

Prepared for



Summary Report

2017 Vancouver Panel Survey

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Executive Summary

This report summarizes the results of the City of Vancouver's fifth annual Transportation Panel Survey conducted in 2017. 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 Greenest City Action Plan, Transportation 2040, 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.

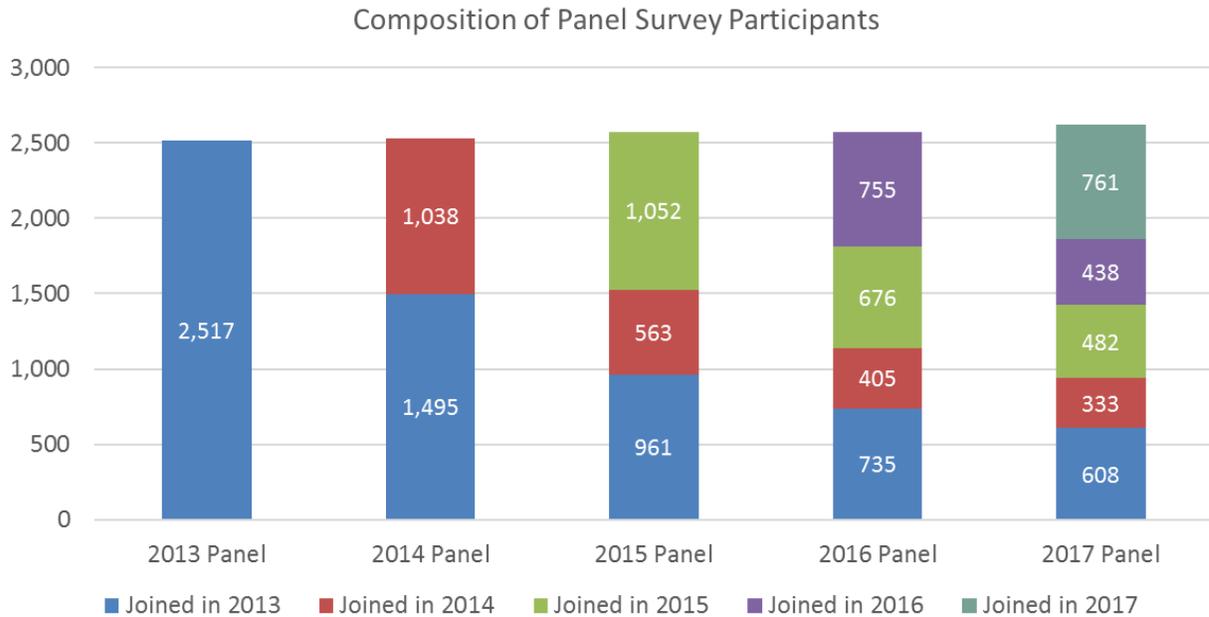
The primary component of this survey is a travel diary where individuals record the trips that they make on a given weekday. This data was compared to previous panel surveys conducted in 2013, 2014, 2015, and 2016, which followed similar design, recruitment, and analysis methodologies, allowing for analysis of transportation trends. As was the case in 2016, and as part of the evolution of the Panel Survey, there were some changes to the demographic and trip diary components to better reflect the City's priorities. These are explained in more detail within the report but are summarized as follows:

- 1) The 2017 survey introduced a new set of gender identity options for participants to choose from to better reflect the gender diversity of Vancouver residents.
- 2) The 2017 survey added a two-part question about the planned Millennium Line Broadway Extension to gain a better understanding of the level of support towards this project. Participants were first asked if they were aware of the proposed Millennium Line Extension, followed by the extent to which they agreed or disagreed with this extension of SkyTrain service.

Additionally, a more effective cash-based incentive program was introduced in 2017, which resulted in 1,764 of 2,622 panel members returning from 2016 for the 2017 Panel. This helped to achieve a low attrition rate (31%) compared to previous years, showing that 23% of the original panel from 2013 is still intact which had attrition rates up to 40%. 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 2017 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 2017 are similar to 2016. Some of the key highlights from the 2017 survey results include:

- 1) Transit, walking, and cycling, which all together account for 48.4% of all trips, have slightly decreased in the last year (48.4% compared to 50.2% in 2016)². Despite this minor setback, it is still on track to achieve the City’s mode share target³ by 2020.
- 2) There is negligible change in mode share from 2016 to 2017, except for a 2% decrease in the walking mode share which is instead captured by the other modes. 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 strips for commuting, as illustrated in *Figure 0-3*.
- 3) Benchmarking vehicle kilometres travelled (VKT) per capita using odometer readings from panel participants’ vehicles indicates a further reduction in 2017 of approximately 6.4%.
- 4) Car sharing has increased in 2017 with 31% of residents (aged 18+ including those without a valid driver license) having a car share membership, up from 29% in 2016 and 26% in 2015. Access to private vehicles has also increased slightly across the City, from 86% to 87%.

In addition to the fall panel survey, a smaller summer survey was conducted to engage panelists and ask additional questions regarding bicycle usage and parking. The results of the summer mini survey are documented in a technical memo⁴ to City of Vancouver.

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 The Transportation 2040 plan target is that by 2020 at least half of all trips are by walking, biking, or transit.

⁴ 2017 Vancouver Panel Summer Survey, McElhanney, September 2017.

Figure O-2: Total Trips by Mode and Mode Share (2013-2017 Panel Surveys)

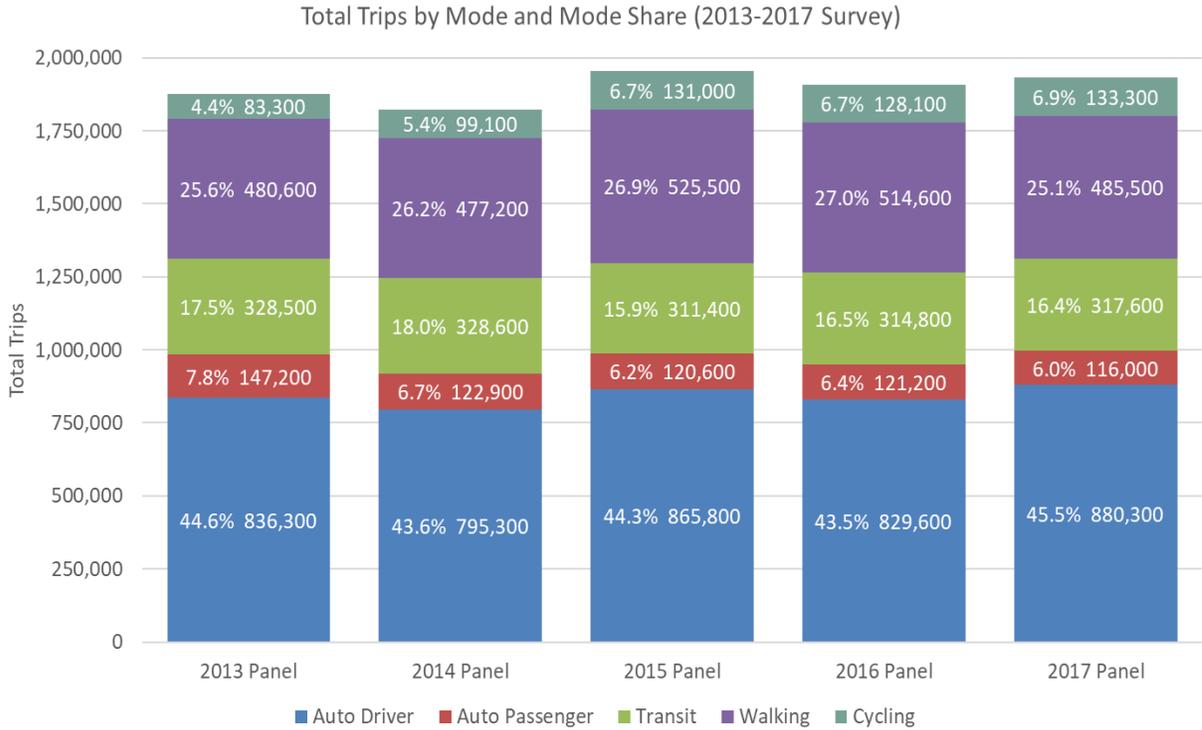


Figure O-3: Comparison of Panel Survey Trips to Work

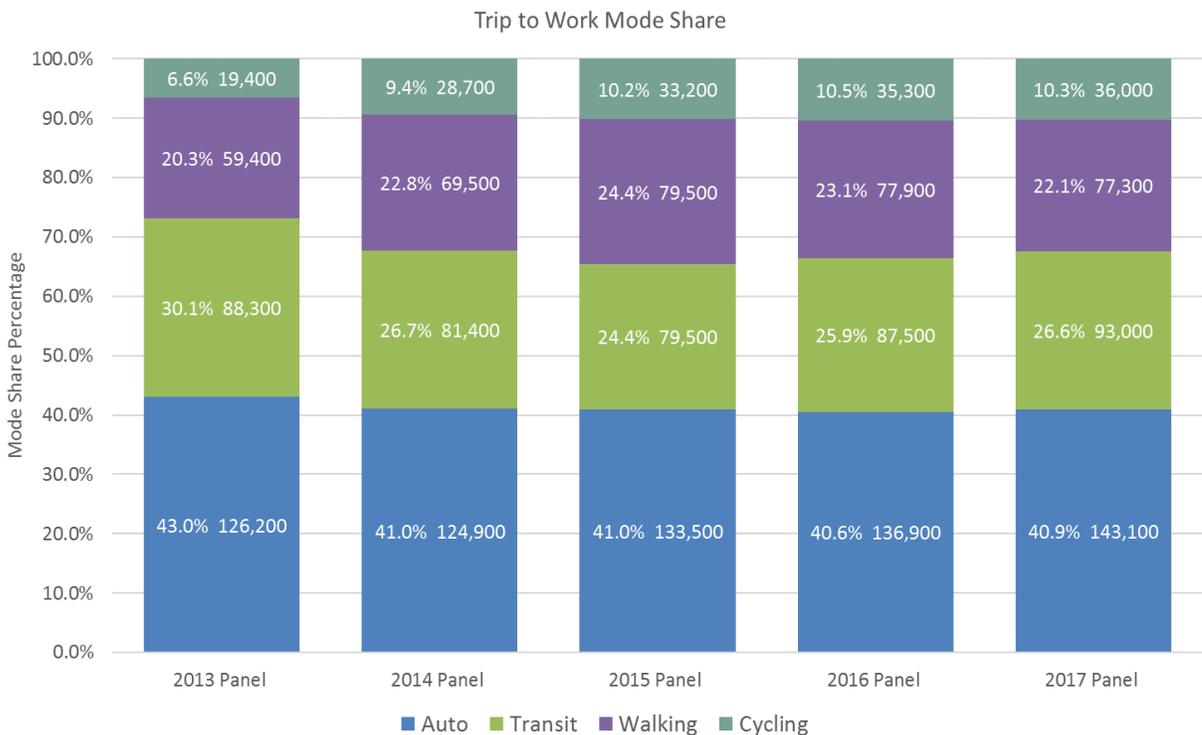


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1. Introduction

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 visions 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 vision 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/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.⁵ 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.

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, and TransLink's Regional Trip Diary Survey, a Panel Survey is one of the best tools to capture and track such trends on an annual basis.

The ability to track changes in mode share and VKT takes on greater significance considering the Federal government's commitments to increase infrastructure spending through the New Building Canada Fund.

This is the fifth year of the City of Vancouver's annual Panel Survey. This survey is intended to be used to benchmark progress towards 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.

⁵ 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 or non-residents.

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 accurately 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 fifth 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. 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 (CACs);
- Enhanced community livability when taking into account:
 - Social connectedness – residents more engaged within their own neighbourhoods
 - Improved security – following Crime Prevention Through Environmental Design (CPTED) 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.

1.3. 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.
- 5) **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.
- 6) **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.
- 7) **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 2017 Panel Survey results with previous Panel Survey data.
- 8) **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.
- 9) **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.
- 10) **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 2018 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, vehicle-kilometres travelled (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.

In 2015, additional changes were made to the survey instrument. The main differences include:

- 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

In 2016, the following minor changes / additions were applied:

- 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

In 2017, the following minor changes / additions were applied:

- 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”

More in-depth questions were contemplated during the process of updating the survey instrument in 2017. In the interest of brevity and minimizing participant fatigue, these were once more tabled for possible inclusion in future years. It is expected that this process will be revisited every year, as guided by socio-economic and technological changes.

As in previous surveys, 2017 participants were entered into a random draw to incentivise participation while not biasing outcomes. 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. This was implemented in an attempt to increase participation levels among the newly recruited, to reduce the attrition rate among returning panelists, and to streamline the administration of prizes. 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 2016 study components were invited via email to participate in the 2017 study. In an effort to reduce recruiting costs, invitations were also delivered to panelists that had completed all but the diary component in 2016. Additionally, to address the attrition levels in the 2016 random sample and boost participation of the youth cohort (15 – 34 years), Mustel Group conducted telephone recruitment by continuing random selection of gender, but initially focusing on residents 15-34 years of age and in specific transportation zones (demographics that were below target in the previous waves).

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 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

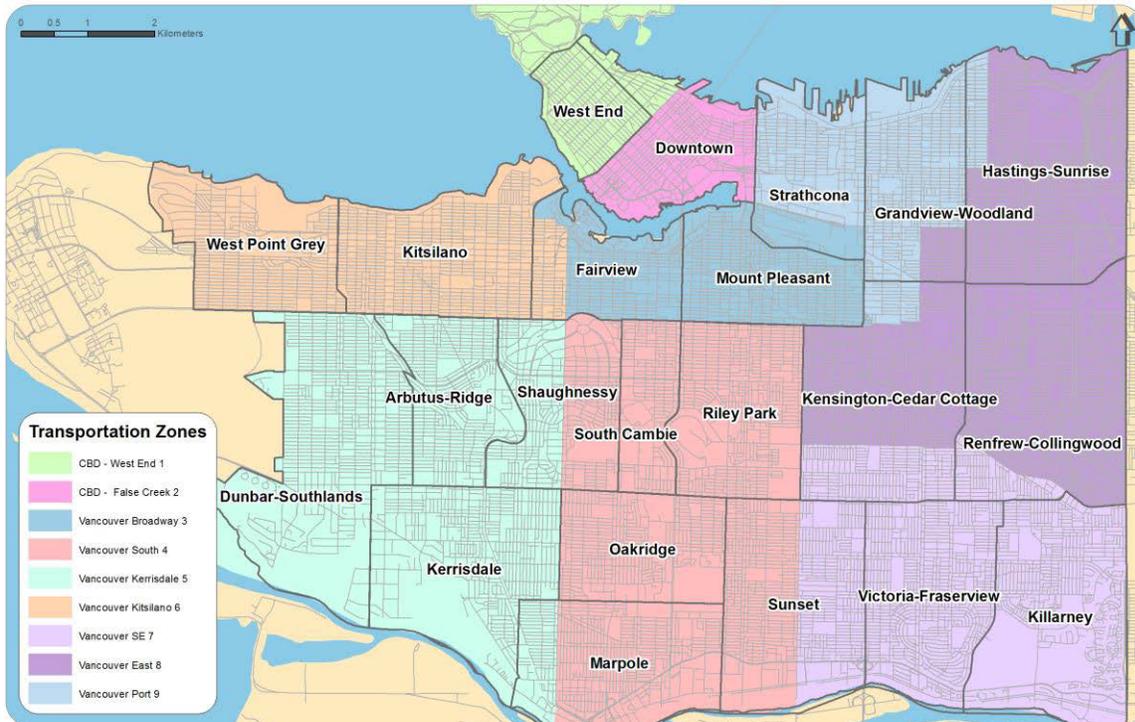


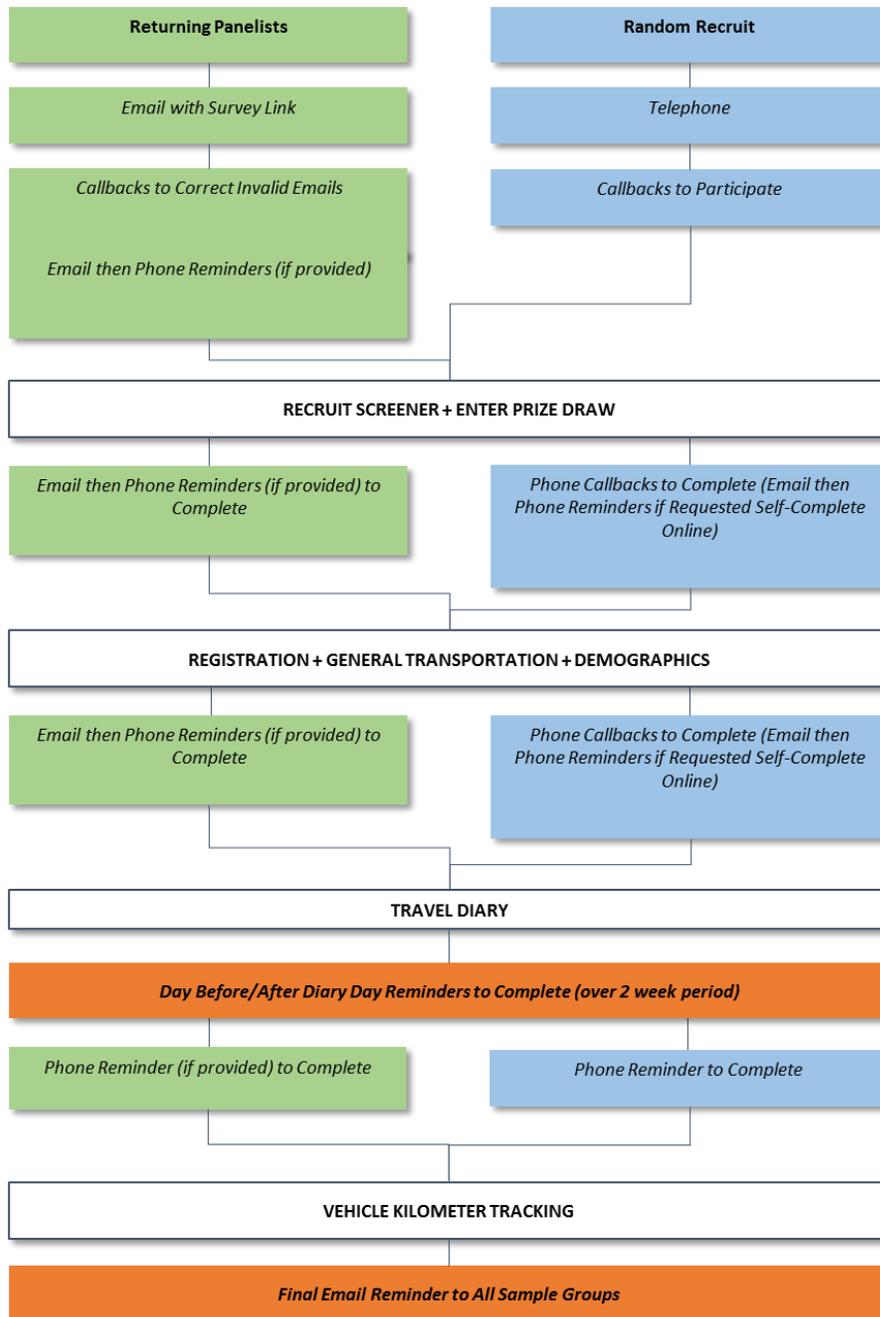
Table 2-1 shows proportionate sampling targets for the estimated 2017 population (based on a projection of 2016 Census data) required to achieve a representative total of at least 2,500 residents. Similar to previous surveys, the panel only included people 15 years and older. The total estimated 15+ population from the 2016 Census is approximately 541,000. 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+)

| Transportation Zone | 2017 Projection Based on 2016 Census Data | | | |
|------------------------|---|----------------|----------------|----------------------|
| | Total Population | Population 15+ | Proportion 15+ | Proportionate Sample |
| 1 CBD – West End | 61,048 | 58,120 | 10.7% | 269 |
| 2 CBD – False Creek | 60,373 | 56,641 | 10.5% | 262 |
| 3 Vancouver Broadway | 60,655 | 55,239 | 10.2% | 255 |
| 4 Vancouver South | 82,810 | 70,441 | 13.0% | 325 |
| 5 Vancouver Kerrisdale | 61,514 | 51,887 | 9.6% | 240 |
| 6 Vancouver Kitsilano | 62,156 | 55,786 | 10.3% | 258 |
| 7 Vancouver SE | 84,015 | 71,103 | 13.1% | 328 |
| 8 Vancouver East | 97,517 | 83,036 | 15.3% | 384 |
| 9 Vancouver Port | 43,397 | 38,788 | 7.2% | 179 |
| Total | 613,485 | 541,041 | | 2,500 |

The panel recruitment process, illustrated in the flow chart in *Figure 2-2*, began in the third week of September, precisely the same time frame as in 2016. Returning panelists were sent email invitations starting September 19th and new recruitment started on September 28th and ran until November 26th. The window to enter trip diaries was from September 20th to December 10th. The first trip diary completions were made within a week with a substantial portion of completions amongst returning panelists completed by the end of October (90%). The bulk of new recruit completions were entered by the third week of November.

Figure 2-2: Panel Survey Flow Chart



As in 2016, telephone recruitment to replenish randomly recruited panelists lost to attrition began September 28th. In an attempt 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.

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.

Specific methods to reach out to previously underrepresented geographies and age groups included:

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 was 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.

Of the total diaries completed by those within the 15-34 age cohort, 47% were recruited via cell phone sample, compared to 53% via landline. Cell phone sampling will be an ongoing and increasing requirement, especially in contacting the 15-34 age cohort, and considering the incidence of landlines is expected to decrease over time.

In contrast, for the 35 to 54 age cohort, only 16% were recruited by cell phone. This figure drops to 4% for the 55+ age cohorts.

Incentives

As indicated earlier, a cash-based incentive design was implemented in lieu of the combination of City based facility/ attraction and Visa gift cards awarded in 2016. This resulted in a 31% attrition rate. While the result is not as much as in the 2016 survey, this does not necessarily render the change in incentive design as ineffective in improving the response rate. In fact, a total of 2,622 residents completed the survey in 2017, 51 more than the previous year. Also, 93.8% of 2017 participants entered the draw, higher than the 90.5% in 2016 and in all previous year draws. Furthermore, concurrent to this Travel Survey was the implementation of TransLink's Regional Trip Diary Survey, conducted every 5 years. The 2017 TransLink survey contacted City of Vancouver residents with a goal of achieving a 2.3% random sample of households in the City and this did impact participation in the City Travel Survey. This was confirmed in anecdotal feedback received from residents to the email/ phone Help Line set up for this study. Some communicated they had already completed the study. However, upon review it was confirmed they indeed had not; when further probed it became clear they were referring to the TransLink study. Others mentioned doing the TransLink survey was sufficient and offered further feedback wondering why two similar studies were simultaneously being conducted among City residents.

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 2017 sample include the following:

- A total of 2,622 respondents completed the trip diary, of which approximately 12 respondents were aged between 15 and 17. *Table 2-2* presents a breakdown of these respondents by geographic sub-area. The target figures show the number of samples required in order to match the proportions from the census.
- **54%** of respondents were female, **45%** were male, a similar distribution as in 2016.
- **2,122** respondents had access to a private vehicle in the random sample with the majority entered an odometer reading for their vehicle (**93%**).

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 reported data. Improvements were made in 2017 to address under-sampling; however as in 2016, 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.

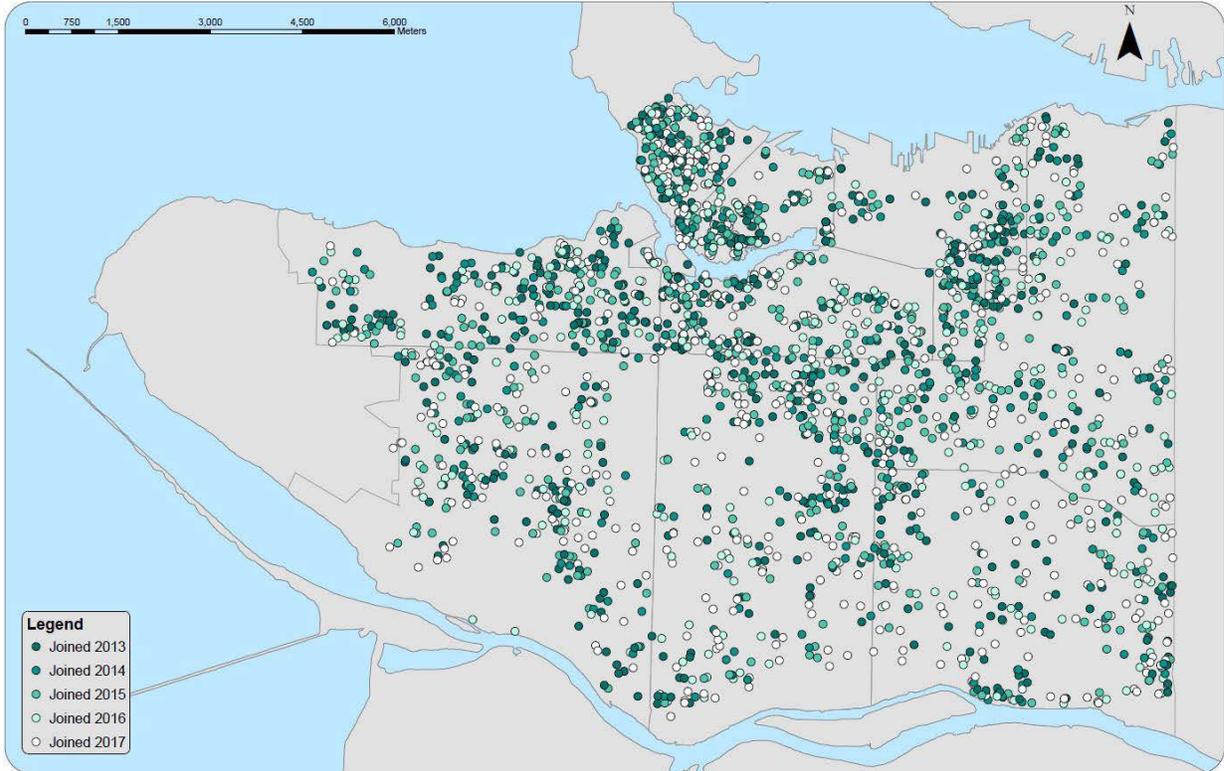
Section 4.1 provides a summary of the confidence levels of the reported mode shares by transportation zone which provides an assessment of the reliability of the data for tracking travel patterns.

Table 2-2: Completed Trip Diaries by Transportation Zone

| Transportation Zone | Sampled | Target | Δ Target | % Difference |
|------------------------|--------------|--------------|------------|--------------|
| 1 CBD – West End | 279 | 269 | 10 | 4% |
| 2 CBD – False Creek | 215 | 262 | -47 | -18% |
| 3 Vancouver Broadway | 322 | 255 | 67 | 26% |
| 4 Vancouver South | 365 | 325 | 40 | 12% |
| 5 Vancouver Kerrisdale | 293 | 240 | 53 | 22% |
| 6 Vancouver Kitsilano | 291 | 258 | 33 | 13% |
| 7 Vancouver SE | 285 | 328 | -43 | -13% |
| 8 Vancouver East | 366 | 384 | -18 | -5% |
| 9 Vancouver Port | 206 | 179 | 27 | 15% |
| Total | 2,622 | 2,500 | 122 | 5% |

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+.

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 study area population (2,622 respondents out of 541,041 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+).

To ensure a statistically representative sample, the weighting and expansion factors developed for the person and trip data collected in the COV Panel Survey in 2017 matched known demographic characteristics for City of Vancouver 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 process⁶.

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 10 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 2016, there is a smaller proportion of participants in the 35-54 age cohort, and greater proportion in the 55+ cohort. *Table 2-4* shows the City’s 2017 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 | <1% | 1.1% | 3.5% | 5.1% | 8.6% | 9.7% | 17.1% | 45.4% |
| Female | <1% | <1% | 3.3% | 5.7% | 10.6% | 12.9% | 20.7% | 54.2% |
| TransGender | - | - | - | - | - | - | <1% | <1% |
| Other | - | - | - | - | <1% | - | - | <1% |
| Refused | - | - | <1% | - | <1% | <1% | <1% | <1% |
| Total | <1% | 1.9% | 6.9% | 10.8% | 19.3% | 22.8% | 37.9% | 100.0% |

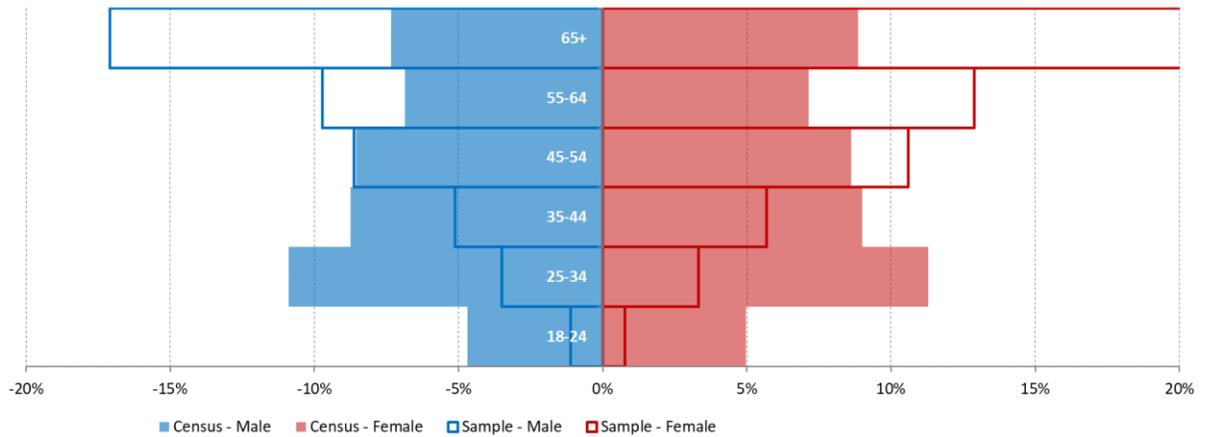
Table 2-4: 2017 Demographic Projections (based on 2016 Census)

| Gender | 15-17 | 18-24 | 25-34 | 35-44 | 45-54 | 55-64 | 65+ | Total |
|--------------|-------------|-------------|--------------|--------------|--------------|--------------|--------------|---------------|
| Male | 1.5% | 4.7% | 10.9% | 8.7% | 8.6% | 6.9% | 7.3% | 48.6% |
| Female | 1.5% | 5.0% | 11.3% | 9.0% | 8.6% | 7.1% | 8.9% | 51.4% |
| Total | 3.0% | 9.7% | 22.2% | 17.7% | 17.2% | 14.0% | 16.2% | 100.0% |

Figure 2-4 illustrates the age and gender distribution of the survey sample versus the study area universe. Similar to the 2016 panel survey, there is over-sampling of older age groups (55+ age cohorts) and under-sampling of younger age groups (15-34 cohort). The 15-34 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.

⁶ 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 trip data, but also included a weekday equalizer weight to balance out trip days of week (Monday to Friday). In the end, for the total sample size of 2,622 (for the random sample only) to be reflective of the entire 15+ COV population for this survey (541,041), the average expansion factor applied to the dataset was 206.3 (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.

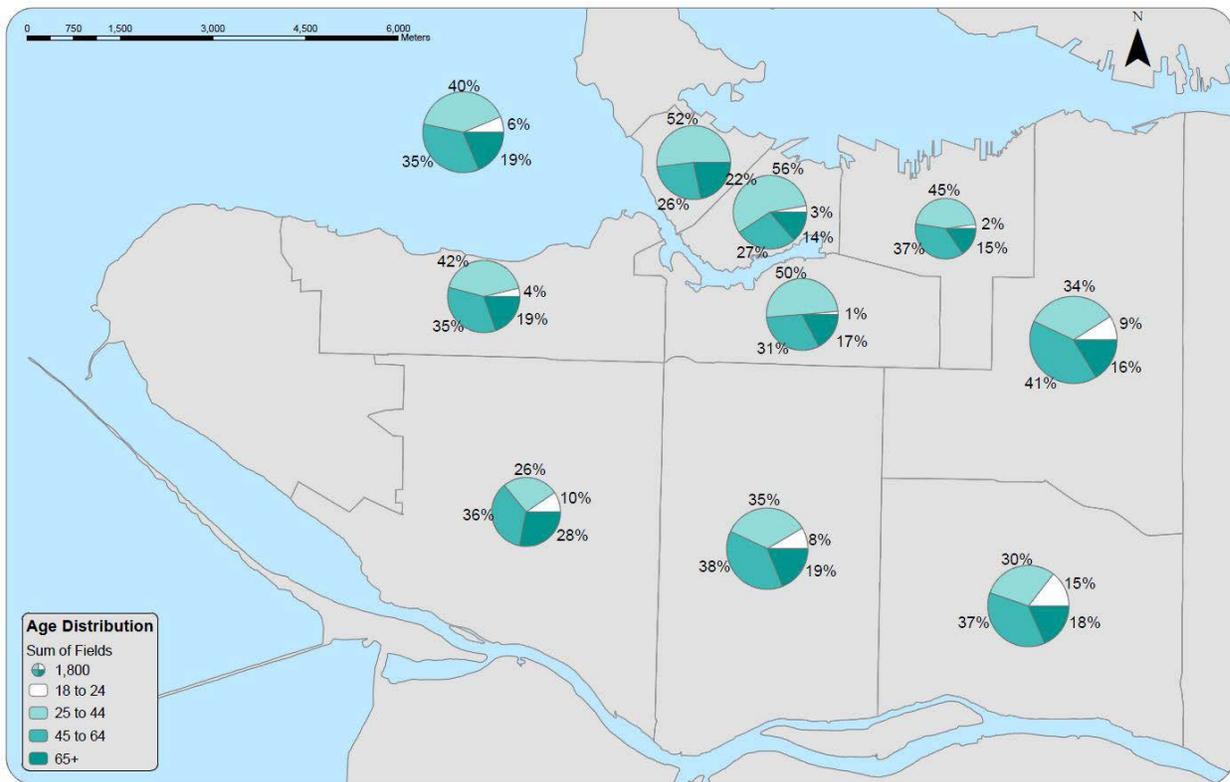
3. Panel Characteristics

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 section⁷.

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 2016 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

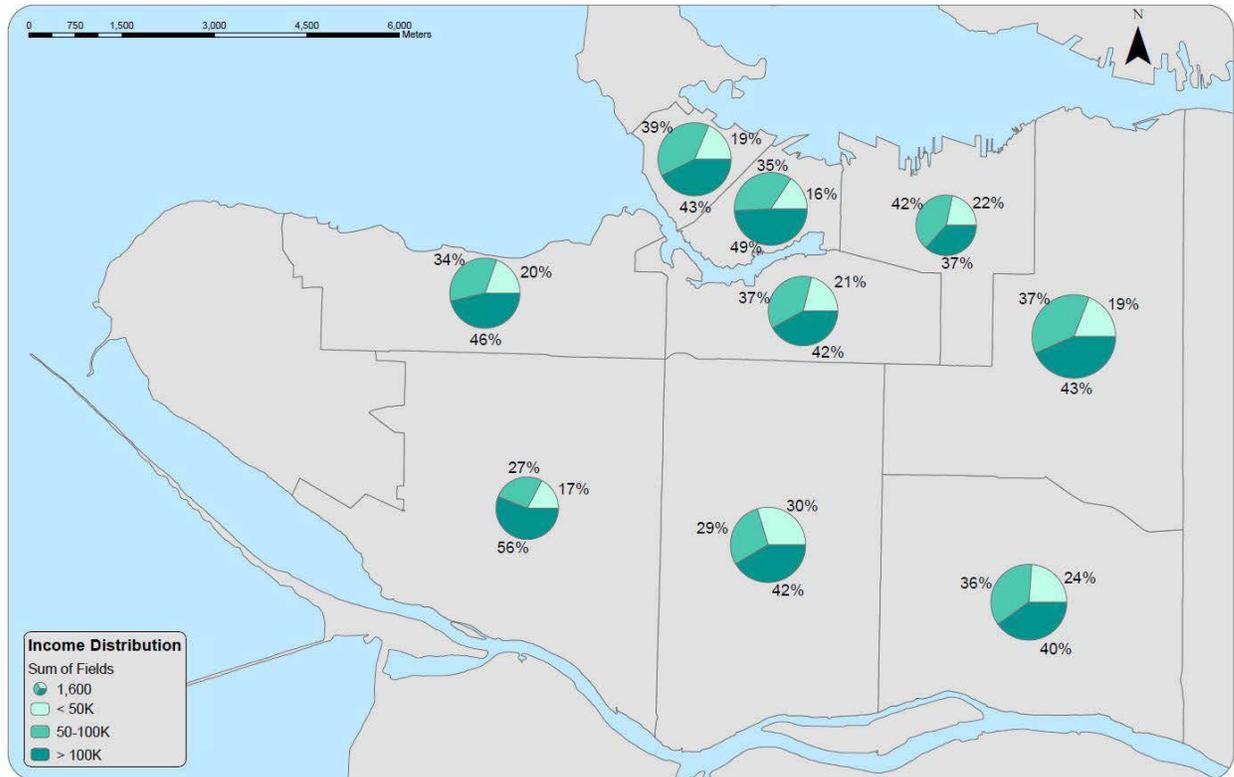


⁷ TransLink's trip diary surveyed people aged five and above. The trip diary, however, only provided the age attribute by cohort. People aged 15, 16, and 17 were lumped in with the 13-17 cohort. As such, while the data sampling and expansion details presented in this section include the 15-17 age cohort, 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 2016 panel survey, there are only minor differences in income distribution.

Figure 3-2: Income Distribution: Weighted Population

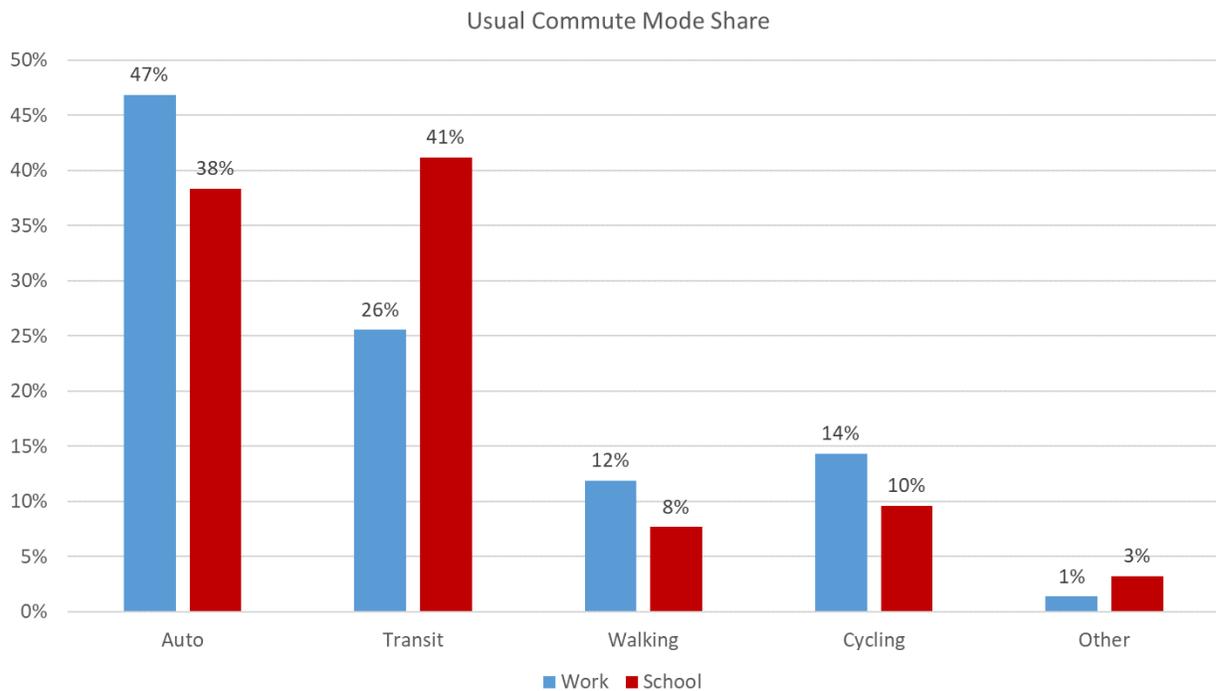


3.3. Usual Commute Mode

As discussed in Section 2.3 of this report, demographic projections for 2017 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 2017, 47% of workers commuted 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 2017 panel survey and the Journey to Work survey conducted in 2016, as shown in *Table 3-1*, 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.

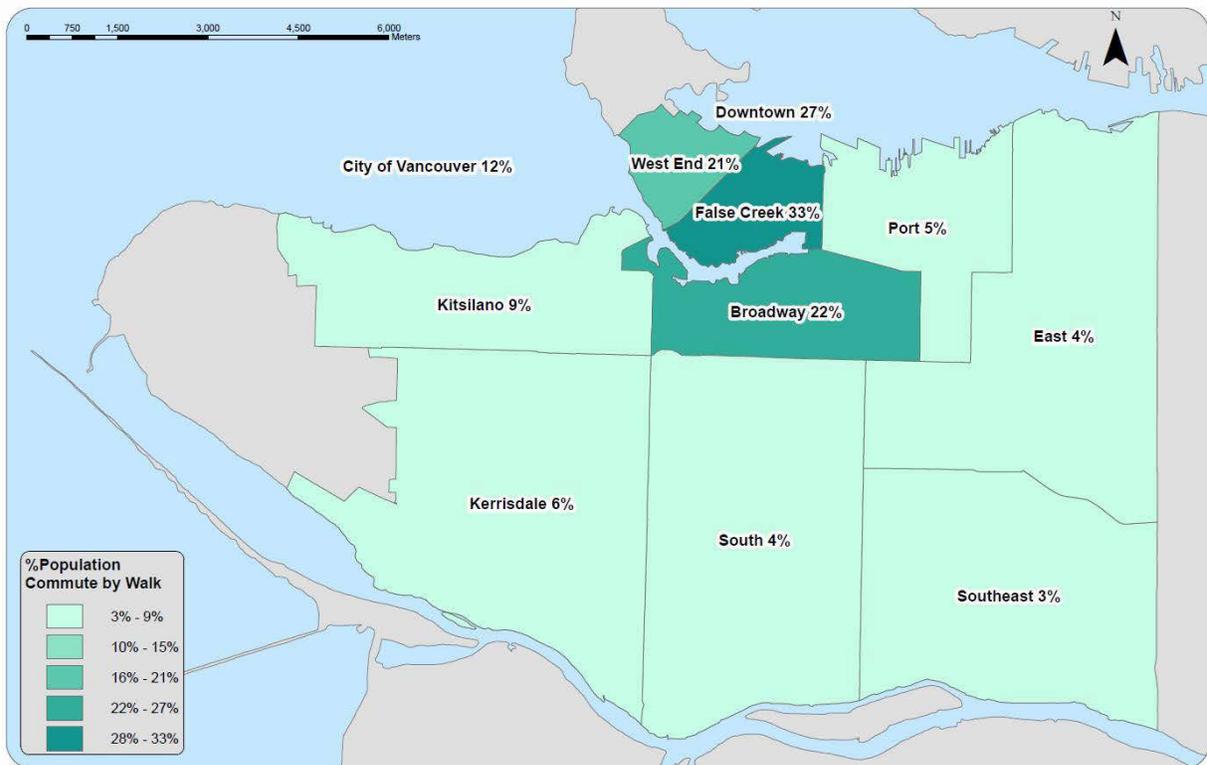
Table 3-1: Comparison of 2016 Census Journey to Work with 2017 Panel Survey

| Mode | Census Mode Share | | 2017 Panel Survey Mode Share | |
|---------|-------------------|-----------------------|------------------------------|-----------------------|
| | Journey to Work | Usual Commute to Work | Journey to Work | Usual Commute to Work |
| Auto | 49.0% | 46.9% | 46.9% | 46.9% |
| Transit | 29.7% | 25.5% | 25.5% | 25.5% |
| Walk | 13.7% | 11.9% | 11.9% | 11.9% |
| Bike | 6.1% | 14.3% | 14.3% | 14.3% |
| Other | 1.4% | 1.4% | 1.4% | 1.4% |

3.4. Walking

Based on trip diary responses, there were approximately 485,500 walk trips made in 2017 which equates to a 25% 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 3-4*, 12% of all respondents identified walking as their usual mode. This is lower than the actual recorded walking trips. Looking at the transportation zones, 27% 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.

Figure 3-4: 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 expand its bicycle network that is designed for people of all ages and abilities. Specifically, cycling infrastructure has been expanded within the CBD transportation zones and on Point Grey Road in Kitsilano.

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 3-5 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 46% 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 3-5: Respondents who Generally use a Bicycle Two or More Times per Week in Fair Weather

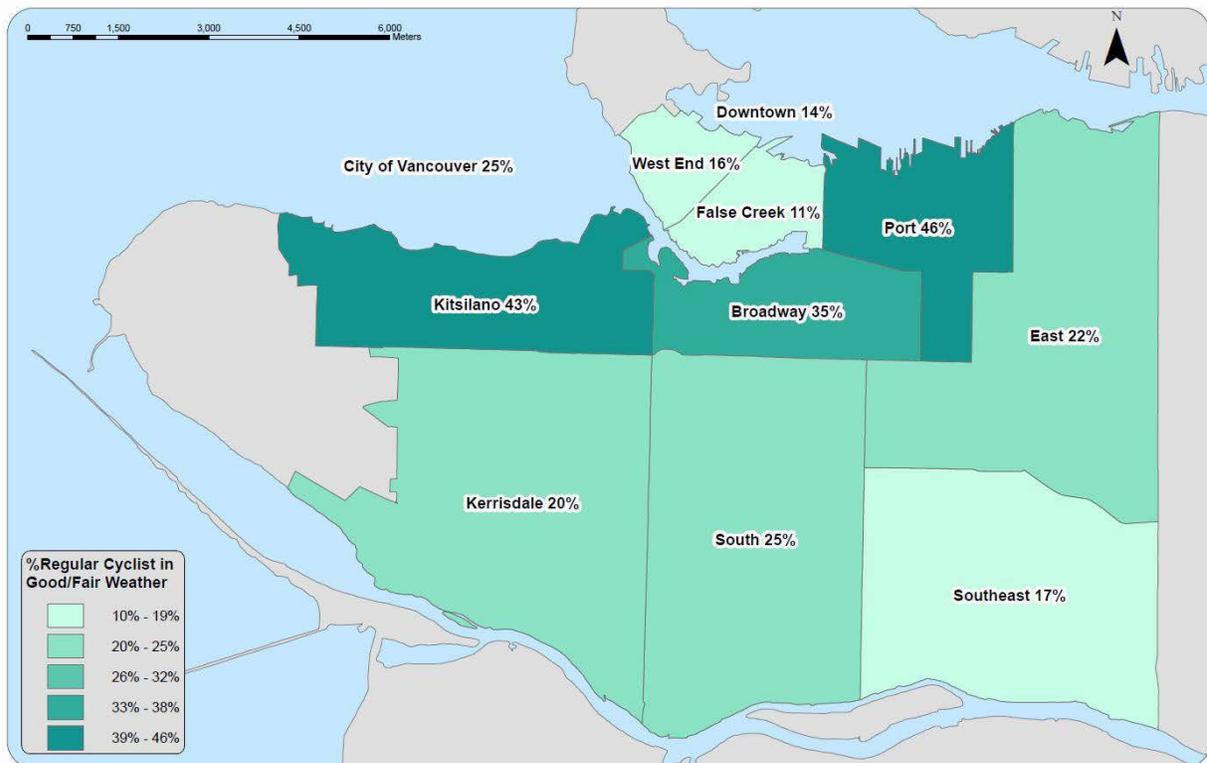


Table 3-2 shows a breakdown of cycling frequency in fair or rainy/cold weather conditions. As expected, panel members are much more likely to cycle in fair weather (approximately twice as likely). However, it is worthwhile to note that a core group of approximately 28,000 cyclists are expected to bike at least five times a week in inclement weather.

Table 3-2: 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 | 68,800 | 84,400 | 86,100 |
| Rainy / Cold Weather | 28,000 | 41,200 | 37,500 | 53,900 |
| Ratio (Fair/Poor) | 2.3 | 1.7 | 2.3 | 1.6 |

Respondents were also asked if they would like to travel by bicycle more often than they do currently. *Figure 3-6* 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 3-6: Respondents who Would Like to Travel by Bicycle More Often

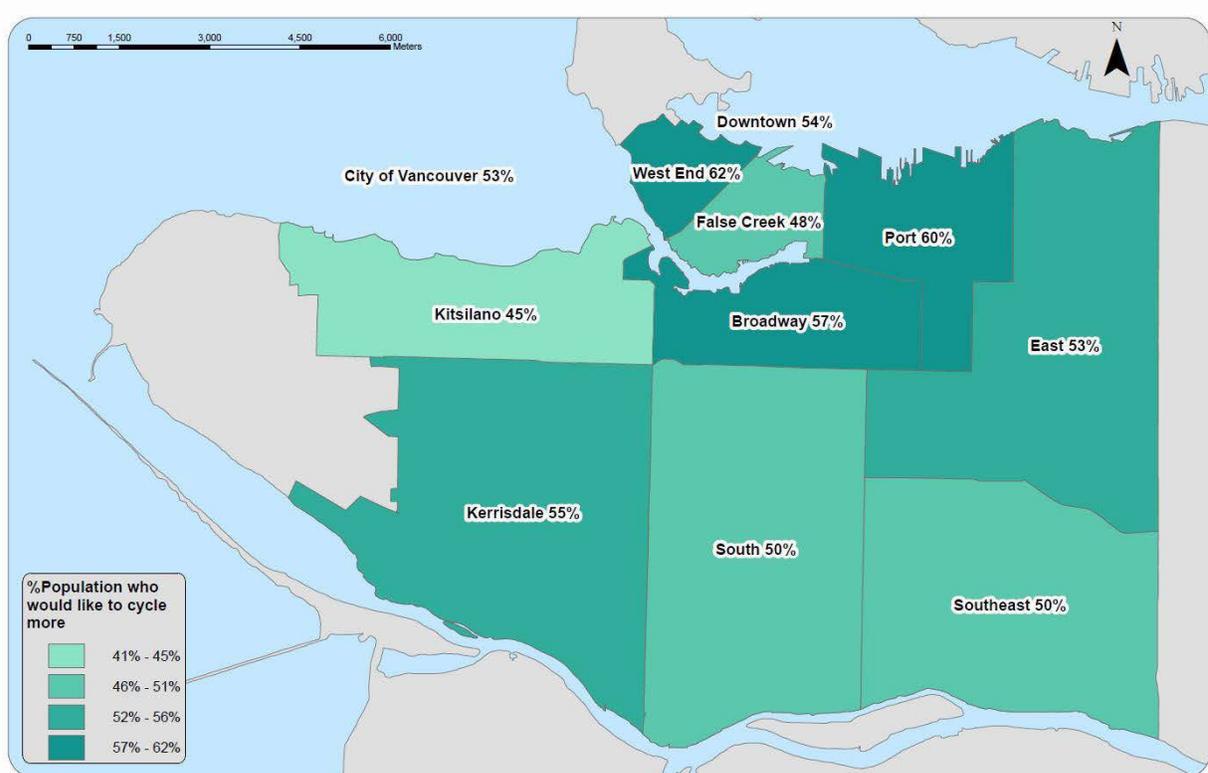


Figure 3-8 shows panel responses aged 18+ (excluding those who do not ride a bicycle at all) regarding the types of bicycle facilities illustrated in *Figure 3-7* that participants would feel comfortable using. The residents were allowed to pick more than one option for this question. Less than 1% of 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 3-7: 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 3-8: Bicycle Facility Preferences

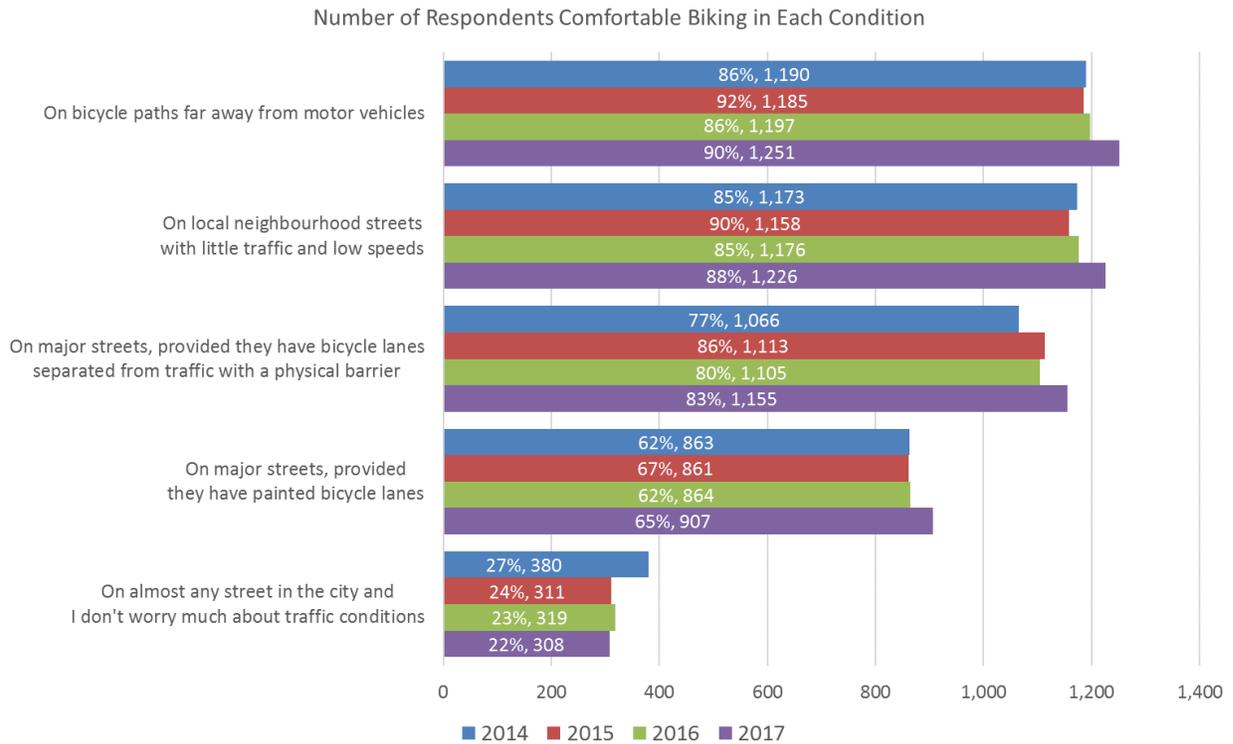
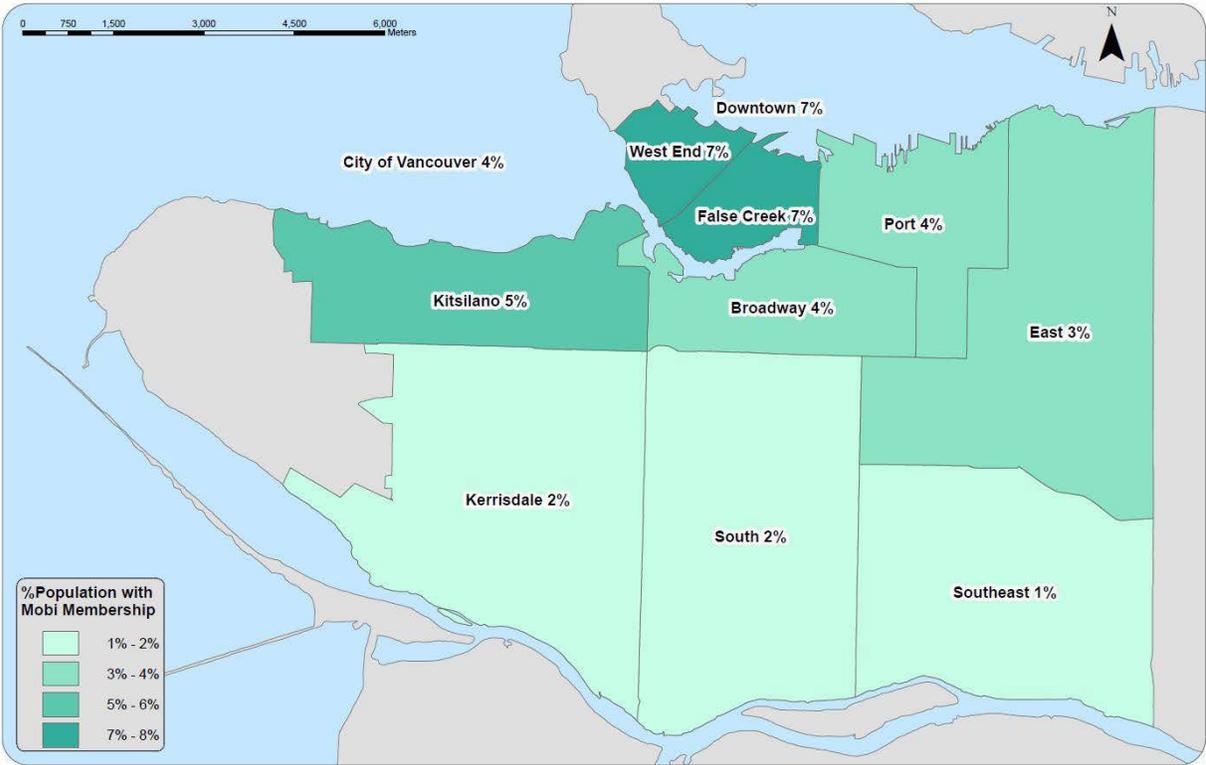


Figure 3-9 shows a breakdown of residents aged 18+ with Mobi membership. Phase 1 of the Mobi bike share system included coverage in downtown Vancouver and as far east as Main St, as far south as 16th Ave and as far west as Arbutus St. Overall, City of Vancouver membership is approximately 4%, with most transportation zones reporting similar to or less than the City average. As expected, Mobi membership is reported the highest for transportation zones that are within the Mobi coverage area. The expanded number of people with Mobi membership is estimated to be approximately 19,400 from the panel survey, approximately 4% of the City's residents.

Figure 3-9: 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 3-10* and *Figure 3-11* 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 CBD-West End transportation zone has the highest level of transit use (37%) for people travelling to work. This ranges from a low of 23%. In most transportation zones, over 50% of students reported transit as their usual mode of travel.

Figure 3-12 shows the proportion of participants who have either the Monthly Compass Card or annual transit passes such as the U-Pass or the Employer Pass. The geographic distribution echoes that of regular transit commuters, which is to be expected.

Figure 3-10: People who Identified Transit as Their Usual Mode of Travel to Work

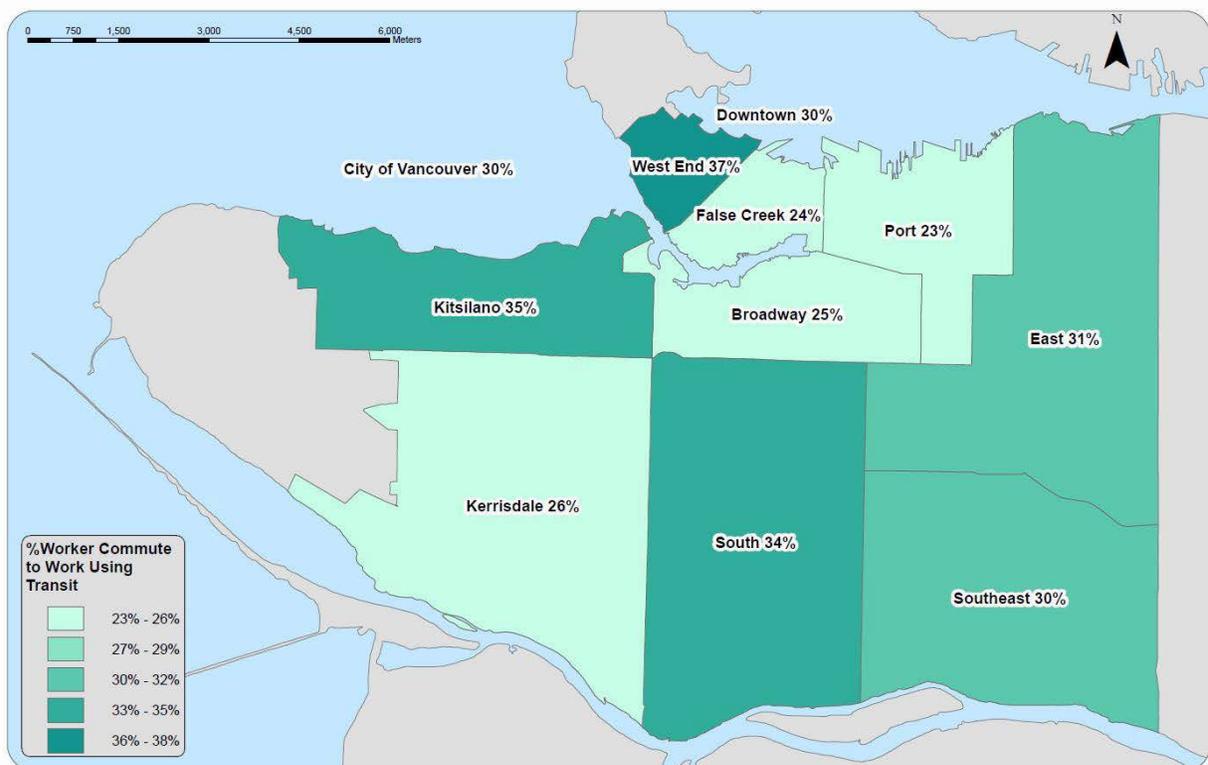


Figure 3-11: People who Identified Transit as Their Usual Mode of Travel to School

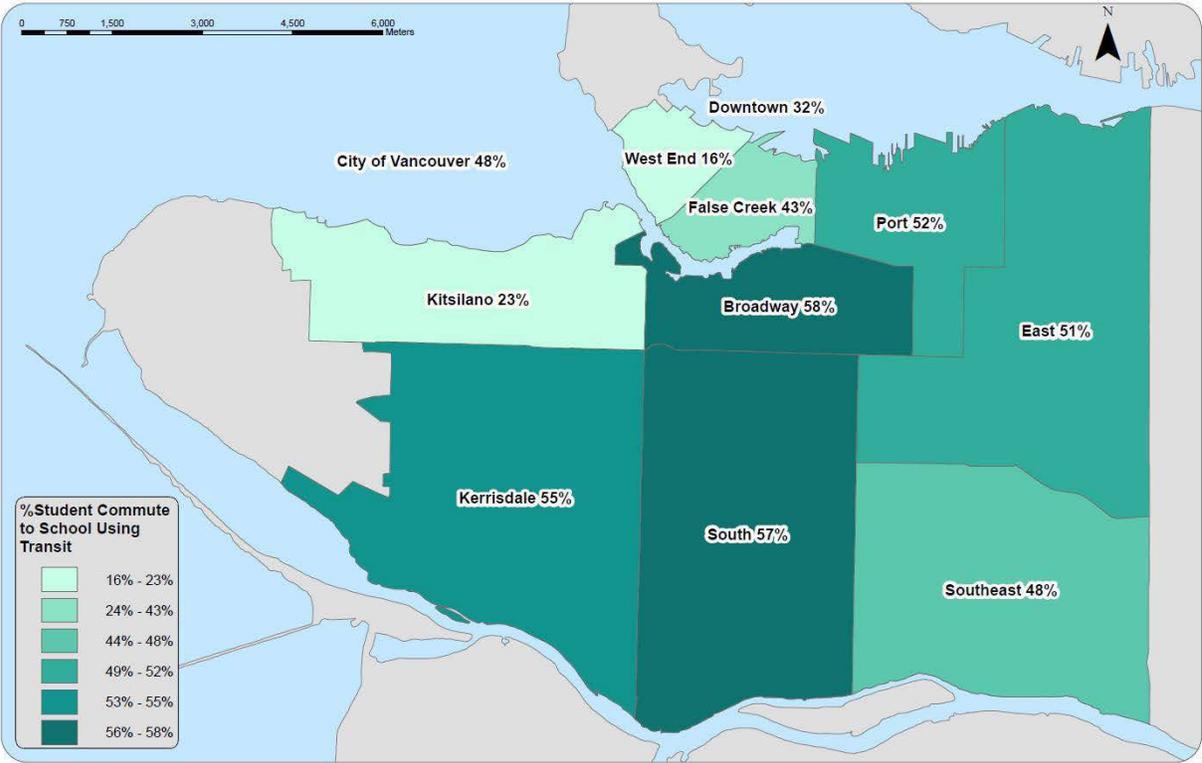
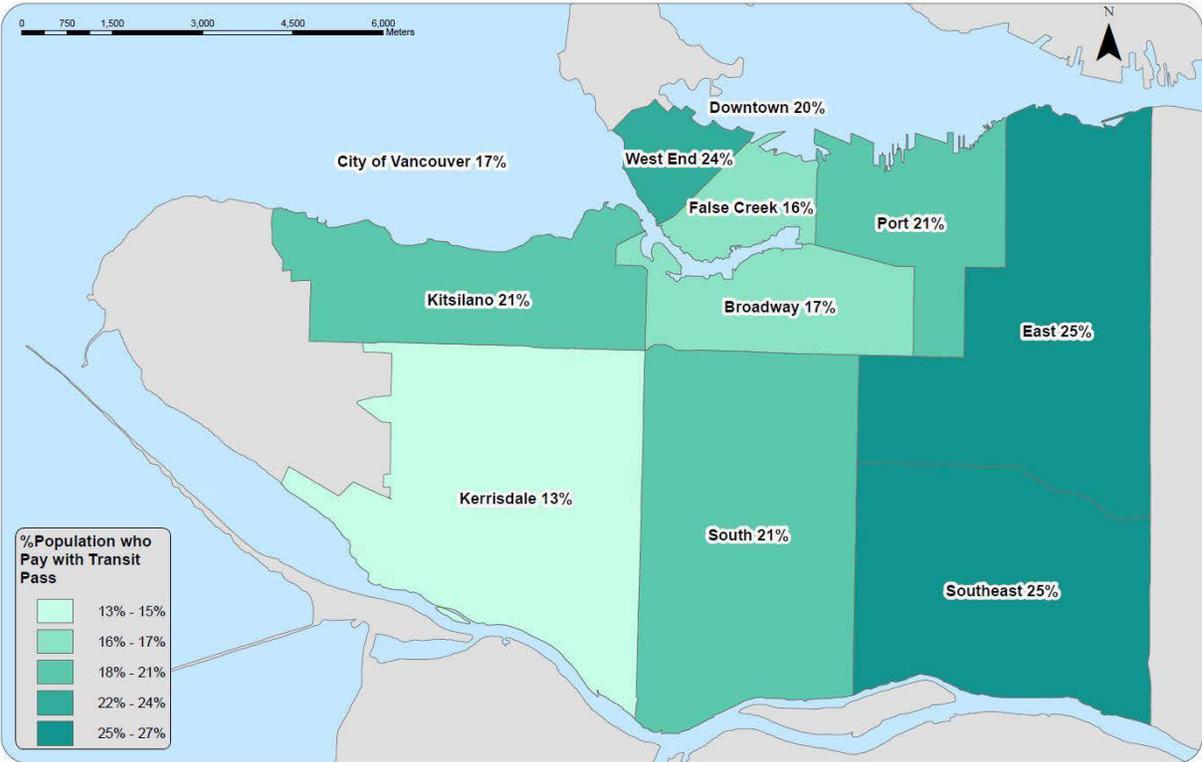
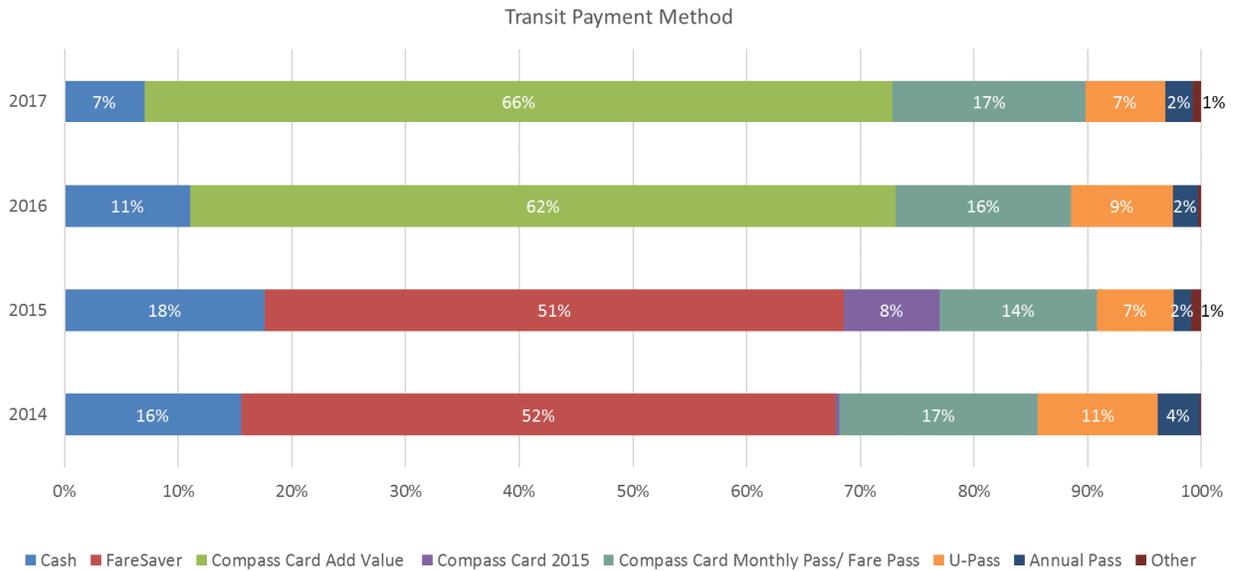


Figure 3-12: Proportion of Survey Participants Who Use Transit Passes



In 2014, the annual employer pass program was discontinued by TransLink. This changed the way those transit users pay for transit. The other major change was the official roll-out of the Compass Card in late 2015. *Figure 3-13* illustrates the shifts from 2014 to 2017 in terms of transit fares. The payment options are grouped into the following categories: Cash/FareSavers, Monthly FarePass, Annual Pass, Compass Card, and U-Pass. In January 2016, both FareSavers and Monthly FarePass were discontinued. The Compass Card payment method has replaced the FareSavers payment method. As seen in the figure, transit payment by cash and credit transactions have reduced by 4%, while payment through use of the Compass Card Add Value saw an increase of 4%.

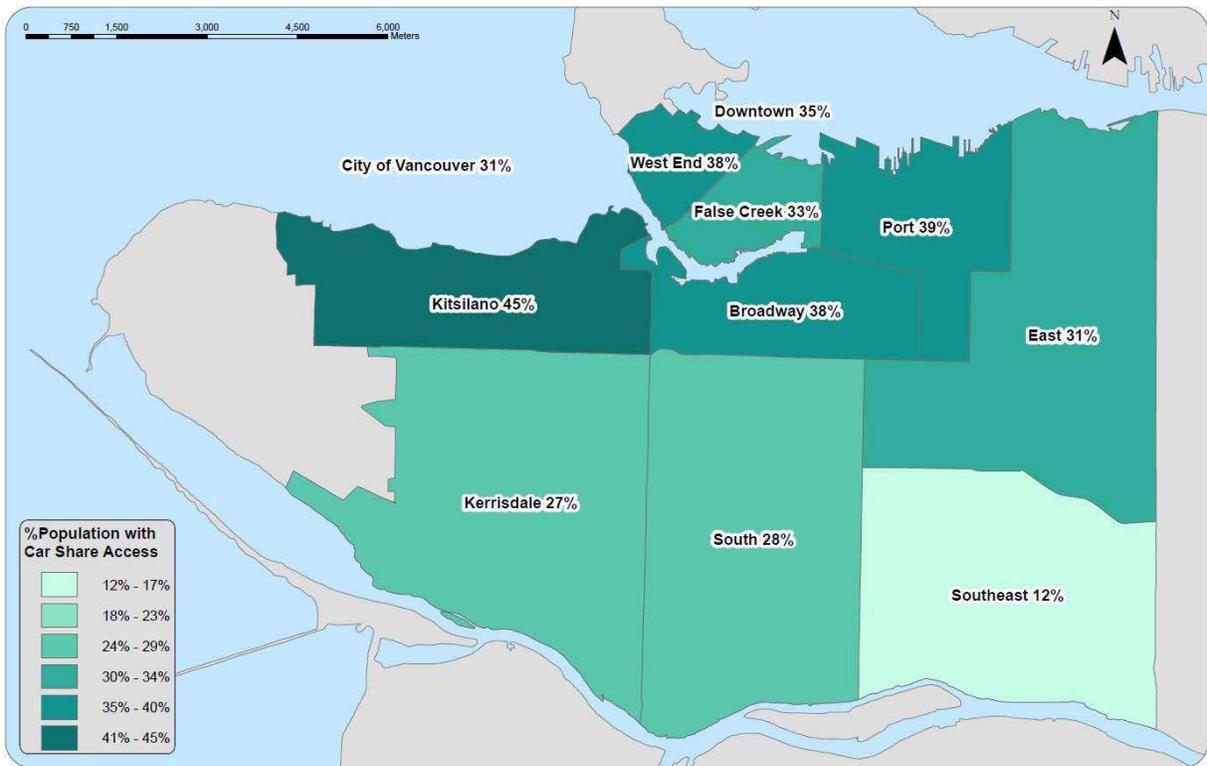
Figure 3-13: Transit Payment Methods (2014 to 2017)



3.7. Car Share Access

In 2017, 1.1% of trips involved car share (0.9% driver, 0.2% passenger) which is consistent with the car share proportion in 2016. This data should be used with caution since it represents a small fraction of total trips reported by panelists. Car sharing programs such as Modo, Zipcar, and Car2Go have continued to gain patronage in recent years. 2014 saw the addition of the Evo program, sponsored by BCAA. The distribution of those with regular access to a car-sharing program is shown in *Figure 3-14*. Among population aged 18+, including those without valid driver license, subscription to car sharing programs is up to 31% from 29% in 2016. Kitsilano, Kerrisdale, and CBD – West End transportation zones have experienced the greatest percentage increases in car share patronage in the last year.

Figure 3-14: Access to Car Sharing Program



3.8. Private Vehicle Access

In 2017, approximately 996,300 trips were made using a private vehicle, 880,300 of which were drivers and 116,000 were passengers. This equates to a roughly 52% auto mode share (46% drivers, 6% passengers).

Figure 3-15 and Figure 3-16 both confirm that people in higher income households have more access to private vehicles. Compared to 2016, a slightly higher proportion of lower income households have access to a private vehicle. Additionally, there was a lower proportion of auto trips among lower income households (36% compared to 41% in 2016).

Figure 3-17 clearly shows that access to a private vehicle has an impact on mode choice with 61% of people with access to a private vehicle travelling by auto and only 13% for people without private vehicle access. This is consistent with the findings from the 2016 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 3-18. City-wide, the proportion of participants with access to a private vehicle has held steady from 2016. Vehicle ownership is lowest in the downtown core area; this can be explained by good transit coverage and walkability of the CBD area. More than 90% of residents have access to private cars in the Kerrisdale, Vancouver Southeast, and Vancouver East areas.

Figure 3-15: Access to Private Vehicle Proportion by Household Income

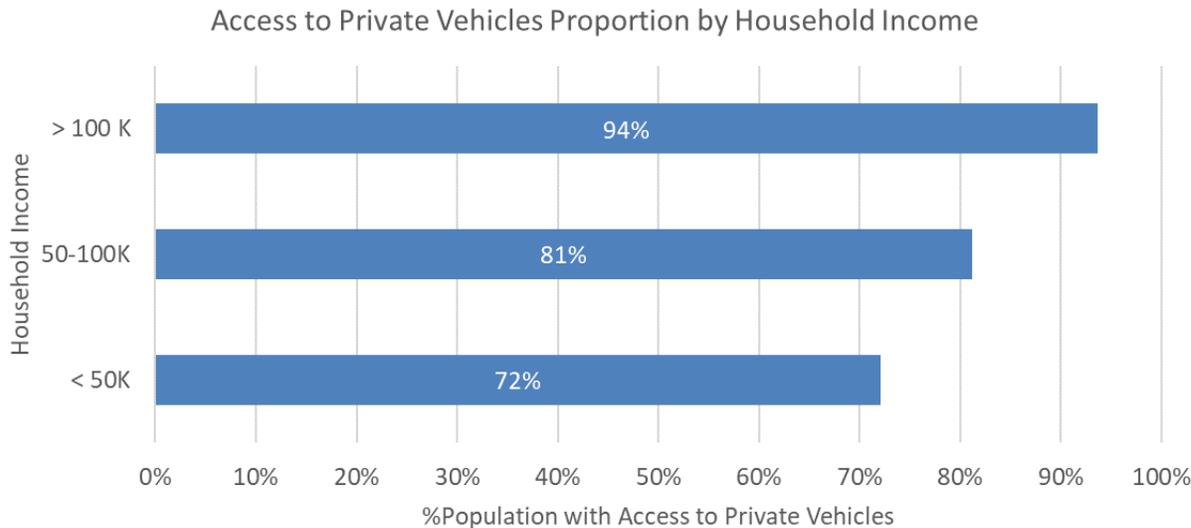


Figure 3-16: Mode Share Distribution by Household Income

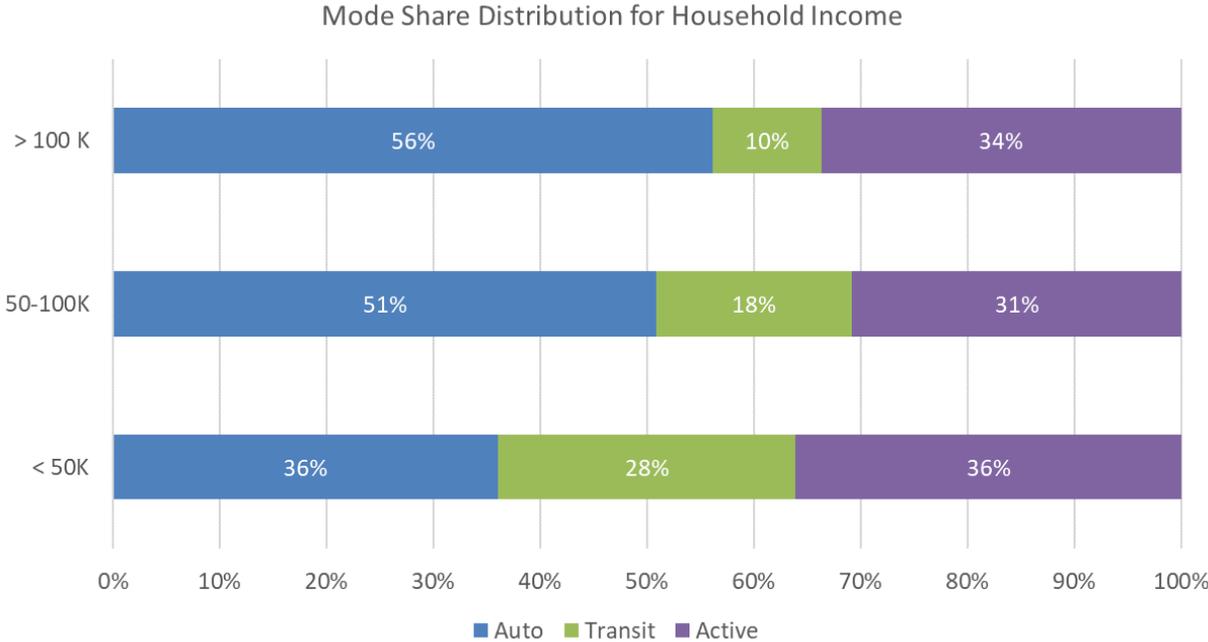


Figure 3-17: Vehicle Accessibility Distribution by Mode Choice

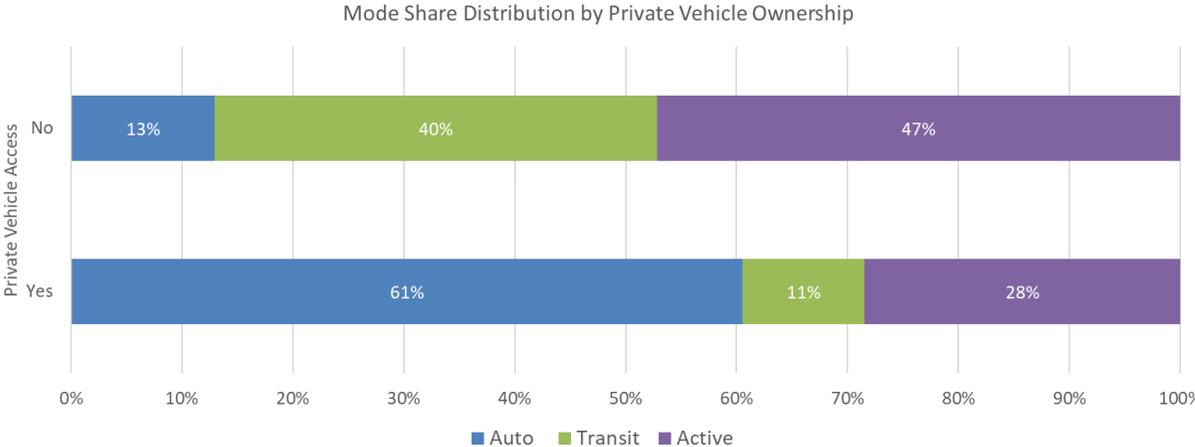
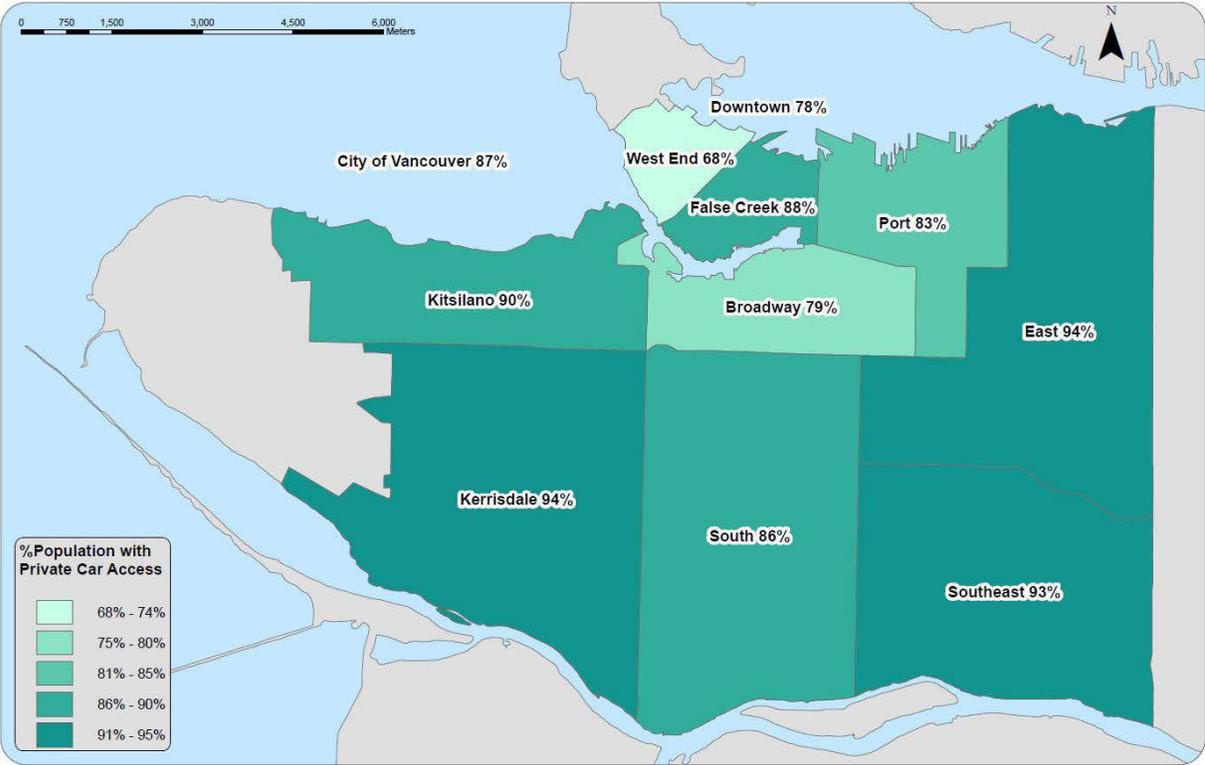


Figure 3-18: Private Vehicle Access



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 2017 Panel Survey with the past 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 2013-2017 Panel Surveys. In this initial snapshot, it is evident that both auto driver and cycling mode shares have increased, while walking mode share has decreased when compared with previous survey results. Transit mode share has remained relatively consistent in comparison to the previous year despite increases in transit fares.

Figure 4-1: Total Trips by Mode and Mode Share (2013-2016 Panel Surveys)

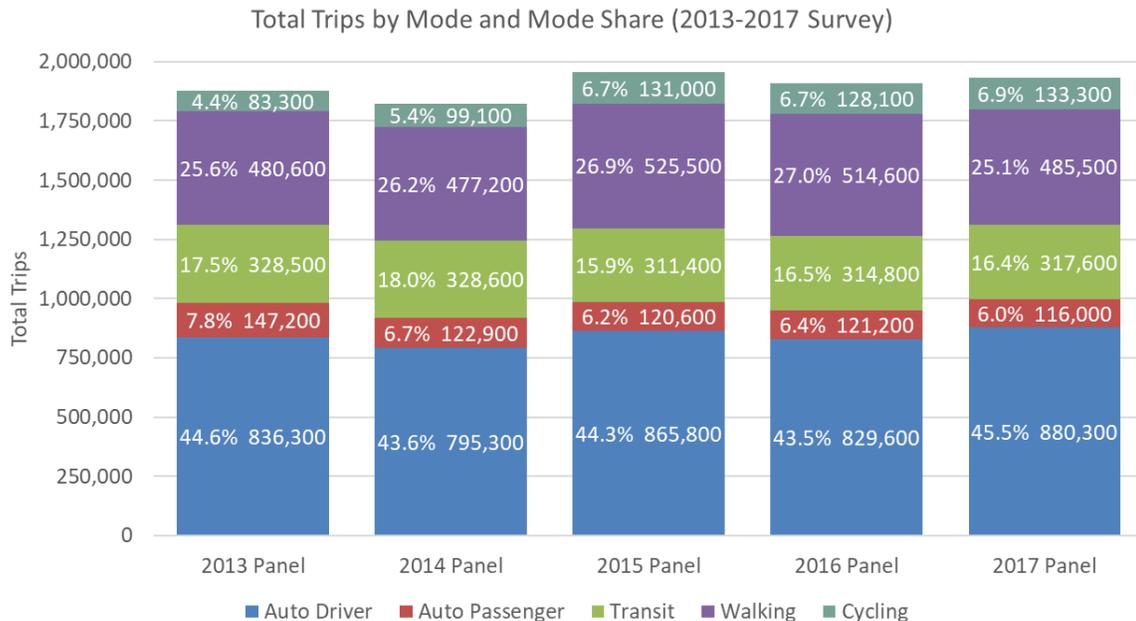


Figure 4-2 compares the Panel Survey mode share for reported trips, broken down by residents' home transportation zone, for the 2016 and 2017 Panel Surveys. The reported trip mode share distribution by zone is consistent with the patterns observed in 2016. Highest walk share is in zones of highest density. 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

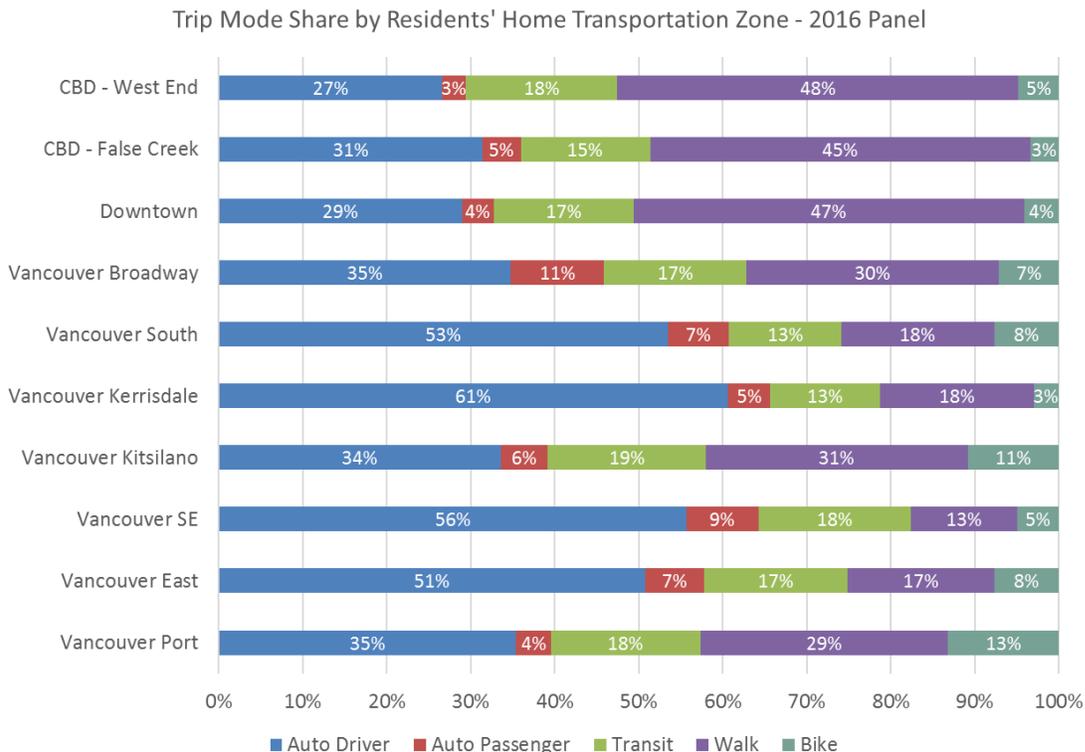
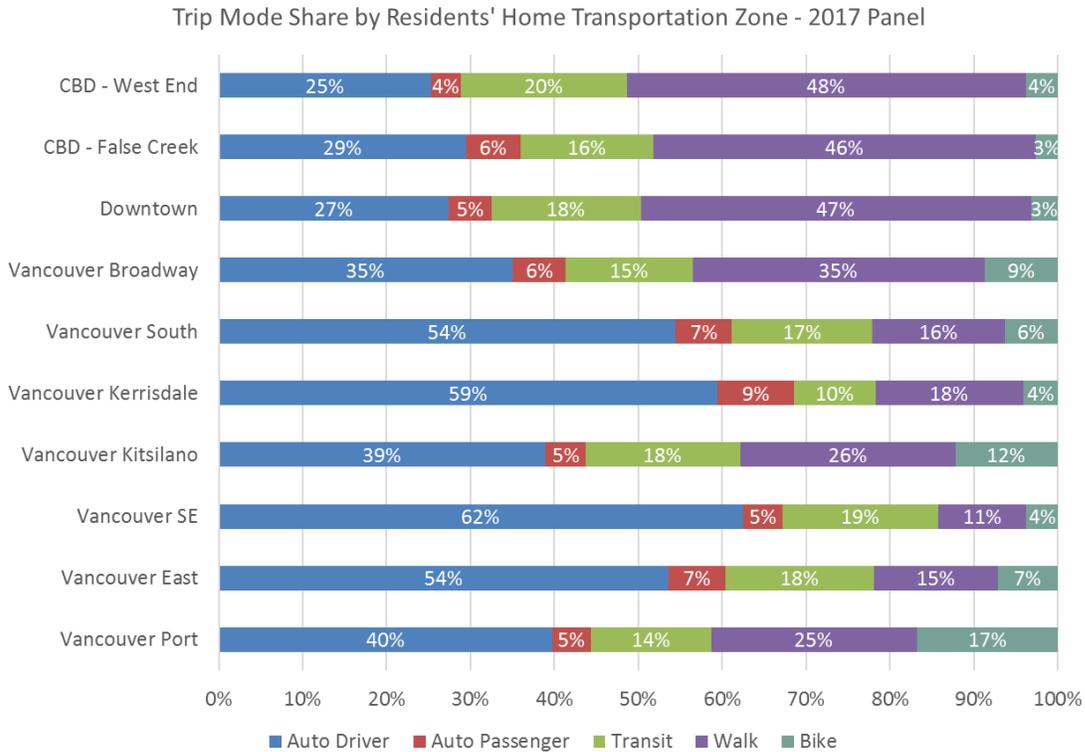


Table 4-1 summarizes the Panel Survey walk/bike/transit mode share for reported trips (transit, walking and cycling) by transportation zone. It also highlights the 95% and 90% confidence intervals of these results as well as the number of samples required to achieve a +/- 5% mode share error range at the 95% confidence level. *Table 4-2* compares the 2016 and 2017 survey results for walk/bike/transit mode share and their corresponding confidence intervals. The table highlights the year over year variation when mode share is compared by transportation zone. In all transportation zones, the 2017 walk/bike/transit mode shares still fall within the 2016 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

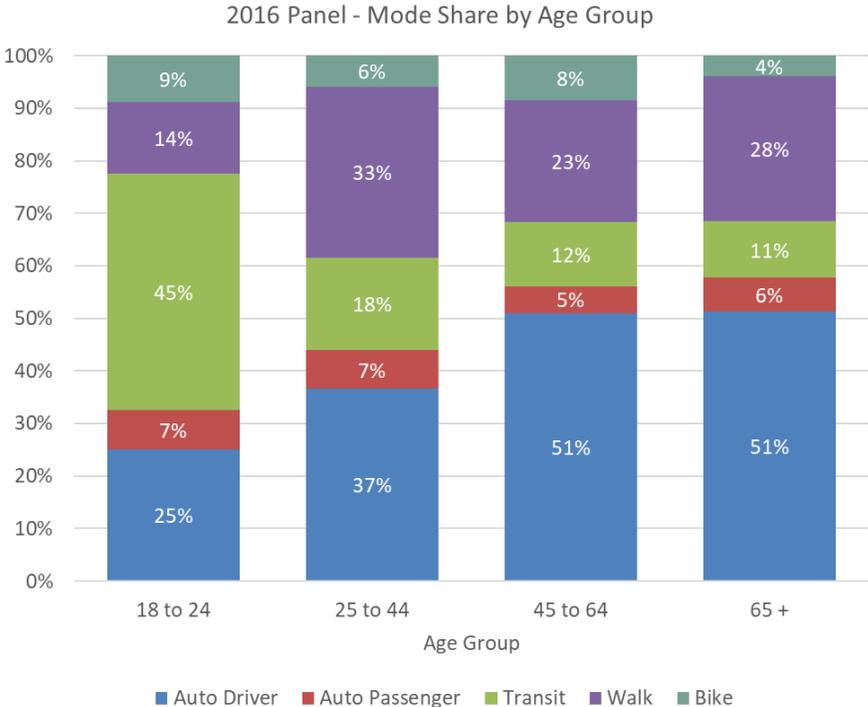
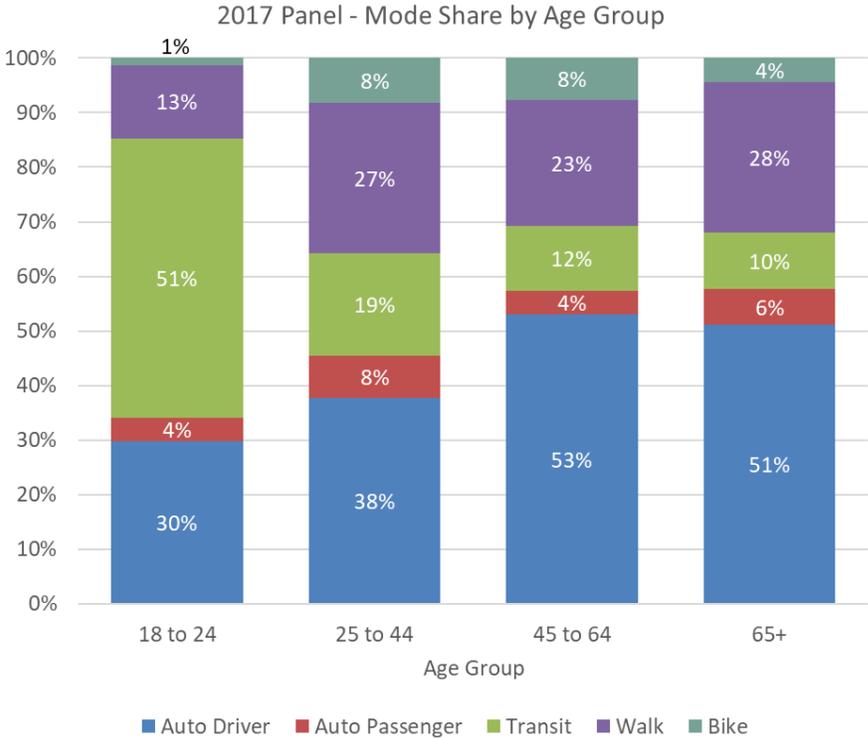
| Transportation Zone | Sustainable Mode Share (%) | 95% Confidence Interval | 90% Confidence Interval | No. of Persons Sampled (18+) | Sample Size Required at 95% |
|----------------------|----------------------------|-------------------------|-------------------------|------------------------------|-----------------------------|
| CBD - West End | 71% | (66%-76%) | (67%-76%) | 279 | 315 |
| CBD - False Creek | 64% | (58%-70%) | (59%-69%) | 215 | 353 |
| Downtown | 67% | (63%-72%) | (64%-71%) | 494 | 337 |
| Vancouver Broadway | 59% | (53%-64%) | (54%-63%) | 321 | 372 |
| Vancouver South | 39% | (34%-44%) | (35%-43%) | 364 | 365 |
| Vancouver Kerrisdale | 31% | (26%-37%) | (27%-36%) | 291 | 331 |
| Vancouver Kitsilano | 56% | (51%-62%) | (51%-61%) | 290 | 378 |
| Vancouver SE | 33% | (27%-38%) | (28%-37%) | 283 | 338 |
| Vancouver East | 40% | (35%-45%) | (35%-44%) | 361 | 367 |
| Vancouver Port | 56% | (49%-62%) | (50%-61%) | 206 | 379 |
| City of Vancouver | 48% | (47%-50%) | (47%-50%) | 2,610 | 2,867 |

Table 4-2: Aggregate Walk/Bike/Transit by Transportation Zone and Sample Size

| Transportation Zone | 2017 Panel | | 2016 Panel | |
|----------------------|----------------------------|-------------------------|----------------------------|-------------------------|
| | Sustainable Mode Share (%) | 95% Confidence Interval | Sustainable Mode Share (%) | 95% Confidence Interval |
| CBD - West End | 71% | (66%-76%) | 71% | (65%-76%) |
| CBD - False Creek | 64% | (58%-70%) | 64% | (58%-71%) |
| Downtown | 67% | (63%-72%) | 67% | (63%-71%) |
| Vancouver Broadway | 59% | (53%-64%) | 54% | (49%-60%) |
| Vancouver South | 39% | (34%-44%) | 39% | (34%-45%) |
| Vancouver Kerrisdale | 31% | (26%-37%) | 34% | (29%-40%) |
| Vancouver Kitsilano | 56% | (51%-62%) | 61% | (56%-66%) |
| Vancouver SE | 33% | (27%-38%) | 36% | (30%-42%) |
| Vancouver East | 40% | (35%-45%) | 42% | (37%-47%) |
| Vancouver Port | 56% | (49%-62%) | 60% | (54%-67%) |
| City of Vancouver | 48% | (47%-50%) | 50% | (48%-52%) |

Figure 4-3 compares the mode share by age distribution between the 2016 and 2017 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 2017 Panel Survey indicates a 5% increase in auto driver and a 3% decrease in auto passenger in the 18-24 cohort; however, it needs to be recognized that the small sample size in these age groups could lead to overrepresentation.

Figure 4-3: Mode Share by Age Distribution



4.2. Trip Purpose

Figure 4-4 shows a comparison of trip purposes for the 2016 and 2017 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

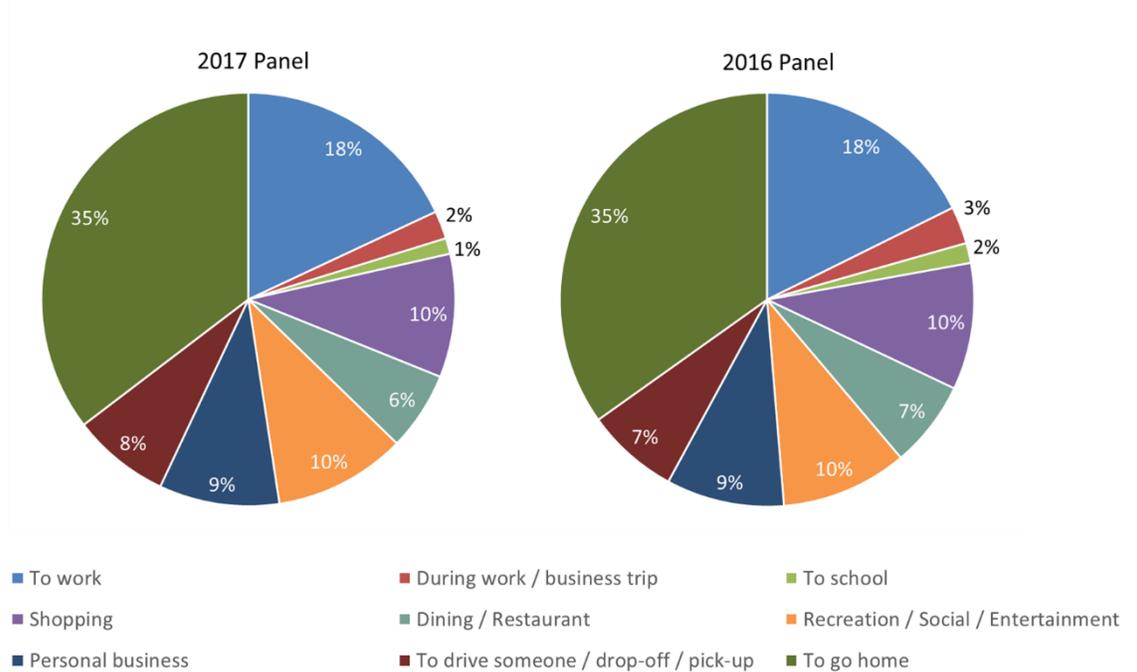


Figure 4-5 shows a detailed comparison of the mode share by trip purpose. Walking trips tended to decrease for most trip purposes, transit and bike trips held relatively constant, and auto trips held relatively constant (aside from trips for personal business and commuting to school). Although the panel survey results suggest increases in auto trips to school, the number of walking and cycling trips made to school may have been underreported due to low participation rates amongst the younger age cohorts.

Figure 4-5: Mode Share by Trip Purpose

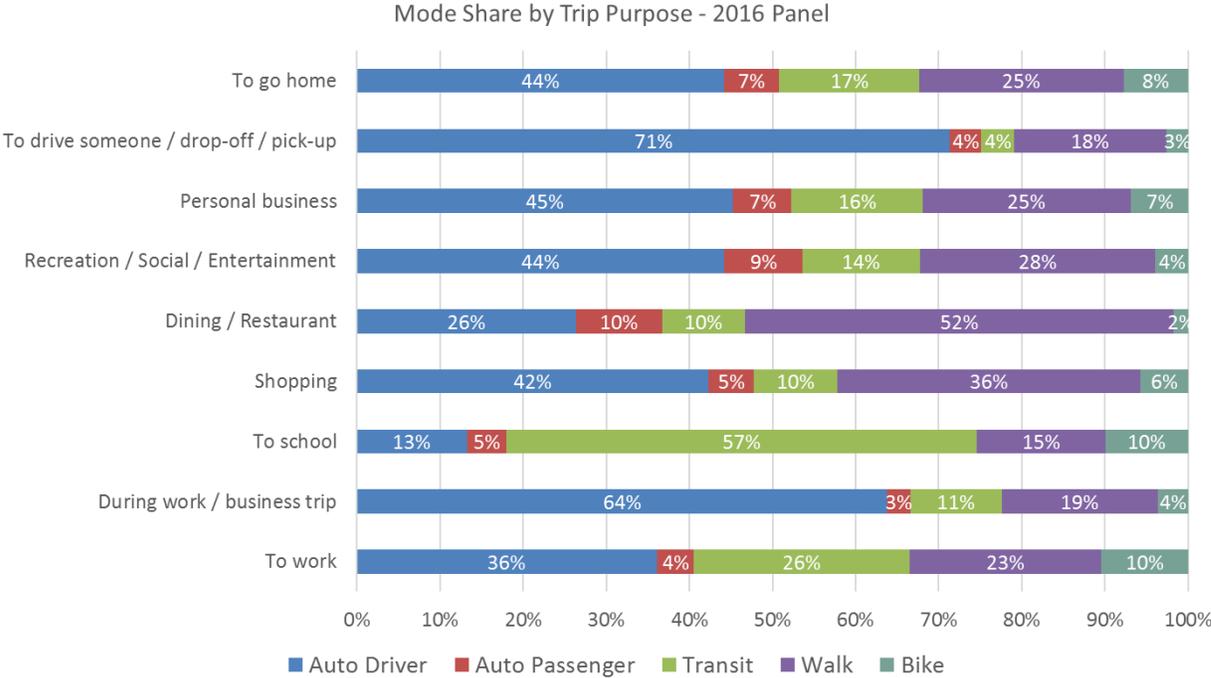
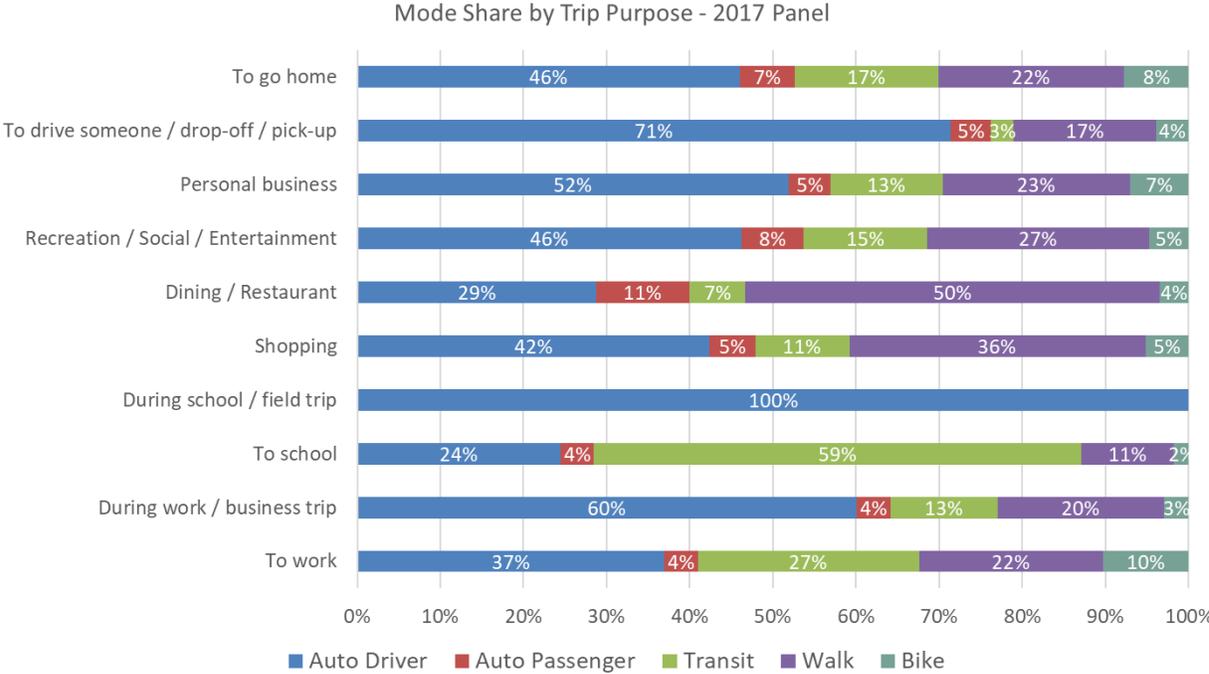


Figure 4-6 is a comparison between the 2013 to 2017 Panel Survey trips to work. As seen in the figure, there has been a 3.5% increase in work trips (337,600 in 2016 to 349,400 in 2017). The 2017 Panel Survey also shows that the mode shares of all modes have remained relatively the same in comparison to the previous year.

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

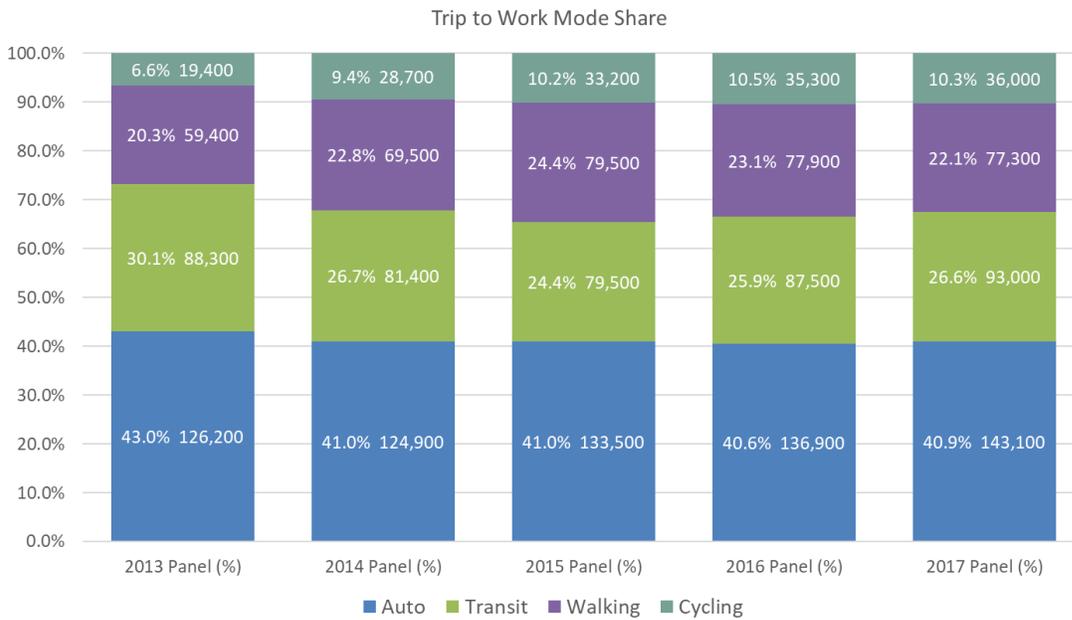
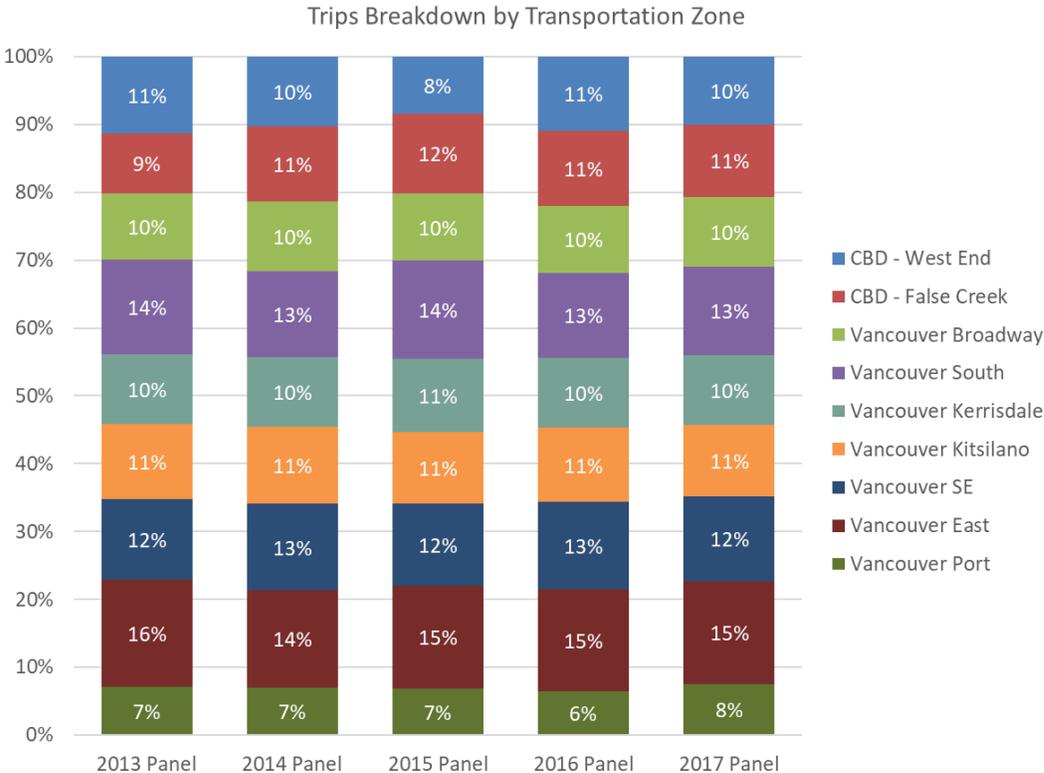


Figure 4-7 breaks down the total number of trips by transportation zone for panel surveys from 2013 to 2017. The 2016 and 2017 Panel Surveys are very similar in terms of the trips from each of these zones. The main difference between these two panel surveys is that the total number of trips reported for Vancouver Port has increased by 2% in the last year.

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 2016 proportions.

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

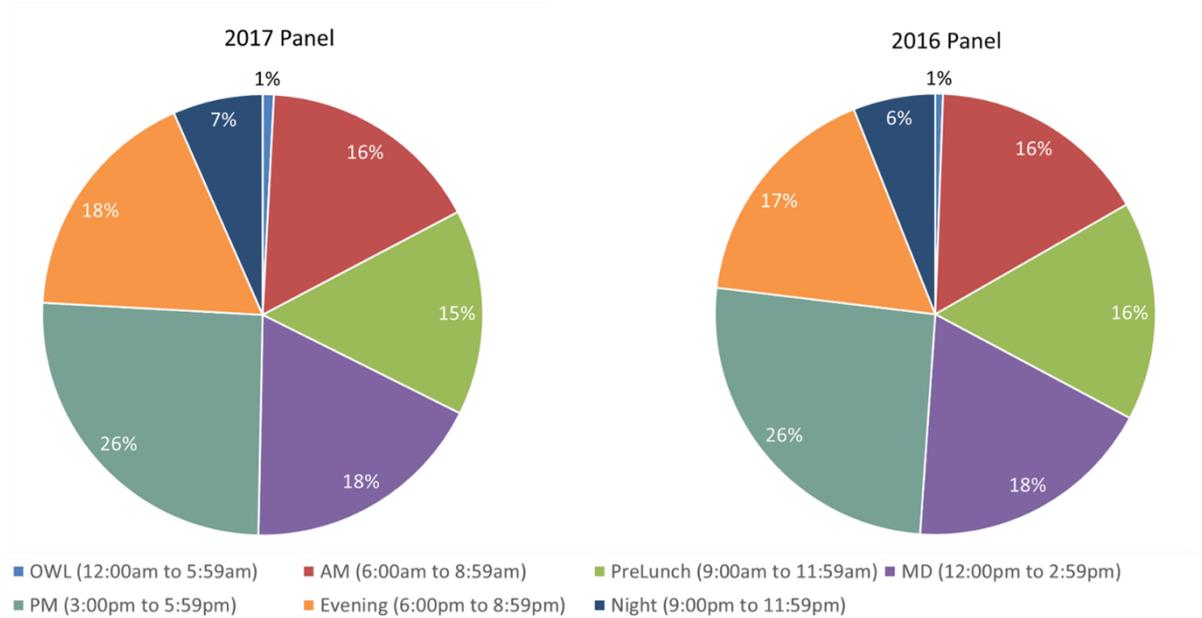
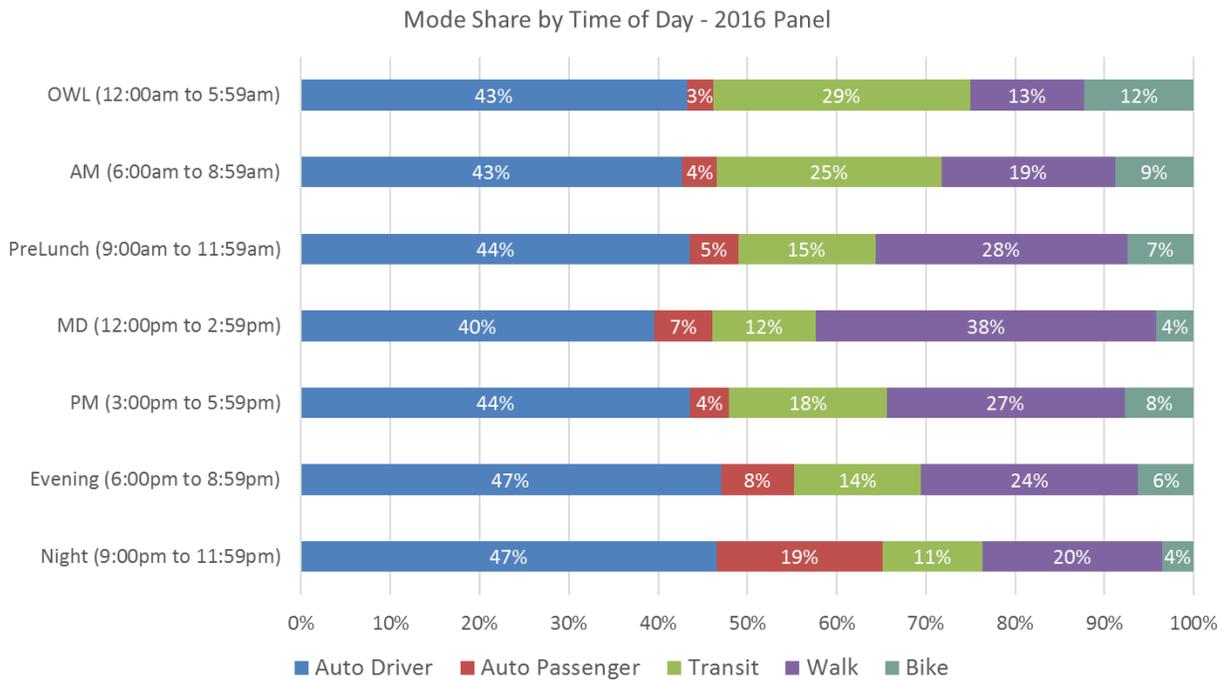
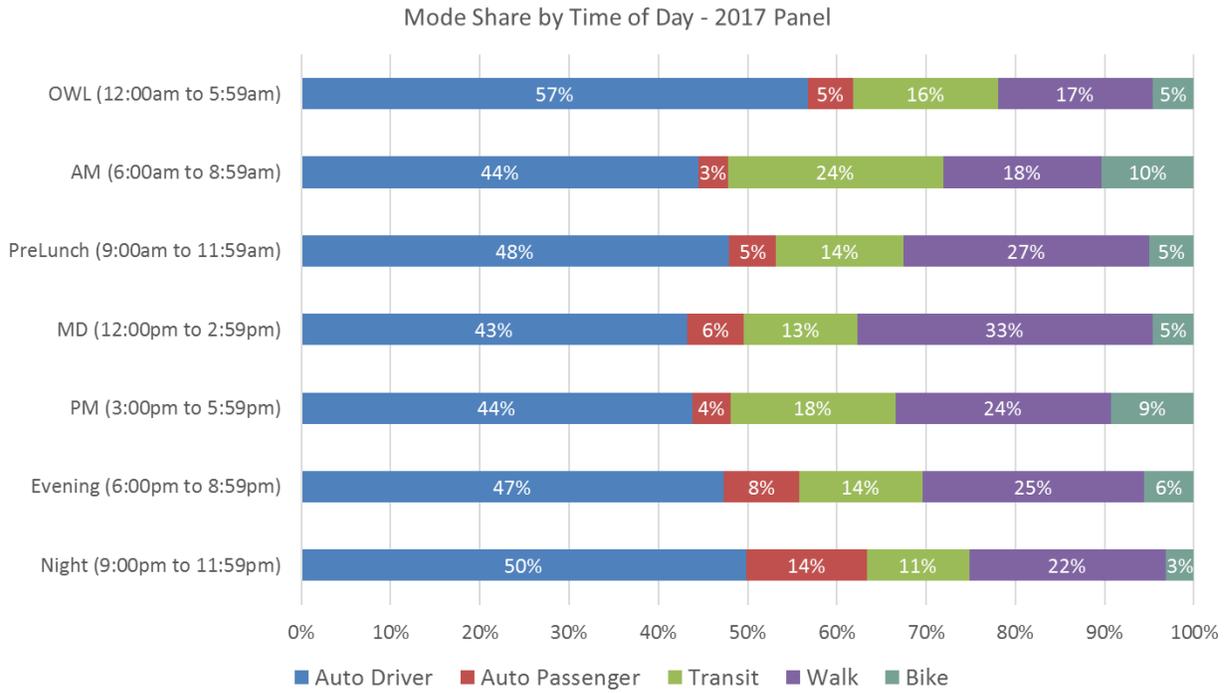


Figure 4-9 breaks down mode share by time of day for the 2016 and 2017 Panel. Mode share is similar to 2016, despite some shifts during the night and owl time periods. For owl trips after midnight, the transit mode share was halved and replaced with auto trips. In comparison to the 2016 panel survey, auto trips have increased for most time periods.

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

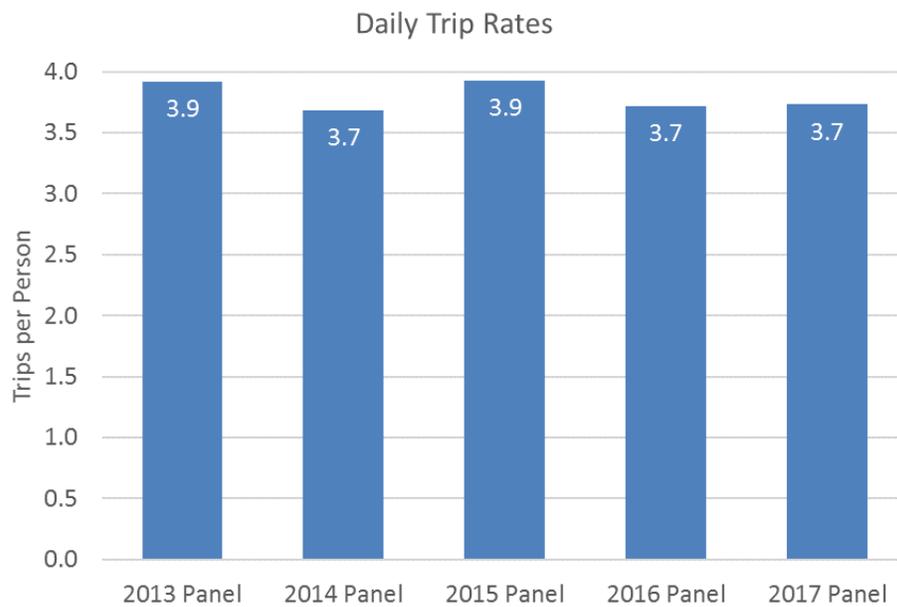


4.4. Trip Rates

Figure 4-10 compares overall trip rates⁸ for the 2013 to 2017 Panel Surveys. In 2014, recreational trips with the same start/end points (e.g., walking the dog, jogging) were introduced to the survey instrument as an exclusive type of trip. The 2014 panel respondents made slightly fewer trips, even when including the new recreational trip subset. One possible explanation is the seasonal variation between the two surveys as mentioned previously in Section 2.2. In previous surveys, the recruitment and trip diary completions were conducted in the fall.

As shown in the figure below, the trip rate for 2017 remained the same as 2016. Overall, the average trip rate has hovered around 3.8 trips per day +/- 0.1 trips.

Figure 4-10: Daily Trip Rates (Ages 18+)



Similar to previous years, female participants made slightly more trips while male participants made fewer trips in 2017, 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.

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 4-11: Trip Rates by Gender

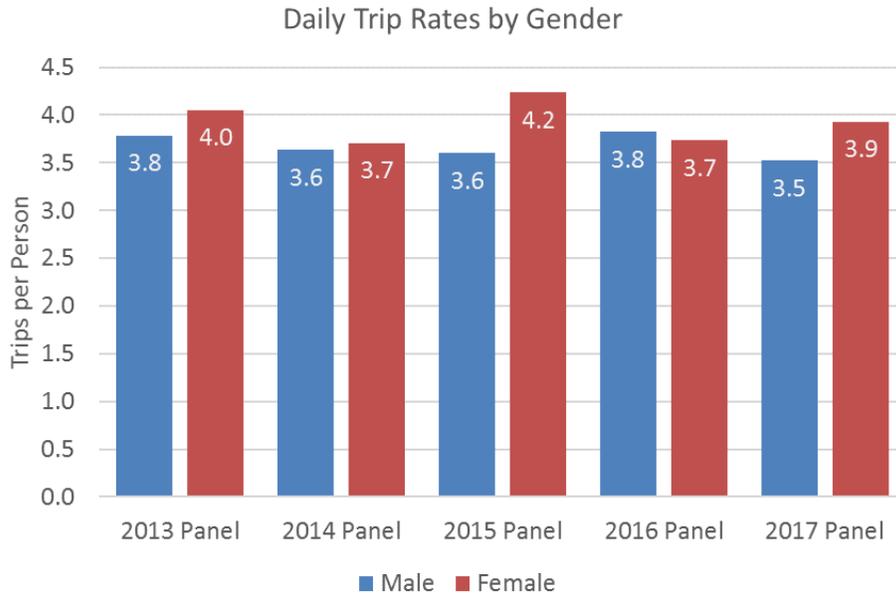


Figure 4-12 shows trip rates across the four age cohorts with the 45-64 being the most active in all survey years. People aged 45 and above made more trips compared to 2016. However, the overall split between all survey years is approximately the same, considering the confidence interval of survey results with a 0.5% sample of Vancouver residents.

Figure 4-12: Trip Rates by Age Group

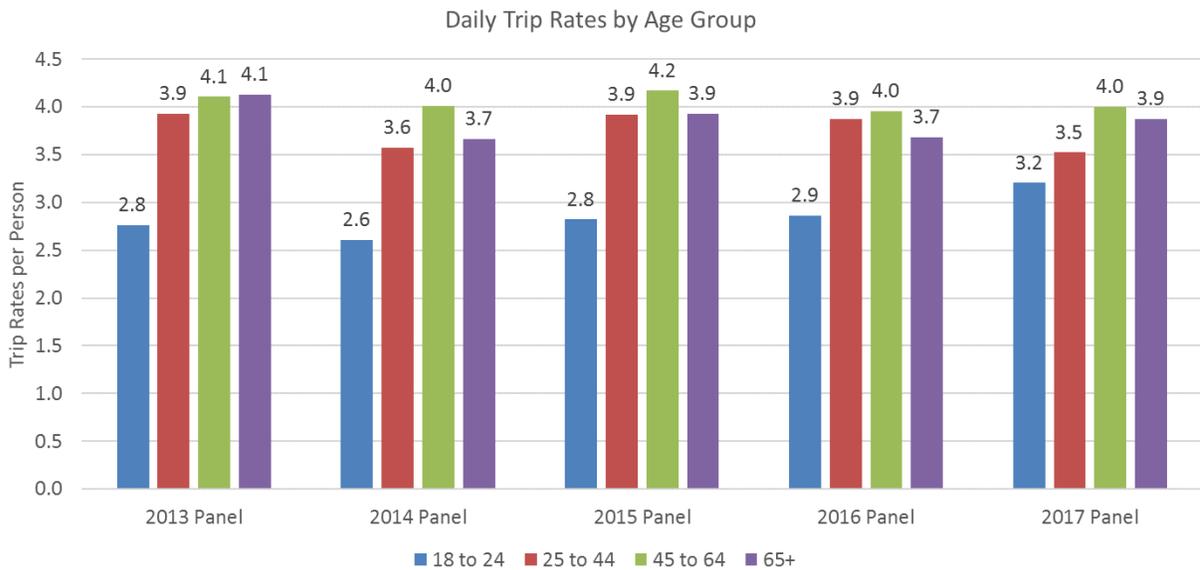
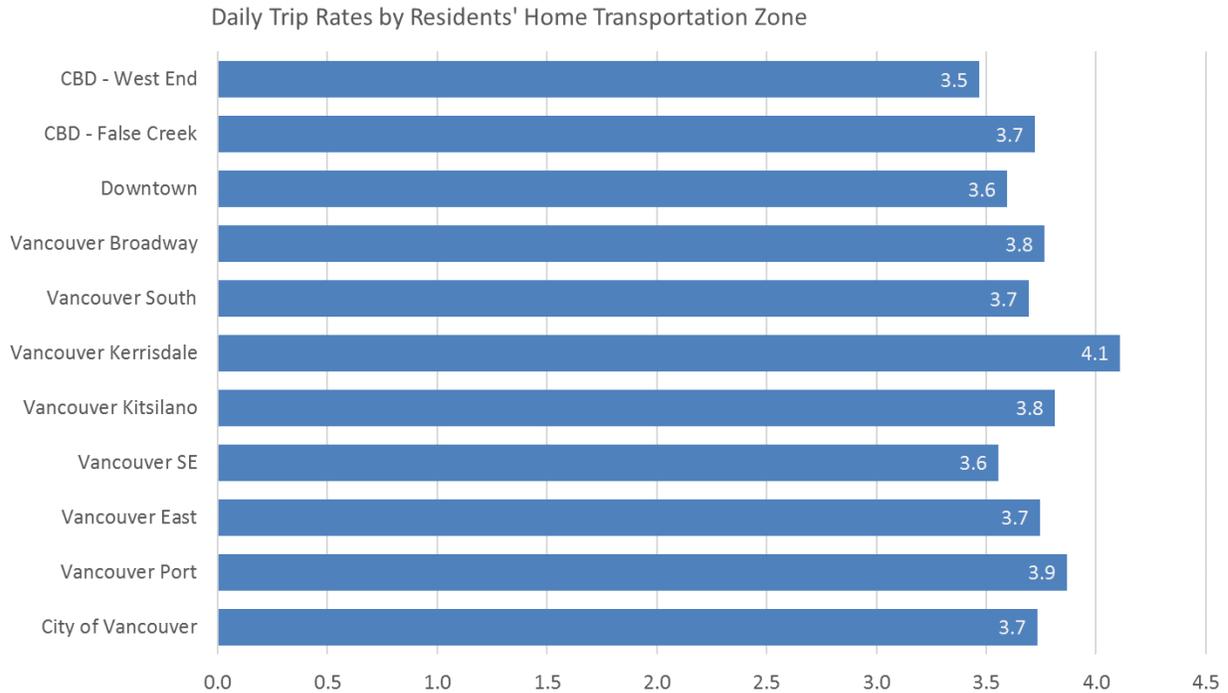


Figure 4-13 shows that the trips rates by neighbourhood zone are more varied compared to 2016 with some communities making more trips than others. Based on the figure, Kerrisdale and Vancouver Port residents made slightly more trips than other parts of the City.

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:

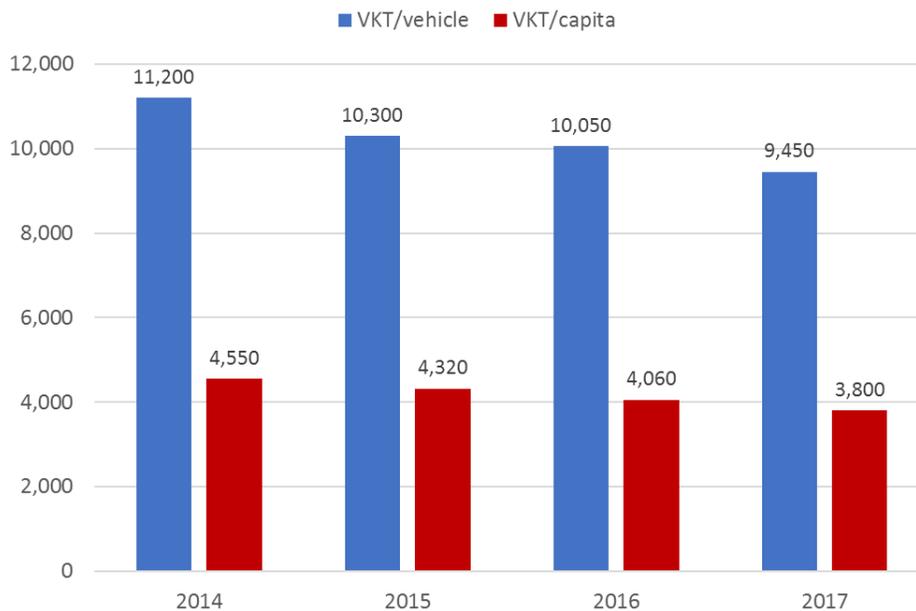
- The Panel Survey provides an adequate sample size statistically to estimate the average kilometres travelled per vehicle in Vancouver using the odometer readings of returning panel members.
- This method for calculating VKT is dynamic. In other words, the average kilometres travelled will change year 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 1,001 odometer readings. The average was approximately **9,450 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 **9.8 years**.

Multiplying the average distance travelled by the estimated⁹ number of actively insured vehicles in ICBC's database yields an annual VKT for 2017 of **2.58 billion**. Based on BC Stats population estimates for 2017, this equates to a 6.4% decrease in VKT per capita, from 4,060 km in 2016 to **3,800 km** in 2017. *Figure 4-14* shows the VKT statistics based on Panel Survey odometer readings.

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



⁹ 2017 estimation is based on available ICBC data for years 2007, 2008, and 2011 through 2015.

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 2017 based on panel survey results. This chart shows an upward trend from the 2013 base year 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. This year's panel survey saw a downturn in the overall sustainable mode share largely due to the significant decrease in walking trips. As car sharing services are becoming more easily accessible in Vancouver, it is gaining traction as a new mode to perform trips which would otherwise be undertaken using public transit, cycling, or walking. With a considerable number of survey participants joining car sharing programs, it is possible that the significant reduction in walking trips is a result of people choosing car sharing as their mode of travel over walking, particularly those who do not have regular access to a vehicle.

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)

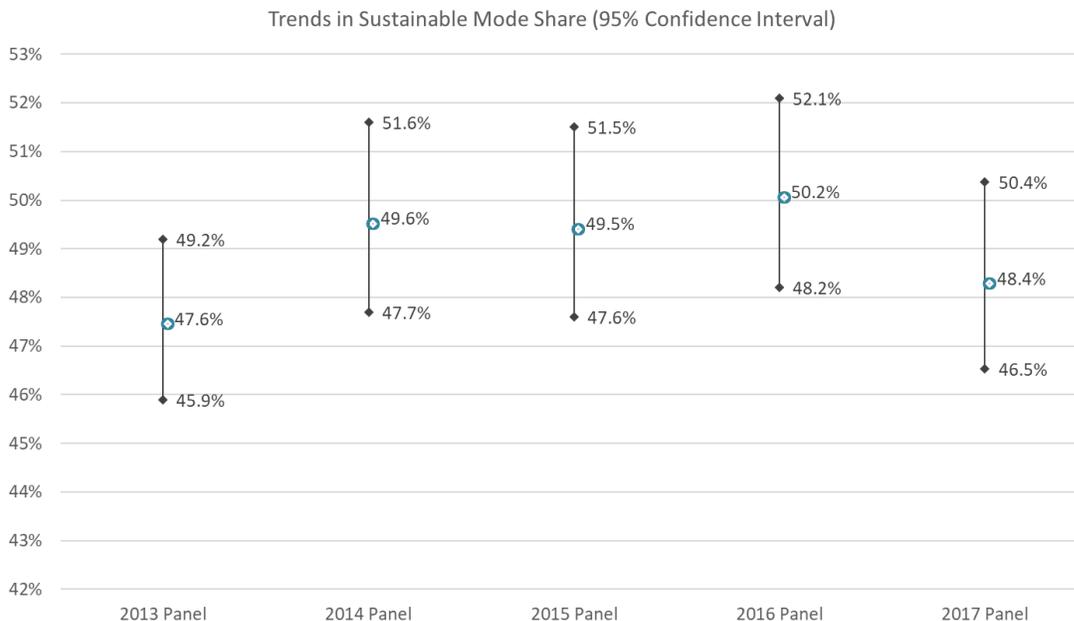
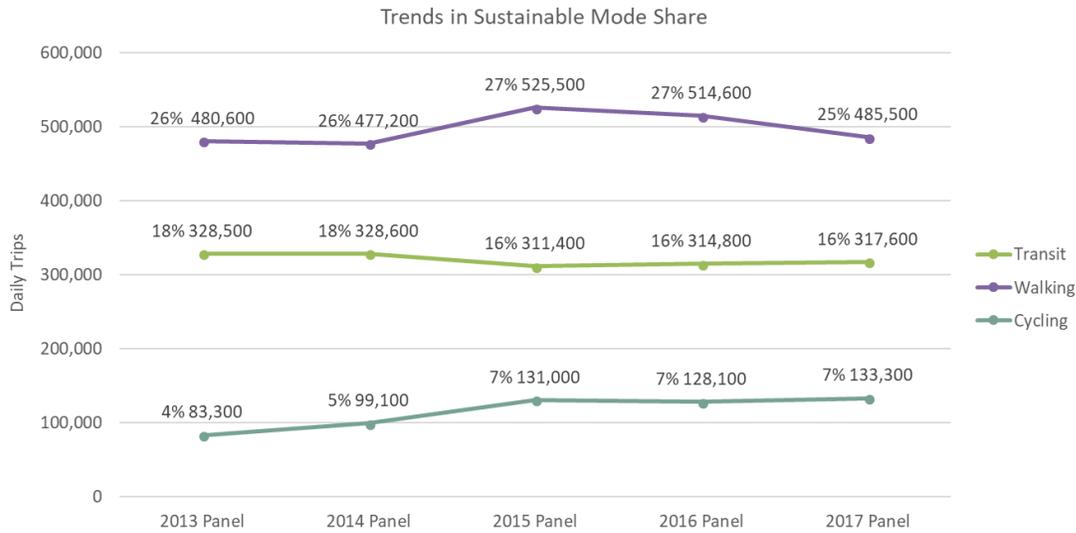


Figure 4-16 presents the mode splits by walking, cycling, and transit modes. Cycling mode share has increased by 0.2% in the last year, while mode split by walking mode has decreased by 1.8%. Transit mode share, on the other hand, has been stationary at 16% since 2015, despite a fare increase in 2017, which may suggest capacity constraints in transit services. Further improvements to regional and local transit services and improved accessibility to transit facilities may help to increase ridership. With the implementation of additional B-Line services in the coming years and the Millennium Line Broadway

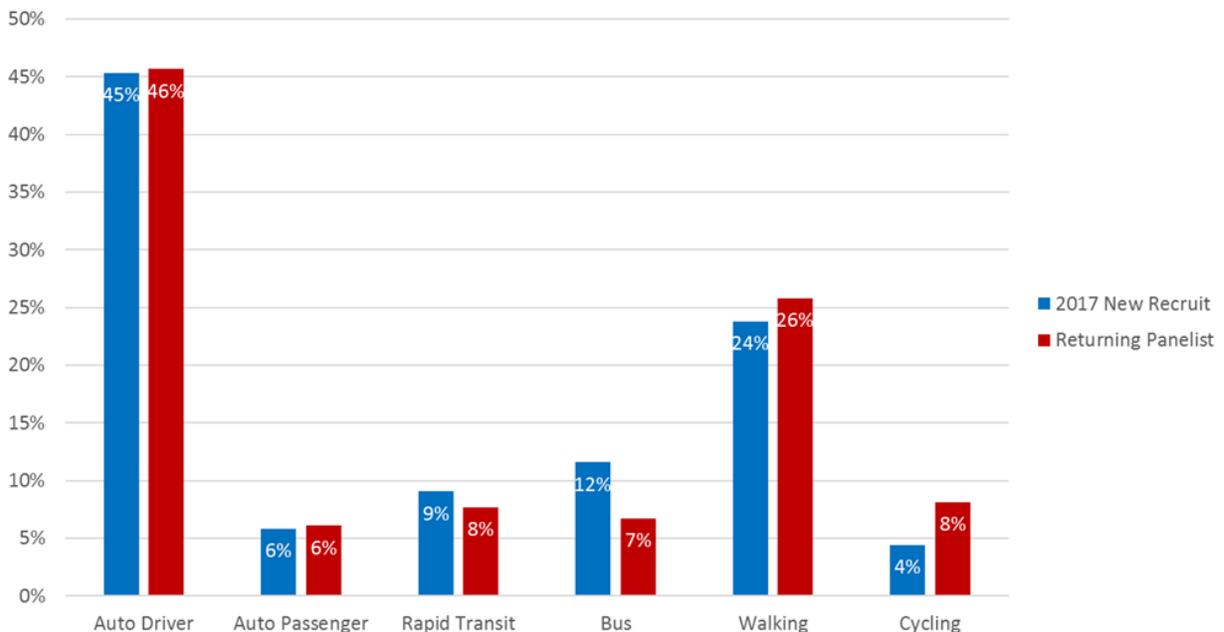
Extension, transit ridership and mode share are anticipated to increase. Tracking the panel's travel behaviour and travel trends in the coming years will provide an opportunity to understand the impacts of these transit improvements to Vancouver residents.

Figure 4-16: Trends in Sustainable Mode Share



A comparison of mode splits amongst returning panelists and 2017 new recruits shows that there are less walking trips reported by the new recruits as illustrated in *Figure 4-17*. With the new recruits making up 29% of this year's panelists, the drop in the walking mode share could be explained by the new recruits' tendency to travel by means other than walking, such as using transit services. Additionally, it should also be recognized that certain types of trips, primarily active transportation trips, are more prone to under-reporting as a general bias against reporting short trips.

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



The 2017 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 84% of walk trips are less than 20 minutes and 81% of cycling trips are under 30 minutes.

Figure 4-18: Walk and Bike Trips by Duration

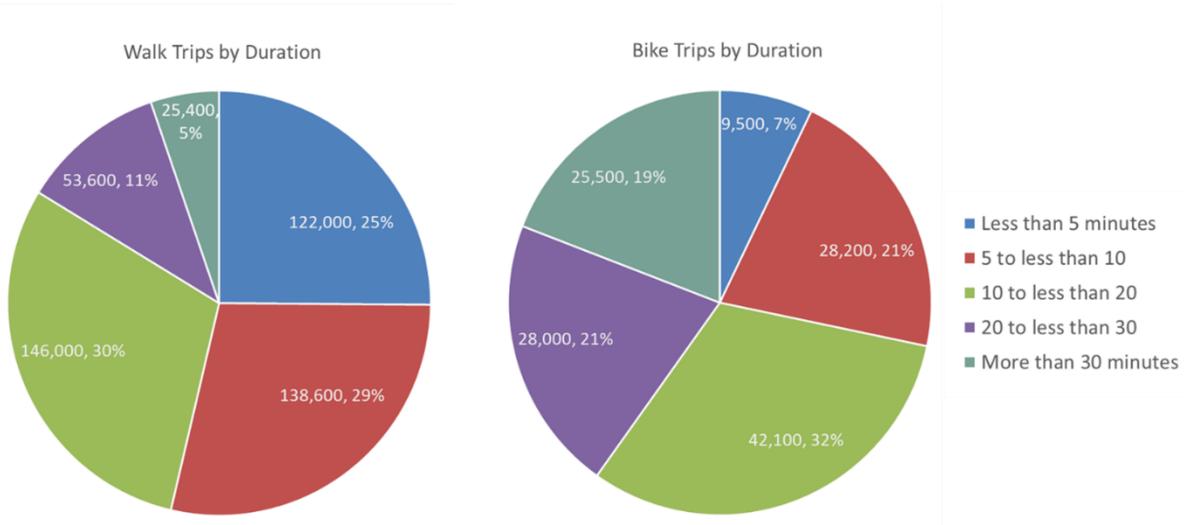
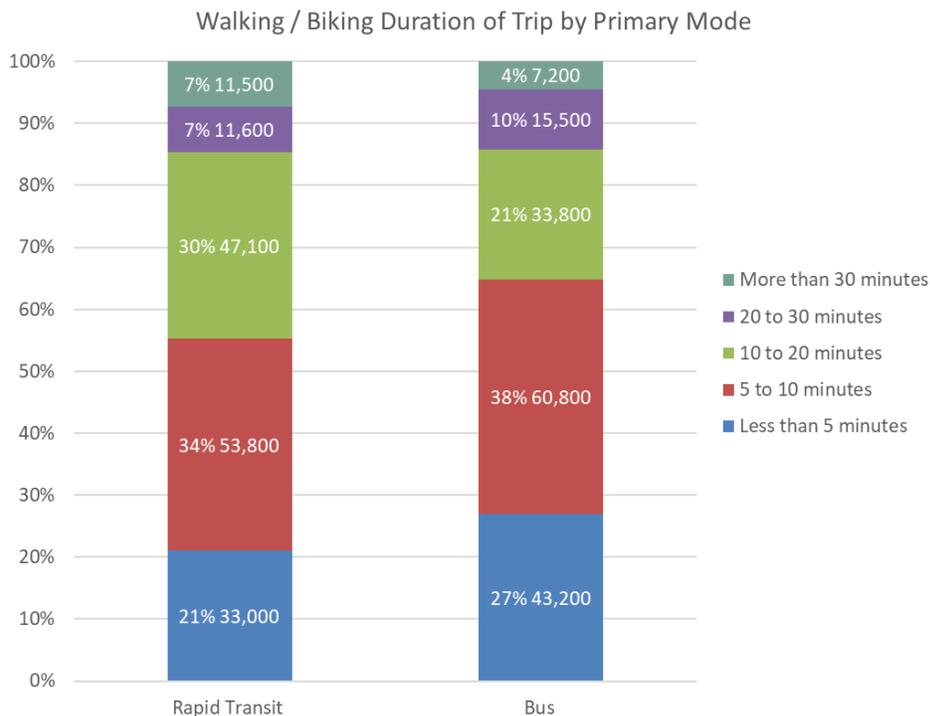


Figure 4-19 shows the duration of the walk or bike portion of trips with bus or rapid transit being the primary mode of travel. The majority of residents had a walk/bike component up to 10 minutes for transit trips. People who used rapid transit were also more willing to walk/bike longer. Amongst those travelling via rapid transit, most were willing to walk/bike up to 20 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 Community¹⁰ 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.

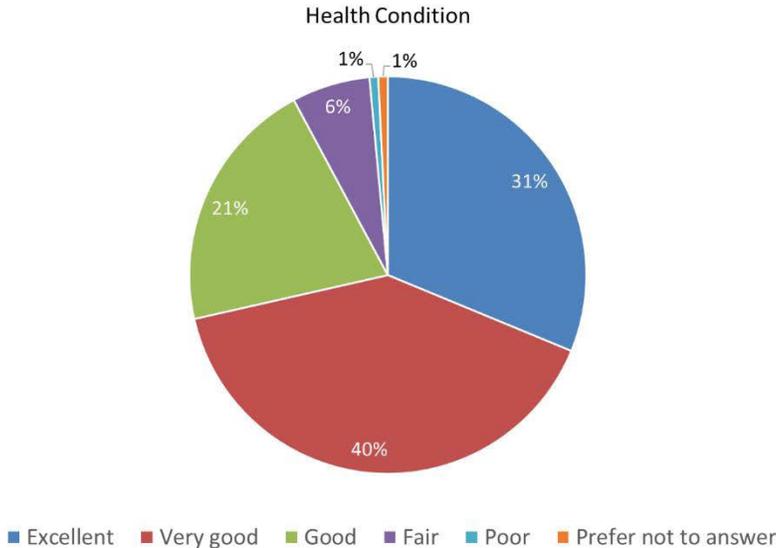
In 2014, a question was introduced to the Panel Survey asking respondents to report on their perceived health. Self-reported overall health assessments are simple but well-established as having a strong correlation with overall mortality risk and they capture aspects of health that are difficult to capture, 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; 71% of respondents indicated they were in very good or excellent health, similar to the 2016 results. This generally agrees with the findings of the Canadian Community Health Survey (Fraser Health Authority + Vancouver Health Authority subsets).¹¹

¹⁰ 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).

¹¹ Based on 2009-2013 data from the Canadian Community Health Survey which only includes excellent, very good, fair, and poor health categories.

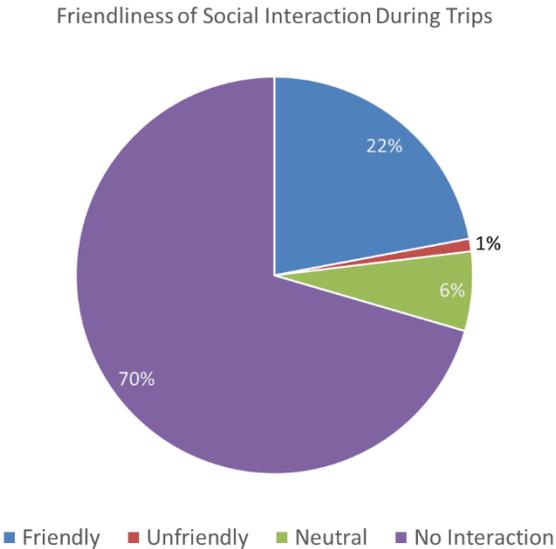
Figure 4-20: Self-Reported Health Status of Respondents



4.8. Friendly Interaction

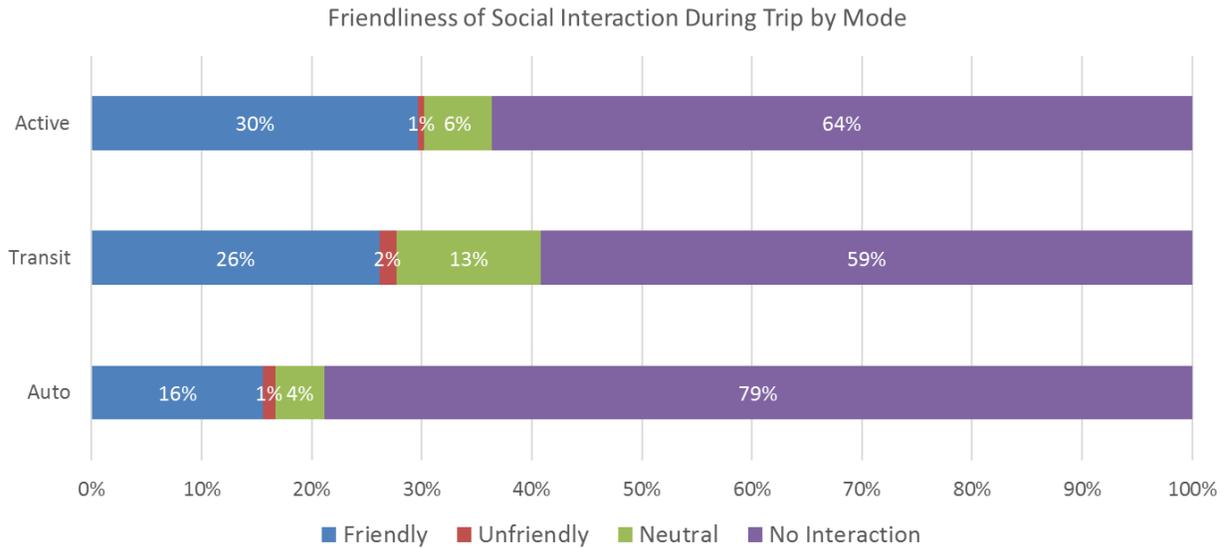
In 2014, the survey instrument was expanded to include a question regarding the nature of social interaction (outside of travel companions) during trip making. The trip diary only recorded whether the participants had engaged in friendly interaction or not. In 2015, the question was refined to include greater detail in the description of the interactions. *Figure 4-21* indicates that 70% of panel members had no social interaction, similar to the 2016 result (68%). 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 4-3 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 75% of trips originate and ends within the city.

Table 4-3: Origins and Destinations within Transportation Zones and Outside Vancouver

| Origin/Destination | CBD - West End | CBD - False Creek | Downtown | Vancouver Broadway | Vancouver South | Vancouver Kerrisdale | Vancouver Kitsilano | Vancouver SE | Vancouver East | Vancouver Port | Outside Vancouver |
|-----------------------------|-------------------|----------------------|----------|-----------------------|--------------------|-------------------------|------------------------|-----------------|-------------------|-------------------|----------------------|
| CBD - West End | 64,600 | 39,100 | | 9,800 | 7,200 | 1,900 | 12,200 | 4,900 | 5,100 | 3,000 | 16,700 |
| CBD - False Creek | 41,000 | 118,900 | | 22,200 | 11,700 | 5,200 | 14,900 | 8,700 | 10,600 | 18,200 | 18,600 |
| Downtown | | | 263,600 | 32,000 | 18,900 | 7,100 | 27,100 | 13,600 | 15,700 | 21,200 | 35,300 |
| Vancouver Broadway | 9,700 | 22,300 | 32,000 | 105,300 | 29,900 | 7,100 | 19,700 | 4,700 | 13,400 | 8,200 | 18,500 |
| Vancouver South | 6,800 | 15,600 | 22,400 | 24,800 | 90,300 | 14,100 | 9,200 | 18,100 | 12,000 | 3,800 | 25,700 |
| Vancouver Kerrisdale | 2,100 | 5,300 | 7,400 | 7,100 | 15,500 | 64,800 | 13,000 | 6,100 | 2,800 | 3,100 | 23,500 |
| Vancouver Kitsilano | 13,400 | 14,800 | 28,200 | 20,200 | 7,700 | 16,100 | 84,200 | 1,800 | 4,700 | 5,800 | 19,400 |
| Vancouver SE | 4,300 | 6,700 | 11,000 | 7,000 | 18,300 | 5,200 | 1,900 | 44,000 | 13,100 | 3,100 | 31,700 |
| Vancouver East | 4,000 | 12,200 | 16,200 | 15,300 | 12,100 | 2,900 | 3,800 | 13,000 | 78,000 | 18,300 | 43,700 |
| Vancouver Port | 4,500 | 17,000 | 21,500 | 8,300 | 2,700 | 2,600 | 4,500 | 1,900 | 22,800 | 36,800 | 12,300 |
| Outside Vancouver | 13,700 | 16,600 | 30,300 | 19,400 | 25,400 | 21,500 | 22,800 | 31,800 | 42,600 | 12,700 | 68,900 |

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

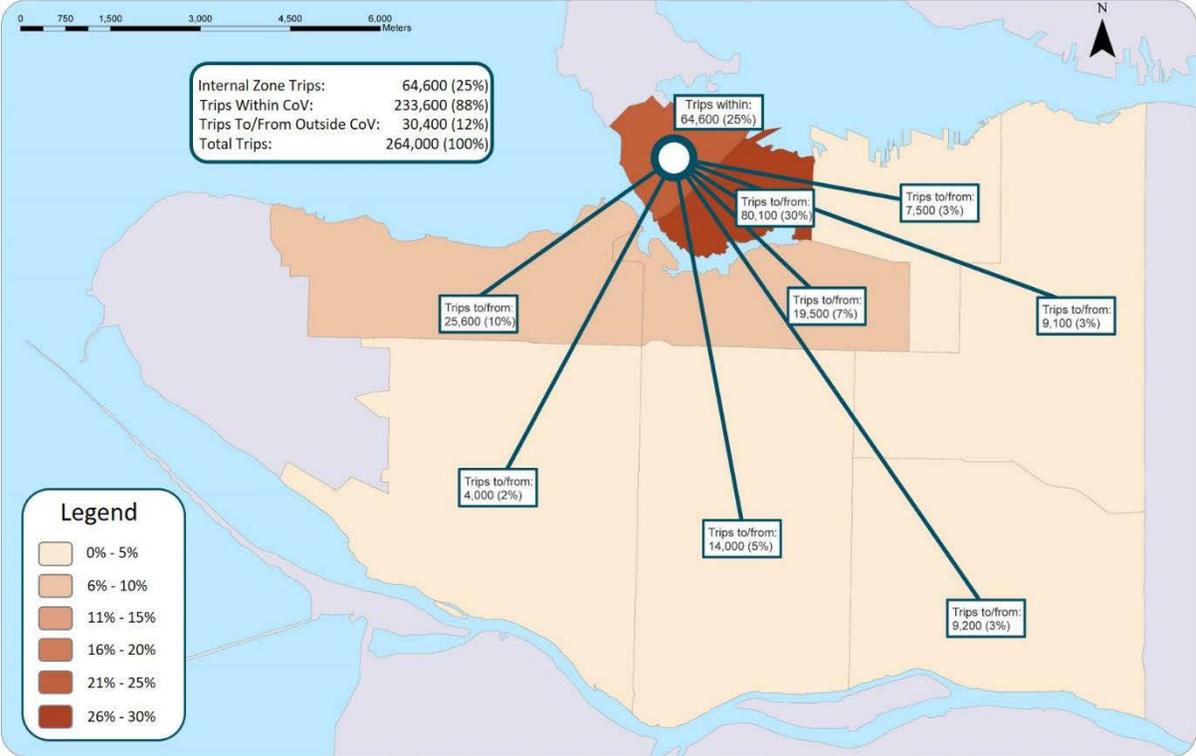


Figure 4-24: Trip Distribution to/from False Creek

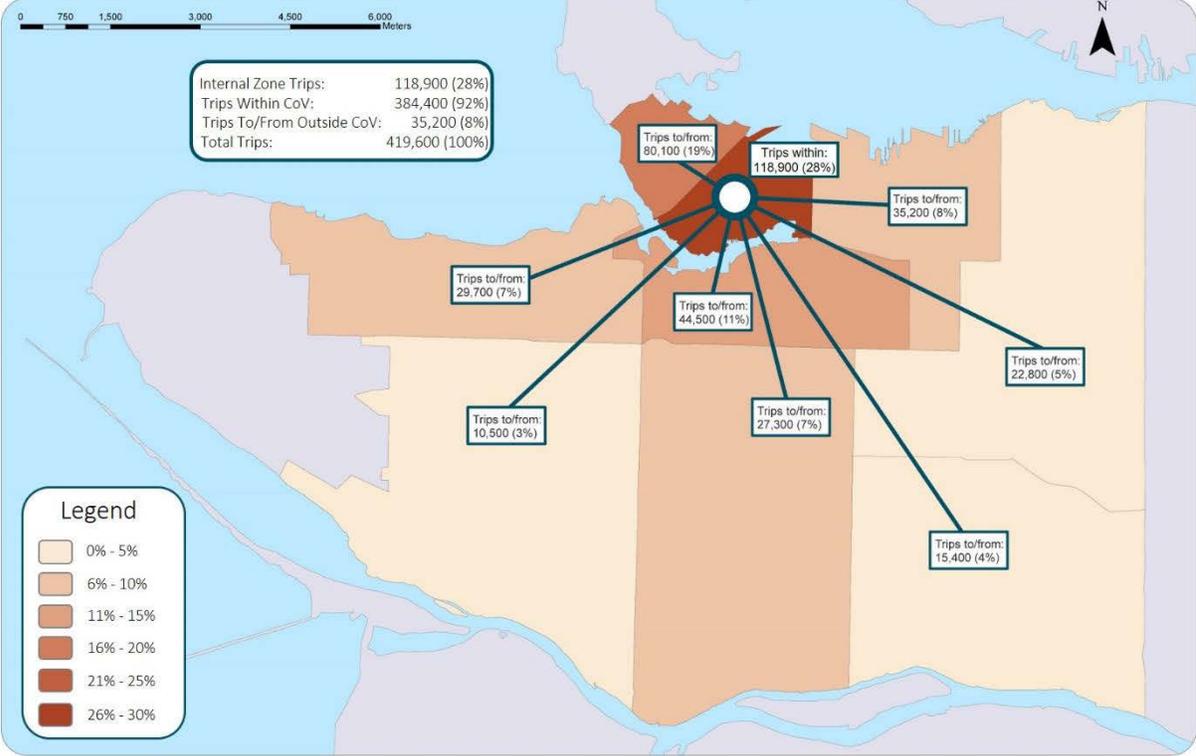


Figure 4-25: Trip Distribution to/from Vancouver Broadway

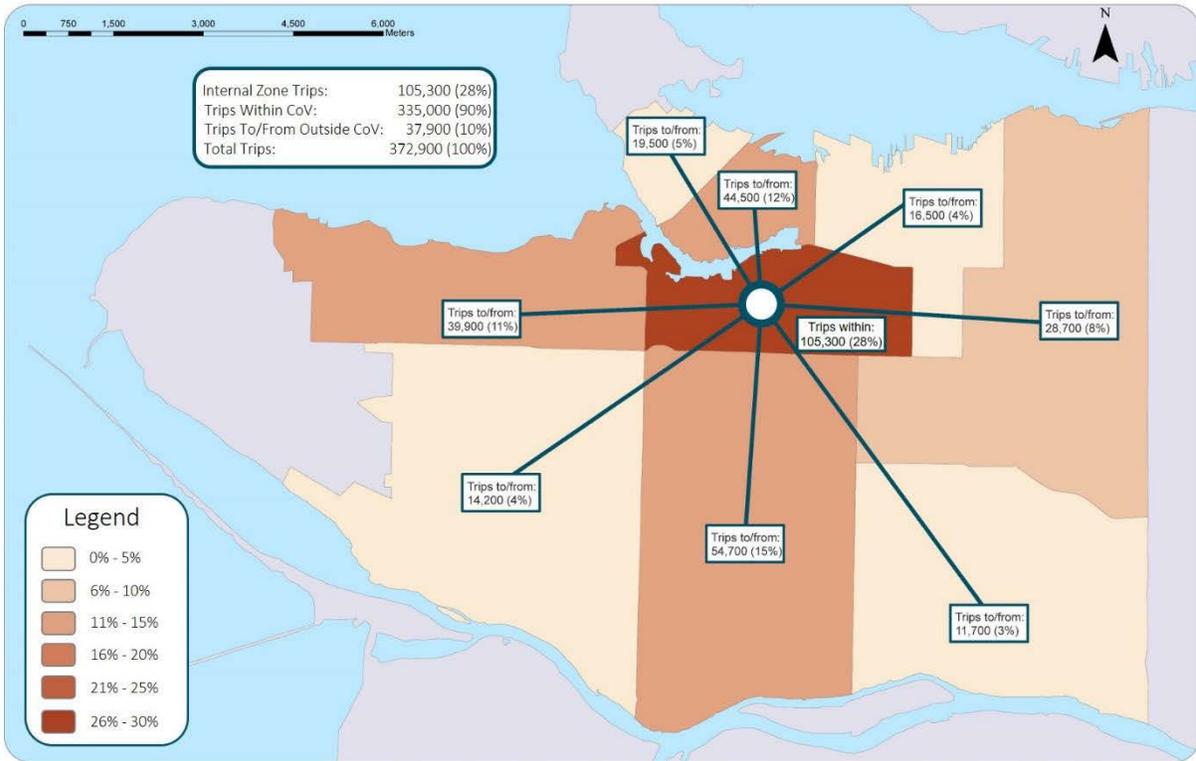


Figure 4-26: Trip Distribution to/from Vancouver South

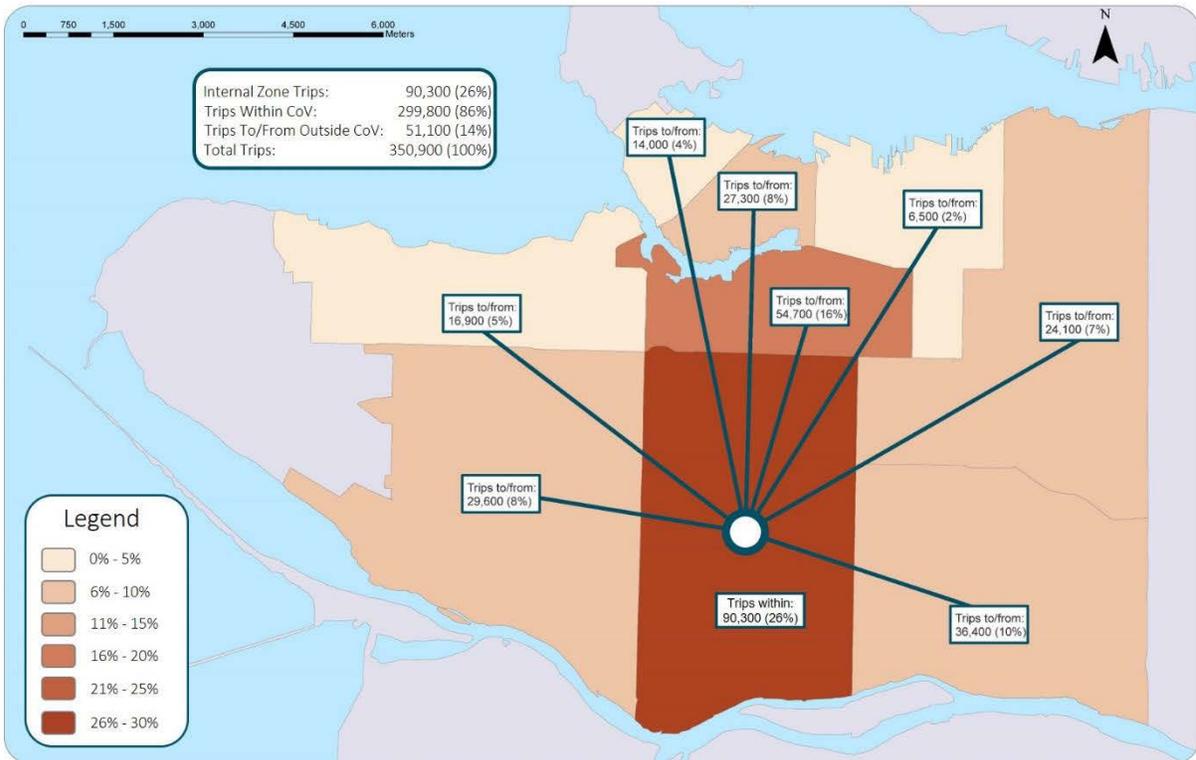


Figure 4-27: Trip Distribution to/from Vancouver Kerrisdale

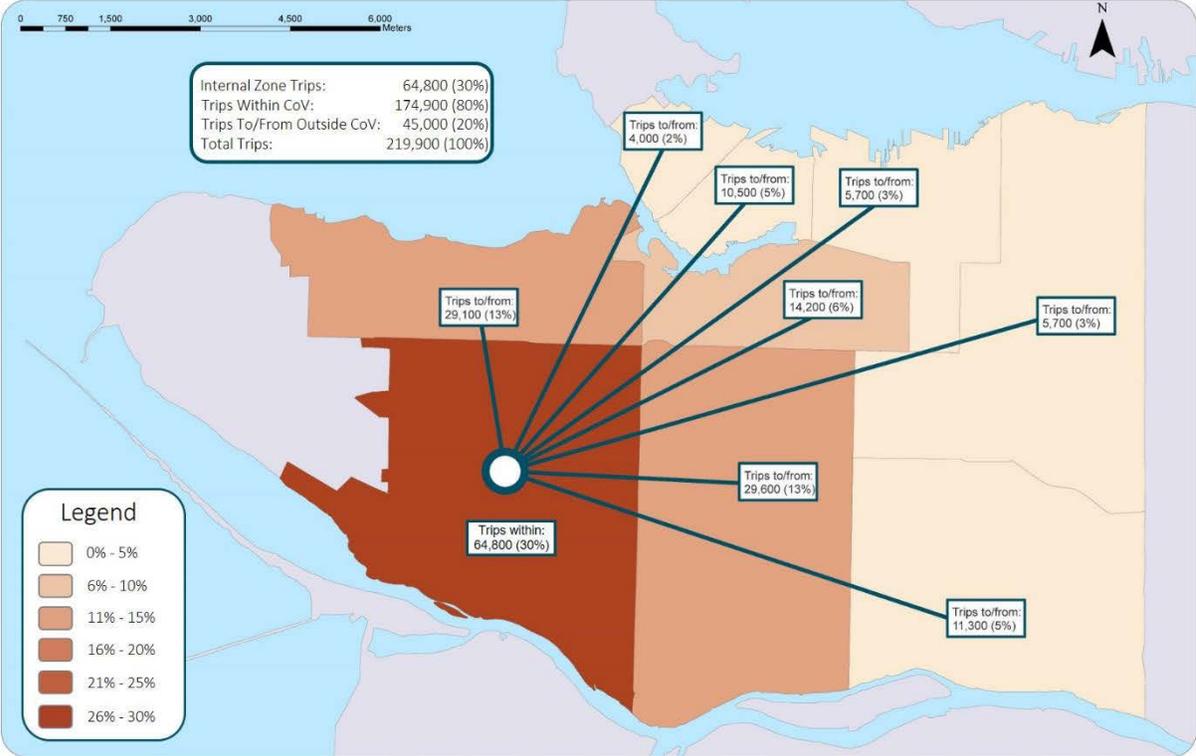


Figure 4-28: Trip Distribution to/from Vancouver Kitsilano

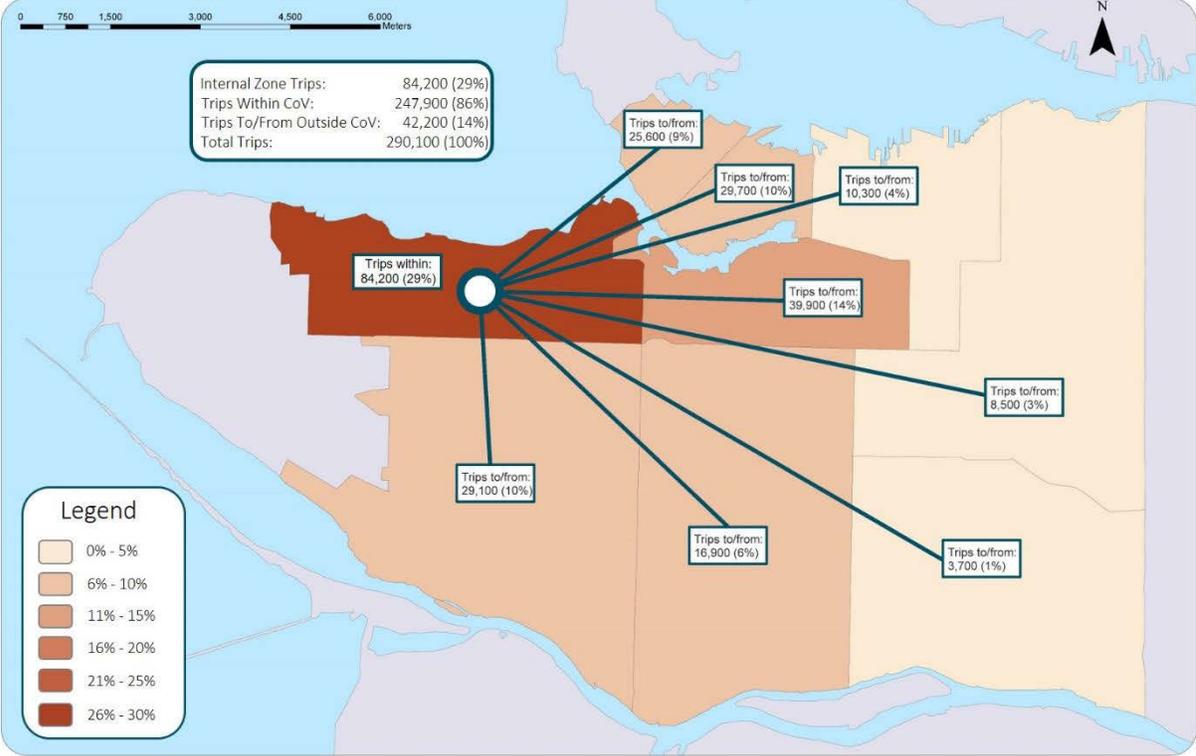


Figure 4-29: Trip Distribution to/from Vancouver Southeast

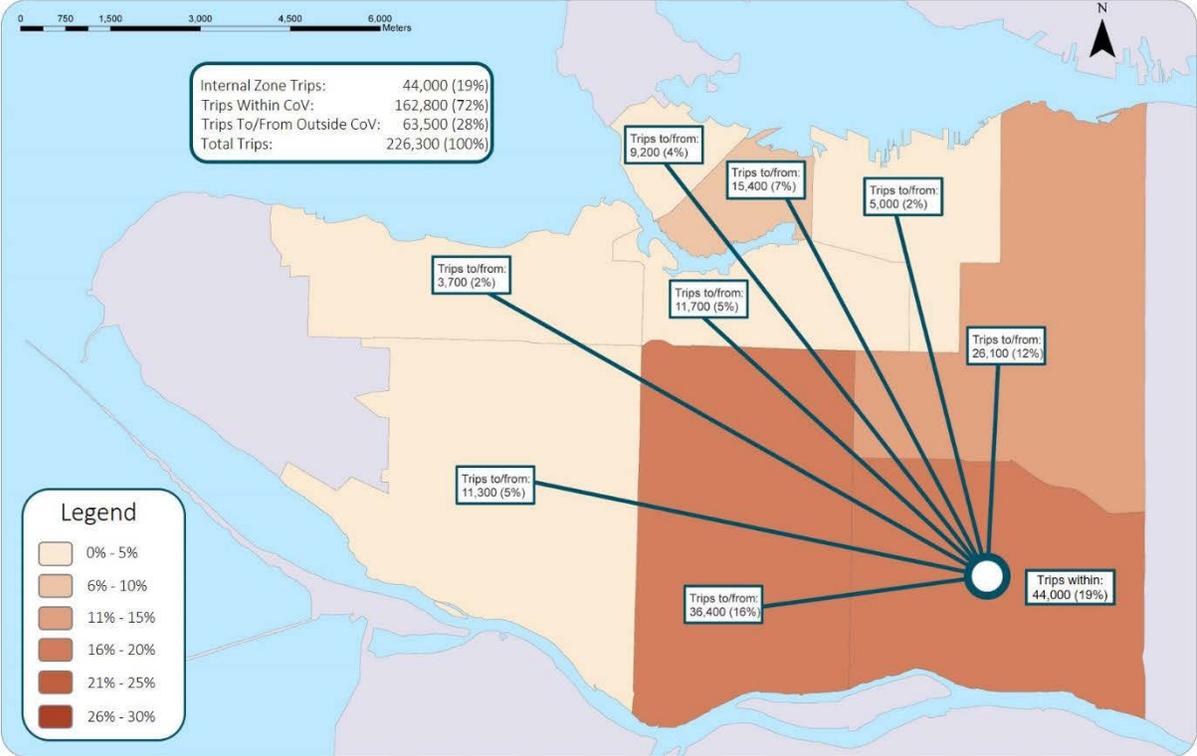


Figure 4-30: Trip Distribution to/from Vancouver East

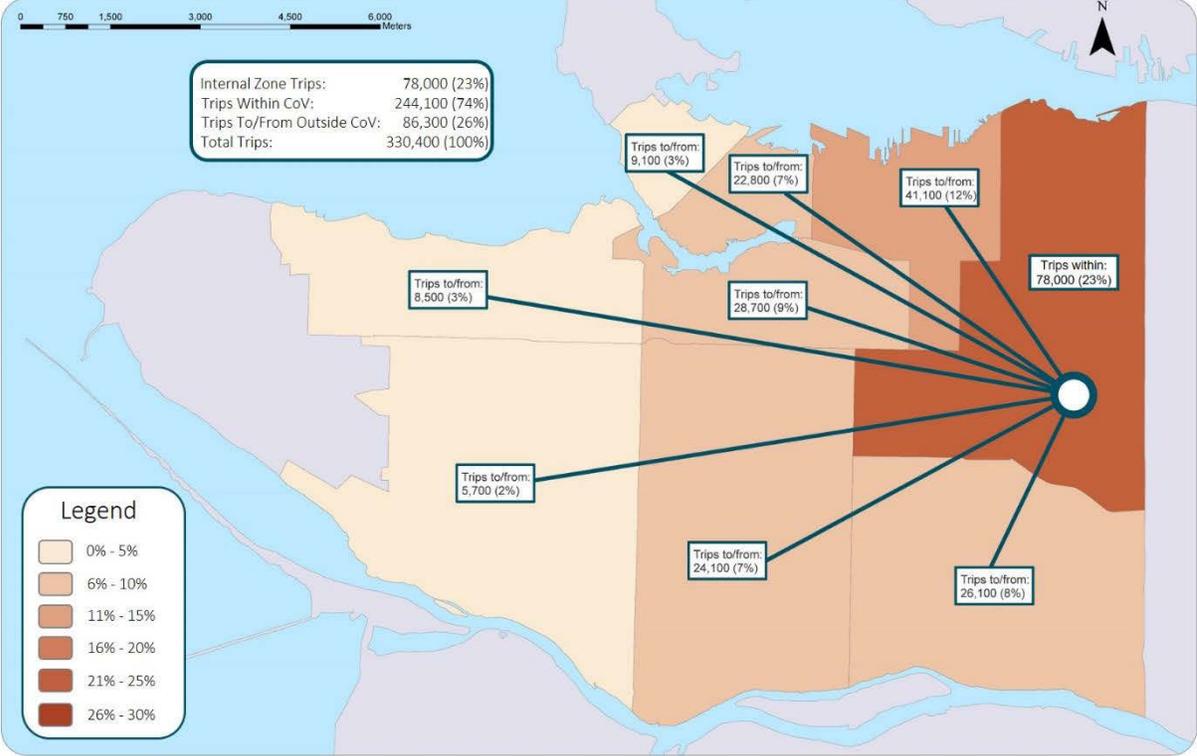
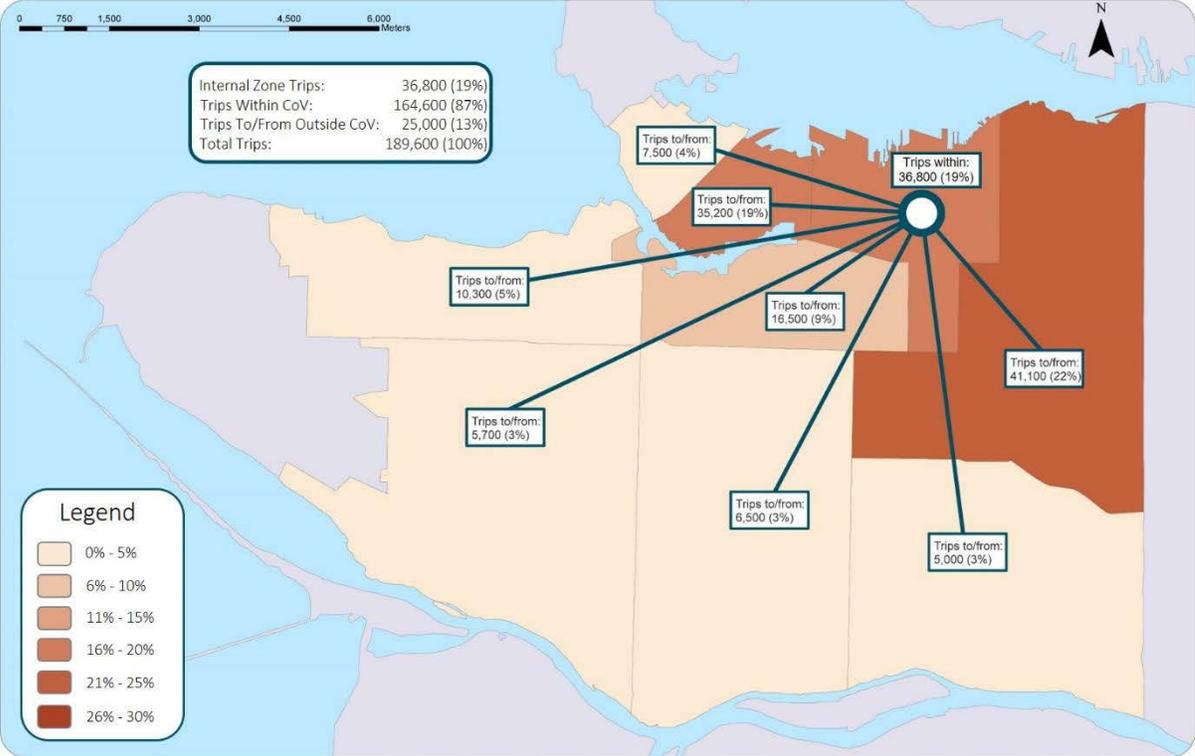


Figure 4-31: Trip Distribution to/from Vancouver Port

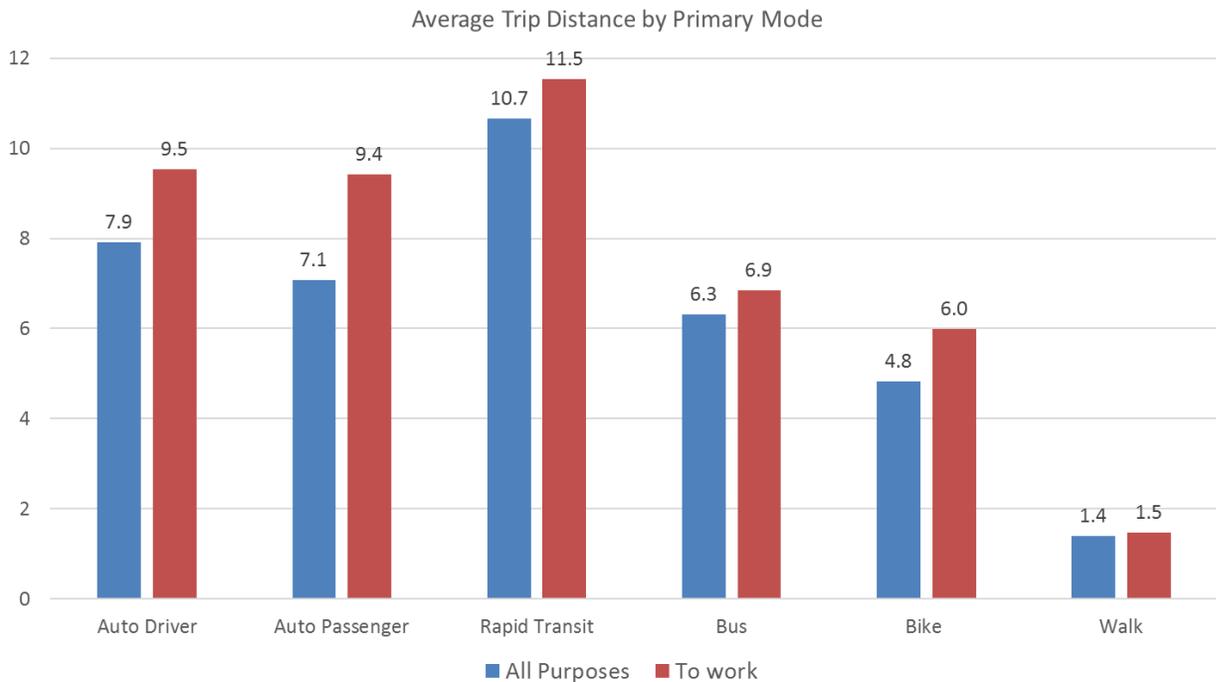


4.10. Average Trip Distance

Trip lengths have been estimated using the distance matrix from TransLink’s Regional Transportation Model for each reported trip based on the geocoded locations of trip origin and destination. Average trip distances by primary mode are presented in *Figure 4-32*. These are fairly consistent with trip lengths reported from TransLink’s trip diary survey.

Residents, auto drivers and auto passengers in particular, are willing to travel further for work purposes. Meanwhile, rapid transit trips are the longest, with an average trip length of 10.7 kilometres and 0.8 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 84% of walk trips are less than 20 minutes.

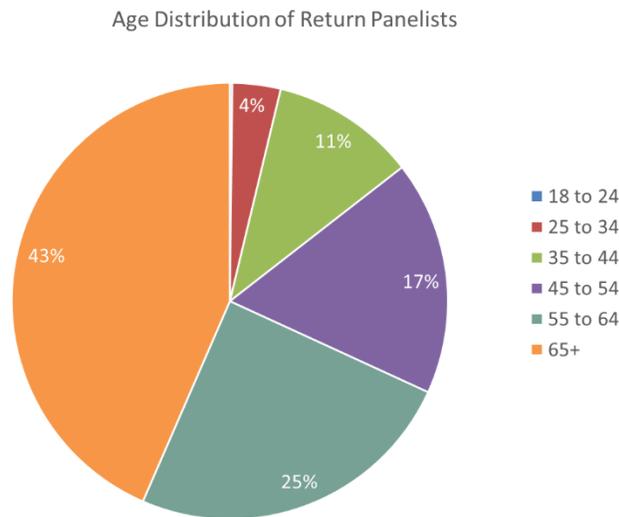
Figure 4-32: Average Trip Distance by Primary Mode



5. Comparison of Returning Panel Members

This section provides a high-level trend analysis of mode shares of the 559 residents who have participated consistently each year in the panel survey since 2013. In general, they made less trips for both commute and non-commute purposes compared to previous years. This might be caused by limited sampling of the younger age population as the majority of returning panel members were over 55 years old as of 2017. Thus, the analysis in this section will be based on individual response, instead of expanded trips weighted by population in previous sections.

Figure 5-1: Age Distribution of Return Panel Members



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 five 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 has decreased marginally by 1%, the number of residents with a car share membership, a valid driver license, and without car access have not changed. 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 (2013-2017)

| | 2013 | 2014 | 2015 | 2016 | 2017 |
|------------------------|------|------|------|------|------|
| Valid Driver License | 94% | 94% | 93% | 94% | 94% |
| Private Vehicle Access | 78% | 82% | 82% | 83% | 82% |
| Car Share Program | 13% | 18% | 21% | 25% | 25% |
| No Car Access | 12% | 12% | 12% | 12% | 12% |

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, auto passenger, and cycling mode shares have all slightly decreased, while travel by walking and transit 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. Walking trips are growing despite the lower trip rate compared to previous years, which suggests 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. It is worth noting that the 2014 Panel results, which included more December and some January 2015 records, may have been affected by seasonality and weather factors.

Figure 5-2: Change in Mode Share (2013-2017)

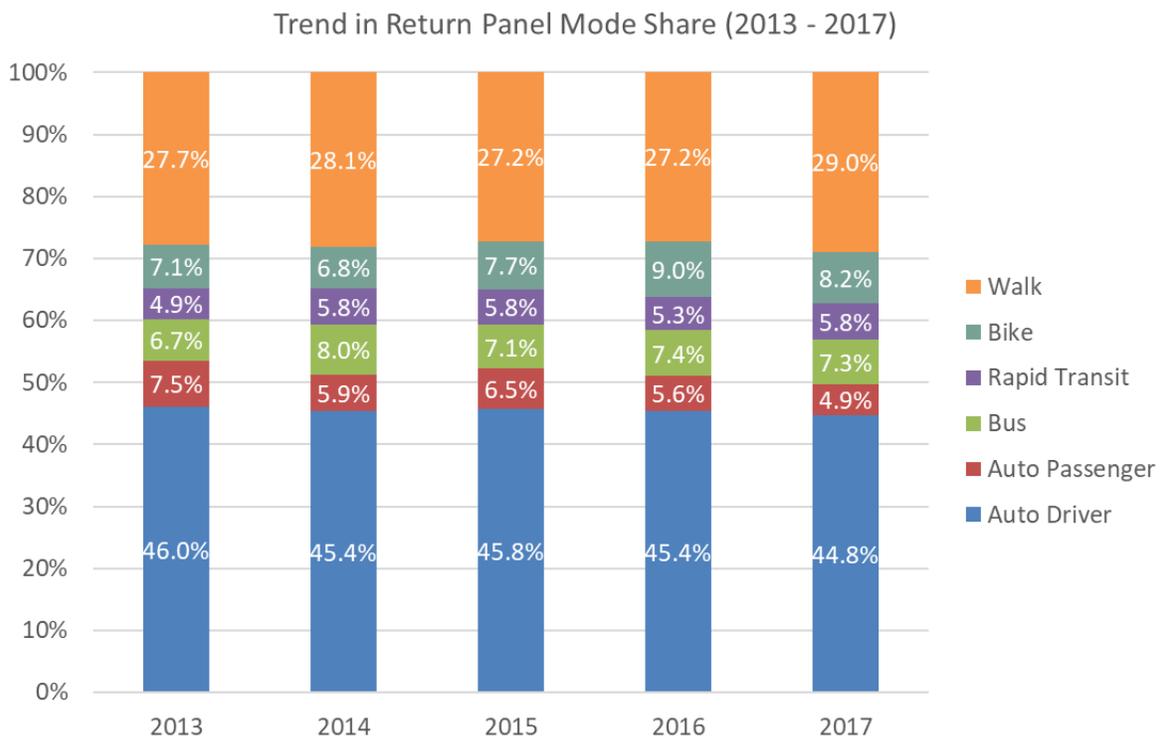


Figure 5-3 and *Figure 5-4* compare 2013-2017 mode shares for commuting (to work/school) and non-commuting trips, respectively. Despite less commute trips made, there are increases in walking and transit trips to commute. Additionally, auto driver mode share to work or school has increased slightly by roughly 2% since 2016. As for non-commuting trips, *Figure 5-4* shows increases in walk and transit trips with returning panelists lowering their automobile dependency.

Figure 5-3: Mode Share for Commuting Trips (2013-2017)

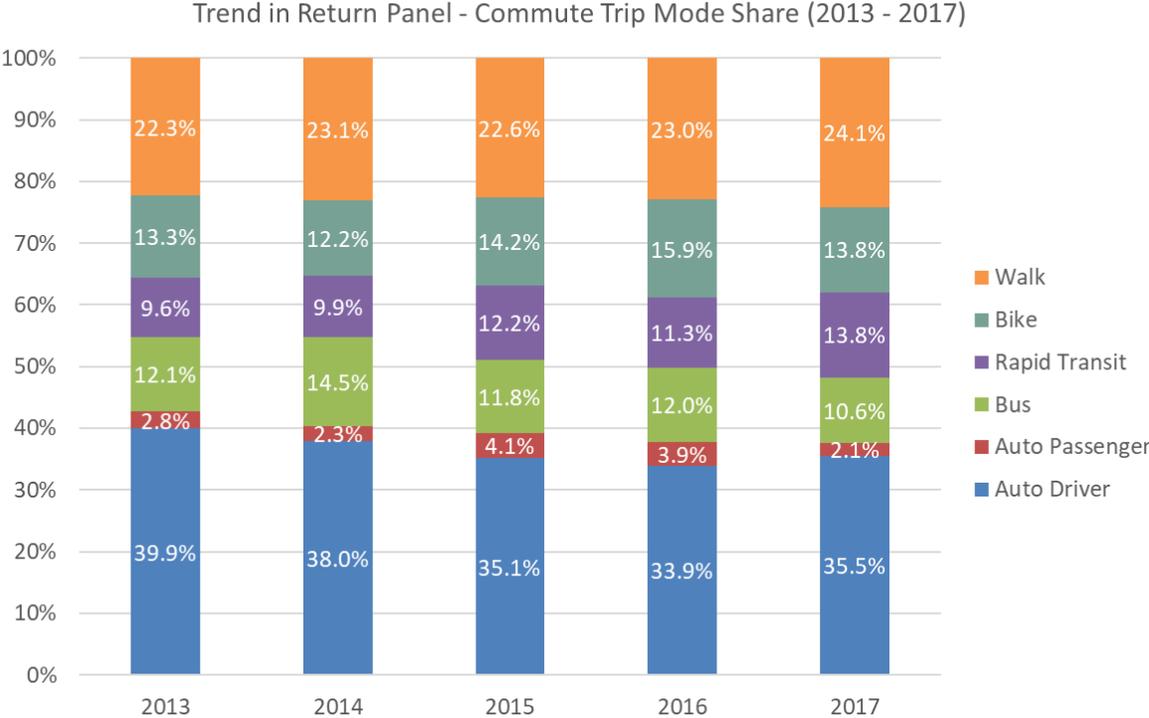
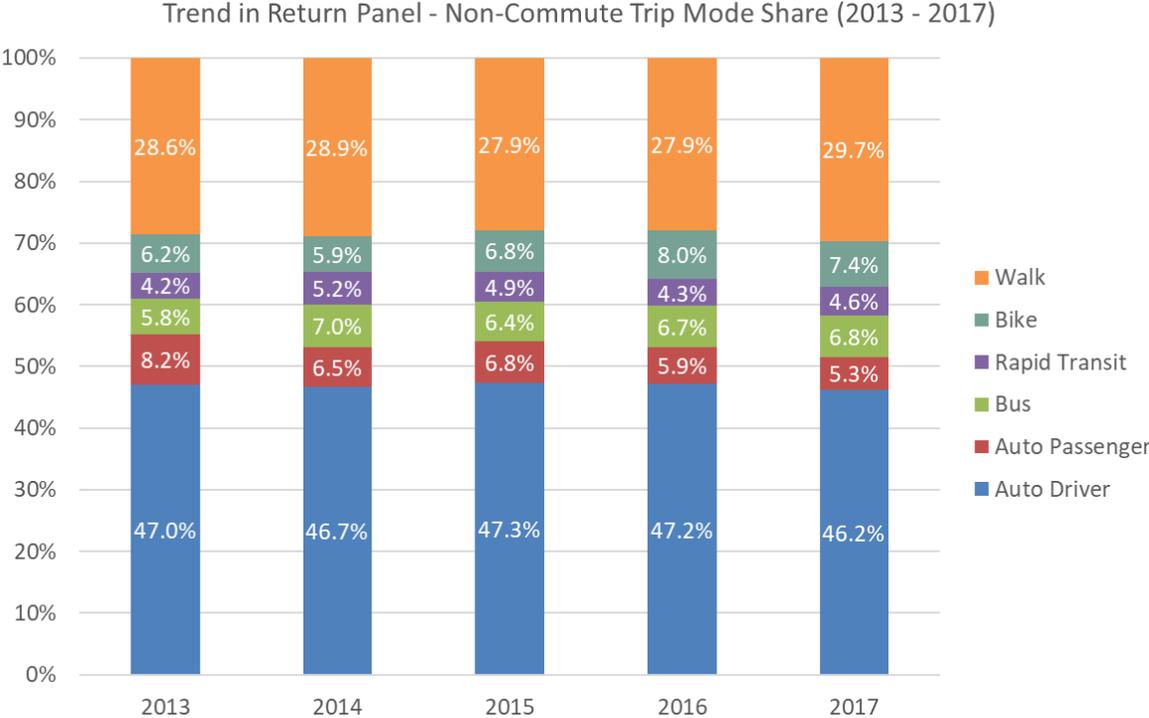


Figure 5-4: Mode Share for Non-Commuting Trips (2013-2017)



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 conclusive¹², the increase in trip rates can be attributed to recovery from the 2008-2009 economic downturn.

The analysis of the 2013-2017 City of Vancouver Panel Surveys revealed that:

- The average walk/bike/transit mode share has hovered around 49% since the start of the panel surveys
- The total number of trips increased from 1.88 million in 2013 to 1.93 million in 2017, an increase of 3%.
- 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.

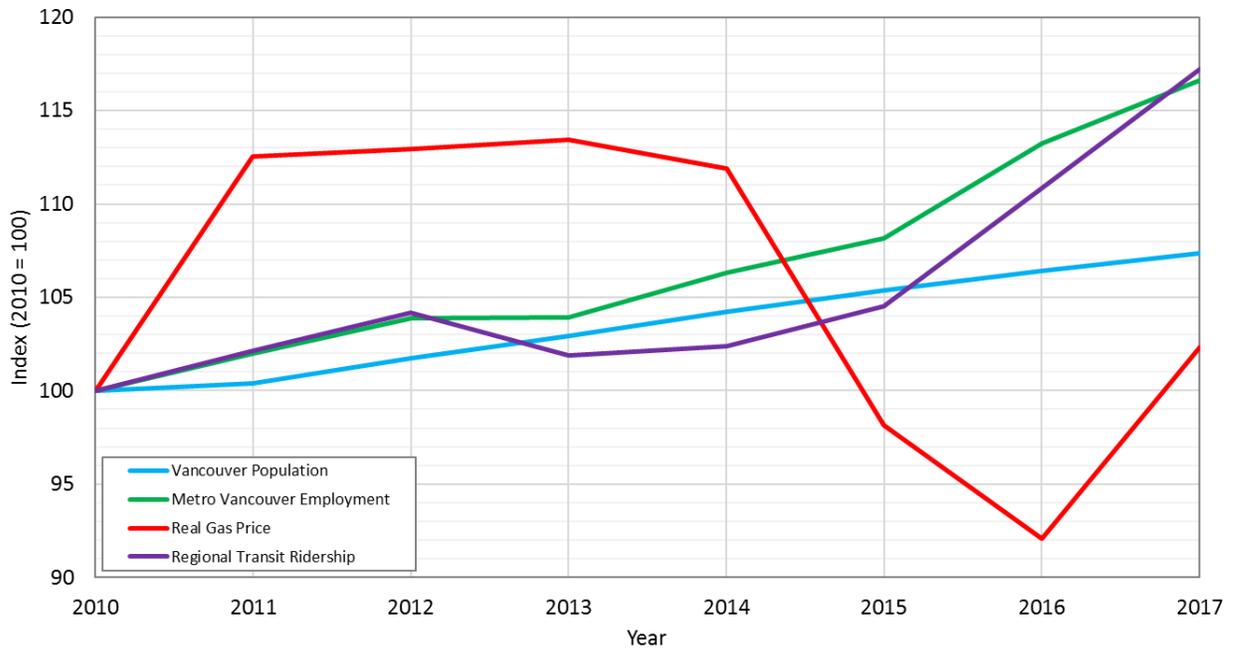
Figure 6-1 shows the trends of the accounts described in *Table 6-1* and indexed to the year 2010. Overall, socio-economic variables, population, and employment have steadily grown in the last seven years. Vancouver population grew steadily by approximately 7% from 2011 to 2017. Metro-Vancouver employment slightly decreased between 2012 and 2013 but rebounded between 2013-14 (+2.4%) and has shown strong growth in the last year (+3%). 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 (-

¹² 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 (+11%).

Transit ridership has grown strongly with 6% growth in the last year which could be attributed to strong employment growth resulting in more commuter travel.

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



Overall, travel by mode and purpose have not changed substantially in the past year compared to relative changes observed in previous surveys. There has been a slight decrease in the share of active modes with a corresponding slight increase in auto trips. 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 2017 Vancouver Panel Survey builds upon the data collected since the previous four 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 2017 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 2016, a cash-based incentive was offered in addition to city-based incentives which resulted to a 30% attrition rate. In an effort to draw more people to participate in this year's survey panel, 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.
- 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 2017 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.
- Progress was also made in 2017 in getting a more geographically representative distribution of panel members. However, the 15-34 age cohort continues to be underrepresented. It is important in future surveys to develop a new approach to capturing this key demographic, as their travel behaviours are most likely to be in flux. Development and testing of a smartphone-based app to record travel characteristics would likely help in engaging this cohort.
- Findings from this year's panel survey revealed increased car dependency and a decline in active travel compared to the 2016 Panel Survey. It is important to continue tracking mode share in the ensuing years to determine if this is a new trend or an anomaly.
- 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 – 2017 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 prizes 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 V5T 1M5

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))

- 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

PRIZE DRAW

This year, you will have a 1-in-10 chance to win one of 245 cash prizes 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 2018.)
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. Other Specify: _____

The Metro Vancouver Mayors' Council on Regional Transportation has established a 10-year transportation vision that includes the Millennium Line Broadway Extension. The planned Broadway Extension will provide SkyTrain service from VCC-Clark Station to a new station at Arbutus Street through a tunnel beneath the Broadway corridor. The extension will connect the region, bringing direct rapid transit from Coquitlam to central Broadway, allowing people to travel underground to stations at Great Northern Way, Main Street, Cambie near City Hall, Vancouver General Hospital, South Granville and Kitsilano (at Arbutus).



13. Were you aware of this project prior to this survey?
1. Yes
 2. No
14. What is your level of support for the Millennium Line Broadway Extension? **READ LIST**
5. Very Supportive
 4. Somewhat supportive
 3. Neutral
 2. Somewhat opposed
 1. Very opposed
- DON'T KNOW (DO NOT READ)

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

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:

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

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 2018.

Thank you once more and we'll be in touch in 2018!
Please click the button below to submit the survey.

OTHER PAGES IN SURVEY

EXIT CLICKED IN SURVEY

Are you sure you want to leave the survey now? If you arrived here by mistake and wish to continue the survey now, click "Previous" to return.

If you would like to leave the survey now, how would you like to re-access your survey?

- Please send me an email with my unique link (IF CLICKED)
- I will re-access from the original email invitation I received

Please try to complete the survey and diary in the next week. Note that we are interested in all types of travel even your assigned day is not typical for you.

Please specify your email address so we can send you a link to resume the survey. And press EXIT to leave the survey and send the email to yourself.

For questions or technical help, please email Mustel Group: covtravelsurvey@mustelgroup.ca.

ONCE EXITED

Thank you for your participation so far!

Please complete the survey and diary in the next week. Note that we are interested in all types of travel even if one of your assigned days is not typical for you.

You may now close this window.

EMAIL SENT

Subject: RE: Trip Day - City of Vancouver Annual Travel Survey

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

Hello City of Vancouver Travel Survey Panelist.

Here is your unique link to re-access the survey when you are ready:
<http://www.covtravelsurvey.com/dash/Dash?id=covtravel,34232343>

Thank you for your participation so far and we look forward to your completed survey!

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

Mustel Group Study Team (covtravelsurvey@mustelgroup.ca)

402-1505 West 2nd Ave,
Vancouver, BC V5T 1M5

Need Help?

Reply to this email or call us at: **778-383-3416**

Please have your PIN Number handy when you do.

PIN NUMBER: 34232343

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

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

RESUMING survey (click link in email reminder)

RESUME INTERVIEW

Please click Next below to return to the point where you left off.

Here are some helpful links containing information on the survey.

(LINKS)

Please note that these links will open in a new tab or window. To return to the survey, simply close the tab or window.

RECRUITMENT SCREENER – NEW TEL RECRUITS

Random sample & Cell sample: City of Vancouver households.

Hello, I'm ___ of Mustel Group, a professional research company and we are 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

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 and in appreciation of your time, each year you would have a 1-in-10 chance of winning one of 245 cash prizes 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.

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

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.

(6-digit) _ _ _ _ _ _

(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

C. **(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

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 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 purposes.

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 prizes 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 2018.

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. Other Specify: _____

The Metro Vancouver Mayors' Council on Regional Transportation has established a 10-year transportation vision that includes the Millennium Line Broadway Extension. The planned Broadway Extension will provide SkyTrain service from VCC-Clark Station to a new station at Arbutus Street through a tunnel beneath the Broadway corridor. The extension will connect the region, bringing direct rapid transit from Coquitlam to central Broadway, allowing people to travel underground to stations at Great Northern Way, Main Street, Cambie near City Hall, Vancouver General Hospital, South Granville and Kitsilano (at Arbutus).



13. Were you aware of this project prior to this survey?
1. Yes
 2. No

14. What is your level of support for the Millennium Line Broadway Extension? **READ LIST**
5. Very Supportive
 4. Somewhat supportive
 3. Neutral
 2. Somewhat opposed
 1. Very opposed
 - DON'T KNOW (**DO NOT READ**)

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. 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

READ IF NECESSARY: The City is simply interested in tracking the health of its residents for research purposes.

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
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
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

-
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)
7. **ETHNICITY:** Were you born in Canada?
- Yes
 - No
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

EMAIL INVITATION

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 prizes ranging from \$50 to \$1,000!

When you access the survey you will 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>

We also provide you with a **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

If your email program doesn't support *html* 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 V5T 1M5

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 - 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 2018.

Thank you once more and we'll be in touch in 2018!

Please click the button below to submit the survey.