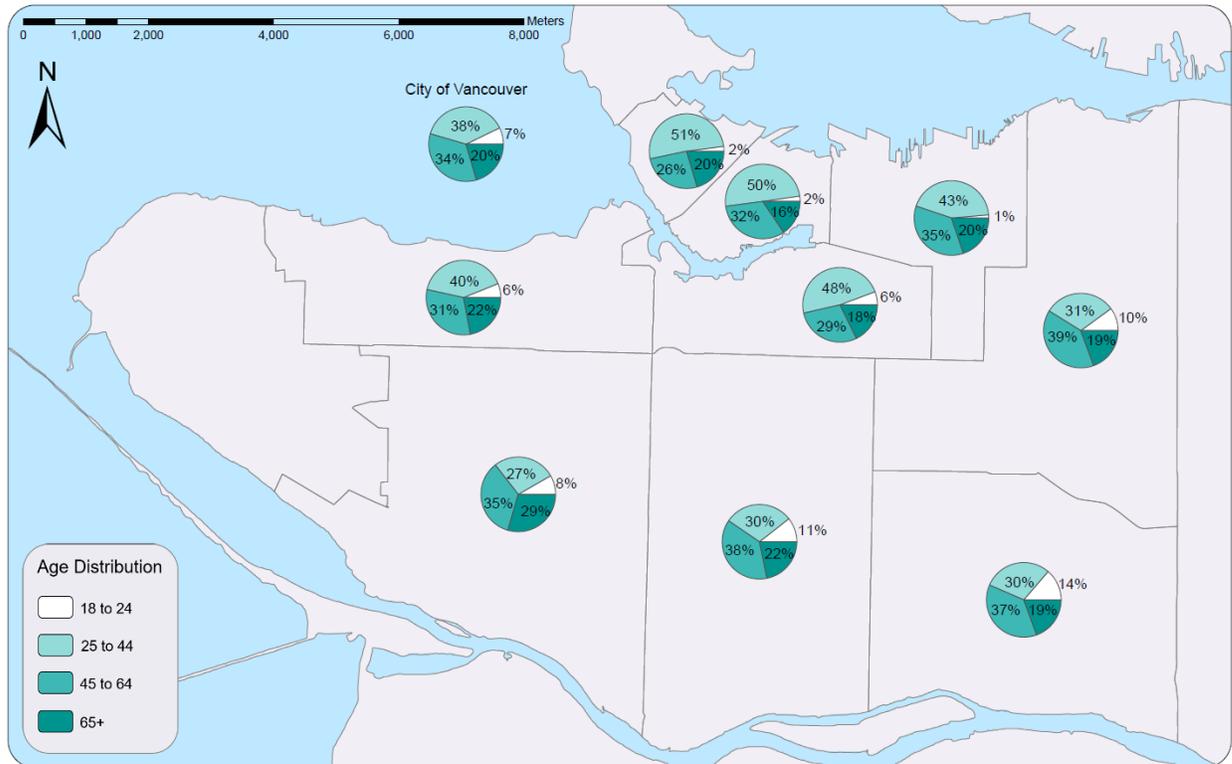
3. Panel Characteristics

Key characteristics of people within the transportation panel are presented in the following thematic maps which show the geographic distribution of these attributes. Only characteristics and trends of people aged 18+ are shown in this section⁶.

3.1. Age Distribution

The age distribution for each zone is presented in *Figure 3-1*. Note that the breakdown shown represents the expansion of the sample to the census control population by age group. The size of the pie chart represents the population size for the respective transportation zone. The CBD-West End, CBD-False Creek, Kitsilano, Port, and Broadway zones have a higher proportion of residents aged 44 and under. Overall, the age breakdowns by sub-area are very similar to the 2017 Panel Survey. The biggest differences are observed in the 18-24 and 25-44 age categories. This is primarily attributed to the low sampling of those two age groups.

Figure 3-1: Age Distribution: Weighted Population

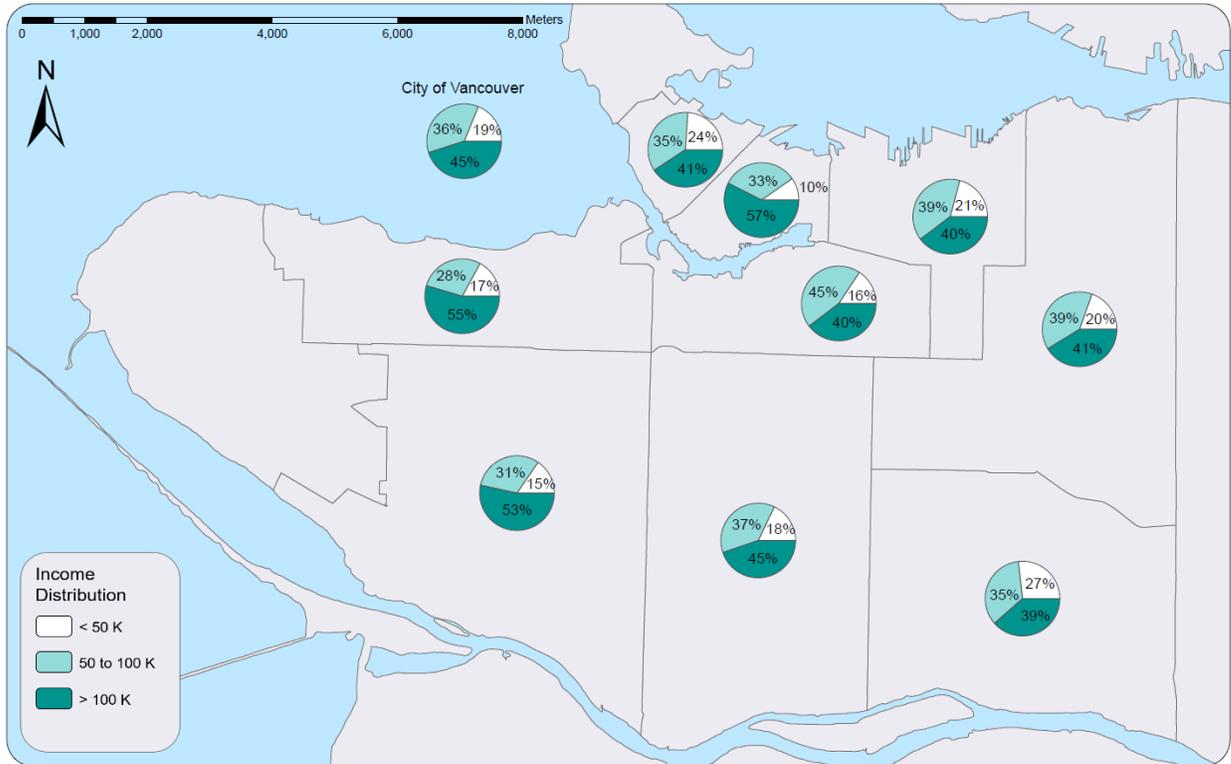


⁶ TransLink’s trip diary surveyed people aged five and above. The trip diary, however, only provided the age attribute by cohort. People aged 15, 16, and 17 were lumped in with the 13-17 cohort. As such, while the data sampling and expansion details presented in this section include the 15-17 age cohort, it was decided to use the population 18+ as a basis for the analyses presented in this section as well as Sections 4 and 5.

3.2. Income Distribution

Household income can serve as a proxy for the transportation choices available to a panel member. Panel members' reported annual household income distribution is presented in *Figure 3-2*. Again, the size of the pie chart represents the population size for the respective transportation zone. As illustrated, proportions of different levels of income are consistent amongst the nine transportation zones. Compared to the 2017 panel survey, there are only minor differences in income distribution.

Figure 3-2: Income Distribution: Weighted Population

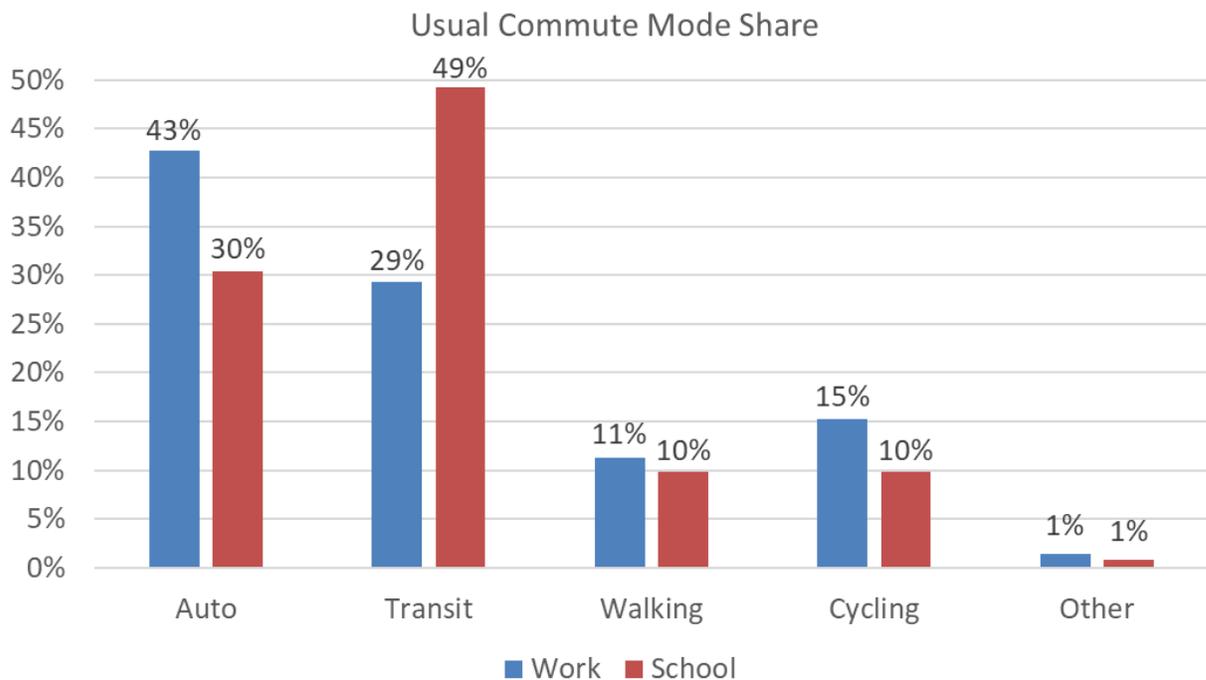


3.3. Usual Commute Mode

As discussed in [Section 2.3](#) of this report, demographic projections for 2018 were based on 2016 census data. The census journey to work is one of the main data sources upon which to compare travel by various modes on a consistent basis. Since this is only available every five years, a census-like question is included in the Panel Survey which asks respondents to indicate their usual mode of travel to work.

In 2018, 43% of respondents who work indicated that their usual mode of transport to commute to work is by car, either as a driver or passenger. In comparison to the work commute, higher proportions of students reported transit as their usual mode to school. Detailed mode splits for usual work commute and school commute are shown in [Figure 3-3](#) followed by a discussion of each mode in the rest of [Section 3](#).

Figure 3-3: Usual Mode of Travel to Commute



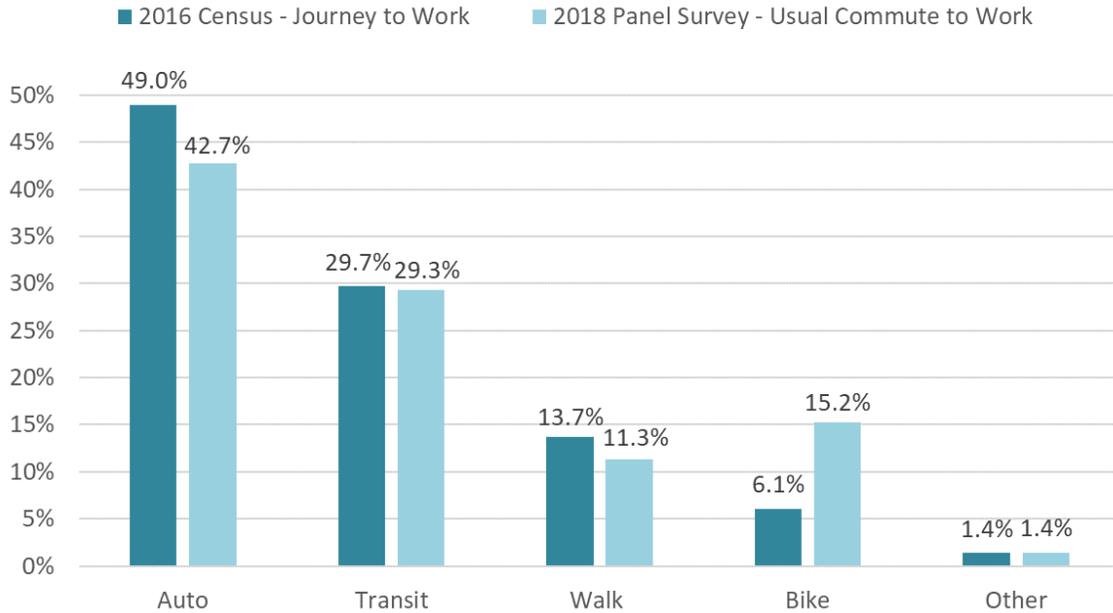
A comparison was also drawn between the 2018 panel survey and the Journey to Work survey conducted in 2016, as shown in [Figure 3-4](#), to determine whether the two surveys showed similar results regarding people’s usual mode of travel to work. Compared to the responses from the Journey to Work survey, the panel survey reported lower proportions for all mode shares but bike trips to work. Dissimilarities in the mode share proportions may be explained by the differences in the survey methodologies.

The Journey to Work survey is a household-based survey and is generally filled by one individual who completes the survey questionnaire for the entire household. The Vancouver Panel Survey collects travel information from individual participants who are randomly selected. Differences in the data collection method could be a reason as to why the mode share proportions are similar, but not exactly the same. Furthermore, the Journey to Work is completed as part of the Census Long Form which is assigned randomly to 25% of the total population. The form is required by law to be completed.

Conversely, the Vancouver Panel Survey targets a 0.5% sample size and while the sampling is random, participation and completion is voluntary. This will introduce a level of selection bias in the sample.

The questions in the survey, although similar, are not the same. Different interpretations of the question inquiring about the participant's usual mode of travel to work could have also led to the differing results in mode shares.

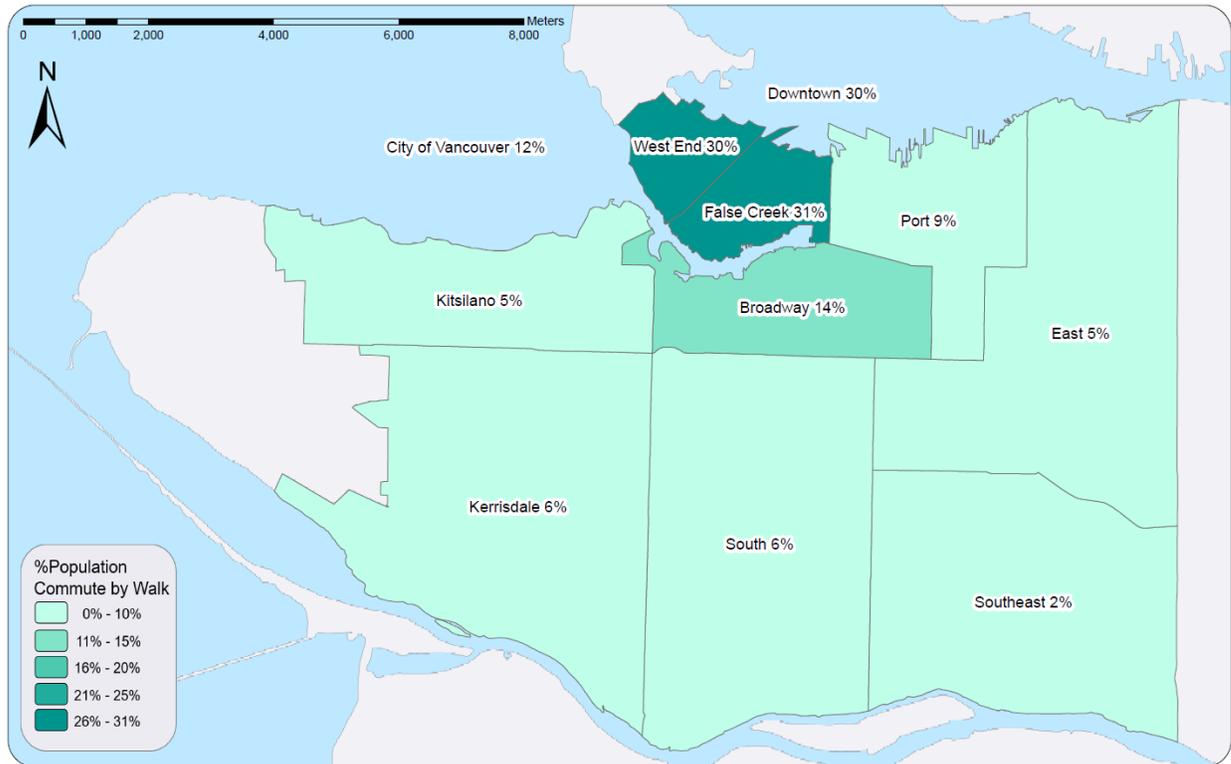
Figure 3-4: Comparison of 2016 Census Journey to Work with 2018 Panel Survey



3.4. Walking

Based on trip diary responses, there were approximately 547,000 walk trips made in 2018 which equates to a 28.5% walking mode share. Additionally, all survey participants were asked which transportation mode they identify as their usual mode of travel to work and to school. As shown in *Figure 3-5*, 12% of all respondents identified walking as their usual mode. This is lower than the actual recorded walking trips. Looking at the transportation zones, 30% of the population in downtown commutes on foot, which is a reflection of the high walkability score in the downtown core. It is also a function of land use density since there are a lot of people located closely to jobs making walking an attractive mode of commuting. Other outlying areas of Vancouver are not as dense and do not display high rates of walking. As part of the survey, participants were also asked how long of a walk would be considered reasonable for travel purposes. Based on the survey responses, the majority of participants indicated that commuting by foot for up to 18 minutes is deemed reasonable.

Figure 3-5: People who Identified Walking as Their Usual Mode of Travel to Work/School



3.5. Cycling

As part of the Transportation 2040 plan, the City has taken steps to improve and expand its cycling network. Current projects include building more bike routes within False Creek and upgrading the bike facility on 10th Avenue⁷.

In 2016, the cycling-related questions in the survey instrument were refined to provide a better understanding of cycling preferences. The main refinement was to ask two separate questions related to the propensity to bike in fair weather as opposed to cold/rainy weather. As in 2015, the survey asked whether respondents would like to ride a bike more often and the environments in which they are comfortable riding.

Figure 3-6 maps the distribution of the respondents who indicated that they cycled two to four times per week in fair weather. The highest concentration is within the Port transportation zone where 43% of respondents use a bicycle two or more times per week in fair weather. Downtown and Southeast zones exhibited the lowest frequency of bicycle use.

Figure 3-6: Respondents who Generally use a Bicycle Two or More Times per Week in Fair Weather

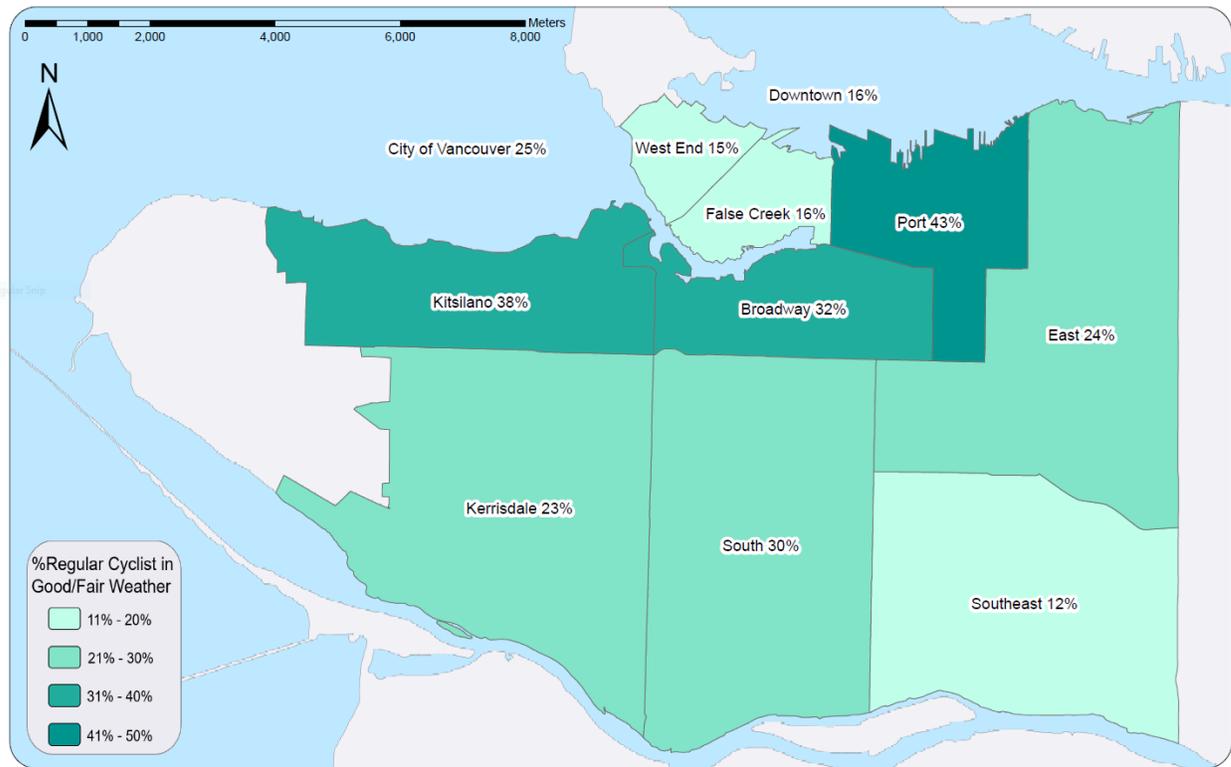


Table 3-1 shows a breakdown of cycling frequency in fair or rainy/cold weather conditions. As expected, panel members are much more likely to cycle in fair weather (approximately twice as likely). However, it is worthwhile to note that a core group of approximately 30,200 cyclists indicated that they would bike at least five times a week in inclement weather.

⁷ Details of City of Vancouver’s 5-year cycling network additions and upgrades plan for 2018 to 2022 are described on the City’s website: <https://vancouver.ca/files/cov/5-year-cycling-network-map-additions-and-upgrades-2018-to-2022.pdf>.

Table 3-1: Cycling Frequency in Fair Versus Rainy/Cold Weather (Weighted Population)

	Frequency			
	At least 5 times per week	2 to 4 times per week	Once per week to once per month	Less than once per month
Fair Weather	64,500	67,000	74,500	86,000
Rainy / Cold Weather	30,200	39,200	40,700	46,300
Ratio (Fair / Poor)	2.1	1.7	1.8	1.9

Respondents were also asked if they would like to travel by bicycle more often than they do currently. *Figure 3-7* shows a high level of interest in biking more often with over half of City residents showing a desire to cycle more. This is especially true for the CBD – West End, Broadway, and Port zones.

Figure 3-7: Respondents who Would Like to Travel by Bicycle More Often

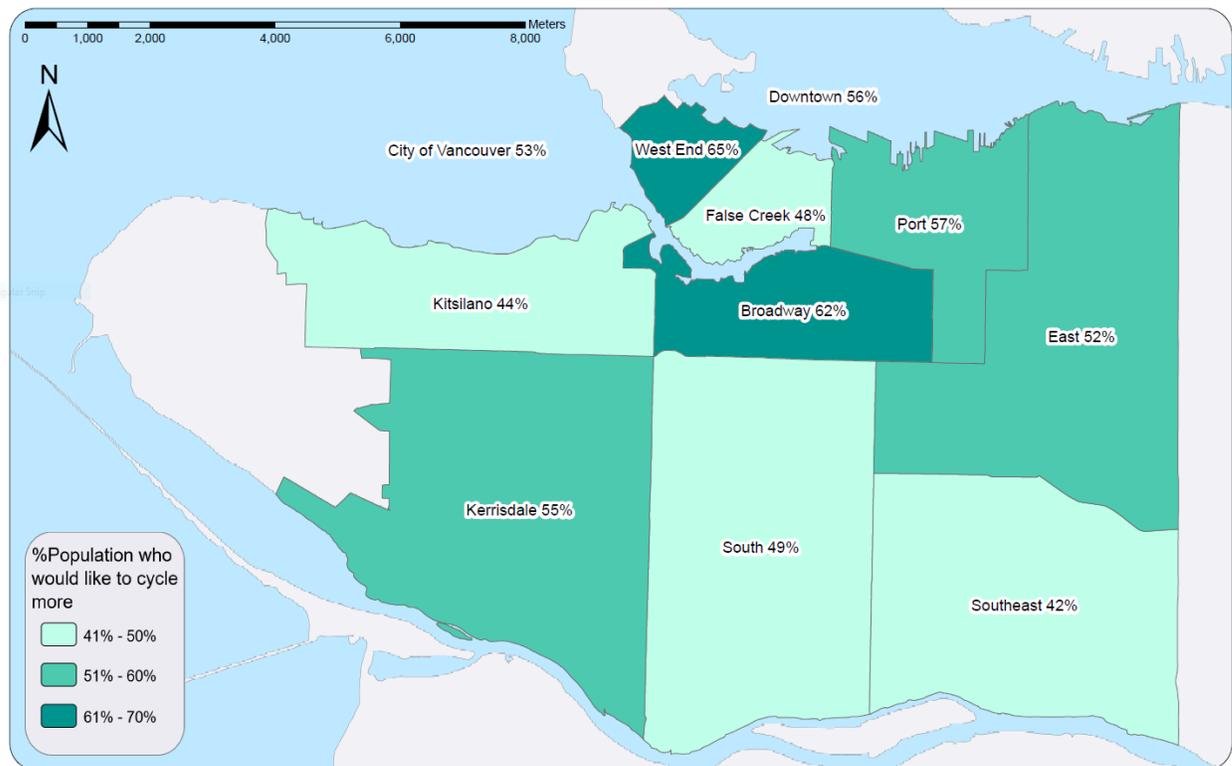


Figure 3-9 shows panel responses aged 18+ (excluding those who do not ride a bicycle at all) regarding the types of bicycle facilities illustrated in Figure 3-8 that participants would feel comfortable using. The residents were allowed to pick more than one option for this question. Less than 1% of respondents were not comfortable cycling in any of the conditions. As expected, there is a strong preference for cycling away from traffic. Results from previous surveys are very consistent.

Figure 3-8: Cycling Facilities Illustration



Bicycle paths separated from motor vehicles



Local neighbourhood streets with little traffic and low speeds



Major streets, provided they have bike lanes separated from traffic with a physical barrier



Major streets, provided they have painted bike lanes



Almost any street in the city regardless of traffic conditions

Figure 3-9: Bicycle Facility Preferences

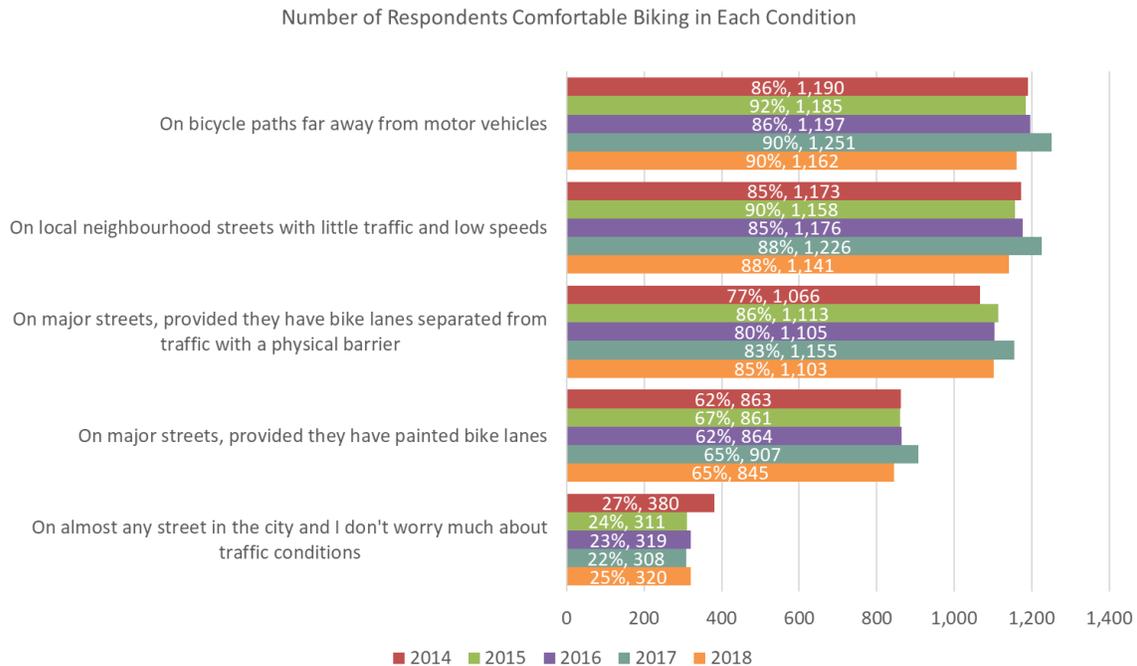
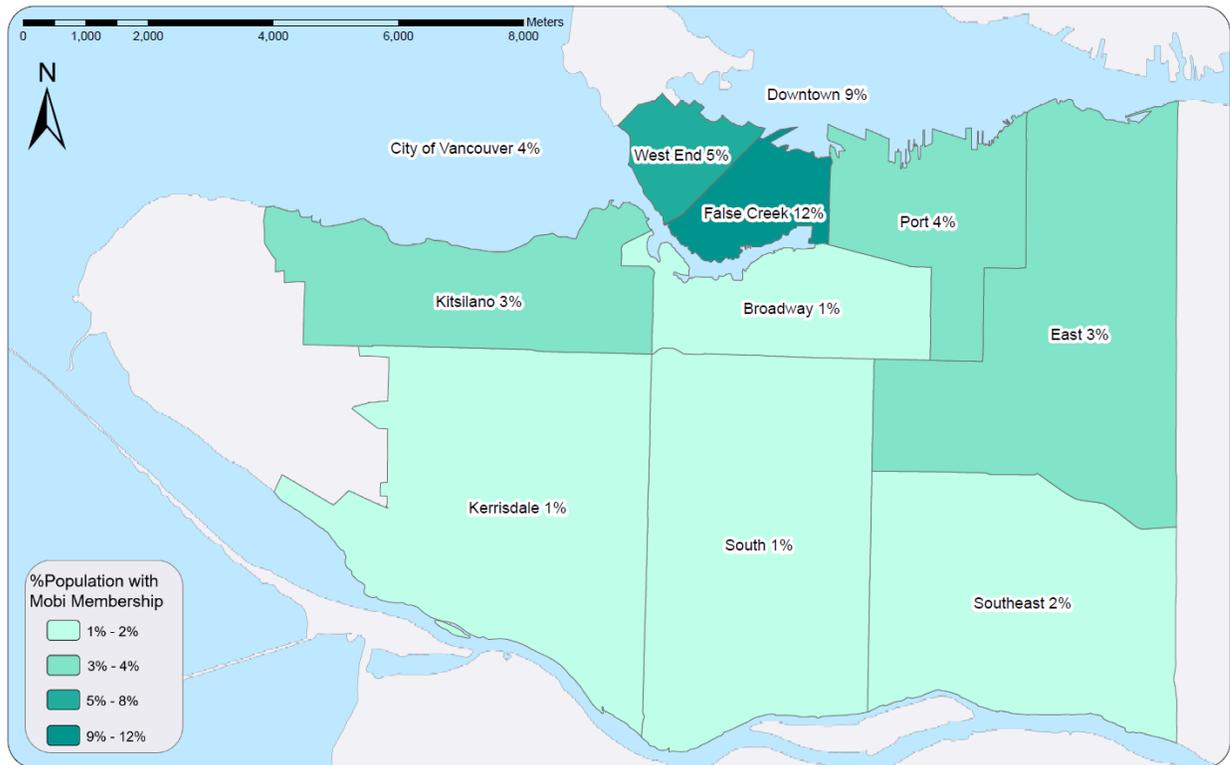


Figure 3-10 shows a breakdown of residents aged 18+ with Mobi membership. Phase 1 of the Mobi bike share system included coverage in downtown Vancouver and as far east as Main St, as far south as 16th Ave and as far west as Arbutus St. Overall, City of Vancouver membership is approximately 4%, with all transportation zones outside downtown reporting similar to or less than the City average. Mobi membership is reported the highest for transportation zones that are within the Mobi coverage area. These local residents with long term memberships are responsible for the vast majority of Mobi trips.

Trip diary responses received for this year's panel survey shows that there were approximately 139,300 bike trips, representing a 7.3% share of total trips. Based on a summary of Mobi trip information provided by the City, the share of bike trips using the Mobi bike share program was estimated to be 1.10% in 2018, an increase from 0.89% in 2017 and 0.65% in 2016.

Figure 3-10: Percentage of Population with Bike Share Membership



3.6. Transit Usage

The largest transportation segment after auto drivers is made up of public transit users. *Figure 3-11* and *Figure 3-12* shows the distribution of people who identified transit as their usual mode of travel to work and school, respectively. While TransLink and the Province have responsibility for transit provision, the City can also take an active role in supporting transit usage by improving walking and cycling connections to bus stops and SkyTrain/SeaBus stations, as well as amenities at these locations including shelters, information displays, and good lighting. The Kitsilano transportation zone has the highest self reported level of transit use (41%) for people travelling to work. In most transportation zones, over 50% of students reported transit as their usual mode of travel.

Figure 3-11: People who Identified Transit as Their Usual Mode of Travel to Work

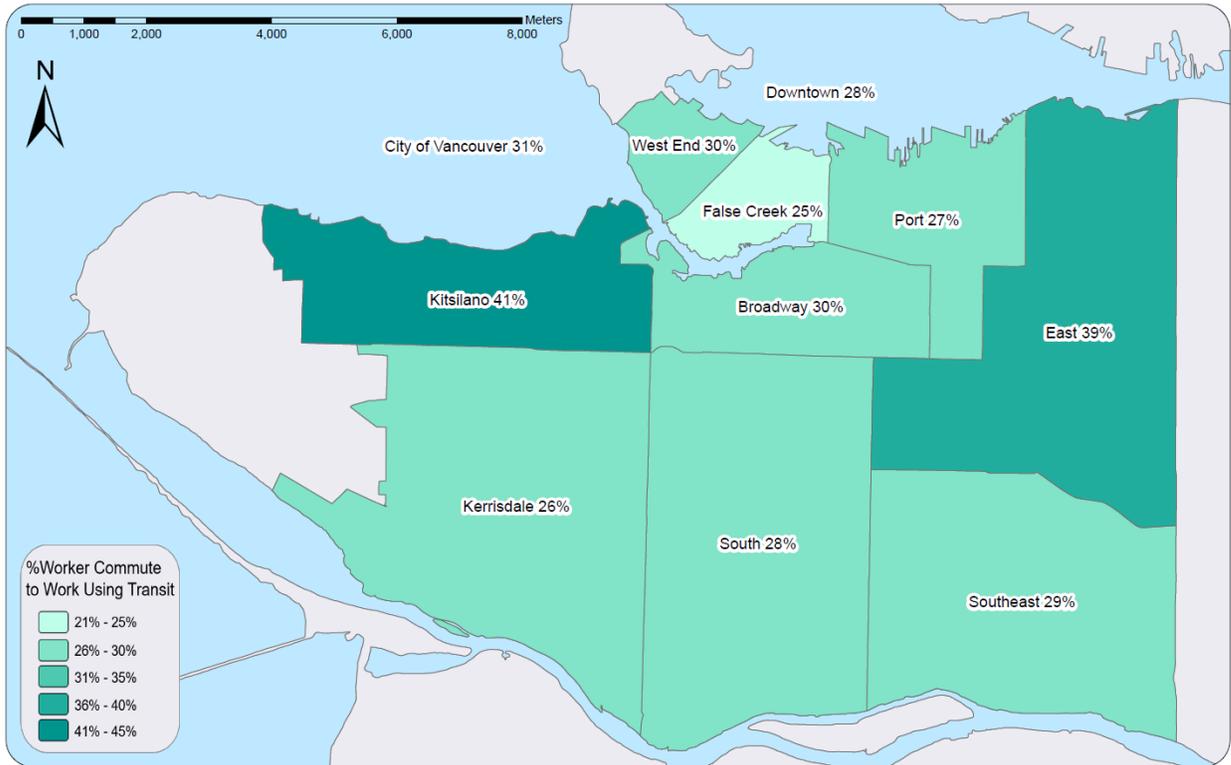


Figure 3-12: People who Identified Transit as Their Usual Mode of Travel to School

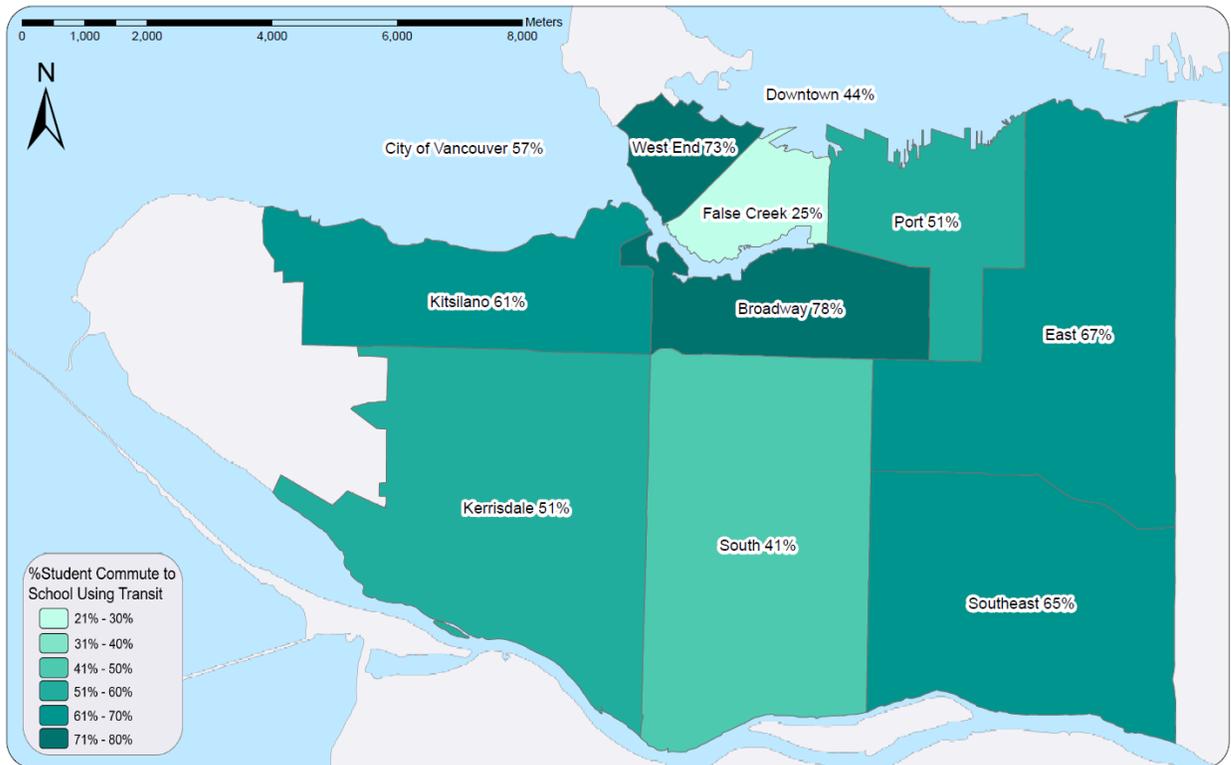
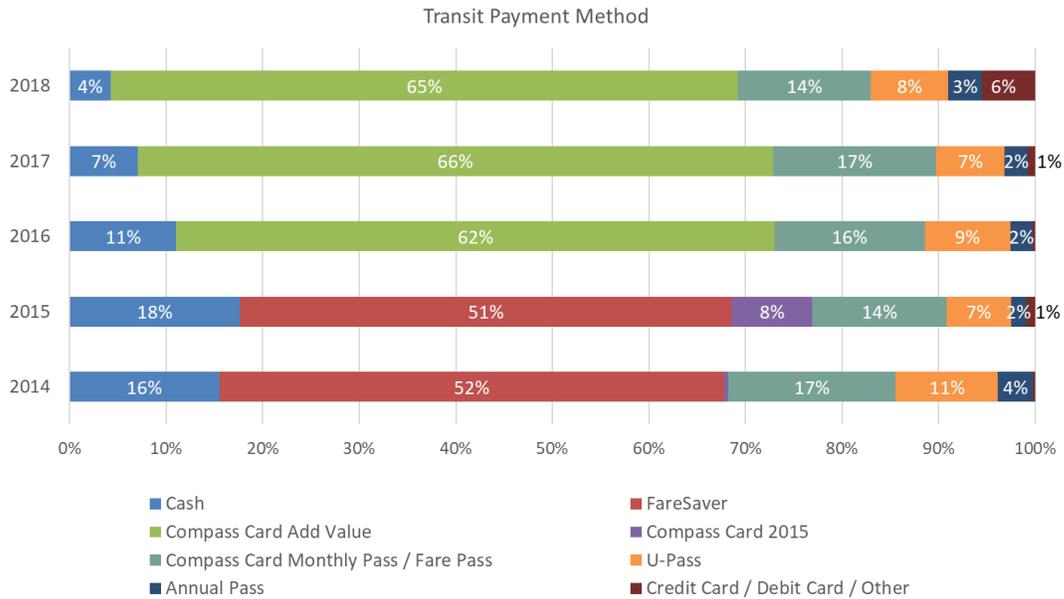


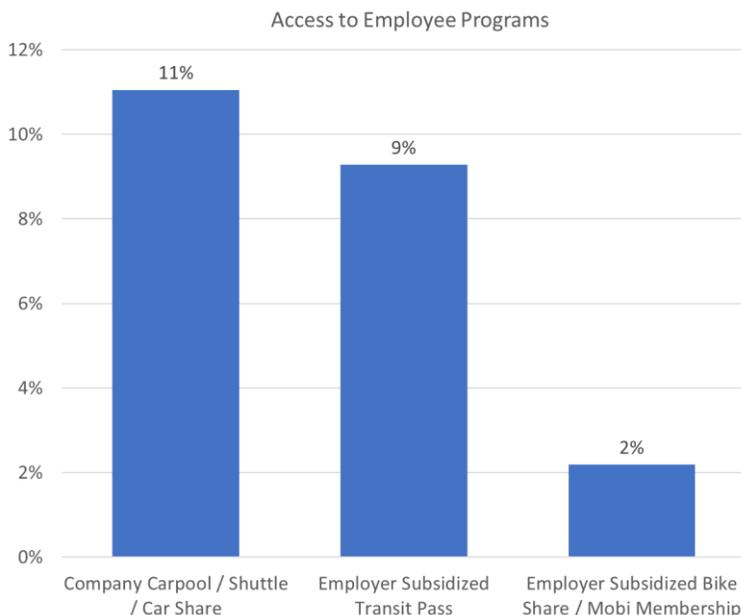
Figure 3-14: Transit Payment Methods (2014 to 2018)



3.7. Business Trips During Work

Of those who work (full-time, part-time, or self employed), 48% reported that they make business-related trips during work hours. To better understand the types of transportation subsidies offered by employers to City residents, a question was asked to participants regarding access to employee travel programs that support or provide company car pooling/ shuttle/ car share, subsidized transit passes, and/or subsidized bike share. As shown in *Figure 3-15*, 11% of respondents who make business trips during work hours had access to company shuttles, carpools or car share. Similarly, 9% of the respondents had access to employer subsidized transit pass, but only 2% have access to a subsidized bike share membership.

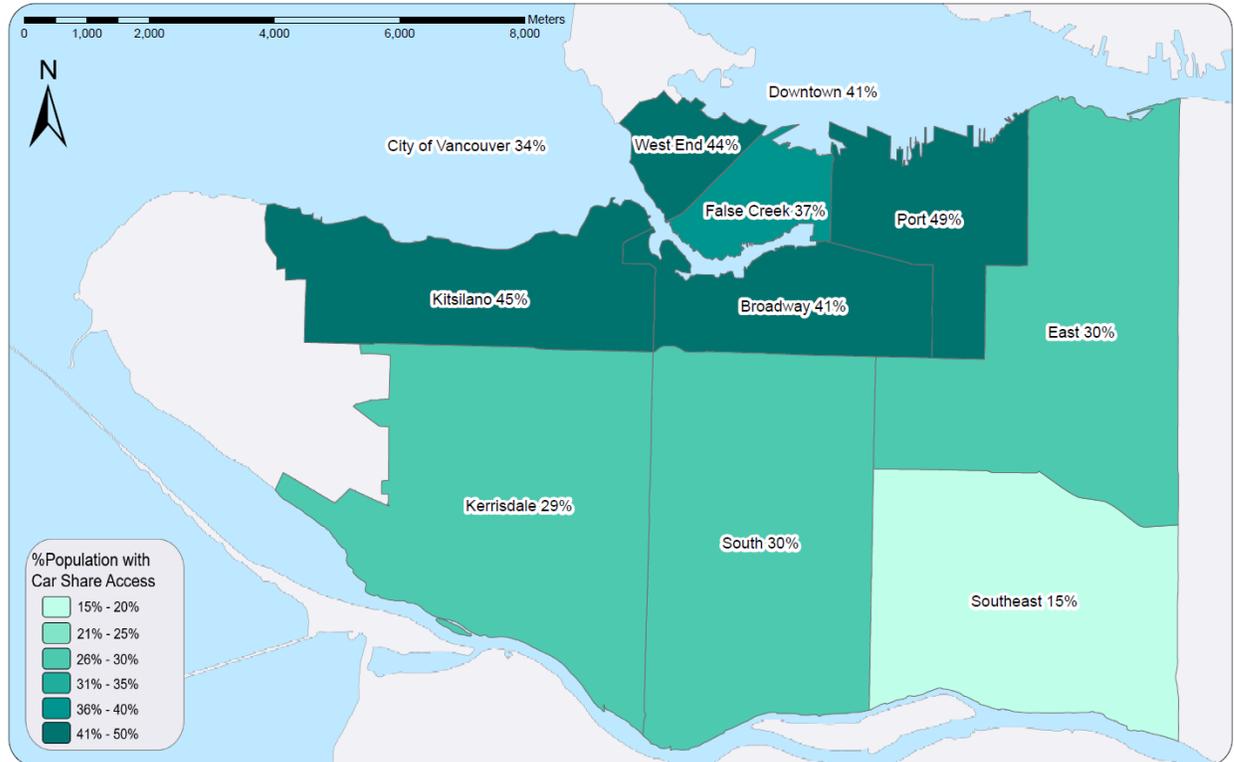
Figure 3-15: Access to Employee Programs



3.8. Car Share Access

In 2018, 0.6% of trips involved car share (0.6% driver, 0% passenger). This data should be used with caution since it represents a small fraction of total trips reported by panelists. Car sharing programs have continued to gain patronage in recent years. The distribution of those with regular access to a car-sharing program is shown in *Figure 3-16*. Among population aged 18+, subscription to car sharing programs is up to 34% from 31% in 2017. Port, CBD – West End, and CBD – False Creek transportation zones have experienced the greatest percentage increases in car share patronage in the last year.

Figure 3-16: Access to Car Sharing Program



3.9. Private Vehicle Access

In 2018, approximately 906,200 trips were made using a private vehicle, 811,600 of which were drivers and 94,600 were passengers. This equates to a roughly 47% auto mode share (42% drivers, 5% passengers).

Figure 3-17 and *Figure 3-18* both confirm that people in higher income households have more access to private vehicles. Compared to 2017, a slightly higher proportion of lower income households have access to a private vehicle. Additionally, there was a higher proportion of auto trips among lower income households (40% compared to 36% in 2017).

Figure 3-19 clearly shows that access to a private vehicle has an impact on mode choice with 56% of people with access to a private vehicle travelling by auto and only 9% for people without private vehicle access. This is consistent with the findings from the 2017 Panel Survey.

Those who have invested significant upfront costs to lease or own a vehicle are more likely to drive, since the incremental travel costs are relatively low. The geographic distribution of those with access to a private vehicle is shown in *Figure 3-20*. City-wide, the proportion of participants with access to a private vehicle has held steady from 2016. Although vehicle ownership is shown to be lowest in the CBD – West End, more than 90% of residents have access to private cars in the Kerrisdale, CBD – False Creek, Vancouver South, and Vancouver Southeast areas.

Figure 3-17: Access to Private Vehicle Proportion by Household Income

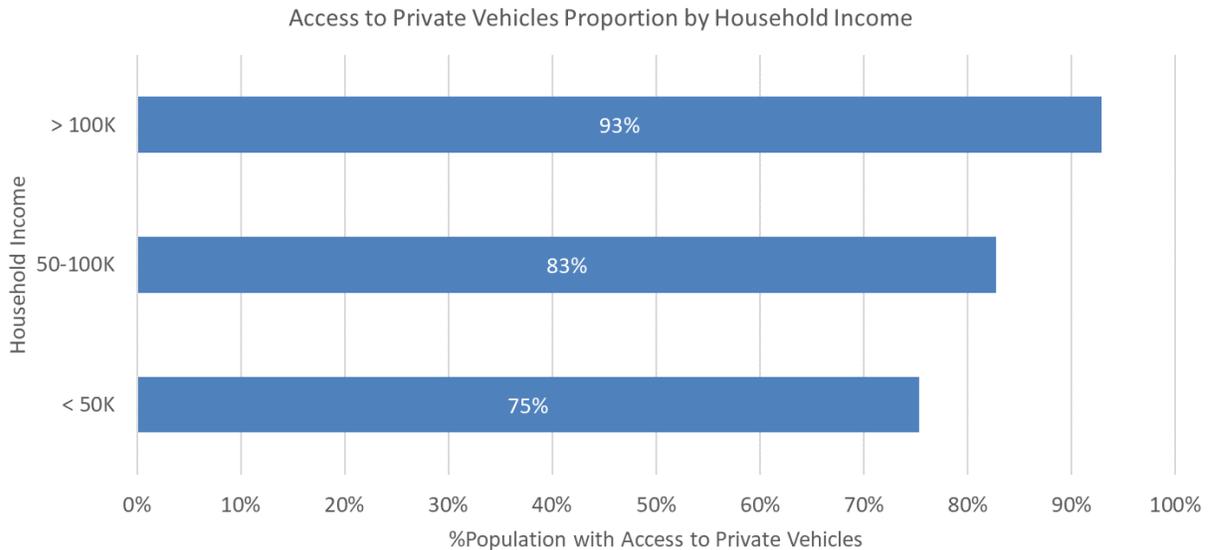


Figure 3-18: Mode Share Distribution by Household Income

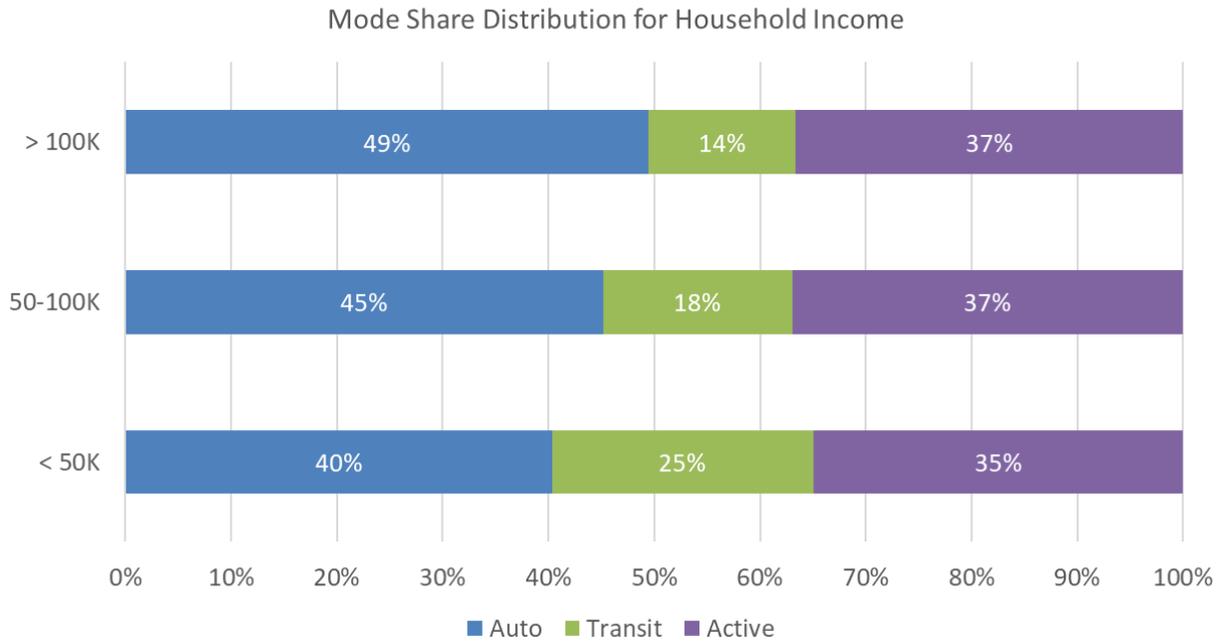


Figure 3-19: Vehicle Accessibility Distribution by Mode Choice

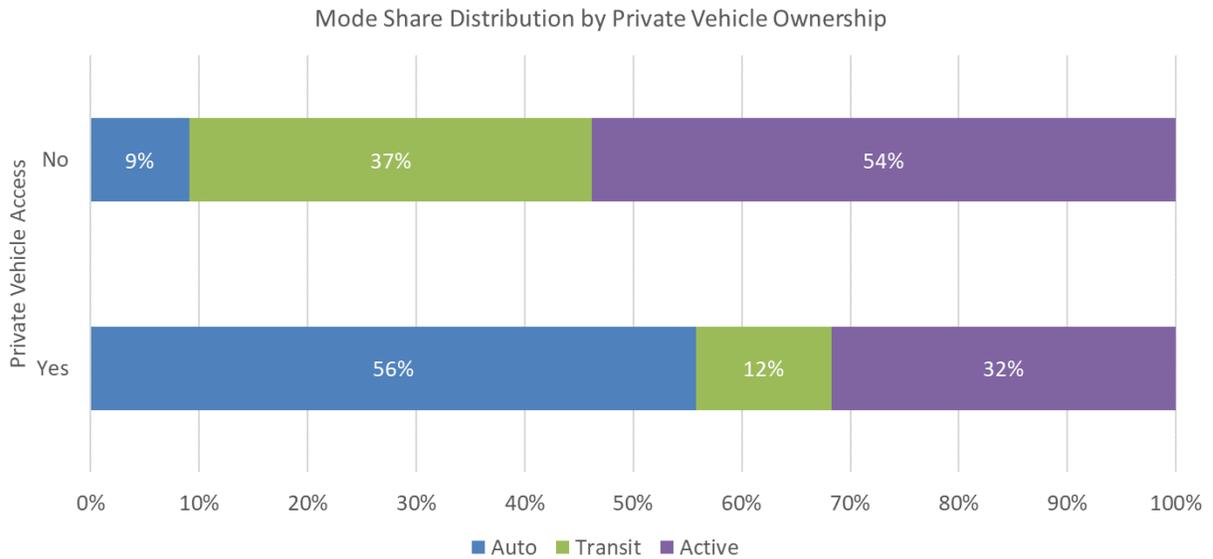
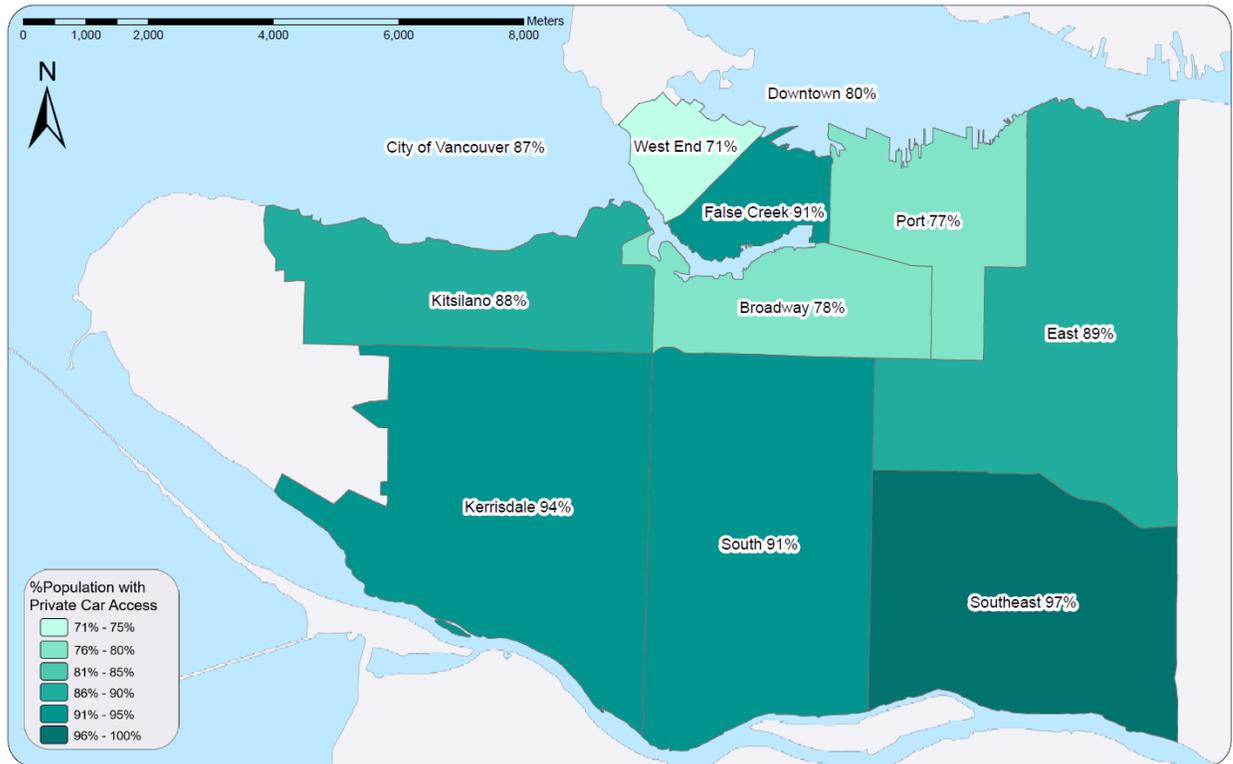


Figure 3-20: Private Vehicle Access



4. Trip Characteristics

One major aspect of the panel survey is to track trends in transportation choices, especially as they relate to specific City initiatives and infrastructure improvements. This analysis section is focused on comparing the results of the 2018 Panel Survey with previous panel survey results. A comparison of trip characteristics amongst returning panelists is included in *Section 5* of this report.

Another objective of the panel survey is to add to the emerging understanding of the relationship between transportation choices and health.

4.1. Mode Share

The City is particularly interested in tracking how walk/bike/transit active mode share grows over time. *Figure 4-1* compares the overall mode shares of the 2013-2018 Panel Surveys. In this initial snapshot, it is evident that the auto mode share has reached an all-time low, while the walking mode share has increased significantly compared to previous panel survey results. Both transit and cycling mode shares have remained relatively consistent in comparison to the previous year despite increases in transit fares.

Figure 4-1: Total Trips by Mode and Mode Share (2013-2018 Panel Surveys)

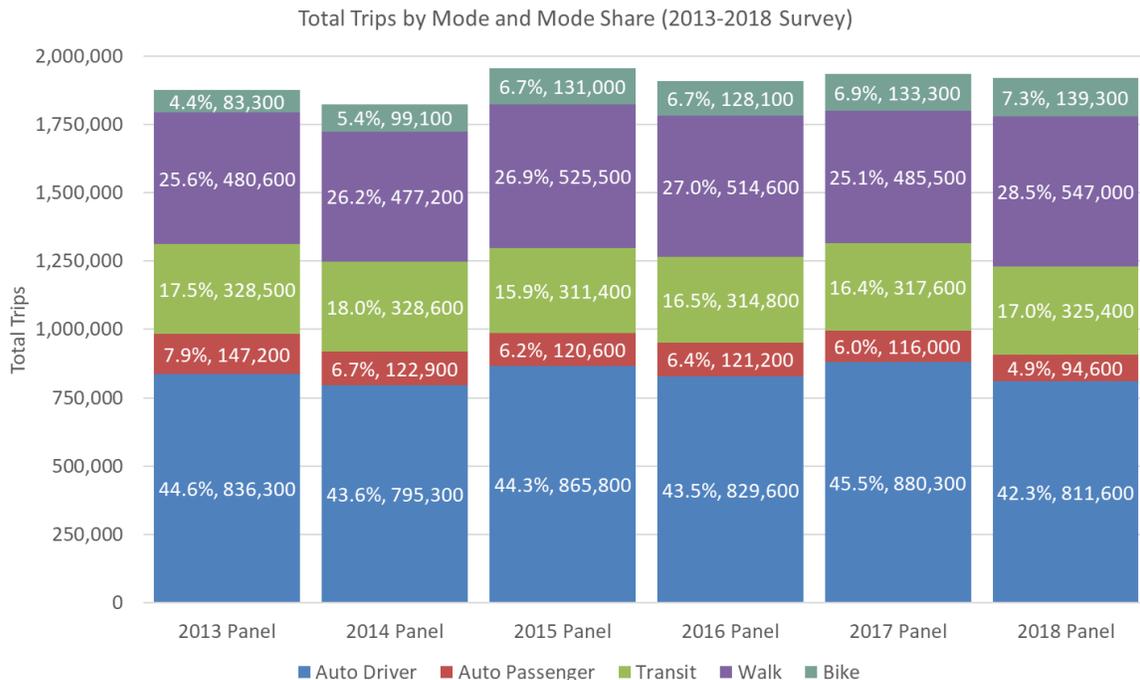


Figure 4-2 compares the Panel Survey mode share for reported trips, broken down by residents' home transportation zone, for the 2017 and 2018 Panel Surveys. The reported trip mode share distribution by zone in 2018 is fairly consistent with the patterns observed in 2017. Highest walk share is in zones of highest density. Outlying areas of the City (Vancouver Kerrisdale and Vancouver Southeast) show the highest proportion of auto usage. It will be possible to track trends in mode share at the zone level with future survey data, however, some caution should be exercised as disaggregating the data to this level can produce results with wide confidence ranges, especially in cases where the mode shifts are

within +/- 2%. It is generally more appropriate to compare results between panel surveys at more aggregate levels, for example, by using walk/bike/transit mode share or merged subareas.

Figure 4-2: Trip Mode Share by Residents' Home Transportation Zone

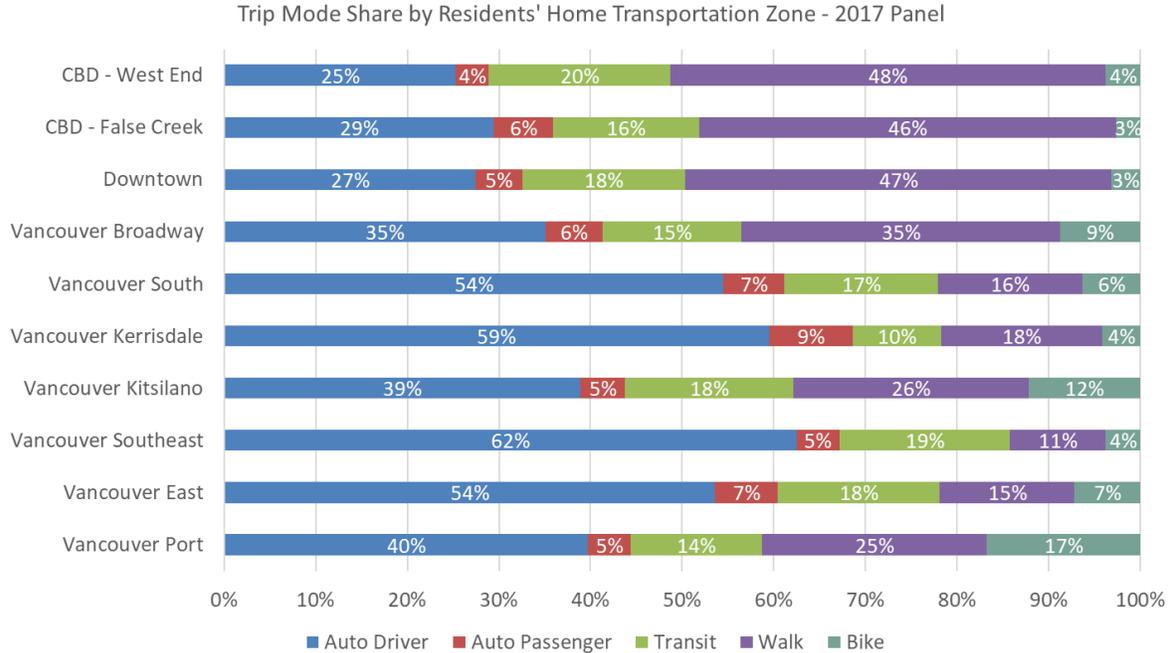
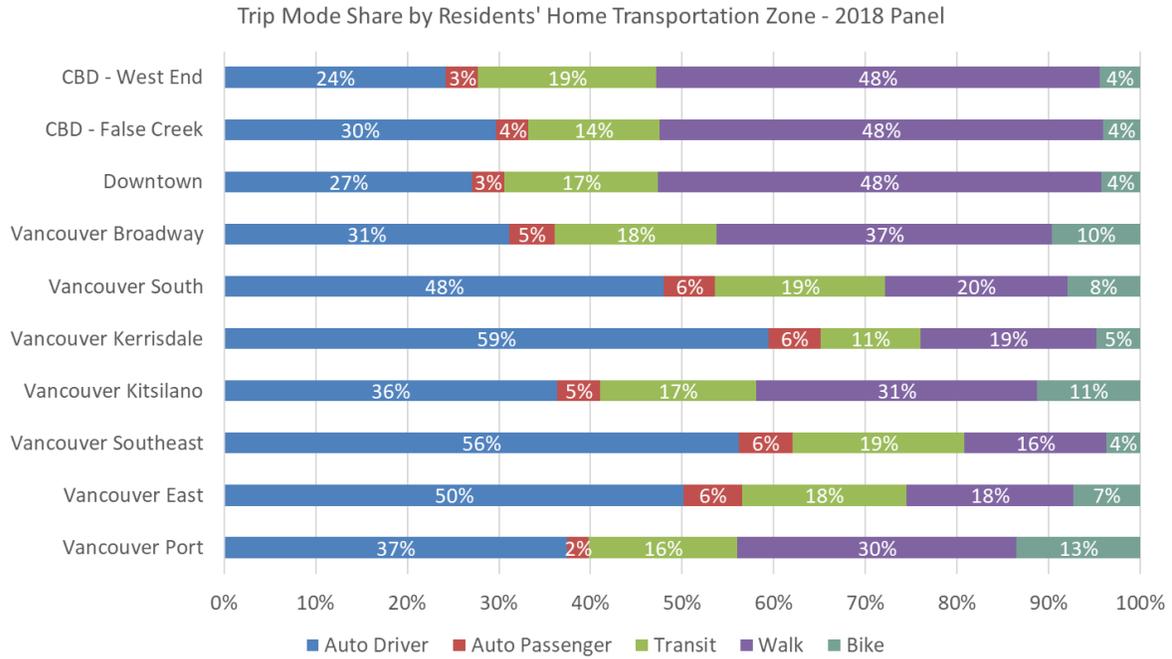


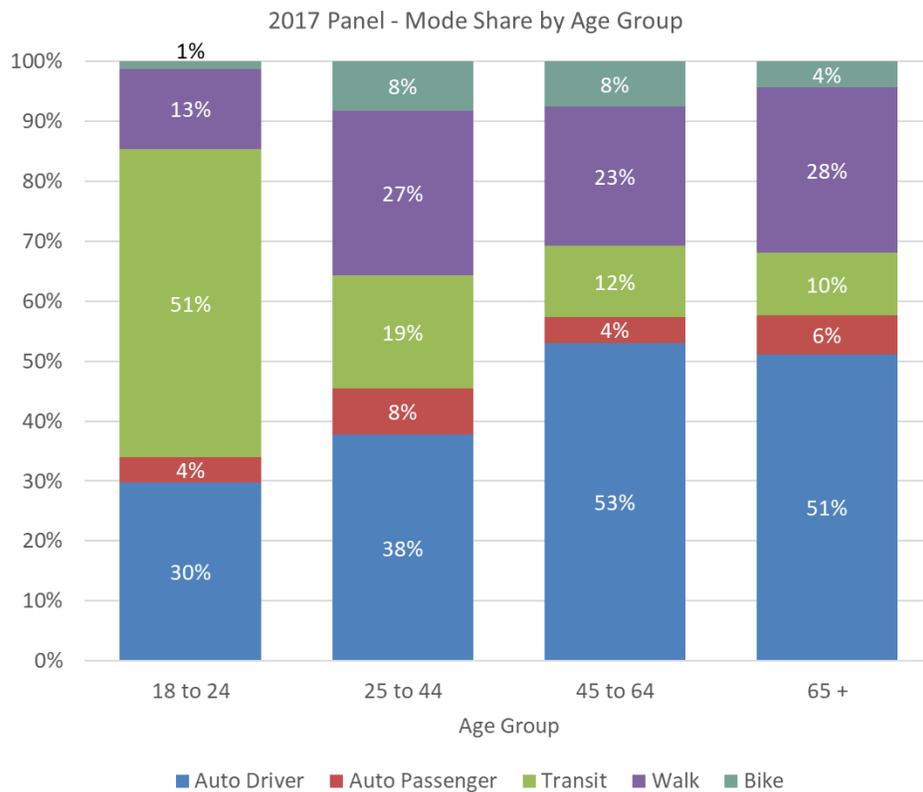
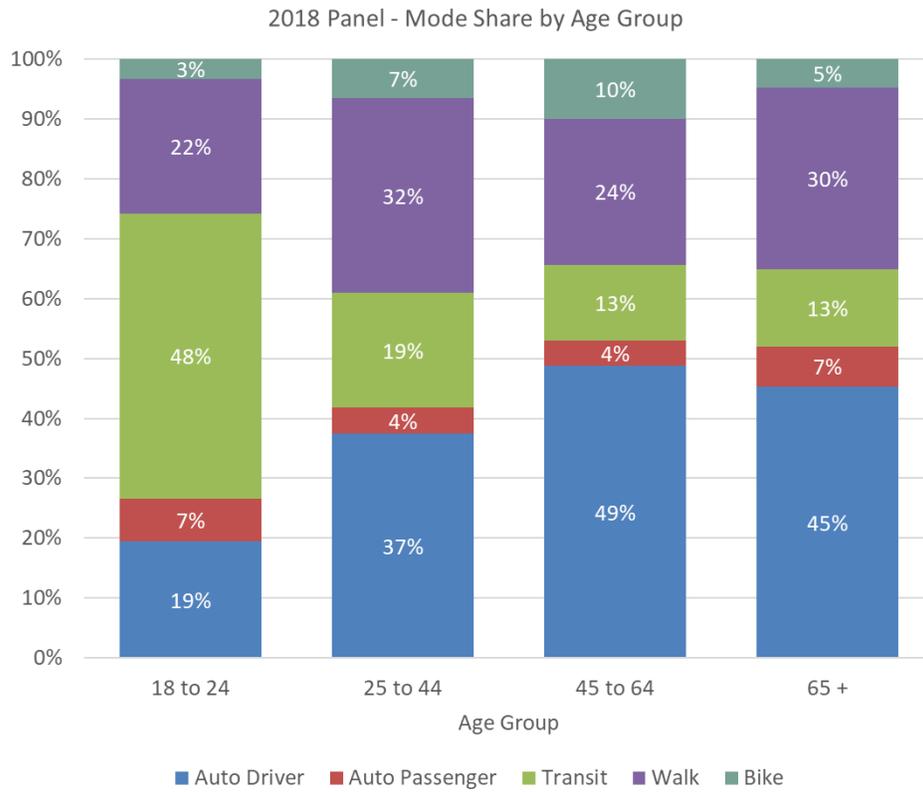
Table 4-1 compares the 2017 and 2018 Panel Survey walk/bike/transit mode share for reported trips (transit, walking, and cycling) by transportation zone, along with their corresponding 95% confidence intervals. In most transportation zones, the 2018 walk/bike/transit mode shares fall within the 2017 confidence intervals which supports overall confidence in the reliability of the results. For comparative analysis, it is best to use aggregate statistics such as Downtown or Vancouver mode shares.

Table 4-1: Aggregate Walk/Bike/Transit by Transportation Zone and Sample Size

Transportation Zone	2018 Panel		2017 Panel	
	Sustainable Mode Share (%)	95% Confidence Interval	Sustainable Mode Share (%)	95% Confidence Interval
CBD - West End	72%	(67%-78%)	71%	(66%-76%)
CBD - False Creek	67%	(60%-73%)	64%	(58%-70%)
Downtown	69%	(65%-74%)	67%	(63%-72%)
Vancouver Broadway	64%	(59%-69%)	59%	(53%-64%)
Vancouver South	46%	(41%-52%)	39%	(34%-44%)
Vancouver Kerrisdale	35%	(29%-41%)	31%	(26%-37%)
Vancouver Kitsilano	59%	(53%-65%)	56%	(51%-62%)
Vancouver Southeast	38%	(32%-44%)	33%	(27%-38%)
Vancouver East	43%	(38%-49%)	40%	(35%-45%)
Vancouver Port	60%	(53%-67%)	56%	(49%-62%)
City of Vancouver	53%	(51%-55%)	48%	(47%-50%)

Figure 4-3 compares the mode share by age distribution between the 2017 and 2018 Panel Surveys. As observed in previous travel surveys, people in the 18-24 and 25-44 cohorts tend to use transit, walk, and cycle more than the 45+ cohort. The 2018 Panel Survey indicates about a 10% decrease in auto driver trips and a 3% increase in auto passenger trips in the 18-24 age cohort; however, it needs to be recognized that the small sample size in these age groups could lead to overrepresentation. As the sample size continues to increase for this age cohort, as is the case for the 2018 Panel Survey, the confidence in the results also increases.

Figure 4-3: Mode Share by Age Distribution



4.2. Trip Purpose

Figure 4-4 shows a comparison of trip purposes for the 2017 and 2018 Panel Surveys. The distribution by trip purpose is relatively consistent between the two surveys with the majority of trips for going home and to work.

Figure 4-4: Trip Purpose Distribution

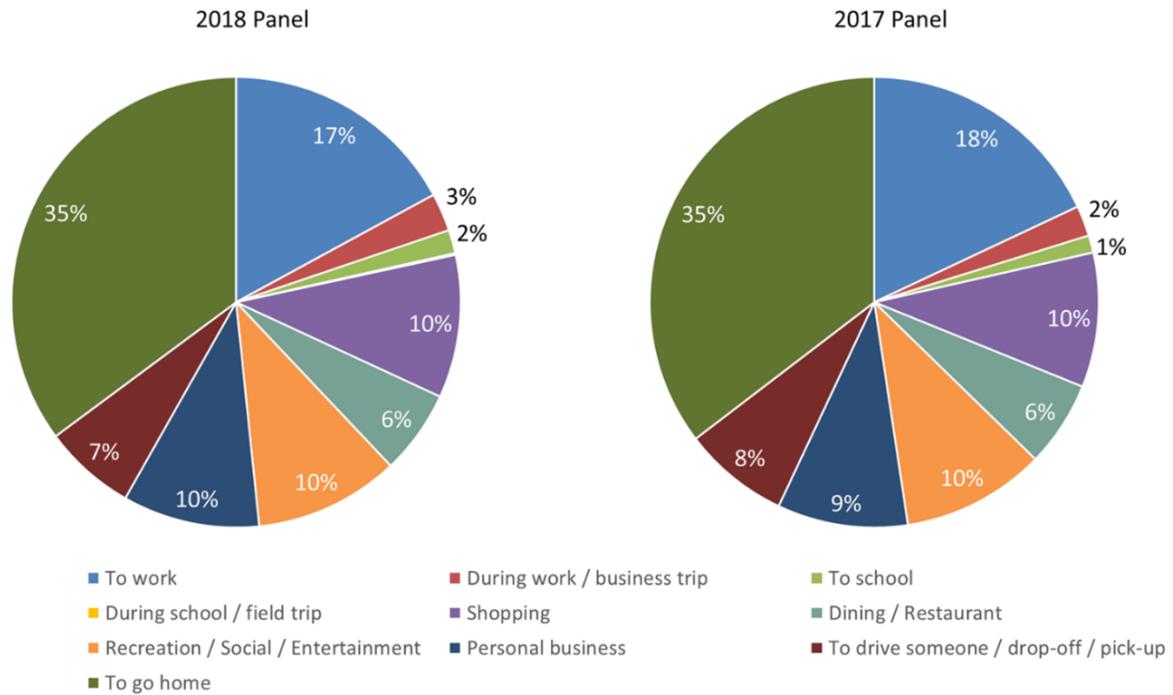


Figure 4-5 shows a detailed comparison of the mode share by trip purpose. As illustrated in the figure, auto trips decreased for most trip purposes, walking trips increased for all trips purposes except for trips to work, and transit and bike trips held relatively constant.

Figure 4-5: Mode Share by Trip Purpose

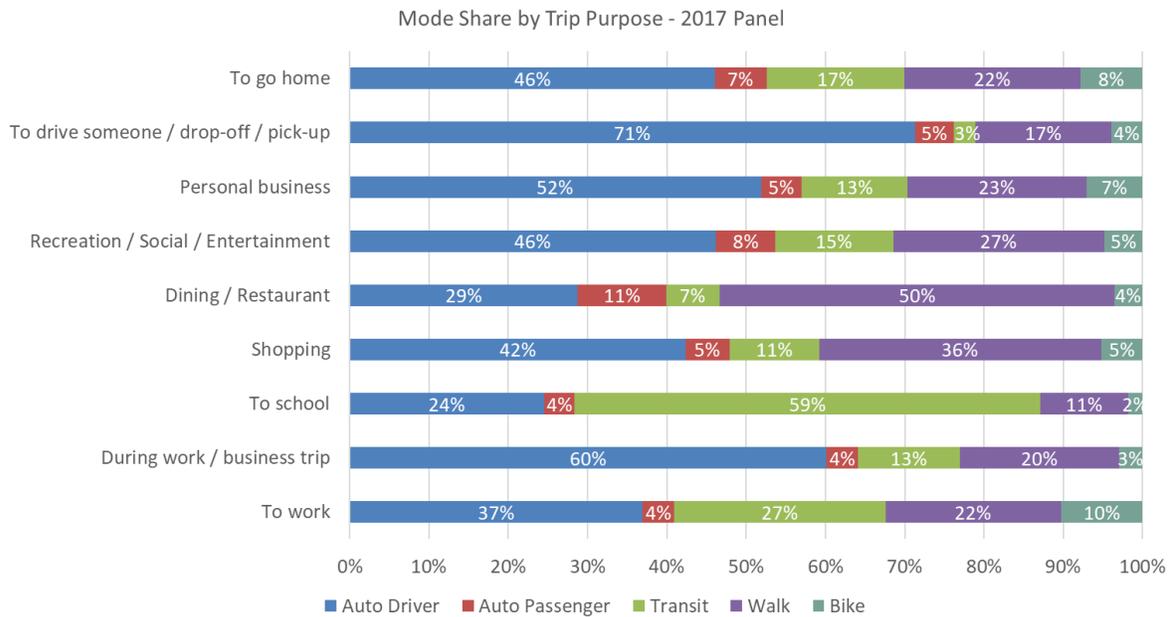
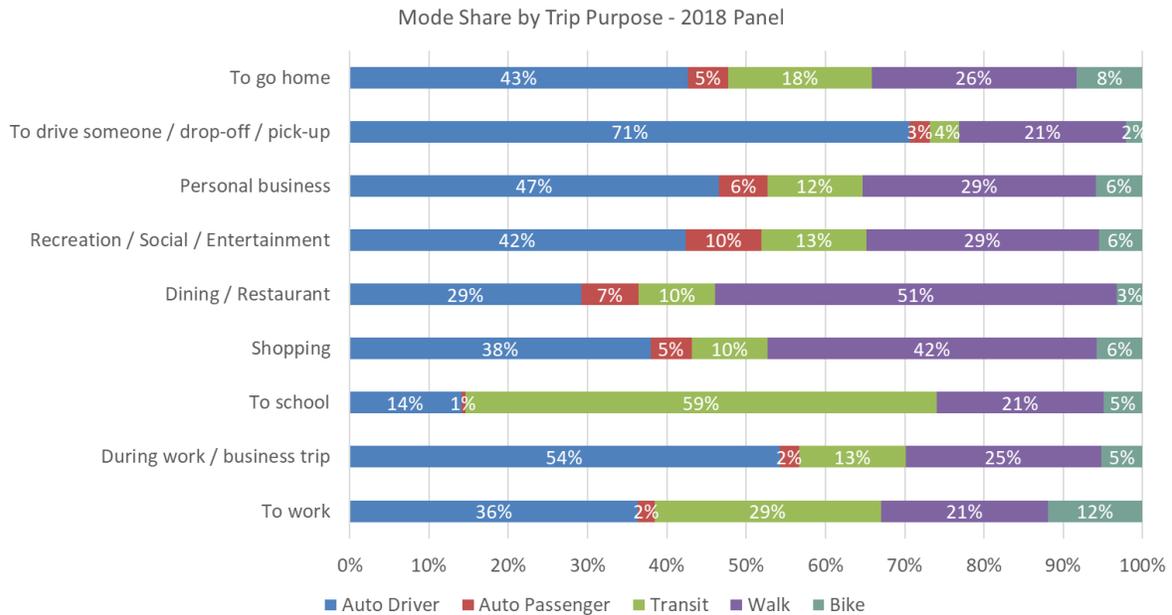


Figure 4-6 is a comparison between the 2013 to 2018 Panel Survey trips to work. As seen in the figure, there has been a 6.4% decrease in work trips (349,400 in 2017 to 327,200 in 2018). The 2018 Panel Survey also shows an uplift of about 2% in both the transit and cycling mode shares in comparison to the previous year.

Figure 4-6: Comparison of Panel Survey Trips to Work

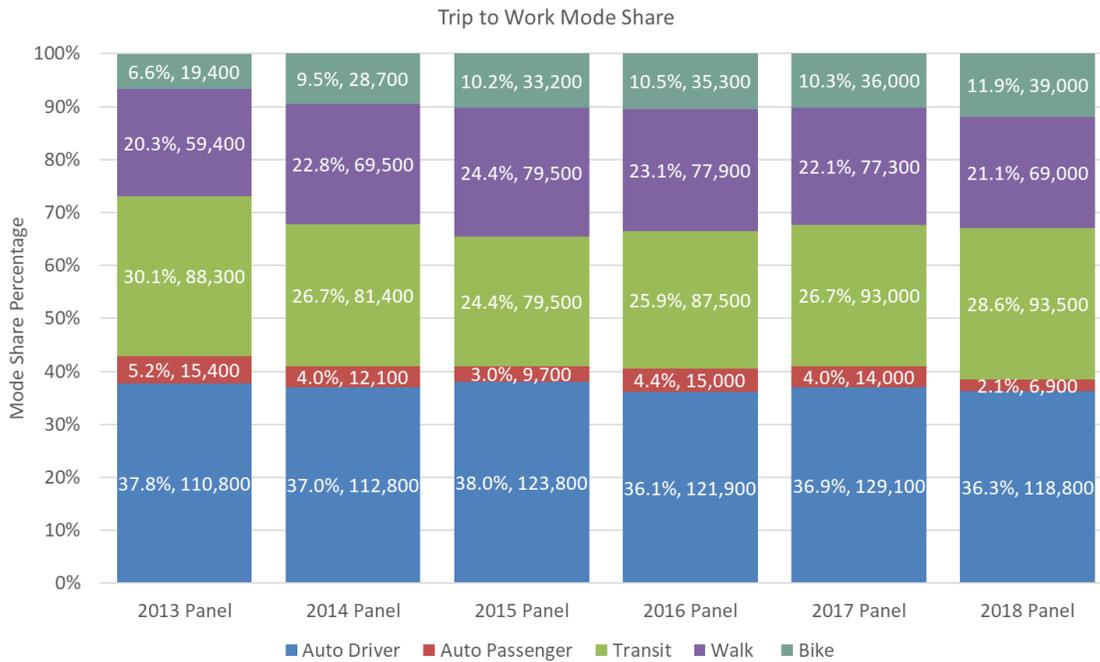
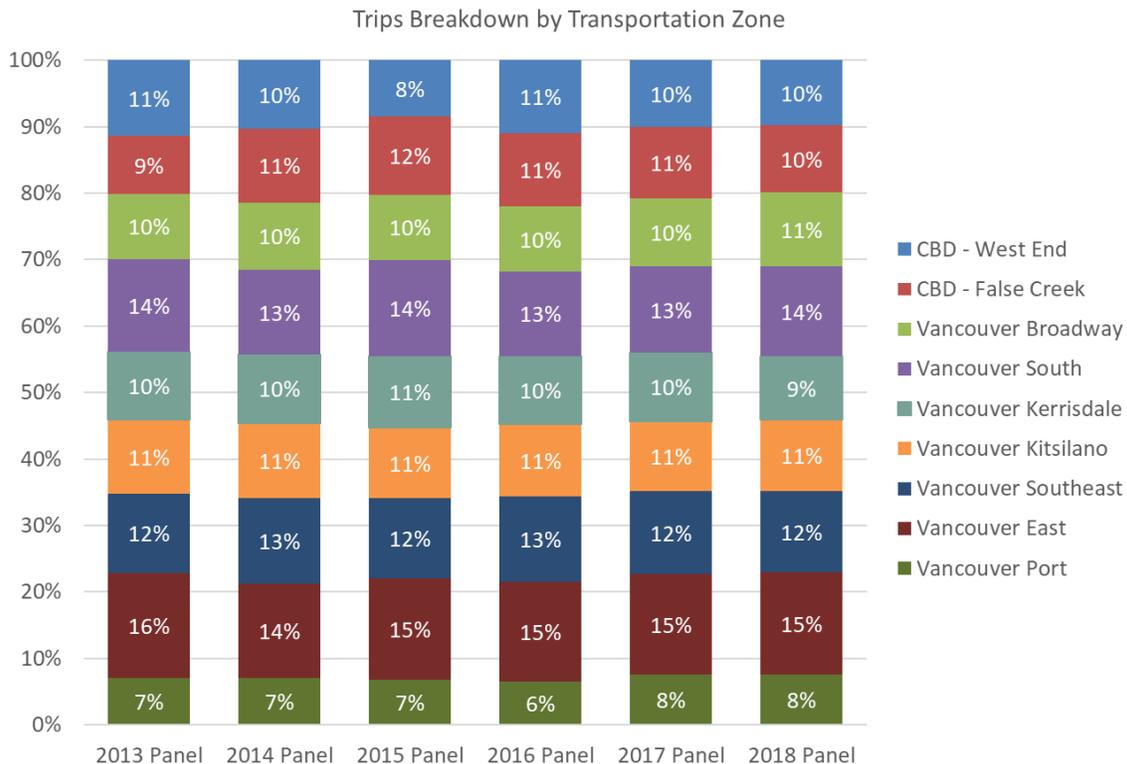


Figure 4-7 shows a breakdown of the total number of trips by transportation zone for panel surveys from 2013 to 2018. The 2017 and 2018 Panel Surveys are very similar in terms of the trips from each of these zones.

Figure 4-7: Total Trips Breakdown by Transportation Zone



4.3. Time of Day

A comparison of time of day travel is shown in *Figure 4-8*. The proportions of trips being made during the day are generally the same as the 2017 proportions.

Figure 4-8: Trip Distribution by Time of Day Shift

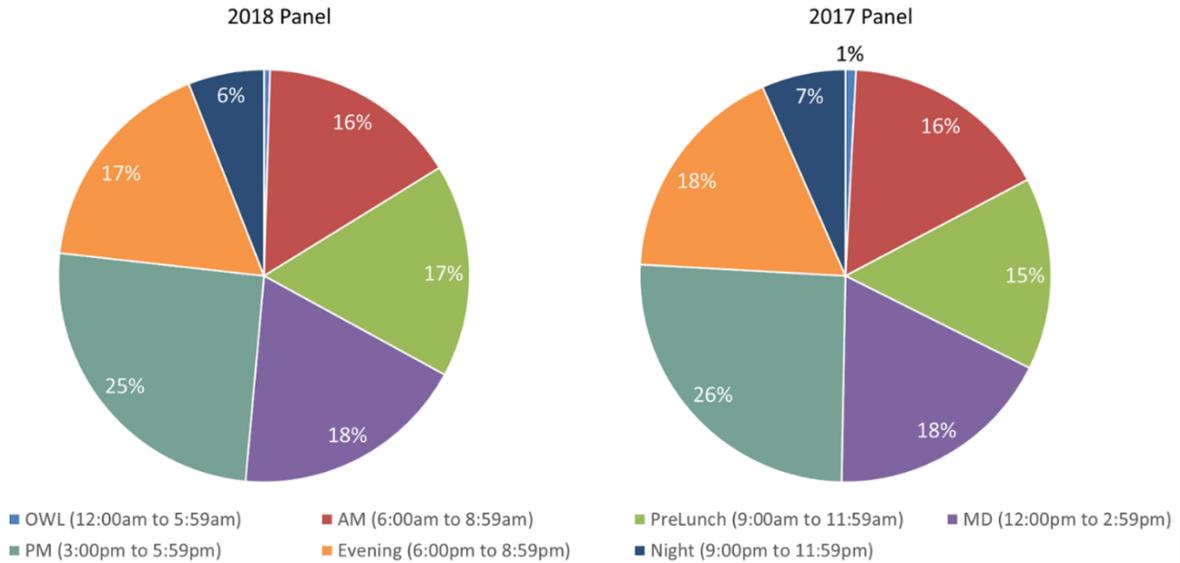
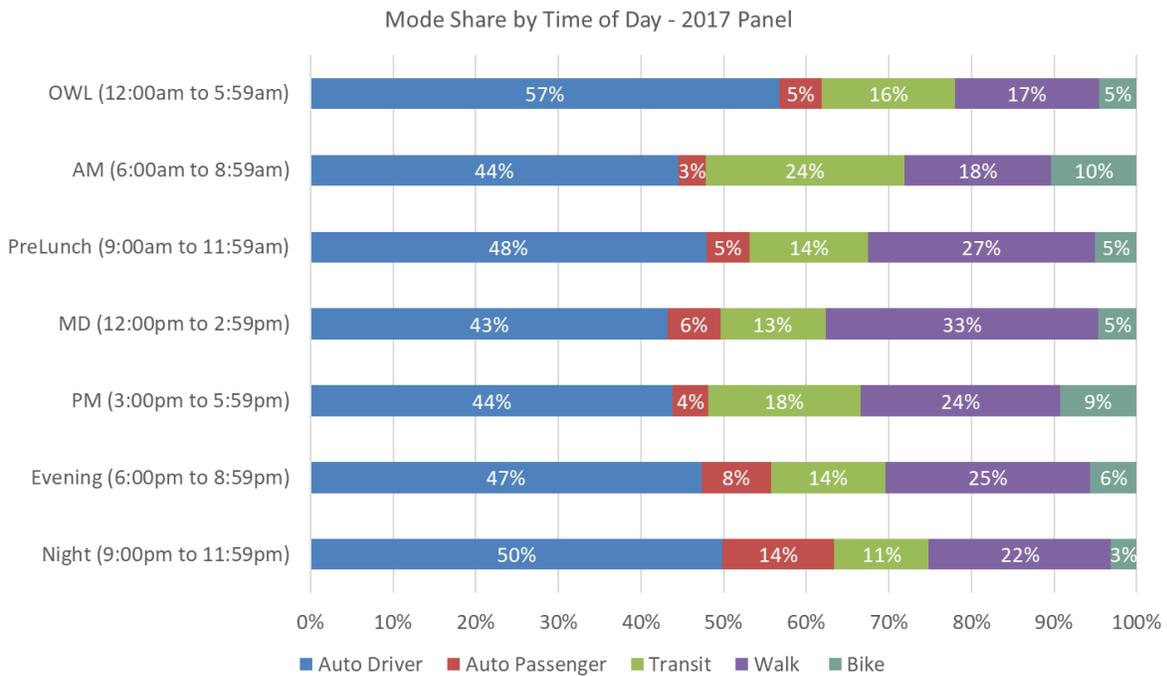
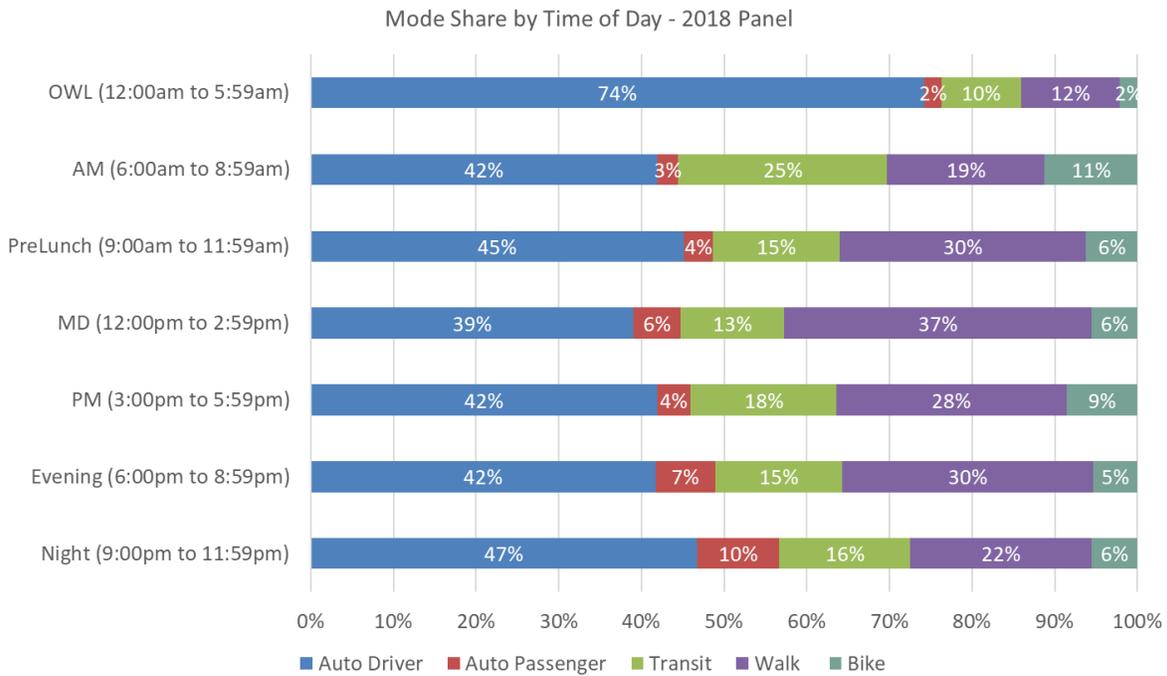


Figure 4-9 breaks down mode share by time of day for the 2017 and 2018 Panel. As shown in the figure, auto trips have decreased for all time periods of the day except during the owl time period from 12 o'clock AM to 6 o'clock AM. In comparison to the 2017 panel survey, panelists from the 2018 survey tended to either use transit or commuted by foot or by bike throughout the day. Moreover, participants also reported a higher proportion of walk trips during the MD, PM, and evening time periods with mode share increases ranging from 4% to 6%.

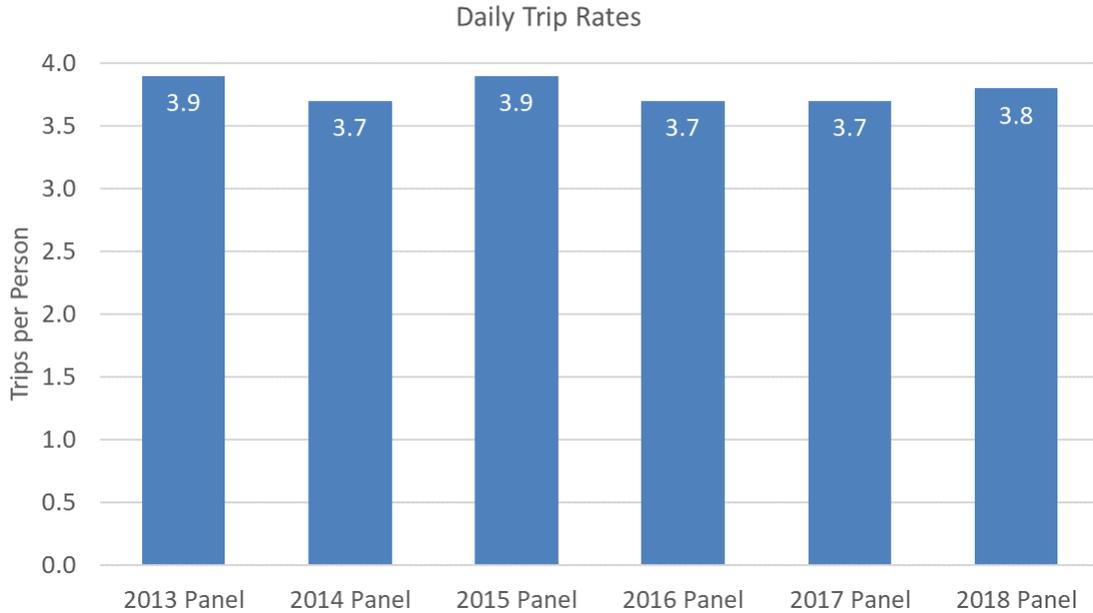
Figure 4-9: Mode Share Distribution by Time of Day



4.4. Trip Rates

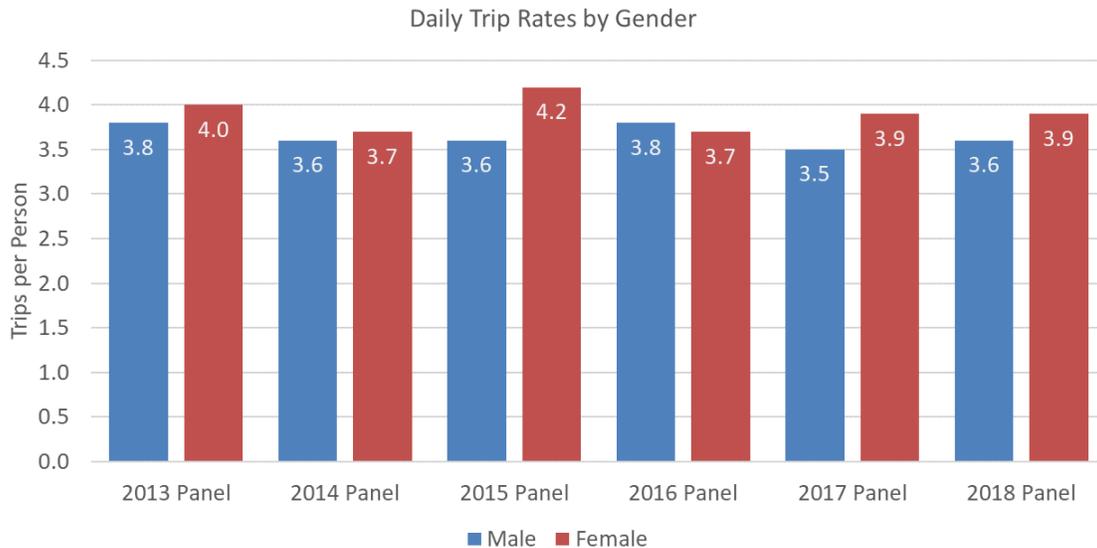
Figure 4-10 compares overall trip rates⁸ for the 2013 to 2018 Panel Surveys. As shown in the figure below, the trip rate for 2018 is consistent with previous years. Overall, the average trip rate has hovered around 3.8 trips per day +/- 0.1 trips.

Figure 4-10: Daily Trip Rates (18 years and older)



Similar to previous years, female participants made slightly more trips in 2018, as shown in Figure 4-11. These results reflect trip reporting by participants and can vary from year to year depending on the participant's travel patterns on their survey day which, again, can vary significantly.

Figure 4-11: Trip Rates by Gender



⁸ Trip rate is the number of trips that each person makes on a daily basis with a trip defined as travel from one origin to another destination by a certain primary mode for a particular purpose.

Figure 4-12 shows trip rates across the four age cohorts with the 45 to 64 age group being the most active in all survey years. People aged 45 and above made more trips compared to 2016. Compared to 2017, those in the 18 to 24 age cohort reported lower trip making. Despite this, the overall split between all survey years is approximately the same, considering the confidence interval of survey results with a 0.5% sample of Vancouver residents.

Figure 4-12: Trip Rates by Age Group

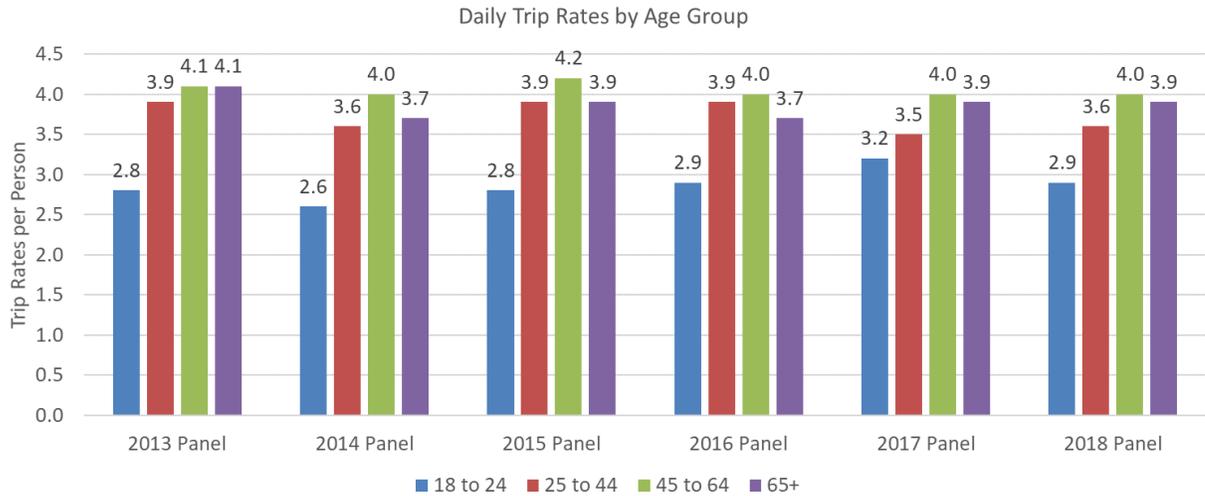
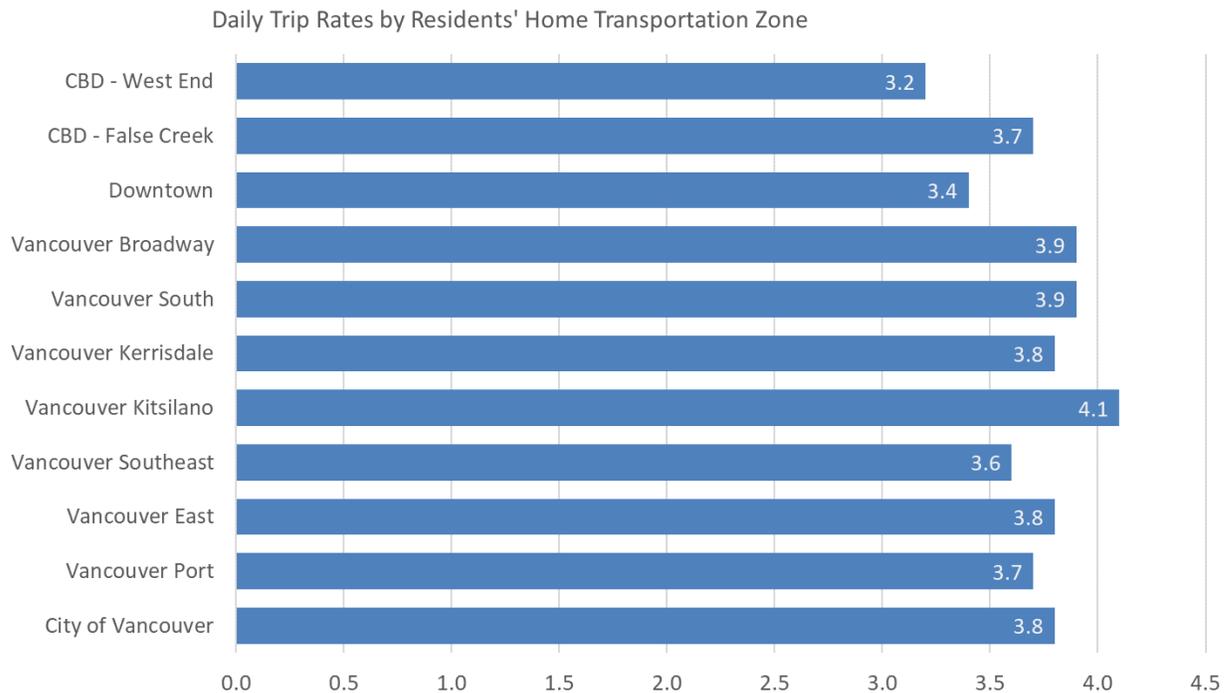


Figure 4-13 shows that the daily trips rates by neighbourhood zone are similar to the trip rates reported in the 2017 panel survey. Based on the figure, Kitsilano, Broadway, and South residents made slightly more trips than other parts of the City.

Figure 4-13: Trip Rates by Transportation Zone



4.5. Vehicle-Kilometers Travelled

Greenest City action plan and Transportation 2040 have set a goal to reduce the average distance driven per resident by 20% compared to 2007 levels. This measurement is referred to as vehicle-kilometres travelled (VKT). It is important to track whether VKT is trending in the right direction to meet this goal. In 2014, VKT was calculated using a variety of methods and data sources including Air Care, Insurance Corporation of British Columbia (ICBC), the regional (EMME) transportation model, and Panel Survey odometer data. The Air Care VKT model had been used by various local agencies to estimate Metro Vancouver's VKT and GHG emissions for many years. As this program has been discontinued, it unfortunately cannot be used to track VKT in the future. Of the remaining methods, the Panel Survey odometer reading was deemed to provide the most reliable method to track VKT for the following reasons:

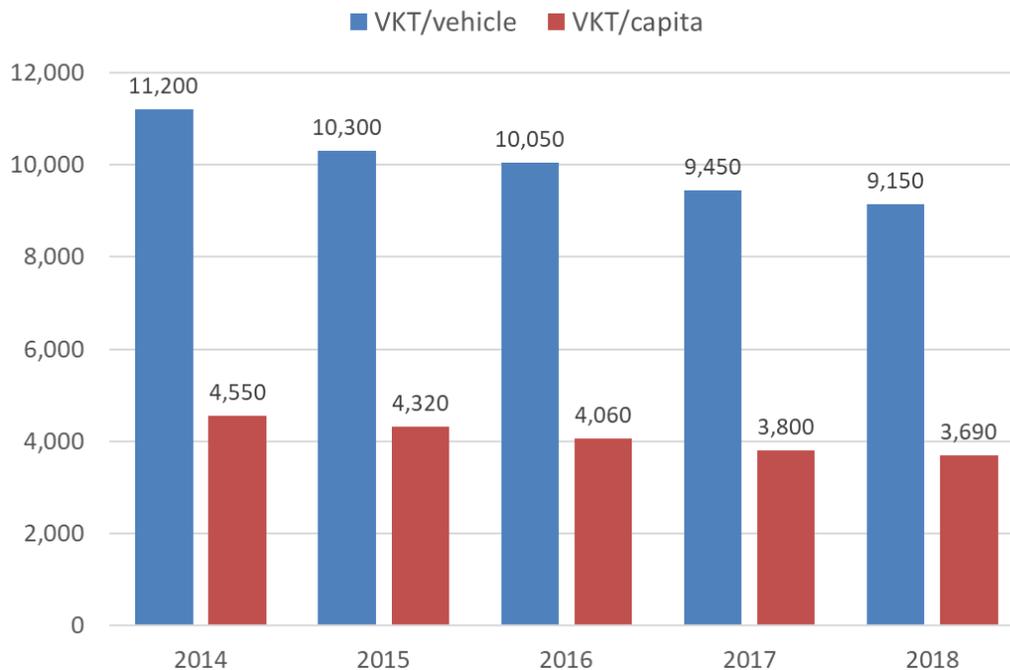
- The Panel Survey provides an adequate sample size statistically to estimate the average kilometres travelled per vehicle in Vancouver using the odometer readings of returning panel members.
- This method for calculating VKT is dynamic. In other words, the average kilometres travelled will change year over year based on Panel Survey outcomes.
- This method is the closest approximation to the regionally accepted Air Care VKT method and represents a reliable method with new survey data.

Odometer readings from returning panel members were used to determine the average annual VKT. After some data cleanup, this method provided a sample of 947 odometer readings. The average was approximately **9,150 vehicle-kilometres travelled per vehicle**. Compared to previous years, this year's average is the lowest VKT per vehicle reported which suggests that participants are taking shorter-distance trips. The average vehicle age was roughly **9.9 years**.

Multiplying the average distance travelled by the estimated⁹ number of actively insured vehicles in ICBC's database yields an annual VKT for 2018 of **2.51 billion**. Based on BC Stats population estimates for 2018, this equates to a 2.9% decrease in VKT per capita, from 3,800 km in 2017 to **3,690 km** in 2018. *Figure 4-14* shows the VKT statistics based on Panel Survey odometer readings.

⁹ 2018 estimation is based on available ICBC data for years 2007, 2008, and 2011 through 2015.

Figure 4-14: Trends in VKT per vehicle and VKT per capita



4.6. Walk/Bike/Transit Mode Trend Analysis

The Panel Survey has provided a valuable indicator for tracking trends on the percentage of people walking, biking, and taking transit. *Figure 4-15* shows the sustainable mode share with 95% confidence from 2013 to 2018 based on panel survey results. This chart shows an upward trend from 2013 in terms of walking, cycling, and transit for Vancouver residents. The sustainable mode share has held steady between 2014 and 2015 as a result of an increase in walking and cycling mode share and a decrease in transit mode share. In 2016, the mode share was similar to 2015 with slightly more transit and slightly less auto driver mode shares while the 2017 panel survey saw a downturn in the overall sustainable mode share largely due to the significant decrease in walking trips. Analysis of City of Vancouver’s residents’ mode choices for the fall 2018 panel survey revealed a greater uptake of the active and transit travel modes with the sustainable mode share reaching 52.8%. This upswing is largely driven by an apparent change in travel behaviour from private car use to walking where short distance trips that were previously made by car are now made by foot instead.

Extrapolating the travel survey trends to the future would suggest that this trend should continue with the further densification of Vancouver and the City’s walking and cycling initiatives. Although the confidence ranges indicate that the sustainable mode shares could be between 45.9% and 54.7%, it is undeniable that the trendline is in the positive direction. There is still a strong indication that the City of Vancouver is on track to meet its 2020 mode share target set out in the Greenest City Action Plan and Transportation 2040; however, the provision of local and regional transit services will have a strong bearing on achievement of that goal by the 2020 target date.

Figure 4-15: Trends in Sustainable Mode Share (High and Low Ranges)

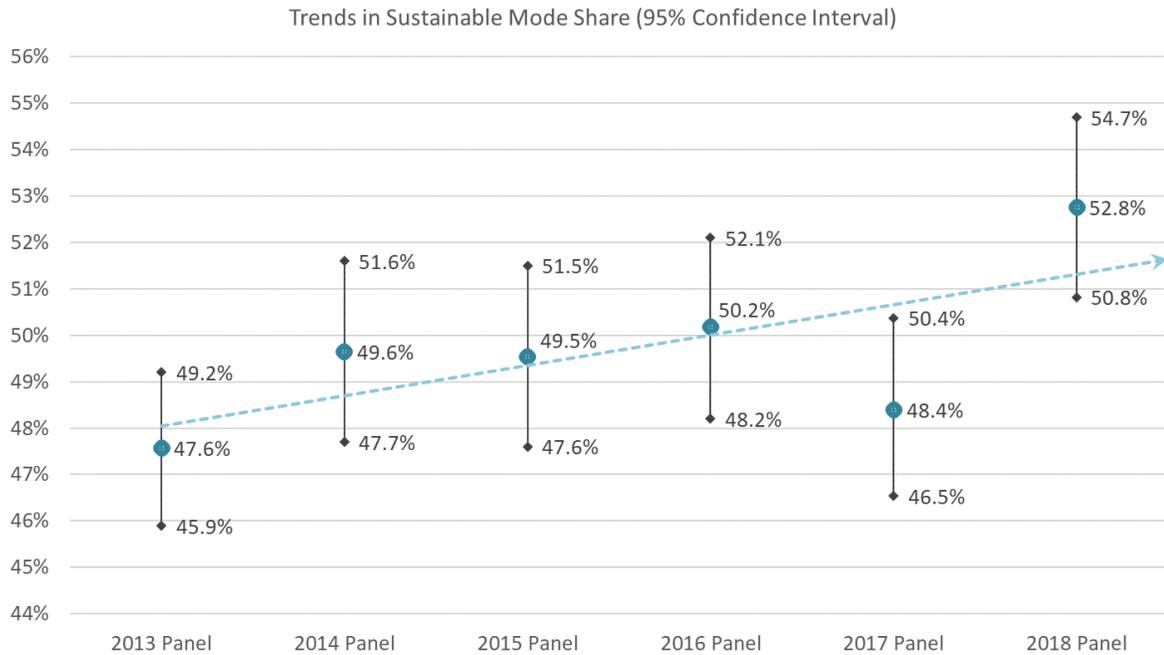
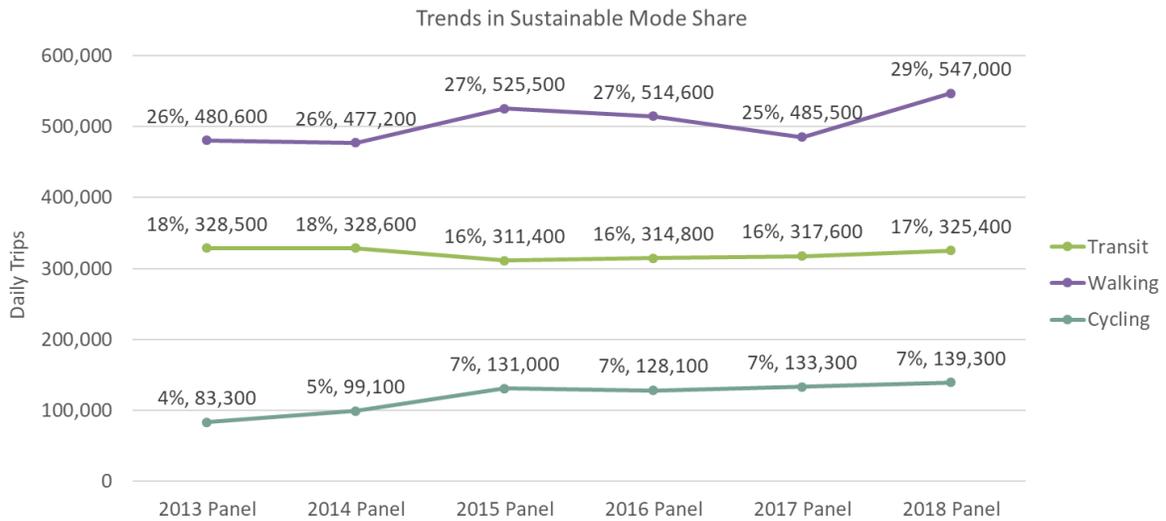


Figure 4-16 presents the mode splits by walking, cycling, and transit modes. As illustrated in the figure, both the cycling and transit shares have remained relatively steady since the 2015 panel survey with a slight increase of 0.5% in transit use and 0.4% in cycling trips. Further improvements to regional and local transit services and improved accessibility to transit facilities may have helped to increase ridership. With the implementation of additional B-Line services in the coming years and the Millennium Line Broadway Extension, transit ridership and mode share are anticipated to continue increasing.

This year in particular, of the sustainable modes, the walking share is highest among City residents. The number of walking trips has peaked to 547,000 which may be attributed to pedestrian realm improvements including upgrades to Cambie Bridge, Burrard Bridge, and along Quebec Street. This increase has also been demonstrated by a study¹⁰ completed where pedestrians trips along the Arbutus Greenway were shown to increase from 1,970 in 2017 to 2,750 in 2018 on a single day after the installation of the temporary path. Tracking the panel's travel behaviour and travel trends in the coming years will provide an opportunity to better understand the impacts of infrastructure investments to Vancouver residents.

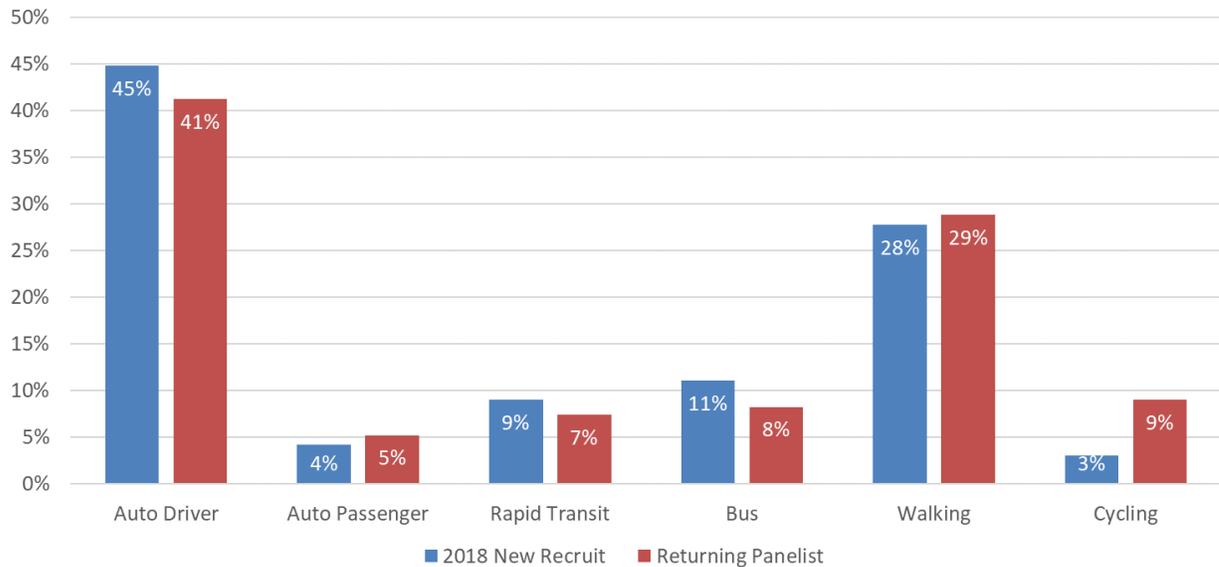
¹⁰ Details of the study can be found on Vancouver Courier's newspaper site "<https://www.vancourier.com/news/arbutus-greenway-becoming-well-used-route-through-vancouver-1.23422679>"

Figure 4-16: Trends in Sustainable Mode Share



A comparison of mode splits amongst returning panelists (recruited prior to 2018) and 2018 new recruits shows that there are more auto driver and transit trips reported by the new recruits as illustrated in *Figure 4-17*. Compared to 2017, the walking share of the new recruit has increased from 24% in 2017 to 28% in 2018. The proportion of walk trips made by the returning panelists show a similar increase from 26% in last year's survey to 29% this year. In general, the mode shares of the new recruits and returning panelists are very similar. The only mode share that is vastly different between the two recruit types is the share of cycling trips. According to this year's survey results, returning panelists travelled by bike more than the new recruits with cycling trips accounting for 9% of the total number of trips amongst returning participants. By comparison, trips made by the new recruits were more transit-oriented and car dependent, as illustrated by the 45% auto driver mode share and the 20% transit mode share reported for the new recruits.

Figure 4-17: Comparison of Mode Share Amongst New Recruits and Returning Panelists



The 2018 Panel Survey asked for the approximate duration of walking and/or biking that made up all or part of longer walk/bike/transit trips. The answers to this new question help provide insight into two

key areas: the degree to which people are willing to walk/bike as part of transit trips and the amount of physical activity that is integrated into daily travel.

Figure 4-18 shows the duration of walk trips and bike trips. About 82% of walk trips are less than 20 minutes and 79% of cycling trips are under 30 minutes.

Figure 4-18: Walk and Bike Trips by Duration

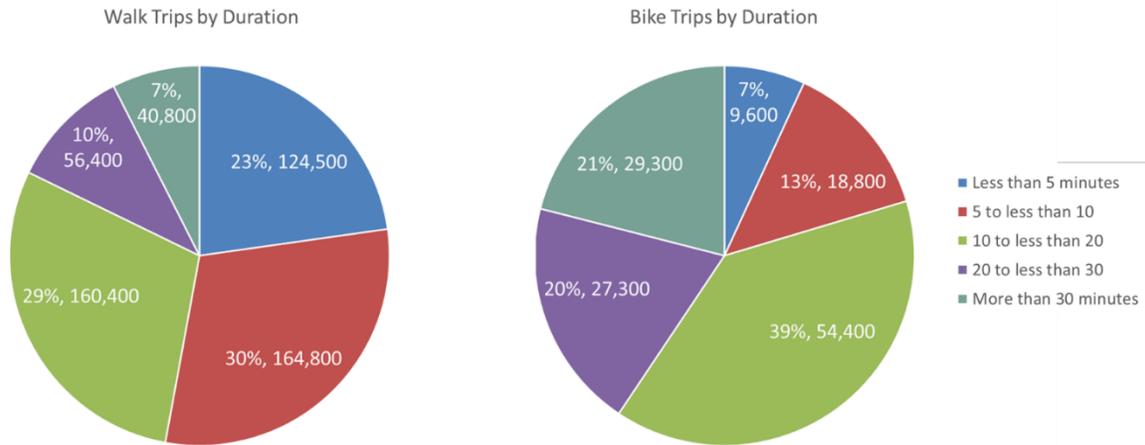
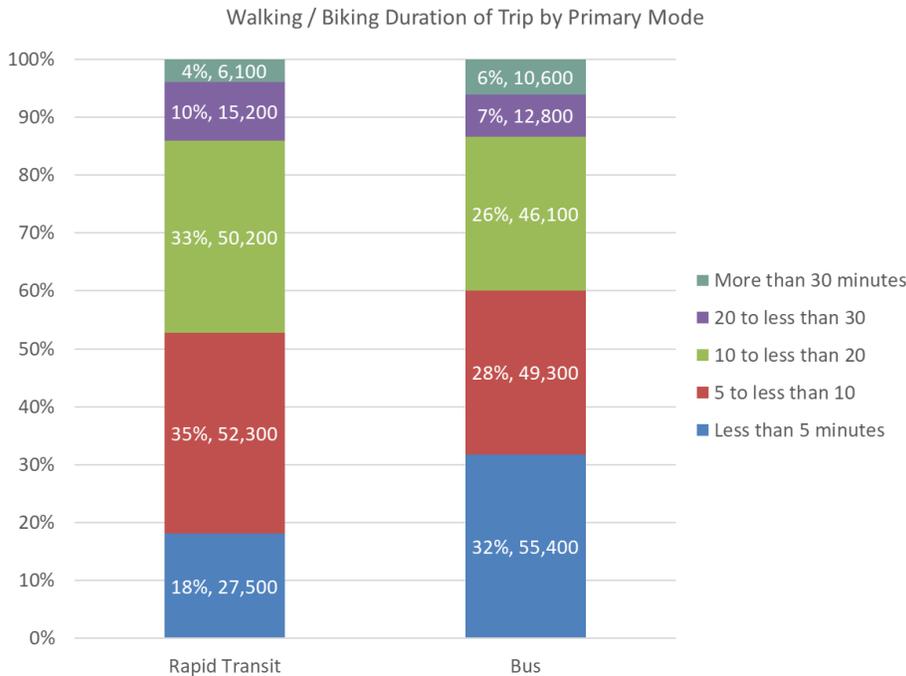


Figure 4-19 shows the duration of the walk or bike portion of trips with bus or rapid transit being the primary mode of travel. The majority of residents had a walk/bike component up to 10 minutes for rapid transit trips. Amongst those travelling via rapid transit, most were willing to walk/bike up to 20 minutes while the majority of those travelling by bus preferred to walk/bike no more than 5 minutes. As illustrated in the graph, there is a greater proportion amongst bus passengers who are willing to walk/bike for more than 30 minutes. This reinforces transit planning assumptions for bus stop and rapid transit station catchment areas with people willing to travel further to access rapid transit services.

Figure 4-19: Duration of Walk and Bike Trips by Primary Travel Mode



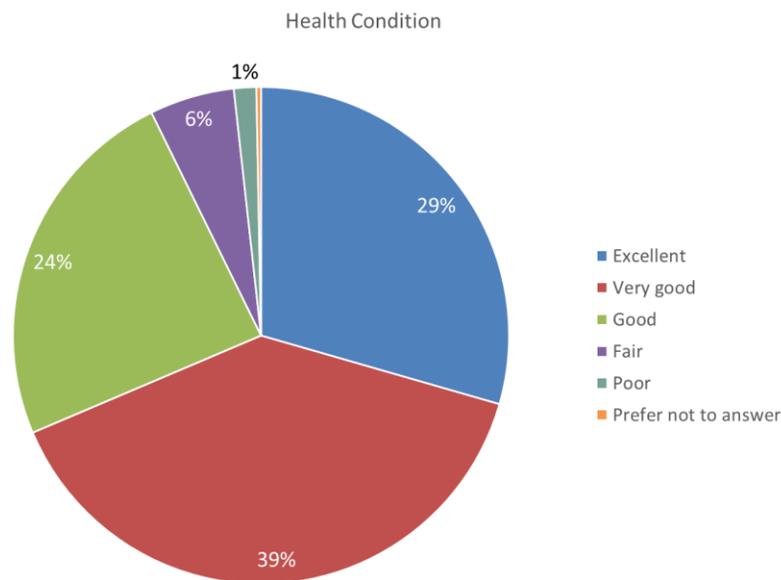
4.7. Health Status

The My Health My Community¹¹ Survey was conducted in 2013-2014 across the Lower Mainland to better understand community health as it related to transportation choices (i.e. commute to work/school). The survey is part of an emerging field of study exploring the ways in which transportation choices impact our lifestyle and health. Evidence from other jurisdictions shows that well-planned and accessible transportation systems can increase physical activity, improve air quality, and reduce vehicle-related injuries, leading to better physical and mental health.

In 2014, a question was introduced to the Panel Survey asking respondents to report on their perceived health. Self-reported overall health assessments are simple but well-established as having a strong correlation with overall mortality risk and they capture aspects of health that are difficult to capture, such as disease severity, social function, psychological reserves, etc. By incorporating a health-related question into the panel survey, the City is able to track trends in health versus mode choice over time.

Figure 4-20 shows a summary of respondents' self-reported health status; about 69% of respondents indicated they were in very good or excellent health, similar to the 2017 results. This generally agrees with the findings of the Canadian Community Health Survey (Fraser Health Authority + Vancouver Health Authority subsets).¹²

Figure 4-20: Self-Reported Health Status of Respondents



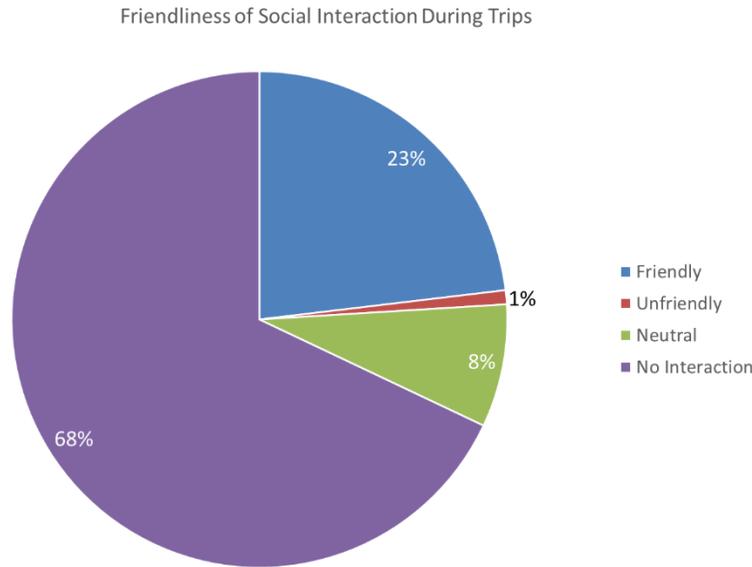
¹¹ My Health My Community is a non-profit partnership between Vancouver Coastal Health (VCH), Fraser Health (FH) and the eHealth Strategy Office (eHSO) at the University of British Columbia (UBC).

¹² Based on 2009-2013 data from the Canadian Community Health Survey which only includes excellent, very good, fair, and poor health categories.

4.8. Friendly Interaction

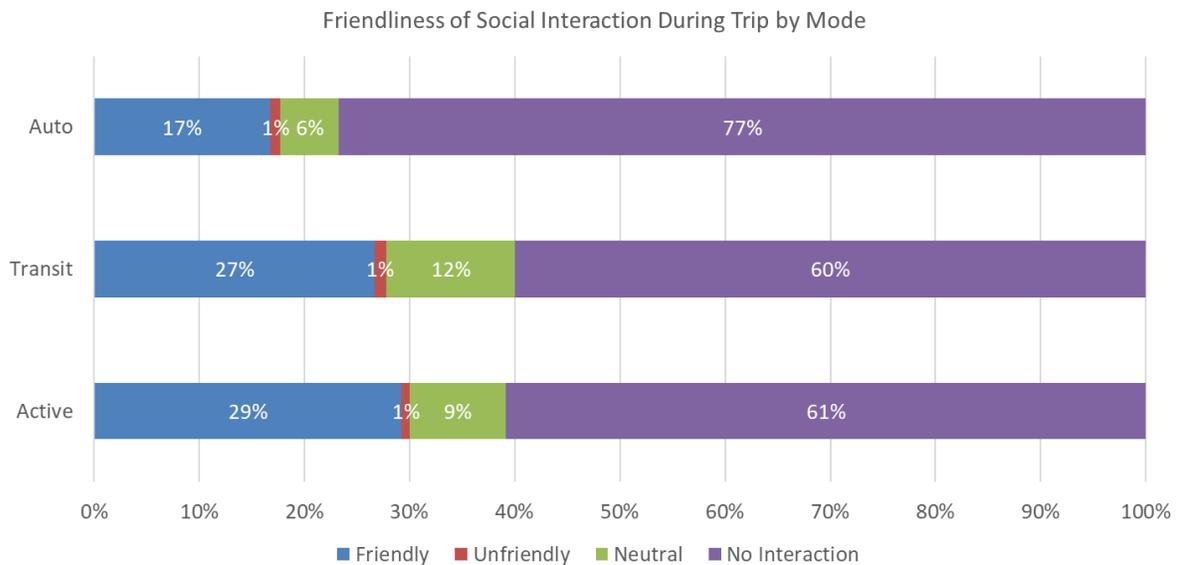
In 2014, the survey instrument was expanded to include a question regarding the nature of social interaction (outside of travel companions) during trip making. The trip diary only recorded whether the participants had engaged in friendly interaction or not. In 2015, the question was refined to include greater detail in the description of the interactions. *Figure 4-21* indicates that 68% of panel members had no social interaction, similar to the 2017 result (70%). Of those that did, most reported friendly or neutral interactions.

Figure 4-21: Nature of Social Interaction during Trip



The degree of social interaction is cross-referenced against travel modes in *Figure 4-22*. Not surprisingly, panel members travelling via active modes were more likely to engage in friendly interactions.

Figure 4-22: Engagement in Friendly Interaction by Trip Mode



4.9. Origins and Destinations

Table 4-2 captures the origins and destinations (O-D) of the Panel Survey respondents based on geocoded trip-end coordinates. It shows the breakdown of trips within transportation zones, to other zones within the City, and outside of the City. These are also illustrated graphically in *Figure 4-23* to *Figure 4-31* by subregions.

The Panel Survey covers Vancouver residents only, so it does not include trips by people who work in Vancouver but live in other areas of the Lower Mainland. While the results may not be statistically representative, patterns do emerge:

- The O-Ds are fairly balanced, as evidenced by the symmetry on either side of the diagonal (cells highlighted in pink).
- Travel is predominantly within Vancouver: approximately 77% of trips originate and ends within the city.

Table 4-2: Origins and Destinations within Transportation Zones and Outside Vancouver

Origin / Destination	West End	False Creek	Downtown	Vancouver Broadway	Vancouver South	Vancouver Kerrisdale	Vancouver Kitsilano	Vancouver Southeast	Vancouver East	Vancouver Port	Outside Vancouver
West End	69,900	30,800		8,300	8,500	1,000	8,100	2,400	4,900	5,300	18,800
False Creek	32,300	140,100		29,800	16,000	5,500	14,900	6,900	13,200	13,000	16,500
Downtown			273,100	38,100	24,500	6,500	23,000	9,300	18,100	18,300	35,300
Vancouver Broadway	10,200	27,200	37,400	91,200	23,200	7,400	22,400	8,500	14,000	10,900	15,300
Vancouver South	7,500	13,500	21,000	23,300	81,300	13,600	10,300	15,200	15,700	4,600	25,900
Vancouver Kerrisdale	1,100	7,800	8,900	7,400	14,200	57,900	19,200	5,500	2,400	2,000	14,400
Vancouver Kitsilano	9,600	13,900	23,500	22,900	8,200	18,800	90,200	1,800	5,000	3,400	15,700
Vancouver Southeast	4,400	7,100	11,500	8,000	15,400	5,300	2,000	43,200	12,900	2,400	31,800
Vancouver East	5,900	14,300	20,200	13,800	15,700	3,800	5,200	13,300	74,000	20,900	32,600
Vancouver Port	2,500	16,200	18,700	10,400	3,300	2,800	3,300	3,300	22,900	49,300	12,800
Outside Vancouver	13,100	18,700	31,800	14,500	24,600	14,400	15,200	33,100	34,000	13,400	88,400

Figure 4-23: Trip Distribution to/from West End

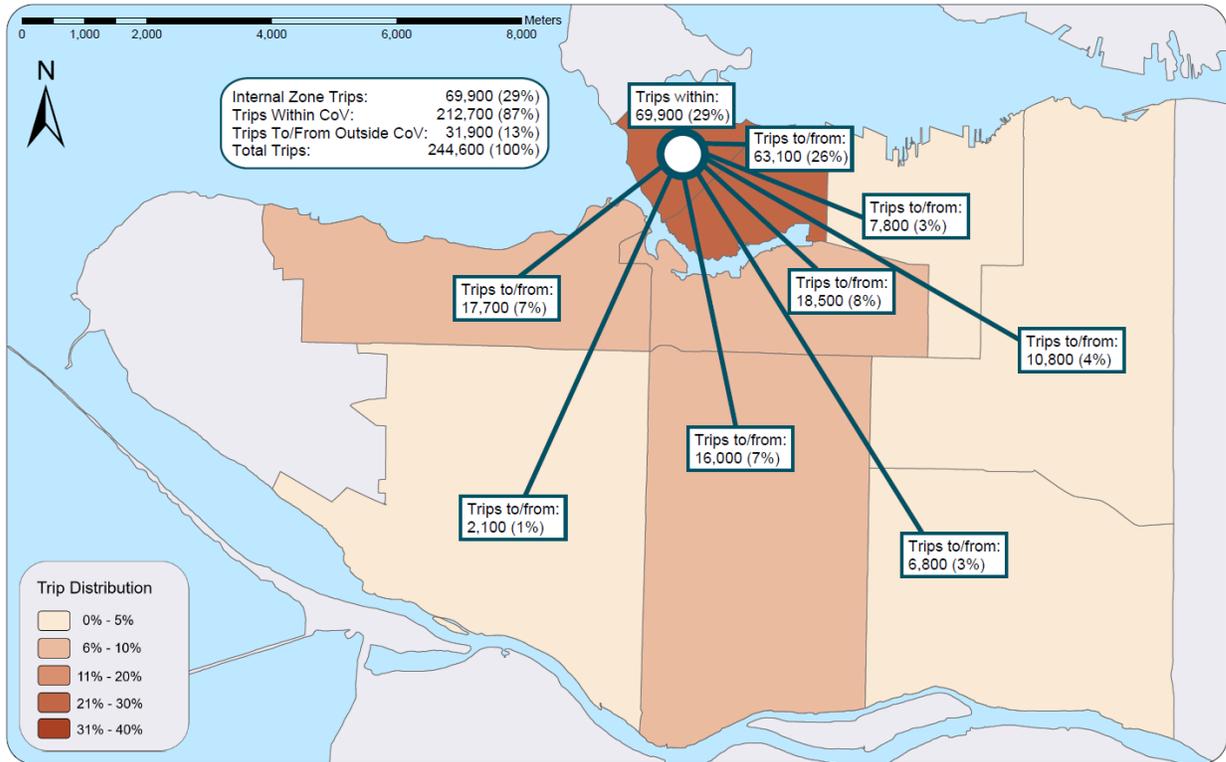


Figure 4-24: Trip Distribution to/from False Creek

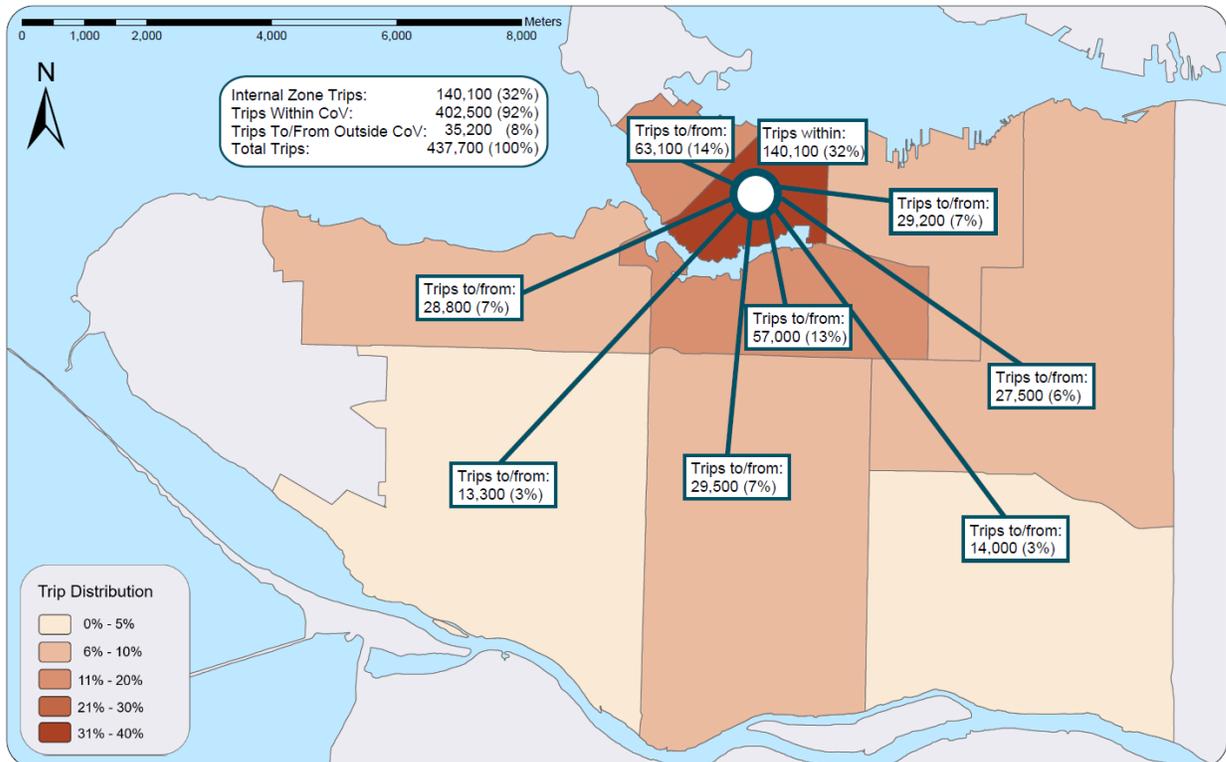


Figure 4-25: Trip Distribution to/from Vancouver Broadway

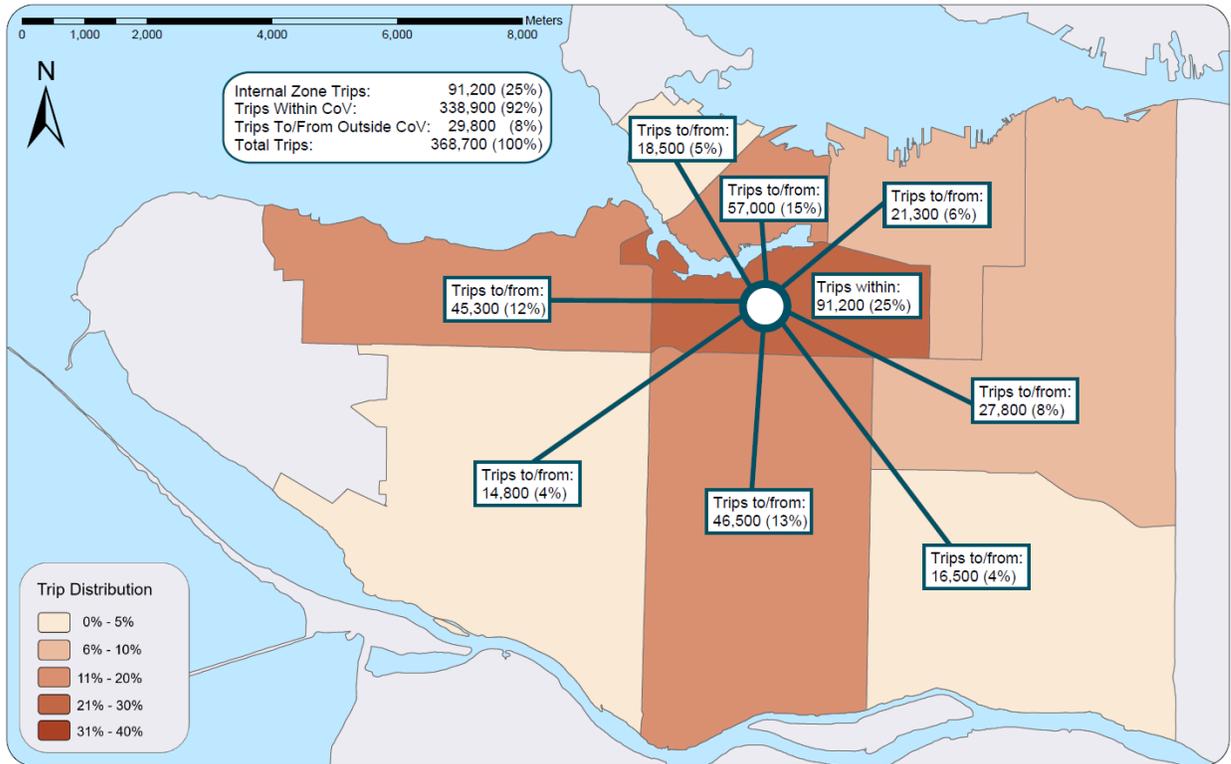


Figure 4-26: Trip Distribution to/from Vancouver South

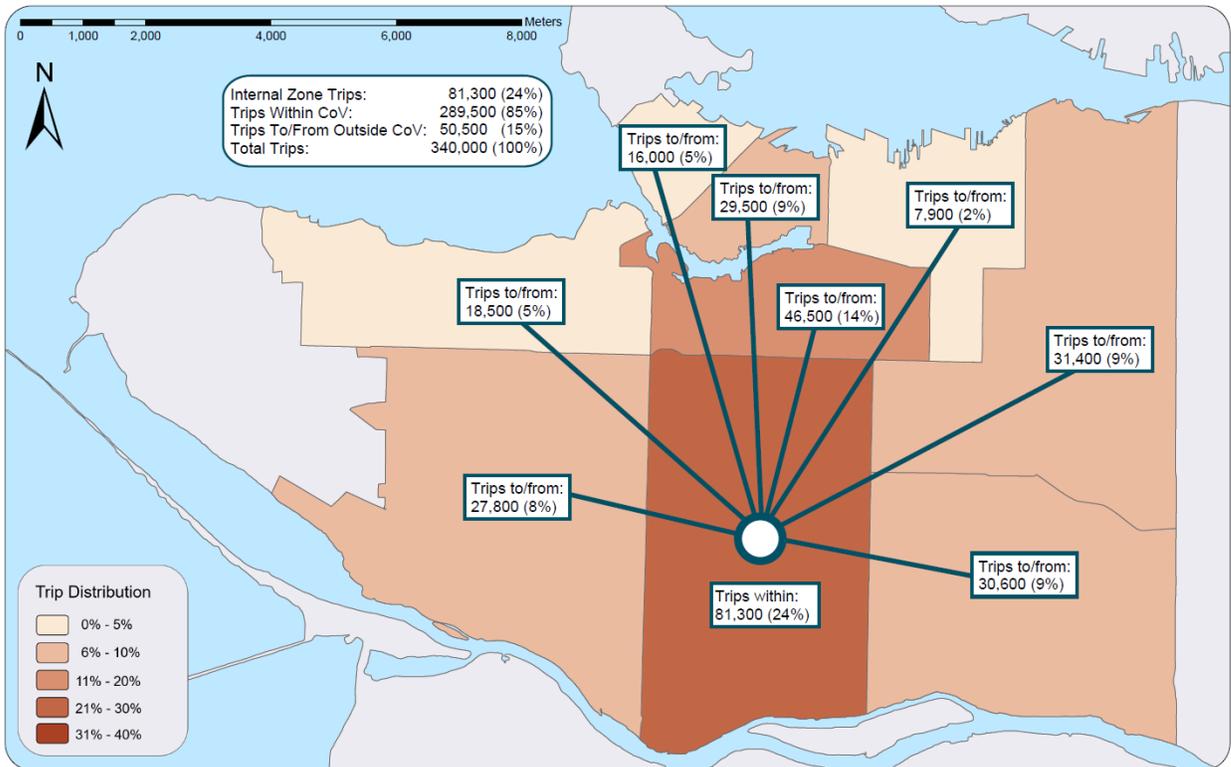


Figure 4-27: Trip Distribution to/from Vancouver Kerrisdale

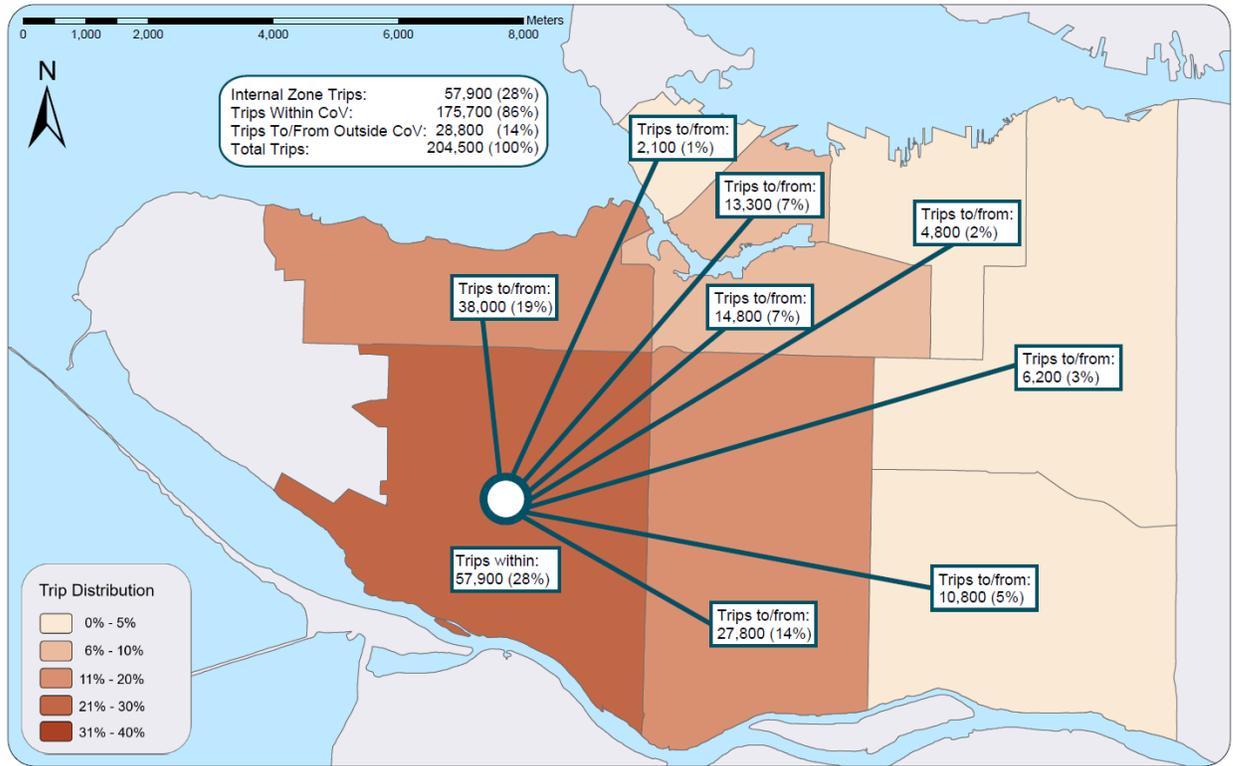


Figure 4-28: Trip Distribution to/from Vancouver Kitsilano

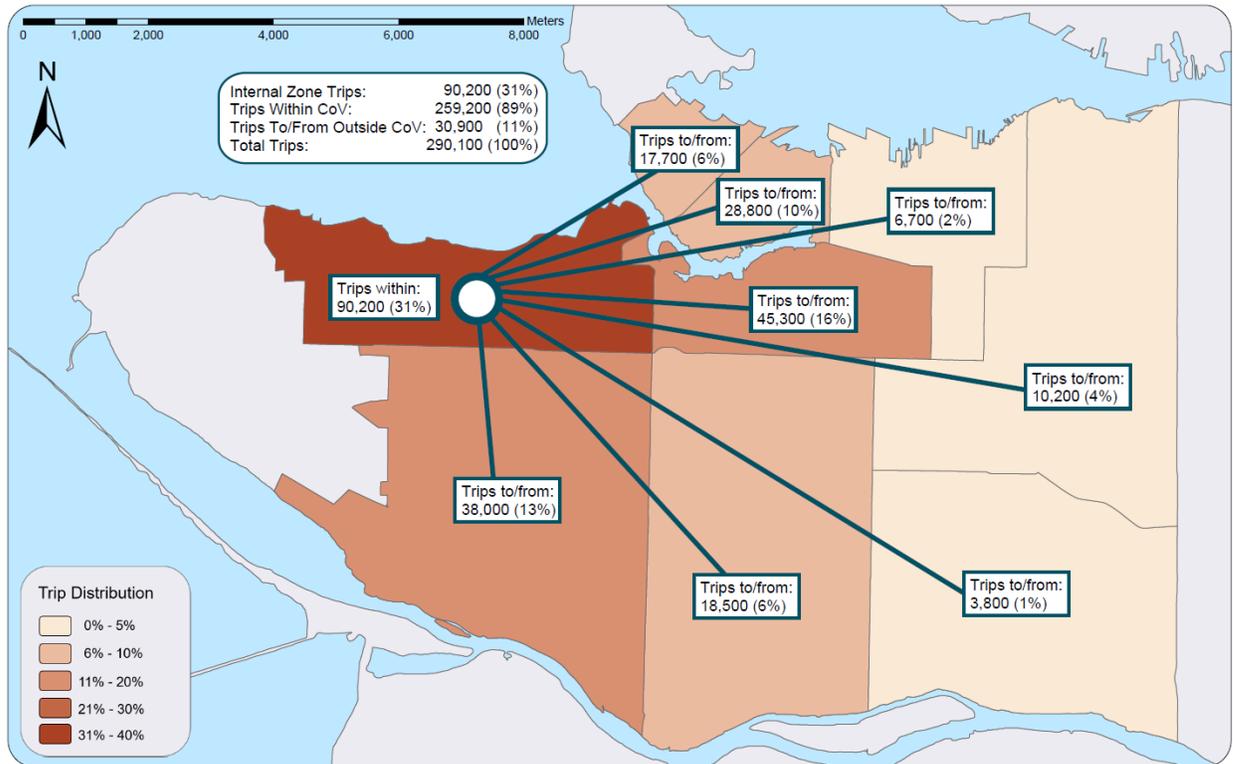


Figure 4-29: Trip Distribution to/from Vancouver Southeast

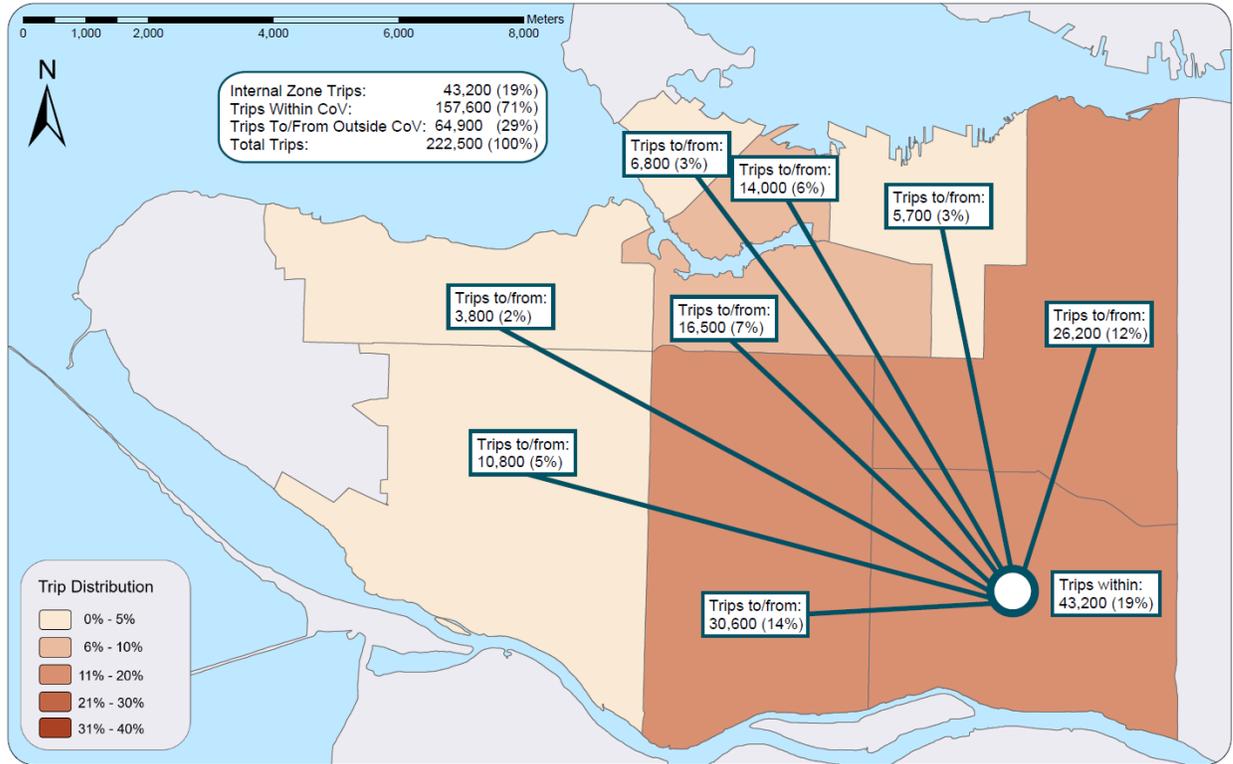


Figure 4-30: Trip Distribution to/from Vancouver East

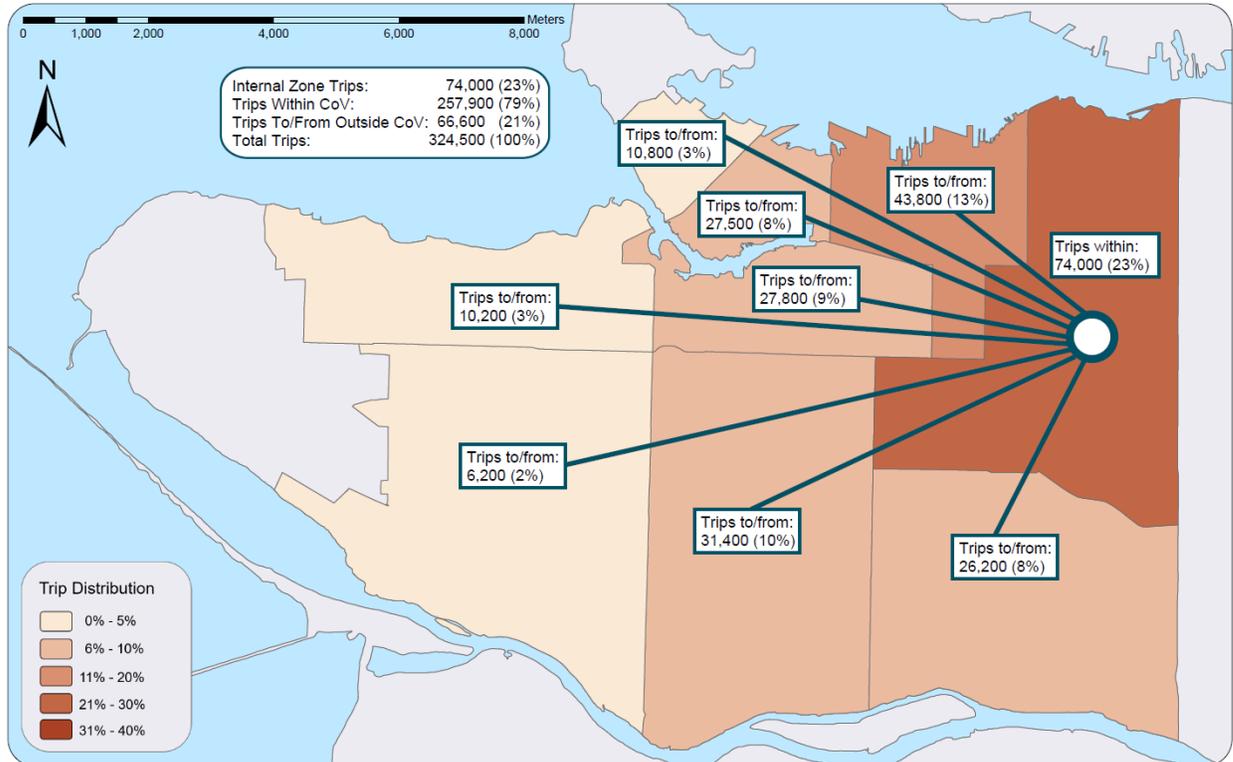
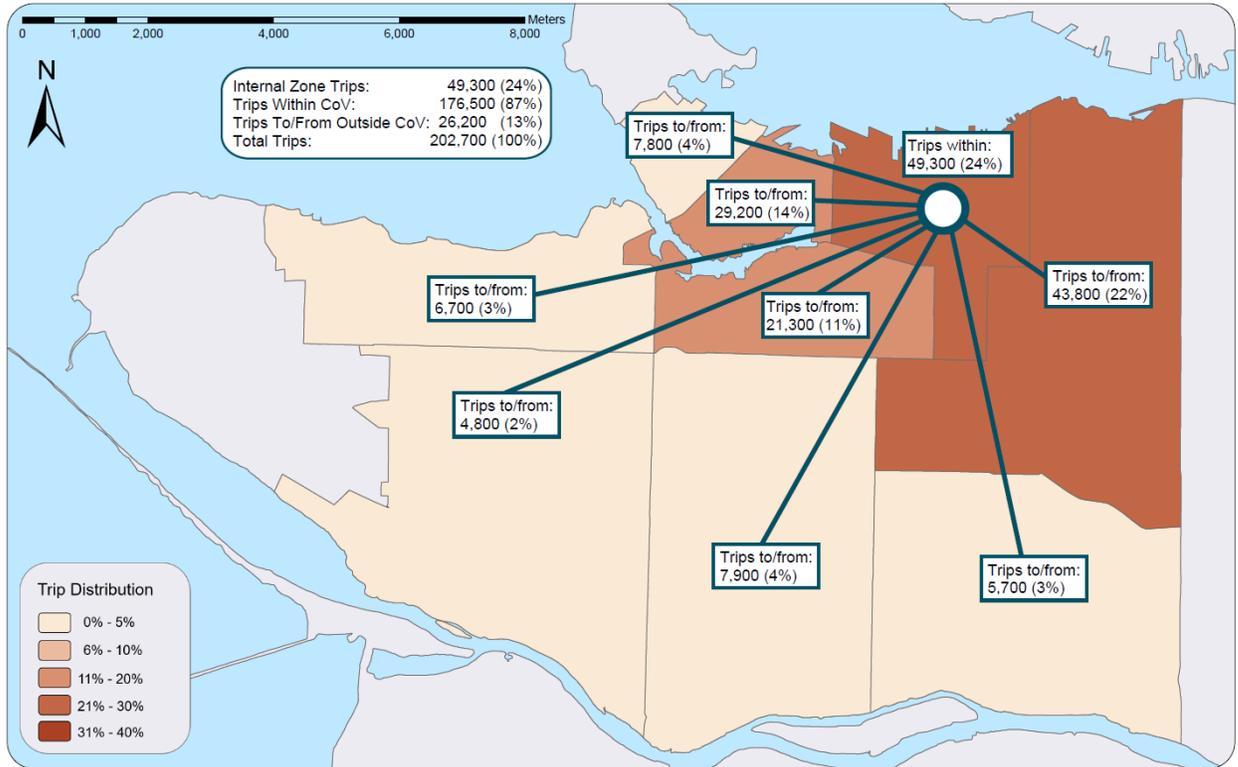


Figure 4-31: Trip Distribution to/from Vancouver Port

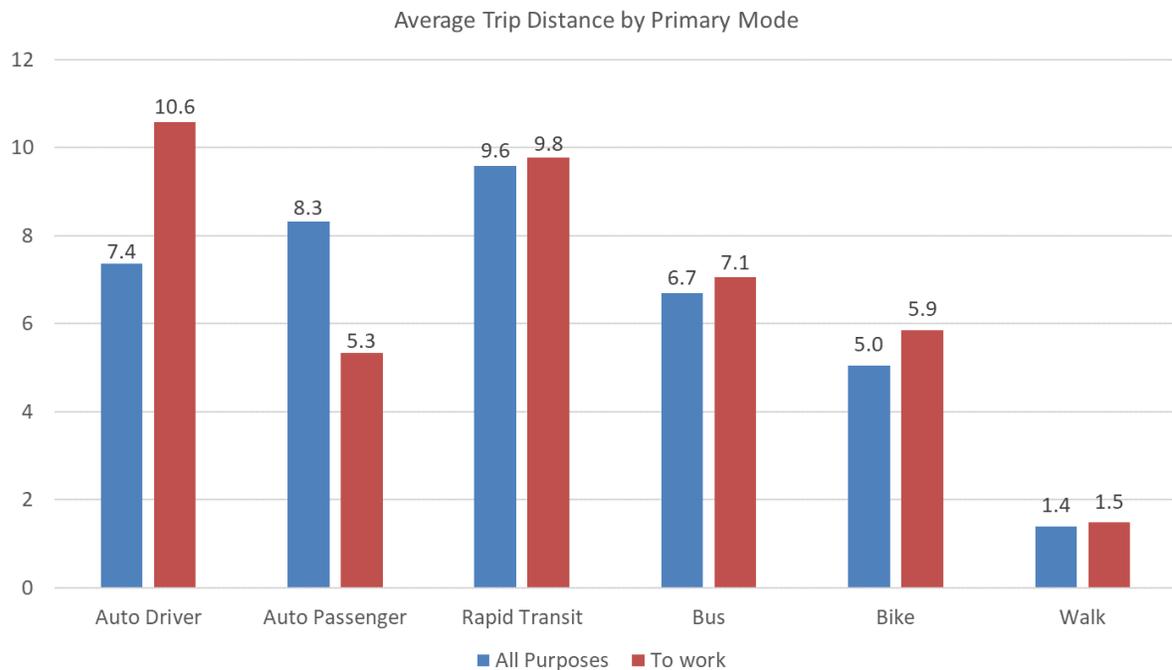


4.10. Average Trip Distance

Trip lengths have been estimated using the distance matrix from the Regional Transportation Model's shortest distance assignment. The origin and destination location for each reported trip was matched with the model's transportation zones using the corresponding latitude and longitude coordinates. Average trip distances by primary mode are presented in *Figure 4-32*.

Residents and auto drivers, in particular, are willing to travel further for work purposes while auto passengers are more willing to make longer distance trips for all purposes., Rapid transit trips are the longest out of the sustainable modes, with an average trip length of 9.6 kilometres and 0.2 kilometres more for work commute trips. Walking trips have the lowest average distance of 1.4 kilometers, which is about 17 minutes at an average 5 km/hour walking speed. This is fairly consistent with the trip duration data reported in *Section 4.6*, where 82% of walk trips are less than 20 minutes.

Figure 4-32: Average Trip Distance by Primary Mode

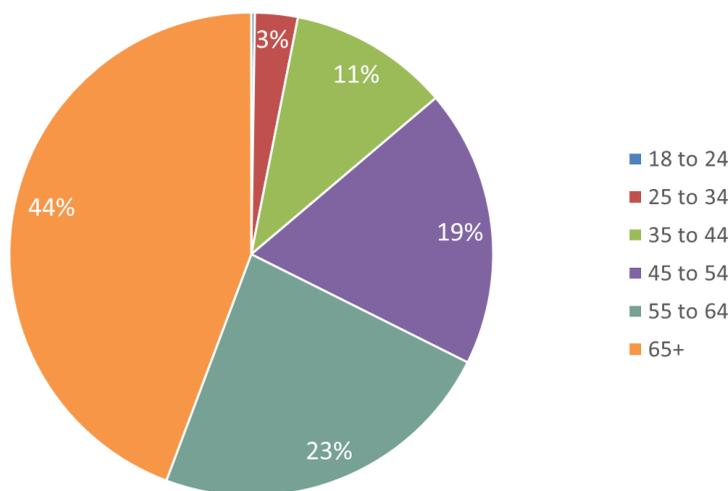


5. Comparison of Returning Panel Members

This section provides a high-level trend analysis of mode shares of the 420 residents who have participated consistently each year in the panel survey since 2013. In general, they made more trips overall when compared to the previous year, but fewer commute trips. Due to the limited sampling of the younger age population as the majority of returning panel members are over 55 years old (shown in *Figure 5-1*), the analysis in this section will be based on individual responses instead of expanded trips weighted by population as calculated in previous sections.

Figure 5-1: Age Distribution of Return Panel Members

Age Distribution of Return Panelists



5.1. Access to a Vehicle

Table 5-1 shows growth in vehicular access, both in terms of private vehicles and car share programs, over the last six years. Reasons for the change include wider spread adoption of car sharing as a primary and supplementary form of transportation. While the number of returning panelists with access to a private vehicle and a valid driver license have not changed, the number of returning panelists with a car share membership continues to increase each year. Whether more people would give up car ownership as a result of the car-share economy should be closely monitored in future surveys with the potential proliferation of ride hailing services including Uber and Lyft.

Table 5-1: Access to Motor Vehicles (2013-2018)

	2013	2014	2015	2016	2017	2018
Valid Driver License	94%	95%	93%	94%	94%	94%
Private Vehicle Access	75%	80%	81%	82%	82%	82%
Car Share Program	14%	20%	22%	25%	27%	30%
No Car Access	13%	12%	12%	13%	12%	11%

5.2. Mode Share Patterns

The following comparisons focus on observed patterns in mode share.

Figure 5-2 shows a comparison of the mode shares of trips for all purposes. Auto driver and transit mode shares have both slightly decreased, while travel by walking and biking and being driven as an auto passenger have increased. Though it is still early to derive conclusive trends from the comparison, it is encouraging to see that overall walk/bike/transit mode share is moving in a positive direction. Walk trips continue to grow, suggesting positive response to pedestrian infrastructure investments. It will be possible to ascertain this increase in the near future as more panel data are collected especially as the survey instrument and return rate become more stable and consistent over time.

Figure 5-2: Change in Mode Share (2013-2018)

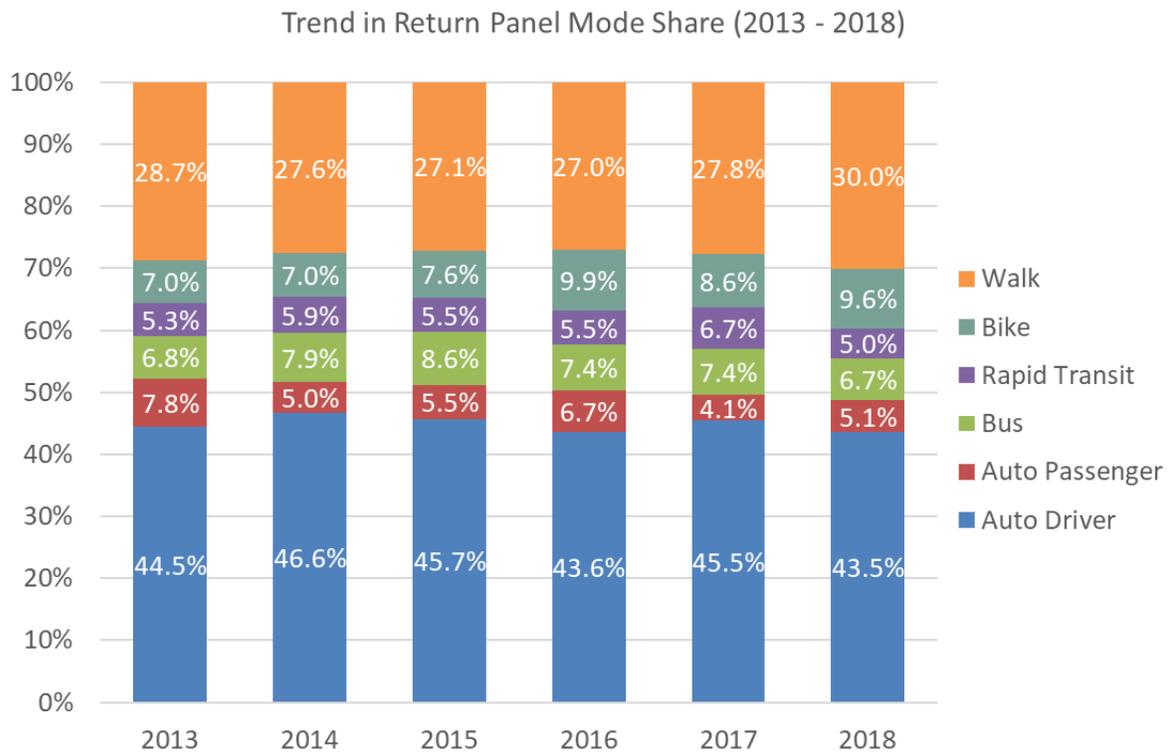


Figure 5-3 and *Figure 5-4* compare 2013-2018 mode shares for commuting (to work/school) and non-commuting trips, respectively. Despite less commute trips made, there are more cycling and auto passenger trips compared to 2017. Additionally, the auto driver mode share to work or school has decreased by roughly 2%. As for non-commuting trips, *Figure 5-4* shows increases in walk and bike trips with returning panelists thus lowering their automobile dependency.

Figure 5-3: Mode Share for Commuting Trips (2013-2018)

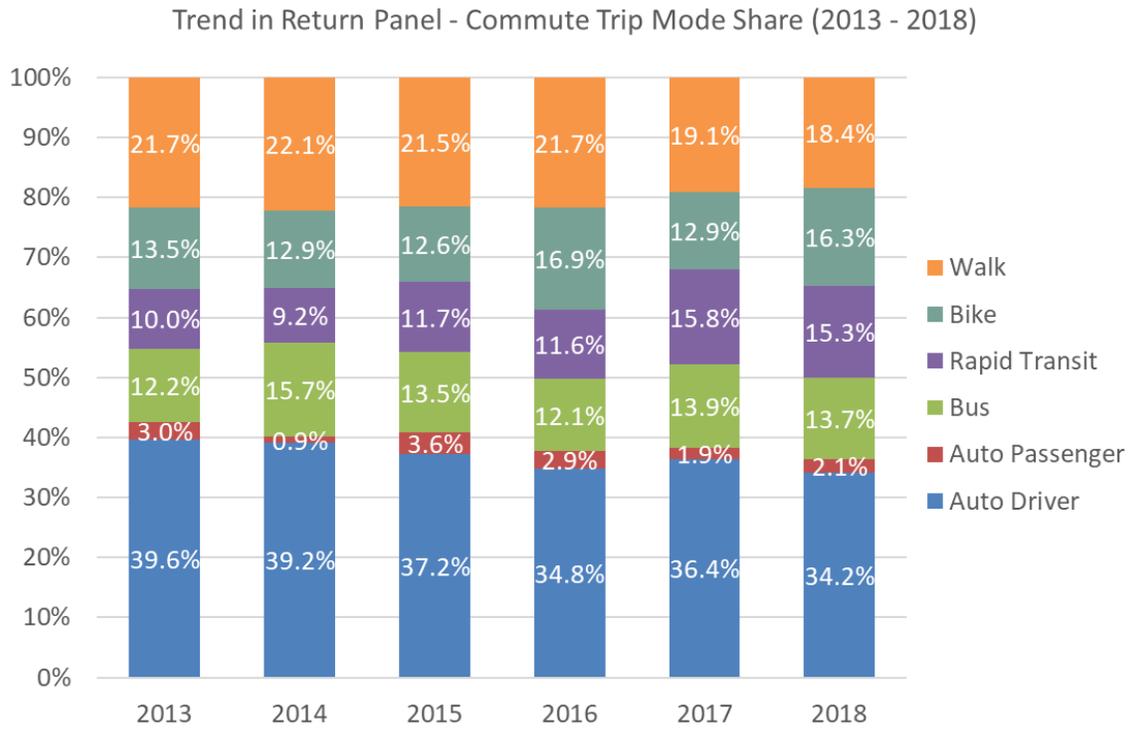
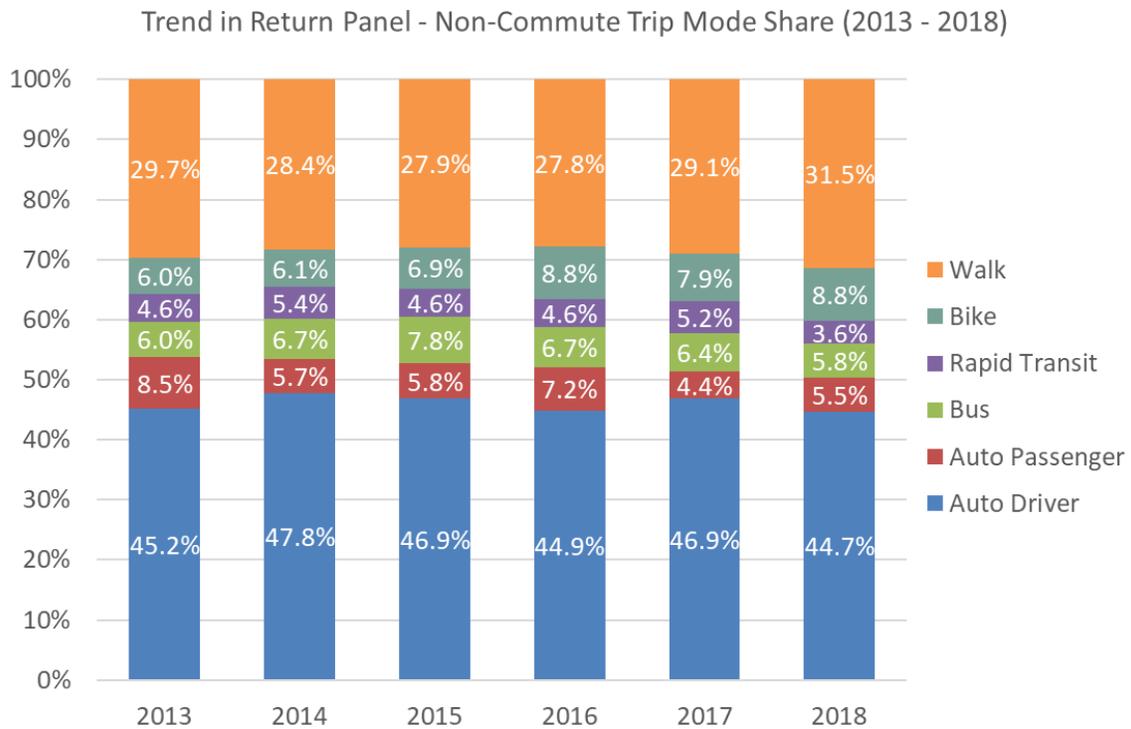


Figure 5-4: Mode Share for Non-Commuting Trips (2013-2018)



6. Contributing Factors Affecting Change

This section provides a brief discussion of recent (post 2010) trends that have potentially influenced travel behaviour and patterns in Metro-Vancouver in general and the City of Vancouver in particular. These include changes in socio-economic patterns (population and employment), transit ridership, and fuel prices. *Table 6-1* provides a description of these accounts and their corresponding data sources.

Table 6-1: Socio-Economic Accounts Affecting Travel

Account	Description	Geography	Source
Socio-economic	Population	City of Vancouver	Stats Can
Socio-economic	Employment	Metro Vancouver	Stats Can
Network Ridership	Transit	Metro Vancouver	TransLink
Cost	Fuel Price	Metro Vancouver	Stats Can

TransLink's 2011 Trip Diary revealed that the region's walk/bike/transit mode share, in general, has increased from 25.5% to 26.8% between 2008 and 2011. This could be attributed to the opening of the Canada Line, significant increases in bus service supply and coverage in the region, improvements to the active transportation network, and overall changes in travel behaviour. Also, trip rates have generally gone up slightly over the same period, from 2.68 trips/person to 2.77 trips/person. While not conclusive¹³, the increase in trip rates can be attributed to recovery from the 2008-2009 economic downturn.

The analysis of the 2013-2018 City of Vancouver Panel Surveys revealed that:

- The average walk/bike/transit mode share has hovered around 49.7% since the start of the panel surveys
- The total number of trips increased from 1.88 million in 2013 to 1.98 million in 2018, an increase of 5.5%.
- Daily VKT based on odometer readings is decreasing.

Additional Panel Survey data are needed to see if this trend continues. As with the Trip Diary, it is important to be cautious in drawing conclusive trends of shifting travel behavior in using a limited sample of residents.

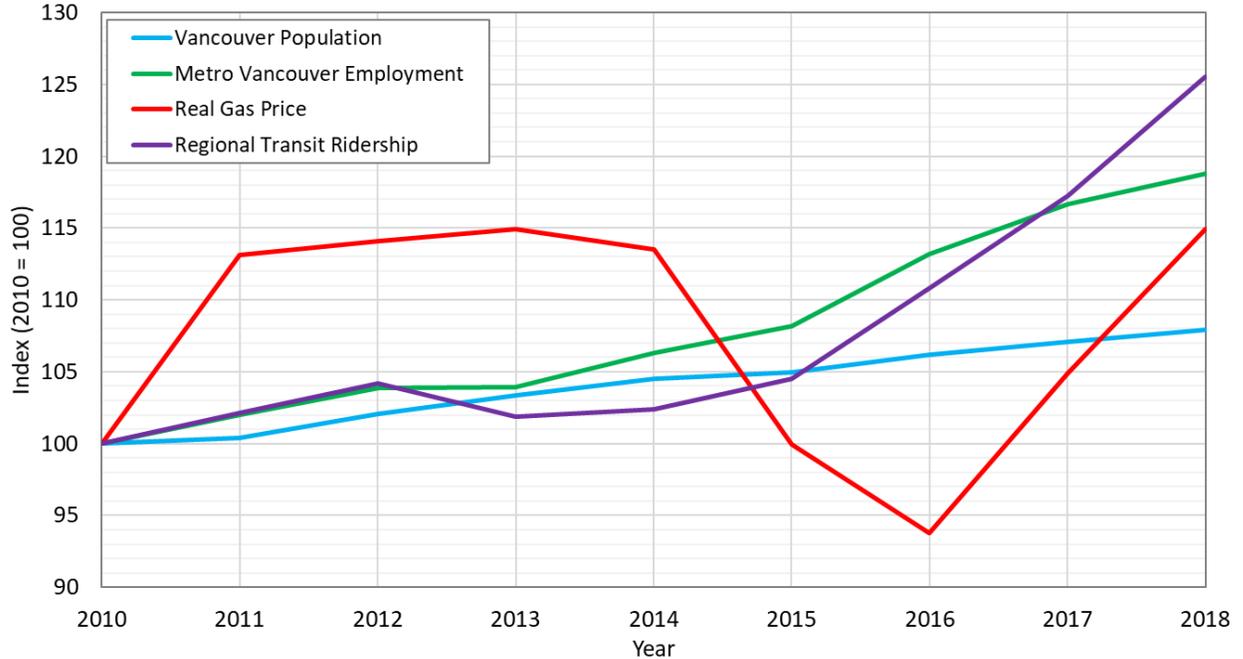
Figure 6-1 shows the trends of the accounts described in *Table 6-1* and indexed to the year 2010. Overall, socio-economic variables, population, and employment have steadily grown in the last eight years. Vancouver population grew steadily by approximately 7% from 2011 to 2018. Metro-Vancouver employment slightly decreased between 2012 and 2013 but rebounded between 2013-14 (+2.4%) and has shown strong growth in the last year (+2%). Fuel price rose sharply in 2011 and continued to grow at a much slower rate until 2013 after which it decreased by 1.5% in 2014. 2015 saw a sharp decline (-

¹³ The trip diary's sample size is approximately 2% of all of Metro-Vancouver's households. While this provides an adequate sample size, comparisons between travel surveys must always be treated with caution as subtle changes to the survey instrument or sampling biases can influence the results of any comparative analysis.

13.7%) in fuel price and a further decrease in 2016 (-6.1%). However, the fuel price has recovered since and has increased drastically in the last year (+10%).

Transit ridership has grown strongly with 7% growth in the last year which could be attributed to strong employment growth, higher fuel prices, increased traffic congestion, improvements to the transit service plan, and widespread adoption of the Compass Card system.

Figure 6-1: Socio-Economic Trends Indexed to 2010



Overall, travel by mode and purpose have seen a large increase in walk trips in the past year. Compared to 2017, there has been a decrease in the share of auto driver and auto passenger trips accompanied by an apparent shift to public transport and travel by walk and bike. Travel by purpose, time of day, and geography have remained consistent with last year's survey showing that travel characteristics have not changed substantially.

7. Lessons Learned and Next Steps

The 2018 Vancouver Panel Survey builds upon the data collected since the previous five Panel Surveys. Having a panel of residents that are surveyed on an annual basis provides the City with a unique and valuable dataset to track trends in walk/bike/transit mode share and vehicle usage.

Some of the key lessons learned during the 2018 Panel Survey data collection and analysis phases include the following:

- The first year of the Panel Survey incurred the highest recruitment cost in order to establish the panel. Originally anticipated cost savings in future panels may not be realized due to the high attrition rate which necessitates a higher level of recruitment to replenish the pool of panelists. In an effort to draw more people to participate in the 2017 survey, a cash-based only incentive design was implemented as opposed to the combination of City based facility/ attraction and Visa gift cards awarded in 2016. In addition to the random cash-based prize draw introduced in 2017, the 2018 Panel Survey added a \$20 direct incentive to provide to any 15 to 34-year-olds who registered and completed their trip diary. These cash incentives, coupled with the youth referral process implemented this year, have encouraged greater participation in the younger age cohort.
- To maintain one of the primary goals of consistency with TransLink's Regional Trip Diary Survey and to reduce the programming effort for the online portion of the survey, it will be important to minimize year-to-year modifications to the survey. Furthermore, should there be an interest in adding questions to the current program, it is recommended that a proper review of the instrument be conducted in advance to see which existing questions should be removed so that survey length, attrition rate, and recruitment efforts remain stable.
- The bulk of panel members complete their trip diaries in October-November and notification of incentives/final wrap up occurs around March. For the 2018 Panel Survey, a mini summer survey was conducted to engage panelists and to remind them of the upcoming fall survey. This has likely helped to maintain existing panel members and remind residents of the importance of this survey.
- This transportation panel survey included a significant amount of effort and technical expertise to do logic and error checking, programming, weighting, and expansion. This level of logic and error checking should be maintained for future panel surveys to maintain data consistency and to ensure quality analysis and results.
- By starting the survey and recruitment earlier in the year, the goal to capture fall travel patterns was achieved. This will result in a more accurate reflection of trip rates and travel characteristics.
- Findings from this year's panel survey revealed decreased car dependency and an increase in active travel compared to the 2017 Panel Survey. It is important to continue tracking mode share in the ensuing years to determine whether the City is headed towards their targets.
- Future monitoring of travel within zones and elsewhere within the City can serve as a useful metric to gauge the land use integration and live/work choices afforded to Vancouver residents.

Appendix A – 2018 Panel Survey Instruments

Returning Panelists and New Recruits

EMAIL INVITATION – RETURNING PANELISTS COMPLETING ALL SURVEY SECTIONS ONLINE

Subject: Trip Day - City of Vancouver Annual Travel Survey

Sender: Mustel Group for City of Vancouver [covtravelsurvey@mustelgroup.ca]

Hello and welcome back to the City of Vancouver Annual Travel Survey!

In the past year, you completed a travel survey for the City of Vancouver and agreed to be a part of an ongoing panel to help the City better understand transportation needs and address transportation issues for area residents. Thank you again for providing your input to help your community.

As a returning panelist, we again are looking forward to hearing from you on the trips you make and how you travel over a one-day period. Even if your travel patterns have not changed from last year, your input as a returning panelist on the trips you make over a one-day period is still important. Also, if you are planning to be away in the fall, you can still participate as the survey runs from September to end of November, giving you plenty of time to complete it.

And, as a thank you for your ongoing participation, this year you will have a 1-in-10 chance to win one of 245 cash-based incentives ranging from \$50 to \$1,000! Further details on the prize draw are available once you access the survey.

Note that your diary day will be assigned once you click the link below.

PIN Number. This is important if you need to contact our Help Line (see below) for any questions or assistance with your survey. Be sure to provide this number when emailing or calling in.

YOUR PIN NUMBER: 34232343

You can start your survey now by clicking on YOUR UNIQUE LINK:
<http://www.covtravelsurvey.com/dash/Dash?id=covtravel,34232343>

If your email program doesn't support *html* and you are unable to click on your unique link above, please copy and paste the link directly into your browser.

Thank you in advance for your continued participation!

Mustel Group Study Team (covtravelsurvey@mustelgroup.ca)
402-1505 West 2nd Ave
Vancouver, BC V6H 3Y4

Need Help?

Reply to this email or call us at: **778-383-3416**
(Please have your PIN Number handy when you do.)

To unsubscribe from receiving email reminders, please [click here](#)
To unsubscribe from this survey altogether, please [click here](#)

City of Vancouver Annual Travel Survey

Please read this information regarding your one-day trip diary.

- Your assigned travel day is next (**INSERT DAY**). If you are unable to record your trips to the online survey for your assigned day, you can do so within a week or two afterwards.
- Watch this video with key points to remember on your travel day ([Trip Diary Video](#)).
- Before recording and entering your trips, we will first confirm information you provided last year.

NOTE: Even if any of the following applies to you, we still need you to complete the survey:

- You do not make any trips on your assigned day
- The trips you take on your assigned day are not typical
- Your trip patterns have not changed from year to year

Also, if you plan to be away for a period of time, you can still participate as the survey is open until the end of November.

When you are ready to begin the first part of the survey, click the NEXT button.

Need help/ more info? Click here ([link to www.mustelgroup.com/covsurveyhelp](http://www.mustelgroup.com/covsurveyhelp))

CONFIRM PANELIST: Did you complete last year's City of Vancouver Travel Survey?

1. Yes → **SKIP THESE Q'S** **A. GENDER, C. AGE BELOW, + Q7-8-9 IN DEMOGRAPHICS**
2. No

A. Do you identify as:

1. Male
2. Female
3. Transgender
4. Other identity
5. Prefer not to answer

D. EMAIL ADDRESS

The email address we have on file for you for this Annual Travel Survey is below. If you wish to update to a more frequently used address, or one that is more convenient, please let us know.

Your email address: _____

1. Yes, this information is correct
2. No, I need to update this information

E. UPDATE EMAIL

Please enter the email address you prefer to use: _____

Please confirm your email address: _____

ALERT IF BOTH FIELDS BELOW DO NOT MATCH

B. Please confirm the home postal code you entered last year. If changed, please update so we are sure you still live in the survey area. AUTO_POPULATE FROM 2016 (6-digit) _____

1. Yes, this information is correct
2. No, I need to update this information

IF DIFFERENT FROM TAGGED COV SUB-AREA, BUT IS ONE OF 8 OTHER VALID SUB-AREAS, ACCEPT.

IF DIFFERENT AND NOT IN ANY COV SUB-AREAS, THANK AND END. QA.page

Please enter your 6 digit home postal code with no spaces or punctuation.

(FLAG EMPLOYEE) EVERYONE- EMPLOYMENT SCREENER: QAA1. Do you or does anyone in your household work for the City of Vancouver, Mustel Group or McElhanney?

1. Yes → QAA2. Please note that while we can include your responses for this study, due to standard contest rules you will not be eligible for the Prize Draw. Are you still interested in participating?
 - a. Yes → **REMOVE FROM PRIZE DRAW AND CONTINUE**
 - b. No → **THANK AND END INTERVIEW** Sorry this was not of interest to you. Please click the button below to exit the survey.
2. No **CONTINUE**
3. Not sure → **FOLLOW QAA2.page FLOW ABOVE**

AUTO-POPULATE - ASK EITHER C OR C2 DEPENDING ON RESPONSE FROM PREVIOUS WAVE

C. Please confirm the year in which you were born? _____

1. Yes, this information is correct
2. No, I need to update this information UPDATE YEAR OF BIRTH: Please select the year in which you were born.

IF REFUSED YEAR BORN: C2. Please confirm this is the age group that applies to you.

1. 15-17
2. 18-24
3. 25-34
4. 35-44
5. 45-54
6. 65+
7. PREFER NOT TO ANSWER

ii) PRIVACY: As one of the goals of this study is to understand and track changes in residents' travel patterns over time, your contact information linked with your survey responses would be retained by the City **for this annual study only**. Note that all information would remain confidential in a secure environment and would not be used on an individual basis for any other purpose.

Do you agree to share your personal contact and linked survey responses with the City of Vancouver for the sole purpose of participating in this travel survey?

PRIZE DRAW

This year, you will have a 1-in-10 chance to win one of 245 cash-based incentives as follows:

# of Prizes	Prize Amount
3	\$1,000
4	\$ 750
6	\$ 500
12	\$ 250
40	\$ 100
180	\$ 50

1. Yes, please enter me into the draw. (Upon completing the full survey we will enter you to the prize draw. Note that winners will be contacted within the first quarter of 2019.)
2. No, thank you

REGISTRATION QUESTIONS

Please confirm your first and last name. Also, as the trip diary could include trips you make to or from work and home, please confirm the home address you provided last year.

R1. FNAME: _____ LNAME: _____
 SUITE#: _____ STREET#: _____ STREET: _____ STREET TYPE: _____ STREET DIRECTION: _____
 CITY: _____ PROVINCE: _____ POSTAL CODE _____

1. Yes, this information is correct
2. No, I need to update this information → Please update your name and address.

IF UPDATING INFORMATION (R1=2), OBTAIN NEW ADDRESS AND DISPLAY MAP WITH NEW HOME LOCATION IDENTIFIED [DESCRIBE CROSS-STREETS NEAREST TO PIN-POINT]

R3. Is this the correct location?

1. Yes
2. No → **RETURN TO VERIFY INFORMATION UNTIL CORRECT**

R4. If you are employed, your trip diary may include trips you make to and from work. Please confirm the work address you provided last year?

STREET#: _____ STREET: _____ STREET TYPE: _____ STREET DIRECTION: _____
 CITY: _____ PROVINCE: _____ POSTAL CODE _____

1. Yes, this information is correct
2. No, I need to update this information → Please enter your work address here to simplify trip reporting later. When recording the street number enter the building address only; no apartment or suite number is necessary.

Do not work (unemployed)

No work address (no fixed work address OR only work from home)

Enter work address

IF UPDATING INFORMATION (R4=2), OBTAIN NEW EMPLOYMENT INFO. IF CHANGE OF WORK ADDRESS, DISPLAY MAP WITH NEW WORK LOCATION IDENTIFIED. [DESCRIBE CROSS-STREETS NEAREST TO PIN-POINT]

Is this the correct location?

1. Yes
2. No → **RETURN TO VERIFY INFORMATION UNTIL CORRECT**

If you have more than one work address, please provide your second work address here.

When recording the street number enter the building address only; no apartment or suite number is necessary

1. No second work address
2. Yes – **ENTER 2nd WORK ADDRESS**

STREET#: _____ STREET: _____ STREET TYPE: _____ STREET DIRECTION: _____
 CITY: _____ PROVINCE: _____ POSTAL CODE _____

DISPLAY MAP WITH WORK LOCATION IDENTIFIED [DESCRIBE CROSS-STREETS NEAREST TO PIN-POINT]

Is this the correct location?

1. Yes
2. No → **RETURN TO VERIFY INFORMATION UNTIL CORRECT**

PROFILING, GENERAL TRANSPORT & PARKING QUESTIONS

1. Do you currently have a valid driver's license?
 1. Yes
 2. No → SKIP TO Q3a

2. How many vehicles do you own or have regular access to (please include all cars, vans or light trucks that are brought home and parked overnight but not motorcycles / scooters or bicycles; do not include car share vehicles)?
_____ None

3. What car share services are you a part of, if any? (check all that apply)
 1. Car2go___
 2. Modo___
 3. ZipCar___
 4. Evo___
 5. Other___ None___

- 3a. Are you a member of "Mobi", the City of Vancouver's public bike share system?
 1. Yes
 2. No

4. Are you a commercial driver, that is do you drive or make deliveries as part of your job (e.g., if a bus or taxi driver, courier, etc.)?
 1. Yes → Note that this survey concerns your travel for personal trips and those including travel to and from your job, but not trips made as part of your commercial driving job.
 2. No

5. a) What is your **usual mode of transportation** this time of year for trips to or from **work**? If you use more than one mode, select the one used for **most of the travel distance**. **CHECK ONE ONLY**
 - a. Private car, truck, or van **as a driver**
 - b. Private car, truck, or van **as a passenger**
 - c. Car share as a driver (ex Modo, Car2go, ZipCar, Evo, etc)
 - d. Car share as a passenger (ex Modo, Car2go, ZipCar, Evo, etc)
 - e. Transit bus
 - f. SkyTrain
 - g. West Coast Express
 - h. SeaBus
 - i. HandyDART
 - j. School bus
 - k. Other bus
 - l. Personal bicycle
 - m. Bike Share (Mobi)
 - n. Walk
 - o. Taxi
 - p. Motorcycle
 - q. Other → Please describe other mode of travel _____
 - r. DO NOT TRAVEL TO WORK

b) What is your **usual mode of transportation** this time of year for trips to or from **school as a student**? If you use more than one mode, select the one used for **most of the travel distance**. **CHECK ONE ONLY**

- a. Private car, truck, or van as a driver
 - b. Private car, truck, or van as a passenger
 - c. Car share as a driver (ex Modo, Car2go, ZipCar, Evo, etc)
 - d. Car share as a passenger (ex Modo, Car2go, ZipCar, Evo, etc)
 - e. Transit bus
 - f. SkyTrain
 - g. West Coast Express
 - h. SeaBus
 - i. HandyDART
 - j. School bus
 - k. Other bus
 - l. Personal bicycle
 - m. Bike Share (Mobi)
 - n. Walk
 - o. Taxi
 - p. Motorcycle
 - q. Other (specify) _____
 - r. DO NOT TRAVEL TO SCHOOL AS A STUDENT
6. In terms of walking, what would you consider a reasonable walking distance for travel purposes (work, school, shopping, etc.) (RECORD FARTHEST DISTANCE): <400m (6 min), 400-800m (6-12 min), 800-1,200m (12-18 min), >1,200m (>18 min).
- IF Q5a OR 5b = "Bicycle", CANNOT SELECT CODES 5-6 BELOW. ERROR MESSAGE: You mentioned earlier that you use a bicycle as your main mode of travel for trips to work and/or school. Please correct your answer here or click the previous button to correct your travel modes to work and/or school.**
7. How often do you typically travel by bicycle in fair weather?
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 ride a bicycle at all (**SKIP TO Q11**)
 6. I am physically unable to ride a bicycle (**SKIP TO Q11**)
8. How often do you typically travel by bicycle in rainy or cold weather?
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 ride a bicycle in rainy or cold weather
9. Are you interested in travelling by bicycle more than you do now?
1. Yes
 2. No, I am happy with how much I currently bicycle
 3. No, I want to travel less by bicycle
10. If you were travelling by bicycle on your own, in which of the following environments would you feel comfortable:
1. On almost any street in the city and I don't worry much about traffic conditions.
 2. On major streets, provided they have painted bicycle lanes.
 3. On major streets, provided they have bicycle lanes separated from traffic with a physical barrier.
 4. On local neighbourhood streets with little traffic and low speeds.
 5. On bicycle paths far away from motor vehicles.
 6. Not comfortable cycling in any of the above environments (**UNCHECK ANY ABOVE**)

11. Have you traveled by public transit in the past month?
1. YES → ASK 12
 2. NO
12. IF YES: How do you usually pay for your travel by transit this time of year? (RECORD ALL THAT APPLY)
1. Cash
 2. Compass Card Add Value
 3. Compass Card Monthly Pass
 4. U-Pass
 5. Employer Pass (Discount or fully paid for by employer)
 6. Credit/ Debit
 7. Other Specify: _____
- SKIP 13-14 IF REGISTRATION Q4 = Do not work (unemployed)
13. Do you make any trips for business purposes during work?
1. Yes
 2. No → SKIP Q14
14. Do you have access to employee programs that support or provide the following (MULTIPLE RESPONSE):
Check all that apply
1. Company Carpool / Car Share
 2. Employer Subsidized Transit Pass
 3. Employer Subsidized Bike Share / Mobi Membership
 4. Other specify: _____
 5. No, I do not have access to such programs

DEMOGRAPHICS

A few questions to help us classify the survey data.

1. Including you, how many people reside in your household?
DROP DOWN MENU
2. The City is interested in tracking the health of its residents. In general, would you say that your health is...
 - a. Excellent
 - b. Very good
 - c. Good
 - d. Fair
 - e. Poor
 - f. Prefer not to answer
3. What type of dwelling do you currently live in?
 - a. A single detached home (includes basement suites, laneway houses, etc)
 - b. An apartment or condo in a low rise (5 levels or less)
 - c. An apartment or condo in a high rise (more than 5 levels)
 - d. A townhouse/row house
 - e. Semi-detached home or a duplex (includes basement suites)
 - f. Residential care or long term care facility
 - g. A mobile home
 - h. Other
 - i. Prefer not to answer

-
4. EMPLOYMENT: Are you: (MULTIPLE RESPONSE EXCEPT CANNOT SELECT *Working full-time* AND *Unemployed*, NOR SELECT Student full-time AND Student part-time, NOR SELECT *Unemployed* WITH ANY WORK OPTIONS)
- a. Working full-time (30+ hours per week)
 - b. Working part-time (less than 30 hours per week)
 - c. Self-employed
 - d. Volunteer only (not for pay)
 - e. Unemployed
 - f. Looking after home/family
 - g. Retired
 - h. Student full-time
 - i. Student part-time
 - j. Prefer not to answer
5. HOUSEHOLD INCOME: Which of the following best describes your total **household** income (the combined gross income for all household members)?
- a. Less than \$25,000
 - b. \$25,000 to less than \$50,000
 - c. \$50,000 to less than \$75,000
 - d. \$75,000 to less than \$100,000
 - e. \$100,000 to less than \$150,000
 - f. \$150,000 or more
 - g. Prefer not to answer

-
6. What is the highest level of education you have completed?
- Have not completed high school
 - Completed high school/secondary school
 - Trade certificate or diploma from a vocational school or apprenticeship training
 - Non-university certificate or diploma from a community college, CEGEP or nursing school
 - University certificate below bachelor's level
 - Bachelor's degree
 - Graduate degree (master's degree or doctorate)
 - Prefer not to answer
7. **ETHNICITY:** Were you born in Canada?
- Yes
 - No
 - Prefer not to answer
8. Vancouver residents come from many different backgrounds. What is your main ethnic background? [ALLOW UP TO TWO OPTIONS TO BE SELECTED]
01. African
 02. American
 04. Australia
 05. British (English/Scottish/Welsh/Irish)
 06. Canadian (including First Nations, Inuit, Metis)
 07. Chinese
 08. Dutch
 10. East European (Ukrainian, Polish, Hungarian, Serb, etc)
 11. Filipino
 12. French
 13. German
 14. Greek
 15. Italian
 16. Japanese
 17. Korean
 18. Latin American (Guatemalan, Nicaraguan, Mexican, etc)
 19. Middle Eastern
 20. Portuguese
 21. South American (Brazilian, Peruvian, Columbian, Chilean, Ecuadorian)
 09. South Asian (Punjabi, Indian, Tamil, Guyana, Pakistani, etc)
 22. Scandinavian
 23. Spanish
 24. Vietnamese
 03. Other Asia (Indonesian, Malaysia, Thailand)
 - OTHER SPECIFY: _____
 99. Prefer not to answer

IF Q8 = 06. Canadian

9. Do you identify as an Aboriginal person (i.e. First Nations, Inuit, Mets)?
1. Yes
 2. No

NEW QUESTIONS ASKED ONLY OF THOSE 35 YEARS AND OLDER, AND HAVE MORE THAN 1 PERSON IN HOUSEHOLD:
Finally...

10a. Is there anyone in your household between the ages of 15 and 34 years?

1. Yes
2. No → **THANK AND END**
9999. Prefer not to answer → **THANK AND END**

IF YES IN Q10a

10b. We would like to invite one additional household member from this age group to also participate in this travel survey. Do you think they would be interested?

1. Yes
2. No → **THANK AND END**

Please provide their email address and we will send them a link to the survey.

EMAIL: _____
RE-ENTER EMAIL: _____

And could we have their name and phone number? We may need to call them to make sure they received the email.

NAME: _____
PHONE: _____

Is this a cell or landline number?

Cell Landline

Who should we say has referred this youth to our survey? _____

SEND NEW RECRUIT EMAIL TO SELF-COMPLETE ONLINE

City of Vancouver Annual Travel Survey

Please read this information regarding your one-day trip diary:

- The trip diary section will ask about the trips you make on your single assigned day indicated below.
- Watch this video with key points to remember on your travel day (Trip Diary Video)
- Your assigned travel day is a (INSERT DAY). If you are unable to record your trips to the online survey for your assigned day, you can do so within a week or two afterwards.

NOTE: Even if any of the following applies to you, we still need you to complete the survey.

- You do not make any trips on your assigned day
- The trips you take on your assigned day are not typical
- Your trip patterns have not changed from year to year

Also, if you plan to be away for a period of time, you can still participate as the survey is open until the end of November.

If you are ready to begin the trip diary, click the NEXT button.

Otherwise click the Exit button and return to complete your diary when you are ready.

TRIP BEHAVIOUR (Monday to Friday only)

The City needs to understand residents' transportation choices each time they make a trip within or through the Lower Mainland. Please watch this quick video on how to fill in the trip diary: [Link to Trip Diary Video](#)

In this survey, we are asking about all of your trips taken on [INSERT ASSIGNED DAY] between midnight and 11:59 p.m. (a full 24-hour day).

PROGRAMMER NOTE: INSERT THIS TEXT IF DRIVES OR MAKES DELIVERIES AS PART OF JOB (PROFILING AND GENERAL TRANSPORT QUESTION 3 = YES):

Please remember to exclude trips you make as part of your job (i.e. driving a bus, taxi or commercial vehicle), but do include trips to and from work as well as any other personal trips you make.

DEFINITION OF A TRIP (ON FIRST SCREEN – HAVE AS LINK OR DROP DOWN ON EVERY OTHER TRIP SCREEN)

A trip is travel from one location to another location for a purpose.

- **Include trips made by all means (walking, cycling, transit, car, etc)**
- **Include short trips** (e.g., stopping at a coffee shop, a gas station or dropping someone off)
- **Include return trips** (e.g., going home)
- **Include recreational outings that end at the same place they started** (e.g., dog walking, going for a walk or jogging)

1. Did you make any trips that started and ended on INSERT ASSIGNED DAY], between midnight and 11:59 p.m (a full 24 hour day)?

1. No, stayed home or was out of town for the whole day → SKIP TO VKT SECTION
2. Yes

1. Trip 1

Q1a) What was the **starting location**? If this trip started from home or work, please click “Home” or “Work”.
Otherwise please enter ONE of the following for your start location:

- a precise address, OR
- nearby cross-streets, OR
- a landmark

Always include the municipality.

Q1b) What was your **end location**? If this trip ended at home or work, please click “Home” or “Work”.
If this is a recreational trip where your start and end locations are the same, please select that response.
(Examples of recreational trips are dog walking, jogging, etc)

Otherwise please enter ONE of the following: for your end location

- a precise address, OR
- nearby cross-streets, OR
- a landmark

Always include the municipality.

Same as origin (a recreational trip such as walking, dog walking or jogging where you start and end your trip at the same location)

Address: _____

Nearby cross-streets: _____ and _____

Landmark : _____

Municipality:

1. Vancouver
2. Burnaby
3. Coquitlam
4. Delta/Ladner/Tsawwassen
5. Langley/Langley Township/Fort Langley/Aldergrove
6. Maple Ridge
7. New Westminster
8. North Vancouver
9. Pitt Meadows
10. Port Coquitlam
11. Port Moody/Anmore/Belcarra
12. Richmond
13. Surrey
14. West Vancouver (including Horseshoe Bay/Lions Bay)
15. White Rock
16. All Other Locations Ending Outside of Metro Vancouver

(NEW SCREEN: GOOGLE MAP WITH PIN POINT OF LOCATION. Confirm: Is this the correct location? IF YES:
INSERTION OF LAT-LONG FROM GEO-CODER. IF NO, RETURN TO END LOCATION SCREEN FOR RE-
ENTRY/REVISION OF LOCATION DETAIL)

Q1c) What time of day did you start this trip?

1. 12:00am to 5:59am
2. 6:00am to 8:59am
3. 9:00am to 11:59am
4. 12:00pm to 2:59pm
5. 3:00pm to 5:59pm
6. 6:00pm to 8:59pm
7. 9:00pm to 11:59pm

Q1d) IF RESPONSE “Same as origin” IN b) ask: Approximately how long was this recreational trip?

1. Less than 10 minutes
2. 10 to less than 20
3. 20 to less than 30
4. 30 to less than 40
5. 40 to less than 50
6. 50 to less than 60 minutes
7. 60 minutes or more

Q1e) What was the main **purpose** of this trip? **ONE RESPONSE ONLY** AUTO CODE AS “Recreation” IF RESPONSE “Same as origin” IN b)

1. To work
2. During work/business trip
3. To school (as student)
4. Shopping
5. Dining/restaurant
6. Recreation (including dog walking, jogging, etc)/social/entertainment)
7. Personal business (e.g. bank, doctor, volunteering, etc)
8. To drop-off/pick-up someone (via driving, walking, transit, cycling, etc.)
9. To go home

Q1f) How did you travel to this location? Choose all that apply. If more than one, list in order of use.

If you walked and used other modes, select “walked as part of the trip” as well as the other modes.

1. Private car, truck, or van as a driver
2. Private car, truck, or van as a passenger
3. Car share as a driver (ex Modo, Car2go, ZipCar, Evo, etc)
4. Car share as a passenger (ex Modo, Car2go, ZipCar, Evo, etc)
5. Transit bus
6. SkyTrain (Expo, Canada and Millennium Lines)
7. West Coast Express
8. SeaBus
9. HandyDART
10. School bus
11. Other bus
12. Walked/jogged the whole way **(CANNOT BE COMBINED WITH OTHER RESPONSES)**
13. Walked/jogged as part of the trip
14. Personal bicycle
15. Bike Share (Mobi)
16. Taxi
17. Other (specify) _____

IF TRIP.(f) RESPONSE IS "Transit Bus", "SkyTrain", "WestCoast Express", "Seabus", "HandyDART", "School Bus", "Other bus", "Walked/jogged the whole way", "Walked/jogged as part of the trip", or "Bicycle" ASK:

Q1k. Approximately how long was the walking and/or biking portion of this trip?

1. Less than 5 minutes
2. 5 to less than 10
3. 10 to less than 20
4. 20 to less than 30
5. 30 to less than 40
6. 40 to less than 50
7. 50 to less than 60 minutes
8. 60 minutes or more

AUTO CODE AS "No", IF RESPONSE "Same as origin" IN b)

Q1g) Was this trip a stop along the way to your next location? (e.g. a short trip such as a drop off, gas station, coffee shop, etc.)

1. Yes → Did you pre-plan to make this stop? 1. Yes 2. No
2. No

Q1h) Excluding any travel companion(s) that may have been with you during this trip, did you interact with anyone else while travelling to your destination (e.g. waving to a neighbour, chatting with another transit rider or bus driver, honking, etc)? **MULTIPLE RESPONSE, EXCEPT OPTION 4**

1. Yes, it was friendly
2. Yes, it was unfriendly
3. Yes, it was neutral
4. No notable interaction with anyone else

Q1h2. TRIP SUMMARY: Please carefully review the information you have provided for this trip.

INSERT

START LOCATION

END LOCATION

TIME OF DAY

MAIN PURPOSE OF TRIP

METHODS OF TRAVEL

Is this information complete and correct?

1. Yes (If you select this and click "Next", you will not be able to make changes to this trip)
2. No (If you select this and click "Next", you will be taken through the trip to make corrections)

To make corrections: If you click **Next** on this page, you will be taken back through your trip to make changes.

As you go through the trip and the page that displays does not require corrections, simply click "Next" to continue until you reach the information that needs to be changed. Then select or type in the correct response to the question. Please be sure to follow the instructions carefully when you access the map pages.

After you have revised the trip, you will again be asked to verify that it is correct.

Click **Next** to revise your trip OR click **Previous** if you arrived here by mistake.

TRIP COMMENTS: Do you have any other details or comments about **this trip** that you would like to provide? If you have no additional comments, click NEXT to continue. **COMMENT BOX PROVIDED**

Q1i) Did you make another trip on this day before 11:59pm? (Remember to include return trips.)

1. Yes
2. No (last trip of the day) → IF LAST TRIP DID NOT RETURN HOME, ASK j)

Q1j) Did you return home before 11:59pm on this travel day?

1. Yes - Please record the details of this trip
2. No - Did not return home on this day → **IF Q1g = Yes, a stop along to another destination, INSERT ERROR MESSAGE:** You mentioned earlier this trip was a stop along the way to another destination. Is it correct that you did not make any more trips today?
If this is correct you can leave your answer as is and click "Next" again to continue, otherwise please correct your response. **(CLICKING NEXT SKIPS TO TOTAL TRIP SUMMARY, THEN VKT)**

Trips 2-15: REPEAT TRIP QUESTIONS STARTING WITH....

b) **Destination:** Where did you go next? ALL OTHER QUESTIONS SAME AS ABOVE

AFTER LAST TRIP OF DAY, TOTAL TRIP SUMMARY: Please review your trips below.

k) Are your trips complete?

INSERT TRIP SUMMARIES

TRIP	FROM	TO	PURPOSE
1	ADDRESS	ADDRESS	PURPOSE
2	ADDRESS	ADDRESS	PURPOSE
3, etc.	ADDRESS	ADDRESS	PURPOSE

1. Yes
2. No

IF NO: This action will delete all of your trips. You will need to re-enter all of your trips to complete the survey. Are you certain that you wish to delete all of your trips? [tripReset.page](#)

1. Yes → **REDO ALL TRIP ENTRIES**
2. No → **CONTINUE**

VKT SECTION

PROGRAMMER NOTE: IF PRIVATE VEHICLE CHOSEN IN RECRUIT PROFILING AND GENERAL TRANSPORT SECTION (Q2), ASK Q1-2

QS1 Return. Below is the make, model and year of the private vehicle you provided to us in the 2016 survey (the one you typically used for your personal trips). If this has changed please let us know.

INSERT: **MAKE** **MODEL** **YEAR**

1. Yes, this is the private vehicle I typically use for my personal trips → **ASK Q SEND ODOMETER**
2. No, the private vehicle I typically use for my personal trips has changed → **ASK QS1 BELOW**

QS1-1a. What type of private vehicle do you typically drive? Please choose the make, model and year of your vehicle.

INSERT IF COMMERCIAL DRIVER IDENTIFIED IN RECRUIT PROFILING & GENERAL TRANSPORT SECTION (Q3) This is the vehicle typically driven for your personal trips. If you typically use a commercial vehicle for your personal trips, select that vehicle from the list below.

DROP DOWN MENUS AS PER NRCAN DATASET -AS NRCAN LIST ONLY INCLUDES PASSENGER VEHICLES, ALLOW OVERRIDE

MAKE **MODEL** **YEAR**

Q Send Odometer: It is important for the City to understand how many kilometers residents are driving in a year as it helps provide a measure of fuel consumption and emissions, which impact air quality and climate change.

Would you like to enter your odometer reading now, or email a link to enter it later? The email link will provide you with a mobile-friendly way to enter the odometer, so you can complete it in your car with your smartphone or tablet, if you choose.

1. Provide my odometer reading right now
2. Email a link to enter my odometer reading later (Please specify the email address you would prefer to receive the link to the odometer reading. _____@_____.

QS2. Please record the current odometer reading for this vehicle (to nearest 100km's). If unsure, you may check the vehicle and return to enter later. _____ km's

CLOSING: This completes our survey. Thank you very much for your input and interest in this **annual trip diary** survey! As a small thank you, once all trip diaries have been collected and analyzed, we will email you key results and a link to the full report from this year's survey made possible by your participation. If you are eligible for the prize draw, all winners will be contacted within the first quarter of 2019.

Thank you once more and we'll be in touch in 2019!

Please click the button below to submit the survey.

RECRUITMENT SCREENER – NEW TEL RECRUITS

Random sample & Cell sample: City of Vancouver households.

Hello, I'm ___ of Mustel Group, a professional research company calling on behalf of the City of Vancouver to invite you to participate in an important annual online transportation study. Your household has been randomly selected for this panel transportation study and your input will help the City make better decisions regarding future transportation plans and investments for area residents.

Please note this call may be monitored or recorded for quality control purposes.

QLocation. In which city do you live?

1. Vancouver (CONTINUE)

2. Other (THANK & END)

- A. **(GENDER)** To randomize our interviews, may I please speak to the male/female in your household who is 15 years of age or older and whose birthday comes next? **IF TRANSGENDER/OTHER IDENTITY OFFERED, CODE ACCORDINGLY**
1. Male 2. Female 3. Transgender 4. Other identity 5. Prefer not to say
- B. **(YEAR BORN)** And so we can be sure the sample represents all ages of residents please tell me the year in which you were born? ____ **IF REFUSED YEAR BORN: (AGE CODE) C2.** If you prefer, I can read you a short list and you can let me know which one applies to you.
1. 15-17
 2. 18-24
 3. 25-34
 4. 35-44
 5. 45-54
 6. 55-64
 7. 65+
 8. PREFER NOT TO ANSWER

Your household has been randomly selected for this panel and your input will help the City make better decisions regarding future transportation investments for area residents. By participating, you will be making an important contribution to the City. In appreciation of your time each year you would have a 1-in-10 chance of winning one of 245 cash-based incentives ranging from \$50 to \$1,000.

READ ONLY IF ASKS FOR SPECIFICS:

# of Prizes	Prize Amount
3	\$1,000
4	\$ 750
6	\$ 500
12	\$ 250
40	\$ 100
180	\$ 50

The survey is in two parts. My time with you today will take approximately 7-10 minutes and then we would email you an invitation to the second part, which involves recording your travel for one day.

Are you interested in participating in this annual travel survey? **IF REQUIRED:** The second part is simply a log or diary of the trips you make on a single assigned day.

1. Yes
2. No → THANK AND END: Those are all the questions for today. Good bye.

QS1. Do you have access to email?

3. Yes
4. No → THANK AND END: Those are all the questions for today. Good bye.

- C. **(HOME POSTAL)** To ensure our sample covers all areas of the City of Vancouver, may I please have your home postal code? (6-digit) _____

IF DIFFERENT FROM TAGGED COV SUB-AREA, BUT IS ONE OF 8 OTHER VALID SUB-AREAS, ACCEPT.
IF DIFFERENT AND NOT IN ANY COV SUB-AREAS, THANK AND END.

(FLAG EMPLOYEE) **EVERYONE- EMPLOYMENT SCREENER:** QAA1. Do you or does anyone in your household work for the City of Vancouver, Mustel Group, or McElhanney?

1. Yes → QAA2. Please note that while we can include your responses for this study, due to standard contest rules you will not be eligible for the Prize Draw. Are you still interested in participating?
 - a. Yes → **REMOVE FROM PRIZE DRAW AND CONTINUE**
 - b. No → **THANK AND END INTERVIEW** Sorry this was not of interest to you.
2. No **CONTINUE**
3. Not sure → **FOLLOW QAA2.page FLOW ABOVE**

PERSUADERS—only if needed:

- Even if you travel a little, a lot or not at all, your survey responses matter.
- We are interested in all types of travel: walking, cycling, transit and personal or shared vehicle trips, etc.
- If you are planning to be away, the survey is open until the end of November, so you have plenty of time to complete it.
- This is strictly a transportation survey; we are not selling or soliciting anything.
- Your number was selected at random for participation in this research.
- This study is important as it will help the City better understand travel patterns, transportation needs and to help make better decisions regarding transportation investments for area residents.
- City of Vancouver Contact only if requested: Phone 311

ii) **PRIVACY:** As one of the goals of this study is to understand and track changes in residents' travel patterns over time, your contact information linked with your survey responses would be retained by the City **for this annual study only**. Note that all information would remain confidential in a secure environment and would not be used on an individual basis for any other purpose.

Do you agree to share your personal contact and linked survey responses with the City of Vancouver for the sole purpose of participating in this travel survey?

Yes → **PRIZE DRAW & EMAIL CAPTURE**

No → **THANK AND END.** Those are all the questions for today. Thank you.

PRIZE DRAW (SKIP IF QAA1 EMPLOYMENT SCREENER = STUDY EMPLOYEE)

Do you wish to be entered into the prize draw? **READ IF NECESSARY:** You would be eligible to win one of 245 cash-based incentives ranging from \$50 to \$1,000!

READ ONLY IF ASKS FOR SPECIFICS:

# of Prizes	Prize Amount
3	\$1,000
4	\$ 750
6	\$ 500
12	\$ 250
40	\$ 100
180	\$ 50

In all, approximately a 1-in-10 chance to win.

1. Yes, please enter me into the draw
Upon completing the full survey, we will enter you to the prize draw. Note that winners will be contacted within the first quarter of 2019.
2. No, thank you

- D. **EMAIL CAPTURE:** May I please have your name and email address so we can send you the survey link?

READ IF NECESSARY: Be assured that your email address will not be shared with any marketing companies and you will not receive any SPAM emails.

- i. First name: _____ Last name: _____
- ii. email address: _____
- iii. CONFIRM BY RE-ENTERING AND REPEATING UNTIL CORRECT: email: _____

SEND EMAIL INVITATION – SEE INVITE TEXT AFTER DEMOGRAPHICS

Your email invitation has been sent and you should receive it shortly.

Please look for an email from covtravelsurvey@mustelgroup.ca

with the following subject line: City of Vancouver Annual Travel Survey.

If convenient, please check your INBOX now to make sure you have it.

IF NOT RECEIVED: Maybe check your SPAM or JUNK mail folder.

IF STILL NOT RECEIVED, RETURN AND VERIFY EMAIL ADDRESS

IF CHECK LATER: If you do not receive the email, please call us at this number: 778-383-3416

REGISTRATION QUESTIONS

IF NEW RECRUIT REQUESTS TO COMPLETE FROM HERE, EMAIL SENT WITH LINK TO ACCESS SURVEY FORM:

City of Vancouver Travel Survey

Your Input Counts!

Welcome to the City of Vancouver Travel Survey

Thank you for agreeing to participate in this important study as your input will help City planners and designers better understand the travel patterns and choices of local residents over time.

What's next? Three easy steps...

- Finish registering for the survey
- Complete the trip diary and vehicle car odometer reading (if you have a private vehicle)
- Enter the prize draw

Here are some helpful links containing information on the study.

Study FAQ's Privacy Prize Draw/Rules Contact Info

Thank you for agreeing to participate!

To make the process easier for you to enter your trip information to the online survey, we have a few additional questions.

R1. What is your first and last name? If you prefer to provide initials, that works.

FNAME:_LNAME: _____

R2. As the trip diary could include trips you make to or from work and home, may I have your home address?

SUITE#: _____ STREET#: _____ STREET: _____ STREET TYPE: _____ STREET DIRECTION: _____
CITY: _____ PROVINCE: _____ POSTAL CODE _____

DISPLAY MAP WITH HOME LOCATION IDENTIFIED

R3. Is this the correct location?

1. Yes 2. No → **RETURN TO VERIFY INFORMATION UNTIL CORRECT**

R4. If you are employed, your trip diary may include trips you make to and from work, may I have your work address?

1. Do not work (unemployed)
2. No work address (no fixed work address OR only work from home)
3. Yes – **ENTER WORK ADDRESS**

STREET#: _____ STREET: _____ STREET TYPE: _____ STREET DIRECTION: _____
CITY: _____ PROVINCE: _____ POSTAL CODE _____

DISPLAY MAP WITH WORK LOCATION IDENTIFIED

Is this the correct location?

1. Yes
2. No → **RETURN TO VERIFY INFORMATION UNTIL CORRECT**

Do you have more than one work address?

1. No second work address
2. Yes – **ENTER 2nd WORK ADDRESS**

STREET#: _____ STREET: _____ STREET TYPE: _____ STREET DIRECTION: _____
CITY: _____ PROVINCE: _____ POSTAL CODE _____

DISPLAY MAP WITH WORK LOCATION IDENTIFIED [DESCRIBE CROSS-STREETS NEAREST TO PIN-POINT]

Is this the correct location?

1. Yes
2. No → **RETURN TO VERIFY INFORMATION UNTIL CORRECT**

PROFILING & GENERAL TRANSPORTATION QUESTIONS

1. Do you currently have a valid driver's license?
 1. Yes
 2. No → SKIP TO Q3a

2. How many vehicles do you own or have regular access to (please include all cars, vans or light trucks that are brought home and parked overnight but not motorcycles / scooters or bicycles; do not include car share vehicles)?
_____ None

3. What car share services are you a part of, if any? (check all that apply)
 1. Car2go
 2. Modo
 3. ZipCar
 4. Evo
 5. Other_____ None_____
- 3a. Are you a member of "Mobi", the City of Vancouver's public bike share system?
 1. Yes
 2. No

4. Are you a commercial driver, that is do you drive or make deliveries as part of your job (e.g., if a bus or taxi driver, courier, etc.)?
 1. Yes → Note that this survey concerns your travel for personal trips and those including travel to and from your job, but not trips made as part of your commercial driving job.
 2. No

5. a) What is your **usual mode of transportation** this time of year for trips to or from **work**? If you use more than one mode, select the one used for **most of the travel distance. CHECK ONE ONLY**
 - a. Private car, truck, or van as a driver
 - b. Private car, truck, or van as a passenger
 - c. Car share as a driver (ex Modo, Car2go, ZipCar, Evo, etc)
 - d. Car share as a passenger (ex Modo, Car2go, ZipCar, Evo, etc)
 - e. Transit bus
 - f. SkyTrain
 - g. West Coast Express
 - h. SeaBus
 - i. HandyDART
 - j. School bus
 - k. Other bus
 - l. Personal bicycle
 - m. Bike Share (Mobi)
 - n. Walk
 - o. Taxi
 - p. Motorcycle
 - q. Other (specify) _____
 - r. DO NOT TRAVEL TO WORK

b) What is your usual mode of transportation this time of year for trips to or from school as a student? If you use more than one mode, select the one used for most of the travel distance. **CHECK ONE ONLY**

- a. Private car, truck, or van as a driver
- b. Private car, truck, or van as a passenger
- c. Car share as a driver (ex Modo, Car2go, ZipCar, Evo, etc)
- d. Car share as a passenger (ex Modo, Car2go, ZipCar, Evo, etc)
- e. Transit bus
- f. SkyTrain
- g. West Coast Express
- h. SeaBus
- i. HandyDART
- j. School bus
- k. Other bus
- l. Personal bicycle
- m. Bike Share (Mobi)
- n. Walk
- o. Taxi
- p. Motorcycle
- q. Other (specify) _____
- r. DO NOT TRAVEL TO SCHOOL AS A STUDENT

6. In terms of walking, what would you consider a reasonable walking distance for travel purposes (work, school, shopping, etc.) (RECORD FARTHEST DISTANCE): <400m (6 min), 400-800m (6-12 min), 800-1,200m (12-18 min), >1,200m (>18 min).

IF Q5a OR 5b = "Bicycle", CANNOT SELECT CODES 5-6 BELOW. ERROR MESSAGE: You mentioned earlier that you use a bicycle as your main mode of travel for trips to work and/or school. ASK RESPONDENT TO CLARIFY AND CORRECT RESPONSE IN Q5a OR Q5b AS REQUIRED.

7. How often do you typically travel by bicycle in fair weather?

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 ride a bicycle at all **(SKIP TO Q11)**
6. I am physically unable to ride a bicycle **(SKIP TO Q11)**

8. How often do you typically travel by bicycle in rainy or cold weather?

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 ride a bicycle in rainy or cold weather

9. Are you interested in travelling by bicycle more than you do now?

1. Yes
2. No, I am happy with how much I currently bicycle
3. No, I want to travel less by bicycle

10. If you were travelling by bicycle on your own, in which of the following environments would you feel comfortable:
1. On almost any street in the city and I don't worry much about traffic conditions.
 2. On major streets, provided they have painted bicycle lanes.
 3. On major streets, provided they have bicycle lanes separated from traffic with a physical barrier.
 4. On local neighbourhood streets with little traffic and low speeds.
 5. On bicycle paths far away from motor vehicles.
 6. Not comfortable cycling in any of the above environments (**UNCHECK ANY ABOVE**)

11. Have you traveled by public transit in the past month?
1. YES → **ASK 12**
 2. NO

12. IF YES: How do you usually pay for your travel by transit this time of year? (RECORD ALL THAT APPLY)
1. Cash
 2. Compass Card Add Value
 3. Compass Card Monthly Pass
 4. U-Pass
 5. Employer Pass (Discount or fully paid for by employer)
 6. Credit/ Debit
 7. Other Specify: _____

SKIP 13-14 IF REGISTRATION Q4 = Do not work (unemployed)

13. Do you make any trips for business purposes during work?
1. Yes
 2. No → SKIP Q14

14. Do you have access to employee programs that support or provide the following (MULTIPLE RESPONSE):
1. Company Carpool / Car Share
 2. Employer Subsidized Transit Pass
 3. Employer Subsidized Bike Share / Mobi Membership
 4. Other specify: _____
 5. No, I do not have access to such programs

DEMOGRAPHICS

A few questions to help us classify the survey data.

1. Including you, how many people reside in your household? DROP DOWN MENU
2. The City is interested in tracking the health of its residents. In general, would you say that your health is...
 - a. Excellent
 - b. Very good
 - c. Good
 - d. Fair
 - e. Poor
 - f. Prefer not to answer
3. What type of dwelling do you currently live in?
 - a. A single detached home (includes basement suites, laneway houses, etc)
 - b. An apartment or condo in a low rise (5 levels or less)
 - c. An apartment or condo in a high rise (more than 5 levels)
 - d. A townhouse/row house
 - e. Semi-detached home or a duplex (includes basement suites)
 - f. Residential care or long-term care facility
 - g. A mobile home
 - h. Other
 - i. Prefer not to answer
4. EMPLOYMENT: Are you: (MULTIPLE RESPONSE EXCEPT CANNOT SELECT *Working full-time* AND *Unemployed*, NOR SELECT *Student full-time* AND *Student part-time*, NOR SELECT *Unemployed* WITH ANY WORK OPTIONS)
 - a. Working full-time (30+ hours per week)
 - b. Working part-time (less than 30 hours per week)
 - c. Self-employed
 - d. Volunteer only (not for pay)
 - e. Unemployed
 - f. Looking after home/family
 - g. Retired
 - h. Student full-time
 - i. Student part-time
 - j. Prefer not to answer
5. HOUSEHOLD INCOME: Which of the following best describes your total **household** income (the combined gross income for all household members)?
 - a. Less than \$25,000
 - b. \$25,000 to less than \$50,000
 - c. \$50,000 to less than \$75,000
 - d. \$75,000 to less than \$100,000
 - e. \$100,000 to less than \$150,000
 - f. \$150,000 or more
 - g. Prefer not to answer
6. What is the highest level of education you have completed?
 - a. Have not completed high school
 - b. Completed high school/secondary school
 - c. Trade certificate or diploma from a vocational school or apprenticeship training
 - d. Non-university certificate or diploma from a community college, CEGEP or nursing school
 - e. University certificate below bachelor's level
 - f. Bachelor's degree
 - g. Graduate degree (master's degree or doctorate)
 - h. Prefer not to answer

7. **ETHNICITY:** Were you born in Canada?
- Yes
 - No
 - Prefer not to answer
8. Vancouver residents come from many different backgrounds. What is your main ethnic background? [ALLOW UP TO TWO OPTIONS TO BE SELECTED]
01. African
 02. American
 04. Australia
 05. British (English/Scottish/Welsh/Irish)
 06. Canadian (including First Nations, Inuit, Metis)
 07. Chinese
 08. Dutch
 10. East European (Ukrainian, Polish, Hungarian, Russian, Serb, etc)
 11. Filipino
 12. French
 13. German
 14. Greek
 15. Italian
 16. Japanese
 17. Korean
 18. Latin American (Guatemalan, Nicaraguan, Mexican, etc)
 19. Middle Eastern
 20. Portuguese
 21. South American (Brazilian, Peruvian, Columbian, Chilean, Ecuadorian)
 09. South Asian (Punjabi, Indian, Tamil, Guyana, Pakistani, etc)
 22. Scandinavian
 23. Spanish
 24. Vietnamese
 03. Other Asia (Indonesian, Malaysia, Thailand)
- OTHER SPECIFY: _____
99. Prefer not to answer

IF Q7 = YES OR Q8 = 06. Canadian

9. Do you identify as an Aboriginal person (i.e. First Nations, Inuit, Metis)?
1. Yes
 2. No

NEW QUESTIONS ASKED ONLY OF THOSE 35 YEARS AND OLDER, AND HAVE MORE THAN ONE PERSON IN HOUSEHOLD: Finally, ...

10a. Is there anyone in your household between the ages of 15 and 34 years?

1. Yes
2. No → **THANK AND END**
9999. Prefer not to answer → **THANK AND END**

IF YES IN Q10a

10b. We would like to invite one additional household member from this age group to also participate in this travel survey. Do you think they would be interested?

1. Yes
2. No → **THANK AND END**

10c. Is he/ she available right now?

1. Yes
2. No

10d. IF 10c = YES:

Hello, I'm ___ of Mustel Group, a professional research company and we are inviting you to participate in an important annual online transportation study.

Your participation will help the City make better decisions regarding future transportation plans and investments for area residents like yourself. In appreciation of your time to complete all survey tasks you would have a 1-in-10 chance of winning one of 245 cash-based incentives ranging from \$50 to \$1,000.

IF ASKS WHAT IS INVOLVED: We will email you a link to the two-part online survey. The first is a brief 10-minute registration, and the second a one-day diary that is completed at a later date. The survey runs from mid-September to the end of November, giving you plenty of time to complete it.

Will you participate?

1. Yes
2. No → **THANK AND END**

IF YES: Can I have your first name: _____

And your email address: _____

RE-ENTER EMAIL: _____

And a telephone number in case we need to contact you:

1. TEL: _____
2. SAME AS CURRENT CALL

The email invitation has been sent and you should receive it shortly.

You should look for an email from: covtravelsurvey@mustelgroup.ca with the following subject line: City of Vancouver Annual Travel Survey. If convenient, please check your Inbox to make sure you have received it.

If you do not see it in your Inbox, please check your SPAM or JUNK mail folder. If it is still not there, please call us at this number: (778) 383-3416.

10e. IF 10c = NO (REFERRED YOUTH)

Please provide their email address and we will send them a link to the survey.

EMAIL: _____

RE-ENTER EMAIL: _____

And could we have their name and phone number? We may need to call them to make sure they received the email.

NAME: _____

PHONE: _____

Is this a cell or landline number?

Cell Landline

Who should we say has referred this youth to our survey? _____

The email invitation has been sent and they should receive it shortly.

They should look for an email from: covtravelsurvey@mustelgroup.ca with the following subject line: City of Vancouver Annual Travel Survey. If convenient, please have them check their Inbox to make sure they have received it. If they do not see it in their Inbox, please check them their SPAM or JUNK mail folder. If it is still not there, please call us at this number: (778) 383-3416.

SEND NEW RECRUIT EMAIL TO SELF-COMPLETE ONLINE

EMAIL INVITATION

Hello and welcome to the City of Vancouver Annual Travel Survey!

Your unique link to the trip diary survey is below.

Note that your assigned travel day is a **(INSERT DAY)**. Please keep track of your trips on this day and then access the survey to complete the online diary and be entered into the prize draw to win one of 245 cash-based incentives ranging from \$50 to \$1,000! (Approximate chances of winning are 1-in-10.)

When you access the survey you will first be able to review helpful information on how to complete it.

Here is YOUR UNIQUE LINK:

<http://www.covtravelsurvey.com/dash/Dash?id=covtravel,34232343>

Below is your **PIN Number**. This is important if you need to contact our Help Line (see below) for any questions or assistance with your survey. Be sure to provide this number when emailing or calling in.

YOUR PIN: 34232343

If your email program doesn't support hyperlinks and you are unable to click on the link above, please copy and paste the link directly into your browser.

Thank you in advance for your participation!

Mustel Group Study Team (covtravelsurvey@mustelgroup.ca)
402-1505 West 2nd Ave,
Vancouver, BC V6H 3Y4

Need Help?

Reply to this email or call us at: **778-383-3416**
(Please have your PIN Number handy when you do.)

To unsubscribe from receiving email reminders, please [click here \(insert hyperlink\)](#)

To unsubscribe from this survey altogether, please [click here \(insert hyperlink\)](#)

City of Vancouver Annual Travel Survey - Your Dashboard (COMPLETED BY RESPONDENT)

Please read this information regarding your one-day trip diary:

- The trip diary section will ask about the trips you make on your single assigned day indicated below.
- Watch this video with key points to remember on your travel day (Trip Diary Video)
- Your assigned travel day is a (INSERT DAY). If you are unable to record your trips to the online survey for your assigned day, you can do so within a week or two afterwards.

NOTE: Even if any of the following applies to you, we still need you to complete the survey:

- You do not make any trips on your assigned day
- The trips you take on your assigned day are not typical

Also, if you plan to be away for a period of time, you can still participate as the survey is open until the end of November.

If you are ready to begin the trip diary, click the NEXT button.

Otherwise click the Exit button and return to complete your diary when you are ready.

Need help / more info? [Click here: www.mustelgroup.com/covsurveyhelp](http://www.mustelgroup.com/covsurveyhelp)

TRIP BEHAVIOUR (Monday to Friday only)

The City needs to understand residents' transportation choices each time they make a trip within or through the Lower Mainland. Please watch this quick video on how to fill in the trip diary: [Link to Trip Diary Video](#)

In this survey, we are asking about all of your trips taken on [INSERT ASSIGNED DAY] between midnight and 11:59 p.m. (a full 24-hour day).

PROGRAMMER NOTE: INSERT THIS TEXT IF DRIVES OR MAKES DELIVERIES AS PART OF JOB (PROFILING AND GENERAL TRANSPORT QUESTION 3 = YES):

Please remember to exclude trips you make as part of your job (i.e. driving a bus, taxi or commercial vehicle), but do include trips to and from work as well as any other personal trips you make.

DEFINITION OF A TRIP (ON FIRST SCREEN – HAVE AS LINK OR DROP DOWN ON EVERY OTHER TRIP SCREEN)

A trip is travel from one location to another location for a purpose.

- **Include trips made by all means (walking, cycling, transit, car, etc)**
- **Include short trips** (e.g., stopping at a coffee shop, a gas station or dropping someone off)
- **Include return trips** (e.g., going home)
- **Include recreational outings that end at the same place they started** (e.g., dog walking, going for a walk or jogging)

T1. Did you make any trips that started and ended on [INSERT ASSIGNED DAY], between midnight and 11:59 p.m. (a full 24-hour day)?

1. No, stayed home or was out of town for the whole day → SKIP TO VKT SECTION
2. Yes

1. Trip 1

Q1a) What was the **starting location**? If this trip started from home or work, please click “Home” or “Work”. Otherwise please enter ONE of the following for your start location:

- a precise address, OR
- nearby cross-streets, OR
- a landmark

Always include the municipality.

Q1b) What was your **end location**? If this trip ended at home or work, please click “Home” or “Work”. If this is a recreational trip where your start and end locations are the same, please select that response. (Examples of recreational trips are dog walking, jogging, etc)

Otherwise please enter ONE of the following: for your end location

- a precise address, OR
- nearby cross-streets, OR
- a landmark

Always include the municipality.

Same as origin (a recreational trip such as walking, dog walking or jogging where you start and end your trip at the same location)

Address: _____
 Nearby cross-streets: _____ and _____
 Landmark : _____
 Municipality:

1. Vancouver
2. Burnaby
3. Coquitlam
4. Delta/Ladner/Tsawwassen
5. Langley/Langley Township/Fort Langley/Aldergrove
6. Maple Ridge
7. New Westminster
8. North Vancouver
9. Pitt Meadows
10. Port Coquitlam
11. Port Moody/Anmore/Belcarra
12. Richmond
13. Surrey
14. West Vancouver (including Horseshoe Bay/Lions Bay)
15. White Rock
16. All Other Locations Ending Outside of Metro Vancouver

(NEW SCREEN: GOOGLE MAP WITH PIN POINT OF LOCATION. Confirm: Is this the correct location? IF YES: **INSERTION OF LAT-LONG FROM GEO-CODER. IF NO, RETURN TO END LOCATION SCREEN FOR RE-ENTRY/REVISION OF LOCATION DETAIL**)

Q1c) What time of day did you start this trip?

1. 12:00am to 5:59am
2. 6:00am to 8:59am
3. 9:00am to 11:59am
4. 12:00pm to 2:59pm
5. 3:00pm to 5:59pm
6. 6:00pm to 8:59pm
7. 9:00pm to 11:59pm

Q1d) IF RESPONSE "Same as origin" IN b) ask: Approximately how long was this recreational trip?

1. Less than 10 minutes
2. 10 to less than 20
3. 20 to less than 30
4. 30 to less than 40
5. 40 to less than 50
6. 50 to less than 60 minutes
7. 60 minutes or more

Q1e) What was the main **purpose** of this trip? **ONE RESPONSE ONLY** AUTO CODE AS "Recreation" IF RESPONSE "Same as origin" IN b)

1. To work
2. During work/business trip
3. To school (as a student)
4. Shopping
5. Dining/restaurant
6. Recreation (including dog walking, jogging, etc)/social/entertainment
7. Personal business (e.g. bank, doctor, volunteering, etc)
8. To drop-off/pick-up someone (via driving, walking, transit, cycling, etc.)
9. To go home

Q1f) How did you travel to this location? Choose all that apply. If more than one, list in order of use.

If you walked and used other modes, select "walked as part of the trip" as well as the other modes.

1. Private car, truck, or van as a driver
2. Private car, truck, or van as a passenger
3. Car share as a driver (e.g. Modo, Car2go, ZipCar, Evo, etc)
4. Car share as a passenger (e.g. Modo, Car2go, ZipCar, Evo, etc)
5. Transit bus
6. SkyTrain (Expo, Canada and Millennium Lines)
7. West Coast Express
8. SeaBus
9. HandyDART
10. School bus
11. Other bus
12. Walked/jogged the whole way **(CANNOT BE COMBINED WITH OTHER RESPONSES)**
13. Walked/jogged as part of the trip
14. Personal bicycle
15. Bike Share (Mobi)
16. Taxi
17. Other (specify) _____

IF TRIP.(f) RESPONSE IS “Transit Bus”, “SkyTrain”, “WestCoast Express”, “Seabus”, “HandyDART”, “School Bus”, “Other bus”, “Walked/jogged the whole way”, “Walked/jogged as part of the trip”, or “Bicycle” ASK:

Q1k. Approximately how long was the walking and/or biking portion of this trip?

1. Less than 5 minutes
2. 5 to less than 10
3. 10 to less than 20
4. 20 to less than 30
5. 30 to less than 40
6. 40 to less than 50
7. 50 to less than 60 minutes
8. 60 minutes or more

AUTO CODE AS “No”, IF RESPONSE “Same as origin” IN b)

Q1g) Was this trip a stop along the way to your next location? (e.g. a short trip such as a drop off, gas station, coffee shop, etc.)

1. Yes → Q1g2. Did you pre-plan to make this stop? 1. Yes 2. No
2. No

Q1h) Excluding any travel companion(s) that may have been with you during this trip, did you interact with anyone else while travelling to your destination (e.g. waving to a neighbour, chatting with another transit rider or bus driver, honking, etc)? **MULTIPLE RESPONSE, EXCEPT OPTION 4**

- 1) Yes, it was friendly
- 2) Yes, it was unfriendly
- 3) Yes, it was neutral
- 4) No notable interaction with anyone else

Q1h2. TRIP SUMMARY: Please carefully review the information you have provided for this trip.

INSERT

START LOCATION

END LOCATION

TIME OF DAY

MAIN PURPOSE OF TRIP

METHODS OF TRAVEL

Is this information complete and correct?

1. Yes
2. No

IF NO. To make corrections: If you click **Next** on this page, you will be taken back through your trip to make changes.

As you go through the trip and the page that displays does not require corrections, simply click "Next" to continue until you reach the information that needs to be changed. Then select or type in the correct response to the question. Please be sure to follow the instructions carefully when you access the map pages.

After you have revised the trip, you will again be asked to verify that it is correct.

Click **Next** to revise your trip OR click **Previous** if you arrived here by mistake.

TRIP COMMENTS: Do you have any other details or comments about **this trip** that you would like to provide? If you have no additional comments, click NEXT to continue.

COMMENT BOX PROVIDED

Q1i) Did you make another trip on this day before 11:59pm? (Remember to include return trips.)

1. Yes
2. No (last trip of the day) → IF LAST TRIP DID NOT RETURN HOME, ASK j)

Q1j) Did you return home before 11:59pm on this travel day?

1. Yes - Please record the details of this trip → NEXT TRIP
2. No, did not return home on this day → → **IF Q1g = Yes, a stop along to another destination, INSERT ERROR MESSAGE:** You mentioned earlier this trip was a stop along the way to another destination. Is it correct that you did not make any more trips today?
If this is correct you can leave your answer as is and click "Next" again to continue, otherwise please correct your response. (**CLICKING NEXT SKIPS TO TOTAL TRIP SUMMARY, THEN VKT**)

Trips 2-15: REPEAT TRIP QUESTIONS STARTING WITH....

b) **Destination:** Where did you go next? ALL OTHER QUESTIONS SAME AS ABOVE

AFTER LAST TRIP OF DAY, TOTAL TRIP SUMMARY: Please review your trips below.

k) Are your trips complete?

INSERT TRIP SUMMARIES

TRIP	FROM	TO	PURPOSE
1	ADDRESS	ADDRESS	PURPOSE
2	ADDRESS	ADDRESS	PURPOSE
3, etc	ADDRESS	ADDRESS	PURPOSE

1. Yes
2. No → This action will delete all of your trips. You will need to re-enter all of your trips to complete the survey.
Are you certain that you wish to delete all of your trips? Yes → **REDO ALL TRIP ENTRIES** No → **CONTINUE**

VKT SECTION

PROGRAMMER NOTE: IF PRIVATE VEHICLE CHOSEN IN RECRUIT PROFILING AND GENERAL TRANSPORT SECTION (Q2), ASK Q1-2

1. What type of private vehicle do you typically drive? Please choose the make of your vehicle. If you cannot locate the vehicle you typically drive scroll down to the very bottom of the drop-down menu and select "OTHER". (**IF OTHER CHOSEN, PROMPT** Please specify other for the make of your vehicle)

Please choose the model and year of your vehicle. (**IF OTHER CHOSEN, PROMPT** Please specify other for the model of your vehicle)

INSERT IF COMMERCIAL DRIVER IDENTIFIED IN RECRUIT PROFILING & GENERAL TRANSPORT SECTION (Q3) This is the vehicle typically driven for your personal trips. If you typically use a commercial vehicle for your personal trips, select that vehicle from the list below.

DROP DOWN MENUS AS PER NRCAN DATASET

AS NRCAN LIST ONLY INCLUDES PASSENGER VEHICLES, ALLOW OVERRIDE

MAKE **MODEL** **YEAR**

- 2: It is important for the City to understand how many kilometers residents are driving in a year as it helps provide a measure of fuel consumption and emissions, which impact air quality and climate change.

Would you like to enter your odometer reading now, or email a link to enter it later? The email link will provide you with a mobile-friendly way to enter the odometer, so you can complete it in your car with your smartphone or tablet, if you choose.

1. Provide my odometer reading right now
2. Email a link to enter my odometer reading later (Please specify the email address you would prefer to receive the link to the odometer reading. _____@_____.

QS2. Please record the current odometer reading for this vehicle (to nearest 100km's). If unsure, you may check the vehicle and return to enter later. _____ km's

CLOSING: This completes our survey. Thank you very much for your input and interest in this **annual trip diary** survey!

As a small thank you, once all trip diaries have been collected and analyzed, we will email you key results and a link to the full report from this year's survey made possible by your participation. If you are eligible for the prize draw, all winners will be contacted within the first quarter of 2019.

Thank you once more and we'll be in touch in 2019!

Please click the button below to submit the survey.

Appendix B – 2018 Vancouver Panel Summer Survey

To: Banafsheh Rahmani, P.Eng.

Prepared by: Kristina Kwong, EIT; Manvir Sohi, EIT

Client: City of Vancouver

Reviewed by: Basse Clement, P.Eng.

Re: 2018 Vancouver Panel Summer Survey - DRAFT

Date: September 7th, 2018

File Number: 2121-00227-00

1. INTRODUCTION

The City of Vancouver has set out to become the greenest city in the world with their Transportation 2040 and the Greenest City Action Plan. Both plans set out bold visions of how the City's transportation network plays an instrumental role in shaping Vancouver's future growth. These visions are already transpiring, as Vancouver trends towards its goals of achieving more than 50 percent of trips made by active or transit modes and reducing the average distance driven by residents by 20 percent, compared to the average distance reported in 2007. The City of Vancouver's commitment to attaining these targets is evident by its ongoing commitment to transit oriented development, providing bike facilities suitable for all ages and abilities (AAA bike facilities), and encouraging the use of car sharing services.

To benchmark and monitor progress towards the City's targets, the City has embarked on an annual travel survey of residents since 2013. To maintain consistency with other travel surveys conducted in the Metro Vancouver region, the City's transportation survey is administered each fall amongst a panel of Vancouver residents. In addition to this annual fall survey, the City also engaged the panelists during the summer to address the following topics:

- Continued participation in the 2018 fall panel survey
- Car share services
- Auto and bike parking facilities

This technical memo provides a summary of the responses collected from the 2018 Vancouver Panel Summer Survey. Following this section, the remainder of this memo is organized into three sections. [Section 2](#) summarizes the demographic distribution of the survey participants. [Section 3](#) summarizes the survey responses regarding the use of car share services. Lastly, [Section 4](#) presents the results of the questions pertaining to auto and bike parking facilities. Note that the results presented in [Section 3](#) and [Section 4](#) are weighted by age, gender, and transportation zones.

The complete summer survey instrument is included in [Appendix A](#) for reference.

2. DEMOGRAPHIC DISTRIBUTION OF PANELISTS

The Summer Survey was conducted from July 13th to August 13th. Invitations were sent to all 2,622 current panel members who participated in the 2017 Fall Panel. In total, 1,581 panelists completed the summer survey and of these, only 74 respondents indicated that they will not be returning for the fall survey.

Similar to the gender ratio from the fall panelists, 57 percent of the summer panelists are female and 43 percent are male. *Figure 1* displays the distribution of participating panel members by the City’s nine designated transportation zones. Similar to previous fall and summer surveys, False Creek, Vancouver Southeast, and Vancouver East necessitate greater recruitment efforts in order to reach the desired sampling targets.

Figure 1: Distribution of Panelists by Sub-Region

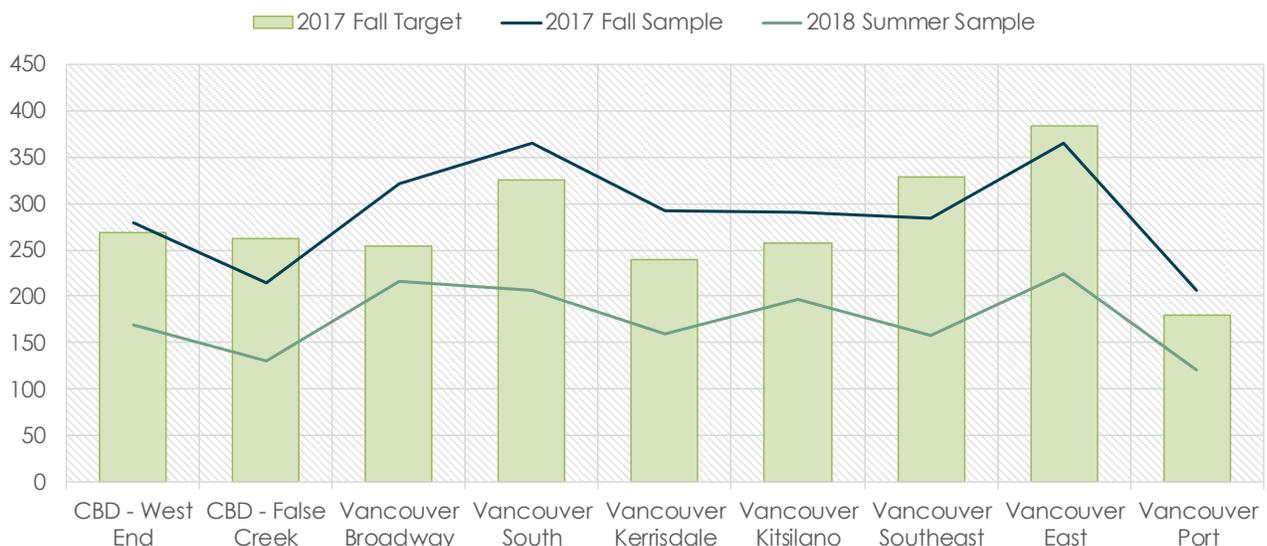
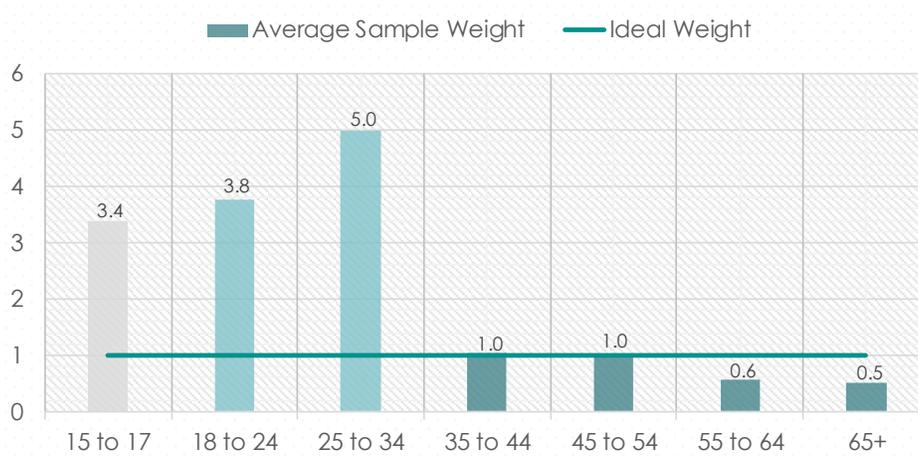


Figure 2 illustrates the average weight of summer panelists by age cohorts. Weights are assigned to each panelist based on factors such as age, gender, and transportation zone to achieve a weighted sample that is reflective of the City’s population. Due to the under-sampling of residents in the 18 to 24 and 25 to 34 age cohorts, they are all assigned a weight greater than 1. Engaging the younger age cohorts is a persistent challenge for all market research surveys as these residents typically do not possess or use a landline and are less willing to participate in market research. In consultation with the City, several strategies have been identified and will be applied in the fall to address the low participation rates for these age cohorts.

Figure 2: Weight by Age Group Categories

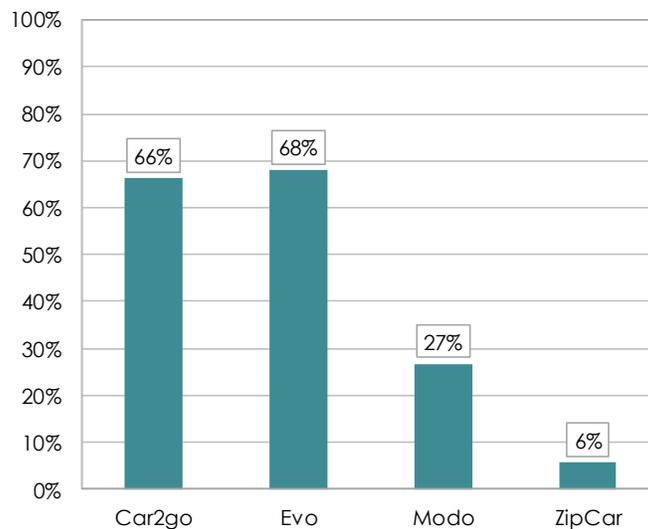


3. CAR SHARE SERVICES

As car share services continue to grow, the City is interested in examining residents’ utilization of these services. This section presents the survey responses received for questions concerning car share.

Of the participants who completed this survey, 34 percent indicated that they are users of a car share program. As presented in *Figure 3*, Car2go and Evo were identified as the preferred car share providers. Among users of car share services, usage is higher for one-way car share (66% for Car2Go and 68% for Evo) and significantly lower for two-way car share (27% for Modo and only 6% for ZipCar).

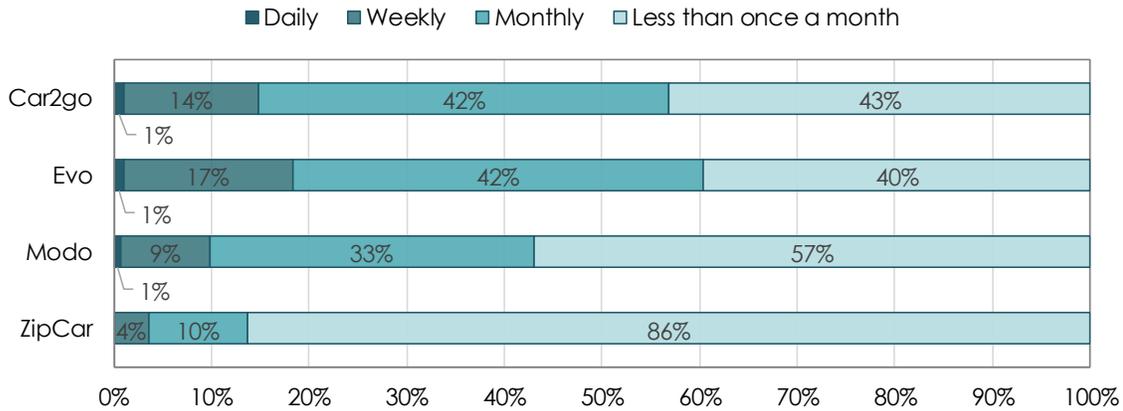
Figure 3: Car Share Program – Membership by Providers



Furthermore, participants were asked to identify how often they use each of the car share services. As presented in *Figure 4*, most respondents use car share once a month or less. There is a similar pattern

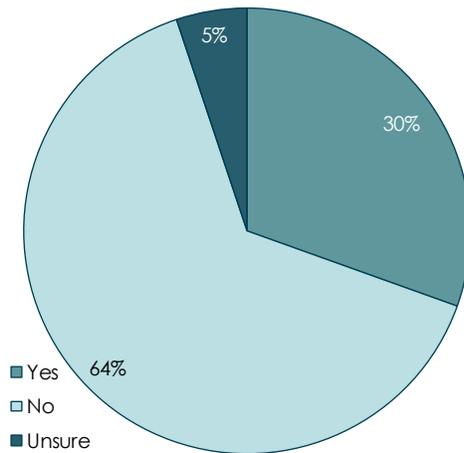
observed between the two one-way services (Car2Go and Evo). ZipCar not only has a significantly lower number of users, but the frequency of use is also significantly less than the other service providers. For all services, daily usage is limited to approximately 1% of users.

Figure 4: Frequency of Car Share Usage



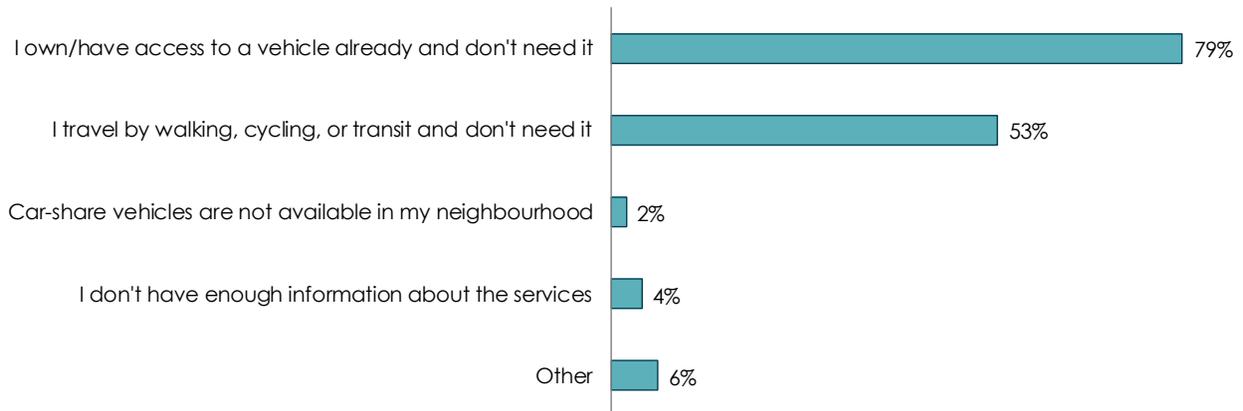
To better understand the potential implications of car share on vehicle ownership, survey respondents were asked whether their household has either avoided purchasing a vehicle or gotten rid of a vehicle because of joining a car share program. As illustrated in Figure 5, 30% of respondents stated that they have either sold a private vehicle or avoided purchasing a private vehicle due to car share.

Figure 5: Impact of Car Share on Private Vehicle Ownership



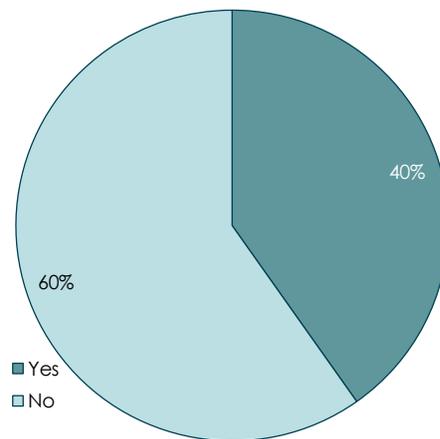
Non-users of car share services were asked why they choose not to use car share services with Figure 6 listing the top reasons why. The majority of respondents indicated they felt they do not have a need for it because they already have access to a private vehicle and/or they travel by other modes, including walking, cycling, or transit.

Figure 6: Reasons why Panelists Choose Not to Use Car Share Services



Panelists were asked whether they have ever used an app-based ride-hailing service such as Uber or Lyft in another city. As shown in [Figure 7](#), 40% have used this service at least once.

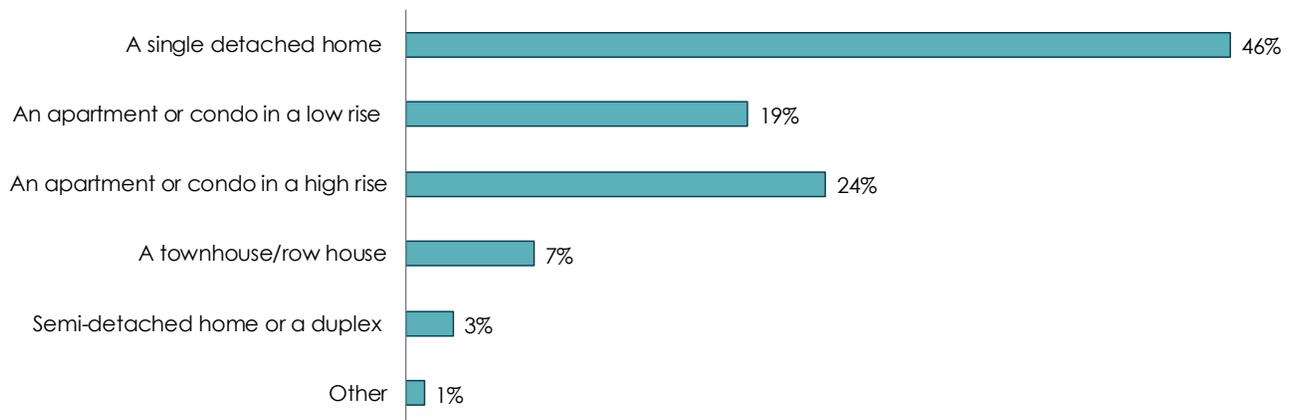
Figure 7: Use of Ride-hailing Services



4. AUTO AND BIKE PARKING FACILITIES

Panelists were asked what type of dwelling they live in. Of the surveyed population, 46% reported living in a single detached home while 24% occupy a unit in an apartment or condo in a high-rise building with more than five floors, as shown in *Figure 8*.

Figure 8: Distribution of Residential Dwelling Types



One of the questions included in the survey asked participants to identify where their visitors typically park. Approximately 74% of respondents indicated that their guests park their vehicles for free on nearby streets, while 22% stated that their guests park their vehicles within their building’s designated visitor parking area. *Figure 9* displays the survey responses regarding where panelists’ guests typically park when they are visiting their households.

Figure 9: Visitors’ Typical Parking Areas

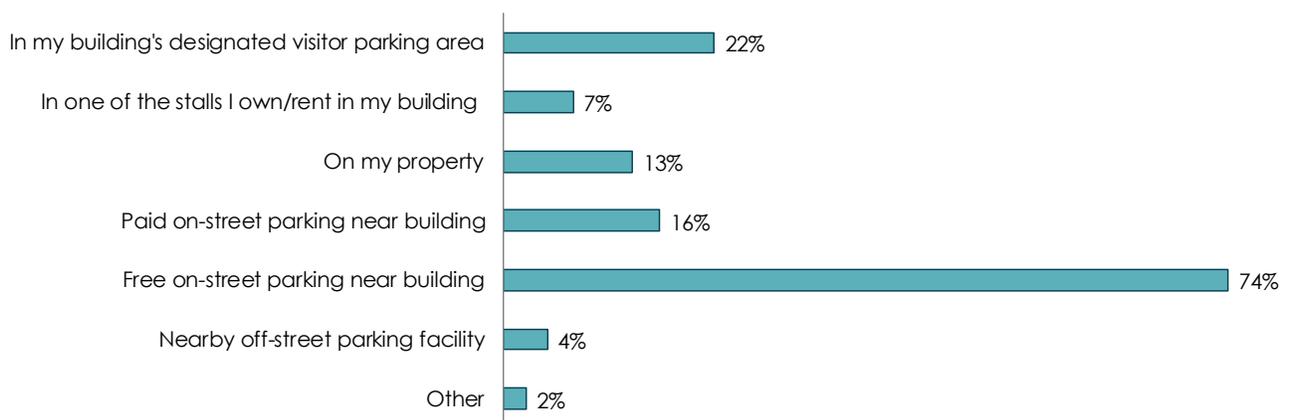
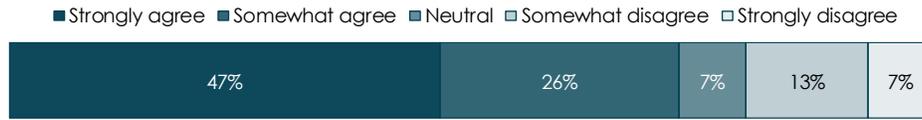


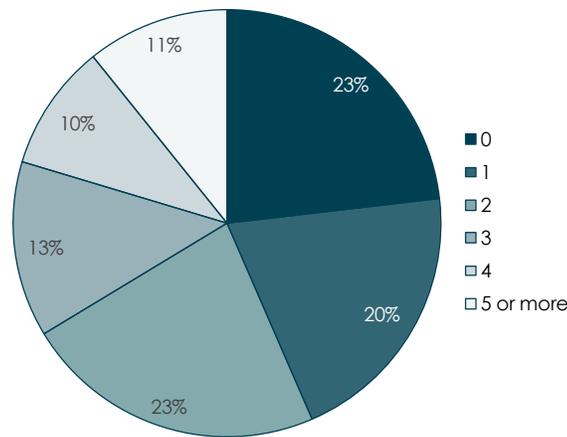
Figure 10 displays the respondents’ level of agreement with ease of finding parking within close proximity to their residence. In total, 73% of panelists agree that finding nearby parking is not an issue for their visitors.

Figure 10: Level of Agreement on Ease of Finding Parking



Participants were asked to identify the total number of bicycles owned by their household. Based on survey responses, 34% of participants indicated that they own three or more bicycles, while 23% revealed that they do not own a single bicycle. *Figure 11* illustrates the distribution of panelists by the number of bicycles owned per household.

Figure 11: Household Ownership of Bicycles



Of the 77% who indicated that their household owns at least one bicycle, 63% reside in a building that provides a secure parking area for their bikes (*Figure 12*). Of those who answered yes to being provided with a safe bike parking facility, 69% indicated that they use these amenities (*Figure 13*).

Figure 12: Security of Residential Building's Bike Parking Facilities

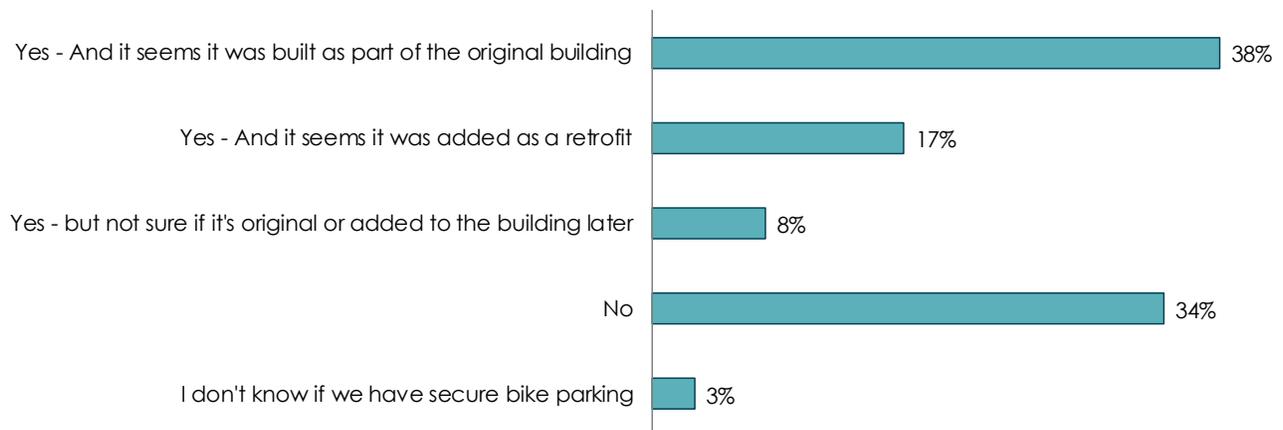
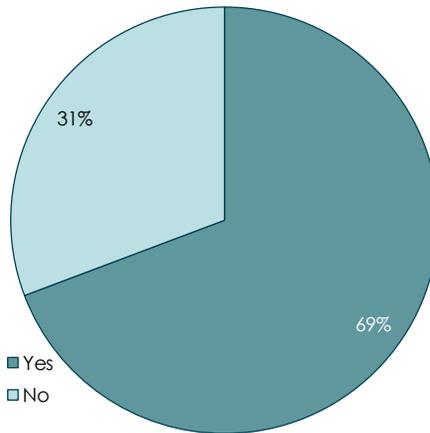


Figure 13: Use of Building's Residential Bicycle Parking Facility



The last question included in the survey asked panelists to identify challenges with their building's bicycle parking facility. As presented in *Figure 14*, overcrowding of designated bike parking areas appears to be the top concern for most of the participants, followed by fear of either getting their bicycle stolen or damaged. Additionally, 56% of those residing in a building that is equipped with a separate parking area for their bicycles identified no challenges with their facility.

Figure 14: Challenges Identified with Residential Building's Bicycle Parking Facility

