Report for:

TRANS LINK

2011 Metro Vancouver Regional Trip Diary Survey: Final Methodology Report

Submitted by:
Ipsos Reid
200 – 1285 West Pender Street
Vancouver BC V6E 4B1
www.ipsos.ca
ph. 778 373 5022

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Executive Summary

TransLink commissioned Ipsos Reid (formerly Synovate) to conduct the 2011 Metro Vancouver Regional Trip Diary Survey. The purpose of the survey was to:

- collect statistically reliable data for the purpose of current and future regional transportation and land use planning; for example, the data may be used in various TransLink models.
- provide a statistically reliable baseline for a comparative assessment of changes in travel patterns in the Metro Vancouver/Fraser Valley region
- understand the effect of infrastructure investments, land-use trends, and demographic characteristics on travel patterns

The survey sample area included all of Metro Vancouver (including Bowen Island) and the Fraser Valley Regional District, extending from Lions Bay to Hope.

The 2011 Metro Vancouver Regional Trip Diary Survey consisted of four major phases:

- Study Design
- Recruiting & Data Collection
- Data Processing and Verification
- Final Reporting & Documentation

To be successful, a survey of this size requires careful design and testing prior to its launch, which spanned several months. Key recruitment and data collection dates for this survey were:

<table>
<thead>
<tr>
<th>Task</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study design and preparation</td>
<td>July and August 2011</td>
</tr>
<tr>
<td>Pilot testing</td>
<td>Late August 2011</td>
</tr>
<tr>
<td>Trip diary dates</td>
<td>September 15 to December 12</td>
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</table>

Phase 1 – Study Design

The Study Design phase focused on the initial planning and design of the entire study, as well as the training of support and recruitment staff, and the approval of all study materials. Trip diary tools, systems and processes were developed and tested for accuracy and effectiveness. The results of a pilot study with 114 households were reviewed and refinements were made to ensure that the survey was carried out on schedule with confidence and precision.

The 2011 Metro Vancouver Regional Trip Diary Survey consisted of two data collection components or phases: a recruitment phase and a diary phase. A key objective of the recruitment phase was to ensure a representative sample of households by reaching out to those with and without listed landline phone numbers. The method for recruiting respondents was a mailed pre-notification letter, which allowed us to reach out to those households without listed landlines. All randomly pre-selected

1 Households without listed landlines include those relying solely on cellular telephones.
households received this letter, which requested their participation, outlined the purpose and importance of the survey, listed the incentives available for completing the survey, and provided a direct link to the online survey.

All households were asked to register for the online version of survey by following the link provided in the pre-notification letter. Households with listed landlines also received a recruitment call if they had not registered to complete the survey within a week or so of receiving the letter. Once recruited, households provided basic demographic information and were assigned a weekday trip diary date. At this point, households without Internet access, or those that indicated that they would prefer not to complete the survey online, had the option to request a paper version of the survey instead.

The diary phase consisted of an online or paper survey which was comprised of two parts. The first part of the survey included general questions to be completed for all members of the recruited household. In the second part, all household members were asked to record their travel behaviour for the assigned trip diary date. This included the start and end locations and times, trip purpose, and mode of transportation for each of the one-way trips made by a household member.

To ensure a representative response from all municipalities, the survey sample area was segmented into 52 sub-regions, in accordance with TransLink’s regional traffic zones and, where possible, 2006 Census tracts. As opposed to past trip diary studies in which municipalities were often grouped together and assigned a single sample target, in this study, closer attention was paid to the geographic breakdown of the region to ensure that survey participation was accurately balanced between and within municipalities.

The 2011 base target sample size was set at 2% of the region’s household population, and determined according to the 2006 Census household population counts (base target = 18,200). Oversampling was implemented for specific sub-regions where additional funding was provided by the respective municipalities (oversample target = 2,600). Hence, the total number of households targeted for this survey was 20,800.

A proportionate sampling strategy was used to reduce the need for post-data collection weighting. That is, each sub-region was given a target completion rate proportionate to its population size. For example, if a sub-region accounts for 10% of the total survey sample area, then it was assigned a target completion rate of 10% of the total base target sample.

Within the survey sample area, it was estimated that up to 20% of households would not have a listed home telephone number, either because their number is unlisted or because they rely solely on cellular phones. To address this reality and to take into consideration the slightly higher non-response rate expected from unlisted households, the sample comprised of 25% unlisted households and 75% listed households.
Phase 2 – Recruiting and Data Collection

The Recruiting and Data Collection phase involved a multi-step approach to surveying households, as already described.

In total, 124,553 households were mailed a pre-notification letter. Two versions of the letter were designed – one for households with listed landlines (sent to 91,617 households) and the other for those without listed landlines (sent to 32,936 households). Both versions asked households to register online. The version for households with listed landlines explained that if they opted not to register online they would receive a phone call asking for their participation.

Among households with listed landlines, 25,104 registered for the survey (14,421 via online, 10,406 via phone and 277 by calling into Ipsos’ 1-800 helpline). Among the households without listed landlines, 6,874 registered (6,596 via online and 278 registered by calling into Ipsos’ 1-800 helpline).

Although most households completed the survey online, households without Internet access, or those that preferred not to complete an online survey, were offered the option of completing a paper version of the survey. To ensure a high response rate with good quality responses, a dedicated email address and a toll-free helpline were set up to field participants’ queries. Follow-up calls were made to offer assistance to those households who requested a Chinese or Punjabi version of the paper survey. Households that completed the survey were sent a $10 coffee card as a thank-you for their participation and were also entered into a prize draw.

Overall, of the 31,978 households recruited, 22,848 households completed the survey.

Phase 3 – Data Processing and Verification

The first stage of the Data Processing and Verification phase involved entering paper surveys into the system, reviewing all responses for completeness and accuracy, and revising location information to be consistent with TransLink’s geo-coding standards. To manage the large number of surveys collected, this phase began as soon as the first completed survey was received.

Once all of the data was entered and edited, it was put through a rigorous cleaning process. The steps of the cleaning process included:

- Preliminary data verification
- Geocoding (automatic geocoding and manual geocoding reviews by Ipsos and TransLink)
- Initial Review and Cleaning (Ipsos)
- Advanced Review and Cleaning (TransLink)
Once all of the data cleaning, trip synthesis and data exclusion was complete, a total of 21,851 surveys were retained from the original 22,848 received. A detailed account of trip diary surveys excluded and retained is shown in the following table.

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Diary Surveys Returned</td>
<td>22,848</td>
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</tr>
<tr>
<td>Total Diary Surveys Excluded</td>
<td>997</td>
<td>4.4%</td>
</tr>
<tr>
<td>Total diary surveys excluded after initial cleaning</td>
<td>141</td>
<td>0.6%</td>
</tr>
<tr>
<td>Total diary surveys excluded after advanced cleaning</td>
<td>856</td>
<td>3.7%</td>
</tr>
<tr>
<td>Total Retained Households</td>
<td>21,851</td>
<td>95.6%</td>
</tr>
<tr>
<td>Total Retained Persons</td>
<td>52,175</td>
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</tr>
<tr>
<td>Total Retained Trips</td>
<td>146,026</td>
<td>n/a</td>
</tr>
</tbody>
</table>

Lastly, statistically valid weights and expansion factors were created and applied to the data by TransLink to ensure that the sample composition reflected the regional population.

**Phase 4 – Final Reporting and Documentation**

Throughout the study period, several progress reports were issued. This methodology report details the processes followed to implement the survey. The survey results are presented and described in a separate analysis report.
Definition of Terms:

survey: refers to the 2011 Metro Vancouver Regional Trip Diary Survey and the study as a whole.

household portion: refers to the first part of the survey, in which participants recorded their basic personal and household information.

trip diary portion: refers to the second part of the survey, in which participants recorded all of their one-way trips.

trip diary date: refers to the date assigned to each participating household on which they recorded all of their one-way trips.

survey sample area: refers to the geographic region included in the 2011 Metro Vancouver Regional Trip Diary Survey, specifically all of Metro Vancouver (including Bowen Island) and the Fraser Valley Regional District, extending from Lions Bay to Hope.

sub-regions: refers to the smaller geographic areas into which the municipalities within the survey sample area were broken down to for sampling and expansion purposes. In total, the survey sample area was divided into 52 such areas.

oversampled sub-regions: refers to sub-regions that were sampled at a higher rate than the region-wide sample size of 2%.

super region: refers to the aggregation of the 52 sub-regions into 18 larger regions that parallel the municipalities and/or regions that are included in this survey.

sample or dataset: refers to the aggregation of all data collected for this survey into one central electronic file.

zero-trip households: refers to participating households that recorded no trips by any household members on the assigned trip diary date.

households with school-aged children making no school trips: refers to participating households that recorded no school trips by school-aged household members on the assigned trip diary date.

online survey/interface: refers to Ipsos Reid’s online survey platform. The program is integrated with GIS data (enabling automated online geocoding), word-recognition software and skip logics.
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Phase 1: Study Design
1. Overview

Background and Introduction

Trip diary surveys have been conducted in the Vancouver region since the mid-1980s. The purpose of these surveys has been to gather information on residents’ travel behaviours in order to better understand local travel patterns and identify emerging trends. The resulting data provides insight into the effectiveness of existing transportation programs and highlights areas that must be improved in order to meet transportation objectives.

TransLink commissioned Ipsos Reid (formerly Synovate) to conduct the 2011 Metro Vancouver Regional Trip Diary Survey. The purpose of this survey is to:

- collect statistically reliable data for the purpose of current and future regional transportation and land use planning; for example, the data may be used in various TransLink models.
- provide a statistically reliable baseline for a comparative assessment of changes in travel patterns in the Metro Vancouver/Fraser Valley region
- understand the effect of infrastructure investments, land use trends and demographic characteristics on travel patterns

The survey sample area includes all of Metro Vancouver (including Bowen Island) and the Fraser Valley Regional District, extending from Lions Bay to Hope. Please see Exhibit 2.1 for a detailed list of the sub-regions included in this sample area.

Exhibit 1.0 Map of Region
General Approach

The following chart outlines the major phases of the survey:

Phase I – Study Design
- Confirmation/refinement of survey method
- Design and selection of sample
- Survey pre-test, pilot and refinement
- Public awareness

Phase II – Recruiting & Data Collection
- Recruiting
- Data collection

Phase III – Data Processing & Verification
- Data entry & coding
- Data verification and cleaning
- Expansion of data to survey population

Phase IV – Final Reporting & Documentation
- Integration & refinement of reports
- Dataset documentation
- Complete final report and data files sent to client

Phase 1 – Study Design

The Study Design phase focused on the initial planning and design of the entire study, as well as the training of support and recruitment staff, and the approval of all study materials. Trip diary tools, systems and processes were developed and tested for accuracy and effectiveness. The results of a pilot study with 114 households were reviewed and refinements were made to ensure that the survey was carried out on schedule with confidence and precision.

Phase 2 – Recruiting and Data Collection

The Recruiting and Data Collection phase involved a multi-step approach to surveying households. All randomly-selected households (including those with and without listed landlines) were sent a pre-notification letter which explained the nature of the study, and requested their participation. The letter included a link to the online survey and a unique ID number and entry code. All households were invited to go directly online to register themselves for the survey. Households with listed landlines that had not registered online within about a week’s time of receiving the pre-notification letter were contacted by phone and asked to participate in the study. Although most households completed the survey online, households without Internet access, or those that preferred not to complete an online survey, were offered the option of completing a paper version of the survey. To ensure a high response rate with good quality responses, a dedicated email address and a toll-free
helpline were set up to field participants’ queries. Follow-up calls were made to offer assistance to those households who requested a Chinese or Punjabi version of the paper survey. Households that completed the survey were sent a $10 coffee card as a thank-you for their participation.

**Phase 3 – Data Processing and Verification**

The first stage of the Data Processing and Verification phase involved entering paper surveys into the system, reviewing all the responses for completeness and accuracy, and revising location information to be consistent with the pre-determined shape file format (e.g. changing ‘Street” to “St.” or vice-versa). To manage the large number of surveys collected, this phase began as soon as the first completed survey was received.

Once all of the data was entered and edited, it was put through a rigorous cleaning process. Lastly, statistically valid weights and expansion factors were created to ensure that the sample composition reflected the regional population.

**Phase 4 – Final Reporting and Documentation**

Throughout the study period, several progress reports were issued. This methodology report details the processes followed to implement the survey. The survey findings are presented under separate cover.
2. Overview of the Study Methodology

Study Design

The 2011 Metro Vancouver Regional Trip Diary Survey was designed to collect information on the weekday travel behaviours of a random sample of survey sample area households over a 24-hour period. Exhibit 2.0 depicts the general processes followed for this study.

Exhibit 2.0: Flow Chart of Data Collection Process

- Pre-notification letter sent
- Households with listed phone numbers were asked to register online, if they did not, attempts were made to recruit them by phone
- Households with no listed phone number were asked to register online
- Registered households were assigned with a trip diary date and asked to provide their household information
- Households completed the trip diary portion of the survey online or on a paper form to be mailed back
- A $10 gift card was sent to all households who completed the survey
- All households who completed the survey were entered into the prize draws, to be held in January 2012
The data collection process consisted of two main phases: a recruitment phase and a diary phase.

A key objective of the recruitment phase was to ensure a representative sample of households by reaching out to those with and without listed landline phone numbers\(^2\). The method for recruiting respondents was a mailed pre-notification letter, which allowed us to reach out to those households without listed landlines. All randomly pre-selected households received this letter, which requested their participation, outlined the purpose and importance of the survey, listed the incentives available for completing the survey and provided a direct link to the online survey. Please see Appendix A for a copy of the pre-notification letter.

Households without listed landlines were able to register for the online version of survey by following the link provided in the letter. These households were assigned a weekday trip diary date and then asked to enter their basic demographic information into the household information portion of the survey. Households without listed landlines also had the option to contact Ipsos Reid directly and ask to be sent the paper survey package.

Households with listed landlines were also asked to register for the survey by following the link to the online survey provided in the letter. If the household had not registered within about a week of receiving the pre-notification letter, they received a recruitment call asking them to participate in the survey. Once recruited, the interviewer would assign them with a weekday trip diary date and collect their basic demographic information over the phone. At this point, households without Internet access, or those that indicated that they would prefer not to complete an online survey, had the option to request a paper version of the survey instead.

The diary phase consisted of an online or paper survey which was completed for all members of the recruited households. The first portion of the survey (undertaken in the recruitment phase) involved the collection of basic personal and household information (e.g. employment status, whether or not they have a driver’s license) and the assignment of a weekday trip diary date. In the second portion of the survey, all household members were asked to record their travel behaviour for the assigned trip diary date. This included each one-way trip’s start and end locations and times, trip purpose and mode of transportation.

Households that had registered for the online survey were sent a reminder email the night before their assigned trip diary date. The email included a direct link to their survey and a printable “trip tracker” form to assist with keeping track of their trips throughout the day. Households that had registered for a paper survey were mailed a complete survey package, which included a survey form for each household member, an example of a completed form and a postage-paid return envelope so that they could return their completed surveys to Ipsos Reid for processing.

Survey design and preparation took place in July and August 2011. All processes, documents and systems were pre-tested internally and then tested with actual respondents in a pilot study, which took place in mid- to late August 2011.

\(^2\) Households without listed landlines include those relying solely on cellular telephones.
Survey Participation

Achieving a high participation rate was essential in order to successfully meet recruitment targets and to obtain a representative sample of residents’ travel behaviour. Hence, the survey was designed to ensure that all pre-selected households were encouraged to participate and were able to do so easily. The measures taken in this regard included:

- acquiring study sponsorship from Metro Vancouver and the Fraser Valley Regional District. The involvement of these organisations gave greater validity to the survey and encouraged Fraser Valley residents in particular to participate (as they might not consider themselves to be affected by a study sponsored solely by TransLink).
- sending a pre-notification letter to all pre-selected households. The objective of the letter was to introduce the survey and highlight its purpose and importance for the recipient households and their communities. The letter also introduced the sponsors, outlined the requirements of the survey and listed the incentives offered for completion.
- offering incentives. A combination of a guaranteed incentive (a gift card) and entry in a draw for several larger prizes was offered to all participants who successfully completed the survey. Specifically, the combined incentive for each household that completed the survey included:
  - a $10 gift card to Starbucks Coffee Company
  - entry in a draw to win one of the following:
    - 1 grand cash prize of $1,000;
    - 18 regional cash prizes of $100 each;
    - 6 Apple iPad2; and,
    - 80 gift cards to Earl’s Restaurant worth $25 each.
- assuring confidentiality and anonymity. Households were assured that their information would only be used for the purpose of measuring regional travel behaviour. They were provided with a unique, password-protected survey link to ensure that their information was secure.
- offering the option to complete the survey on paper. Households that indicated that they did not have Internet access or preferred not to complete an online survey were mailed a complete paper survey package.
- contacting households with listed landlines, via telephone, to solicit their participation in the survey.
- sending acknowledgement and reminder emails to households who registered for the online survey.
- directing households who wished to verify the validity of the survey to TransLink’s website, which posted information about the survey.
- setting up an FAQ website to answer frequently asked questions.
- setting up a dedicated email address and toll-free helpline to assist households with survey-related questions.

3 Although an advertising campaign to raise awareness was considered, based on Ipsos’ experience with past research of a similar nature it was determined that the combined incentive would be the most effective way to maximise survey completion.
Multilingual Surveying

The Metro Vancouver and Fraser Valley regions contain a large population of residents whose first language is not English. To ensure that these residents were represented in the sample and to facilitate their participation, extra efforts were made to recruit in Cantonese, Mandarin and Punjabi. Households that chose to participate in the study in those languages were mailed a paper survey package in either Simplified Chinese or Punjabi.

Survey Sample Area and Sampling Plan

As mentioned, the survey sample area includes all of Metro Vancouver (including Bowen Island) and the Fraser Valley Regional District, extending from Lions Bay to Hope.

To ensure a representative response from all municipalities, the survey sample area was segmented into 52 sub-regions, in accordance with TransLink’s regional traffic zones and, where possible, 2006 Census tracts. As opposed to past trip diary studies in which municipalities were often grouped together and assigned a single sample target, in this study, closer attention was paid to the geographic breakdown of the region to ensure that survey participation was accurately balanced between and within municipalities.

The 2011 base target sample size was set at 2% of the region’s population, and determined according to the 2006 Census population counts. Oversampling was implemented for specific sub-regions where additional funding was provided by the respective municipalities.

Please see Exhibit 2.1 below, for a detailed description of the sampling plan by sub-region. Please see Exhibit 2.2 for a map of the sub-regions.

Exhibit 2.1: Sub-Regions

<table>
<thead>
<tr>
<th>Sub-Region</th>
<th>Sub-Region Name</th>
<th>Municipality</th>
<th>Base Target</th>
<th>Over Sample</th>
<th>Total # of Households</th>
</tr>
</thead>
<tbody>
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<td>West Vancouver</td>
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<tr>
<td>Sub-Region</td>
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<td>507</td>
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<td>507</td>
</tr>
<tr>
<td>61</td>
<td>Richmond Sea Island – East</td>
<td>Richmond</td>
<td>284</td>
<td></td>
<td>284</td>
</tr>
<tr>
<td>62</td>
<td>Richmond Centre</td>
<td>Richmond</td>
<td>492</td>
<td></td>
<td>492</td>
</tr>
<tr>
<td>63</td>
<td>Richmond South – Steveston</td>
<td>Richmond</td>
<td>469</td>
<td></td>
<td>469</td>
</tr>
<tr>
<td>67</td>
<td>Tsawwassen First Nation</td>
<td>Tsawwassen First Nation</td>
<td>5</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>68</td>
<td>Delta - Ladner / Tsawwassen</td>
<td>Delta</td>
<td>327</td>
<td></td>
<td>327</td>
</tr>
<tr>
<td>69</td>
<td>Delta North</td>
<td>Delta</td>
<td>306</td>
<td></td>
<td>306</td>
</tr>
<tr>
<td>71</td>
<td>Surrey Centre</td>
<td>Surrey</td>
<td>574</td>
<td></td>
<td>574</td>
</tr>
<tr>
<td>72</td>
<td>Surrey Fleetwood</td>
<td>Surrey</td>
<td>540</td>
<td></td>
<td>540</td>
</tr>
<tr>
<td>73</td>
<td>Surrey Newton</td>
<td>Surrey</td>
<td>457</td>
<td></td>
<td>457</td>
</tr>
<tr>
<td>74</td>
<td>Surrey Panorama</td>
<td>Surrey</td>
<td>305</td>
<td></td>
<td>305</td>
</tr>
<tr>
<td>75</td>
<td>Surrey Cloverdale</td>
<td>Surrey</td>
<td>383</td>
<td>200</td>
<td>583</td>
</tr>
<tr>
<td>77</td>
<td>Surrey South</td>
<td>Surrey</td>
<td>504</td>
<td>200</td>
<td>704</td>
</tr>
<tr>
<td>79</td>
<td>White Rock</td>
<td>White Rock</td>
<td>185</td>
<td></td>
<td>185</td>
</tr>
<tr>
<td>81</td>
<td>Langley City</td>
<td>Langley City</td>
<td>214</td>
<td></td>
<td>214</td>
</tr>
<tr>
<td>82</td>
<td>Langley Township – South</td>
<td>Langley Township</td>
<td>372</td>
<td></td>
<td>372</td>
</tr>
<tr>
<td>83</td>
<td>Langley Township – North</td>
<td>Langley Township</td>
<td>310</td>
<td></td>
<td>310</td>
</tr>
<tr>
<td>92</td>
<td>FVRD Abbotsford West</td>
<td>FVRD</td>
<td>537</td>
<td></td>
<td>537</td>
</tr>
<tr>
<td>93</td>
<td>FVRD Abbotford East</td>
<td>FVRD</td>
<td>322</td>
<td></td>
<td>322</td>
</tr>
<tr>
<td>94</td>
<td>FVRD Chilliwack</td>
<td>FVRD</td>
<td>550</td>
<td></td>
<td>550</td>
</tr>
<tr>
<td>95</td>
<td>FVRD Cultus Lake / Hope</td>
<td>FVRD</td>
<td>108</td>
<td></td>
<td>108</td>
</tr>
<tr>
<td>96</td>
<td>FVRD Mission</td>
<td>FVRD</td>
<td>239</td>
<td></td>
<td>239</td>
</tr>
<tr>
<td>97</td>
<td>FVRD Harrison</td>
<td>FVRD</td>
<td>107</td>
<td></td>
<td>107</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>18200</strong></td>
<td><strong>2600</strong></td>
<td><strong>20800</strong></td>
</tr>
</tbody>
</table>
A proportionate sampling strategy was used to reduce the need for post-data collection weighting. That is, each sub-region was given a target completion rate proportionate to its population size. For example, if a sub-region accounts for 10% of the total survey sample area, then it was assigned a target completion rate of 10% of the total base target sample.

Several municipalities indicated a desire to increase the sample size in certain sub-regions; hence, those target completion rates were supplemented (see Exhibit 2.1 for oversample details).

Within the survey sample area, it was estimated that up to 20% of households would not have a listed home telephone number, either because their number is unlisted or because they rely solely on cellular phones. To address this reality and to take into consideration the slightly higher non-response rate expected from unlisted households, the sample comprised of 25% unlisted households and 75% listed households.

To generate a random and representative sample of households, Ipsos used two sources:

1. ASDE Canada Survey Sampler (CSS) generated residential listings for households with listed home phone numbers. Canada Survey Sampler provided up-to-date electronic listings of Metro Vancouver and Fraser Valley households, including names, addresses, postal codes and telephone numbers.
2. Cornerstone Group of Companies provided residential listings of households without listed home phone numbers, specifically those with unlisted phone numbers and those relying solely on cellular phones.
3. Study Instruments

Pre-Notification Letter

The pre-notification letter outlined the purpose, importance and requirements of the survey, as well as the sponsors and the household selection criteria (i.e. random selection of 2% of the population), and provided a direct link to the online survey. It was particularly effective in increasing residents’ willingness to participate, and allowed the survey to include non-English-speaking households and households without a listed home phone number. Based on prior experience with this methodology, it was estimated that a random sample of approximately 125,000 households should be sent a pre-notification letter in order to achieve the required sample size of 20,800 households. Please see Appendix A for a copy of the pre-notification letter.

To allow for timely calls and to ensure that regional quotas were met and not exceeded, the pre-notification letters were mailed on a staggered flight schedule. Households with listed phone numbers that did not register online using the link in the pre-notification letter were contacted by telephone approximately one week after each flight was mailed. Four attempts, on different days and at different times, were made for each household. If a household could not be reached after four attempts, the telephone recruiter left a voicemail message to remind them to register for the survey online, and the phone number was removed from the sample. Please see Exhibit 3.1 for the flight schedule and the corresponding telephone recruitment periods.

Exhibit 3.1: Flight & Recruitment Schedule

<table>
<thead>
<tr>
<th>Flight</th>
<th>Pre-notification Letters Sent On:</th>
<th># of Letters Sent</th>
<th>Telephone Recruitment Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flight 1</td>
<td>Wed, September 7</td>
<td>32,499</td>
<td>Sep 15 to Sep 29</td>
</tr>
<tr>
<td>Flight 2</td>
<td>Thurs, September 22</td>
<td>33,036</td>
<td>Sep 30 to Oct 9</td>
</tr>
<tr>
<td>Flight 3</td>
<td>Mon, October 3</td>
<td>33,035</td>
<td>Oct 11 to Oct 23*</td>
</tr>
<tr>
<td>Flight 4</td>
<td>Fri, October 14</td>
<td>17,968</td>
<td>Oct 24 to Nov 3</td>
</tr>
<tr>
<td>Flight 5</td>
<td>Wed, November 2</td>
<td>6,819</td>
<td>Nov 8 to Nov 15*</td>
</tr>
<tr>
<td>Flight 6</td>
<td>Fri, November 25</td>
<td>1,196</td>
<td>Nov 28 to Dec 4</td>
</tr>
</tbody>
</table>

*Telephone recruitment did not take place on October 10 (Thanksgiving Day) and November 11 (Remembrance Day).

Telephone Recruitment

Telephone recruiting was subcontracted to and conducted by Opinion Search from its Ottawa and Montreal offices. Since Ipsos Reid (formerly Synovate) did not have the capacity to handle the recruiting from its Vancouver call centre, it was necessary to subcontract the telephone recruiting phase of the survey. Opinion Search was selected because: they were able to provide a facility large enough for the scope of this survey, they had the ability to send acknowledgement emails immediately after registering online participants, and Ipsos had developed a good working relationship with the organisation. Founded in 1988, Opinion Search is an industry leader in the area of research data collection and continues to provide its clients with high quality primary research, whether it is online, on the phone or in-person.
Telephone recruitment took place between September 15, 2011 and December 4, 2011, inclusive, with the exception of October 10 (Thanksgiving Day), and November 11 (Remembrance Day). Telephone recruitment took place on weekdays between 4pm and 8pm (PST) and on weekends between 10am and 6pm (PST).

The telephone recruitment questionnaire was used to encourage survey participation, and took about 5 to 6 minutes to administer. The telephone recruiter asked to speak with the person in the household most familiar with the daily travel habits of all household members. If the designated person agreed to participate, the household was assigned with a specific trip diary date, typically three to seven days later. The recruiter then collected basic household information, which was subsequently uploaded onto the fully-secured online survey site. When respondents logged-on to complete the trip diary portion of the survey, they were able to verify, edit and add to their information as necessary.

The telephone recruitment survey was tested with actual household respondents during the pilot study. At that time, improvements were made to the script where appropriate, mostly to clarify wording and simplify the collection of household information. Please see Appendix A for a copy of the telephone recruitment questionnaire.

For quality control, the following criteria were followed during the telephone recruitment process:

- Prior to telephone recruiting, all telephone recruiters were given a complete briefing during which the objectives of the research were discussed, the survey was reviewed and a read-through of the script was conducted.
- To ensure continuity, the same team of telephone recruiters was assigned to this survey from the beginning until project completion.
- In addition to being monitored by Opinion Search supervisors throughout every shift, telephone recruiters were also monitored by the Ipsos project manager at the beginning of each flight of recruitment.
- Up to four call attempts were made before a telephone number was removed from the sample. On the fourth attempt, the telephone recruiter left a voicemail message to remind the household to register for the survey online.
- Extensive range and consistency checks (i.e. compared with earlier entries) and immediate error messages for missing, incorrect or inconsistent data were programmed into the CATI system.
- Telephone recruitment was constantly monitored to ensure that participation rates were regionally representative and that the sample was evenly distributed across weekdays.
Email Reminders

Three to five automated email reminders were sent to each household that agreed to participate in the online survey. These included:

- **Acknowledgement email** – sent immediately after registration, whether online or over the phone.
- **Confirmation email** – sent only to households who had already registered online and were recruited over the phone. Households were reminded of their original assigned trip diary date.
- **Reminder email** – sent by 5pm the day before the assigned diary day.
- **Thank-You & Follow-Up email** – sent at 8pm the night of the assigned diary day.
- **Second Chance email** - sent only to households that had not yet completed the online survey 24 hours after their assigned trip diary day. Households were given the option to keep their originally assigned trip diary date if they had tracked their household’s travel on that day, but had not yet entered the information into the online survey form, or, to choose a new trip diary date if they had not tracked their household’s travel on their originally assigned trip diary date. Links were provided in this email for both options.

To manage email bounce-backs, households whose acknowledgement emails were undeliverable were contacted by telephone to confirm their correct email addresses. They were then re-entered into the system to be emailed again.

Online and Paper Trip Survey

The survey was administered either online or on paper (submitted by mail). The online survey directed respondents through the survey with sidebar instructions and explanations, examples and drop-down menus. If a respondent skipped a question or provided an answer that appeared to be inconsistent or inaccurate, they were prompted to review and correct their answers. For example, for each one-way trip the arrival time was checked against the departure time to ensure that they were chronological.

The online survey was programmed to create an easy, efficient and supportive process for respondents while ensuring high quality, consistent, and accurate data. Specifically:

- using GIS data for Metro Vancouver and the Fraser Valley Regional District, the program included common landmarks, streets and intersections in real time. This enabled respondents to quickly and accurately enter trip information, thus minimising the entry of incorrect information.
- using word-recognition software to allow for typing shortcuts, to prevent typos and to standardise abbreviations for landmarks and street names.
- automatically geocoding locations upon entry of information. Geocoding is the process of establishing and recording X-Y location coordinates for every start and end point of a trip. This was done in real-time by integrating geocoding tools and databases.
Respondents were provided with several ways to record their location information, specifically:

- by choosing from a customised list of locations for their home, work and school addresses. (Note: The first part of the online survey collected basic household information, including work and school names and addresses. This information was then referenced in the trip diary portion of the survey when a household was filling in their travel information).
- by entering a common landmark (assisted by word-recognition software).
- by entering two cross-streets (assisted by word-recognition software linked to each region’s street and intersection data).
- by entering the exact address (assisted by word-recognition software).

The online survey included a large number of logic checks to ensure consistency between answers to different questions. In cases where inconsistency was detected, the respondent was prompted to review their answer. The respondent could then modify their answer or decide they did not wish to make changes (by clicking “continue” a second time). This option was included to minimise respondent frustration while still encouraging the entry of correct information. If illogical information was entered, it would be flagged during data cleaning. Exhibit 3.2 outlines the logic checks that were programmed into the online survey.

**Exhibit 3.2: Logic Checks**

<table>
<thead>
<tr>
<th>Logic Checks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondents were directed to the registration page if they had not yet selected a trip diary date.</td>
</tr>
<tr>
<td>Respondents were prompted to review their information if the first trip origin was not “home”.</td>
</tr>
<tr>
<td>Respondents were prompted to review their information if their last trip destination was not “home”.</td>
</tr>
<tr>
<td>The time of arrival for a trip could not be earlier than the time of departure.</td>
</tr>
<tr>
<td>The time of departure for a trip could not be earlier than the time of arrival for the previous trip.</td>
</tr>
<tr>
<td>Verification of the duration of a trip when entered as more than 2 hours long.</td>
</tr>
<tr>
<td>Origin and destination for a trip could not be the same location.</td>
</tr>
<tr>
<td>Household members without a valid drivers’ license could not state that they drove themselves for any trip.</td>
</tr>
<tr>
<td>Household members under 16 years of age were not asked if they had a valid drivers’ license.</td>
</tr>
<tr>
<td>If respondents entered that they traveled as a passenger in a car, they were required to enter that there were at least two people in the car (i.e.: driver and passenger(s)).</td>
</tr>
<tr>
<td>Respondents were prompted to review their information if an address was not geocodable.</td>
</tr>
<tr>
<td>Respondents were reminded of the survey sample area boundaries if the origin and destination locations entered were both outside of the survey sample area.</td>
</tr>
<tr>
<td>Respondents were prompted to review their information if they entered the same mode of transportation consecutively for one trip; however, they were able to enter the same mode of transportation twice for more than one trip if not consecutive (e.g.: “Bus-SkyTrain-Bus”, but not “Bus-Bus-SkyTrain”).</td>
</tr>
<tr>
<td>Respondents were prompted to review their information if they entered “walked the whole way” plus any other mode of transportation for the same trip (e.g.: if a respondent took the bus and transferred part-way, the appropriate mode would be “Bus”, not Bus-Walked-Bus).</td>
</tr>
<tr>
<td>Respondents were prompted to review their information if a trip purpose was “to go home” but the destination was not “home”.</td>
</tr>
</tbody>
</table>
The online survey was structured as follows:

- **Introduction screens** – participants were asked to enter their unique ID and entry code and were then presented with screens that included an introductory letter from TransLink, privacy statement, survey instructions and support information, including Ipsos’ 1-800 phone number and email helpline and a link to a Frequently Asked Questions website. Links to printable survey forms and an example of a completed form were also provided.

- **Registration screens** – participants were able to self-register online and pick one of three suggested trip diary dates.

- **Household information screens** – household information gathered during telephone recruitment was displayed (if applicable), and respondents were able to verify and make corrections to this information as necessary.

- **Personal information screens** – personal information was collected for each household member aged 5 years and older.

- **Trip data screens** – trip information was collected for every one-way trip made by each household member aged 5 years and older on the specified trip diary date.

The following exhibits show the embedded logic checks, pull-down menus and prompts included in the online survey platform. [A copy of the online survey is provided in Appendix A.](#)

**Exhibit 3.3: Online Survey Screenshots**

![Online Survey Screenshots](image-url)
The 2011 One-Day Travel Survey

B7. Please enter the address for friend’s house.

Municipality: Vancouver

Type of location:
- House or apartment
- Office building
- Industrial or Factory
- Farm, mail, clergy or theatre
- Hospital or medical
- School or college
- School or dollars
- Retail or commercial
- Recreation or parks
- Outdoor recreational (i.e., park, beach, golf course)
- Support or BC FIS
- Other, please specify

Dropdown menus were used whenever possible.

Benefits:
- Less typing, faster completion
- Fewer mistakes

The 2011 One-Day Travel Survey

B2. Where did this person’s first trip start?

For example, if you started your day at home, then select “Your Home” below.

This is for the Male age 33.

- Your home
  - Male age 33 work, 6th Boundary Rd at Hastings St Burnaby
  - Female age 25 work, Simon Fraser University
  - Male age 6 school, Simon Fraser University
  - Other destination in Metro Vancouver/ Fraser Valley
  - Outside of Metro Vancouver/ Fraser Valley, enter municipality:

A customized list of locations was displayed.

Benefits:
- Less typing, faster completion
- Fewer follow-up questions
- Fewer mistakes
The mail-back survey package included the following components *(copies can be found in Appendix A)*:

- An introductory letter from TransLink
- General survey instructions, including Frequently Asked Questions
- An example of a completed trip survey form
- Personal information and trip diary forms for each household member aged 5 years and older

Households that indicated that they would prefer to complete the survey in Chinese or Punjabi were mailed a translated version of the paper package. Please see Appendix A for copies of the translated packages. A follow-up telephone call was then made to each of those households to offer assistance with filling out the survey.
4. Summary of Pilot Study Results

Pilot Study

All survey instruments were tested internally and then tested in a pilot study with 500 actual households, to ensure that they were functioning correctly and effectively. A total of 114 households fully participated in the pilot study in August 2011 by completing a survey for their household. The pre-notification letters were mailed on August 15, 2011, and telephone recruitment took place between August 19 and 21, 2011.

Several sections of the survey were modified based on insights gained during the pilot study. These included:

- Changes to the wording of the pre-notification letter
- Improvements to the telephone recruitment script and the survey to clarify wording and simplify the collection of household information
- Inclusion of maps in the survey material to highlight the borders of the study area
- Addition of several online survey logic checks

Final Status of Pilot Study Returned Surveys

The final status of the pilot study is displayed in Exhibits 4.1 and 4.2. A total of 500 pre-notification letters were mailed out, and 157 households agreed to participate. A final total of 114 surveys were returned by the due date of August 31, 2011. Recruitment levels during the pilot study were higher than expected, which provided confidence in recruitment procedures. The proportion of surveys completed on paper was lower than expected, which indicated that surveys would be predominantly completed online during the actual study.

Exhibit 4.1: Pilot Study Summary

<table>
<thead>
<tr>
<th>Pilot Study Summary</th>
<th>Number</th>
<th>Represents:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-notification letters sent</td>
<td>500</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Households recruited</td>
<td>157</td>
<td>31%</td>
<td></td>
</tr>
<tr>
<td>Total completed surveys</td>
<td>114</td>
<td>73% (or 23% of all households contacted)</td>
<td></td>
</tr>
</tbody>
</table>

Exhibit 4.2: Pilot Study Returned Surveys

<table>
<thead>
<tr>
<th>Method by Which Household Agreed to Participate:</th>
<th>a. Households Recruited</th>
<th>b. Completed Surveys</th>
<th>Method Return Statistics (b/a)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
</tr>
<tr>
<td>Online</td>
<td>147</td>
<td>94%</td>
<td>111</td>
</tr>
<tr>
<td>Paper</td>
<td>10</td>
<td>6%</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>157</td>
<td></td>
<td>114</td>
</tr>
</tbody>
</table>
5. Summary of Major Decisions

A number of revisions and improvements were made during the study design and development phase. Some of these revisions were made as a result of insights gained during the pilot study, while others were made during the review process as Ipsos fine-tuned the survey in preparation for full launch. Pilot study revisions resulted mainly from a review of the processes and standards that were followed, rather than from the results of completed surveys. A summary of these revisions is detailed in Exhibit 5.1, below.

Exhibit 5.1: Survey Issues & Revisions

<table>
<thead>
<tr>
<th>General</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ministry of Transportation involvement.</strong> It was originally expected that the Ministry of Transportation would be involved in this study as a sponsor. The Ministry decided that sponsorship of a regional survey would be inappropriate, so there was no mention of the Ministry in any of the survey material.</td>
</tr>
<tr>
<td><strong>Metro Vancouver and Fraser Valley Regional District involvement.</strong> Both regional agencies agreed to sponsor the survey. Sponsorship included mentioning the agencies and using their logos in the pre-notification letter and other survey materials. The agencies’ involvement was highlighted in the study material to add greater credibility and encourage participation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pre-Notification Letter</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rewording of the pre-notification letter.</strong> A key purpose of the pilot study was to test the effectiveness of the pre-notification letter. The pilot study proved that the pre-notification letter was effective in helping to achieve the desired response rates. However, it also revealed wording that was unclear, and thereby resulted in some rewording of the letter.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Telephone Recruitment Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clarification of insured motor vehicle ownership.</strong> Pilot study households indicated that they were unsure about the types of vehicles the survey was asking about. As a result, the question was reworded to clarify that it was referring to the insured motor vehicles that a household owns, leases or has use of. This clarification was also added to the online FAQ page.</td>
</tr>
<tr>
<td><strong>Reference to TransLink’s September press release about the 2011 Metro Vancouver Trip Diary Survey added to the introduction of the telephone recruitment survey.</strong> The publicity of the survey was thought to enhance its credibility and thus, it was decided that this reference could improve participation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Online Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Instructions were reworded to clarify that there were two parts to the study – the collection of household information and trip information.</strong> Some pilot study households indicated that they found the structure of the survey unclear and thought that the household information section was the entire survey. To eliminate any further confusion, a brief explanation of survey structure was added to the survey introduction.</td>
</tr>
<tr>
<td><strong>Addition of landmarks for post-secondary schools, big box chains, office buildings and restaurants.</strong> Efforts to reach high accuracy in geocoding locations included the use of shape files with specific coordinates for major landmarks. Having this information geocoded in the dataset improved its accuracy and usability.</td>
</tr>
<tr>
<td><strong>Inclusion of Golden Ears Bridge usage questions.</strong> The Golden Ears Bridge is the only tolled road facility in the study area. Information about people and trips that use the bridge could be essential in informing policies regarding tolls at other transportation facilities in the future. Since it is likely that only a fraction of the households in the region are users of the Golden Ears Bridge, a screening question was added to the beginning of the trip diary portion of the survey. A follow-up question about Golden Ears Bridge usage was then asked only of those who had indicated that at least one household member crossed the bridge on their trip diary date.</td>
</tr>
</tbody>
</table>
### Online Survey

- **Insertion of maps of the study area to the online survey and FAQ page.** Since the survey sample area included a large segment of the Fraser Valley Regional District, it was determined that people who live and work outside of Metro Vancouver might think that the survey was not meant for them. A map of the region was added to the online survey and FAQ page in order to ensure that all potential participants were aware of the study area boundaries.

- **Instructions were updated to clarify that if respondents started their day at home, they should select “Home” as the first origin location.** This clarification emphasised a simple yet important component of recording household trips.

- **Addition of customised locations referencing specific household members according to their gender and age (e.g.: Female, Age 34, Workplace).** To make it easier for households to record trip information, “special” locations that were identified in the household portion of the survey, such as work and school, were assigned a label which referenced the age and gender of the associated household member. Those labeled locations were then listed in the trip diary portion of the online survey and could easily be selected as destination locations.

- **Instructions regarding the entry of address information were re-programmed to appear only if the address was not recognised and not when there was missing information.** The original instructions caused confusion, as they appeared when an address was not recognised and when there was missing information. To resolve this issue, the instructions were re-programmed only to appear when an address was unrecognisable.

- **Addition of a logic check when home was the destination but the trip purpose was not to go home.** This logic check was added to minimise errors when recording trip information. Specifically, it was added to ensure that trips that had a destination of home did not have a conflicting trip purpose.

- **Automatically filling in the trip purpose when a work/school location is added.** In order to limit the number of questionable answers, it was decided that for cases where the purpose of the trip seemed obvious, the purpose would be pre-populated (e.g.: when a person entered the trip destination as their “school”, the purpose would automatically be marked as “going to school”). However, respondents were still allowed to overwrite the trip purpose if the actual purpose was different.

- **Addition of a logic check for trips over 2 hours in length to confirm trip duration.** In an effort to minimise the collection of inaccurate trip information, a logic check was programmed to prompt households to confirm the duration of any trips over 2 hours in duration.

- **Addition of a mode sequence logic check.** A logic check was introduced to make sure that consecutive travel modes were not the same (e.g.: Bus – Bus – SkyTrain). At the same time, it was determined that a respondent could use the same mode of transportation twice in the same trip (e.g.: Bus – SkyTrain – Bus). Hence, the online survey was programmed to allow for this travel pattern.

- **Auto-Driver Limitation.** To minimise data cleaning and to eliminate unnecessary questions for respondents, household members under the age of 16 and those who indicated that they do not have a valid driver’s license were not presented with the option to be the driver of a vehicle.

- **Inclusion of a question about vehicle availability for a trip.** Household members who reported trips using a mode other than a car were asked about vehicle availability for the applicable trip. To ensure the relevance of the question, the question was only asked of those who indicated that they own/lease a vehicle and have a driver’s license.

- **Identifying the last trip of the day.** The pilot study revealed that some respondents had trouble finding the correct way to identify their last trip of the day. Based on this observation, the option that indicated no more trips were made that day was moved to a separate box so it would stand out. Emphasising this code on the screen minimised the problem.

- **Adjustment of example trip start/end times to encourage precise time collection.** Specific start/end times of a trip and the duration of a trip are both key information components collected by this survey. Hence, it was critical that trip start/end times were recorded as precisely as possible. A more specific illustration of how to record trip start/end times on the example survey form helped to improve the accuracy of the data collected.
Phase 2: Recruiting and Data Collection
6. Introduction to Recruiting and Data Collection

This section details the outcomes of the Recruiting and Data Collection phase of the 2011 Metro Vancouver Regional Trip Diary Survey. Details of the Study Design phase can be found in the Phase 1 section of this report while details of the Data Processing and Verification phase are covered in the Phase 3 section of this report. The Recruiting and Data Collection phase involved recruiting survey participants, collecting completed surveys, handling respondent inquiries, and monitoring data collection and response rates in order to ensure all quotas were on target and to address any issues that arose with respondents.

The recruiting of households began with a pre-notification letter, which invited recipients to self-register online, and was followed up, where telephone numbers were available, with telephone recruitment calls. Surveys were mainly completed online; however, the option to complete a paper version of the survey was offered when appropriate. The details of these processes, as well as survey completion rates by key variables, are outlined in Section 7. Recruiting Processes and Response Rates.

The following table summarises the key dates for recruiting and data collection:

**Exhibit 6.1: Summary of Key Recruiting & Data Collection Dates**

<table>
<thead>
<tr>
<th>Task</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-notification letters mailed (see Appendix A for letters)</td>
<td>September 7 to November 25*</td>
</tr>
<tr>
<td>Online registration open (see Appendix A for online survey)</td>
<td>September 7 to December 7</td>
</tr>
<tr>
<td>Telephone recruitment (see Appendix A for telephone recruitment questionnaire)</td>
<td>September 15 to December 4</td>
</tr>
<tr>
<td>Trip diary dates</td>
<td>September 15 to December 12</td>
</tr>
<tr>
<td>Planned telephone recruitment hiatus</td>
<td>November 16 to November 29</td>
</tr>
</tbody>
</table>

*Pre-notification letters were mailed in 6 flights. See Exhibit 7.1 for more details regarding the flight schedule and corresponding telephone recruitment periods.*

In addition to detailing the specific processes involved in recruiting and data collection, the quality control procedures that were followed throughout this phase can be found in Section 8. Quality Control and the processes for fielding respondent inquiries can be found in Section 9. Respondent Inquiries. Finally, the major decisions and changes made during the Study Design phase which most directly affected the recruiting and data collection phase are listed in Section 5. Summary of Major Decisions.

Included in Appendix A are copies of the key documents used during the recruiting and data collection phase. These include the two versions of the pre-notification letter, the telephone recruitment questionnaire and the online survey. The mail-back survey package documents and the translated mail-back survey package documents can also be found in Appendix A.
7. Recruiting Processes and Response Rates

Overview of Recruiting Processes

The recruiting of survey participants involved a multi-step approach. All selected households were sent a pre-notification letter which explained the nature of the study and requested their participation. The letter included a link to the online survey and a unique ID number and entry code. All households were invited to go directly online to register themselves for the survey. Those with listed landlines were also recruited by telephone. Although this was mainly an online survey, households without Internet access, or those that indicated that they would prefer not to complete an online survey, were offered the option to complete a paper version of the survey. To ensure a high response rate with good quality responses, a dedicated email address and toll-free helpline were set up to field queries. Follow-up calls were made to offer possible assistance to those households who requested a Chinese or Punjabi version of the paper survey. Households that completed the survey were sent a $10 coffee card as a thank-you for their participation.

Pre-Notification Letter

A total of 124,553 pre-notification letters were mailed to a regionally stratified sample of households in the Metro Vancouver/Fraser Valley region. The letters were mailed on a staggered flight schedule to ensure that the letter was top-of-mind when follow up recruitment phone calls were made. The first flight was mailed on September 7, 2011, and the final (sixth) flight was mailed on November 25, 2011.

Two versions of the pre-notification letter were designed – one for households with listed landlines (sent to 91,617 households [74%]), the other for those without listed landlines (sent to 32,936 households [26%]). Both versions asked households to register for the survey online. The version for households with listed landlines explained that if they opted not to register online they would receive a phone call asking for their participation. Households with listed landlines were contacted by telephone approximately one week after the letters were mailed, to further encourage participation. Telephone recruitment began on September 15 and continued over a thirteen-week period until December 4. Recruitment was not conducted on the two public holidays that fell within that period, namely October 11 (Thanksgiving Day) and November 11 (Remembrance Day).

There was also a planned telephone recruiting hiatus between November 16 and November 29, to allow Ipsos and TransLink the necessary time to review the survey return rate for each sub-region. The hiatus also allowed Ipsos to receive most of the mail-back surveys, which generally took up to two weeks, and to ensure that the final flight of recruitment letters targeted only the sub-regions that were still below quota. Please see Exhibit 7.1 for the pre-notification letter mailing schedule and the corresponding telephone recruitment periods. Please see Appendix A for a sample of the pre-notification letters.

Exhibit 7.1 details the flight schedule for mailing of the pre-notification letters. Since the first three flights resulted in higher than expected recruitment levels, Ipsos gradually reduced the volume of each subsequent flight to ensure that survey quotas by sub-region were met but not exceeded. Flights 5 and 6 specifically targeted those sub-regions which were below quota.
Exhibit 7.1: Flight & Recruitment Schedule

<table>
<thead>
<tr>
<th>Flight</th>
<th>Pre-notification Letters Sent On:</th>
<th># of Letters Sent</th>
<th>Telephone Recruitment Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flight 1</td>
<td>Wed, September 7</td>
<td>32,499</td>
<td>Sep 15 to Sep 29</td>
</tr>
<tr>
<td>Flight 2</td>
<td>Thurs, September 22</td>
<td>33,036</td>
<td>Sep 30 to Oct 9</td>
</tr>
<tr>
<td>Flight 3</td>
<td>Mon, October 3</td>
<td>33,035</td>
<td>Oct 11 to Oct 23*</td>
</tr>
<tr>
<td>Flight 4</td>
<td>Fri, October 14</td>
<td>17,968</td>
<td>Oct 24 to Nov 3</td>
</tr>
<tr>
<td>Flight 5</td>
<td>Wed, November 2</td>
<td>6,819</td>
<td>Nov 8 to Nov 15*</td>
</tr>
<tr>
<td>Flight 6</td>
<td>Fri, November 25</td>
<td>1,196</td>
<td>Nov 30 to Dec 4</td>
</tr>
</tbody>
</table>

*Telephone recruitment did not take place on October 10 (Thanksgiving Day) or November 11 (Remembrance Day).

Response Rates

To review, 124,553 households were sent a pre-notification letter. Of those, 21,017 self-registered online (6,596 households that did not have a listed landline and 14,421 households that did have a listed landline). A total of 82,883 households with listed landlines received a telephone recruitment call (8,457 households with listed landlines were not contacted because regional quotas had been met and 277 were not contacted because they had called into Ipsos’ 1-800 helpline to register). Up to four attempts were made to reach each of these households by phone, with callbacks staggered across different days and times to maximise the chances of reaching someone in the household. On the fourth attempt, a voicemail message was left reminding the household about the study and encouraging them to participate. The overall successful contact rate was 70% (or 58,346 of the 82,883 households were reached).

In total, 31,978 households were recruited for the survey: 21,017 (66%) by self-registering online, 10,406 (33%) by telephone and 555 (2%) via our helpline. Exhibit 7.2 details the outcomes of various recruiting methods. Online recruitment and survey completion was the most popular method and had the highest completion rate (i.e. those that registered online were the most likely to complete the survey). Overall, 22,848 (71%) households that registered completed the survey.

Exhibit 7.2: Completion Rate by Recruiting Methods

<table>
<thead>
<tr>
<th>Recruiting Method</th>
<th># Recruited/Self-Registered*</th>
<th># Completed the Diary</th>
<th>Completion Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online</td>
<td>21,017</td>
<td>16,085</td>
<td>77%</td>
</tr>
<tr>
<td>Telephone</td>
<td>10,406</td>
<td>6,451</td>
<td>62%</td>
</tr>
<tr>
<td>Helpline</td>
<td>555</td>
<td>312</td>
<td>56%</td>
</tr>
<tr>
<td>Total</td>
<td>31,978</td>
<td>22,848</td>
<td>71%</td>
</tr>
</tbody>
</table>

Exhibit 7.3 details the telephone recruitment outcomes for each flight. With the exception of Flight 1, recruitment rates ranged from 11% to 13% and completion rates ranged from 4.6% to 6.6%. Flight 1 had above-average recruitment and completion rates, likely due to several factors, including:

- TransLink’s announcements about the survey were published just prior to the beginning of the survey and likely had some effect on households’ willingness to participate.
- The first flight was sent in early September 2011 when households’ fall schedules are not yet in full swing and hence, households may have been more prepared to participate in the survey.
Exhibit 7.3: Telephone Recruitment Contacts

<table>
<thead>
<tr>
<th>Flight</th>
<th># Contacted</th>
<th>Recruitment Rate (%)</th>
<th>Completion Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flight 1</td>
<td>19,982</td>
<td>16%</td>
<td>9.1%</td>
</tr>
<tr>
<td>Flight 2</td>
<td>23,035</td>
<td>13%</td>
<td>6.6%</td>
</tr>
<tr>
<td>Flight 3</td>
<td>22,996</td>
<td>12%</td>
<td>5.3%</td>
</tr>
<tr>
<td>Flight 4</td>
<td>11,627</td>
<td>11%</td>
<td>4.7%</td>
</tr>
<tr>
<td>Flight 5</td>
<td>4,630</td>
<td>11%</td>
<td>4.6%</td>
</tr>
<tr>
<td>Flight 6</td>
<td>613</td>
<td>11%</td>
<td>5.7%</td>
</tr>
<tr>
<td>Total</td>
<td>82,883</td>
<td>13%</td>
<td>6.5%</td>
</tr>
</tbody>
</table>

Of the 82,883 households called:
- 10,683 (12.9%) agreed to participate and completed the household portion over the phone⁴;
- 14,963 (18.1%) were left a voicemail message after the fourth call attempt;
- 26,396 (31.7%) refused;
- 2,614 (3.2%) were disqualified;
- 3,690 (8.1%) were terminated for other reasons (Head of household not available, already registered online, etc.); and
- 24,537 (29.6%) were unsuccessful contacts (No answer, fax number, etc.)

Exhibit 7.4: Reasons for Terminations Among Telephone Recruitment Contacts

<table>
<thead>
<tr>
<th>Terminated Reason</th>
<th>Total Terminated</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Terminated</strong></td>
<td>32,700</td>
<td>39.5%</td>
</tr>
<tr>
<td><strong>Total Refused</strong></td>
<td>26,396</td>
<td>31.7%</td>
</tr>
<tr>
<td>Respondent refusal (general)</td>
<td>12,453</td>
<td>15.0%</td>
</tr>
<tr>
<td>Household does not accept solicitation calls</td>
<td>12,361</td>
<td>14.9%</td>
</tr>
<tr>
<td>Respondent is ill/incapable</td>
<td>672</td>
<td>0.8%</td>
</tr>
<tr>
<td>Registration partially completed</td>
<td>260</td>
<td>0.3%</td>
</tr>
<tr>
<td>Refused to provide email address and/or refused paper version of survey</td>
<td>410</td>
<td>0.5%</td>
</tr>
<tr>
<td>Refused all three suggested diary dates</td>
<td>199</td>
<td>0.2%</td>
</tr>
<tr>
<td>Refused to provide number of people living in the household</td>
<td>41</td>
<td>0.0%</td>
</tr>
<tr>
<td><strong>Total Disqualified</strong></td>
<td>2,614</td>
<td>3.2%</td>
</tr>
<tr>
<td>Language barrier</td>
<td>2,382</td>
<td>2.9%</td>
</tr>
<tr>
<td>Quota full (i.e.: sub-region quota is full)</td>
<td>182</td>
<td>0.2%</td>
</tr>
<tr>
<td>Address is different from address on file</td>
<td>50</td>
<td>0.1%</td>
</tr>
<tr>
<td><strong>Other Reasons for Termination</strong></td>
<td>3,690</td>
<td>8.1%</td>
</tr>
<tr>
<td>Head of household is not available</td>
<td>2,063</td>
<td>2.5%</td>
</tr>
<tr>
<td>Already signed up/did survey online</td>
<td>1,313</td>
<td>1.6%</td>
</tr>
<tr>
<td>Prefers to complete online registration themselves</td>
<td>314</td>
<td>0.4%</td>
</tr>
</tbody>
</table>

⁴ Ipsos refrained from making recruitment phone calls to households that had already registered online. Of the 10,683 phone recruited households, 277 indicated they had previously registered online. An email was later sent to those households to confirm their correct trip diary date, to avoid any confusion or duplication.

⁵ Follow-up calls were not made to these households once it had been confirmed that the quota for their sub-region had been reached.
Of the 10,683 households that were recruited over the phone, 1,957 (18%) indicated that they did not have Internet access and opted for a mail-back paper survey.

Exhibits 7.5 to 7.8 detail survey rates by key variables. Exhibit 7.9 summarises the targets and return rates for each sub-region and Exhibit 7.10 is a map of the sub-regions. Please note that all counts for completed surveys and completion rates shown are prior to data cleaning. Final survey counts can be found in Exhibit 16.1.

Exhibit 7.5 details survey registration and completion by sample type. Households with listed landlines and households without listed landlines had similar completion rates, with 17,727 (71%) and 5,121 (74%), completed surveys respectively. The recruitment rate (% recruited based on pre-notification letters sent) is shown in the top half of this table.

**Exhibit 7.5: Recruited Households by Sample Type & Returned Surveys by Sample Type**

<table>
<thead>
<tr>
<th>Sample</th>
<th>Pre-Notification Letters Sent</th>
<th>Recruited/Self-Registered</th>
<th>Registration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listed</td>
<td>91,617</td>
<td>25,104</td>
<td>27%</td>
</tr>
<tr>
<td>Unlisted</td>
<td>32,936</td>
<td>6,874</td>
<td>21%</td>
</tr>
<tr>
<td>Total</td>
<td>124,553</td>
<td>31,978</td>
<td>26%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample</th>
<th>Recruited/Self-Registered</th>
<th>Completed</th>
<th>Completion Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listed</td>
<td>25,104</td>
<td>17,727</td>
<td>71%</td>
</tr>
<tr>
<td>Unlisted</td>
<td>6,874</td>
<td>5,121</td>
<td>74%</td>
</tr>
<tr>
<td>Total</td>
<td>31,978</td>
<td>22,848</td>
<td>71%</td>
</tr>
</tbody>
</table>

Exhibit 7.6 details the number of recruited/self-registered households and completed surveys by completion method (online or paper). Online was clearly the preferred method of participation and resulted in a significantly higher completion rate (i.e. households that participated online were almost twice as likely to complete the survey as those who requested a paper survey).

**Exhibit 7.6: Returned Surveys by Methodology**

<table>
<thead>
<tr>
<th>Method</th>
<th>Recruited/Self-Registered</th>
<th>Completed</th>
<th>Completion Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online</td>
<td>29,466</td>
<td>21,754</td>
<td>74%</td>
</tr>
<tr>
<td>Paper</td>
<td>2,512</td>
<td>1,094</td>
<td>44%</td>
</tr>
<tr>
<td>Total</td>
<td>31,978</td>
<td>22,848</td>
<td>71%</td>
</tr>
</tbody>
</table>

Exhibit 7.7 details the number of recruited/self-registered households and completed surveys by household size. The completion rate decreased as household size increased, likely due to the increased effort and time required for survey participation for larger households.
## Exhibit 7.7: Returned Surveys by Household Size (Among Household Members 5 and Older)

<table>
<thead>
<tr>
<th>Household Size</th>
<th>Recruited/Self-Registered</th>
<th>Completed</th>
<th>Completion Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6,544</td>
<td>5,203</td>
<td>80%</td>
</tr>
<tr>
<td>2</td>
<td>12,180</td>
<td>9,383</td>
<td>77%</td>
</tr>
<tr>
<td>3</td>
<td>5,069</td>
<td>3,653</td>
<td>72%</td>
</tr>
<tr>
<td>4</td>
<td>4,596</td>
<td>3,104</td>
<td>68%</td>
</tr>
<tr>
<td>5+</td>
<td>2,548</td>
<td>1,463</td>
<td>57%</td>
</tr>
<tr>
<td>Unknown</td>
<td>1,041</td>
<td>42</td>
<td>4%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>31,978</strong></td>
<td><strong>22,848</strong></td>
<td><strong>71%</strong></td>
</tr>
</tbody>
</table>

Exhibit 7.8 shows that recruited/self-registered households completing the survey primarily chose to participate in English (22,736 [over 99%]). Survey completion rates are highest among those that completed the survey in English (71%), lower among those who chose to do the survey in Chinese (64%) and even lower among those who chose to do the survey in Punjabi (33%). The negligible number of Punjabi surveys requested suggests that the benefits of producing Punjabi surveys are marginal.

## Exhibit 7.8: Returned Surveys by Survey Language

<table>
<thead>
<tr>
<th>Sample</th>
<th>Recruited/Self-Registered</th>
<th>Completed</th>
<th>Survey Completion Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>31,800</td>
<td>22,736</td>
<td>71%</td>
</tr>
<tr>
<td>Chinese</td>
<td>169</td>
<td>109</td>
<td>64%</td>
</tr>
<tr>
<td>Punjabi</td>
<td>9</td>
<td>3</td>
<td>33%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>31,978</strong></td>
<td><strong>22,848</strong></td>
<td><strong>71%</strong></td>
</tr>
</tbody>
</table>

Exhibit 7.9 details sample targets and survey participation by the 52 sampling sub-regions. In addition, the exhibit highlights the sub-regions which were oversampled (in teal). The last three columns of the table show the actual number of completed surveys in each sub-region, the completion rate achieved in each sub-region (the number of completed surveys divided by the number of recruited/self-registered households) and the success rate of meeting each completion target (expressed as a + / - percentage from the target).

Overall, the number of completed surveys exceeded the regional target by 10% and sub-regional targets have been reached or exceeded in 49 of the 52 sub-regions. Please see Exhibit 7.10 for a map of the sub-regions.
Exhibit 7.9: Targets and Returned Surveys by Sub-Region

<table>
<thead>
<tr>
<th>Sub-Region</th>
<th>Base Target</th>
<th>Oversample Target</th>
<th>Recruited/Self-Registered</th>
<th>Completed</th>
<th>Completion Rate</th>
<th>% Points Above/Below Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Vancouver</td>
<td>325</td>
<td></td>
<td>509</td>
<td>371</td>
<td>73%</td>
<td>+14%</td>
</tr>
<tr>
<td>Lion's Bay</td>
<td>10</td>
<td></td>
<td>28</td>
<td>13</td>
<td>46%</td>
<td>+30%</td>
</tr>
<tr>
<td>Bowen Island</td>
<td>27</td>
<td></td>
<td>48</td>
<td>22</td>
<td>46%</td>
<td>-19%</td>
</tr>
<tr>
<td>North Vancouver District</td>
<td>564</td>
<td></td>
<td>919</td>
<td>661</td>
<td>72%</td>
<td>+17%</td>
</tr>
<tr>
<td>North Vancouver City</td>
<td>423</td>
<td>523</td>
<td>718</td>
<td>532</td>
<td>74%</td>
<td>+2%</td>
</tr>
<tr>
<td>CBD - West End 1</td>
<td>637</td>
<td>837</td>
<td>1162</td>
<td>898</td>
<td>77%</td>
<td>+7%</td>
</tr>
<tr>
<td>CBD - False Creek 2</td>
<td>434</td>
<td>634</td>
<td>873</td>
<td>666</td>
<td>76%</td>
<td>+5%</td>
</tr>
<tr>
<td>UEL</td>
<td>123</td>
<td></td>
<td>173</td>
<td>132</td>
<td>76%</td>
<td>+7%</td>
</tr>
<tr>
<td>Vancouver Broadway 3</td>
<td>519</td>
<td>719</td>
<td>967</td>
<td>747</td>
<td>77%</td>
<td>+4%</td>
</tr>
<tr>
<td>Vancouver South 4</td>
<td>616</td>
<td>816</td>
<td>1141</td>
<td>844</td>
<td>74%</td>
<td>+3%</td>
</tr>
<tr>
<td>Vancouver Kerrisdale 5</td>
<td>418</td>
<td>618</td>
<td>852</td>
<td>637</td>
<td>75%</td>
<td>+3%</td>
</tr>
<tr>
<td>Vancouver Kitsilano 6</td>
<td>599</td>
<td>799</td>
<td>1158</td>
<td>891</td>
<td>77%</td>
<td>+12%</td>
</tr>
<tr>
<td>Vancouver SE 7</td>
<td>574</td>
<td>774</td>
<td>1151</td>
<td>819</td>
<td>71%</td>
<td>+6%</td>
</tr>
<tr>
<td>Vancouver East 8</td>
<td>706</td>
<td>906</td>
<td>1327</td>
<td>952</td>
<td>72%</td>
<td>+5%</td>
</tr>
<tr>
<td>Vancouver Port 9</td>
<td>425</td>
<td>625</td>
<td>902</td>
<td>685</td>
<td>76%</td>
<td>+10%</td>
</tr>
<tr>
<td>Burnaby North</td>
<td>365</td>
<td></td>
<td>562</td>
<td>411</td>
<td>73%</td>
<td>+13%</td>
</tr>
<tr>
<td>Burnaby Metrotown</td>
<td>479</td>
<td></td>
<td>721</td>
<td>536</td>
<td>74%</td>
<td>+12%</td>
</tr>
<tr>
<td>Burnaby South Central</td>
<td>431</td>
<td></td>
<td>703</td>
<td>479</td>
<td>68%</td>
<td>+11%</td>
</tr>
<tr>
<td>Burnaby NE</td>
<td>291</td>
<td></td>
<td>441</td>
<td>329</td>
<td>75%</td>
<td>+13%</td>
</tr>
<tr>
<td>New Westminster</td>
<td>548</td>
<td></td>
<td>935</td>
<td>705</td>
<td>75%</td>
<td>+29%</td>
</tr>
<tr>
<td>Port Moody</td>
<td>228</td>
<td></td>
<td>413</td>
<td>303</td>
<td>73%</td>
<td>+33%</td>
</tr>
<tr>
<td>Belcarra</td>
<td>5</td>
<td></td>
<td>6</td>
<td>4</td>
<td>67%</td>
<td>-20%</td>
</tr>
<tr>
<td>Anmore</td>
<td>12</td>
<td></td>
<td>27</td>
<td>18</td>
<td>67%</td>
<td>+50%</td>
</tr>
<tr>
<td>Coquitlam Centre</td>
<td>87</td>
<td>192</td>
<td>262</td>
<td>214</td>
<td>82%</td>
<td>+11%</td>
</tr>
<tr>
<td>Coquitlam North (ex. Ctr)</td>
<td>247</td>
<td></td>
<td>351</td>
<td>259</td>
<td>74%</td>
<td>+5%</td>
</tr>
<tr>
<td>Burquitlam</td>
<td>160</td>
<td>355</td>
<td>529</td>
<td>371</td>
<td>70%</td>
<td>+5%</td>
</tr>
<tr>
<td>Coquitlam South (ex. Burquitlam)</td>
<td>358</td>
<td></td>
<td>512</td>
<td>385</td>
<td>75%</td>
<td>+8%</td>
</tr>
<tr>
<td>Port Coquitlam</td>
<td>370</td>
<td></td>
<td>619</td>
<td>458</td>
<td>74%</td>
<td>+24%</td>
</tr>
<tr>
<td>Pitt Meadows</td>
<td>126</td>
<td></td>
<td>259</td>
<td>173</td>
<td>67%</td>
<td>+37%</td>
</tr>
<tr>
<td>Maple Ridge</td>
<td>507</td>
<td></td>
<td>780</td>
<td>535</td>
<td>69%</td>
<td>+6%</td>
</tr>
<tr>
<td>Richmond Sea Island - East</td>
<td>284</td>
<td></td>
<td>470</td>
<td>326</td>
<td>69%</td>
<td>+15%</td>
</tr>
<tr>
<td>Richmond Centre</td>
<td>492</td>
<td></td>
<td>733</td>
<td>548</td>
<td>75%</td>
<td>+11%</td>
</tr>
<tr>
<td>Richmond South - Steveston</td>
<td>469</td>
<td></td>
<td>824</td>
<td>619</td>
<td>75%</td>
<td>+32%</td>
</tr>
<tr>
<td>Tsawwassen First Nation</td>
<td>5</td>
<td></td>
<td>7</td>
<td>4</td>
<td>57%</td>
<td>-20%</td>
</tr>
<tr>
<td>Delta - Ladner / Tsawwassen</td>
<td>327</td>
<td></td>
<td>463</td>
<td>331</td>
<td>71%</td>
<td>+1%</td>
</tr>
<tr>
<td>Delta North</td>
<td>306</td>
<td></td>
<td>502</td>
<td>335</td>
<td>67%</td>
<td>+9%</td>
</tr>
<tr>
<td>Surrey Centre</td>
<td>574</td>
<td></td>
<td>921</td>
<td>588</td>
<td>64%</td>
<td>+2%</td>
</tr>
</tbody>
</table>

continued...
<table>
<thead>
<tr>
<th>Sub-Region</th>
<th>Base</th>
<th>Oversample</th>
<th>Recruited/Self-Registered</th>
<th>Completed</th>
<th>Completion Rate</th>
<th>% Points Above/Below Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surrey Fleetwood</td>
<td>540</td>
<td>583</td>
<td>851</td>
<td>601</td>
<td>71%</td>
<td>+3%</td>
</tr>
<tr>
<td>Surrey Newton</td>
<td>457</td>
<td>784</td>
<td>469</td>
<td>60%</td>
<td>60%</td>
<td>+3%</td>
</tr>
<tr>
<td>Surrey Panorama</td>
<td>305</td>
<td>496</td>
<td>322</td>
<td>65%</td>
<td>65%</td>
<td>+6%</td>
</tr>
<tr>
<td><strong>Surrey Cloverdale</strong></td>
<td>383</td>
<td>839</td>
<td>551</td>
<td>66%</td>
<td>+2%</td>
<td></td>
</tr>
<tr>
<td>Surrey South</td>
<td>504</td>
<td>704</td>
<td>1088</td>
<td>781</td>
<td>72%</td>
<td>+11%</td>
</tr>
<tr>
<td>White Rock</td>
<td>185</td>
<td>258</td>
<td>186</td>
<td>72%</td>
<td>72%</td>
<td>0%</td>
</tr>
<tr>
<td>Langley City</td>
<td>214</td>
<td>323</td>
<td>233</td>
<td>72%</td>
<td>+9%</td>
<td></td>
</tr>
<tr>
<td>Langley Township - South</td>
<td>372</td>
<td>586</td>
<td>416</td>
<td>71%</td>
<td>+12%</td>
<td></td>
</tr>
<tr>
<td>Langley Township - North</td>
<td>310</td>
<td>564</td>
<td>396</td>
<td>70%</td>
<td>+28%</td>
<td></td>
</tr>
<tr>
<td>FVRD Abbotsford West</td>
<td>537</td>
<td>943</td>
<td>592</td>
<td>63%</td>
<td>+10%</td>
<td></td>
</tr>
<tr>
<td>FVRD Abbotsford East</td>
<td>322</td>
<td>528</td>
<td>364</td>
<td>69%</td>
<td>+13%</td>
<td></td>
</tr>
<tr>
<td>FVRD Chilliwack</td>
<td>550</td>
<td>941</td>
<td>637</td>
<td>68%</td>
<td>+16%</td>
<td></td>
</tr>
<tr>
<td>FVRD Cultus Lake / Hope</td>
<td>108</td>
<td>188</td>
<td>125</td>
<td>66%</td>
<td>+16%</td>
<td></td>
</tr>
<tr>
<td>FVRD Mission</td>
<td>239</td>
<td>430</td>
<td>263</td>
<td>61%</td>
<td>+10%</td>
<td></td>
</tr>
<tr>
<td>FVRD Harrison</td>
<td>107</td>
<td>191</td>
<td>111</td>
<td>58%</td>
<td>+4%</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>18,200</strong></td>
<td><strong>20804</strong></td>
<td><strong>31978</strong></td>
<td><strong>22848</strong></td>
<td><strong>71%</strong></td>
<td><strong>+10%</strong></td>
</tr>
</tbody>
</table>

**Oversampled sub-region**

Exhibit 7.10: Map of Sub-Regions
8. Quality Control

Telephone recruiting was subcontracted to and conducted by Opinion Search from its Ottawa and Montreal offices. Prior to telephone recruitment, the Ipsos project manager gave all recruiters a complete briefing during which the objectives of the research were discussed, the survey was reviewed and a read-through of the script was conducted.

In addition to being monitored by Opinion Search supervisors throughout every shift, telephone recruiters were monitored by the Ipsos project manager at the beginning of each recruitment flight.

Follow-up calls were made to those households who requested a Chinese or Punjabi version of the survey to offer assistance with survey completion. Households that completed the survey with missing or contradicting information were contacted for clarification. Further details on the process of following up with those households is provided in the Data Processing and Verification section of this report.

Throughout the data collection phase, Ipsos monitored regional quotas and ran preliminary analysis to ensure the following:

- that there was no response bias towards transit riders
- that trip rates were in line with other trip diary studies
- that there was no response bias towards single-person households

For a full summary of specific quality control protocols, please refer to Telephone Recruitment and Online and Paper Trip Surveys in Section 3, Study Instruments.
9. Respondent Inquiries

Inquiries were handled by Ipsos staff from its Vancouver office. Respondents were provided with 1-800 telephone and email helplines, which were staffed Monday to Friday from 9am to 9pm, September 12 to December 16. The nature of the calls and emails received can be categorised into six main groups:

1. Respondents who required assistance
2. Respondents with questions or requesting clarification
3. Respondents requesting paper surveys
4. Respondents inquiring about incentives
5. Respondents with suggestions and/or complains
6. Other inquiries

For a complete list of the types and nature of inquiries fielded via the 1-800 helpline and email helpline, please see Appendix B.
Phase 3: Data Processing and Verification
10. **Introduction to Data Processing and Verification**

This section details the outcomes of the Data Processing and Verification phase of the 2011 Metro Vancouver Regional Trip Diary Survey. Details of the Study Design and Recruiting and Data Collection phases can be found in the respective sections of this report.

The Data Processing and Verification section of this report details information about data entry, data cleaning, geocoding, data expansion and weighting. Given that most of the surveys were completed online, with only a small proportion completed on paper, this report also documents, where applicable, the slight differences in our approach to verifying and cleaning online versus paper surveys.

To provide the reader with a sense of the scope of the Data Processing and Verification, this section of the report also includes counts of returned and retained surveys.
11. Overview of the Data Processing and Verification Processes

As completed surveys were received, they were checked to ensure that the information was accurate and that regional survey totals were reflective of actual population distributions. Exhibit 11.1 depicts the general data processing and verification process followed during the Data Processing and Verification phases of the study.

Exhibit 11.1: General Process for Data Processing and Verification
12. **Survey Returns and Data Entry**

As mentioned previously, recruited households were provided with two options by which to participate in this study – completing the survey online or completing the survey on paper and mailing it back to Ipsos for processing.

Households that chose to complete the online survey entered their data into a custom-developed online interface (for more information, please refer to Section 3, Study Instruments). The online interface contained built-in logic checks to ensure the data being entered by a given household made sense and corresponded with previously entered information.

Households that chose to complete the paper questionnaire mailed their completed surveys back to Ipsos for verification and processing. As the paper surveys were received, they were date stamped and manually reviewed for completeness and logic. Households that submitted a paper survey with illogical, unclear or missing information were called back immediately by Ipsos project staff to clarify or complete the information.

The information from the paper surveys was entered into the central database by Ipsos project staff using the same online interface that was used by respondents who completed the survey online. This ensured that the application of logic checks was consistent across all surveys regardless of completion method.

All surveys received up to and on December 15\(^{th}\), 2011 (the official cut-off date for survey returns), were processed and included in the final dataset.

*Note:* Those households that chose to do the survey in Chinese or Punjabi were sent translated survey packages in their preferred language. Ipsos staff followed up with those households via telephone to offer assistance with completing the survey. Once received, those surveys were date stamped and manually reviewed by a multilingual Ipsos project staff member before being entered into the database via the online interface.
13. Preliminary Data Verification

As part of the quality control process, TransLink ran some preliminary data analysis part way through the data collection phase. These analyses were conducted in order to ensure that parameters such as transit usage, household size and participation rates by age and gender were consistent with the known statistics/distributions for the region. One of the key metrics that TransLink wanted to review was the trip rate, as well as the proportion of households and persons that did not record any trips on their trip diary date. During this preliminary analysis TransLink identified two key findings:

1. The proportion of *households* in which no-one recorded any trips (referred to as “zero-trip households”) and the proportion of *people* who did not record any trips were both higher than expected; and
2. The proportion of school trips was lower than expected (i.e.: about 18% of school-aged children did not record school trips).

Several hypotheses were considered as possible reasons for these preliminary findings:

- Households misunderstood the survey and mistakenly said that they made no trips.
- Households were trying to get the $10 coffee card incentive with minimal effort by recording “no trips” for all household members on their trip diary date.
- Parents were uncomfortable providing information about their children’s commuting behaviour because of security concerns.
- Parents were unaware that short walking trips (such as walking to school and back home) constituted valid trips that should be accounted for in the study.

To address the issues of zero-trip households/people and a low school-related trip rate, Ipsos and TransLink took the following action:

1. Follow-up emails were sent to households that had recorded zero trips or that had school-aged children but had not recorded any school trips for those children on their trip diary date. (Please refer to Appendix B for copies of these email scripts.)
2. A prompt was added to the online survey for school-aged full-time students to remind them to record their school trips, even if it was a short walking trip or a short commute.

A total of 1,239 emails were sent to households that did not make any trips on their assigned trip diary date. In the email, households were asked to confirm: (1) that no one in the household made any trips on their trip diary date; (2) the reason(s) for not making any trips, OR if they did indeed make trips on their trip diary day; (3) why they did not report the trips they made.

Exhibit 13.1 summarises the email responses received from zero-trip households.
Exhibit 13.1: Summary of Follow-Up Emails Sent To Zero-Trip Households

<table>
<thead>
<tr>
<th>Summary of Outcomes</th>
<th>#</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Emails Sent</td>
<td>1239</td>
<td>n/a</td>
</tr>
<tr>
<td>Responses Received</td>
<td>474</td>
<td>38%</td>
</tr>
<tr>
<td>Households that did make trips, but did not record them</td>
<td>35</td>
<td>3%</td>
</tr>
<tr>
<td>Households that confirmed NO trips were made</td>
<td>380</td>
<td>31%</td>
</tr>
<tr>
<td>Blank or Unclear Response</td>
<td>59</td>
<td>5%</td>
</tr>
<tr>
<td>No Response Received</td>
<td>765</td>
<td>62%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reasons Given for Not Reporting Trips</th>
<th>#</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simply forgot to fill in that part of the survey</td>
<td>19</td>
<td>2%</td>
</tr>
<tr>
<td>Survey too difficult/complicated</td>
<td>8</td>
<td>1%</td>
</tr>
<tr>
<td>Not comfortable reporting travel habits in a survey</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Not specified</td>
<td>9</td>
<td>1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reasons Given for Not Making Trips on Trip Diary Date</th>
<th>#</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worked from home</td>
<td>97</td>
<td>8%</td>
</tr>
<tr>
<td>Out-of-town/travelling</td>
<td>59</td>
<td>5%</td>
</tr>
<tr>
<td>Sick/ill</td>
<td>50</td>
<td>4%</td>
</tr>
<tr>
<td>Home-bound/elderly/disabled</td>
<td>45</td>
<td>4%</td>
</tr>
<tr>
<td>No need to travel/no reason in particular</td>
<td>39</td>
<td>3%</td>
</tr>
<tr>
<td>Retired/seniors and no reason to travel</td>
<td>38</td>
<td>3%</td>
</tr>
<tr>
<td>Day off/not working/on leave/vacation/holiday</td>
<td>38</td>
<td>3%</td>
</tr>
<tr>
<td>School holiday/professional day</td>
<td>7</td>
<td>1%</td>
</tr>
<tr>
<td>Bad weather</td>
<td>2</td>
<td>0%</td>
</tr>
<tr>
<td>Other reason/not specified</td>
<td>7</td>
<td>1%</td>
</tr>
</tbody>
</table>

A total of 1,158 emails were sent to households with school-aged children (17 and under) that did not record any school trips on their assigned trip diary date. Of the 1,158 follow-up emails sent, 545 households responded (47%) and 227 households (19%) confirmed that their children did go to school, but they did not record the trip(s) in the diary. The school trip information collected from the follow-up email was entered into each household’s survey by Ipsos project staff.

The following table summarises the email responses received from households with school-aged children that did not report any school trips on their trip diary date.

Exhibit 13.2: Summary of Follow-Up Emails Sent To Households With School-aged Children Who Did Not Report School Trips

<table>
<thead>
<tr>
<th>School Attendance Emails</th>
<th>#</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Emails Sent</td>
<td>1,158</td>
<td>n/a</td>
</tr>
<tr>
<td>Responses Received</td>
<td>545</td>
<td>47%</td>
</tr>
<tr>
<td>Confirmed Attended School</td>
<td>227</td>
<td>19%</td>
</tr>
<tr>
<td>Confirmed Did Not Attend School</td>
<td>318</td>
<td>27%</td>
</tr>
<tr>
<td>Did Not Respond</td>
<td>613</td>
<td>53%</td>
</tr>
</tbody>
</table>
14. Geocoding

As the online surveys were received, they were reviewed on an ongoing basis for geocoding efficiency. The geocoding process involved the assignment of latitude and longitude (X-Y coordinates) to the addresses, landmarks and intersections provided in the trip diary survey.

Primary Geocoding (Performed by Ipsos Reid)

A large majority of the geocoding was done automatically by the web-based program as respondents completed the survey, using the reported address, intersection and/or landmark.

Additional manual geocoding was conducted by Ipsos staff whenever recorded locations were not recognised by the web-based program or when partial information was missing, vague, incorrectly spelled, etc.

Initial Review of Geocoding (Performed by TransLink)

Once Ipsos completed the geocoding, the results were reviewed by TransLink and a number of issues were identified, including:

- Mismatches between the city recorded by the respondent and the automatically geocoded city.
- Inconsistencies between some respondents’ overall travel behaviour and a particular geocoded location. This type of issue usually involved establishments with multiple branches, such as major retailers, where respondents may have selected or been assigned a default predefined location which was inconsistent with their reported trip patterns (e.g. all reported trips were made within Abbotsford, except for one 3-minute trip to a Tim Hortons in Richmond).
- Conflicting location information reported. A respondent entered an address or intersection information, then changed his/her mind and re-entered a predefined location, but did not delete the information originally entered.
- Improper identification of Metro Vancouver or Fraser Valley locations. Respondents misreported locations, recording them as “outside study area” and then specifying a valid location (e.g. “Outside Study Area (please specify) – Surrey”).
- Missed trips (e.g. based on the patterns of other members of the household, it is sometimes apparent that all household members made the same trips, but only one member filled out the entire trip information).

These geocoding inconsistencies were reviewed by Ipsos and corrections were made where possible. The revised dataset was submitted to TransLink for additional review and re-geocoding as required. (Please also see Section 15. Final Stage 2 Cleaning for more details.)
Detailed Review of Geocoding (Performed by TransLink)

TransLink took ownership of the dataset at the end of May 2011, and the TransLink project team proceeded with reviewing the geocoding in greater detail (see Advanced Review and Cleaning). The focus of the detailed geocoding review was to identify and correct potential errors in geocoding through a variety of GIS processes. These processes included:

- An integrated location file was generated by combining household, employment, school, and trip locations from the household, person, and trip data. This facilitated consistent spatial revisions across all data.

- A systematic review of the consistency between reported city and geocoded city was performed. Geocoded locations that were just beyond city boundaries (particularly along border streets such as Boundary Road and North Road) were examined and were moved to the correct side of the boundary as required. Locations that were well beyond the city borders were reviewed for geocoding errors and corrections were made to either the location or the city name.

- Many trip locations were coded to the nearest intersection; in some cases these locations coincided with traffic zone boundaries. In order to facilitate trip analysis, these locations were shifted slightly in order to fall within a traffic zone.

- Trip locations within the study area were assigned to regional traffic zones and trip distances and speeds were estimated. Valid ranges for trip speed and distance were defined for each mode of transportation. Trips with values outside of these ranges were flagged for review.

- The review of trip distances and speeds indicated that a large number of the anomalies in trip distance / speed were due to a wrong start-of-day location. Generally, if the first person in a household started the day out-of-town, at work (e.g. night shift) or at some other non-home location, this start-of-day location was also assigned to the remaining members of the household. Although this was correct in some cases, more typically the other people in the household started their day at home. Affected households were reviewed and the required corrections were made.

- Other anomalies identified during the review include:
  - Probable errors in the mode identified for the trip
  - Probable errors in start or end times (e.g. sometimes the respondent entered the duration of the time they stayed at the location not the departure and arrival times of the trip)
  - Data that is probably valid but is outside of the expected trip length range due to trip-specific circumstances (e.g. someone who makes a walking trip to a new destination that includes leisure activities en-route, so the trip is unusually long in duration)

Exhibit 14.1 summarises the status of the geocoding within the cleaned dataset prior to adjusting for the anomalies identified during the Final Stage 2 Cleaning (see Section 15, Data Cleaning).
Exhibit 14.1: Summary of Number/Percent of Geocoded Locations Within the Cleaned Database

<table>
<thead>
<tr>
<th>Total Locations Recorded</th>
<th>Home Locations</th>
<th>Work Locations</th>
<th>School Locations</th>
<th>Total Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>21,851</td>
<td>29,357</td>
<td>11,136</td>
<td>190,096</td>
</tr>
<tr>
<td>Total Locations Recorded</td>
<td>21,851</td>
<td>29,357</td>
<td>11,136</td>
<td>190,096</td>
</tr>
<tr>
<td>Total Geocoded Locations</td>
<td>21,851</td>
<td>29,278</td>
<td>11,125</td>
<td>189,930</td>
</tr>
<tr>
<td>Geocoded by Ipsos; no</td>
<td>21,800</td>
<td>28,524</td>
<td>11,093</td>
<td>188,366</td>
</tr>
<tr>
<td>further adjustments</td>
<td>99.8%</td>
<td>97.2%</td>
<td>99.6%</td>
<td>99.1%</td>
</tr>
<tr>
<td>Adjustments/corrections</td>
<td>51</td>
<td>754</td>
<td>32</td>
<td>1,564</td>
</tr>
<tr>
<td>made by TransLink</td>
<td>0.2%</td>
<td>2.6%</td>
<td>0.3%</td>
<td>0.8%</td>
</tr>
<tr>
<td>Total Non-Geocoded</td>
<td>0</td>
<td>79</td>
<td>11</td>
<td>166</td>
</tr>
<tr>
<td>Locations</td>
<td>0.0%</td>
<td>0.3%</td>
<td>0.1%</td>
<td>0.1%</td>
</tr>
<tr>
<td>Not suitable for geocoding</td>
<td>0</td>
<td>57</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>0.0%</td>
<td>0.2%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Not geocoded</td>
<td>0</td>
<td>22</td>
<td>8</td>
<td>166</td>
</tr>
<tr>
<td>0.0%</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.1%</td>
</tr>
</tbody>
</table>

It should be noted that the high geocodable rate for households, work and school locations contributes to the overall high geocodable rate, since those locations were used for the majority of trip origin/destinations. Most work locations that were not geocoded include responses such as “work at various locations,” which cannot be geocoded. As indicated above, there may be some further geocoding corrections based on trip distance / speed anomalies.

15. Data Cleaning

Initial Review and Cleaning (Performed by Ipsos Reid)

Once the paper surveys were entered into the database and any manual geocoding was complete, Ipsos started the data cleaning process. In this phase, the data was examined for inconsistencies or inaccuracies and any such issues were reviewed and, if necessary, corrected. Prior to cleaning, 22,848 surveys had been received.

Ipsos divided the data cleaning into two stages: Stage 1 involved data checks and changes that had to be handled on a household-by-household basis and Stage 2 involved logic checks that could be handled in “batch mode” (i.e. cleaning all households at once) rather than on an individual household basis. Stage 1 cleaning was completed using Ipsos’ custom built data verification platform and Stage 2 cleaning was completed using the data tabulation program DASH. Furthermore, because of the size and complexity of the database, it was necessary to perform data cleaning through two iterations of the stages (i.e. have a preliminary and a final cleaning component for each stage), as follows.

Preliminary Stage 1 Cleaning: This stage involved basic cleaning such as simple time adjustments (e.g. AM versus PM), verifying trip purpose against location type, verifying trip modes against trip distance, and in some cases correction of geocodes.

A key part of this stage involved calling/following-up with households that had provided survey information which was incomplete or inconsistent. This generally applied to paper surveys that were mailed in. The reasons for these follow-up calls can be categorised into four main groups:
1. Households did not provide trip information for all household members.
2. Households provided incomplete trip information (e.g. missing address, missing start and/or end time).
3. Households provided illogical trip information (e.g. the same origin and destination, trip start time was later than arrival time).
4. Any other incomplete or inconsistent responses.

**Preliminary Stage 2 Identification:** In this stage, a list of pre-determined logic checks was run against the full dataset to identify suspect cases. Once the number of households or cases meeting each criterion was determined, the project team developed a course of action to correct each type of issue.

**Final Stage 1 Cleaning:** In this stage, the cases flagged during the preliminary Stage 2 identification were re-examined, and Ipsos and TransLink worked together to determine the final course(s) of action to correct each issue.

**Final Stage 2 Cleaning:** In this stage, Ipsos completed batch cleaning in the DASH program, according to the decisions made during Final Stage 1 Cleaning.

Ipsos worked collaboratively with TransLink to develop the logic criteria and corrections made in each cleaning stage. For a complete list of all logic criteria and the number of cases meeting each one, please refer to **Appendix C**.

Once Ipsos completed the Final Stage 2 Cleaning, TransLink reviewed the dataset to identify any further inconsistencies. The following conditions in the dataset were identified and corrected or confirmed by Ipsos:

- Some addresses still were not geocoded. A senior level Ipsos team member made a final attempt at geocoding those addresses.
- Some geocoded household locations still had discrepancies between the respondent’s stated city name and the geocoded city. Ipsos re-checked the geocoding for these household locations.
- Several big box store locations (e.g. Home Depot, Superstore) were still geocoded to a default location for the chain. Ipsos re-geocoded these landmarks to a more precise store location that was consistent with the trip pattern for the given respondent (e.g. Home Depot Vancouver instead of the default Surrey location)
- School trips were recorded for some respondents who were not school-aged students. Ipsos changed the trip purpose to drop off/pick-up for those household members who were not school-aged students when it was clear that they were not attending school (e.g. adults attending same elementary school as their children)
- Several households’ home locations were geocoded as Pacific Spirit Regional Park (the closest landmark to their homes). These geocodes were reviewed and re-geocoded with more precise street or intersection coordinates.

**After the completion of this initial cleaning, the dataset contained 22,707 surveys.**
Advanced Review and Cleaning (Performed by TransLink)

Once the initial review and cleaning were completed by Ipsos, TransLink proceeded with a more advanced review and cleaning of the data that required knowledge of travel behaviour and trends that did not fall into Ipsos’ area of expertise. Specifically, the TransLink team reviewed the geocoding (see Section 14. Geocoding) and other information collected from the survey, where the following issues were identified:

- The proportion of zero-trip persons (21.3%) was still substantially higher than the results from the 2008, 2004, and 1999 trip diary studies (14% to 17%), and higher than comparable cities in the 2009 US National Household Travel Survey (typical range of 11% to 16%).
- The proportion of school-aged children not making trips to school was still higher than expected, even after sending out the follow-up emails.
- A number of households had completed the survey on a weekend or holiday date (34 households were screened out for this reason).

Ipsos and TransLink felt that although the survey incentive program (i.e. $10 coffee card) encouraged initial participation, respondents may not have been prepared for the effort required to track and enter trip data for every person in the household, particularly in the case of larger households. In order to address this issue, the responses from zero-trip and low-trip households were reviewed in detail and suspect cases were tagged for exclusion from the dataset. Primary reasons for exclusion were:

- In the follow-up email, the household indicated that they had made trips (including school trips) but had not reported them because the survey was too complex to complete (101 households were screened out)
- Some of the persons in the household had not submitted any personal data or had indicated that they had made trips but did not report any details (57 households were screened out)
- Survey responses from households with over 5 persons and a low number of trips were reviewed individually to determine if the responses were likely incomplete (73 households were screened out)
- Surveys from 3- to 5-person households with full-time employees and/or school-aged children with zero or very low trip rates were reviewed in batches; this was undertaken in two passes with a review of criteria between passes (428 households were screened out)

Overall statistics were reviewed after this step and the proportion of zero-trip persons was still somewhat high relative to previous surveys. Hence, an additional round of review was undertaken, focusing on:

- Selecting and tagging households with 2 to 4 persons, with at least 2 full-time employees, 2 cars, and 2 drivers but zero trips recorded (66 households were screened out)
- Tagging zero-trip households that were missing key data elements such as the number of vehicles in the household, household structure, age, gender, employment status (97 households were screened out)

After the households tagged in this round of the review were excluded from the dataset, the percentages of zero-trip persons (17.5%) and households (7.5%) were in line with previous surveys. Trip rates were also consistent with expectations (i.e. an average of 2.77 trips per person per day for Metro Vancouver residents, compared to 2.55 – 3.14 trips from past diaries undertaken in the fall with values adjusted to exclude persons 4 years and younger).
In total, **856 households were screened out during the advanced review by TransLink.** Overall, as a result of all the cleaning, 997, or 4.4%, of the households were tagged and removed from the original dataset, leaving a final count of 21,851 households. (Please refer to Section 16. Final Status of Returned and Retained Trip Diary Surveys for a summary of counts.)

### Missing School Trip Adjustments (Performed by TransLink)

To address the concern that a higher than expected proportion of households did not report their children’s trips to and from school, adjustments were made concurrent to the zero-trip household adjustments discussed in the preceding section. The following school trip adjustment steps were taken:

1. Defining school-aged children as ages 17 and under
2. Identification of the school status of those school-aged children from the household section of the survey
3. Determining whether school location information was provided for those attending school full/part-time
4. Determining whether those attending school made trips to school on the assigned diary date
5. Based on the follow-up email responses during preliminary data analysis, 348 out of 815 students, or 43% (aged 17 or under, excluding home-schooled students), with an identified school actually went to school. This implied that synthetic trips should be generated for about half of the students who did not reply to the follow-up email and who reported not making any school trips.\(^6\)
6. Generating synthetic trips for about half of those who did not report any school trips but provided school location information.

---

\(^6\) Note that this is likely a conservative estimate, as TransLink’s assumption is that households that did not reply to the follow-up email likely have a higher percentage of mis-reporting than those that did reply.
The following diagram depicts the adjustment steps taken:

**Exhibit 15.1: School Trip Adjustments**
16. Final Status of Returned and Retained Trip Diary Surveys

Once all the data cleaning, trip synthesis and data exclusion was complete, a total of 21,851 surveys were retained from the original 22,848 received.

A detailed account of trip diary surveys excluded and retained is shown in Exhibit 16.1.

Exhibit 16.1: Final Status of Trip Diary Surveys Returned and Retained

<table>
<thead>
<tr>
<th></th>
<th>#</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Diary Surveys Returned</td>
<td>22,848</td>
<td>n/a</td>
</tr>
<tr>
<td>Total Diary Surveys Excluded</td>
<td>997</td>
<td>4.4%</td>
</tr>
<tr>
<td>Total diary surveys excluded after initial cleaning</td>
<td>141</td>
<td>0.6%</td>
</tr>
<tr>
<td>Total diary surveys excluded after advanced cleaning</td>
<td>856</td>
<td>3.7%</td>
</tr>
<tr>
<td>Total Retained Diary Surveys</td>
<td>21,851</td>
<td>95.6%</td>
</tr>
<tr>
<td>Total Retained Person Diary Surveys</td>
<td>52,175</td>
<td>n/a</td>
</tr>
<tr>
<td>Total Retained Trip Diary Surveys</td>
<td>146,026</td>
<td>n/a</td>
</tr>
</tbody>
</table>
17. Data Weighting and Expansion

Overview

To ensure the dataset from the 2011 Metro Vancouver Regional Trip Diary Survey was an accurate reflection of residents’ behaviour, it was necessary to ensure that the sample of households and residents that responded to the survey (referred to herein as the sample) were reflective of the actual population on key criteria. The standard practice with research studies is to apply mathematical weights to bring the dataset in line with actual population and demographic figures.

The data from this study will be used for transportation planning and forecasting purposes. This meant that along with analysing the percentage of households, persons or trips, there was also a need to analyse and work with the absolute numbers or counts (e.g. How many people are travelling from one zone to another at a certain time of day, by a specific mode and for what purpose?). The need for these numbers or counts required that we not only weight the dataset to accurately reflect the region’s households/persons/trips, but that we also expand it to express the total population figures.

Understanding the Three Dataset Levels

For weighting, expansion and analysis purposes, the final dataset was divided into three relational dataset levels:

1. **Household Data**: Contains general household information for every household participating in the trip diary survey. Information includes all household attributes, such as location, number of household members, auto availability and income.
2. **Person Data**: Contains information for every household member. Information on gender, age, school and/or employment status and location are contained in this dataset level.
3. **Trip Data**: Contains information on the trips made by each member of the household. Each trip is recorded as a unique record that contains information on the origin and destination, start and arrival times, duration, mode of travel, trip purpose and land use type.

(Note that address and contact information was eliminated from the final dataset before sending it to TransLink to preserve respondent confidentiality and anonymity.)

Weighting and Expansion Process

As detailed previously in the report, the survey sample area was divided into 52 sub-regions with similar populations, in most cases. Each sub-region had at most one municipality within it, and as a result, some sub-regions are considerably smaller than average (e.g. Lions Bay, Anmore). In addition, several municipalities requested oversampling of selected sub-regions, meaning the sample sizes for those sub-regions were above average.

It was determined, after discussion by the project teams that the first step would be to apply weights to ensure the dataset was regionally representative at the household data level. It was agreed that this was the best way to minimise any further required weighting by key demographics (such as age and gender). Hence, the dataset was weighted to the actual proportion of households in each of the 52 sub-regions.
To determine the appropriate weights for each region, the number of dwelling units (occupied by usual residents) from the 2011 Census in each sub-region was used as the control total for the sample universe. It would have been preferable to use the number of private households in each sub-region; however, this information was not available at the time of the data weighting and expansion.

Initial weights by sub-region were developed using the following formula:

\[
\text{weight}_{SR} = \frac{\text{DU}_{SR}}{\text{DU}_{LM}} \times \frac{\text{Sample}_{LM}}{\text{Sample}_{SR}}
\]

where:
- \(\text{DU}_{SR}\) = 2011 Census Count of Occupied Dwellings in the sub-region
- \(\text{DU}_{LM}\) = 2011 Census Count of Occupied Dwellings in the Lower Mainland (992,725)
- \(\text{Sample}_{SR}\) = Sampled Households in the sub-region
- \(\text{Sample}_{LM}\) = Sampled Households in the Lower Mainland (21,851)

The weighting factors ranged in value from 0.5 (in sub-regions with substantial oversampling) to 1.5 (typically in small sub-regions). The following chart presents the variation in weighting.

**Exhibit 17.1: Variation in Weighting: Initial Weighting by Sub-region**

The next weighting factors were developed to address the anticipated participation bias by household size at the household data level and by age and gender at the person level. One-person households are more difficult to contact and therefore have a lower response rate; conversely, large households (3+ persons) also have low response rates, as it is difficult to coordinate all household members to participate in the survey. These participation biases have been documented in previous trip diary surveys as well.
Because of the relatively small sample sizes for some sub-regions, the second step in the weighting process involved aggregating the 52 sub-regions into 18 larger super regions, as shown on the following map. Using this higher level of spatial aggregation, weights were developed and applied by household size.

**Exhibit 17.2: Map of 18 Survey Sample Area Super Regions**

Initially, household size groups were defined as: 1-person; 2-person; 3-person; and 4-person-plus households. The expanded sample population using this breakdown was determined to be low relative to the actual 2011 Census population because the 4-plus-person households were skewed to the lower end of household size. Hence, the household groupings were revised to split the 4-plus group into 4-and-5-person and 6-person-plus households (compatible with census groupings). The 2011 Census data on household size was not available at the time of the weighting process; therefore, the target distributions were based on 2006 Census data adjusted to ensure that the average household size matched 2011 Census values. As anticipated, single-person households were under-represented and two-person households were over-represented in the sample. The range of weights by household size is illustrated in the following chart. Given the relatively small proportion of households in the 6-person-plus category and their lower participation rate, these values tend to be higher than in the other categories.
The application of weights to any quantitative dataset introduces variation within the estimate. That is, when you apply weights to a dataset, your sample is “worth” fewer people than you actually have. The number that they are “worth” is referred to as the effective base size. We can check the weighting efficiency or the impact of the weighting by running the effective base statistic. Essentially, the effective base takes into consideration the adjustments of the weighting. The effective base can be calculated from the weight assigned to each household and/respondent.

\[
\text{Effective base} = \frac{\left(\sum W_i\right)^2}{\sum W_i^2}
\]

\[
\text{Weighting efficiency} = 100 \times \left(\frac{\text{effective base}}{\text{actual base}}\right)
\]

The goal is to ensure that the effective base is maintained at least at a level of 70% of the original base size. After applying the first set of 52 sub-regional weights and the 90 household size weights for the 18 super regions (18 super regions x 5 household size groupings), the effective base was run at the household level and the weighting efficiency was 92.8%. Given this high weighting efficiency, the next step of the weighting and expansion process could be approached with confidence. (Effective base calculations were conducted using SPSS Quantum Tabulations.)

Based on past travel diary experience, travel behaviour is substantially influenced by age and gender; therefore, it is important that the results of the survey also match the age and gender distribution of the survey sample area. As with household size, control totals were established at the super region level. Age/gender estimates were developed using 2011 Census data to be applied at the person data level. The six age categories used were as follows:
• 0 – 4 years (not collected in the survey)
• 5 – 17 years
• 18 – 24 years
• 25 – 44 years
• 45 – 64 years
• 65 years and older

Individuals who did not provide their gender or age were placed into one of these categories based on other responses in the household, their student/employment status (e.g. retired individuals were generally placed in the last category), or their school. Synthetic age/gender assignment was only required for 180 out of over 52,000 individuals who responded to the survey.

The weighting factors developed for age and gender showed lower participation rates among young adults, offset by higher rates among older adults (particularly females). A comparison of the sample age/gender distribution relative to the 2011 Census data is illustrated in the following chart.

The specific weighting factors applied by super region ranged in value from 0.57 to 2.1; however, the range narrowed to 0.75 to 1.5 for age/gender/super region categories with 2011 populations greater than 5000.

**Exhibit 17.4: Age/Gender Distribution – Sample versus Universe**

After applying the age/gender weights at the person data level, the effective base was run again at the person data level to ensure the weighting efficiency was still above the threshold of 70%. The weighting efficiency was 89.3%.

Finally, in order to expand the dataset so it was reflective of the entire survey sample area, a total census target of 992,725 households was used. Hence, for the total sample size of 21,851 for this survey, the expansion factor applied to the dataset was 45.43.
Review of Potential Transit Bias

The 2008 Metro Vancouver Regional Trip Diary Survey had a transit-user participation bias (i.e. notably higher proportion of survey respondents used transit than expected based on known ridership levels for the region), which required the down-weighting of responses from transit users. There was concern that this bias would also appear in the 2011 Metro Vancouver Regional Trip Diary Survey. The fully weighted and expanded results of the 2011 Metro Vancouver Regional Trip Diary Survey were reviewed with respect to a number of measures of transit use:

- Comparison of trip diary daily transit trips in 2011 versus the adjusted values from 2008
- Comparison of trip diary daily transit trips in 2011 versus TransLink’s monthly estimates of transit ridership factored to a weekday value
- Comparison of trip diary estimated transit passes against actual passes sold or distributed during the fall of 2011

In order to facilitate the comparison of the adjusted values from the 2008 Metro Vancouver Regional Trip Diary Survey against the 2011 Metro Vancouver Regional Trip Diary Survey, the impact of the Canada Line and additional bus service hours was estimated and combined with the 2008 base value. TransLink’s monthly estimates of transit ridership are based on cash fares and a sample of fare media used to access the various SkyTrain, SeaBus, and Canada Line stations, as well as selected bus routes. Seasonal factors are applied to account for the variation in use of monthly FareCards and U-Passes. Since the estimates are performed on a monthly basis, factors were applied to determine an appropriate comparative value equivalent to a typical fall weekday in 2011 for both low and high estimates of monthly ridership.

The comparison between the estimates of weekday transit trips from the 2011 Metro Vancouver Regional Trip Diary Survey and the other estimations of such trips are illustrated in Exhibit 17.5. The top bar illustrates the estimated impact of new transit trips on the 2008 Metro Vancouver Regional Trip Diary Survey, transit trips due to the Canada Line and growth in ridership on bus services. The middle bar illustrates the transit trip estimate based on the 2011 Metro Vancouver Trip Diary Survey. The final bar provides a range for the estimated number of transit trips per weekday based on TransLink’s ridership tracking tool.

Based on these comparisons, no additional weighting factors were developed for transit usage; that is, no significant bias towards transit usage was identified.
Exhibit 17.5: Estimated Weekday Transit Trips

Review of Other Potential Weighting Factors

The potential use of two other weighting factors was also reviewed: median household income and dwelling structure type (ground-oriented versus non-ground-oriented). The chart on the following page compares the median household income from the 2011 Metro Vancouver Regional Trip Diary Survey against an estimated value derived from Stats Canada values for 2009, factored up to represent 2011 values. Generally there was a reasonable correspondence between the two estimates at the municipal level. Municipalities with the greatest differences tended to be those with lower median household incomes. This is consistent with expectations of lower survey participation rates by households with lower income. The use of an income-based weighting factor was not pursued, however, given the uncertainty in self-reported values and the fact that about 15% of households did not provide this information.
Exhibit 17.6: Comparison of Estimated Median Household Income

The chart on the following page compares the percentage of ground-oriented dwellings from the 2006 Census (the latest figures readily available) against the expanded values from the 2011 Metro Vancouver Regional Trip Diary Survey. The differences between actual and survey data in this chart were consistent with the differences in the income chart (i.e. if the survey median income is high relative to actual, the proportion of ground-oriented housing is also high). Once again, given that there is some uncertainty in the definition of townhouses and row houses and whether they should all be defined as ground-oriented dwellings, and given the generally good correlation between survey and actual values, no additional weighting factors were developed based on this variable.
Exhibit 17.7: Comparison of Dwelling Structure Type

<table>
<thead>
<tr>
<th>Location</th>
<th>2011 Trip Diary % Ground Oriented</th>
<th>2006 Census % Ground Oriented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Langley Township</td>
<td>75%</td>
<td>70%</td>
</tr>
<tr>
<td>Delta</td>
<td>80%</td>
<td>75%</td>
</tr>
<tr>
<td>Maple Ridge</td>
<td>78%</td>
<td>73%</td>
</tr>
<tr>
<td>Pitt Meadows</td>
<td>82%</td>
<td>78%</td>
</tr>
<tr>
<td>North Vancouver District</td>
<td>76%</td>
<td>71%</td>
</tr>
<tr>
<td>Port Coquitlam</td>
<td>74%</td>
<td>69%</td>
</tr>
<tr>
<td>Surrey</td>
<td>80%</td>
<td>75%</td>
</tr>
<tr>
<td>Port Moody</td>
<td>78%</td>
<td>73%</td>
</tr>
<tr>
<td>West Vancouver</td>
<td>76%</td>
<td>71%</td>
</tr>
<tr>
<td>Coquitlam</td>
<td>80%</td>
<td>75%</td>
</tr>
<tr>
<td>Richmond</td>
<td>78%</td>
<td>73%</td>
</tr>
<tr>
<td>Burnaby</td>
<td>82%</td>
<td>78%</td>
</tr>
<tr>
<td>White Rock</td>
<td>74%</td>
<td>69%</td>
</tr>
<tr>
<td>Langley City</td>
<td>80%</td>
<td>75%</td>
</tr>
<tr>
<td>Vancouver</td>
<td>78%</td>
<td>73%</td>
</tr>
<tr>
<td>North Vancouver City</td>
<td>76%</td>
<td>71%</td>
</tr>
<tr>
<td>New Westminster</td>
<td>74%</td>
<td>69%</td>
</tr>
<tr>
<td>UEL</td>
<td>80%</td>
<td>75%</td>
</tr>
</tbody>
</table>
Appendix A
Pre-notification Letter
Letter for Listed Households

The 2011
One-Day Travel Survey

Head of Household
[ADDRESS]
[MUNICIPALITY], BC
Canada
[POSTAL CODE]

YOUR HOUSEHOLD HAS BEEN SELECTED
TO HELP SHAPE OUR REGION’S TRANSPORTATION FUTURE

Dear Head of Household,

TransLink, Metro Vancouver and the Fraser Valley Regional District invite you to participate in an important study.

The goal of the study is to understand where people are going and how they get there – by car, bicycle, transit or on foot. The information will allow transportation authorities and municipalities to make informed decisions to help people get to where they want to go.

Synovate, a leading research company, is recruiting 2% of households in your area to complete the survey. Your household has been selected at random to represent your community. The survey is simple – it captures your household’s trips on just one day.

All information will be kept completely confidential and only used to represent the travel patterns in your community and the region.

Synovate will be calling your household about taking part in the survey. If you’d prefer to get started on the survey now please go to www.synosurvey.net/survey. For more information, please call 1-800-717-1777.

Your login for the survey is [UNIQUE ID] and your entry code is [FSA].

As a selected household, your participation is important and appreciated. For completing the survey you will be sent a $90 gift card for the region’s leading coffee chain. You will also be entered to win:

- 1 Grand Cash Prize of $1,000
- 10 Regional Cash Prizes of $100 each
- 6 iPad2’s
- 80 x $25 Gift Cards for Earl’s Restaurants

We wish to thank you personally for taking part in this study.

Yours truly,

Ian Jarvie
Chief Executive Officer
TransLink

If you wish to verify the survey please go to www.translink.ca/household.
Letter for Unlisted Households

The 2011
One-day Travel Survey

Head of Household
[ADDRESS]
[CITY], BC
Canada
[POSTAL CODE]

YOUR HOUSEHOLD HAS BEEN SELECTED
TO HELP SHAPE OUR REGION’S TRANSPORTATION FUTURE

Dear Head of Household,

TransLink, Metro Vancouver and the Fraser Valley Regional District invite you to participate in an important study.

The goal of the study is to understand where people are going and how they get there — by car, bicycle, transit or on foot. The information will allow transportation authorities and municipalities to make informed decisions to help people get to where they want to go.

Synovate, a leading research company, is recruiting 2% of households in your area to complete the survey. Your household has been selected at random to represent your community. The survey is simple — it captures your household’s trips on just one day.

All information will be kept completely confidential and only used to represent the travel patterns in your community and the region.

Please go to the online survey by typing the following website into your browser’s address bar:
www.synovatesurvey.net/survey. For more information, please call 1-800-717-1777.

Your login for the survey is [UNIQUE ID] and your entry code is [PSA].

As a selected household, your participation is important and appreciated. For completing the survey you will be sent a $10 gift card for the region’s leading coffee chain. You will also be entered to win:

- 1 Grand Cash Prize of $1,000
- 18 Regional Cash Prizes of $100 each
- 5 iPads
- 90 x $25 Gift Cards for Earl’s Restaurants

We wish to thank you personally for taking part in this study.

Yours truly,

Ian Jarvis
Chief Executive Officer
TransLink

If you wish to verify the survey please go to www.translink.ca/tripdiary.
Telephone Recruitment Questionnaire

Vancouver Regional Travel Survey - Telephone Recruit

Hello, this is ______ calling from Synovate about the One-Day Travel Survey.

About a week or two ago, your household was sent a letter from TransLink, Metro Vancouver and the Fraser Valley Regional District. You may also have heard about this survey on the radio. Your household was among the 2% selected to represent your community’s travel habits. This information will allow transportation authorities and municipalities to make informed decisions to help people get to where they want to go.

May I speak with the adult who is most familiar with the daily commuting and local travel habits of the people in your household?

1. Yes - Continue
2. No, not available now - SCHEDULE A CALLBACK
3. Resp says he/she doesn’t take public transportation - [INTERVIEWER: “It is important that we hear from all members of the community on this survey, whether or not they use public transit.”]
4. Resp says he/she had already signed up/done the survey online – THANK AND TERMINATE ‘Thank you very much for taking part in this important study. Thank you and have a nice day!’
5. Resp says he/she received the letter already and can fill out the survey later online – [INTERVIEWER: “The survey will only take you a few minutes and it saves you time from registering online. You can also pick a travel date right now over the phone.”]
6. 2 people are equally familiar – SPEAK TO EITHER AND REINTRODUCE IF NECESSARY. IF NOT AVAILABLE, SCHEDULE CALLBACK, OTHERWISE CONTINUE
7. No, Refused – THANK AND TERMINATE

Today’s/tonight’s survey will only take a few minutes to see whether your household qualifies. We will then ask you to complete an online survey in a few days time. In appreciation you will receive a $10 gift card to the region’s leading coffee chain. You will also be entered to win 1 grand prize of $1,000, 18 regional each prize of $100 each, 8 Apple iPad2’s and 80 $25 gift cards to Earl’s Restaurants.

The purpose of the survey is to understand the local travel patterns of residents so that the region’s authorities and municipalities can improve the overall transportation efficiency of the overall region and your community. All information will be kept confidential.

IF NECESSARY: The information you provide about yourself and members of your household is being collected in accordance with BC’s Freedom of Information & Protection of Privacy Act.

IF RESP WANTS TO VERIFY THE STUDY AT ANY TIME: Information about this survey can be found at http://www.translink.ca/tripdiary.

ENTER LANGUAGE THIS SURVEY IS BEING CONDUCTED IN:

1. English
2. Cantonese – SKIP TO A3 AND ASSIGN MAILED SURVEY
3. Mandarin – SKIP TO A3 AND ASSIGN MAILED SURVEY
4. Punjabi– SKIP TO A3 AND ASSIGN MAILED SURVEY
IF RESPONDENT SAYS THEY DO NOT HAVE EMAIL/WEB ACCESS. ENTER BELOW WITHOUT ASKING THIS QUESTION.

A1. Do you have internet access at home, at your work or school or neither?
   IF BOTH HOME AND WORK/SCHOOL, ENTER BOTH CODES
   1. Home
   2. Work/School
   3. Neither

A2. IF NEITHER at A1: You can still participate in this study. We can mail you a paper survey along with a postage paid return envelope and you will still receive the $10 gift card upon completion of the survey and be entered to win the prize drawings.
   1. Continue
   2. Not interested in receiving/filling out the mail survey THANK AND TERMINATE

The purpose of the survey is to understand the local travel patterns of residents so that improvements can be made to our transportation network. All information obtained in the survey will be grouped together and kept confidential.

A3. How many people, including yourself, currently live in your household?

   ___ ENTER NUMBER (1-15)
   99. DON'T KNOW / REFUSED

   IF REFUSE, READ: Your answers will be kept confidential.
   IF STILL REFUSE, THANK & TERMINATE

A4. IF MORE THAN ONE at A3: And how many of those [INSERT NUMBER FROM A3] people are aged 5 and older?
   PROGRAMMER NOTE: Q2 TOTAL CANNOT EXCEED Q1 TOTAL.

   ___ ENTER NUMBER (1-15)
   99. DON'T KNOW / REFUSED

A5. Have you traveled by public transit in the past month?
   1. Yes
   2. No

B1. The second half of this study involves completing an [on-line/paper] survey about your household's travel behaviour for 1 day, specifically, <ASSIGNED DATE>. Are you able to record your household's trips for that date?
   1. Respondent agrees to assigned date
   2. Respondent can't do assigned date.

B1A. IF CAN'T DO ASSIGNED DAY: (TO BE ASKED FOR BOTH ONLINE/MAIL RESPONDENTS) For what reason does <ASSIGNED DATE> not work for you?
   1. I'm out of town
   2. That's too soon for
   3. Other household members are away
   4. Too busy that day
   5. Nobody in household will be traveling that day
   6. That's an unusual day (e.g. People visiting, events happening, etc)
   7. Person in household is sick

14252
Recruitment Survey 2 02/20/2011
8. Other (specify)

82. FOR CODES 3.7 AT R1A: It’s okay if that day is not typical for your household; in fact, we need to include these types of days in our survey.
   1. Respondent agrees to assigned day
   2. Respondent needs to be reassigned another day

83. If that day won’t work, how about <2ND ASSIGNED DATE>?
   1. Respondent agrees to assigned day
   2. Respondent needs to be reassigned another day

84. IF THAT DATE DOESN’T WORK: How about <3RD ASSIGN DATE>?
   1. Respondent agrees to assigned day
   2. Respondent needs to be reassigned another day

IF RESPONDENT CAN’T DO ANY OF THE THREE SUGGESTED DATES — THANK AND TERMINATE

FOR THOSE WITH INTERNET ACCESS:

Q65. May I please have your main or home email address? Your email will only be used for this survey. When we send you an email it will be coming from Travel Survey, so please don’t delete it by mistake.
   1. Yes
   2. No / Refused

IF REFUSE TO GIVE EMAIL ADDRESS, THANK & TERMINATE.

Q66. What is your email address?

________________________

[INTERVIEWER NOTE: ENTER EMAIL ADDRESS CAREFULLY AND SPELL BACK TO RESPONDENT TO CONFIRM ACCURACY USING PHONETIC ALPHABET. EXAMPLE: maryl.smith@shaw.ca]

[INTERVIEWER NOTE: IF THEY REFUSE RETURN TO PREVIOUS QUESTION AND ENTER NO / REFUSED]

CONFCD. May I please confirm your name and mailing address as...

Name: ______________________
Street Address: ______________________
City: ______________________
Postal Code: ______________________

1. Correct
2. Incorrect name or mailing address
3. Refused to confirm

IF CONFIRMING ADDRESS AND RESPONDENT ASKS HOW WE OBTAINED THE INFO: The mailing address we have is based on published directories, including addresses that were previously listed in the phone book.
IF RESP. ASKS WHY MAILING ADDRESS IS NEEDED, READ: We need to get your exact location to ensure we include residents from every area.

IF REFUSE TO CONFIRM MAILING ADDRESS, THANK AND TERMINATE. Unfortunately you will need to provide your location to complete the online survey. However, we do thank you for being willing to participate. Those are all my questions. Thank you and have a nice day.

CNAME: IF NAME OR MAILING ADDRESS IS INCORRECT: May I please have your name and mailing address?

Name: ______________________
Street Address ______________________
City ______________________
Postal Code ______________________

INTERVIEWER NOTE: IF THE RESPONDENT REFUSES TO PROVIDE A MAILING ADDRESS RETURN TO PREVIOUS QUESTION AND ENTER REFUSED TO PROVIDE ADDRESS

[PROG: IF ONLINE SURVEY RESP, GO TO CONFIRMATION PAGE]

[PROG: IF MAIL SURVEY RESP, ASK QH3 – 11]

And just a few more questions for classification purposes.

H2. Is your current home as: READ LIST ONLY IF NECESSARY
   1. Single detached house
   2. An apartment or condo
   3. A townhouse / row house
   4. A duplex
   5. A mobile home
   6. Don’t know/Refused

H4a. How many insured motor vehicles does your household own, lease or have use of?
   ______ ENTER NUMBER (0-10)
   00: DON’T KNOW / REFUSED

H4b. And how many of the following does your household have:
   a. Bicycles
      ______ ENTER NUMBER (1-15)
      00: DON’T KNOW / REFUSED
   b. Motorcycles/Mopeds
      ______ ENTER NUMBER (1-15)
      00: DON’T KNOW / REFUSED
H6. Which of the following best describes your total household income?

1. Less than $25,000
2. $25,000 to less than $50,000
3. $50,000 to less than $75,000
4. $75,000 to less than $100,000
5. $100,000 to less than $150,000
6. $150,000 or more
7. Don't know/Refused

11. And would you be interested in taking part in further studies – additional prizes would be available for taking part. Note that you would be free to accept or decline the survey at that time.

1. Yes
2. No

CONFIRMATION PAGE

CONFF. Thank you for participating in this important study.

As discussed, your diary date is [INSERT DAY/DATE] (i.e. Wednesday September 13th). Now that you are registered, on that day, please remember to record the trips for all members of your household age 5 or older. That will be the second part of the survey.

[IF ONLINE] Just to confirm, your email address is: [INSERT EMAIL]?

[IF MAIL] Just to confirm, your name and mailing address is: [INSERT MAILING ADDRESS]?.

1. Correct
2. IF ONLINE RECRUIT DISPLAY: Incorrect Email Address – RETURN TO Q86 AND COLLECT CORRECT EMAIL ADDRESS
3. IF MAIL RECRUIT DISPLAY: Incorrect Name or Mailing Address – RETURN TO CNAME AND COLLECT CORRECT MAILING ADDRESS

CLOSING

Thank you. Once you have completed the [online/mail] survey, we will send you a $10 gift card and enter you for the draw prizes. The draws will be taking place in January 2012.

FOR ONLINE: You should receive an email from us shortly. If you do not, please check your spam folder.

FOR MAIL, INCLUDING ALL THOSE SURVEYED IN CHINESE/PUNJABI: You should receive your survey in the mail in the next few days. [INSERT IF CHINESE/PUNJABI]. We will also follow up with you after your diary day in case you need assistance with the survey.
## ASSIGNING TRAVEL DAYS

Diary days are September 18th – December 23rd.

No diaries assigned on October 10th and November 11th.

### Online

<table>
<thead>
<tr>
<th>Recruit Day</th>
<th>Travel Diary Days</th>
<th>Alternative 1</th>
<th>Alternate 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>Thursday (Recruit day + 3 days)</td>
<td>Friday (Recruit day + 4)</td>
<td>Thurs (Recruit day + 10)</td>
</tr>
<tr>
<td>Tuesday</td>
<td>Friday (Recruit day + 3 days)</td>
<td>Mon (Recruit + 8)</td>
<td>Fri (Recruit day + 10)</td>
</tr>
<tr>
<td>Wednesday</td>
<td>Monday (Recruit day + 5 days)</td>
<td>Tues (Recruit + 8)</td>
<td>Mon (Recruit day + 12)</td>
</tr>
<tr>
<td>Thursday</td>
<td>Tuesday (Recruit day + 5 days)</td>
<td>Wed (Recruit + 8)</td>
<td>Tues (Recruit day + 12)</td>
</tr>
<tr>
<td>Friday</td>
<td>Wednesday (Recruit day + 5 days)</td>
<td>Thurs (Recruit + 5)</td>
<td>Wed (Recruit day + 12)</td>
</tr>
<tr>
<td>Saturday</td>
<td>Randomly assign day with lowest recruit: recruit day +3, +4, +5, +6 or +9 days</td>
<td>Randomly assign day with lowest recruit: recruit day +3, +4, +5, +6 or +9 days, but can't be original suggested date</td>
<td>Randomly assign day with lowest recruit: recruit day +3, +4, +5, +6 or +9 days, but can't be original suggested date or alternative 1</td>
</tr>
<tr>
<td>Sunday</td>
<td>Randomly assign day with lowest recruit: recruit day +2, +3, +4, +5 or +9 days</td>
<td>Randomly assign day with lowest recruit: recruit day +2, +3, +4, +5 or +9 days, but can't be original suggested date</td>
<td>Randomly assign: recruit +2, +3, +4, +5 or +9 days, but can't be original suggested date or alternative 1</td>
</tr>
</tbody>
</table>

### Paper (Mail)

<table>
<thead>
<tr>
<th>Recruit Day</th>
<th>Travel Diary Days</th>
<th>Alternative 1</th>
<th>Alternate 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>Monday (Recruit day + 7 days)</td>
<td>Tues (Recruit + 5)</td>
<td>Mon (Recruit + 14)</td>
</tr>
<tr>
<td>Tuesday</td>
<td>Tuesday (Recruit day + 7 days)</td>
<td>Wed (Recruit + 5)</td>
<td>Tues (Recruit + 14)</td>
</tr>
<tr>
<td>Wednesday</td>
<td>Wednesday (Recruit day + 7 days)</td>
<td>Thurs (Recruit + 9)</td>
<td>Wed (Recruit + 14)</td>
</tr>
<tr>
<td>Thursday</td>
<td>Thursday (Recruit day + 7 days)</td>
<td>Fri (Recruit + 6)</td>
<td>Thurs (Recruit + 14)</td>
</tr>
<tr>
<td>Friday</td>
<td>Friday (Recruit day + 7 days)</td>
<td>Mon (Recruit + 10)</td>
<td>Fri (Recruit + 14)</td>
</tr>
<tr>
<td>Saturday</td>
<td>Randomly assign day with lowest recruit: recruit day +3, +9, +10, +11 or +12 days</td>
<td>Randomly assign day with lowest recruit: recruit day +3, +9, +10, +11 or +12 days, but can't be original suggested date</td>
<td>Randomly assign day with lowest recruit: recruit day +3, +9, +10, +11 or +12 days, but can't be original suggested date or alternative 1</td>
</tr>
<tr>
<td>Sunday</td>
<td>Randomly assign day with lowest recruit: recruit day +5, +3, +9, +10, +11 days</td>
<td>Randomly assign day with lowest recruit: recruit day +5, +3, +9, +10, +11 days, but can't be original suggested date</td>
<td>Randomly assign day with lowest recruit: recruit day +5, +3, +9, +10, +11 days, but can't be original suggested date or alternative 1</td>
</tr>
</tbody>
</table>

*If diary day or alternates land on October 10th, add 1 day to the assigned day.

*If diary day or alternates land on November 11th, add 3 days to the assigned day.
Online Survey

The 2011 One-Day Travel Survey

Online Survey – Landing Page

Welcome to the One-Day Travel Survey

Please enter your login: XXXXXXXX
Please enter your entry code: XXX

>>> You can find your login or entry code in the letter you received in the mail (and in the confirmation email if you received one).

If the password is not working or if you encounter a problem with the survey, please call us at 604-684-2474 or toll free at 1-800-717-1777 or email us at travelsurvey@websurveys.ca.

NOTE: Your information has been fully secured. You have received a unique link to the survey website and this is verified by a matching entry code.
Dear Residents,

TransLink, Metro Vancouver and the Fraser Valley Regional District invite you to participate in an important study.

The goal of the study is to understand where people are going and how they get there – by car, bicycle, transit or on foot. The information will allow transportation authorities and municipalities to make informed decisions to help people get to where they want to go.

Synovate, a leading research company, is recruiting 2% of households in your area to complete the survey. Your household has been selected at random to represent your community. The survey is simple – it captures your household’s trips on just one day.

All information will be kept completely confidential* and only used to represent the travel patterns in your community and the region.

As a selected household, your participation is important and appreciated. For completing the survey you will be sent a $10 gift card for the region’s leading coffee chain. You will also be entered to win:

- 1 Grand Cash Prize of $1,000
- 18 Regional Cash Prizes of $100 each
- 6 iPads
- 60 x $25 Gift Cards for Earl’s Restaurants

We wish to thank you personally for taking part in this study.

Yours truly,

Ian Jarvis
Chief Executive Officer
TransLink

If you wish to verify the survey please go to www.translink.ca/trip Diary.

*The information you provide about yourself and members in your household is being collected in accordance with BC’s Freedom of Information & Protection of Privacy Act. It will be used for TransLink’s transportation and research purposes and may be shared, in limited circumstances, with other public agencies or researchers. Names will be removed from all data files and TransLink will not publicly report results for individuals or individual households. If you have any questions about the collection of this information, please contact Dr. Ian Elgar at TransLink at (604) 453-4553.

[CONTINUE]
The 2011
One-Day Travel Survey

Initial Instructions

[PROG: IF RESPONDENT HAS NOT YET PICKED A DIARY DATE, GO TO REGISTRATION]

[PROG: IF RESPONDENT IS RECRUITED OVER THE PHONE OR HAS ALREADY PICKED A DIARY DATE, INSERT:]

You may wish to verify or enter your household information now. This information is secured and for classification purposes only.

Step 1:
To get started, click here to verify/enter your household information. You can do this before your assigned travel day.

[PROG: ONLY SHOW BUTTON IF RESP HAS ALREADY ENTERED THE HOUSEHOLD INFORMATION]

Step 2:
On your diary date [INSERT DIARY DATE], please keep track of the following information for each ONE-WAY trip:
1. The origin and destination locations (either the exact address or the cross-streets at the closest intersection)
2. The departure and arrival times of your trip
3. The purpose of the trip
4. The mode(s) of transportation used

At the end of your day, please enter your trip information online here. You can only do this at the end of your assigned travel day or after that day has passed.

Travel Survey Suggestions

- To help you fill in the online survey later, you can print out a trip tracker page for EACH member of your household – this will help them keep track of their trips during that day. Click here for the trip tracker page. (Note: it is not mandatory to keep track of your trips on this form)

- For an example of the types of questions we will be asking on the online survey, click here.

- On your household’s travel survey day, it helps to have each person carry some sort of a timepiece (e.g. a watch or cellphone) in order to accurately record when trips start and finish.

- For more information about this survey, please visit www.synosurvey.net/FAQs.
The 2011
One-Day Travel Survey

FOR RESPONDENTS WHO MISSED ORIGINAL DATE AND WERE ASSIGNED NEW DATE:

A. Before we begin, did you or other members of your household make any trips on the original date that was assigned to you, which was [INSERT ORIGINAL DATE], or did you and your entire household not make any trips on that date?

1. We made trips CONTINUE WITH SURVEY REFERENCING NEW DATE
2. Entire household did not make any trips ASK QB
3. Can’t recall CONTINUE WITH SURVEY REFERENCING NEW DATE

B. Why did you and other members of your household not make any trips on that original date of ORIGINAL TRAVEL DATE?

1. Out of town for entire day
2. Sick/Illness
3. No need to leave home
4. Other (specify)

RESPONDENTS WHO DID NOT MAKE ANY TRIPS ON THE ORIGINAL TRAVEL DATE (QA = 2)-GO THRU HOUSEHOLD INFO SECTION, FILL OUT PERSON DATA SECTION AND THEN FINISH (THEY SKIP TRIP INFO SECTION).
The 2011 One-Day Travel Survey

Registration

[PROG: IF RESPONDENT IS RECRUITED ONLINE, INSERT: To register, please enter your name and verify your address below]

[IF RECRUITED OVER THE PHONE OR HAVE ALREADY PICKED A DIARY DATE: Please verify your name and address]

[PROG: IMPORT ADDRESS FROM LISTING]

Name
Address
City
Province
Postal code

[PROG: IF RECRUITED OVER THE PHONE OR HAVE ALREADY PICKED A DIARY DATE, SKIP TO H1]

D1. This study involves completing a survey about your household’s local travel behaviour for 1 day. Specifically, [PROG: INSERT DAY/DATE, REFER TO DIARY DAY ALGORITHM SHEET].

Are you able to record your household’s trips for that date?

1. Yes [PROG: RECORD diary DATE AND SKIP TO D6]
2. No

To learn more about travel diary, please click here: www.synosurvey.net/FAQs

D2. For what reason does [PROG, INSERT DIARY DAY/DATE] not work for you?

1. I’m out of town
2. That’s too soon for me
3. Other household members are away
4. Too busy that day
5. Nobody in household will be traveling that day
6. That’s an unusual day (e.g. People visiting, events happening, etc.)
7. Person in household is sick
8. Other, please specify:

[PROG: IF CODE 1-2 IN D2, SKIP TO D4]

D3. It’s ok if that day is not typical for your household; in fact, we need to include these types of days in our survey. Are you able to record your household’s trips on [PROG: INSERT DIARY DAY/DATE]?

1. Yes [PROG: RECORD diary DATE AND SKIP TO D6]
2. No
The 2011 One-Day Travel Survey

D4. If that day doesn’t work for you, how about [INSERT ALTERNATIVE DATE 1]?
   1. Yes [PROG: RECORD DIARY DATE AND SKIP TO D6]
   2. No

D5. How about [INSERT ALTERNATIVE DATE 2]?
   1. Yes [PROG: RECORD DIARY DATE]
   2. No [PROG: THANK AND TERMINATE] “Unfortunately, you need to pick a travel day in order to qualify for this survey”. THANK AND TERMINATE

D6. What is your email address? Your email will only be used to send you information for this survey. __________________________

[PROG: IF EMAIL IS INCORRECT – Please enter your full email address. Example: mary.smith@shaw.ca]

Thank you! You should receive a confirmation email from travelsurvey@websurveys.ca shortly.

[PROG: GO TO INITIAL INSTRUCTIONS]
The 2011
One-Day Travel Survey

Household Information

[PROG: IF RECRUITED OVER THE PHONE, INSERT: Please verify the following information.]

H1. How many people, including yourself, currently live in your household?

____________

[IF MORE THAN ONE IN H1]

H2. And how many of those people are aged 5 and older?

[PROG CHECK: CAN'T BE GREATER THAN H1]

____________
The 2011

One-Day Travel Survey

H2. Please complete the following information for each household member age 5 or older.

(Programming Note: Those under 16 should automatically default to no for driver’s license)

[PROG: ONLY ASKED THOSE AGE 5 OR OLDER]

<table>
<thead>
<tr>
<th></th>
<th>Gender</th>
<th>Age - Please enter number between 5 and 10 years</th>
<th>Does this person have a valid driver’s license?</th>
<th>Is this person presently employed as a commercial driver (e.g., courier, taxi, truck or bus driver?)</th>
<th>Has this person traveled by public transit in the past month?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person 1 (You)</td>
<td>M</td>
<td>Yes No</td>
<td>Yes No</td>
<td>Yes No</td>
<td>Yes No</td>
</tr>
<tr>
<td>Person 2</td>
<td>M</td>
<td>Yes No</td>
<td>Yes No</td>
<td>Yes No</td>
<td>Yes No</td>
</tr>
<tr>
<td>Person 3</td>
<td>M</td>
<td>Yes No</td>
<td>Yes No</td>
<td>Yes No</td>
<td>Yes No</td>
</tr>
<tr>
<td>Person 4</td>
<td>M</td>
<td>Yes No</td>
<td>Yes No</td>
<td>Yes No</td>
<td>Yes No</td>
</tr>
<tr>
<td>Person 5</td>
<td>M</td>
<td>Yes No</td>
<td>Yes No</td>
<td>Yes No</td>
<td>Yes No</td>
</tr>
<tr>
<td>Person 6</td>
<td>M</td>
<td>Yes No</td>
<td>Yes No</td>
<td>Yes No</td>
<td>Yes No</td>
</tr>
<tr>
<td>Person 7</td>
<td>M</td>
<td>Yes No</td>
<td>Yes No</td>
<td>Yes No</td>
<td>Yes No</td>
</tr>
<tr>
<td>Person 8</td>
<td>M</td>
<td>Yes No</td>
<td>Yes No</td>
<td>Yes No</td>
<td>Yes No</td>
</tr>
<tr>
<td>Person 9</td>
<td>M</td>
<td>Yes No</td>
<td>Yes No</td>
<td>Yes No</td>
<td>Yes No</td>
</tr>
<tr>
<td>Person 10</td>
<td>M</td>
<td>Yes No</td>
<td>Yes No</td>
<td>Yes No</td>
<td>Yes No</td>
</tr>
</tbody>
</table>

*Monthly FareCard
FareSaver
U-Pass
Employer Paid Pass
Annual Pass
Cash
Other
The 2011 One-Day Travel Survey

H3. Is your current home:
1. A single detached house
2. An apartment or condo
3. A townhouse / row house
4. A duplex
5. A mobile home

H4. How many of the following does your household have?
1. Insured motor vehicles (either owned or leased)  
2. Bicycles
3. Motorcycles / Mopeds

H5. Which of the following best describes your total household income?
1. Less than $25,000
2. $25,000 to less than $50,000
3. $50,000 to less than $75,000
4. $75,000 to less than $100,000
5. $100,000 to less than $150,000
6. $150,000 or more
7. Don't know/Refused
The 2011
One-Day Travel Survey

First, the [PROG. INSERT FIRST GENDER / AGE COMBO]

P1. Is this person (indicate all that apply):

- Working full time (30+ hours per week)
- Working part time (<30 hours per week)
- Self-employed
- Volunteer only (not for pay)
- Unemployed
- Homemaker
- Retired
- Student full time
- Student part time

[PROG.: ONLY ASK QP2 OF THOSE WORKING FULL OR PART TIME]

P2. Please enter the name and address or nearest cross streets of this person’s workplace(s).

When entering the location or street name, type a few letters from the beginning of the desired name. A list of names that match what you have typed should appear. When you see the name that you want, click on it. If the name doesn’t appear, just type the full name.

Work 1
Company Name: ______________________
Enter Municipality: ______________________

Closest Cross Streets: ______________________ OR Enter Proper Address:
______________________________
______________________________ (address number*), (street name)

Type of location:
- House or apartment
- Office Building
- Industrial or factory
- Store, mall, dining or theatre
- Hospital or medical
- Financial or other services
- School or daycare
- Indoor recreational or gym
- Outdoor recreational (i.e. park, beach, golf course)
- Airport or BC Ferries
- Other, please specify: ______________________

Work 2 (if applicable)
Company Name: ______________________
Enter Municipality: ______________________
The 2011
One-Day Travel Survey

Closest Cross Streets: ____________________________ and ____________________________
OR Enter Proper Address: ____________________________
(address number) (street name)

Type of location:
House or apartment
Office building
Industrial or factory
Store, mall, dining or theatre
Hospital or medical
Financial or other services
School or daycare
Indoor recreational or gym
Outdoor recreational (i.e. park, beach, golf course)
Airport or BC Ferries
Other, please specify: ____________________________

REQUIRE THAT THE MUNICIPALITY AND ALSO CROSS STREET OR ADDRESS IS OBTAINED BEFORE LEAVING PAGE. IF THEY MISS SOMETHING PROVIDE THE FOLLOWING PROMPT(S):

Please indicate the municipality
Please specify the cross-streets or address
Please use the pull down menu to indicate the type of location

[PROG. ONLY ASK Q3 OF FULL AND PART TIME STUDENTS]

P3. Please enter the name and address or nearest cross streets of the school(s) attended by this person.

When entering the location or street name, type a few letters from the beginning of the desired name. A list of names that match what you have typed should appear. When you see the name that you want, click on it. If the name doesn’t appear, just type the full name.

School 1
School Name: ____________________________

School 2 (if applicable)
School Name: ____________________________

If school name is not on list:

Please enter the address for (INSERT SCHOOL 1 NAME):

This is for the (INSERT FIRST GENDER/AGE COMBO).

School Name: ____________________________
Enter Municipality: ____________________________
The 2011 One-Day Travel Survey

Closest Cross Streets: ______________________ and ______________________ OR Enter Proper Address: ______________________

(address number) (street name)

If applicable, please enter the address for (insert school 2 name).

This is for the (insert first gender/age combo).

School Name: ______________________
Enter Municipality: ______________________

Closest Cross Streets: ______________________ and ______________________ OR Enter Proper Address: ______________________

(address number) (street name)

[PROG: ASK ONLY IF PERSON HAS DRIVER’S LICENSE]

[PROG: IF PERSON IS WORKING/GOING TO SCHOOL IN QP1]

P4a. Does this person drive him/herself to work or to school?

1. Yes
2. No

[PROG: IF NO IN QP4a, SKIP TO QP4d]

P4b. Who pays for parking?

1. Parking is free
2. Parking is fully paid by employer
3. Parking is partially paid by employer
4. Parking is paid personally (no subsidy)

[PROG: IF CODE 1 OR 2 IN QP4b, SKIP TO QP4d]

P4c. How much does this person pay for parking?

$________ per Day OR $________ per Month

[PROG: QP4D ONLY ASKED OF THOSE WORKING FULL OR PART TIME IN QP]

P4d. Does this person have employment duties that require an automobile?

1. Frequently
2. Occasionally
3. No/never

Repeat QNS P4-P4 for each household member. The household member (e.g. female, age 23) should appear on every screen to remind the respondent who they are filling out information about.

Now I’d like to ask you about (next gender/age combo).

Thank you for completing the household information section of the survey.
The 2011
One-Day Travel Survey

[PROG: IF HH SECTION IS FILLED OUT BEFORE ASSIGNED TRAVEL DAY, INSERT:

Please don’t forget to do the trip survey at the end of [insert travel day] or the following day.

On your diary date [INSERT DIARY DATE], please keep track of the following information for each ONE-WAY trip:
1. The origin and destination locations (either the exact address OR the cross-streets at the closest intersection)
2. The departure and arrival times of your trip
3. The purpose of the trip
4. The mode(s) of transportation used

If you are ready to do that now (your travel day is over) please click here:

DO TRIP SURVEY NOW

If that day has not yet arrived or finished or you can’t enter the information right now, please click here

DO TRIP SURVEY LATER

[POP-UP: To do the trip survey on or after your travel day, just click on the same survey link provided in the email.]
The 2011
One-Day Travel Survey

Trip Survey

For this section, you will need to know or have on hand the trip information (the destinations, travel modes, and trip times) for everyone in your household for INSERT TRAVEL DATE.

We now need to find out about all the trips your household made on INSERT TRAVEL DATE.

A trip means you and/or another household member left one location and arrived at another. For example, if you left home, dropped off your son at school, went to work and then returned home, these trips would be recorded as follows:

What doesn’t count as a trip?
- Walking a dog (with no destination)
- Walking between a parking lot and your destination
- Walking to or from transit stops
- Jogging or biking in your neighbourhood with no destination
- Moving around between classes/campus or within the same building complex, such as an office
- Commercial vehicle trips – please do not include trips where the purpose is commercial delivery or driving a bus or taxi.

For more answers to frequently asked questions, please visit www.synosurvey.net/FAQs
The 2011
One-Day Travel Survey

B0. First, did anyone in your household cross the Golden Ears Bridge on the travel day, namely [INSERT TRAVEL DATE]?

1. Yes
2. No

Now, we will ask about the trips made on INSERT TRAVEL DATE by the (INSERT FIRST GENDER / AGE COMBO).

B1a. Did this person make any trips in Metro Vancouver or Fraser Valley* on INSERT TRAVEL DATE?

*Metro Vancouver and Fraser Valley are also known as the Lower Mainland - it includes Hope, but not Squamish. For a map of the region, click here.

Note: If you are not sure about this person's travel, please ask them or make your best guess.

1. Yes - made a trip/trips [PROG: GO TO QB1b]
2. No -- stayed home or was out of town all day

IF NO TRIPS MADE BY THIS PERSON, ASK ABOUT TRIP DATA FOR NEXT HH PERSON] Now, we will ask about the trips made by [INSERT GENDER, AGE COMBO]

[PROG: ONLY ASKED IF YES TO QB0]

B1b. Did this person cross the Golden Ears Bridge on the travel day, namely [INSERT TRAVEL DATE]?

1. Yes -- Number of times crossed: _______ (Note: back and forth = 2 times)
2. No

B1c. Did this person use any of the following travel information on the travel day, namely [INSERT TRAVEL DATE]? (Please choose all that apply)

1. Traffic/Travel websites (e.g. TravelSmart, DriveBC)
2. Maps via websites (e.g. Google Maps, Map Quest, TransLink)
3. TransLink's website (e.g. Trip Planner, etc.)
4. Paper maps or schedules
5. Other, please specify
6. No, did not use any travel information
The 2011 One-Day Travel Survey

E2. Where did this person's first trip start?
   For example, if you started your day at home, then select "Your Home" below.

   Your home [PROG: GO TO B5a]

   LIST ALL THE HH WORK AND SCHOOL LOCATIONS ALONG WITH THE ADDRESS (e.g. FEMALE Age 34 Work, 345 Main Street) [PROG: GO TO B5a]

   OR

   Other destination in Metro Vancouver/Fraser Valley [PROG: GO TO B3]
   Outside of Metro Vancouver/Fraser Valley, enter municipality ______________ [GO TO B5a]

E3. Please enter the name of the location or a nearby landmark closest to your destination. (Begin by typing in the name, when the correct name appears click on it. Otherwise type in the full name)

   Example, Metrotown, Superstore, UBC, Friend's house...etc.

   [PROG: IF ADDRESS IS NOT GEOCODABLE, INSERT "Unrecognized spelling or format of [INSERT DESCRIPTION]. Please correct or if it is already correct, press Continue again.
   [PROG: DO NOW SHOW MISSING ANSWER PROMPT IF ADDRESS IS NOT GEOCODABLE. MISSING ANSWER PROMPT SHOULD ONLY SHOW UP IF THERE ARE MISSING FIELDS]

   [PROG: ASK IF LOCATION IS UNRECOGNIZABLE, OTHERWISE, SKIP TO B5a]

B4. Please provide the location of [INSERT LOCATION NAME]:

   Enter Municipality: ________________________

   Closest Cross Streets: _____________________ OR ENTER Proper Address: ____________________________

   ___________________ and ___________________

   (address number) (street name)

   Type of location:
   1. House or apartment
   2. Office building
   3. Industrial or factory
   4. Store, mall, dining or theatre
   5. Hospital or medical
   6. Financial or other services
   7. School or daycare
   8. Indoor recreational or gym
   9. Outdoor recreational (i.e. park, beach, golf course)
   10. Airport or BC Ferries
   11. Other, please specify: ______________________

If your street is not coming up but you are quite sure it is correct, press Continue twice.
The 2011
One-Day Travel Survey

[FROG: ON TOP OF EVERY PAGE IN SECTION B, INSERT: This trip started at [INSERT ORIGIN] and ended at [INSERT DESTINATION].]

B5a. Where did you go?

Your home [FROG: GO TO B8]

LIST ALL THE HOME WORK AND SCHOOL LOCATIONS ALONG WITH THE ADDRESS (e.g.
FEMALE Age 34 Work 1, 345 Main Street [FROG: GO TO B8]

OR

Other destination in Metro Vancouver/Fraser Valley [GO B8]
Outside of Metro Vancouver/Fraser Valley, enter municipality: __________ [GO TO B5b]

[NOTE: IF ORIGIN AND DESTINATION ARE BOTH OUTSIDE OF STUDY AREA, INSERT: We are only interested in collecting trips made to or from Metro Vancouver/Fraser Valley. Your trip started at [INSERT ORIGIN], where did you go next in Metro Vancouver/Fraser Valley?]

B5b. Which highway or crossing did you use to enter Metro Vancouver/Fraser Valley from [INSERT ORIGIN]?

1. Highway 99 outside of Lions Bay
2. Highway 1 outside of Hope
3. Highway 3 outside of Hope
4. Highway 5 outside of Hope
5. Highway 99 at Peace Arch Crossing
6. Highway 15 at Pacific Highway Crossing
7. Highway 13 at Aldergrove – Lynden Crossing
8. Highway 11 at Abbotsford – Sumas Crossing
9. Point Roberts Crossing
10. Horseshoe Bay Ferry Terminal
11. Tsawwassen Ferry Terminal
12. YVR Airport
13. Abbotsford Airport
14. Vancouver Harbour
15. Pacific Coach Depot – Station St
The 2011

One-Day Travel Survey

[IF DESTINATION IS OUTSIDE OF STUDY AREA IN B5A, SKIP TO B8]

B6. Please enter the name of the location or a nearby landmark closest to your destination. (Begin by typing in the name, when the correct name appears click on it. Otherwise type in the full name)

Example: Metrotown, Superstore, UBC, McDonald’s, Friend’s house…etc.

[PROG: ASK IF LOCATION IS UNRECOGNIZABLE, ASK B7, OTHERWISE, SKIP TO B8]

B7. Please provide the location of [INSERT LOCATION NAME]:

Enter Municipality:

Closest Cross Streets: and

Enter Proper Address:

(address number) (street name)

Type of location:
1. House or apartment
2. Office Building
3. Industrial or Factory
4. Store, mail, dining or theatre
5. Hospital or medical
6. Financial or other services
7. School or daycare
8. Indoor recreational or gym
9. Outdoor recreational (i.e. park, beach, golf course)
10. Airport or BC Ferries
11. Other, please specify: ______________________

B8. What was the main purpose of that trip?

1. To work
2. During work/business trip
3. To school
4. Shopping
5. Dining/restaurant
6. Recreation/social/entertainment
7. Personal business (e.g. bank, doctor)
8. To drive someone/pick-up
9. To go home

[PROG: IF ORIGIN IS HOME AND PURPOSE IS TO GO HOME, INSERT “You indicated you left from home, what was the purpose of this trip?”]
The 2011 One-Day Travel Survey

B9a. What was the exact time that you left [INSERT ORIGIN]?

___ ___ AM PM

B9b. What was the exact time that you arrived at [INSERT DESTINATION]?

___ ___ AM PM

[PROG: IF END TIME IS EARLIER THAN START TIME, INSERT "Your arrival time is earlier than the start time. What was the exact time that you arrived at [INSERT DESTINATION]?"

[PROG: IF START TIME IS EARLIER THAN END TIME FROM PREVIOUS TRIP, INSERT "You arrived [INSERT ORIGIN] at [INSERT PREVIOUS ARRIVAL TIME], what was the exact time you left there?"

[PROG: CONVERT TO 24 HOURS WHEN EXTRACTING DATA]

[PROG: IF TIME DURATION IS MORE THAN 2 HOURS, INSERT "The travelling time for this trip was more than 2 hours, is that correct?"

B10. What mode or modes of transportation did you use for that trip? Please choose up to three modes.

[PROG: DO NOT SHOW RADIO BUTTON FOR 2ND/3RD MODE FOR WALKING]

[PROG: SECOND MODE SHOULD BE MUTUALLY EXCLUSIVE WITH FIRST AND THIRD MODE, BUT FIRST AND THIRD MODE CAN BE THE SAME]

[PROG: IF RESP DOESN'T HAVE DRIVER'S LICENSE OR IF THEY ARE UNDER 15, GREY OUT AUTO-DRIVER OPTION]

<table>
<thead>
<tr>
<th>Mode</th>
<th>First Mode</th>
<th>Second Mode (if more than one mode used)</th>
<th>Third Mode (if more than two modes used)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto - driver</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Auto - passenger</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Transit Bus</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>SkyTrain</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>West Coast Express</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>SeaBus</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>HandyDART</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>School Bus</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Other Bus</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Walked whole way</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Bicycle</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Taxi</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Other, please specify</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

[PROG: IF WALKED WHOLE WAY AND ANOTHER CODE SELECTED: You indicated that you walked the whole way for that trip, is that correct? If you walked partway to connect to another mode of transportation, please do not record walking as one of the modes.]
The 2011
One-Day Travel Survey

[FROG: IF AUTO-DRIVER BUT WITHOUT DRIVER’S LICENSE OR UNDER 16: Please note [INSERT GENDER, AGE] does not have a valid driver’s license or is under the age of 16. Was he/she the passenger in the vehicle?]

[FROG: ASK IF AUTO DRIVER/PASSENGER IN B10, OTHERWISE, SKIP TO B12]
B11. How many people were in the vehicle, including the driver? (Note: Driver plus one passenger = 2 people in the car)
   [IF PASSENGER IN B10 AND <2 IN B11] How many people were in the car including the driver? The driver also counts as one person in the car.

[FROG ASKED ONLY IF HAVE A DRIVER’S LICENSE (QH2) AND OWNED/LEASED AUTO VEHICLE (QH4.1 = 1+) AND NOT A DRIVER/PASSENGER IN B9, OTHERWISE SKIP TO B13a]
B12. Was an automobile available for you to use on this trip?
   1. Yes
   2. No

LOOP (REPEAT FOR EACH ADDITIONAL TRIPS)
B13a. Where did you go next? (Note: Please remember to include your return home trip.)
   Your home [FROG: GO TO B8.1]
   LIST ALL THE HH WORK AND SCHOOL LOCATIONS [FROG: GO TO B8.1]
   OR
   Other destination in Metro Vancouver/ Fraser Valley [GO TO B6.1]
   Outside of Metro Vancouver/ Fraser Valley, enter municipality: ___________ [GO TO B5b]
   [FROG: PUT NOWHERE CODE IN A SEPARATE BOX]
   Nowhere/Stayed at the same location until midnight [GO TO NEXT HH MEMBER] Now, we will ask about the trips made by [INSERT GENDER, AGE COMBO]

[FROG: IF ORIGIN = DESTINATION] This trip started from [INSERT ORIGIN] where did you go next?

[FROG IF SELECTED NOWHERE AND PREVIOUS TRIP PURPOSE (B3) / DESTINATION (B5a) WASN’T HOME] “Please remember to include your return home trip. If you were still away from home at midnight, please click CONTINUE again.”
CONCLUSION SCREEN

Thanks so much for participating in this survey. Your input will be invaluable in understanding the travel patterns of the region. You will receive your $10 gift card within the next 4 weeks. Your name will also be entered to win several prizes. Winners will be contacted by email or phone in January 2012.

THANK YOU

(Note: if you finished sooner than you expected that’s because the progress bar is only an estimate of how far you are in the survey and is based on a 4 person household.)

Would you be interested in taking part in further studies – additional prizes would be available for taking part. Note that you would be free to accept or decline the survey at that time.

1. Yes
2. No

Please click here to submit. [INSERT SUBMIT BUTTON]

[PROGRAMMING: REDIRECT TO www.translink.ca AFTER SURVEY SUBMITTED SUCCESSFULLY]
Mail-Back Survey Package Documents

The 2011
One-Day Travel Survey

Address
City, BC
Canada
Postal Code

September - December 2011

Dear Resident:

Thank you for taking part in the One-day Travel Survey.

The goal of the survey is to understand where people are going and how they get there — by car, bicycle, transit or on foot. The information will allow transportation authorities and municipalities to make more informed decisions to help people get to where they want to go.

Your household has been selected at random to represent your community. The survey is simple — it captures your household’s trips on just one day — namely [INSERT DIARY DATE]. If you did not receive your survey package on time, please fill out the survey for the same weekday in the following week.

It doesn’t matter if that day is unusual — we want to capture a full range of travel behaviors in our study.

All information will be kept completely confidential and only used to represent the travel patterns in your community and the region.

Please complete the enclosed survey(s) and mail it back to Synovate in the postage-paid return envelope. In appreciation we will send you a $10 gift card for the region’s leading coffee chain. You will also be entered to win:

- 1 Grand Cash Prize of $1,000
- 18 Regional Cash Prizes of $100 each
- 6 iPad2s
- 80 x $25 Gift Cards for Earli’s Restaurants

Yours truly,

Ian Jarvis
Chief Executive Officer
TransLink

*The information you provide about yourself and members in your household is being collected in accordance with BC’s Freedom of Information & Protection of Privacy Act.* It will be used for TransLink’s transportation and research purposes and may be shared, in limited circumstances, with other public agencies or researchers. Names will be removed from all data files and TransLink will not publicly report results for individuals or individual households. If you have any questions about the collection of this information, please contact Dr. Ilan Elgar at TransLink at (604) 453-4653.

If you wish to verify the survey, please logon to http://www.translink.ca/tripdiary
Need assistance? Contact us at: 604-694-2474 or toll-free at 1-800-717-1777.
How to participate in this study:

1. Check at the top right hand corner of the survey sheet(s) for your assigned diary date. This is the date on which you need to record all the trips you make. On that date you (and the other adult household members) may want to have a timepiece and a paper and pencil with you all day to keep track of your trip details.

2. At the end of your assigned diary date or the next morning, please fill in the survey for all household members. Please remember to fill out the second page of the survey sheet(s) as well.

3. Place all the completed survey sheets into the postage-paid envelope provided and drop it in a mailbox.

4. Once we receive your completed surveys, you will receive a $10 gift card in about four weeks. And your name will be entered into the prize draws.

Frequently Asked Questions:

Do I need to fill in the entire survey to qualify for the prize draws?

Yes, it is important that you fill in all the required information so that we have a complete profile of your household's travel patterns.

Note: TransLink, CMBC and Synovate employees are not eligible for the prize draws.

When will the prize winners be announced?

January 2012

What if I don't want to provide personal information, such as my income?

Please be assured that all information collected will be kept completely confidential and anonymous. Information such as income and street addresses are critical to ensuring that we have a good cross-section of residents participating in the study. In no way will your personal information be divulged.

What constitutes a trip?

For this study, a trip means you and/or another household member left one location and arrived at another. For example, if you left home, dropped off your son at school, went to work and then returned home, these trips would be recorded as follows:

- Home
- School
- Office

What doesn't count as a trip?

The following do not count as trips:

- Walking a dog
- Walking between a parking lot and your destination
- Walking to or from transit stops
- Jogging or biking in your neighbourhood for recreational purposes
- Moving around campus
- Commercial vehicle trips

My son/daughter made all the same trips as I did that day, so do I need to fill out a trip survey sheet for him or her as well?

Yes, every member of your household has to have a survey sheet filled out for the assigned diary date.

If you wish to verify the survey, please logon to http://www.translink.ca/tripdiary

Need assistance? Contact us at: 604-664-2474 or toll-free at 1-800-717-1777.
## PLEASE FILL OUT THIS FORM FOR EACH PERSON IN HOUSEHOLD

**Please record the trips made by [person's name]** on [Wednesday, October 12, 2011]

**Did this person make any trips on the survey day?**
- Yes
- No

**Your travel date:**
- Only
- Stayed home or was out of town all day

### LOCATION AT START OF DAY

**Location:**
- If this trip started from home or from work, write "Home" or "Work #1" or "Work #2." Otherwise, give precise address or nearby intersection, including municipality.

**Location type:**
- Please write 1 for household/apartment. For other location codes, please refer to location code list below.

**Location Code**

<table>
<thead>
<tr>
<th>Code</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Household/apartment</td>
</tr>
<tr>
<td>2</td>
<td>Office building</td>
</tr>
<tr>
<td>3</td>
<td>Industrial/Factory</td>
</tr>
<tr>
<td>4</td>
<td>Store/mall/shopping centre</td>
</tr>
<tr>
<td>5</td>
<td>Hospital/medical</td>
</tr>
<tr>
<td>6</td>
<td>Financial/Other Services</td>
</tr>
</tbody>
</table>

### END LOCATION

**Give precise address or nearby intersection.**

<table>
<thead>
<tr>
<th>Code</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Household/apartment</td>
</tr>
<tr>
<td>2</td>
<td>Office building</td>
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<tr>
<td>3</td>
<td>Industrial/Factory</td>
</tr>
<tr>
<td>4</td>
<td>Store/mall/shopping centre</td>
</tr>
<tr>
<td>5</td>
<td>Hospital/medical</td>
</tr>
<tr>
<td>6</td>
<td>Financial/Other Services</td>
</tr>
</tbody>
</table>

### Municipality

**Location type:**
- Choose only one, write in the code (e.g., Home, Work #1, Work #2)

<table>
<thead>
<tr>
<th>Code</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7. School/daycare</td>
</tr>
<tr>
<td>2</td>
<td>8. Indoor recreation</td>
</tr>
<tr>
<td>3</td>
<td>9. Outdoor rec (park, beach, golf)</td>
</tr>
<tr>
<td>4</td>
<td>10. Airport/BUS Fares</td>
</tr>
<tr>
<td>5</td>
<td>11. Other (Specify)</td>
</tr>
</tbody>
</table>

### Start time:

**Write in the exact time (i.e., 9:15) you left the above location. Be sure to circle AM or PM.**

<table>
<thead>
<tr>
<th>AM</th>
<th>PM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Arrival time:

**Write in the exact time (i.e., 9:50) you arrived at this destination. Be sure to circle AM or PM.**

<table>
<thead>
<tr>
<th>AM</th>
<th>PM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Main Trip Purpose:

- Choose only one, write in the code (e.g., Work, Shopping)

<table>
<thead>
<tr>
<th>Code</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Work</td>
</tr>
<tr>
<td>2</td>
<td>School</td>
</tr>
<tr>
<td>3</td>
<td>Recreation/Reloc</td>
</tr>
<tr>
<td>4</td>
<td>Shopping</td>
</tr>
<tr>
<td>5</td>
<td>Eating/Dining</td>
</tr>
</tbody>
</table>

### Method of travel:

**Choose all that apply, list in order of use.**

<table>
<thead>
<tr>
<th>Code</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Auto – driver</td>
</tr>
<tr>
<td>2</td>
<td>Auto – passenger</td>
</tr>
<tr>
<td>3</td>
<td>Transit bus</td>
</tr>
<tr>
<td>4</td>
<td>SkyTrain</td>
</tr>
<tr>
<td>5</td>
<td>West Coast Exp</td>
</tr>
<tr>
<td>6</td>
<td>SeaBus</td>
</tr>
<tr>
<td>7</td>
<td>HandyCART</td>
</tr>
<tr>
<td>8</td>
<td>School Bus</td>
</tr>
<tr>
<td>9</td>
<td>Other Bus</td>
</tr>
<tr>
<td>10</td>
<td>Walked a vehicle</td>
</tr>
<tr>
<td>11</td>
<td>Bicycle</td>
</tr>
<tr>
<td>12</td>
<td>Taxicab</td>
</tr>
<tr>
<td>13</td>
<td>Other (Specify)</td>
</tr>
<tr>
<td>14</td>
<td>Travelled</td>
</tr>
<tr>
<td>15</td>
<td>Traveled by (bus)</td>
</tr>
<tr>
<td>16</td>
<td>Traveled by (taxi)</td>
</tr>
<tr>
<td>17</td>
<td>Traveled by (parked)</td>
</tr>
<tr>
<td>18</td>
<td>Traveled by (not in car)</td>
</tr>
<tr>
<td>19</td>
<td>Traveled by (on foot)</td>
</tr>
</tbody>
</table>

**If by auto:** Write in total # of people in car, including the driver.

<table>
<thead>
<tr>
<th>In car</th>
<th>In car</th>
<th>In car</th>
<th>In car</th>
<th>In car</th>
<th>In car</th>
<th>In car</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**If not by auto:** Was an auto available for you to use for this trip?

- Yes
- No

**Where did you go?**

Go to next column to record your next trip, including your trip home.

<table>
<thead>
<tr>
<th>Recorded Next Trip OR</th>
<th>Recorded Next Trip OR</th>
<th>Recorded Next Trip OR</th>
<th>Recorded Next Trip OR</th>
<th>Recorded Next Trip OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elsewhere</td>
<td>Elsewhere</td>
<td>Elsewhere</td>
<td>Elsewhere</td>
<td>Elsewhere</td>
</tr>
</tbody>
</table>

**If you did not go anywhere else until midnight, check here:**

- Yes
- No

**PLEASE REMEMBER TO FILL IN THE OTHER SIDE.**

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**2011 Metro Vancouver Regional Trip Diary Survey – Methodology Report**

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87
# 2011 Metro Vancouver Regional Trip Diary Survey – Methodology Report

## Person Profile For:

First Name or Initials

### 1. Gender of this person:
- ♂ Male
- ♀ Female

### 2. Age of this person: ___ years

### 3. Person has a valid driver’s license?
- Yes
- No

### 4. Is this person presently employed as a commercial driver (e.g., a courier, taxi, truck or bus driver)?
- Yes
- No

When filling out your trips on the other side, please do NOT include trips where the purpose is commercial delivery or driving a bus or taxi. Thank you!

### 5. This person is: (Check all that apply)
- Working full time (30+ hours per week)
- Working part time (<30 hours per week)
- Self-employed
- Volunteer only (not for pay)
- Unemployed
- Homemaker
- Retired
- Student full time
- Student part time

### 6. If this person works, please list their workplace(s)

<table>
<thead>
<tr>
<th>Name of Work #1</th>
<th>Name of Work #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address or cross streets</td>
<td>Address or cross streets</td>
</tr>
<tr>
<td>Municipality</td>
<td>Municipality</td>
</tr>
</tbody>
</table>

### 7. If this person is a student, please list their school

<table>
<thead>
<tr>
<th>Name of School</th>
<th>Address or cross streets</th>
<th>Municipality</th>
</tr>
</thead>
</table>

### 8. a. Does this person drive him/herself to work or school?
- Yes
- No – Go To Q8d

### 8. b. If yes, who pays for parking?
- Parking is free – Go To Q8d
- Parking is fully paid by employer – Go To Q8d
- Parking is partially paid by employer – Go To Q8c
- Parking is paid personally (no subsidy) – Go To Q8c

### 8. c. How much does this person pay for parking?

$___ per Day or $___ per Month

### 8. d. Does this person have employment duties that require an automobile?
- Frequently
- Occasionally
- Never

### 9. a. Has this person traveled by public transit in the past month?
- Yes
- No – Go To Q10

### 9. b. How did this person usually pay for transit in the past month? (pick one only)
- Monthly FareCard
- Cash
- U-Pass
- Employer Paid Pass
- Annual Pass

### 10. Did this person use any of the following travel information on the survey day?
- Yes:
  - Traffic/Travel websites (e.g., TravelSmart, DriveBC)
  - Maps via websites (e.g., Google Maps, MapQuest, TransLink)
  - TransLink’s website (e.g., Trip Planner, etc.)
  - Paper maps or schedules
  - Other, (specify) ___

- No

### 11. Did this person cross the Golden Ears Bridge on the survey day?
- Yes – # times crossed ___ (Note: back and forth = 2)
- No, did not use this bridge

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**PLEASE REMEMBER TO FILL IN THE OTHER SIDE**
Please record the trips made by [insert name] on [insert date]...

**LOCATION AT START OF DAY**

Did this person make any trips on the survey day? Yes

**END LOCATION**

Give precise address or nearby intersection

Municipality: Vancouver

**Start time:** Write in the exact time (i.e., 9:15) you left the above location. Be sure to circle AM or PM.

**Arrival time:** Write in the exact time (i.e., 9:00) you arrived at this destination. Be sure to circle AM or PM.

**Main Trip Purpose:** (Choose only one, write in the code #)

- 1. To work
- 2. During work/bus. Trip
- 3. To school
- 4. Shopping
- 5. Dining/Restaurant

**Method of travel:** (Choose all that apply, list in order of use)

- 1. Auto – driver
- 2. Auto – passenger
- 3. Transit Bus
- 4. SkyTrain
- 5. West Coast Exp.

**If by auto:** Write in total # of people in car, including the driver.

**If not by auto:** Was an auto available for you to use for this trip? Yes

Where did you go next? Go to next column to record your next trip, including your trip home OR if you didn’t go anywhere else until midnight, check here.

**NEXT TRIP**

Location Code: 1st Trip

Next I went to

Location Code: 2nd Trip

Next I went to

Location Code: 3rd Trip

Next I went to

Location Code: 4th Trip

Next I went to

Location Code: 5th Trip

Next I went to

Location Code: 6th Trip

Next I went to

Location Code: 7th Trip

Next I went to

Location Code: 8th Trip

Next I went to

Location Code: 9th Trip

Next I went to

Location Code: 10th Trip

Next I went to
Person Profile For: [Name]

First Name or initials

1. Gender of this person: □ Male □ Female
2. Age of this person: __________ years
3. Person has a valid driver’s license? □ Yes □ No

4. Is this person presently employed as a commercial driver (e.g., a courier, taxi, truck or bus driver)? □ Yes □ No

When filling out your trips on the other side, please do NOT include trips where the purpose is commercial delivery or driving a bus or taxi. Thank you!

5. This person is: (Check all that apply)
   □ Working full time (30+ hours per week)
   □ Working part time (<30 hours per week)
   □ Self-employed
   □ Volunteer only (not for pay)
   □ Unemployed
   □ Homemaker
   □ Retired
   □ Student full time
   □ Student part time

6. If this person works, please list their workplace(s)

   Company ABC Ltd.
   Name of Work #1
   Address or cross streets
   Municipality
   Name of Work #2
   Address or cross streets
   Municipality

7. If this person is a student, please list their school

   Name of School
   Address or cross streets
   Municipality

8a. Does this person drive him/herself to work or school?
   □ Yes □ No – Go To Q8b

8b. If yes, who pays for parking?
   □ Parking is free – Go To Q8d
   □ Parking is fully paid by employer – Go To Q8d
   □ Parking is partially paid by employer – Go To Q8c
   □ Parking is paid personally (no subsidy) – Go To Q8c

8c. How much does this person pay for parking?
   $ ______ per Day or $ ______ per Month

8d. Does this person have employment duties that require an automobile?
   □ Frequently □ Occasionally □ Never

9a. Has this person traveled by public transit in the past month?
   □ Yes □ No – Go To Q10

9b. How did this person usually pay for transit in the past month? (pick one only)
   □ Monthly FareCard □ Cash
   □ FareSaver □ Other
   □ U-Pass □ Employer Paid Pass
   □ Annual Pass

10. Did this person use any of the following travel information on the survey day?
    □ Yes
    □ TrafficTravel websites (e.g., TravelSmart, DriveBC)
    □ Maps via websites (e.g., Google Maps, MapQuest, TransLink)
    □ TransLink’s website (e.g., Trip Planner, etc.)
    □ Paper maps or schedules
    □ Other, (specify)
    □ No

11. Did this person cross the Golden Ears Bridge on the survey day?
    □ Yes – # times crossed: ______ (Note: back and forth = 2)
    □ No, did not use this bridge

PLEASE REMEMBER TO FILL IN THE OTHER SIDE
Translated Mail-Back Survey Package Documents

Chinese Package

The 2011
One-Day Travel Survey

Address
City, BC
Canada
Postal Code

2011年，八月-九月

亲爱的受访者，

谢谢您拿出宝贵的时间接受这个旅行日志记录调查。

这个研究的目的是要了解本居民的旅行模式。是靠汽车、自行车、公共交通工具或步行。这些资料会帮助运输联线和市政府作出更有效的决定来帮助居民到达他们想去的地方。

您的家庭是被随机抽取出来代表您的社区的旅行习惯。问卷很简单，您只需要记录您和您的家庭成员一天的行程。即是在INSERT DIARY DATE。

如果行程日志记录那天不是正常的行是没有什么问题的。我们要求搜集所有的行程习惯作我们的研究。

所有资料是绝对保密的*并只用用来代表您的社区和地区的旅行模式。

请将填写好的调查信封内信寄回给Synovate，为表心意，您将会收到一张本地的大型咖啡连锁店的十元现金礼卷，您的名字亦会被自动登记参加其他的抽奖活动。

- 头奖是一千元现金
- 十八名地区现金奖每一百元
- 六部DVD
- 八十份End’s Restaurants的二十五元礼卷

谨致

Ian Jarvis
总监
运输联线

*您和您的家庭成员所提供的资料将不会使您满意没有的隐私保护。它会使用作运输联线的运输和服务用途，并可能会在有限的程序下分享给其他公有机构或研究人员。数据将不会被名字。而运输联线不会公开个人或个别家庭资料。如果您有疑问有关收集资料程序，请联络运输联线的 Dr. Ian Biggar，(604) 431-451。

如果您想更详尽这调查，请浏览http://www.translink.ca/tripdiary
需要协助？请致电604-664-2474或免费热线1-800-717-1777。
如何参与这项问卷调查：

1. 请您在问卷的右上方写上您选择的行程日志记录日期，您需要在指定的日期记录当天的所有行程。在那天，您（和您的家庭成员）需要带备手帐，纸上写上当天行程的细节。
2. 在行程日志记录日期的晚上，请记录所有家庭成员的行程日志。
3. 将填好的问卷放入已付款的信封信封，然后放入邮箱。
4. 当我们收到您的资料，您将会在大约四星期后收到价款十元的回信。

常见问题：

我是否一定要把整个问卷完成才有资格抽奖吗？

是，只有您所提供的资料完整才能有效地分析您的家庭的行程模式。

得奖名单会在什么时候公布？

2011年12月

我可以不提供私人资料，例如收件人吗？

所有资料是绝对保密。我们很需要这些私人资料，包括住址和收件人，才能够有一个完整的研究结果。您的资料是绝对不会被泄露的。

怎样才算旅程？

旅程是指您的家庭成员从一个地点前往到另一个地点。例如：

家-学校，家-学校等。

怎样才不算作旅程？

以下活动是否算作您的行程：
- 购物
- 布购物
- 买午餐
- 早上上班
- 晚上回家
- 保守公车时的步行来往
- 早餐
- 午餐
- 晚餐
- 买菜
- 买饮料
- 休闲
- 邻居

如果我的子女和我的行程一致，我有需要替他们记录吗？

有需要的，每一位家庭成员都需要填写一份行程日志。

如果您想更深入了解这项调查，请浏览http://www.translink.ca/tripdiary

需要协助？请致电604-664-2674 或 免费热线1-800-717-1777。
请为每一位家庭成员填写此表格

<table>
<thead>
<tr>
<th>日期/编号</th>
<th>在 Wednesday (October 12, 2011) 的行程</th>
</tr>
</thead>
</table>
| 开始      | 此人在行程日记记录日那天有外出吗？
|           | 是√ 否 ×                             |
| 结束      | 此人在行程日记记录日那天有外出吗？
|           | 是√ 否 ×                             |

### 行动地点
- 起点：书法教室，工作地点，或工作地点
- 终点：书法教室，工作地点，或工作地点
- 过程：书法教室，工作地点，或工作地点
- 结果：书法教室，工作地点，或工作地点

### 行动时间
- 开始时间：书法教室，工作地点，或工作地点
- 结束时间：书法教室，工作地点，或工作地点
- 抵达时间：书法教室，工作地点，或工作地点
- 离开时间：书法教室，工作地点，或工作地点

### 行程重点
- 行程目的：书法教室，工作地点，或工作地点
- 行程目的：书法教室，工作地点，或工作地点
- 行程目的：书法教室，工作地点，或工作地点
- 行程目的：书法教室，工作地点，或工作地点

### 行程交通方式
- 交通方式：书法教室，工作地点，或工作地点
- 交通方式：书法教室，工作地点，或工作地点
- 交通方式：书法教室，工作地点，或工作地点
- 交通方式：书法教室，工作地点，或工作地点

### 行程备注
- 如果使用汽车，请填写汽车的牌号， melancholy 123
- 使用公共交通，请填写公共交通的种类， melancholy 123
- 行程备注：书法教室，工作地点，或工作地点

### 行程天气
- 天气状况：书法教室，工作地点，或工作地点
- 天气状况：书法教室，工作地点，或工作地点
- 天气状况：书法教室，工作地点，或工作地点
- 天气状况：书法教室，工作地点，或工作地点

### 行程记录
- 下一个行程：书法教室，工作地点，或工作地点
- 下一个行程：书法教室，工作地点，或工作地点
- 下一个行程：书法教室，工作地点，或工作地点
- 下一个行程：书法教室，工作地点，或工作地点
请为每一位家庭成员填写这份表格

个人资料：

名字或编号

1. 此人性别
   □男 □女

2. 此人年龄
   _______ 年

3. 此人有驾驶执照吗？
   □有 □没有

4. 此人是商业司机吗？（例如出租车司机、货车司机或巴士司机）
   □是 □否

在另一份填写的问卷中，请不要包括任何商业用途的行程，例如商业传递，或驾驶巴士或出租车的行程。

5. 此人职业（请选择所有适用的）
   □全职工作（每周三十小时以上）
   □非全职工作（每周三十小时以下）
   □自由
   □兼职工作（没有收入）
   □其他
   □家庭主妇
   □已退休
   □全职学生
   □非全职学生

6. 此人在职，填写在职的工作地点

<table>
<thead>
<tr>
<th>工作地点1 名称</th>
<th>工作地点2 名称</th>
</tr>
</thead>
<tbody>
<tr>
<td>地址或十字路口</td>
<td>地址或十字路口</td>
</tr>
<tr>
<td>市镇</td>
<td>市镇</td>
</tr>
</tbody>
</table>

7. 此人是学生，填写在家的学校地点

<table>
<thead>
<tr>
<th>学校名称</th>
<th>地址或十字路口</th>
<th>市镇</th>
</tr>
</thead>
</table>

8a. 此人是驾驶上班或上学吗？
   □是 □否

8b. 如果答案是“是”，请回答下面的几个问题
   □是 □否

   □由雇主支付全部停车费用 - 请回答 Q8c
   □由雇主支付部分停车费用 - 请回答 Q8c
   □由雇主支付全部（没有津贴） - 请回答 Q8c

8c. 此人的停车费用是多少？
   每天$________ 或 每个月$________

8d. 此人的工作是否需要驾驶？
   □1 经常 □2 偶尔 □3 不需要

9a. 在过去一个月内此人有驾驶公共交通工具吗？
   □有 □没有

9b. 如果答案是“是”，请回答下面的几个问题
   □1 公交车票或卡 □2 现金
   □3 FareSaver □4 其他
   □5 U-Pass □6 员工卡
   □7 全年通行证

10. 此人在行程日记中记录了行程的日期和时间
   □有：
   □1 网站位置（例如 TravelSmart, DriveBC）
   □2 其他：（例如：Google Maps）
   □3 运输联锁网站（例如：行程计划，等等）
   □4 其他，（请说明）__________
   □5 没有

11. 此人在行程日记中记录了使用过某特定路线（Golden Ears Bridge）吗？
   □1 有 □2 没有
   □3 使用次数________（注意：表头# 2）
   □4 没有

请将此页填写完整。
2011 Metro Vancouver Regional Trip Diary Survey – Methodology Report

4. 此人是否持有驾照？
   □ 是 □ 否 驾照号：

在另一页所填写的行程表中包括任何商业用途的行程，例如商业传单，或驾驶巴士或出租车的行程，谢谢！

5. 此人的职业（请选择所适用的）
   □ 全职工作（每周三十小时以上）
   □ 部分全职工作（每周三十小时以下）
   □ 自雇
   □ 家庭主妇
   □ 退休
   □ 全职学生
   □ 非全职学生

6. 此人在哪间公司工作？

7. 此人是学生，其填写孩子的学校地点

8a. 此人是否搬上或搬下学车？
   □ 是 □ 否 — 请回答Q8b

8b. 如果是，此人的通学生电器？
   □ 全部是免费的 — 请回答Q8d
   □ 部分是免费的 — 请回答Q8d
   □ 没有这样的学生电器 — 请回答Q8d

8c. 此人的通学生费用是多少？
   每天$ 或 每个月$

8d. 此人的工作地点是否需要驾驶？
   □ 经常 □ 偶尔 □ 不需要

9a. 在过去一个月内此人的通工交通工具吗？
   □ 有 □ 没有 — 请回答Q9b

9b. 在过去一个月内，此人的通工方式是什么？
   □ 月费储蓄卡 □ 现金
   □ Pass □ 其他

9c. 此人在过去一个月内通工方式是什么？
   □ 全年通工

1. 此人在行程日记记录日是否有通工消息？
   □ 有
   □ 交通／行程规划（例如：Google Maps, Map Quest, 谷歌地图）
   □ 通工的路线（例如：行程规划，等等）
   □ 通工的路线及计划
   □ 其他（请说明）

11. 此人在行程日记上记录了哪些通工方式？

学校名称：

地址及十字路口：

市镇：

8b. 如果是，此人的通学生电器？
   □ 全部是免费的 — 请回答Q8d
   □ 部分是免费的 — 请回答Q8d
   □ 没有这样的学生电器 — 请回答Q8d

8c. 此人的通学生费用是多少？
   每天$ 或 每个月$

8d. 此人的工作地点是否需要驾驶？
   □ 经常 □ 偶尔 □ 不需要

9a. 在过去一个月内此人的通工交通工具吗？
   □ 有 □ 没有 — 请回答Q9b

9b. 在过去一个月内，此人的通工方式是什么？
   □ 月费储蓄卡 □ 现金
   □ Pass □ 其他

9c. 此人在过去一个月内通工方式是什么？
   □ 全年通工

1. 此人在行程日记记录日是否有通工消息？
   □ 有
   □ 交通／行程规划（例如：Google Maps, Map Quest, 谷歌地图）
   □ 通工的路线（例如：行程规划，等等）
   □ 通工的路线及计划
   □ 其他（请说明）

11. 此人在行程日记上记录了哪些通工方式？

学校名称：

地址及十字路口：

市镇：
The 2011 One-Day Travel Survey

Address
City, BC
Canada
Postal Code

Punjabi Package

The 2011 Metro Vancouver Regional Trip Diary Survey – Methodology Report
1. Results of the survey showed that the low-income households in the survey area had a lower participation rate in public transportation compared to higher-income households. This finding is consistent with previous studies that have shown a positive correlation between income and transportation mode choice.

2. The survey also found that the majority of respondents preferred walking or cycling as their primary mode of transportation within the city. This trend is likely due to the city's well-developed pedestrian and bicycle infrastructure.

3. Interestingly, the survey found that respondents were more likely to use public transportation if they had easy access to bus or train stops. This suggests that improving public transportation access could increase ridership.

4. The survey results also indicated that younger age groups were more likely to use public transportation than older age groups. This could be attributed to the younger generation's greater familiarity and comfort with technology and urban lifestyles.

5. Overall, the survey results highlight the importance of investing in public transportation to improve accessibility and reduce greenhouse gas emissions in the city.
### 2011 Metro Vancouver Regional Trip Diary Survey – Methodology Report

#### 99

<table>
<thead>
<tr>
<th>#</th>
<th>Method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AM</td>
<td>AM to 7.00 p.m.</td>
</tr>
<tr>
<td>2</td>
<td>AM</td>
<td>AM to 7.00 p.m.</td>
</tr>
<tr>
<td>3</td>
<td>AM</td>
<td>AM to 7.00 p.m.</td>
</tr>
<tr>
<td>4</td>
<td>AM</td>
<td>AM to 7.00 p.m.</td>
</tr>
<tr>
<td>5</td>
<td>AM</td>
<td>AM to 7.00 p.m.</td>
</tr>
<tr>
<td>6</td>
<td>AM</td>
<td>AM to 7.00 p.m.</td>
</tr>
<tr>
<td>7</td>
<td>AM</td>
<td>AM to 7.00 p.m.</td>
</tr>
<tr>
<td>8</td>
<td>AM</td>
<td>AM to 7.00 p.m.</td>
</tr>
<tr>
<td>9</td>
<td>AM</td>
<td>AM to 7.00 p.m.</td>
</tr>
<tr>
<td>10</td>
<td>AM</td>
<td>AM to 7.00 p.m.</td>
</tr>
<tr>
<td>11</td>
<td>AM</td>
<td>AM to 7.00 p.m.</td>
</tr>
</tbody>
</table>

**Note:** The above table represents the survey method and frequency for different timeslots.

---

**Reference:**

- 2011 Metro Vancouver Regional Trip Diary Survey – Methodology Report
- TRANS LINK

---

**Image Description:**

A flowchart illustrating the methodology of the survey, with steps labeled 1 to 11, each with corresponding actions and time slots.

---

**Source:**

- 2011 Metro Vancouver Regional Trip Diary Survey – Methodology Report
- TRANS LINK
1. Did participants receive any instructions on how to fill out the survey?

2. How many participants were included in the survey?

3. Did participants have the option to provide additional feedback or comments?

4. Did participants face any difficulties in understanding the instructions or survey questions?

5. Were there any incentives or rewards for completing the survey?

6. Did participants have the opportunity to provide demographic information?

7. Did participants have any questions or concerns about the survey?

8. How many participants completed the survey?

9. Were there any technical issues or difficulties encountered during the survey completion?

10. Did participants have any concerns about the privacy or confidentiality of their information?

11. Were there any other factors that may have affected the survey results?
Appendix B
Summary of 1-800 & Email Helpline Inquiries

Need Assistance

- Those who weren’t sure which trips to record
- Those who weren’t sure if they should include children who traveled with them
- Those who missed their travel diary date
- Those who weren’t sure of their travel diary date
- Those who requested a different travel diary day (e.g.: those who were unable to keep track of their trips on the date originally assumed, for various reasons: those who wanted to select a date when they knew they would definitely be making a trip, as they had misunderstood and thought that it was required that they make a trip on their diary date)
- Requests for password/entry code/login number/survey link (i.e.: either did not receive the confirmation email or did not notice that that information was provided in the confirmation email)
- Those who couldn’t find the website (i.e.: they were typing the address into a search bar instead of the address bar)
- Those who mistakenly thought that the PDF trip tracker page that was attached to the confirmation email was actually the trip diary portion of the survey, and asked how to “send it in” (We clarified that it should also be completed online.)
- Those asking if they could speak with a Chinese representative to help them
- Those who didn’t have a printer at home and weren’t sure how to record their trip information
- Those who made more than 10 trips and were confused because they couldn’t record their 11th trip on the online survey
- Those who had difficulty entering addresses (e.g.: typed in West 4th Avenue instead of W 4th Ave)
- Seniors who need assistance (general)
- Those who needed assistance completing the online survey (or in some cases, asked us to complete it for them)
- Those who needed assistance completing the paper survey

Questions/Requesting Clarification

- Those who were generally confused about the survey/study and needed clarification
- Those who wanted more information about the study in general
- Questions about why we were doing the study
- Questions about whether we (Ipsos) were local
- Questions about whether we were an American company
- Questions about the legitimacy of the survey
- Those who asked why we needed certain types of information (i.e.: names, times, origin/destination locations)
- Those who were worried about their security and privacy
• Those who were concerned about sharing information about their children
• Those who had received the pre-notification letter at their address, but with a different name, and weren’t sure if it was intended for them (the current resident at that address) or the person named on the envelope
• Those who had moved and had received the pre-notification letter via their forwarded mail, and inquired whether or not they should still complete the survey
• Those asking if they could assist their parent(s), who had received the pre-notification letter, to complete the survey
• Those asking if they were required to complete the survey or if they could choose not to
• Those asking if they should complete the survey if they were not transit users
• Those asking if they should complete the survey if they were transit-only users
• Those asking if they should complete the survey if they usually only travel for their daily commute
• Those asking if they should complete the survey if they are retired do not make a daily commute
• Those asking for confirmation that their completed survey (i.e.: online and paper) was received
• Those who had completed the first part of the survey (household information) were confused because they thought they had already completed the whole survey
• Those asking why we have a 1-800 number (i.e.: they were confused because they thought “1-800” was long distance, and asked why they needed to dial long distance to contact us)
• Those who wanted to know many people we were recruiting to complete the survey
• Those asking for clarification about what would be considered a work trip, and whether or not they should record it (e.g.: truck driver drives to multiple work locations in a day)
• Those asking for clarification of what was required on their assigned travel diary date
• Those who informed us that they would be out-of-town on the assigned date

Requesting Paper Surveys
• Requests for paper surveys
• Requests for another return envelope to send in their completed surveys, because they had lost the original envelope

Inquiring About Incentives
• Inquiring about the prize draws (i.e.: timing)
• Inquiring about whether or not they were a prize draw winner
• Inquiring about the name of the coffee chain
• Inquiring about the status of their gift card (i.e.: hadn’t yet received it)
• Those who felt that we weren’t offering enough of an incentive for their time
Suggestions/Complaints:

- Suggestions for TransLink (e.g.: add a bus route to service a specific area, add better bus connections to SkyTrain/West Coast Express stations, extend service hours, etc.)
- Suggestions for the survey in general (e.g.: make it less complicated, request less information)
- Suggestions for how to make the online survey more user-friendly (e.g.: add a function that remembers trips so that they wouldn’t have to be manually entered every time when multiple household members traveled together, make the auto-complete function for street names more intuitive, so it would recognize both “W Broadway” and “West Broadway”)
- Complaints about TransLink (e.g.: buses don’t run on a reliable schedule there are frequent delays, dislike the gas tax, complaints about toll bridge charges)
- Complaints about the nature of the survey, and how they thought the information would be used
- Disgruntled transit users (e.g.: recently had a bad experience on transit, such as an assault or a rude bus driver, expressed security or cleanliness concerns, dislike the use of large/full size buses in more remote areas where few people use transit – considered it a waste of taxpayer resources)
- Those who thought the entire study was a set-up/connspiracy
- Complaints that there had not yet been an announcement as to when the prize draw would happen/who the winners were, or that we had not made follow-up calls to inform them if they had won or not
- Complaints about the choice of Starbucks/coffee cards as the incentive, because they don’t drink coffee
- Complaints that we did not take night shift workers into account (i.e.: misunderstood and thought that they could not record the return trip home)
- Complaints about having to fill in the same trip information for all the household members, even if they all made the exact same trips

Other:

- Those requesting to be removed from the study
- Those requesting to be removed from the sample and/or our phone/mail list (i.e.: both those who did not want to complete the survey, and those who had completed the survey but did not wish to be contacted in the future)
- Those who wished to speak with TransLink in regards to the survey
- Those who called to report that the person addressed in the pre-notification letter was deceased
- Those who called to report that they did not wish to were not going to complete the survey
- Those who just wanted to talk
- Those asking us to correct their name in our system (e.g.: spelling mistake)
- Those calling to complete the survey by telephone (i.e.: misunderstood the pre-notification letter and thought that it was a telephone survey, and that they could call us to complete it over the phone instead of going online or waiting for us to phone them)
Email Follow-Up Script for Zero Trip Households

Dear Household,

Thank you for participating in the One-Day Travel Survey. As part of our effort to understand travel behaviour in the Metro Vancouver and Fraser Valley regions, we are asking those households who did not travel on their assigned Travel Survey Day to tell us why. This information is vital for our understanding of travel behaviour in the study area and our ability to plan based on data provided through the survey.

Please choose the best reason from the list below, hit reply and type in the associated code number for the one reason below that best describes why your household did not make any trips on the assigned Travel Survey Day. Hit SEND when you are finished.

1. Sick/ill
2. Out-of-town/travelling
3. Worked from home
4. Not comfortable reporting travel habits in a survey
5. Simply forgot to fill in that part of the survey
6. Survey too difficult/complicated
7. School holiday/professional day
8. Home-bound/elderly/disabled
9. Other reason please specify _______________________

Thank you so much for this additional information. Again, we appreciate your input with this important survey. Good luck in the prize draw which will take place in January 2012.

The One-Day Travel Survey Team

[Hit]
[INSERT UNIQUE ID]
Email Follow-up Script for Households With School-aged Children Making No School Trips

Subject Line: School Attendance

Dear Travel Survey Participant,

Thank you for completing the One-Day Travel Survey.

Our survey records indicates that [PROG: IF ONLY ONE KID, INSERT “your child”; IF MORE THAN ONE, “your children”] did not go to school on your assigned diary date, namely [INSERT DIARY DATE].

If your [INSERT child/children] went to school on that day, please complete the table below to the best of your recollection. (To do this, simply press reply and you will be able to fill in the information. Then press send when you are finished).

If your [child/children] did not go to school on that day, please reply to us with DID NOT ATTEND SCHOOL.

Should you have any questions, please do not hesitate to contact us at 1-800-717-1777 or email us at travelsurvey@websurveys.ca. We are more than happy to assist you.

Thank you once again for your participation. Your contribution is invaluable.

The Synovate One Day Travel Survey Team

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>GOING TO SCHOOL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Starting Point</td>
<td>Home</td>
<td>Home</td>
<td>Home</td>
<td>Home</td>
<td>Home</td>
</tr>
<tr>
<td>Destination</td>
<td>School</td>
<td>School</td>
<td>School</td>
<td>School</td>
<td>School</td>
</tr>
<tr>
<td>Type in the approximate time this child left home (eg. 8:36am)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type in the approximate time this child arrived at school (eg. 9:06am)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type in how the child got to school (eg. walked)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If they were driven to school:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type in the total # of people in car, including driver</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RETURNING HOME</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type in the approximate time this child left school (eg. 3:30pm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type in the approximate time this child arrived at home (eg. 4:00 pm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type in how the child got home (eg. walked)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If they were driven home: Type in the total # of people in car, including driver</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Thank you once again for your participation. Your contribution is invaluable.

Regards,
The Synovate’s One Day Travel Survey Team

[ ]
[INSERT UNIQUE ID]
Appendix C
## Stage 1 Cleaning Specs

<table>
<thead>
<tr>
<th>Logic Check ID</th>
<th>Type of Information</th>
<th>Description</th>
<th>Action Taken</th>
<th>Preliminary Stage 2 Identification</th>
<th>Number of Cases Tagged</th>
<th>Number of Cases After Cleaning</th>
<th>Final Cleaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>TG1.2</td>
<td>Trips General</td>
<td>Out-town to out-town trips</td>
<td>Remove all out-of-town to out-of-town trips</td>
<td>42 Persons</td>
<td>42/42</td>
<td>1</td>
<td>Stage 1</td>
</tr>
<tr>
<td>TT1.2a</td>
<td>Trip Time</td>
<td>Average speed is significantly out of range</td>
<td>Thresholds: 110 km/h for all Auto modes, will review trip information and revise if necessary</td>
<td>15.60 Trips</td>
<td>1560/1560</td>
<td>382</td>
<td>Stage 1</td>
</tr>
<tr>
<td>TT1.2b</td>
<td>Trip Time</td>
<td>Average speed is significantly out of range</td>
<td>Thresholds: 70 km/h for all Bus modes, will review trip information and revise if necessary</td>
<td>52 Trips</td>
<td>52/52</td>
<td>16</td>
<td>Stage 1</td>
</tr>
<tr>
<td>TT1.2c</td>
<td>Trip Time</td>
<td>Average speed is significantly out of range</td>
<td>Thresholds: 60 km/h for all Rail modes, will review trip information and revise if necessary</td>
<td>28 Trips</td>
<td>28/28</td>
<td>17</td>
<td>Stage 1</td>
</tr>
<tr>
<td>TT1.2d</td>
<td>Trip Time</td>
<td>Average speed is significantly out of range</td>
<td>Thresholds: 20 km/h for Walked modes, will review trip information and revise if necessary</td>
<td>45 Trips</td>
<td>45/458</td>
<td>207</td>
<td>Stage 1</td>
</tr>
<tr>
<td>TT1.2e</td>
<td>Trip Time</td>
<td>Average speed is significantly out of range</td>
<td>Thresholds: 30 km/h for Biked modes, will review trip information and revise if necessary</td>
<td>37 Trips</td>
<td>37/37</td>
<td>30</td>
<td>Stage 1</td>
</tr>
<tr>
<td>TT1.2f</td>
<td>Trip Time</td>
<td>Average speed is significantly out of range</td>
<td>Thresholds: 70 km/h for all Other modes, will review trip information and revise if necessary</td>
<td>38 Trips</td>
<td>38/38</td>
<td>74</td>
<td>Stage 1</td>
</tr>
<tr>
<td>TT1.2g</td>
<td>Trip Time</td>
<td>Average speed is significantly out of range (multi-modal trips)</td>
<td>Steve provided flag to be checked, will review trip information and revise if necessary</td>
<td>237 Trips</td>
<td>237/237</td>
<td>190</td>
<td>Stage 1</td>
</tr>
<tr>
<td>TT2.2a</td>
<td>Trip Time</td>
<td>Trip using WCE is less than 30 minutes</td>
<td>Will review trip information and revise if necessary</td>
<td>10 Persons</td>
<td>10/10</td>
<td>9</td>
<td>Stage 1</td>
</tr>
<tr>
<td>TT2.2b</td>
<td>Trip Time</td>
<td>Trip using SeaBus is less than 15 minutes</td>
<td>Will review trip information and revise if necessary</td>
<td>9 Persons</td>
<td>9/9</td>
<td>6</td>
<td>Stage 1</td>
</tr>
<tr>
<td>TT2.2c</td>
<td>Trip Time</td>
<td>Grade school trips start before 7:00 am</td>
<td>Will review trip information and revise if necessary</td>
<td>28 Persons</td>
<td>28/28</td>
<td>25</td>
<td>Stage 1</td>
</tr>
<tr>
<td>TT2.2d</td>
<td>Trip Time</td>
<td>Grade school trips end after 5:00 pm</td>
<td>Will review trip information and revise if necessary</td>
<td>25 Persons</td>
<td>25/25</td>
<td>22</td>
<td>Stage 1</td>
</tr>
<tr>
<td>T1.1.2</td>
<td>Trip Location</td>
<td>Didn’t start from home in the beginning</td>
<td>Will review trip information and revise if necessary</td>
<td>944 Persons</td>
<td>944/944</td>
<td>830</td>
<td>Stage 1</td>
</tr>
</tbody>
</table>

*Subject to change as we are still in the process of stage 1 and stage 2 cleaning
## Stage 1 Cleaning Specs

<table>
<thead>
<tr>
<th>Logic Check ID</th>
<th>Type of Information</th>
<th>Description</th>
<th>Action Taken</th>
<th>Number of Cases Flagged</th>
<th>Number of Cases Cleaned TD</th>
<th>Number of Cases After Cleaning</th>
<th>Final Cleaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP1.2</td>
<td>Trip Purpose</td>
<td>Respondent going to other HH members’ workplace and mark the purpose as going to work</td>
<td>• Verify trip information, and change trip purpose to “drop off/pick up” as necessary</td>
<td>209 Persons</td>
<td>209/209</td>
<td>148</td>
<td>Stage 1</td>
</tr>
<tr>
<td>TP2.1a</td>
<td>Trip Purpose</td>
<td>Going to school but location type is not school</td>
<td>• Verify trip information, and change if necessary</td>
<td>104 Persons</td>
<td>104/104</td>
<td>74</td>
<td>Stage 1</td>
</tr>
<tr>
<td>TP2.1b</td>
<td>Trip Purpose</td>
<td>Going to shopping but location type is not store</td>
<td>• Verify trip information, and change if necessary</td>
<td>622 Persons</td>
<td>622/622</td>
<td>280</td>
<td>Stage 1</td>
</tr>
<tr>
<td>TP2.1c</td>
<td>Trip Purpose</td>
<td>Going home but location type is not house</td>
<td>• Verify trip information, and change if necessary</td>
<td>35 Persons</td>
<td>35/35</td>
<td>9</td>
<td>Stage 1</td>
</tr>
<tr>
<td>TP2.1d</td>
<td>Trip Purpose</td>
<td>Going for dining but location type is not house/restaurants</td>
<td>• Verify trip information, and change if necessary</td>
<td>367 Persons</td>
<td>367/367</td>
<td>83</td>
<td>Stage 1</td>
</tr>
<tr>
<td>TM1.4</td>
<td>Trip Mode</td>
<td>Used Sea Bus but origin/destination is not on North Shore</td>
<td>• Will verify trip information and change if necessary</td>
<td>26 Persons</td>
<td>26/26</td>
<td>9</td>
<td>Stage 1</td>
</tr>
</tbody>
</table>

*Subject to change as we are still in the process of stage 1 and stage 2 cleaning*
## Stage 2 Cleaning

<table>
<thead>
<tr>
<th>Logical Check ID</th>
<th>Type of Information</th>
<th>Description</th>
<th>Action Taken</th>
<th>Number of Cases Flaged</th>
<th>Number of Cases Canceled</th>
<th>Number of Cases After Cleaning</th>
<th>Final Cleaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1.2a</td>
<td>Households</td>
<td>Number of autos is zero (specifically marked as 0) but auto driver trips are made</td>
<td>• Will be flagged in spreadsheet</td>
<td>251 Households</td>
<td>0</td>
<td>251</td>
<td>Stage 2</td>
</tr>
<tr>
<td>H1.2b</td>
<td>Households</td>
<td>Number of autos is zero (left as blank) but auto driver trips are made</td>
<td>• Will be flagged in spreadsheet</td>
<td>273 Households</td>
<td>0</td>
<td>273</td>
<td>Stage 2</td>
</tr>
<tr>
<td>P1.1</td>
<td>Persons</td>
<td>Diary Q8a (parking) = yes, but Q2 (age) is under 16 and/or Q3 (driver's license) = 0</td>
<td>• Change Q8a to no</td>
<td>3 Persons</td>
<td>3/3</td>
<td>0</td>
<td>Stage 2</td>
</tr>
<tr>
<td>P1.2</td>
<td>Persons</td>
<td>Commercial driver but under age 22 (provincial minimum)</td>
<td>• Check employer, trips and remove commercial driver designation as appropriate</td>
<td>9 Persons</td>
<td>9/9</td>
<td>0</td>
<td>Stage 2</td>
</tr>
<tr>
<td>P1.3a</td>
<td>Persons</td>
<td>Working full-time or homemaker with age under 16</td>
<td>• Will revise work/school status as necessary</td>
<td>54 Persons</td>
<td>84/84</td>
<td>19</td>
<td>Stage 2</td>
</tr>
<tr>
<td>P1.3b</td>
<td>Persons</td>
<td>Retired with age under 30</td>
<td>• Will revise work/school status as necessary</td>
<td>11 Persons</td>
<td>11/11</td>
<td>9</td>
<td>Stage 2</td>
</tr>
<tr>
<td>P1.3c</td>
<td>Persons</td>
<td>Full-time grade school with age &gt;20</td>
<td><strong>NONE:</strong> Did not specify school type</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>Stage 2</td>
</tr>
<tr>
<td>P1.3d</td>
<td>Persons</td>
<td>Full-time university with age under 16</td>
<td><strong>NONE:</strong> Did not specify school type</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>Stage 2</td>
</tr>
<tr>
<td>P1.3e</td>
<td>Persons</td>
<td>Not full-time student, but under 16</td>
<td>• Will review and revise school status as necessary</td>
<td>251 Persons</td>
<td>251/251</td>
<td>193</td>
<td>Stage 2</td>
</tr>
<tr>
<td>P1.4a</td>
<td>Persons</td>
<td>Working and unemployed both checked</td>
<td>• Will review school status as necessary</td>
<td>0</td>
<td>n/a</td>
<td>n/a</td>
<td>Stage 2</td>
</tr>
<tr>
<td>P1.4b</td>
<td>Persons</td>
<td>Working full-time and full-time student</td>
<td>• Will revise work/school status as necessary</td>
<td>95</td>
<td>95/95</td>
<td>88</td>
<td>Stage 2</td>
</tr>
<tr>
<td>P1.4c</td>
<td>Persons</td>
<td>Full-time at multiple school types</td>
<td><strong>NONE:</strong> Did not specify school type</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>Stage 2</td>
</tr>
<tr>
<td>P2.1</td>
<td>Persons</td>
<td>Grade school is not the same municipality as home</td>
<td>• Ipsos will provide the aggregate regions</td>
<td>162 Persons</td>
<td>0</td>
<td>192</td>
<td>Stage 2</td>
</tr>
<tr>
<td>P2.2</td>
<td>Persons</td>
<td>Diary Q9c (transit fare type) = employer paid pass but Q5 indicates not employed</td>
<td>• Will review trip information and revise if necessary</td>
<td>9 Persons</td>
<td>9/9</td>
<td>9</td>
<td>Stage 2</td>
</tr>
</tbody>
</table>

*Subject to change as we are still in the process of stage 1 and stage 2 cleaning*
## Stage 2 Cleaning

<table>
<thead>
<tr>
<th>Logic Check ID</th>
<th>Type of Information</th>
<th>Description</th>
<th>Action Taken</th>
<th>Number of Cases Flagged*</th>
<th>Number of Cases Cleared</th>
<th>Number of Cases After Cleaning</th>
<th>Final Cleaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1.5a</td>
<td>Persons</td>
<td>Highest reported daily or monthly parking rates</td>
<td>• Check the highest reported parking rates to ensure that values are reasonable (i.e. &lt;$50/day and &lt;$400/month); correct obvious typos</td>
<td>34 Persons</td>
<td>34/34</td>
<td>34</td>
<td>Stage 2</td>
</tr>
<tr>
<td>P1.5b</td>
<td>Persons</td>
<td>Parking rates entered as ‘zero’</td>
<td>• Will review trip information and revise if necessary</td>
<td>86 Persons</td>
<td>86/86</td>
<td>85</td>
<td>Stage 2</td>
</tr>
<tr>
<td>TGL.1</td>
<td>Trips General</td>
<td>Delivery trips</td>
<td>• Flag 3 consecutive work trips on spreadsheet</td>
<td>131 Persons</td>
<td>131</td>
<td>131</td>
<td>Stage 2</td>
</tr>
<tr>
<td>TT2.1</td>
<td>Trip Time</td>
<td>Trip duration for school trip for age &lt; 13 is more than 30 minutes and not on school bus</td>
<td>• Will be flagged in spreadsheet</td>
<td>90 Persons</td>
<td>90/90</td>
<td>90</td>
<td>Stage 2</td>
</tr>
<tr>
<td>TL1.1</td>
<td>Trip Location</td>
<td>Didn’t return home at night, and previous trip purposes was not going to work or during work, made within region, and started before 8 PM</td>
<td>• Will review trip information and revise if necessary</td>
<td>561 Persons</td>
<td>561/561</td>
<td>454</td>
<td>Stage 2</td>
</tr>
<tr>
<td>TPL.1</td>
<td>Trip Purpose</td>
<td>Respondent going to other HH members’ school and mark the purpose as going to school</td>
<td>• Verify trip information, and change trip purpose to “drop off/pick up” as necessary</td>
<td>937 Persons</td>
<td>937/937</td>
<td>730</td>
<td>Stage 2</td>
</tr>
<tr>
<td>TPL.4a</td>
<td>Trip Purpose</td>
<td>Not employed but reported trips to work</td>
<td>• Verify trip information, and change trip purpose to “drop off/pick up” as necessary</td>
<td>370 Persons</td>
<td>370/370</td>
<td>370</td>
<td>Stage 2</td>
</tr>
<tr>
<td>TPL.4b</td>
<td>Trip Purpose</td>
<td>Not a student but reported trips to school</td>
<td>• Verify trip information, and change trip purpose to “drop off/pick up” as necessary</td>
<td>1303 Persons</td>
<td>1303/1303</td>
<td>1103</td>
<td>Stage 2</td>
</tr>
<tr>
<td>TPL.5</td>
<td>Trip Purpose</td>
<td>Trip purpose is drop-off, but only 1 person in vehicle</td>
<td>• Verify trip information, and change trip purpose to “drop off/pick up” as necessary</td>
<td>2854 Persons</td>
<td>n/a</td>
<td>n/a</td>
<td>Stage 2</td>
</tr>
</tbody>
</table>

*Subject to change as we are still in the process of stage 1 and stage 2 cleaning
### Stage 2 Cleaning

<table>
<thead>
<tr>
<th>Logic Check ID</th>
<th>Type of Information</th>
<th>Description</th>
<th>Action Taken</th>
<th>Number of Cases Flagged</th>
<th>Number of Cases Cleaned</th>
<th>Number of Cases After Cleaning</th>
<th>Final Cleaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP2.1e</td>
<td>Trip Purpose</td>
<td>Going for recreation/social/entertainment but location type is industrial or hospital</td>
<td>• Verify trip information, and change if necessary</td>
<td>111 Persons</td>
<td>111/111</td>
<td>87</td>
<td>Stage 2</td>
</tr>
<tr>
<td>TM1.2</td>
<td>Trip Mode</td>
<td>Under age drivers</td>
<td>• Will change them to passenger instead</td>
<td>4 Persons</td>
<td>4/4</td>
<td>0</td>
<td>Stage 2</td>
</tr>
<tr>
<td>TM1.3</td>
<td>Trip Mode</td>
<td>Passenger trip with only one person in the vehicle</td>
<td>• Change to 2 people in the vehicle</td>
<td>150 Persons</td>
<td>15/15</td>
<td>0</td>
<td>Stage 2</td>
</tr>
<tr>
<td>TM1.5</td>
<td>Trip Mode</td>
<td>Walk mode with other modes</td>
<td>• Will verify trip information and remove walk mode or other modes as appropriate</td>
<td>11 Persons</td>
<td>11/11</td>
<td>0</td>
<td>Stage 2</td>
</tr>
</tbody>
</table>

*Subject to change as we are still in the process of stage 1 and stage 2 cleaning*