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FACULTY OF APPLIED SCIENCE & ENGINEERING
Transportation Research Institute

datamanagementgroup

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Data Management Group

Annual Report

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INTRODUCTION

The Data Management Group (DMG) was established in 1988 based on a proposal from the University of Toronto's Joint Program in Transportation for an autonomous research group with the following objectives:

(a) to establish a common, centrally accessible database containing information on transportation activities, zone systems, transportation networks, and land use activity,
(b) to provide a transportation data retrieval service to the participating agencies,
(c) to monitor the adequacy of available data and propose approaches for adding to or updating the data as mutually agreed upon by the agencies,
(d) to promote greater interaction between university researchers and practitioners in the field of urban transportation planning,
(e) to promote the communication of transportation information and data obtained or administered by the Data Management Group to interested agencies and to the public, and
(f) to further the improvement of transportation demand analysis, research, and forecasting in the Greater Toronto Area.

Although the administration of the group has changed and DMG is now a part of the University of Toronto Transportation Research Institute (UTTRI) under the Department of Civil and Mineral Engineering at the University of Toronto, the DMG continues to be guided by these objectives into this its 33rd year of continuous operation.

Program approval and funding of the DMG is the collective responsibility of members of the Transportation Information Steering Committee (TISC) with the following membership:

City of Hamilton
City of Toronto
Metrolinx
Ministry of Transportation, Ontario (MTO)
Regional Municipality of Durham
Regional Municipality of Halton
Regional Municipality of Peel
Regional Municipality of York
Toronto Transit Commission (TTC)

Each participating agency appoints a member of their technical staff to the

Transportation Research and Data Management Group (TRADMAG), which is a standing committee of TISC, and is responsible for coordinating the needs of the funding agencies and the activities of the research project.

Due to the COVID-19 pandemic, all DMG staff started working from home in March 2020 when the Province of Ontario declared a state of emergency. Due to the continuing waves of the COVID pandemic, work from home continued for the greater part of 2021 as well, and therefore, most of the activities described in this report were carried out remotely. This report provides a brief profile of the staff employed and a description of the activities undertaken by the DMG during the calendar year 2021. These are presented in the following sections:

1. Staff and Location.
2. Transportation Tomorrow Survey (TTS).
3. TTS Redesign Project & COVHITS Survey.
4. Computer Resources and Technical Support.
5. Budget and Contributions.
6. Meetings.

STAFF AND LOCATION

Research Director

Eric J. Miller, Professor, Department of Civil & Mineral Engineering, University of Toronto

Associate Director

Khandker Nurul Habib, Professor, Department of Civil & Mineral Engineering, University of Toronto

Technical Staff

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Dorian Stratigacos, B.A. Carleton University

Web Site

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TRANSPORTATION TOMORROW SURVEY (TTS)

Under the guidance of TISC, a series of urban travel surveys, the Transportation Tomorrow Survey (TTS), have been conducted every five years since 1986. The last TTS was conducted in 2016 with 22 funding partners. The survey area spanned from Peterborough County in the east to Brant County in the west and Simcoe County in the north. Unlike the previous surveys, DMG did not manage the 2016 TTS but participated as an advisor to TISC and provided consulting and support services for the chosen vendor.

DMG is playing the same advisory role in 2021 and was part of the team which participated in the survey vendor information session, and the vendor review and selection process in early 2021. Once the vendor was chosen, DMG became part of the Technical Advisory Committee (TAC) assigned by TISC to monitor and advise the vendor.

As part of TAC, DMG was actively involved in discussions on changes to the TTS questionnaire, including the addition of race and immigration status questions. DMG also assisted with the creation of metrics to be used for greenlighting the data collection phase of the survey during the COVID period and assisted in the preparations for the pilot survey and data collection.

Preparations were made to start data collection in the Fall of 2021 and the Spring of 2022 but due to renewed outbreaks of new strains of COVID-19 (Delta and Omicron variants) affecting Ontario's reopening plans, it was first decided to push the TTS data collection periods to Spring 2021 and Fall 2022, and then to Fall 2022 and Spring 2023.

TTS REDESIGN PROJECT & COVHITS SURVEY

The TTS Redesign Project is a continuation of a research and development project, Survey Methods Research (TTS 2.0), funded by the MTO and other Ontario government agencies in collaboration with the DMG, to investigate better and cost-effective ways to conduct future travel surveys. The TTS Redesign Project focuses on one of the main tools developed by the TTS 2.0 team: the survey design and execution platform, the TRavel and Activity Integrated Survey Instrument (TRAISI).

In 2021, DMG continued to test and provide feedback on TRAISI and offered advice to the team on other requirements of the software such as sample control and telephone interview modules, etc. Continuing on from 2020, a version of TRAISI was used to support two panel surveys to understand the impacts of COVID-19 on transportation behaviour.

Since the pandemic started in 2020, residents in Ontario have been encouraged to stay at home and avoid any non-essential trips. Travel behaviour has dramatically changed which sparked interest in observing these changes at different stages of the pandemic. As a result, the COVID-19 influenced Households' Interrupted Travel Schedules (COVHITS) survey, sponsored by MTO, Metrolinx, TTC, the City of Toronto, and the Regions of Halton, Peel and York was arranged and conducted by the TTS 2.0 team under the direction of Prof. Khandker Nurul Habib. The first cycle of the survey was conducted in a one-month period from October 20, 2020, to November 20, 2020, and covered the City of Toronto, Regions of Halton, Peel, and York.

The survey collected travel patterns of the respondents before and during the pandemic. The final dataset contains 3,721 households, 8,096 persons, and 6,948 trip records.

The second cycle of the survey was conducted in the summer of 2021 during a one-month period from July 15 to August 16 after Ontario came out of a spring lockdown. The final dataset contains 1,878 households, 4,190 persons, and 2,924 trip records.

The third cycle of the survey was conducted in the fall of 2021 during the period October 15 to November 30. The final dataset contains 4,687 households, 9,984 persons, and 9,962 trip records.

The sample questionnaires used in the three cycles of the COVHITS study are included in the appendices of this reports. The final summary reports can be found on the DMG website.

The DMG staff met with the team on a weekly basis to give advice, answer any questions, and to ensure the project was progressing in the right direction. Access to the COVHITS survey data was also provided to the funding agencies through DMG via one of our virtual machines.

INFORMATION PROCESSING

The term 'information processing' is used in this instance to describe a set of activities supporting the management, storage, and distribution of urban travel information. The principal components of this information are the results of the Transportation Tomorrow Surveys and a collection of all Cordon Count Surveys.

Transportation Tomorrow Surveys and iDRS

The DMG administers the data files on urban travel contained in the 1986, 1991, 1996, 2001, 2006, 2011, and 2016 Transportation Tomorrow Surveys (TTS) in the form of a set of relational databases with various methods of access. Direct access to the original files is restricted to DMG staff to ensure that information on a particular household cannot be identified. Currently, data files available to iDRS users contain the following information:

TTS Number of records

Year	Households	Persons	All Trips	Transit Detail
1986	61,453	171,086	370,248	56,615
1991	24,507	72,496	157,349	14,896
1996	115,193	312,781	657,971	702,95
2001	136,379	374,182	817,744	85,095
2006	149,631	401,653	864,348	87,244
2011	159,157	410,404	858,848	86,703
2016	162,708	395,885	798,093	91,437

The increasing size of the databases reflects not only growth in travel in the area but also changes in the size of the area surveyed.

The first text-based data retrieval system (drs) was developed in the mid-1990s by the staff of DMG as the original method for external users to gain access to the data files and complete the data extraction themselves. This retrieval system was very effective when a modem was used as the principal method of remote access to the DMG's computer system. Over the years, as the demand for travel data grew and the Internet became the preferred method of remote access, a data retrieval system specifically designed for Internet access was developed (iDRS). All the features of drs were incorporated into the browser-based iDRS and the drs process was phased out.

The initial release of iDRS was restricted to use by the funding agencies. In 2002, access to iDRS was made available to any individual that requested access. The individual was required to sign an agreement form and system security was

maintained by giving each user a unique login and password. This procedure has the added benefit that agencies outside the Greater Toronto and Hamilton Area that participated in the Transportation Tomorrow Surveys could access their data without the need to set up their own database system.

In order to meet the changing needs of the data, the DMG developed a new version of iDRS. The software was rewritten to incorporate a new database management system, PostgreSQL, which was used as part of the TTS survey software. Several new functions such as additional filter criteria and the ability to store the query for future use have been added and the speed of extraction has increased dramatically.

A new authorization process has also been implemented together with the new software. The process has been automated so that any individual can request access by entering the name, affiliation, email address, and contact number online. Once the information is submitted, it will be approved by the DMG staff and an email with the credentials will be sent to the new user.

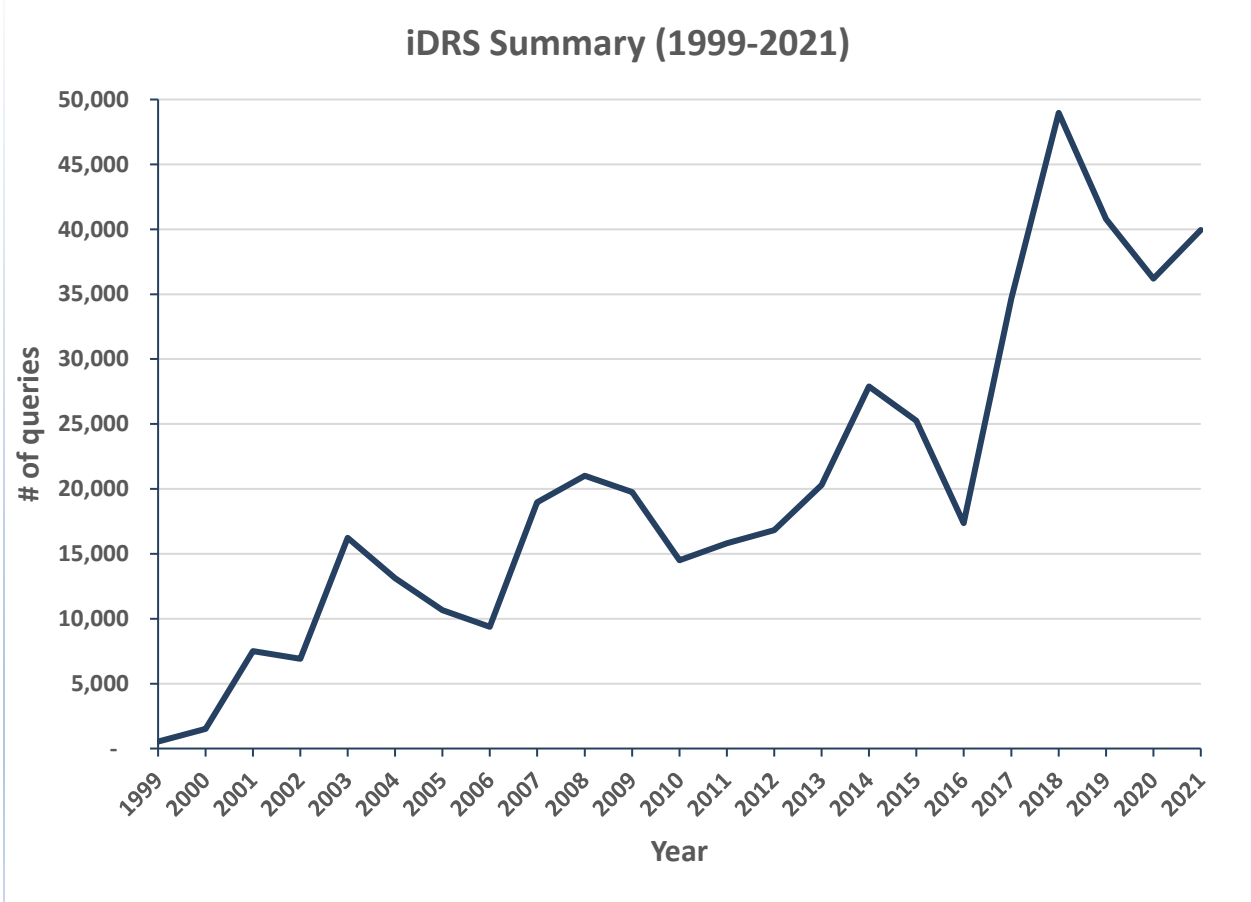
The official version of the new iDRS was released in 2016, but the DMG continues to fine-tune the new iDRS system based on the feedback of the users.

Summary of iDRS Data Requests

When the browser-based data extraction procedure (iDRS) was first released in 1999, the users were registered users of the DMG's computer system. The initial use of iDRS was encouraging. Subsequently, in late 2000, the Steering Committee gave approval for use by anyone registering and providing information on their affiliation. The growth in the use of TTS data is reflected in the growth of the use of iDRS for data extraction. The following chart shows the growth since iDRS was first introduced in 1999. The 'Number of Queries' reflects the number of times an output was generated during a session. iDRS usage peaked at the year after a new TTS dataset was released in 2002, 2007, 2014[1] and 2018[2]

[1] The interview phase of the 2011 TTS completed in December 2012 and the final data set was released in November 2013.

[2] The interview phase of the 2016 TTS was completed in December 2016 and the final data was released in October 2017.



After peaking in 2018, after the release of the 2016 TTS data, the number of queries completed has decreased but still remained at a very high level showing that the data tool is still very highly used today.

The following table shows the monthly summaries since the release of the latest TTS data.

	Year				
Month	2017	2018	2019	2020	2021
January	2,194	3,079	3,778	3,203	4,206
February	2,179	4,126	4,098	3,286	2,399
March	4,724	5,479	4,296	4,953	2,683
April	2,115	4,080	2,946	5,583	2,281
May	4,517	7,466	4,209	2,588	2,169
June	2,259	4,944	3,575	2,026	2,608
July	2,493	5,405	3,554	2,210	3,373
August	2,391	3,139	3,205	1,956	5,540
September	3,689	3,196	2,461	2,389	5,223
October	3,172	2,759	3,360	2,360	3,163
November	2,889	3,148	3,149	3,577	4,037
December	2,059	2,149	2,143	2,069	2,262
Total	34,681	48,970	40,774	36,200	39,944

Affiliations of iDRS Users in 2021

The following is the list of 127 different agencies and groups that extracted data through iDRS in 2021.

407 ETR
ACCESS Planning
AECOM
AI Deep Dive
Alberta Regional Rail
Arup Group
BA Consulting Group Ltd.
Blaqzone
C.C. Tatham and Associates
C.F. Crozier & Associates Inc.
Cambrian College
Canadian Centre for Policy Alternatives
Candevcon Limited
Carleton University
CBCL Ltd.
CGH Transportation Inc.
CIMA Canada Inc.
City of Barrie
City of Brampton
City of Burlington
City of Burnaby
City of Guelph
City of Hamilton
Ministry of Transportation
Mohawk College
Morrison Hershfield
N Engineering Inc.
New Horizon Development Group
Nextrans Consulting Engineers
Norwegian University of Science and Technology
Ontario Professional Planners Institute
Paradigm Transportation Solutions Limited
Parsons Corporation
Poulos and Chung Ltd.
Queens University
R J Burnside & Associates Ltd.
R.C. Lau Inc.
Reach Communities Group
Regional Municipality of Durham
Regional Municipality of Peel
Regional Municipality of York
Ryerson University
Salvini Consulting Inc.
SNC-Lavalin Inc.
Social Planning Toronto
Spectrum Traffic Data Inc.

City of Markham
City of Mississauga
City of Peterborough
City of Toronto
City of Vaughan
Cole Engineering Group Ltd.
Concordia University
CPCS Transcom Limited
Cycle Toronto
Deloitte Canada LLP
DevTrans Engineering Inc.
Dillon Consulting Ltd.
École Nationale des Ponts et Chaussées
Erasmus University Rotterdam
EXP Services Inc.
GHD Group
Gore Mutual Insurance Company
Greater Toronto Airports Authority
Green Communities Canada
Hafencity University
Halton Environmental Network
Hanyang University
Harvard University
Hatch Ltd.
HBA Specto Inc.
HDR Inc.
HousingNowTO
IBI Group
IdeasforWrda30
IIT Delhi, India
Jacobs Engineering Group
JD Engineering
KPMG Australia
LEA Consulting Ltd.
Lund University
McGill University
McMaster University
Metrolinx
Metropolitan University of Tirana
MHBC Planning Ltd.
Ministry of Municipal Affairs
Spring Farm Ratepayers Association
Stantec Consulting Inc.
Steer Group
Sustainable Solutions Group
Sustainable Urban Development Association
T.Y. Lin International Group
Tatham Engineering Ltd.
Tedesco Engineering
Texas A&M University
The Municipal Infrastructure Group Ltd.
The Neptis Foundation
Three Hills Engineering Ltd.
Toronto Catholic District School Board
Toronto Transit Commission
Toronto Youth Cabinet
Town of Caledon
Town of Halton Hills
Town of Oakville
Town of Richmond Hill
TraffMobility Engineering Inc.
Tranplan Associates
Trans-Plan Transportation Inc.
Tribhuvan University
Tri-Cities Transport Action Group
Universidad de Buenos Aires
University of Alberta
University of British Columbia
University of California Berkeley
University of Toronto
University of Waterloo
University of Zurich
University of Cambridge
Urban Systems
urbanMetrics Inc.
Veermata Jijabai Technological Institute
Waterloo Region Record
WhatIf? Technologies Inc.
Wood Group
WSP Group Ltd.
York University

TTS Special Data Requests

The interactive procedures available with iDRS satisfy the majority of data needs. However, some data needs are too complex and require the intervention of an experienced analyst to formulate a custom query from the database. In addition, the DMG staff can often help define the most relevant data for the problem at hand. One of the typical data requests involves assigning the coordinates of households or trip ends to a specified spatial aggregation, different from the predefined traffic zone systems as these coordinates are not available to any non-DMG staff in order to protect the privacy of the survey respondents. Here is a list of agencies and details on some of the special data requests completed in 2020:

City of Brampton
: Assignment of the 2016 TTS data to a new Brampton zone system

City of Toronto
: Assignment of 2016 TTS data to special buffer areas around transit stations and stops and creation of custom tabulations

City of Toronto
: Assignment of 2016 TTS data to Major Transit Station Area (MTSA) zones and creation of custom tabulations

Clean Air Partnership
: Custom tabulations of 2016 TTS data aggregated to TTS zones

Mott Macdonald (on behalf of TTC)
: Custom tabulations at the Census Disaggregation Area level for transit trips made using TTC and York Region Transit.

Regional Municipality of Niagara
: Assignment of 2016 TTS data to a new Niagara zone system

Regional Municipality of York
: Respondents' occupation by work-from-home arrangement for each region were extracted from the first cycle of COVHITS survey. In addition, in-store and online shopping frequencies by purchase type, household size, dwelling type and household income were tabulated for each region.

Toronto Board of Trade
: Assignment of the 2016 TTS data to special custom zones

Town of Brantford-West Gwillimbury
: Assignment of the 2016 TTS data to a new Brantford-West Gwillimbury zone system

University of Toronto

Custom tabulations of 2016 TTS household and person data aggregated at the Census Disaggregation Area level

University of Waterloo

Custom tabulations of City of Waterloo data, assigned to numerous new zone systems.

Disaggregate Data Access

There is an increasing number of transportation related projects that require access to disaggregate data for modelling work. With approval from TISC in 2017, DMG has developed and implemented a new data access protocol for the access of disaggregate data by researchers and consultants working on projects on behalf of DMG's funding partners which will allow DMG to maintain security over the disaggregate data.

Potential users are required to fill out a request form that outlines the specific data required, project and its sponsor, and the time frame for which access is required. If the request is approved, an account is set up, and the users are given login instructions and a unique login and password to access their required datasets on a virtual machine. Datasets provided do not include any coordinates, and all locations are coded to a higher-level geographic area i.e., traffic zones, Census dissemination areas, planning districts etc.

The server is set up so the user can work on the datasets in the account via Remote Desktop Protocol (RDP). However, there is no internet access allowed and data cannot be directly copied off the server. Only aggregate data is allowed off the system, and any data files required to be downloaded must be reviewed and approved by DMG personnel, who will then allow the download of the data from an FTP location. DMG has committed to review and forward the requested data within one business day.

Below is a list of the users of disaggregate data access in 2021 via the RDP method:

User	Agency	Data required	Project
AECOM	City of Hamilton	2016 TTS	City of Hamilton model
Clean Air Partnership	Durham Region	2016 TTS	Determining VKT
Mott Macdonald	TTC	2016 TTS	Fare study
Steer	Metrolinx	2016 TTS	Fare Integration Ridership Response Model
WSP	Town of Bradford -West Gwillimbury	2016 TTS	Bradford Transportation Model

User	Agency	Data required	Project
WSP	Halton Region	2016 TTS	Halton Travel Demand Model
WSP	Niagara Region	2016 TTS	Niagara Transportation Model
School of Geography and Earth Science	McMaster University	2001, 2006, 2011 & 2016 TTS	Intergenerational Differences in Travel Behaviour
Dept. of Civil Engineering	Monash University, Melbourne	2011 & 2016 TTS	TASHA/GTA Model application (collaboration with TMG)
Dept. of Civil Engineering	University of Toronto	2016 TTS	Quantifying the energy and environmental impact of Electric Vehicles in the GTHA
Dept. of Civil Engineering	University of Toronto	2016 TTS	Modelling the energy consumption of Electric Vehicles in the GTHA and the impacts on the electric grid
Dept. of Economics	University of Toronto	2006, 2011 & 2016 TTS	Estimating the welfare effects of ride-hailing
Dept. of Geography	University of Toronto	2016 TTS	Measuring active and sedentary travel times and distances
Dept. of Geography	University of Toronto	2016 TTS	The role of public transit in school choice and after-school activity participation among Toronto high school students
Dept. of Medicine & St. Michael's Hospital	University of Toronto	2016 TTS	Identifying social and environmental factors impacting physical activities among dwellers of urban areas in Southern Ontario, and related health outcomes such as obesity levels and Type 2 diabetes.

In addition to the RDP method, two desktop computers are designated for researchers from the University of Toronto[3] to access the disaggregate TTS data. These computers are located in locked offices within the DMG office complex. If the access request is approved, the researcher is provided office access (i.e., keys and security access code) and an account with unique login and password to log on to the specified space of the designated computer with the required data. Usage of the computers is monitored, and only aggregated data are allowed to be taken off.

The following is a list of the users of disaggregate data access in 2021 through the designated computers in the DMG office. Due to the pandemic, these users also accessed these computers remotely through the University's VPN.

[3] Or researchers visiting the University campus.

Project	Supervisor	Data required
Crowdsourcing logistics network optimization and evaluation	Prof. Matt Roorda	2016 TTS
Transit planning and Demand Modelling for the GTHA	Prof. Khandker Nurul Habib	2011 & 2016 TTS
Comparison of the travel activity behaviour of residents of the GTA before and during COCID-19 pandemic lockdown	Prof. Khandker Nurul Habib	2016 TTS, COVHITS

Cordon Counts and CCDRS

The City of Toronto (then the Regional Municipality of Metropolitan Toronto) began collecting detailed information on the type and volume of traffic crossing selected points on the road system as early as 1975. The counting locations were selected so that screen lines or cordon lines could be defined and the counting program has continued regularly since that time.

Subsequently, other regions began similar programs. Given the number of regions with a similar program, they began coordinating their count programs and defining a common set of data standards. In 1998, the DMG collected these traffic counts in a common database structure and developed a Cordon Count Data Retrieval System (CCDRS). CCDRS is now widely used by a variety of public and private agencies.

In addition, participating agencies now use CCDRS as a tool in verifying their cordon count results. The approved procedure is to place new cordon count data directly into the CCDRS database with a disclaimer notice to all users that the new information is preliminary and allow the agencies to run queries on this preliminary database.

The last Cordon Count was undertaken by the participating regions in 2016 and the dataset was released in 2017.

The DMG released a beta version of a new CCDRS in 2016. The final product is still a work in progress and is to include a graphic interface so the users can identify and select screen lines and count stations from a map. Statistics for usage of the new CCDRS are unavailable at this time.

In 2021, DMG assisted the Cordon Count committee with preparations for a spring 2022 Cordon Count, which was later postponed. Discussions were also carried out regarding the creation of a GTHA wide report for the 2022 Cordon Count.

Open Data

In March 2011, the first generation of Open Data Portal was launched by the Government of Canada. "Open Data is defined as structured data that is machine-readable, freely shared, used and built on without restrictions." The data must be available as a whole and at no more than a reasonable reproduction cost, preferably by downloading over the internet. It must also be available in a convenient and modifiable form and must be provided under terms that permit re-use and redistribution including the intermixing with other datasets. Everyone must be able to use, re-use, and redistribute. There should be no discrimination against fields of endeavour or against persons or groups. For example, 'non-commercial' restrictions that would prevent 'commercial' use, or restrictions of use for certain purposes (e.g., only in education), are not allowed.

With the approval from TISC, the DMG started providing Open Data files from the TTS and Cordon Count data to the public in 2014. Unlike the online data retrieval systems, users can download the pre-generated text files from the DMG website without registration.

The Open Data Portal at the DMG was updated to include the 2016 TTS data and the 2016 Cordon Count data bringing the total number of files available to 129 TTS data files and 222 Cordon Count data files. Each TTS data file contains household, person, and trip information for a specific survey year, geographic area, and spatial aggregation for different time periods. Each cordon count data file contains different types of vehicles and person counts for a specific year, geographic area, and time period. The files are in comma-delimited text format and ready to be imported into Excel or other spreadsheet software. The DMG continues to update the Open Data Portal to include new TTS and Cordon Count data files as new datasets become available.

COMPUTER RESOURCES AND TECHNICAL SUPPORT

The DMG computer system is comprised of several servers located behind the DMG firewall for security reasons.

The DMG main server is a Dell R620 running Windows Server 2012 R2 with Hyper-V application. This application allows the DMG server to run multiple virtual machines, i.e., operating systems emulated within another operating system by imitating dedicated hardware. One of the virtual machines running on this server was the DMG Exchange Server, which was decommissioned in late 2020 as DMG converted to the University's Office 365 to handle daily emails. In preparation for releasing the COVHITS survey data to the sponsoring partners, a new virtual machine was also set up. The following virtual machines are running on this server:

- Active directory server to facilitate the DMG domain.
- DMG website created in WordPress. Linux, Apache, MySQL, PHP, and Lamp stack are also running on this machine.
- Data Retrieval System developed using MEAN stack, a free and open-source JavaScript software stack for building web applications running in Debian. The data are hosted in PostgreSQL, which is an open-source relationship database management system.
- 2015 StudentMoveTO Data Retrieval Portal.
- A development and test server.
- Git system for version control and code repository.
- NGINX proxy server to handle web traffic. It also hosts the FTP website for file transfer with the funding agencies.
- COVHITS data server

The other major server is a Dell R430 server running Windows Server 2012 R2 Datacenter, also with Hyper-V application. The virtual machines with the disaggregate TTS data for the consultants and researchers to use are running on this server. In order to support the increasing demand for this format of data, DMG configured additional virtual machines with extra storage spaces in 2019. There are currently 4 virtual machines hosted at the DMG. RStudio, Anaconda, and Python are installed on these virtual machines together with basic software such as Office, Adobe Reader, Notepad, and 7-Zip etc. to facilitate modelling work.

EMME

The EMME software, which is used by the funding agencies for modelling, is run locally on agency personal computers with all related files stored locally. This results in a much faster operation. Each local machine requires access to an authentication key to operate the software. Rather than each agency purchasing a licence from INRO to use the software locally, DMG negotiated a concurrent licence for authentication of several machines operating at the same time. The DMG then dedicated a server to provide remote authentication to the participating partners.

Since late 2019, EMME users had experienced problems obtaining licences via the licence proxy server. After some investigation, DMG decided to ask INRO to replace and consolidate all the USB licences keys. There had not been any issues after new licence keys were issued.

There are nineteen size-15 licences (commercial and educational) hosted at the DMG. The following is the list of EMME users in the year 2021.

Arup Group
City of Brampton
City of Hamilton
City of Mississauga
City of Toronto
HDR Inc.
Metrolinx
Ministry of Transportation Ontario
Paradigm Transportation Solutions Ltd
R. J. Burnside & Associates Ltd
Regional Municipality of Durham
Regional Municipality of Halton
Regional Municipality of Peel
Regional Municipality of York
Transportation Transit Commission
Travel Modelling Group
University of Toronto

In addition, there are sixty size-1 educational EMME licences available for teaching purposes.

Due to the COVID-19 pandemic, DMG assisted many users in setting up their home computers or laptops to remote access the EMME licences. The DMG also temporarily hosted one of the MTO's size-16 licences on the DMG EMME proxy server since 2020 so that the MTO staff can access this licence in the same way as they access the DMG licences.

The DMG continues to maintain and improve the computer system to meet its funding agencies' changing needs.

BUDGET AND CONTRIBUTIONS

The following table presents the 2021 DMG budget and contributions by funding agencies. The DMG budget supported three full time staff members and the Director's stipend. It did not include the cost of the Emme software maintenance, which was proportionally contributed based on the number of licences allocated to each agency and a "flow-through" expenditure with an overhead of 2%.

2021 Budget	Amount
Salaries & Benefits	$396,820.00
Hardware & Software Upgrades	$ 5,000.00
Software License Support	$ 2,000.00
Miscellaneous	$ 1,000.00
Overhead @40%	$161,928.00
Total Budget	$566,748.00

2021 Contributions	Amount
Ministry of Transportation	$366,497.04
Metrolinx	$17,002.44
City of Toronto	$35,988.29
Toronto Transit Commission	$35,988.29
Regional Municipality of Durham	$17,018.39
Regional Municipality of York	$29,245.98
Regional Municipality of Peel	$36,408.67
Regional Municipality of Halton	$14,451.20
City of Hamilton	$14,147.70
Total Contributions	$566,748.00

MEETINGS

The TTS Vendor Information Session was held on January 14, 2021. There were four TAC meetings chaired by MTO and Ministry of Government Services for the RFB evaluation process, including a training session on the Ontario Tenders Portal. The TTS Kick-off Meeting was held in September after a vendor was selected. Since then, there were seven TAC meetings chaired by MTO to discuss the technical aspects of the survey.

Three TISC meetings chaired by the Ministry of Transportation were also held on April 7th, October 18th and November 23rd of 2021 to discuss the TTS timelines and survey instrument, and provide update on the survey.

There were two COVHITS TAC meetings held in 2021 to discuss the progress of the COVHITS survey.

There was also one Cordon Count meeting in 2021 to discuss the conducting of the 2021/2022 program.

APPENDIX A: 2020 Fall COVHITS Sample Questionnaire

2020 COVHITS Sample Questionnaire

Section 1: Household information

Q1.1. Proxy respodent age comfirmation

Q1.1 The survey should be completed by a person in your household 16 years of age or older who is familiar with your household's weekday travel. Are you that person?

- (•) Yes
- ( ) No

Q1.2. Household location

Q1.1 Please identify the location of your household by clicking on the map and/or using the search function below.

46 St Clair Ave E, Toronto, ON M4T 1M9, Canada

Q1.3. Household dwelling types

Q1.2 What type of dwelling is this?

If a condominium, select either townhouse or apartment as appropriate.

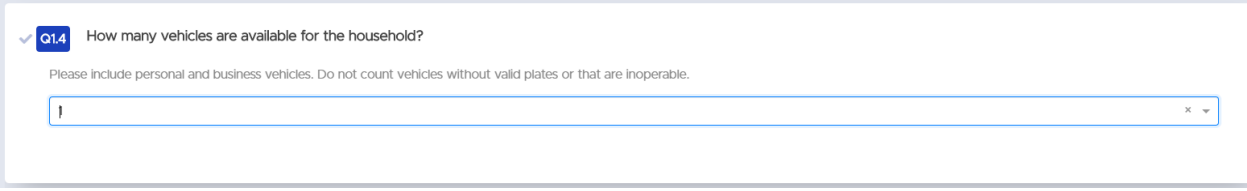
- ( ) Single-detached house
- ( ) Semi-detached house
- ( ) Townhouse/Row house
- ( ) Apartment or flat in a duplex
- ( ) Apartment in a building less than 5 storys
- (•) Apartment in a building has 5+ storys
- ( ) Movable dwelling
- ( ) Other

Q1.4. Household tenure

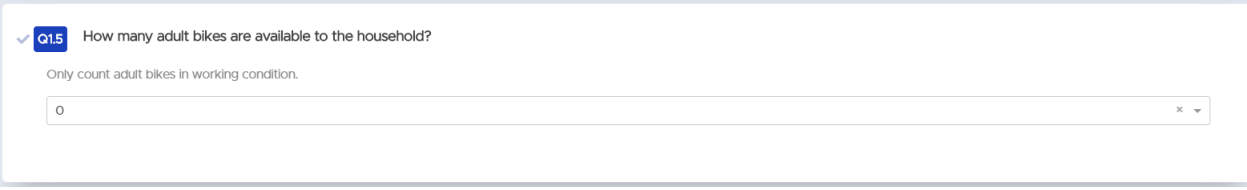
Q1.3 Do you own or rent your home?

- ( ) Rent
- (•) Own with a mortgage
- ( ) Own without a mortgage
- ( ) Other
- ( ) Decline/don't know

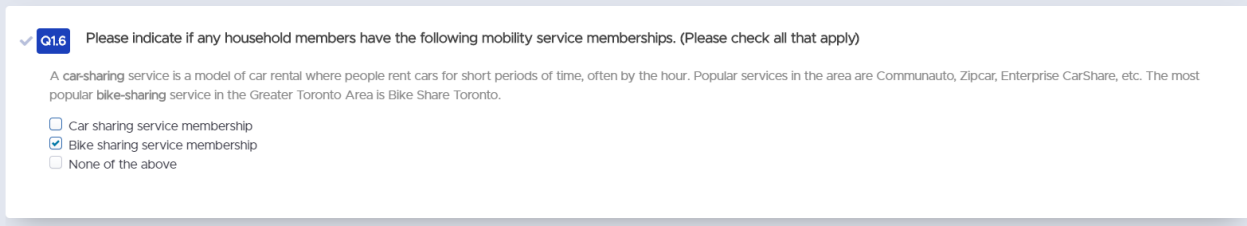
Q1.6. Household vehicles



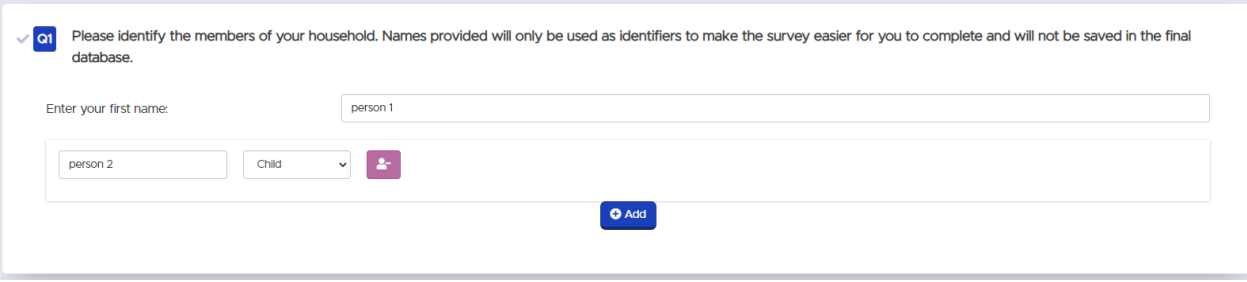
Q1.7. Housheold bikes



Q1.8. Household shared mobility tools



Q1.9. Household members & relations

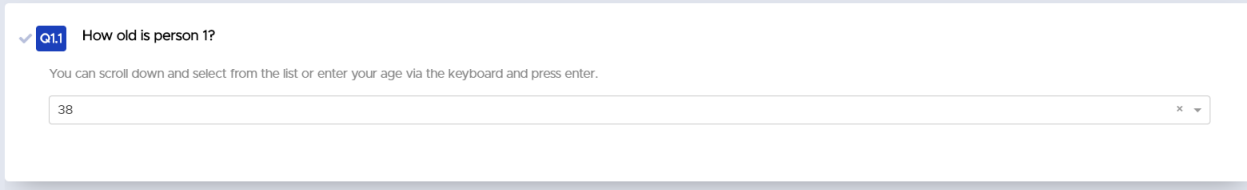


Section 2: Personal information

In this section, personal information of household members identified in Q6 will be collected respectively. In this sample questionaire, we have one adutl and a chird in the household.

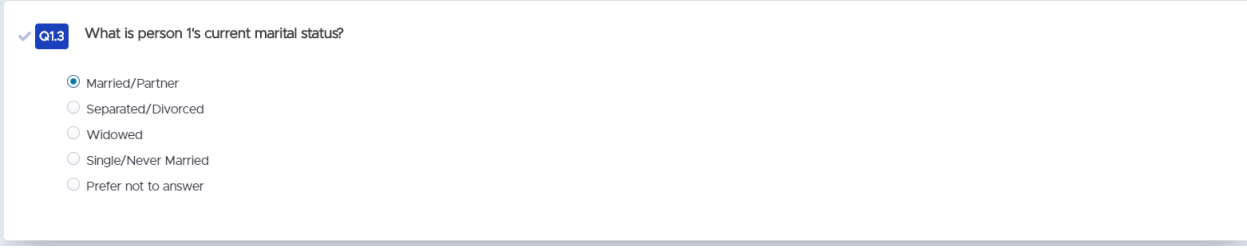
Respodent 1:

Q2.1.1. Age

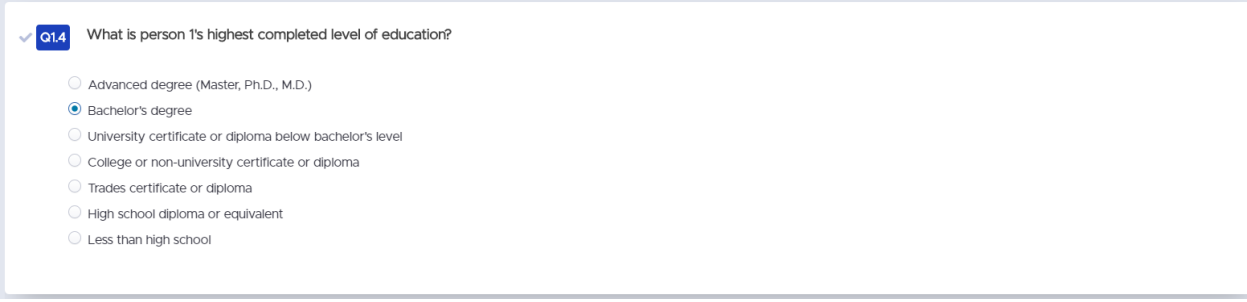


Q2.1.2 Gender

Q2.1.3 Marital status

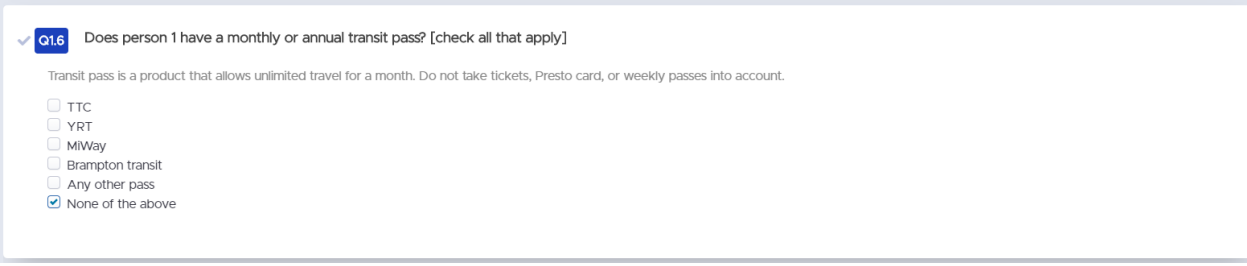


Q.2.1.4 Highest education level

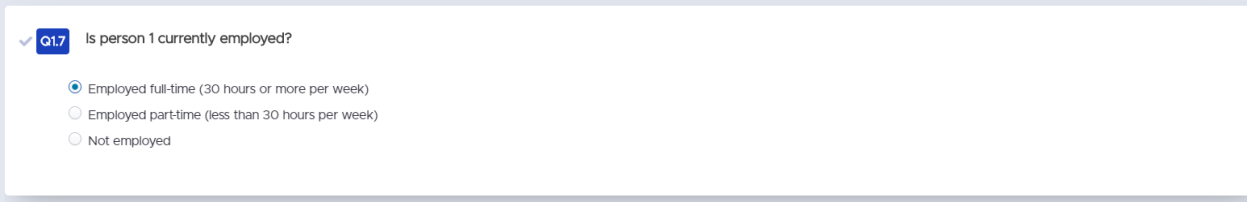


Q.2.1.5 Driver's license

Q.2.1.6 Transit pass



Q.2.1.7 Employement status



Q.2.1.8 Occupation types

Q.2.1.9 Usual place of work before COVID-19

Q1.9 What was person 1's usual place of work before COVID-19 (March 17, 2020)?

Please only select 'work from home' as your response if you did not work at any other location as your usual place of work. If there is an office, business or other work location outside the home that you regularly went to or reported in at, please select another option.

The Government of Ontario declared the state of emergency due to COVID-19 on March 17, 2020.

- ○ Work away from home at an usual location only
- ◉ Work away from home at an usual location & work from home sometimes
- ○ Work from home only
- ○ No fixed workplace address / No usual place of work

Q.2.1.10 Work location before COVID-19

Q1.10 Please identify person 1's usual place of work before COVID-19 (March 17, 2020).

Usual place of work refers to a worker's office or work place away from home.

The Government of Ontario declared the state of emergency due to COVID-19 on March 17, 2020.

Queen'S Park Cres West At Hart House, Toronto, ON M5S 3H3, Canada

Q.2.1.11 Travel mode to work before COVID-19

Q1.11 How did person 1 usually get to work before COVID-19 (March 17, 2020)?

The Government of Ontario declared the state of emergency due to COVID-19 on March 17, 2020.

Transit all the way

Q.2.1.12 Work place arrangement – present

Q1.12 At present, what is person 1's usual place of work?

Work from home or remote work means "on a given work day, an employee is working from their house, apartment, or place of residence, **rather than** having to travel to a usual place of work, whether an office, store, factory or any other work location etc." Please only count days where person 1 does not travel outside the home for work and instead works from home.

- ○ Work away from home at an usual location only
- ◉ Work from home only
- ○ Work from home four days a week
- ○ Work from home three days a week
- ○ Work from home two days a week
- ○ Work from home one day a week
- ○ No fixed workplace address/No usual place of work

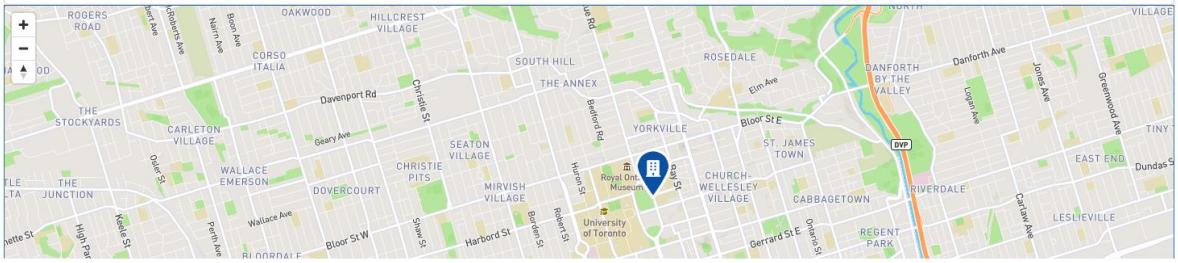
Q.2.1.13 Work location – present

Q1.13 Please identify person 1's non-home place of work at present. The respondent does not have to travel to this non-home place of work daily due to the pandemic.

For respondents who are currently work remotely due to the pandemic, we would like to know where they will travel to work once current work from home restrictions are lifted. For example, Tom has an office place in downtown but currently working remotely at home. Please report his office location.

If person 1 does not have a non-home workplace any more, please re-enter his/her home location.

1607 Queen's Park Cres E, Toronto, ON M5S 2C3, Canada



Q.2.1.14 Free park at work

Q1.14 Does person 1 have free parking at the non-home work location specified in previous question during working hours?

- ○ Yes
- ◉ No
- ○ Don't know

Q.2.1.15 Work schedule options

Q1.15 What types of schedule does person 1 currently have?

- ○ Fixed schedule (work between specific hours every day, for example 9 am to 5 pm)
- ○ Flexible schedule (work for a specific amount of hours per day, but no set start and end times)
- ◉ Output-oriented work (with little to no schedule and a focus on output instead)

Q.2.1.16 Student status

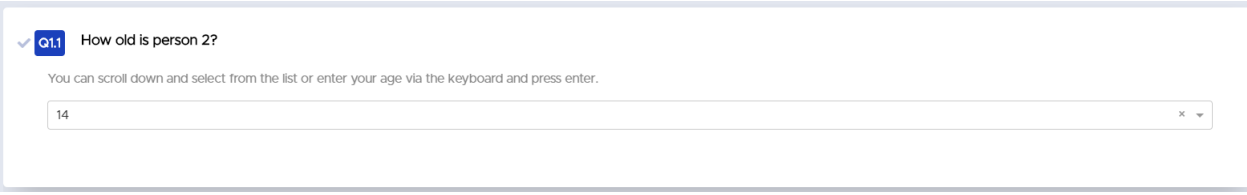
Q1.16 Is person 1 currently a full-time or part-time student?

Includes K-12, post-secondary and evening classes for academic and vocational training (but not sports/recreational classes)

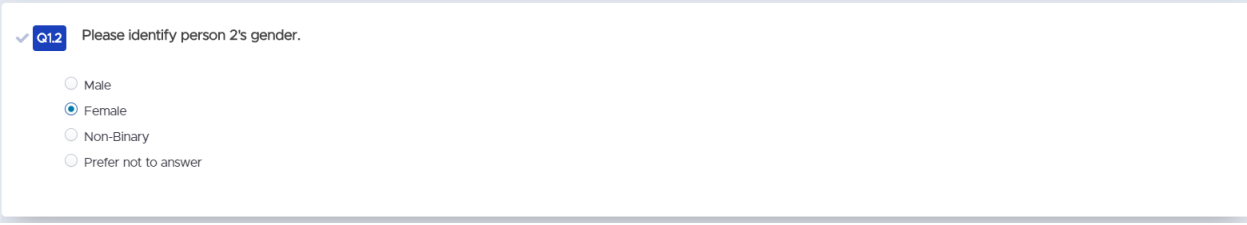
- ○ Yes, full-time student
- ○ Yes, part-time student
- ◉ Not a student
- ○ Decline/don't know

Respodent 2:

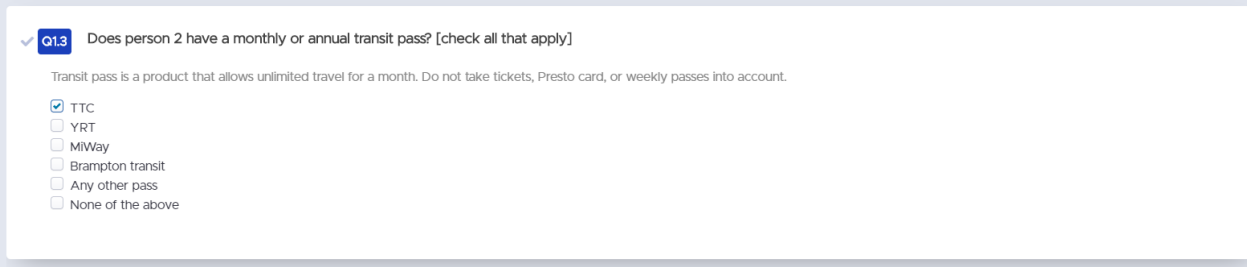
Q2.2.1. Age



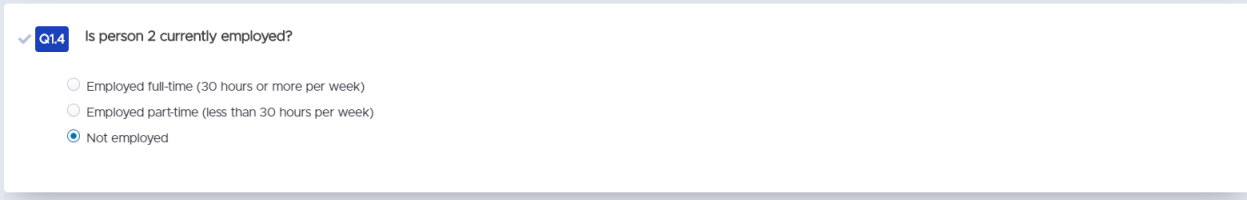
Q2.2.2 Gender



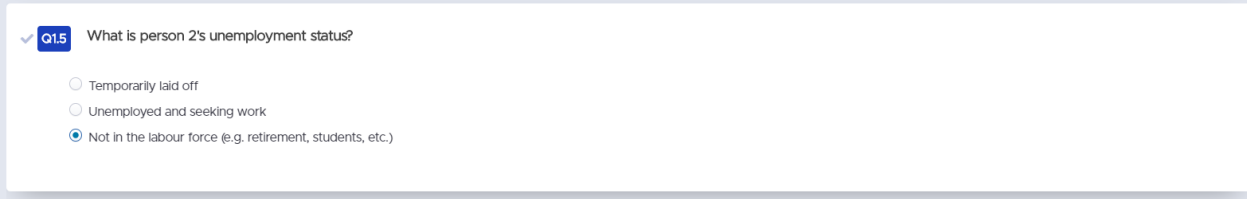
Q.2.2.3 Transit pass



Q.2.2.4 Employement status



Q.2.2.5 Unemployement status



Q.2.2.6 Student status

Q1.6 Is person 2 currently a full-time or part-time student?

Includes K-12, post-secondary and evening classes for academic and vocational training (but not sports/recreational classes)

- (•) Yes, full-time student
- ( ) Yes, part-time student
- ( ) Not a student
- ( ) Decline/don't know

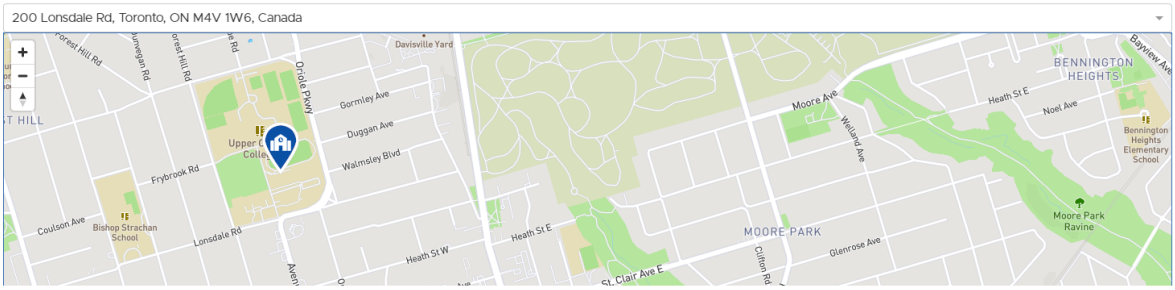
Q 2.2.7 Class types

Q1.7 What type of class is person 2 currently attending?

- ( ) Virtual class only
- ( ) In-person class only
- (•) Virtual and in-person class mix

Q 2.2.8 School location

Q1.8 Where is person 2's school located?

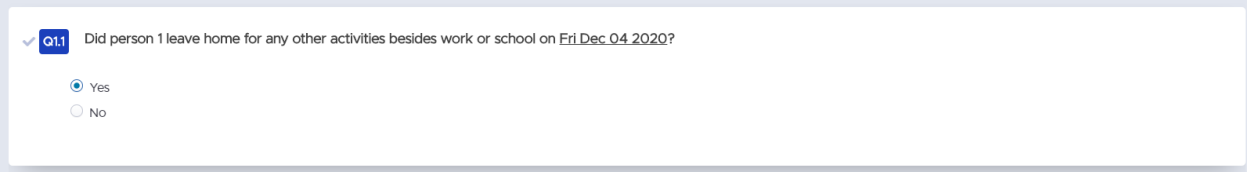


Section 3: Travel diary

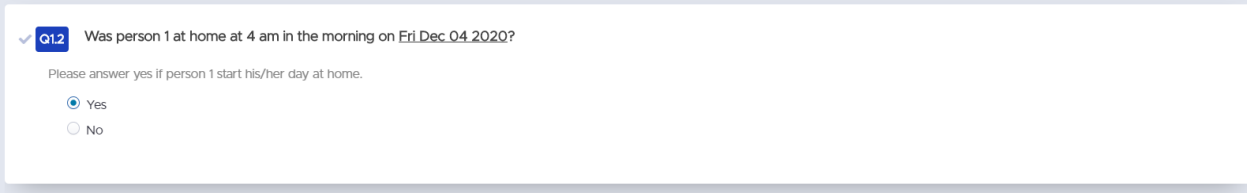
In this section, we will collect travel diary on a specific weekday for members who is 6 years or older in the household.

Respodent 1:

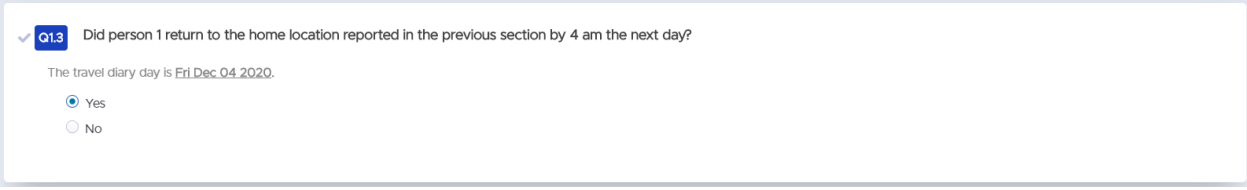
Q3.1.1 Other trip confirmation (because person 1 work from home only currently)



Q3.1.2 Start at home confirmation

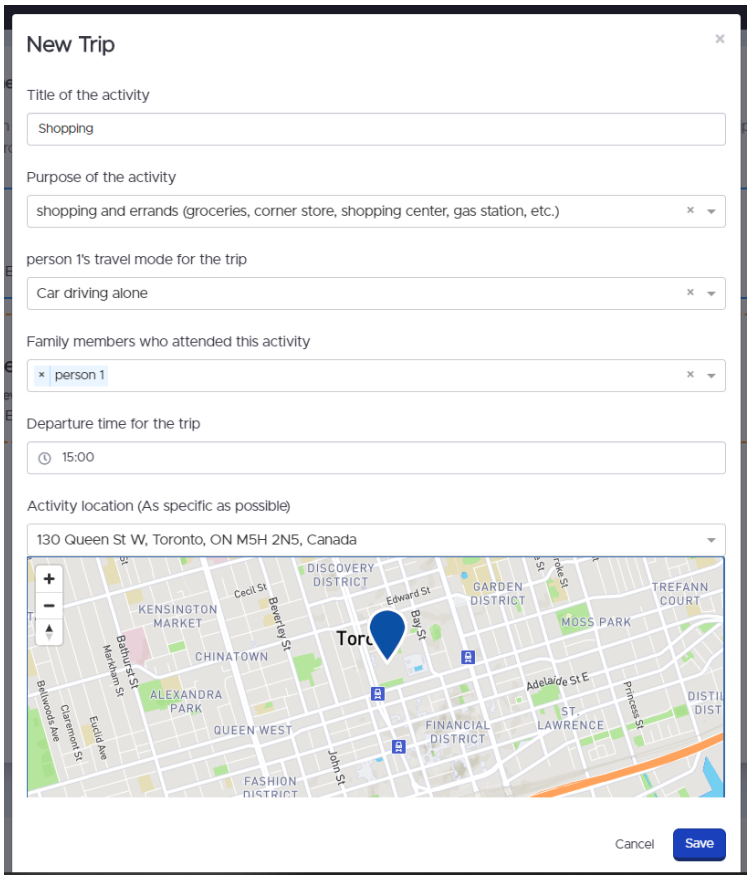


Q3.1.3 Return home confirmation

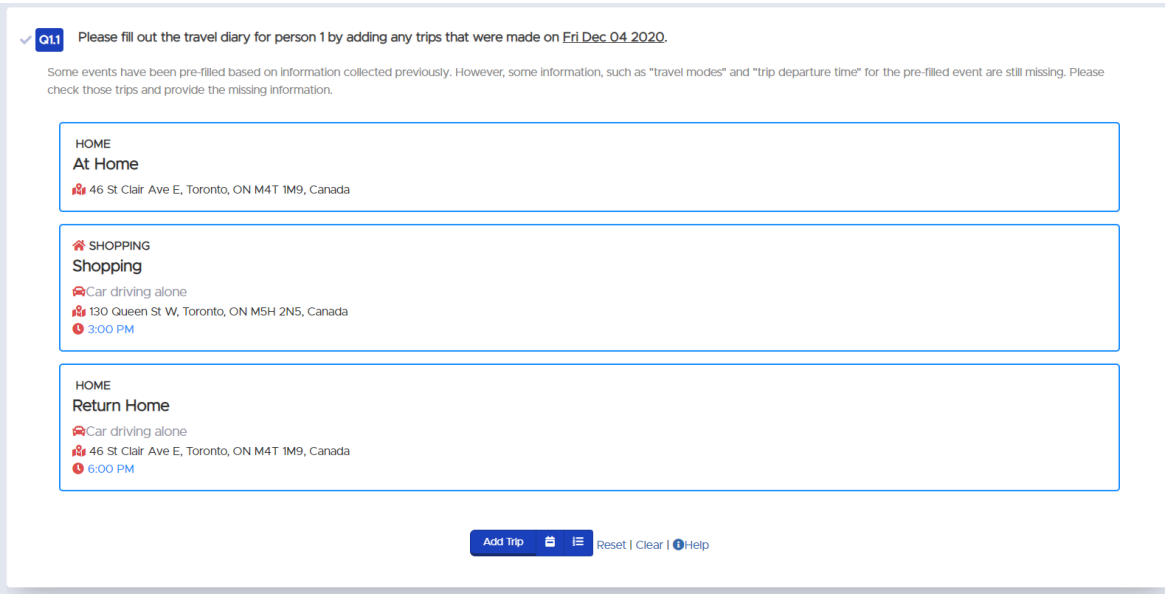


Q3.1.4 Travel diary

Adding trips to diary

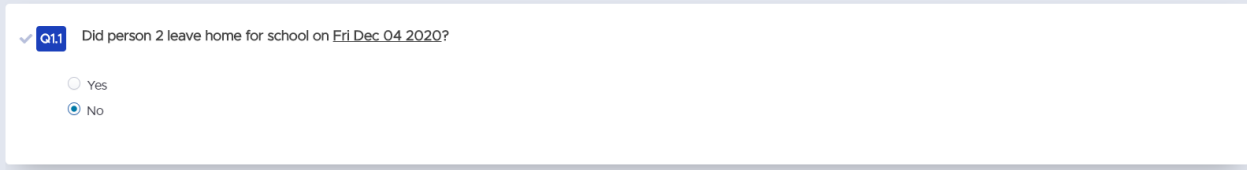


Completed diary – person 1

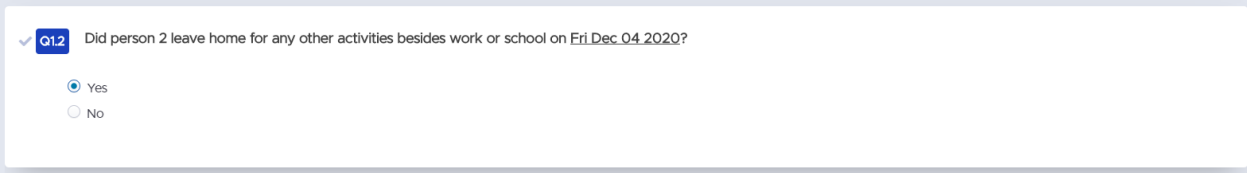


Respodent 2:

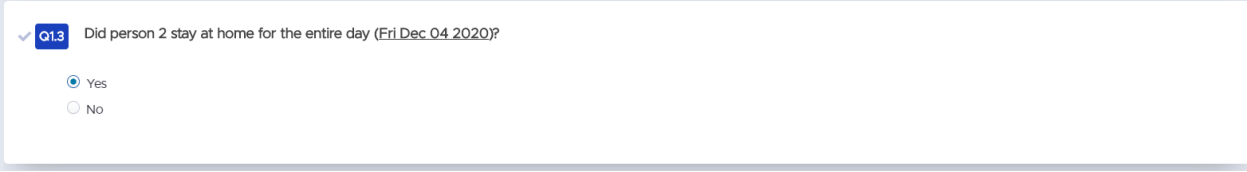
Q3.2.1 School trip confirmation



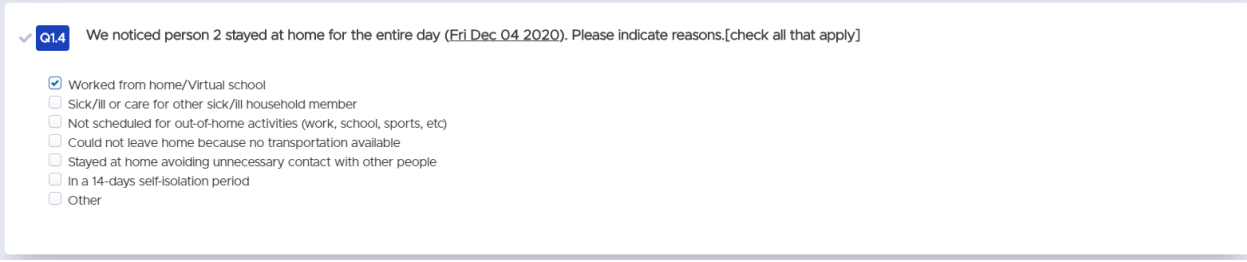
Q3.2.2 Other trip confirmation



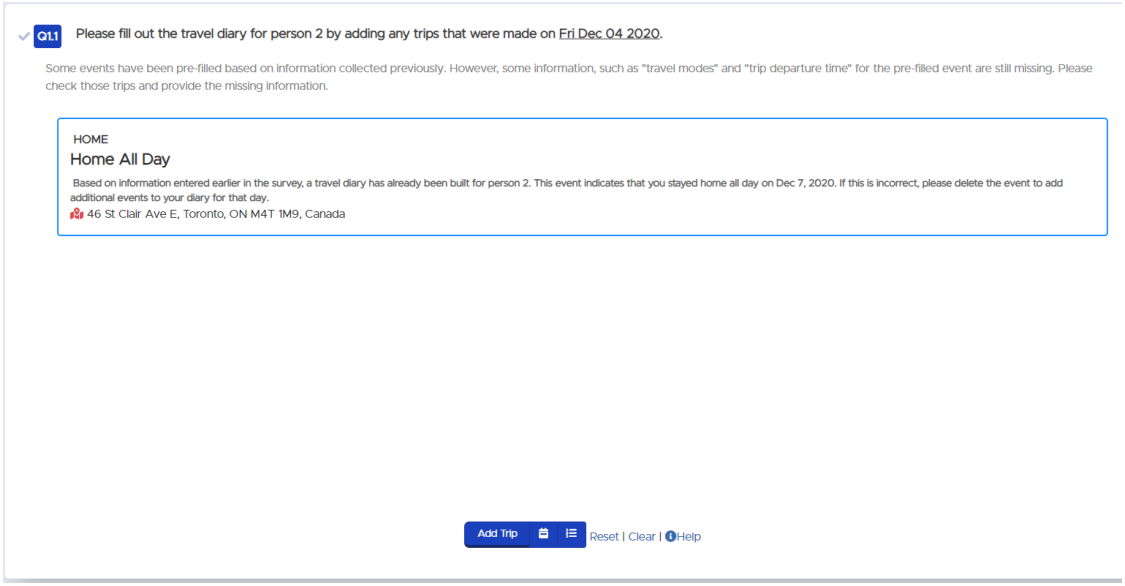
Q3.2.3 Stay at home confirmation



Q3.2.4 Stay at home reason



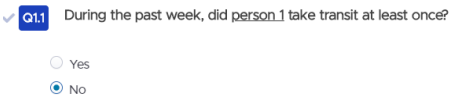
Completed diary – person 2



Section 4: Additional questions

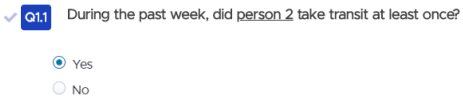
Respodent 1:

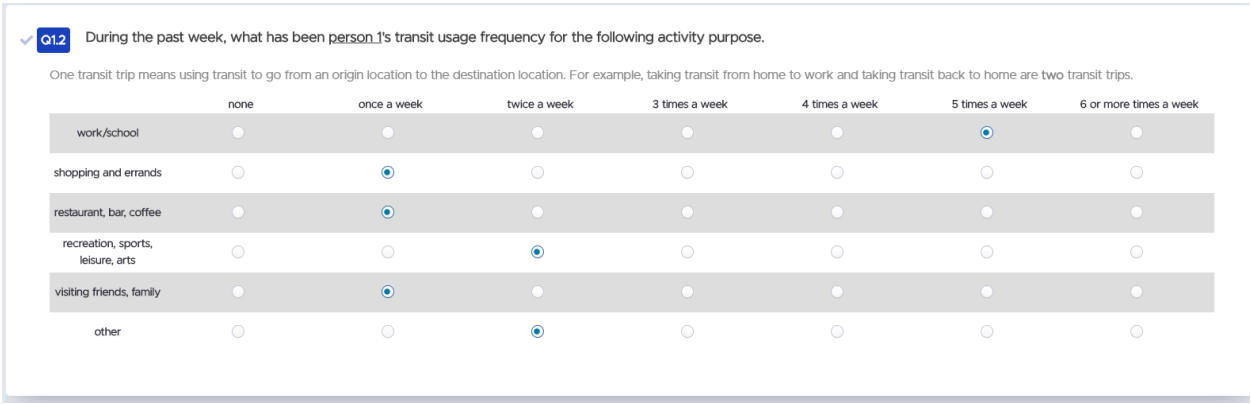
Q4.1.1 Transit usage for each activity purposes during the past week



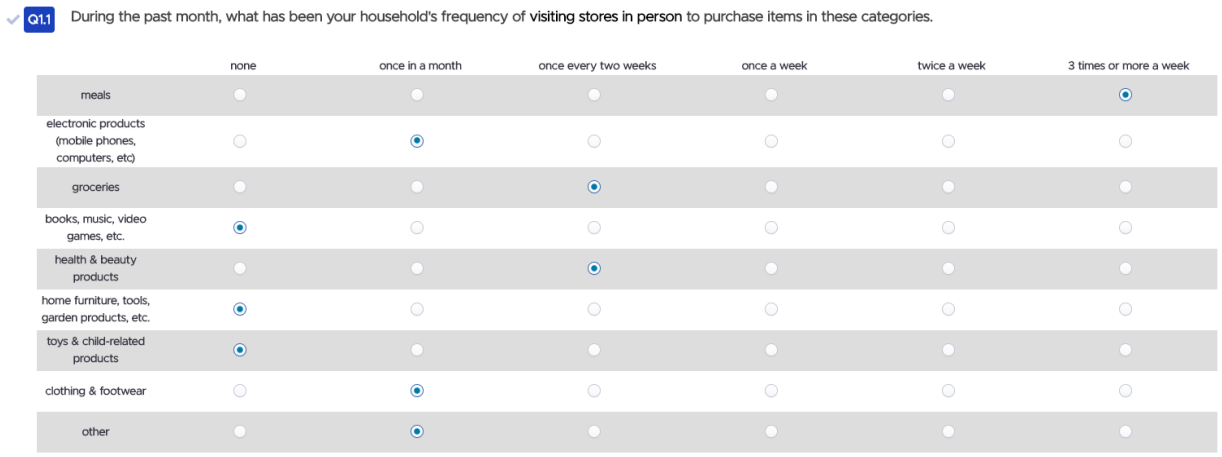
Respodent 2:

Q4.2.1 Transit usage for each activity purposes during the past week





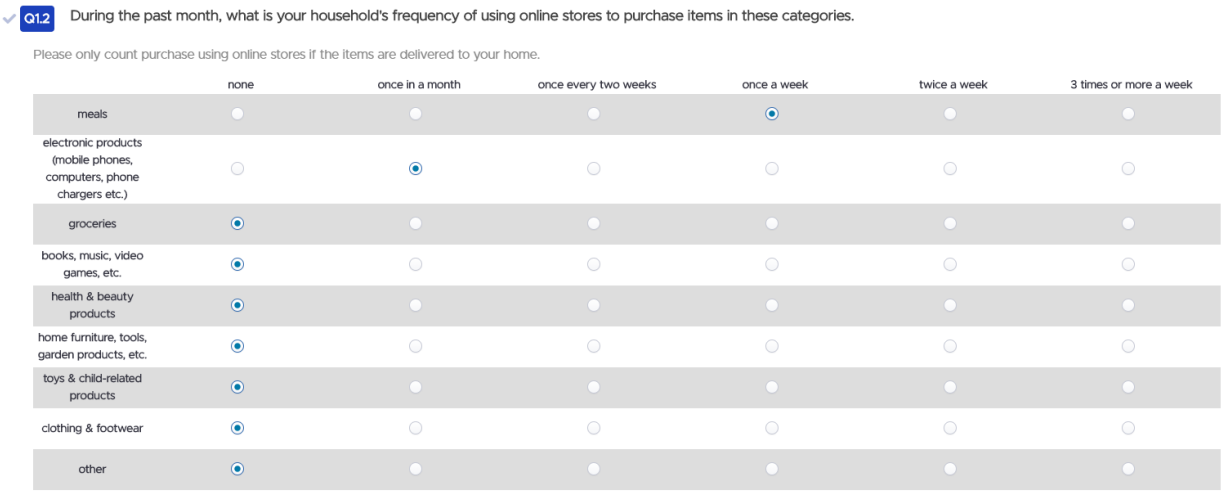
Q4.3 Household in-store shopping frequency



Q1.1 During the past month, what has been your household's frequency of **visiting stores in person** to purchase items in these categories.

	none	once in a month	once every two weeks	once a week	twice a week	3 times or more a week
meals	○	○	○	○	○	◉
electronic products (mobile phones, computers, etc)	○	◉	○	○	○	○
groceries	○	○	◉	○	○	○
books, music, video games, etc.	◉	○	○	○	○	○
health & beauty products	○	○	◉	○	○	○
home furniture, tools, garden products, etc.	◉	○	○	○	○	○
toys & child-related products	◉	○	○	○	○	○
clothing & footwear	○	◉	○	○	○	○
other	○	◉	○	○	○	○

Q4.4. Household e-shopping frequency

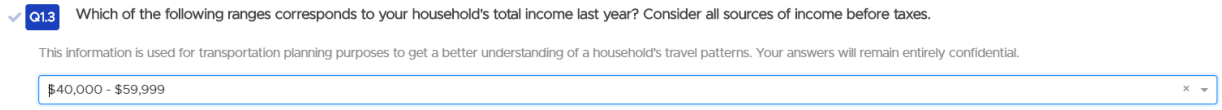


Q1.2 During the past month, what is your household's frequency of using online stores to purchase items in these categories.

Please only count purchase using online stores if the items are delivered to your home.

	none	once in a month	once every two weeks	once a week	twice a week	3 times or more a week
meals	○	○	○	◉	○	○
electronic products (mobile phones, computers, phone chargers etc.)	○	◉	○	○	○	○
groceries	◉	○	○	○	○	○
books, music, video games, etc.	◉	○	○	○	○	○
health & beauty products	◉	○	○	○	○	○
home furniture, tools, garden products, etc.	◉	○	○	○	○	○
toys & child-related products	◉	○	○	○	○	○
clothing & footwear	◉	○	○	○	○	○
other	◉	○	○	○	○	○

Q4.5. Household income



Q1.3 Which of the following ranges corresponds to your household's total income last year? Consider all sources of income before taxes.

This information is used for transportation planning purposes to get a better understanding of a household's travel patterns. Your answers will remain entirely confidential.

$40,000 - $59,999

APPENDIX B: 2021 Summer COVHITS Sample Questionnaire

2021 Summer COVHITS Sample Questionnaire

Section 1: Household information

Q1.1. Proxy respodent age comfirmation

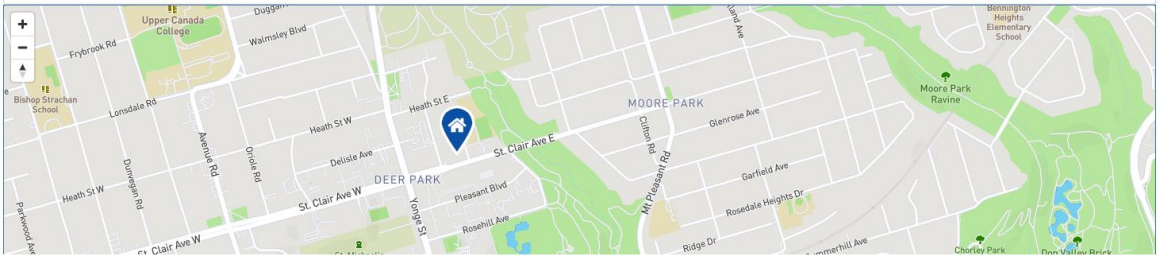
Q1.1 The survey should be completed by a person in your household 16 years of age or older who is familiar with your household's weekday travel. Are you that person?

- (•) Yes
- ( ) No

Q1.2. Household location

Q1.1 Please identify the location of your household by clicking on the map and/or using the search function below.

46 St Clair Ave E, Toronto, ON M4T 1M9, Canada



Q1.3. Household dwelling types

Q1.2 What type of dwelling is this?

If a condominium, select either townhouse or apartment as appropriate.

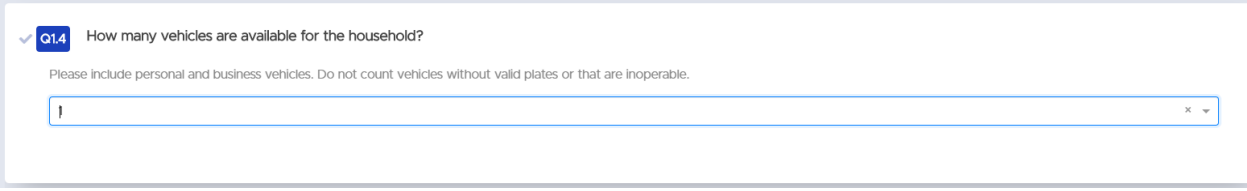
- ( ) Single-detached house
- ( ) Semi-detached house
- ( ) Townhouse/Row house
- ( ) Apartment or flat in a duplex
- ( ) Apartment in a building less than 5 storys
- (•) Apartment in a building has 5+ storys
- ( ) Movable dwelling
- ( ) Other

Q1.4. Household tenure

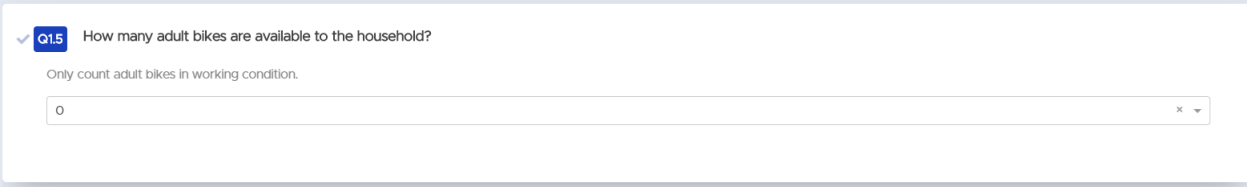
Q1.3 Do you own or rent your home?

- ( ) Rent
- (•) Own with a mortgage
- ( ) Own without a mortgage
- ( ) Other
- ( ) Decline/don't know

Q1.5. Household vehicles

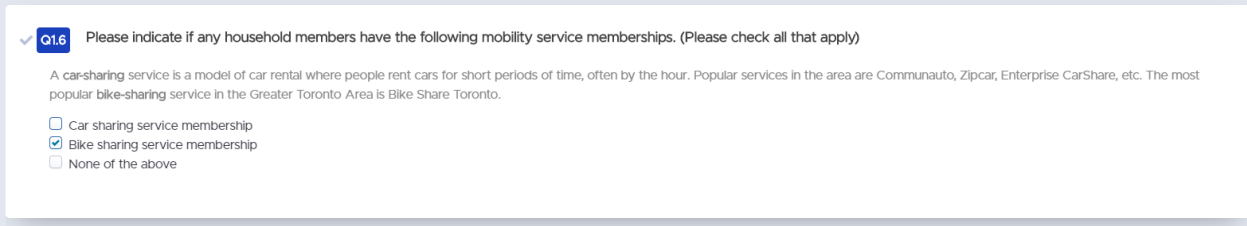


Q1.6. Housheold manual bikes

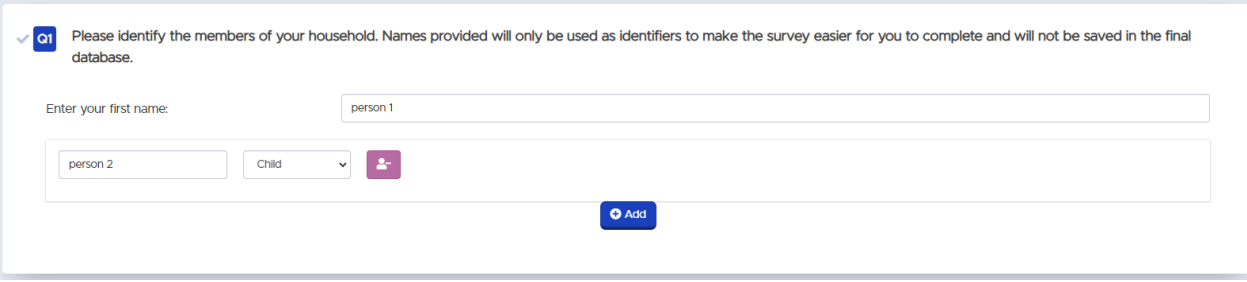


Q1.7. Housheold E-bikes & E-scooters

Q1.8. Household shared mobility tools



Q1.9. Household members & relations

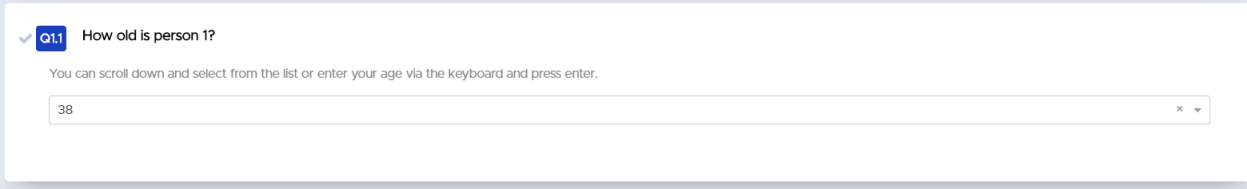


Section 2: Personal information

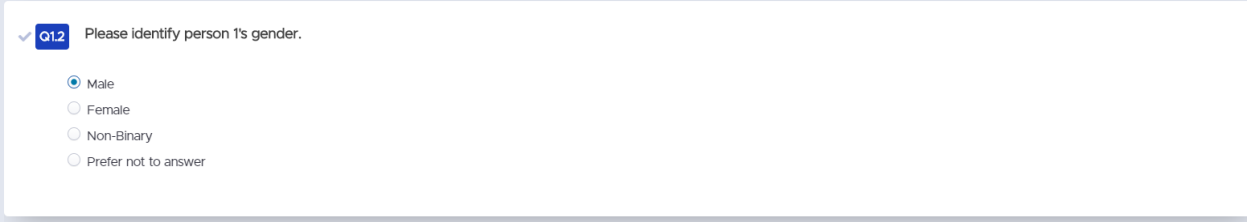
In this section, personal information of household members identified in Q1.9 will be collected respectively. In this sample questionaire, we have one adult and a chird in the household.

Respodent 1:

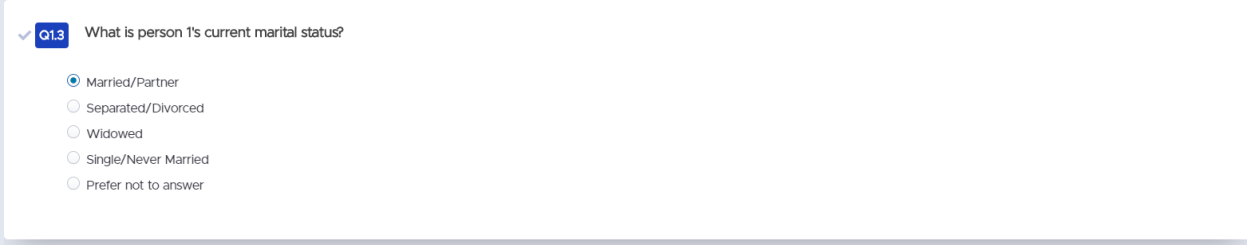
Q2.1.1. Age



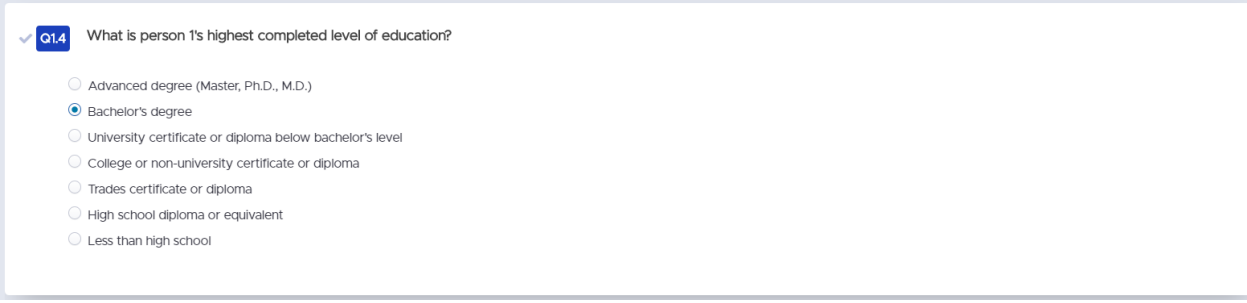
Q2.1.2. Gender



Q2.1.3. Marital status

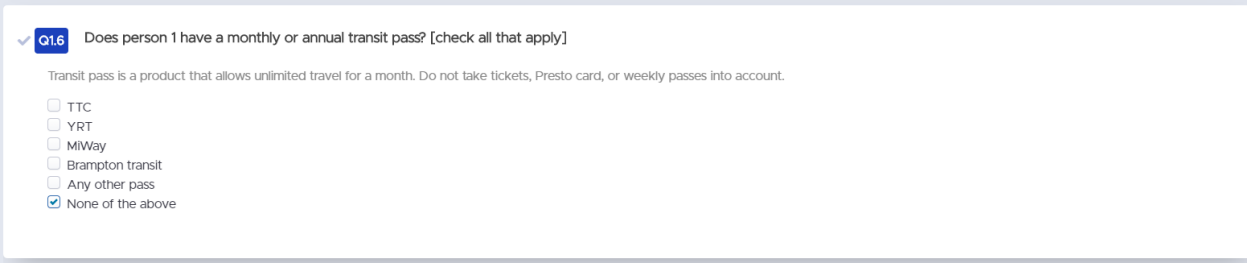


Q.2.1.4. Highest education level

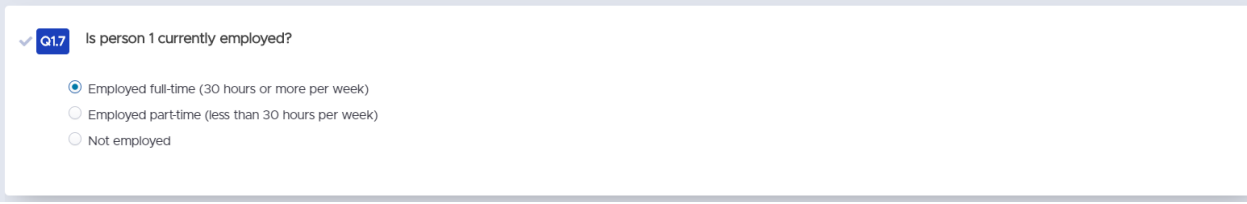


Q.2.1.5. Driver's license

Q.2.1.6. Transit pass



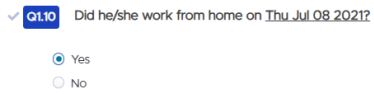
Q.2.1.7. Employement status



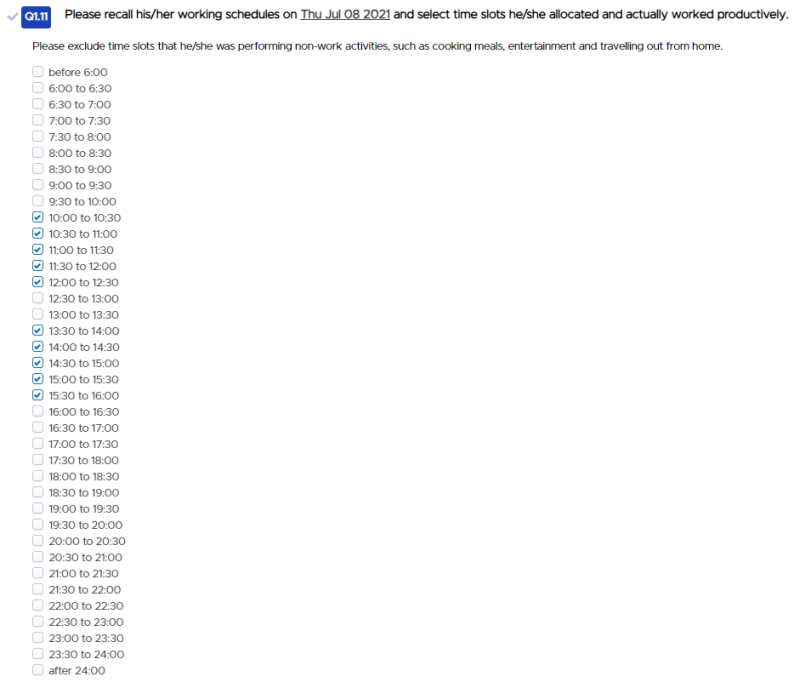
Q.2.1.8. Occupation types

Q.2.1.9. Work place arrangement – present

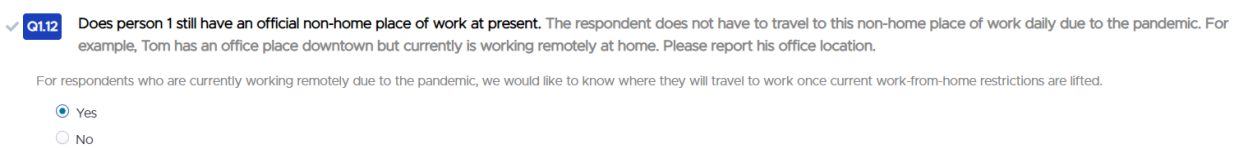
Q.2.1.10. Work from home confirmation on previous work day



Q.2.1.11. Work from home schedule on previous work day

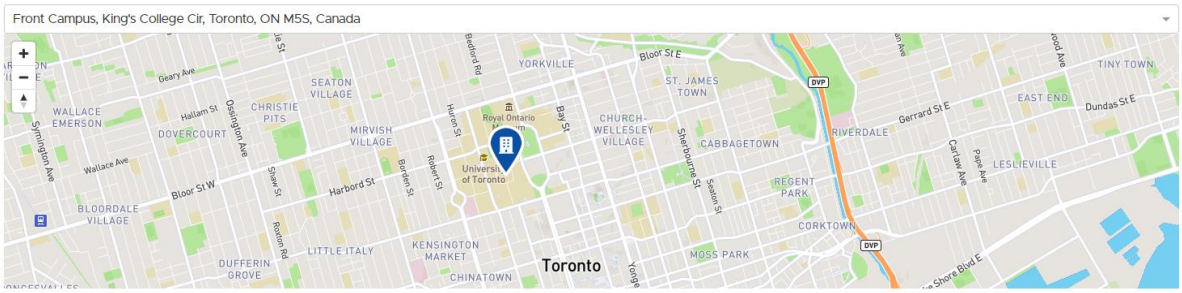


Q.2.1.12. Non-home work location confirmation



Q.2.1.13. Work location – present

Q1.13 Please identify person 1's current non-home place of work on the map.



Q.2.1.14. Free park at work

Q1.14 Does person 1 have free parking at the non-home work location specified in previous question during working hours?

- ○ Yes
- ◉ No
- ○ Don't know

Q.2.1.15. Work schedule options

Q1.15 What types of schedule does person 1 currently have?

- ○ Fixed schedule (work between specific hours every day, for example 9 am to 5 pm)
- ○ Flexible schedule (work for a specific amount of hours per day, but no set start and end times)
- ◉ Output-oriented work (with little to no schedule and a focus on output instead)

Q.2.1.16. Student status

Q1.16 Is person 1 currently a full-time or part-time student?

Includes K-12, post-secondary and evening classes for academic and vocational training (but not sports/recreational classes)

- ○ Yes, full-time student
- ○ Yes, part-time student
- ◉ Not a student
- ○ Decline/don't know

Respodent 2:

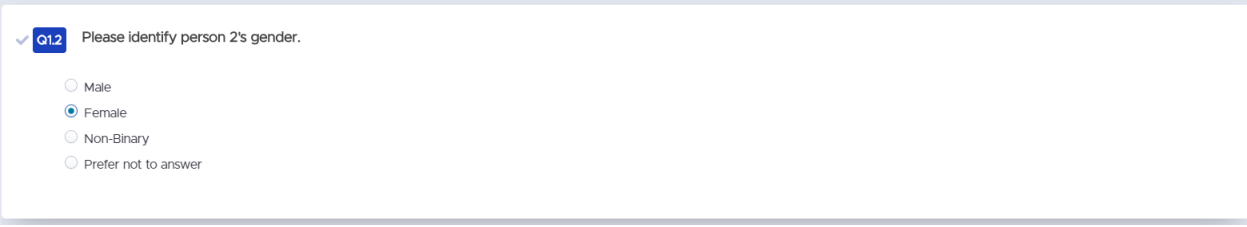
Q2.2.1. Age

Q1.1 How old is person 2?

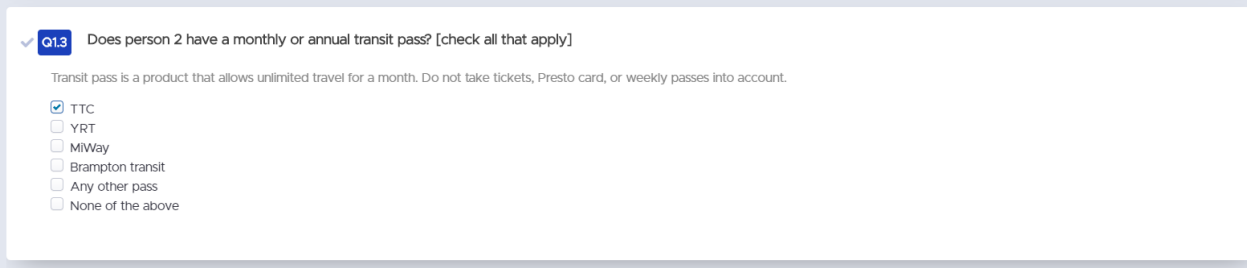
You can scroll down and select from the list or enter your age via the keyboard and press enter.

14

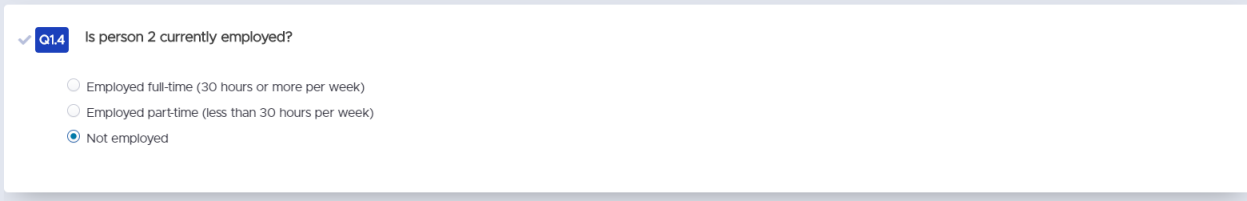
Q2.2.2. Gender



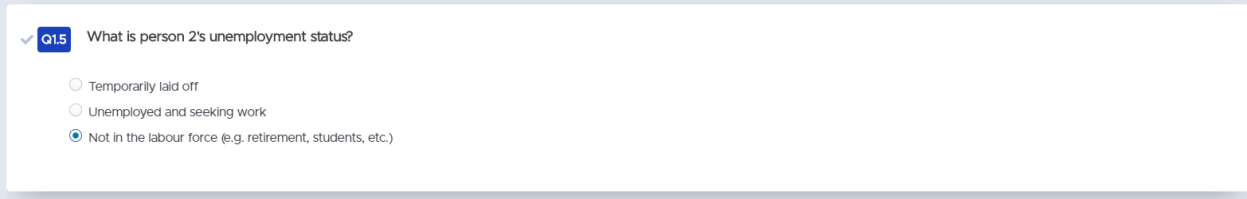
Q.2.2.3. Transit pass



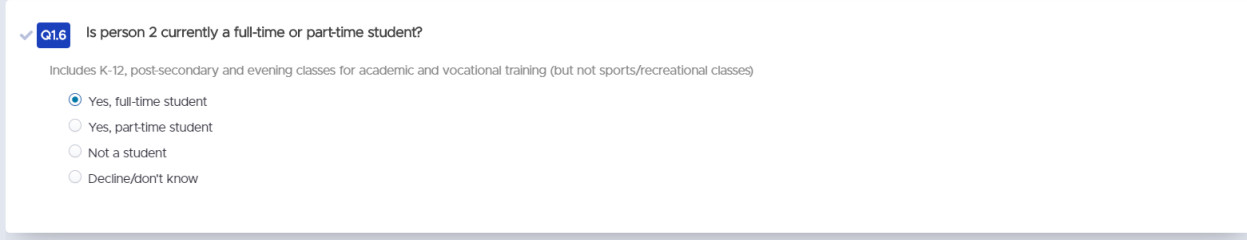
Q.2.2.4. Employement status



Q.2.2.5. Unemployement status



Q.2.2.6. Student status



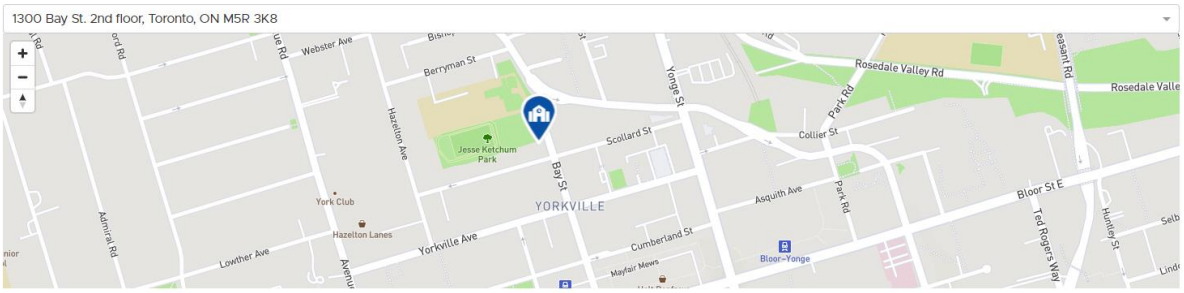
Q 2.2.7. Class types last term

Q1.7 What type of class did Person 2 attend last term?

- Virtual class only
- In-person class only
- Virtual and in-person class mix

Q 2.2.8. School location

Q1.8 Where is Person 2's school located?



Section 3: Travel diary

In this section, we will collect travel diary on a specific weekday for members who is 6 years or older in the household.

In the following section, we will collect a travel diaries that log all trips made by every member of your household on Thu Jul 08 2021.

Respodent 1

Q3.1. Travel diary – person 1

Entering diary – person 1

Q1.1 Please fill out the travel diary for person 1 by adding any trips that were made on Thu Jul 08 2021.

Home-Defined
46 St Clair Ave E, Toronto, ON M4T 1M9

Work-Defined
King's College Cir, Toronto, ON M5S
8:00 AM

Where did person 1 go after work-defined?
Restaurant, Bar, Coffee
71 Massey St, Toronto, ON M6J 2T5, Canada

Departure time for the trip (7/8/21, 6:00 PM)
18:00

Travel Mode
Car driving alone

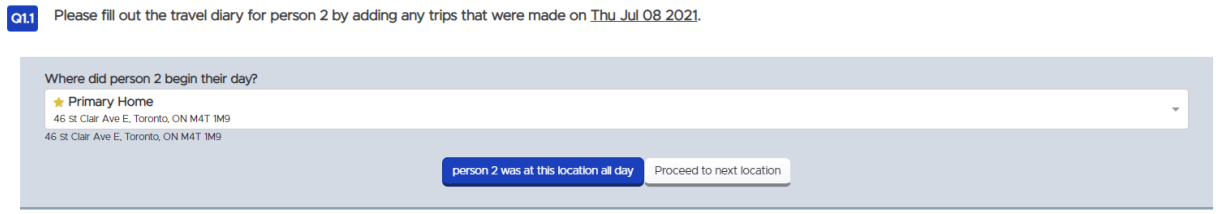
Delete | This was the last location | Proceed to next location

Completed diary – person 1

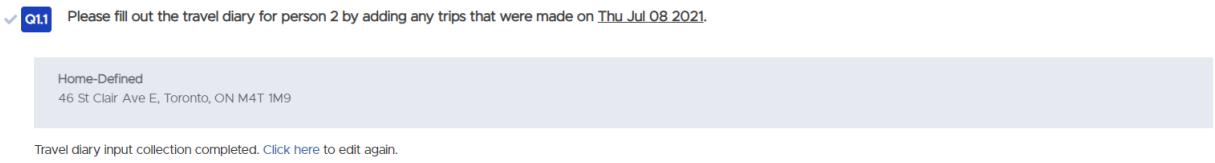
Respodent 2:

Q3.2. Travel diary – person 2

Entering diary – person 2

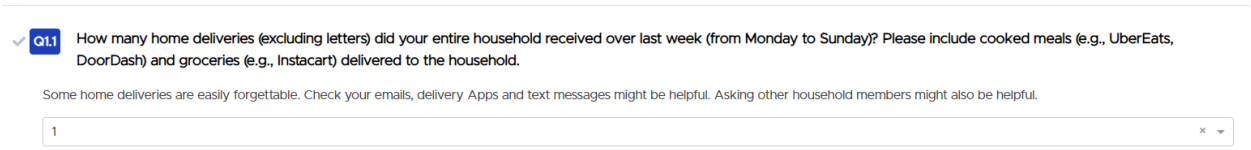


Completed diary – person 2

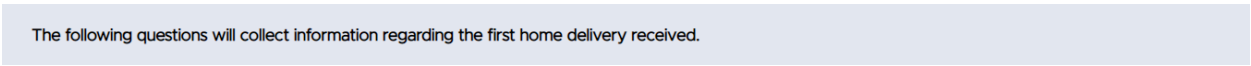


Section 4: Home delivery logs

Q4.1. Home delivery received last week



Q4.2.1. Home delivery #1 log



Q1.1 Which category does the item(s) in the first delivery package belong to? (please check all that apply)

- [ ] Books
- [x] Clothing & footwear
- [ ] Electronics & software-related
- [ ] Cooked meal delivery
- [ ] Groceries
- [ ] Health & beauty products
- [ ] Home furniture, tools, garden products, etc.
- [ ] Toys & child-related products
- [ ] Pets-related products
- [ ] Other

Q1.2 What is the gross price in dollars of the item(s) delivered in the first delivery package?

Please input **integers** only **without** the dollar sign. The range will be between 1 and 9999.

30

Q1.3 Who is the delivery service provider (which may be different from the store/business that sold the item(s)) of the first delivery package?

Relevant information might be found from the email sent by the carrier that providing delivery tracking information.

- (•) Amazon
- ( ) Canada post
- ( ) DHL
- ( ) FedEx
- ( ) Purolator
- ( ) UPS
- ( ) Other

Q1.4 On what day did the first delivery package arrive?

- (•) Monday
- ( ) Tuesday
- ( ) Wednesday
- ( ) Thursday
- ( ) Friday
- ( ) Saturday
- ( ) Sunday

Q1.5 When did the first delivery package arrive?

- (•) Early morning (before 6:00)
- ( ) Morning (6:00 – 8:59)
- ( ) Midday (9:00 – 14:59)
- ( ) Afternoon (15:00 – 18:59)
- ( ) Evening (after 19:00)
- ( ) Don't know

Q1.6 What kind of packaging did the carrier use for the first delivery package?

- (•) Box
- ( ) Bags
- ( ) Bubble mailers
- ( ) In its original packaging

Q1.7 What is the weight of the first delivery including the packaging?

- ○ Super heavy (>= 23 kg)
- ○ Heavy (10 - 23 kg)
- ○ Medium (2 – 10 kg)
- ◉ Light (<= 2 kg)

Q1.8 For the first delivery, what is the dimension of the delivery box?

12" x 3" x 17-1/2" (flat cloth box)

Section 5: Stated-preference (SP) questions

Q5.1. Online delivery membership

Q1.1 Is the household currently subscribing to any online grocery service memberships (such as Costco, Instacart, Cornershop-Uber, Pc Express, etc.) so it can enjoy free home delivery under certain conditions?

Typically, memberships are acquired for approximately $100 per year to enjoy upgraded services such as faster and cheaper (or free) delivery. Please do not count for standard users who do not subscribe to memberships of the aforementioned services.

- ◉ Yes
- ○ No

Two sets of stated-preference (SP) questions will be presented based on choice of Q5.1.

If Q5.1. -> Yes

Q5.2.1. SP introduction

Please read the following introduction carefully to helping you with the next section.

You will be presented with six hypothetical choice scenarios.

In each scenario, you will choose your most preferred way to complete your routine **grocery** shopping.

We noticed that the household has already subscribed to memberships that provide online grocery shopping and free home delivery under some conditions.

You will have the following **alternatives, which will include the vendor you have subscribed to**:

1. Shopping in-store
2. Ordering online with delivery to home from a **different vendor**
3. Ordering online with delivery to home from the **subscribed vendor**
4. Ordering online with in-store pickup

Also, please consider the following factors while making your decisions:

1. **Basket price:** the gross price of items purchased; higher prices indicate more items are purchased
2. **Shopping time in stores:** time spent in physical stores
3. **Travel modes and time to stores:** travel modes to stores and time spent en route
4. **Service types:** whether the online platform is operated by the stores or a third party such as Instacart & Uber.
5. **Delivery time:** the amount of time it takes for groceries to arrive home
6. **Wait time before pick up:** the amount of time it takes for the order to be ready to pick up
7. **Delivery fee:** fee charged for home delivery
8. **Minimum order to waive delivery fee:** enjoy free delivery after spending a certain amount of money

Q5.2.2. Sample SP choice sceanrios (6 scenarios will be presented)

Q1.1 For a shopping basket only containing perishable products (e.g., meat, fish, vegetables, fruits, and dairy products, etc.), what will be your choice:

Please think of each alternative as independent from each other and choose your most preferred alternatives. Also, a higher price means more items are being purchased in your shopping basket. So please do not merely compare prices and choose the lowest-priced shopping basket.

	Alternative 1: in-store shopping	Alternative 2: online&delivery (other vendor)	Alternative 3: online&delivery (subscribed vendor)	Alternative 4: online&pick up
basket price	$25	$75	$25	$25
service types	-	brand operated	-	third-party operated
in-store shopping time	30 mins	-	-	-
delivery fee	-	$8	$2 (if under minimum order)	-
minimum order to waive delivery fee	-	order over $99	order over $40	-
pick-up fee	-	-	-	$2
travel modes to stores	active modes	-	-	transit
travel time to stores	30 mins	-	-	15 mins
delivery time	-	same day	a week or later	-
wait time before pick up	-	-	-	same day
	○	◉	○	○

Confidence rating for Q5.2.2

Q1.2 How confident are you in the choice you just made?

○ No confident ○ Less confident ○ Neutral ○ Confident ◉ High confident

If Q5.1. -> No

Q5.3.1. SP introduction

Please read the following introduction carefully to helping you with the next section.

You will be presented with six hypothetical choice scenarios.

In each scenario, you will choose your most preferred way to complete your routine **grocery** shopping.

You will have the following **alternatives**:

1. Shopping in-store
2. Ordering online with delivery to home
3. Ordering online with free delivery after purchasing memberships
4. Ordering online with in-store pickup

Also, please consider the following factors while making your decisions:

1. **Basket price:** the gross price of items purchased; higher prices indicate more items are purchased
2. **Shopping time in stores:** time spent in physical stores
3. **Travel modes and time to stores:** travel modes to stores and time spent en route
4. **Service types:** whether the online platform is operated by the stores or a third party such as Instacart & Uber.
5. **Delivery time:** the amount of time it takes for groceries to arrive home
6. **Wait time before pick up:** the amount of time it takes for the order to be ready to pick up
7. **Delivery fee:** fee charged for home delivery
8. **Minimum order to waive delivery fee:** enjoy free delivery after spending a certain amount of money
9. **Subscribed membership for free delivery:** monthly memberships begin to pay for unlimited free home delivery

Q5.3.2. Sample SP choice sceanrios (6 scenarios will be presented)

Q1.1 For a shopping basket only containing perishable products (e.g., meat, fish, vegetables, fruits, and dairy products, etc.), what will be your choice:

Please think of each alternative as independent from each other and choose your most preferred alternatives. Also, a higher price means more items are being purchased in your shopping basket. So please do not merely compare prices and choose the lowest-priced shopping basket.

	Alternative 1: in-store shopping	Alternative 2: online&delivery	Alternative 3: online&begin subscription for free delivery	Alternative 4: online&pick up
basket price	$150 (heavy bags/boxes)	$75	$50	$150 (heavy bags/boxes)
service types	-	third-party operated	brand operated	third-party operated
in-store shopping time	45 mins	-	-	-
delivery fee	-	$8	-	-
minimum order to waive delivery fee	-	not applicable	-	-
membership fee with unlimited free delivery	-	-	Starting to pay $10 per month now	-
pick-up fee	-	-	-	$4
travel modes to stores	active modes	-	-	car
travel time to stores	30 mins	-	-	15 mins
delivery time	-	same day	a week or later	-
wait time before pick up	-	-	-	same day
	○	○	◉	○

Confidence rating for Q5.3.2.

Q1.2 How confident are you in the choice you just made?

No confident — Less confident — Neutral — Confident — **High confident**

Section 6: Attitudinal questions

This will be the final section of the survey!

We'll collect attitudinal questions about shopping groceries online in this section.

Q6.1. Pandemic related

Q1.1 It is important to practice social distancing for an extended period, even if the daily COVID-19 case counts remain low.

Strongly disagree — Disagree — Neutral — **Agree** — Strongly agree

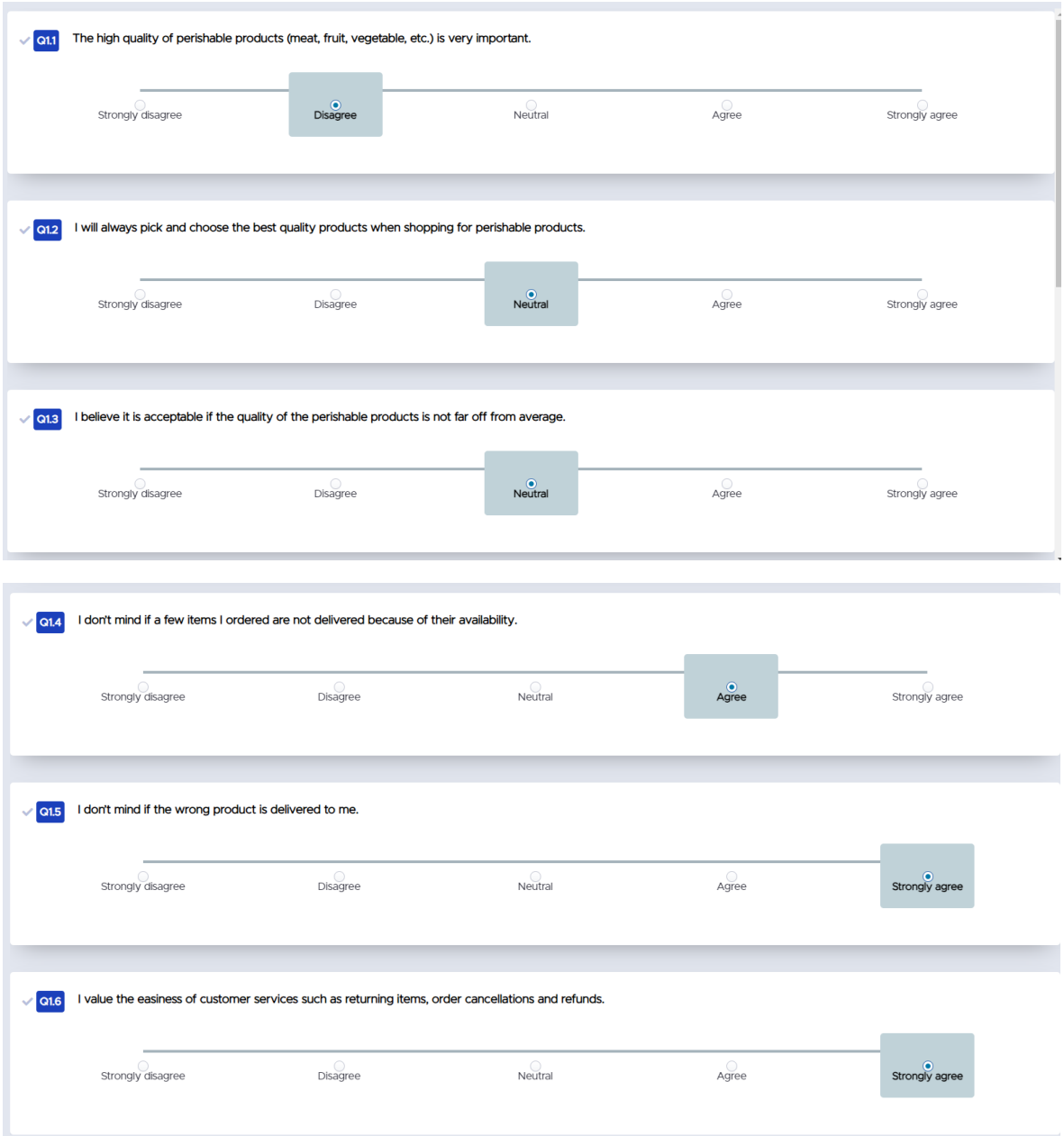
Q1.2 I believe mandatory face covering is important to protect shoppers and employees in stores.

Strongly disagree — Disagree — Neutral — Agree — **Strongly agree**

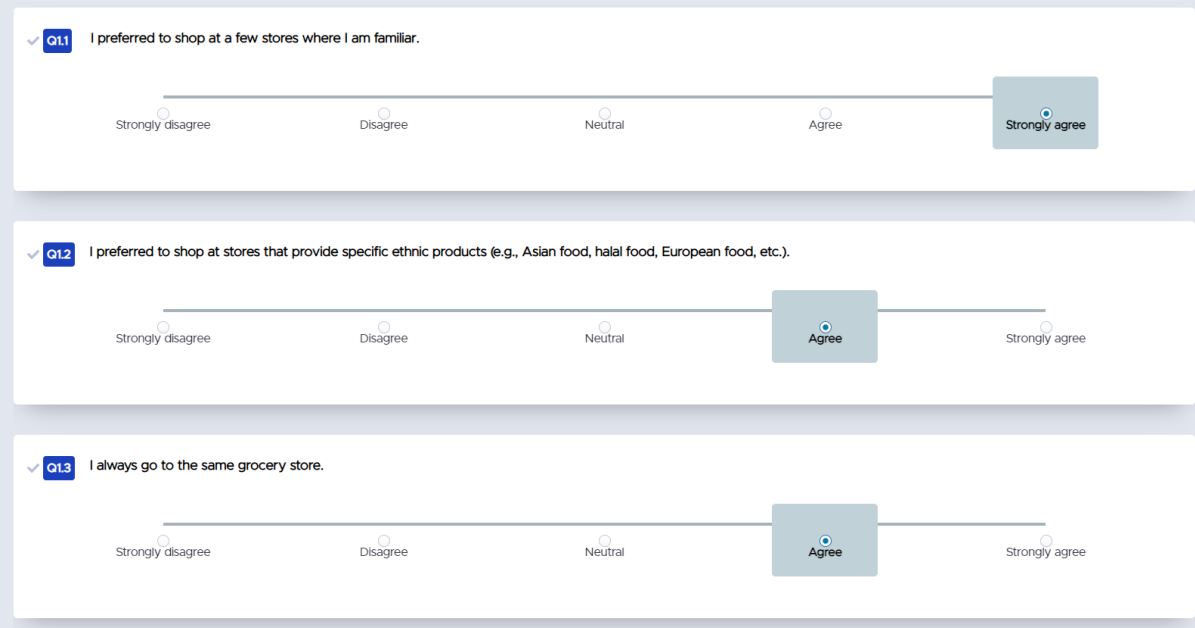
Q1.3 I followed the directives to avoid non-essential out-of-home activity during the pandemic.

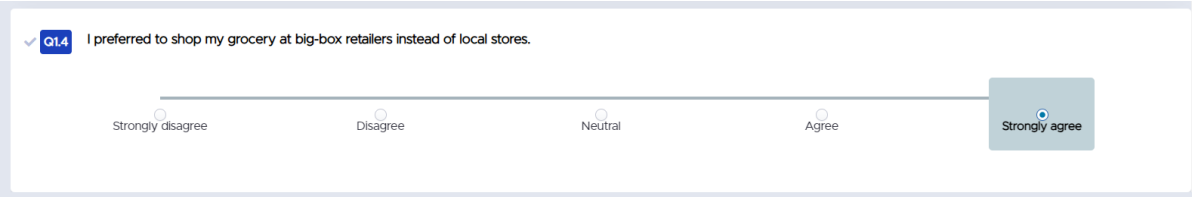
Strongly disagree — Disagree — Neutral — **Agree** — Strongly agree

Q6.2 Service quality

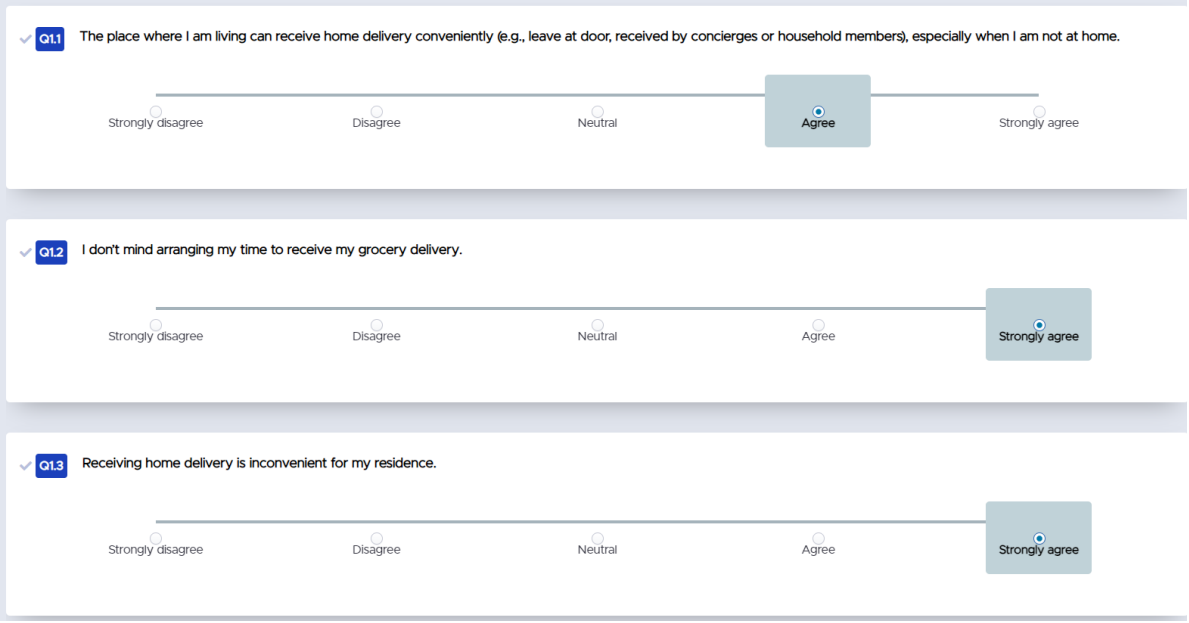


Q6.3 Brand loyalty



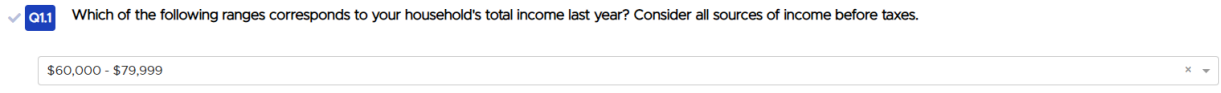


Q6.4 Delivery-realted



Section 7

Q7.1. Household income

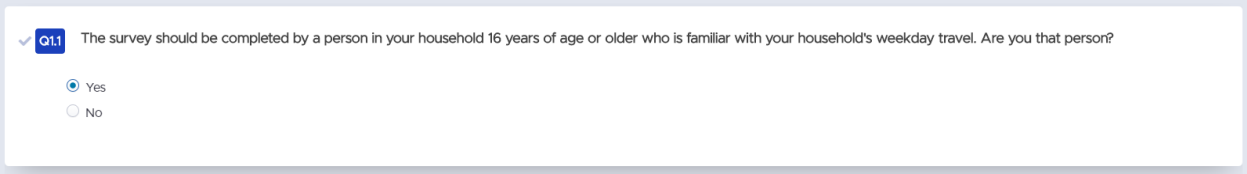


APPENDIX C: 2021 Fall COVHITS Sample Questionnaire

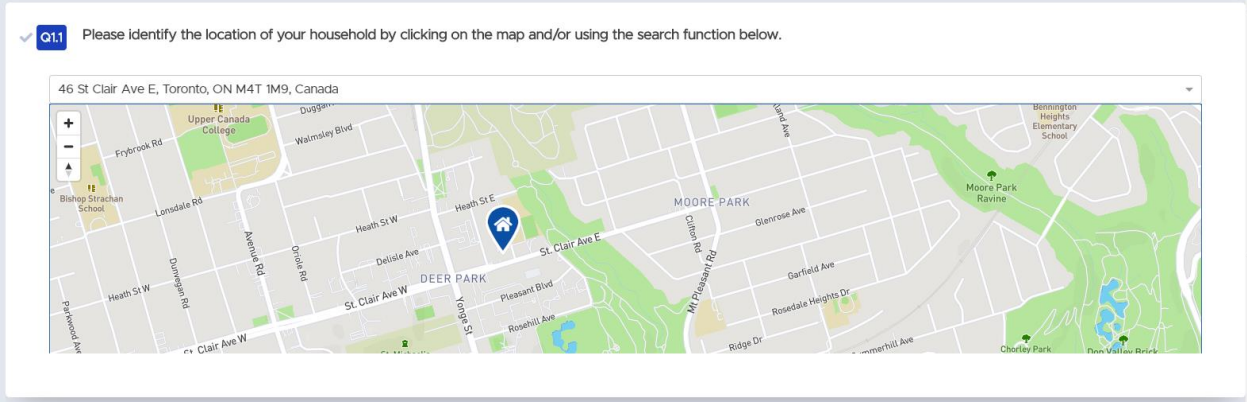
2021 Fall COVHITS Sample Questionnaire

Section 1: Household information

Q1.1. Proxy respodent age comfirmation

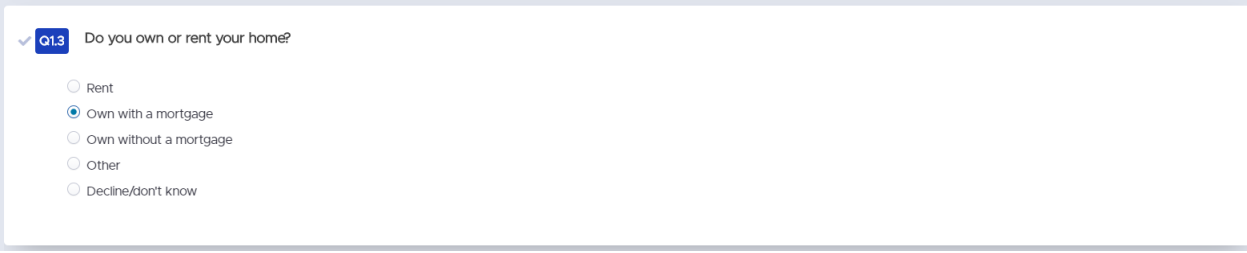


Q1.2. Household location

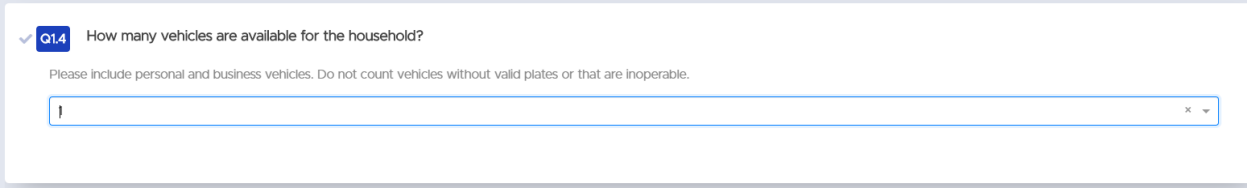


Q1.3. Household dwelling types

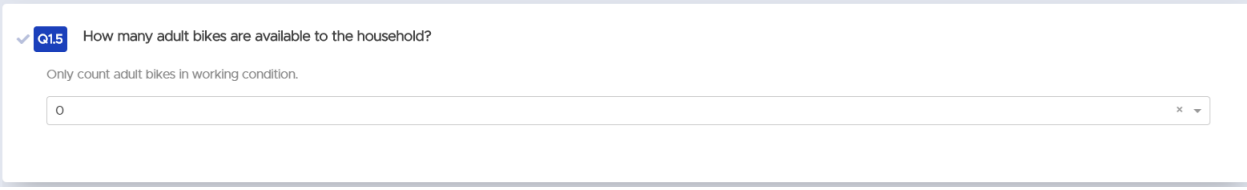
Q1.4. Household tenure



Q1.5. Household vehicles

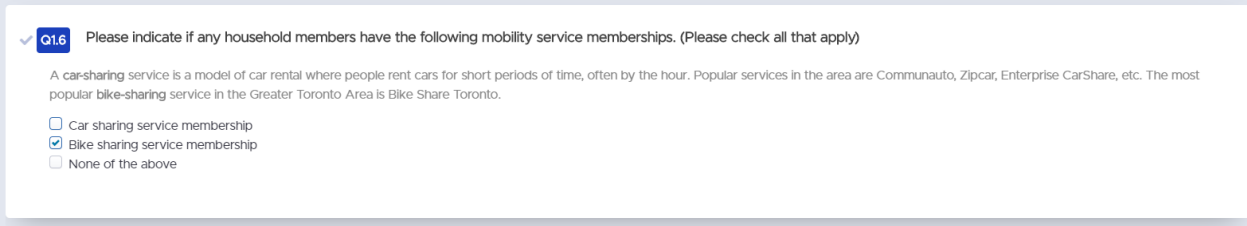


Q1.6. Housheold mechanical bikes

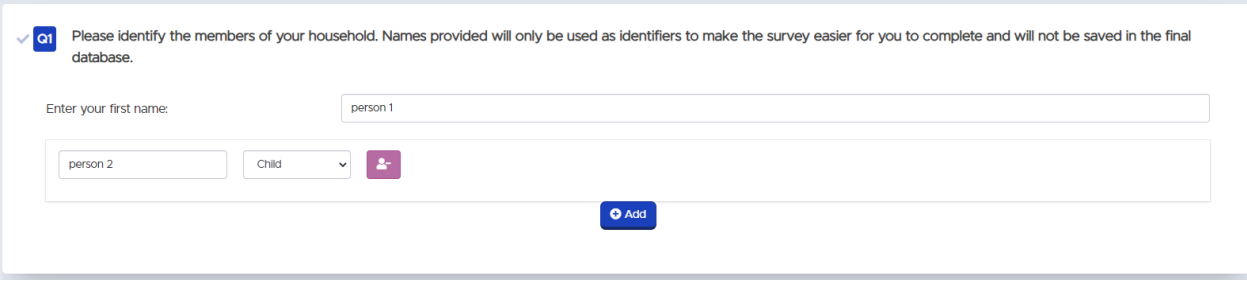


Q1.7. Housheold E-bikes & E-scooters

Q1.8. Household shared mobility tools



Q1.9. Household members & relations

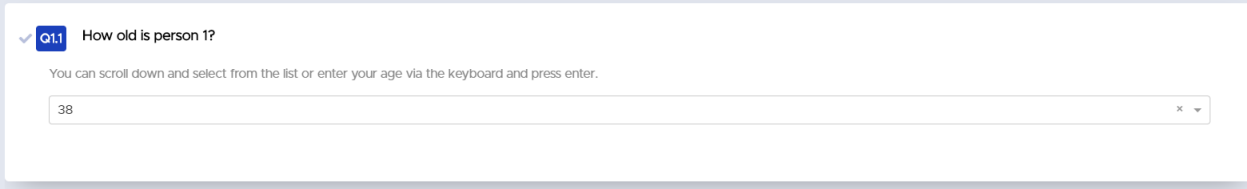


Section 2: Personal information

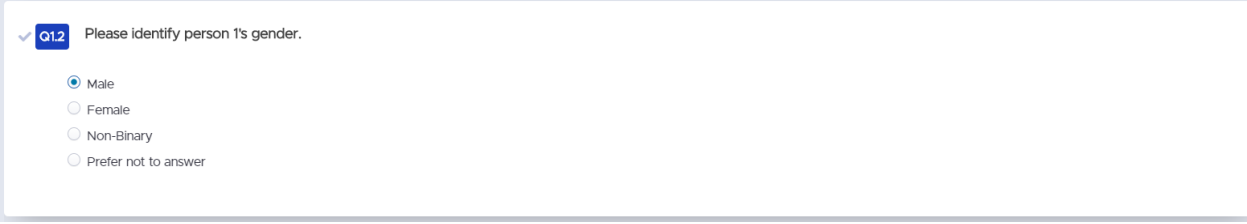
In this section, personal information of household members identified in Q1.9 will be collected respectively. In this sample questionaire, we have one adult and a chird in the household.

Respodent 1:

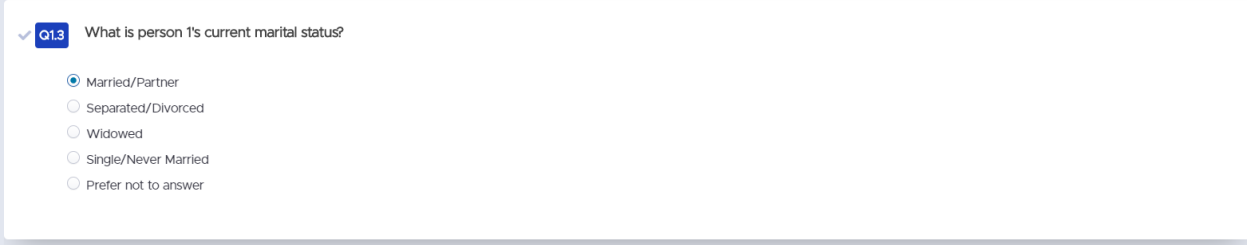
Q2.1.1. Age



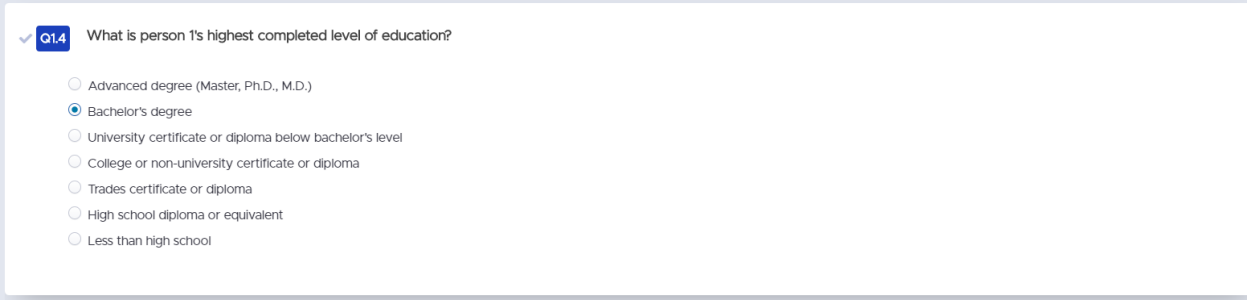
Q2.1.2. Gender



Q2.1.3. Marital status

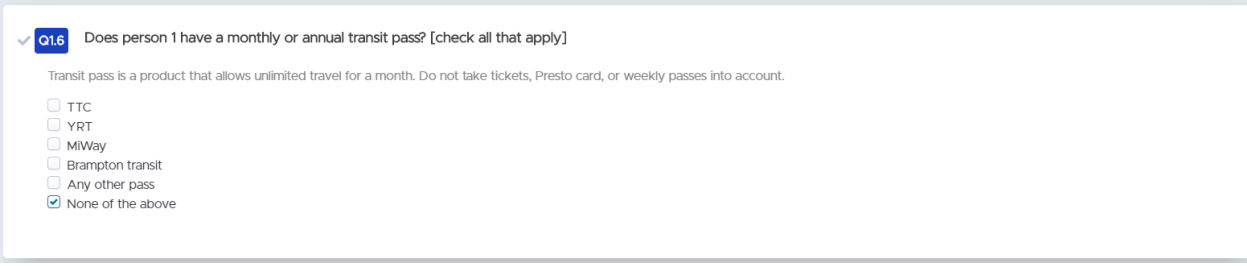


Q.2.1.4. Highest education level

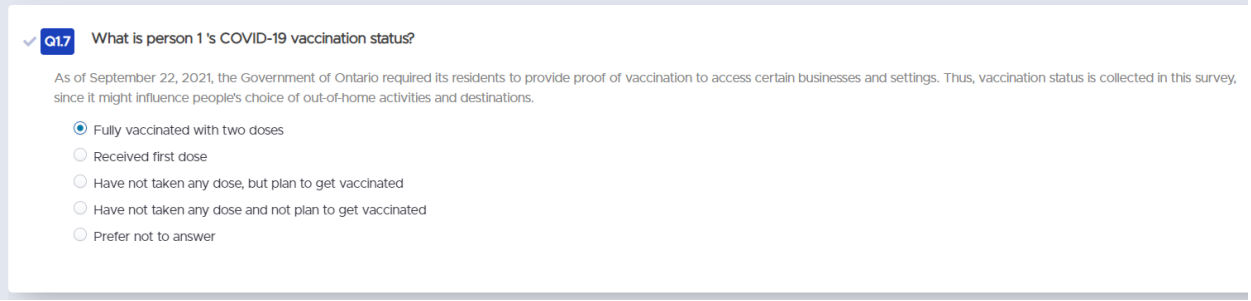


Q.2.1.5. Driver’s license

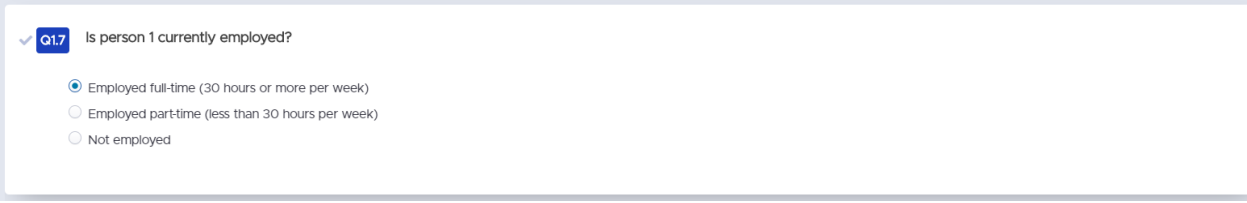
Q.2.1.6. Transit pass



Q.2.1.7. Vaccination status



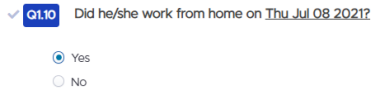
Q.2.1.8. Employement status



Q.2.1.9. Occupation types

Q.2.1.10. Work place arrangement – present

Q.2.1.11. Work from home confirmation on previous work day



Q.2.1.12. Work from home schedule on previous work day

Q1.11 Please recall his/her working schedules on Thu Jul 08 2021 and select time slots he/she allocated and actually worked productively.

Please exclude time slots that he/she was performing non-work activities, such as cooking meals, entertainment and travelling out from home.

- [ ] before 6:00
- [ ] 6:00 to 6:30
- [ ] 6:30 to 7:00
- [ ] 7:00 to 7:30
- [ ] 7:30 to 8:00
- [ ] 8:00 to 8:30
- [ ] 8:30 to 9:00
- [ ] 9:00 to 9:30
- [ ] 9:30 to 10:00
- [x] 10:00 to 10:30
- [x] 10:30 to 11:00
- [x] 11:00 to 11:30
- [x] 11:30 to 12:00
- [x] 12:00 to 12:30
- [ ] 12:30 to 13:00
- [ ] 13:00 to 13:30
- [x] 13:30 to 14:00
- [x] 14:00 to 14:30
- [x] 14:30 to 15:00
- [x] 15:00 to 15:30
- [x] 15:30 to 16:00
- [ ] 16:00 to 16:30
- [ ] 16:30 to 17:00
- [ ] 17:00 to 17:30
- [ ] 17:30 to 18:00
- [ ] 18:00 to 18:30
- [ ] 18:30 to 19:00
- [ ] 19:00 to 19:30
- [ ] 19:30 to 20:00
- [ ] 20:00 to 20:30
- [ ] 20:30 to 21:00
- [ ] 21:00 to 21:30
- [ ] 21:30 to 22:00
- [ ] 22:00 to 22:30
- [ ] 22:30 to 23:00
- [ ] 23:00 to 23:30
- [ ] 23:30 to 24:00
- [ ] after 24:00

Q.2.1.13. Non-home work location confirmation

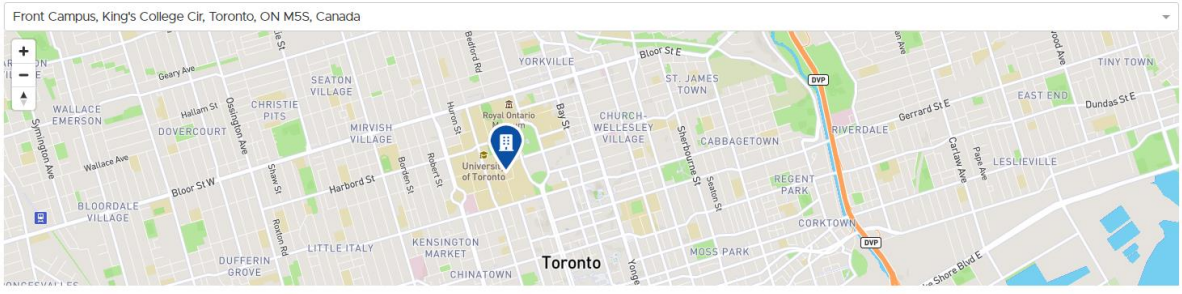
Q1.12 **Does person 1 still have an official non-home place of work at present.** The respondent does not have to travel to this non-home place of work daily due to the pandemic. For example, Tom has an office place downtown but currently is working remotely at home. Please report his office location.

For respondents who are currently working remotely due to the pandemic, we would like to know where they will travel to work once current work-from-home restrictions are lifted.

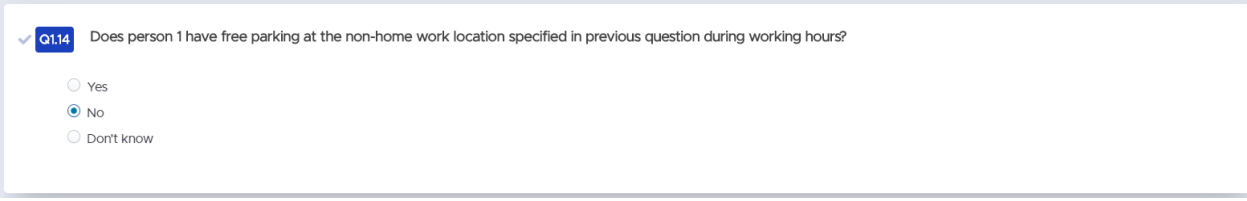
- (•) Yes
- ( ) No

Q.2.1.14. Work location – present

Q1.13 Please identify person 1's current non-home place of work on the map.

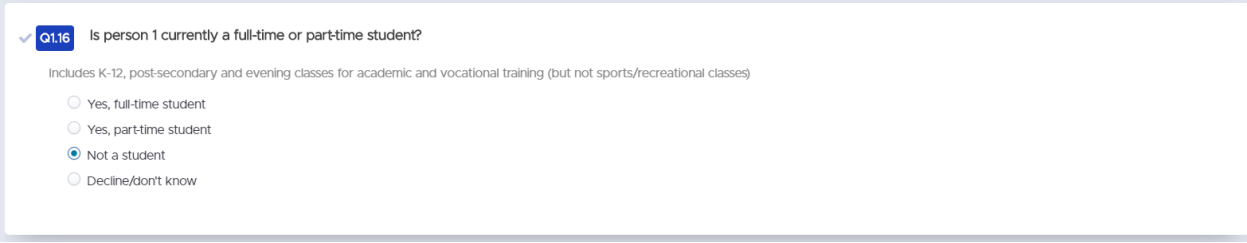


Q.2.1.15. Free park at work



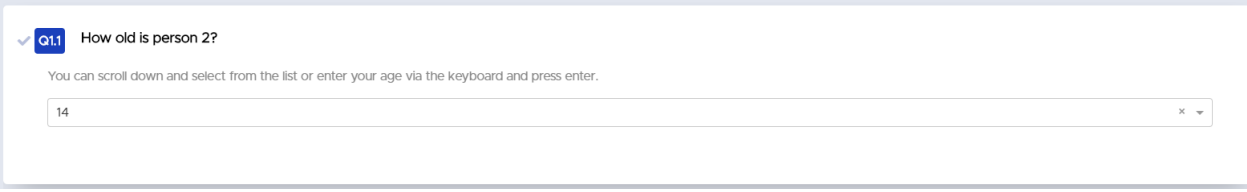
Q.2.1.16. Work schedule options

Q.2.1.17. Student status

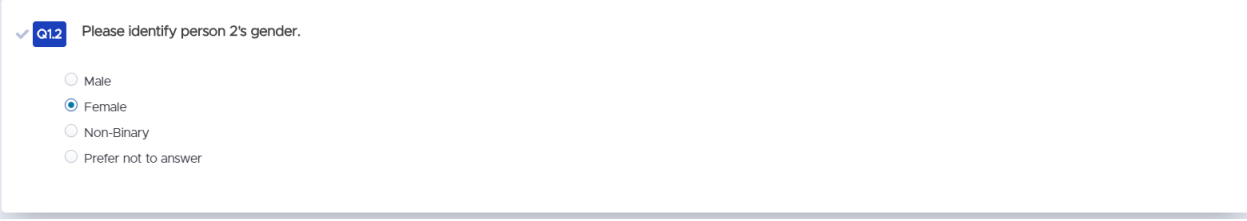


Respodent 2:

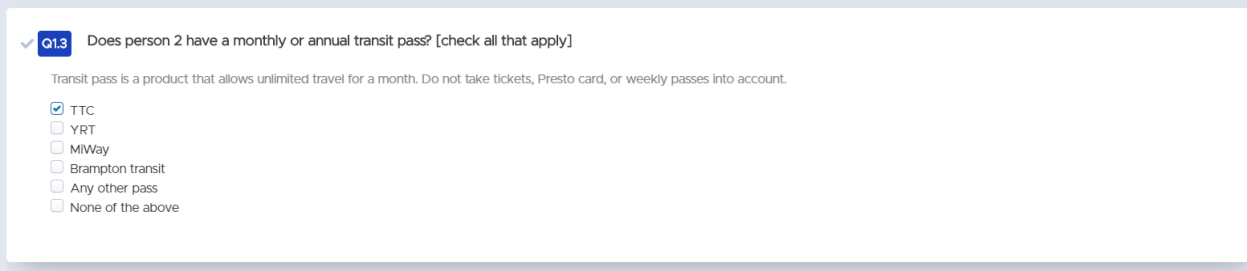
Q2.2.1. Age



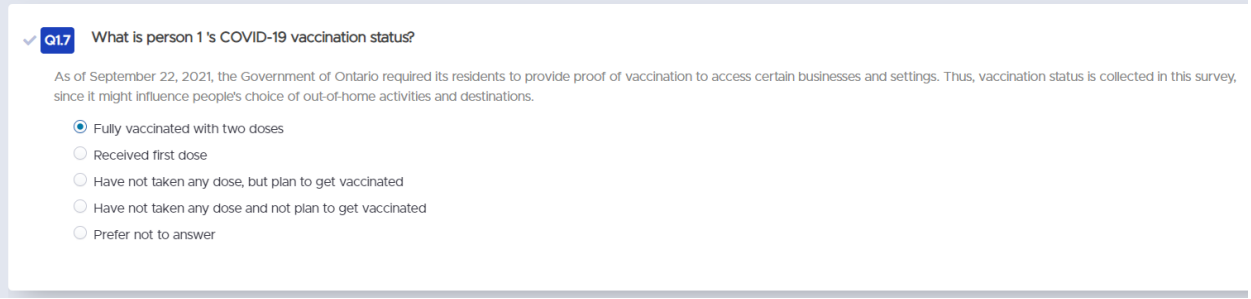
Q2.2.2. Gender



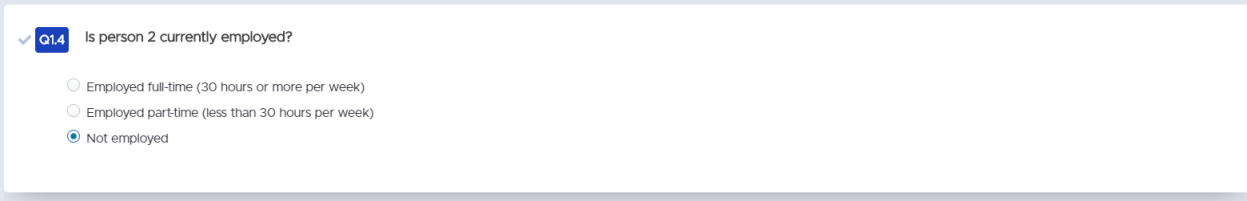
Q.2.2.3. Transit pass



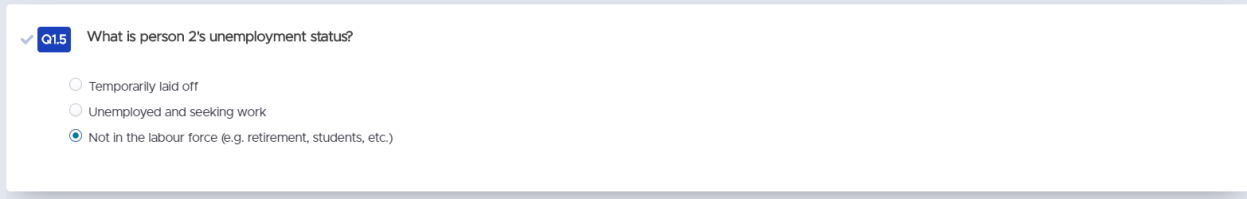
Q.2.2.4. Vaccination status



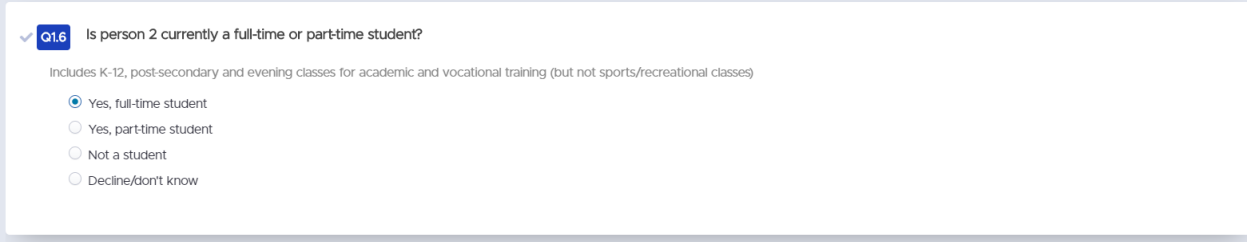
Q.2.2.5. Employement status



Q.2.2.6. Unemployement status



Q.2.2.7. Student status



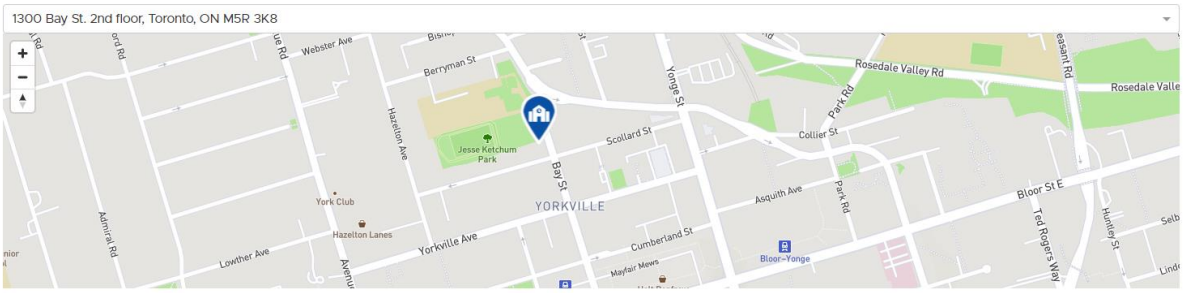
Q 2.2.8. Class types last term

Q1.7 What type of class did Person 2 attend last term?

- Virtual class only
- In-person class only
- Virtual and in-person class mix

Q 2.2.9. School location

Q1.8 Where is Person 2's school located?



Section 3: Travel diary

In this section, we will collect travel diary on a specific weekday for members who is 6 years or older in the household.

In the following section, we will collect a travel diaries that log all trips made by every member of your household on Thu Jul 08 2021.

Respodent 1

Q3.1. Travel diary – person 1

Entering diary – person 1

Q1.1 Please fill out the travel diary for person 1 by adding any trips that were made on Thu Jul 08 2021.

Home-Defined
46 St Clair Ave E, Toronto, ON M4T 1M9

Work-Defined
King's College Cir, Toronto, ON M5S
8:00 AM

Where did person 1 go after work-defined?
Restaurant, Bar, Coffee
71 Massey St, Toronto, ON M6J 2T5, Canada

Departure time for the trip (7/8/21, 6:00 PM)
18:00

Travel Mode
Car driving alone

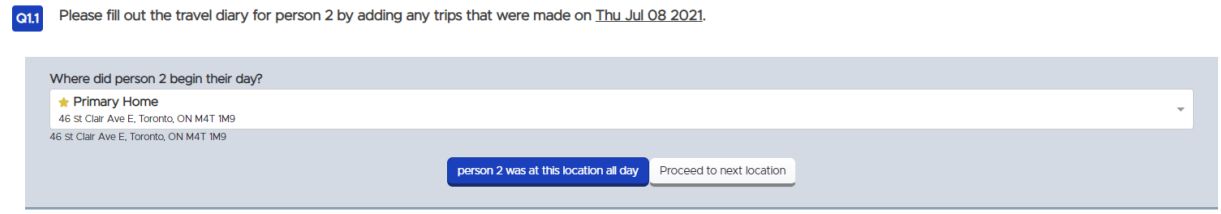
Delete | This was the last location | Proceed to next location

Completed diary – person 1

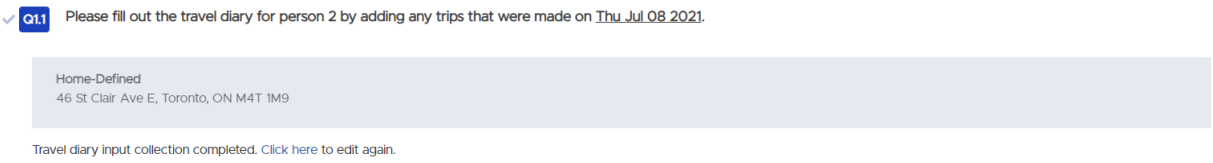
Respodent 2:

Q3.2. Travel diary – person 2

Entering diary – person 2



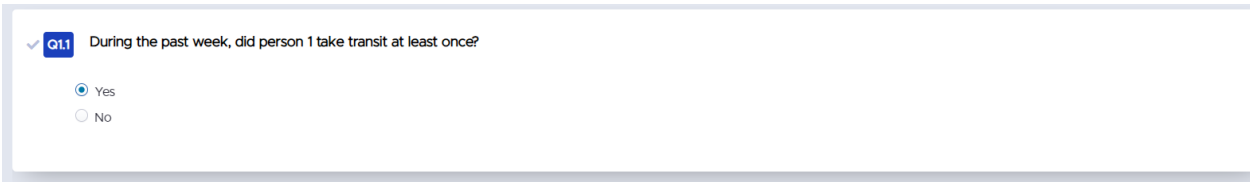
Completed diary – person 2



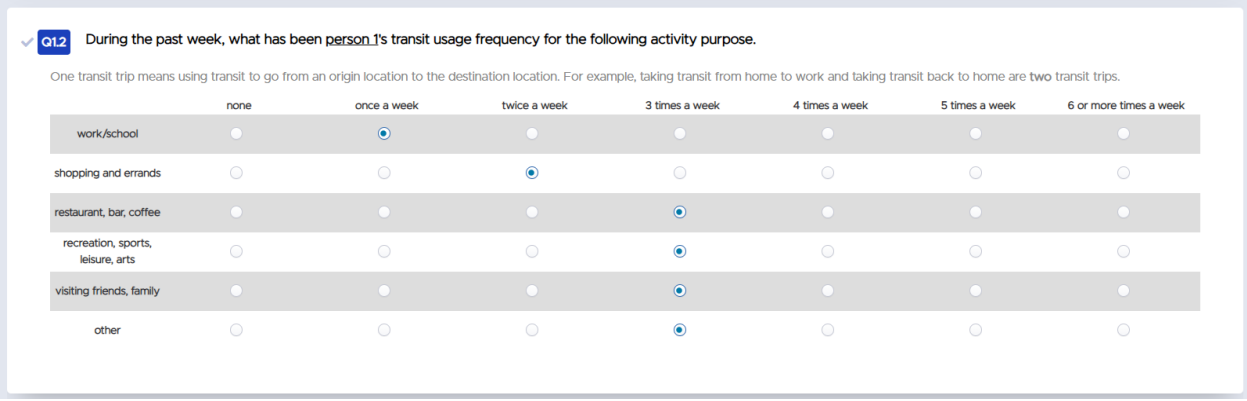
Section 4: Transit usage

Respodent 1

Q4.1.1. Transit usage confirmation – person 1



Q4.1.2. Transit usage by purpose – person 1



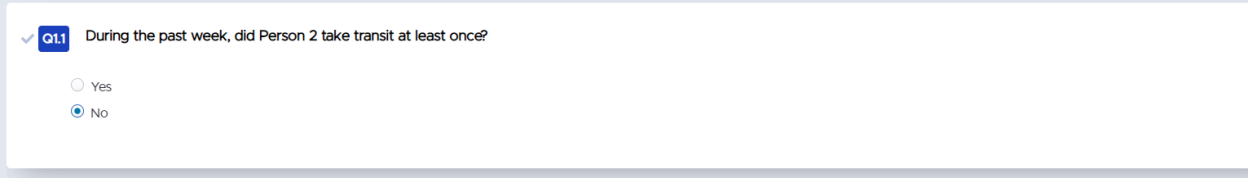
Q1.2 During the past week, what has been person 1's transit usage frequency for the following activity purpose.

One transit trip means using transit to go from an origin location to the destination location. For example, taking transit from home to work and taking transit back to home are two transit trips.

	none	once a week	twice a week	3 times a week	4 times a week	5 times a week	6 or more times a week
work/school	○	◉	○	○	○	○	○
shopping and errands	○	○	◉	○	○	○	○
restaurant, bar, coffee	○	○	○	◉	○	○	○
recreation, sports, leisure, arts	○	○	○	◉	○	○	○
visiting friends, family	○	○	○	◉	○	○	○
other	○	○	○	◉	○	○	○

Respodent 2

Q4.2.1. Transit usage confirmation – person 2

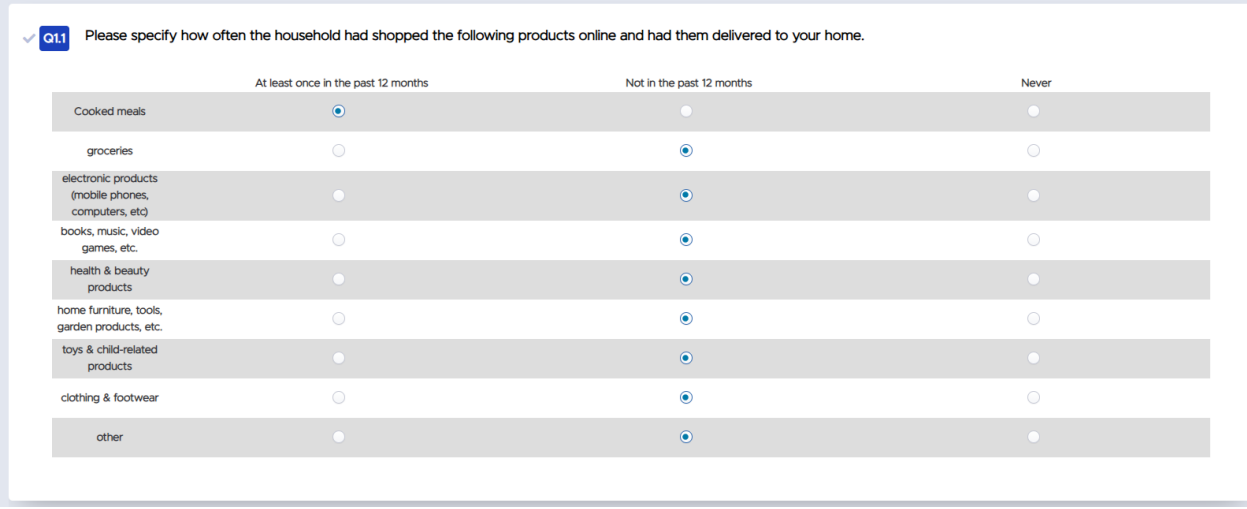


Q1.1 During the past week, did Person 2 take transit at least once?

- ○ Yes
- ◉ No

Section 5: Home delivery logs

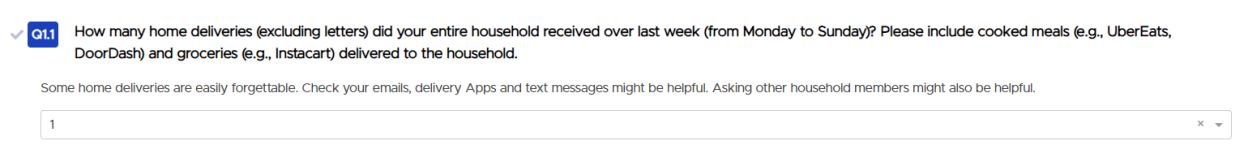
Q5.1. Home delivery frequency



Q1.1 Please specify how often the household had shopped the following products online and had them delivered to your home.

	At least once in the past 12 months	Not in the past 12 months	Never
Cooked meals	◉	○	○
groceries	○	◉	○
electronic products (mobile phones, computers, etc)	○	◉	○
books, music, video games, etc.	○	◉	○
health & beauty products	○	◉	○
home furniture, tools, garden products, etc.	○	◉	○
toys & child-related products	○	◉	○
clothing & footwear	○	◉	○
other	○	◉	○

Q5.2. Home delivery received last week



Q1.1 How many home deliveries (excluding letters) did your entire household received over last week (from Monday to Sunday)? Please include cooked meals (e.g., UberEats, DoorDash) and groceries (e.g., Instacart) delivered to the household.

Some home deliveries are easily forgettable. Check your emails, delivery Apps and text messages might be helpful. Asking other household members might also be helpful.

1 × ▾

Q5.3.1. Home delivery #1 log

The following questions will collect information regarding the first home delivery received.

Q1.1 Which category does the item(s) in the first delivery package belong to? (please check all that apply)

- [ ] Books
- [x] Clothing & footwear
- [ ] Electronics & software-related
- [ ] Cooked meal delivery
- [ ] Groceries
- [ ] Health & beauty products
- [ ] Home furniture, tools, garden products, etc.
- [ ] Toys & child-related products
- [ ] Pets-related products
- [ ] Other

Q1.2 What is the gross price in dollars of the item(s) delivered in the first delivery package?

Please input **integers** only **without** the dollar sign. The range will be between 1 and 9999.

30

Q1.3 Who is the delivery service provider (which may be different from the store/business that sold the item(s)) of the first delivery package?

Relevant information might be found from the email sent by the carrier that providing delivery tracking information.

- (•) Amazon
- ( ) Canada post
- ( ) DHL
- ( ) FedEx
- ( ) Purolator
- ( ) UPS
- ( ) Other

Q1.4 On what day did the first delivery package arrive?

- (•) Monday
- ( ) Tuesday
- ( ) Wednesday
- ( ) Thursday
- ( ) Friday
- ( ) Saturday
- ( ) Sunday

Q1.5 When did the first delivery package arrive?

- (•) Early morning (before 6:00)
- ( ) Morning (6:00 – 8:59)
- ( ) Midday (9:00 – 14:59)
- ( ) Afternoon (15:00 – 18:59)
- ( ) Evening (after 19:00)
- ( ) Don't know

Q1.6 What kind of packaging did the carrier use for the first delivery package?

- (•) Box
- ( ) Bags
- ( ) Bubble mailers
- ( ) In its original packaging

Q1.7 What is the weight of the first delivery including the packaging?

- Super heavy (>= 23 kg)
- Heavy (10 - 23 kg)
- Medium (2 – 10 kg)
- (•) Light (<= 2 kg)

Q1.8 For the first delivery, what is the dimension of the delivery box?

12" x 3" x 17-1/2" (flat cloth box)

Section 6:

Q6.1. Pandemic general_1

Q1.1 Please indicate how much you agree with each of the following statements, considering the current situation of the pandemic.

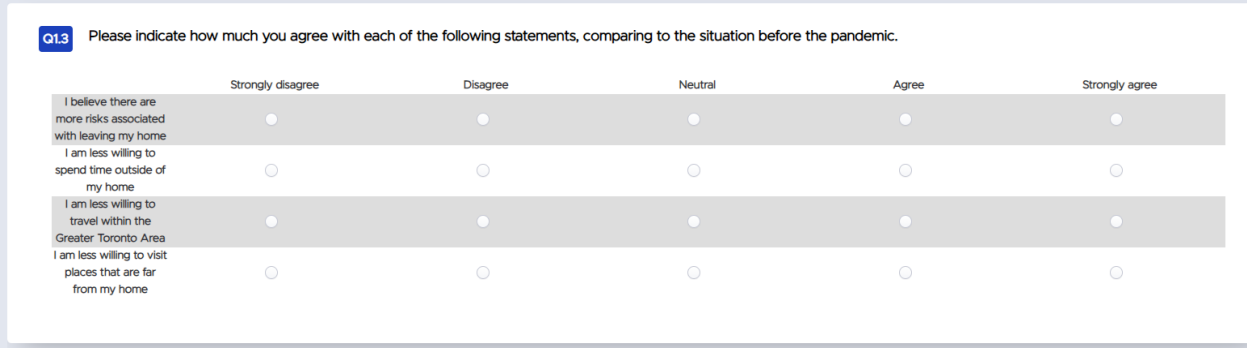
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I'm concerned about the possibility of contracting the COVID-19					
I always wear a mask/face covering while going out					
I have avoided social gatherings of three or more people					
I have stayed in my home and did not leave for any reason					
I strictly maintain social distancing whenever I went out of my home					
I prefer to stay away from others when I am travelling					
I have learnt to live with the COVID-19 pandemic					
I am more reliant on online groceries and deliveries					
I am more into telecommuting for working or education					
I am more into meet with friends and family online					
I would like to return to my pre-pandemic daily routine					

Q6.2. Pandemic general_2

Q1.2 Please indicate how much you agree with each of the following statements, considering the current situation of the pandemic.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I have developed new daily routines to cope with the pandemic					
I will go back to my pre-pandemic daily routine if possible					
Work/study from home is productive					
I have better productivity at workplace					
Online shopping is convenient and time-saving					
Work from home can save the time and effort on commute					
In-store shopping is fun					
I will establish new daily routines as the pandemic develop					

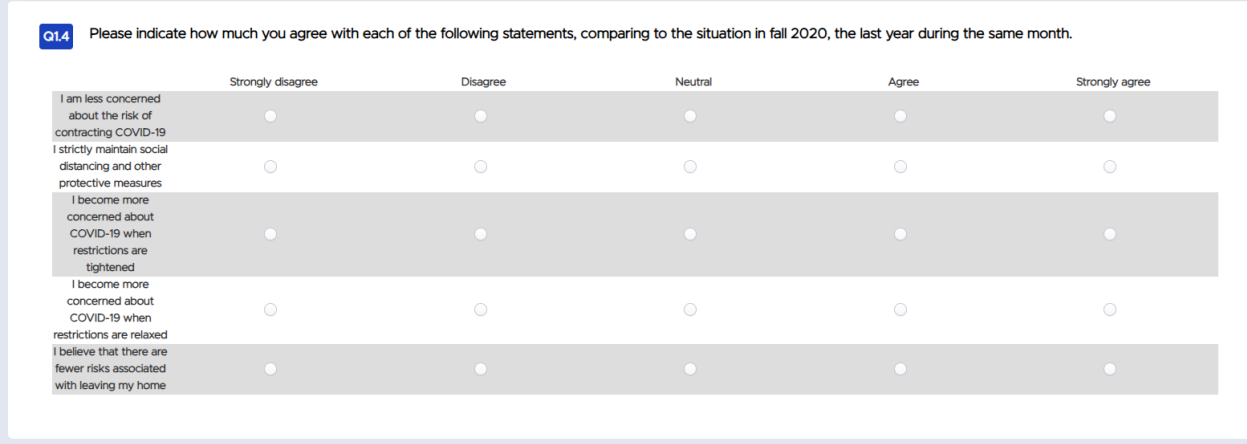
Q6.3. Pandemic general_3



Q1.3 Please indicate how much you agree with each of the following statements, comparing to the situation before the pandemic.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I believe there are more risks associated with leaving my home					
I am less willing to spend time outside of my home					
I am less willing to travel within the Greater Toronto Area					
I am less willing to visit places that are far from my home					

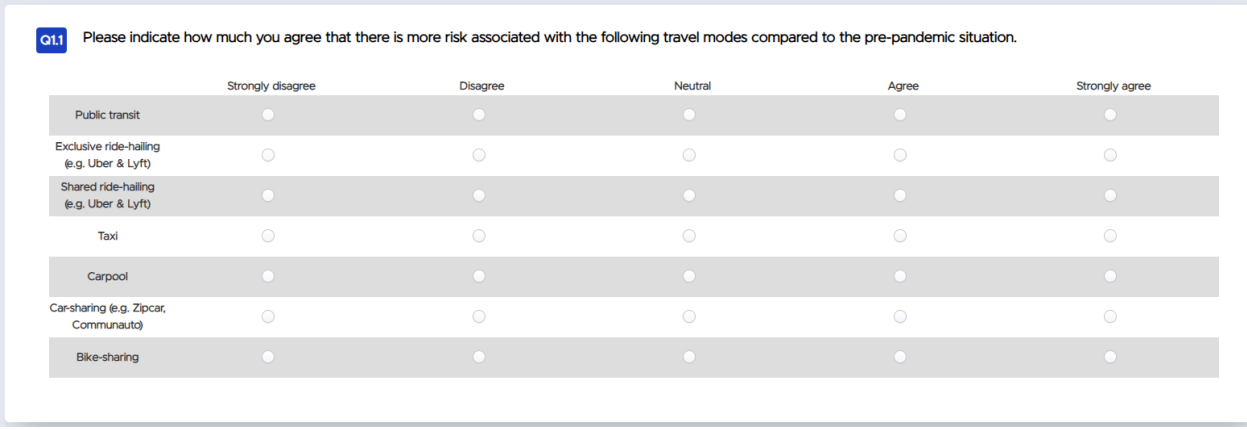
Q6.4. Pandemic general_4



Q1.4 Please indicate how much you agree with each of the following statements, comparing to the situation in fall 2020, the last year during the same month.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I am less concerned about the risk of contracting COVID-19					
I strictly maintain social distancing and other protective measures					
I become more concerned about COVID-19 when restrictions are tightened					
I become more concerned about COVID-19 when restrictions are relaxed					
I believe that there are fewer risks associated with leaving my home					

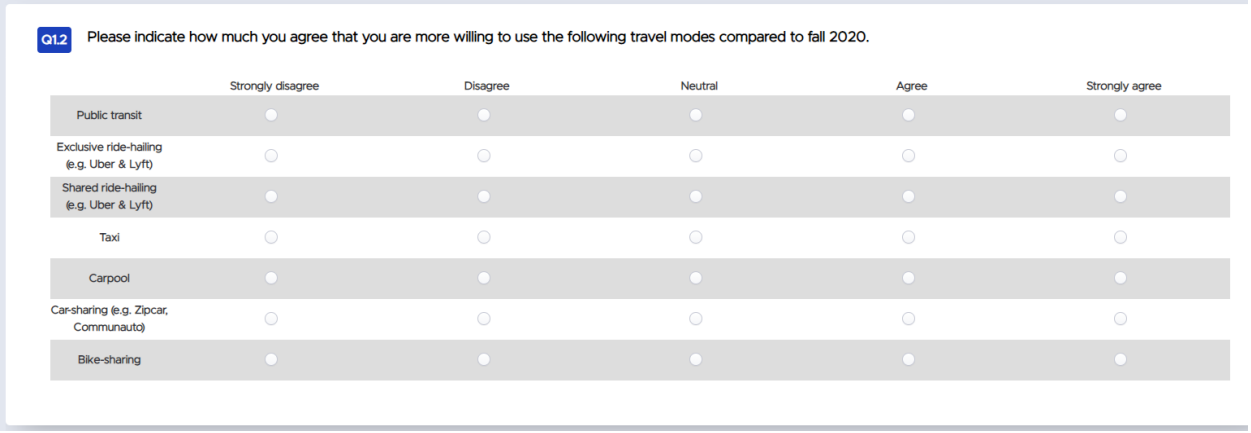
Q6.5. Pandemic travel mode risk_1



Q1.1 Please indicate how much you agree that there is more risk associated with the following travel modes compared to the pre-pandemic situation.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Public transit					
Exclusive ride-hailing (e.g. Uber & Lyft)					
Shared ride-hailing (e.g. Uber & Lyft)					
Taxi					
Carpool					
Car-sharing (e.g. Zipcar, Communauto)					
Bike-sharing					

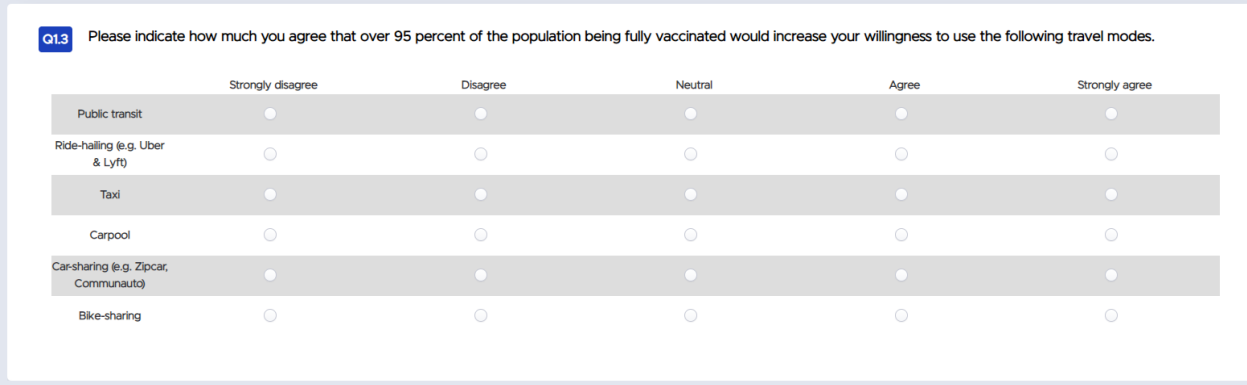
Q6.6. Pandemic travel mode risk_2



Q1.2 Please indicate how much you agree that you are more willing to use the following travel modes compared to fall 2020.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Public transit	○	○	○	○	○
Exclusive ride-hailing (e.g. Uber & Lyft)	○	○	○	○	○
Shared ride-hailing (e.g. Uber & Lyft)	○	○	○	○	○
Taxi	○	○	○	○	○
Carpool	○	○	○	○	○
Car-sharing (e.g. Zipcar, Communauto)	○	○	○	○	○
Bike-sharing	○	○	○	○	○

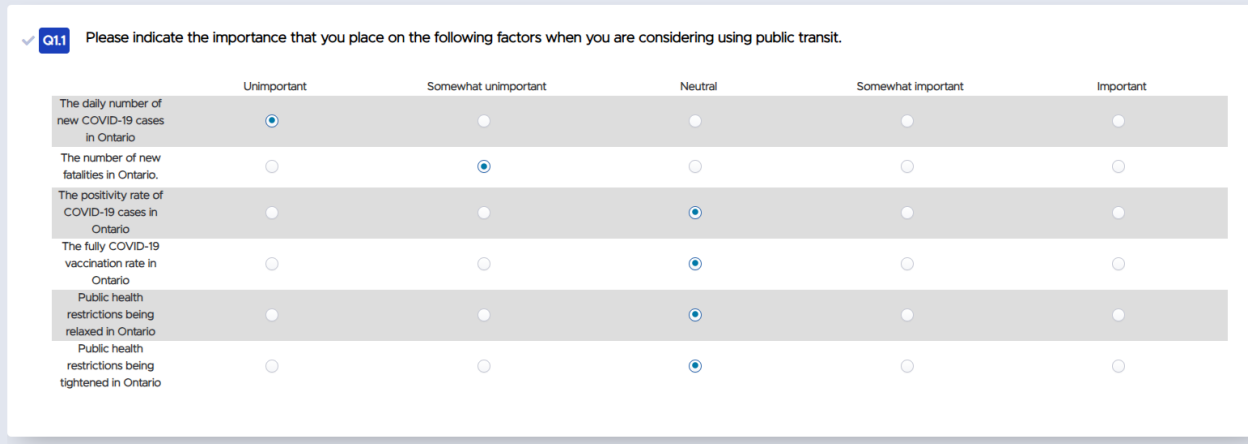
Q6.7. Pandemic travel mode risk_3



Q1.3 Please indicate how much you agree that over 95 percent of the population being fully vaccinated would increase your willingness to use the following travel modes.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Public transit	○	○	○	○	○
Ride-hailing (e.g. Uber & Lyft)	○	○	○	○	○
Taxi	○	○	○	○	○
Carpool	○	○	○	○	○
Car-sharing (e.g. Zipcar, Communauto)	○	○	○	○	○
Bike-sharing	○	○	○	○	○

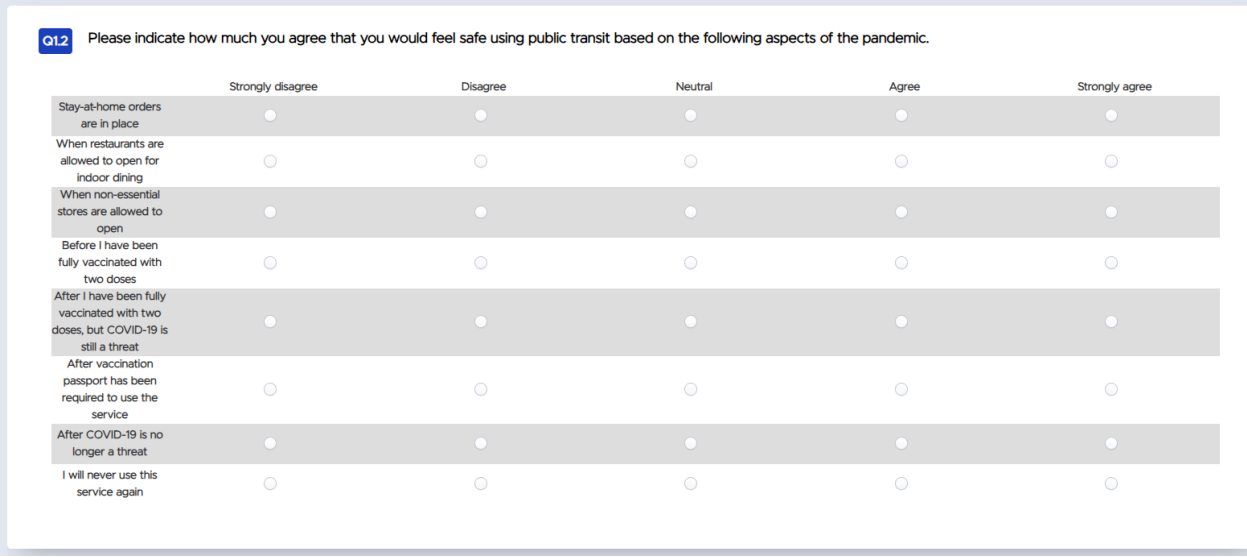
Q6.8. Factors transit_1



Q1.1 Please indicate the importance that you place on the following factors when you are considering using public transit.

	Unimportant	Somewhat unimportant	Neutral	Somewhat important	Important
The daily number of new COVID-19 cases in Ontario	◉	○	○	○	○
The number of new fatalities in Ontario.	○	◉	○	○	○
The positivity rate of COVID-19 cases in Ontario	○	○	◉	○	○
The fully COVID-19 vaccination rate in Ontario	○	○	◉	○	○
Public health restrictions being relaxed in Ontario	○	○	◉	○	○
Public health restrictions being tightened in Ontario	○	○	◉	○	○

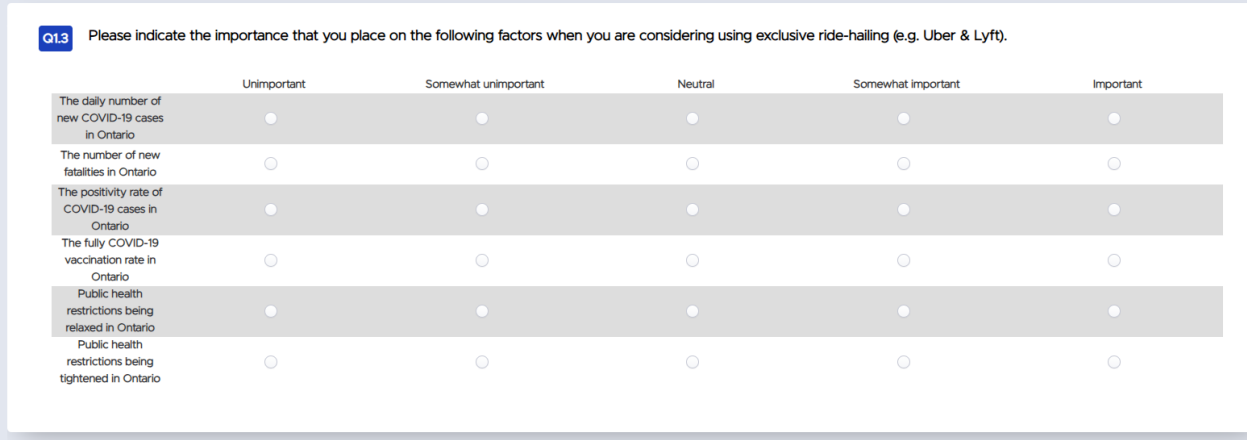
Q6.9. Factors transit_2



Q1.2 Please indicate how much you agree that you would feel safe using public transit based on the following aspects of the pandemic.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Stay-at-home orders are in place	○	○	○	○	○
When restaurants are allowed to open for indoor dining	○	○	○	○	○
When non-essential stores are allowed to open	○	○	○	○	○
Before I have been fully vaccinated with two doses	○	○	○	○	○
After I have been fully vaccinated with two doses, but COVID-19 is still a threat	○	○	○	○	○
After vaccination passport has been required to use the service	○	○	○	○	○
After COVID-19 is no longer a threat	○	○	○	○	○
I will never use this service again	○	○	○	○	○

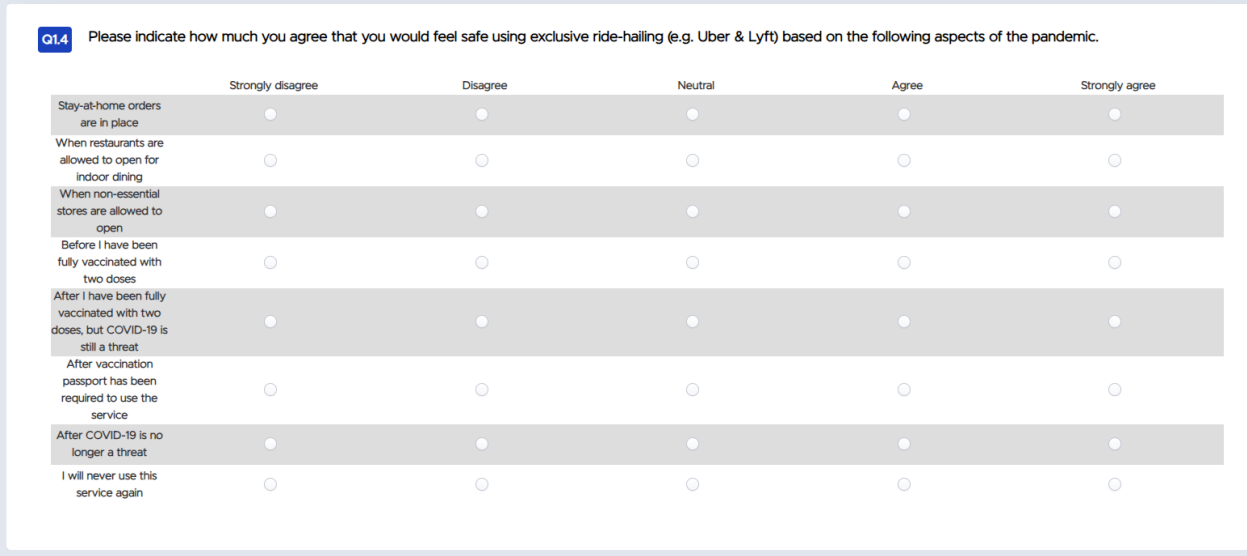
Q6.10. Factors ride-hailing_1



Q1.3 Please indicate the importance that you place on the following factors when you are considering using exclusive ride-hailing (e.g. Uber & Lyft).

	Unimportant	Somewhat unimportant	Neutral	Somewhat important	Important
The daily number of new COVID-19 cases in Ontario	○	○	○	○	○
The number of new fatalities in Ontario	○	○	○	○	○
The positivity rate of COVID-19 cases in Ontario	○	○	○	○	○
The fully COVID-19 vaccination rate in Ontario	○	○	○	○	○
Public health restrictions being relaxed in Ontario	○	○	○	○	○
Public health restrictions being tightened in Ontario	○	○	○	○	○

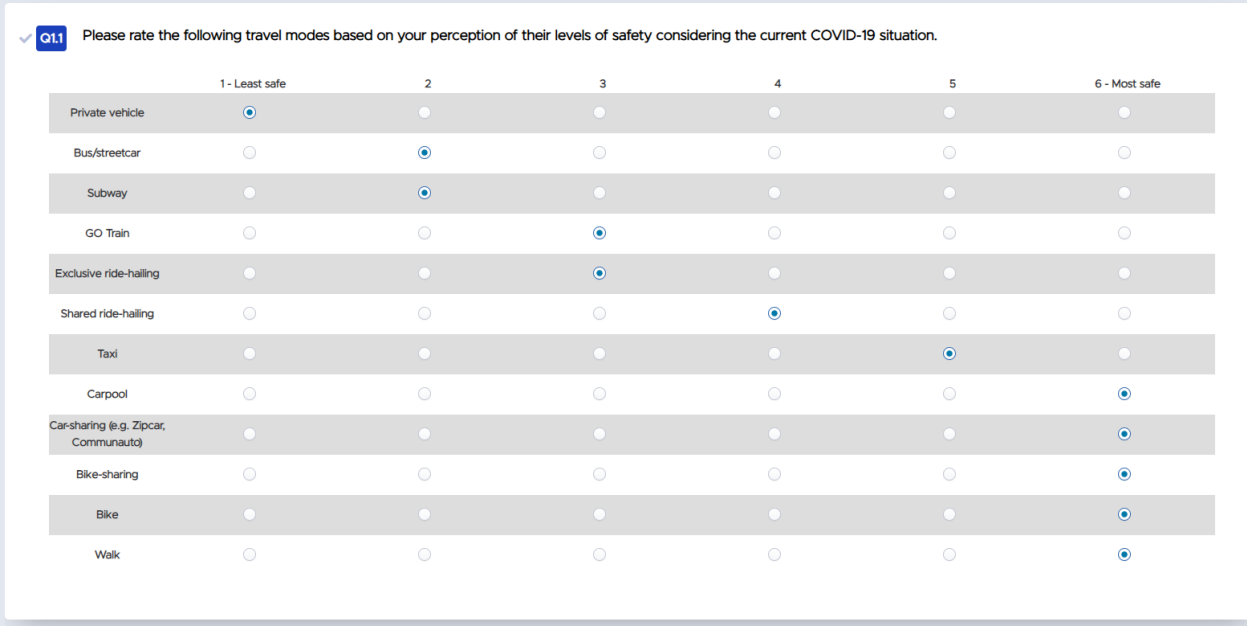
Q6.11. Factors ride-hailing_2



Q1.4 Please indicate how much you agree that you would feel safe using exclusive ride-hailing (e.g. Uber & Lyft) based on the following aspects of the pandemic.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Stay-at-home orders are in place	○	○	○	○	○
When restaurants are allowed to open for indoor dining	○	○	○	○	○
When non-essential stores are allowed to open	○	○	○	○	○
Before I have been fully vaccinated with two doses	○	○	○	○	○
After I have been fully vaccinated with two doses, but COVID-19 is still a threat	○	○	○	○	○
After vaccination passport has been required to use the service	○	○	○	○	○
After COVID-19 is no longer a threat	○	○	○	○	○
I will never use this service again	○	○	○	○	○

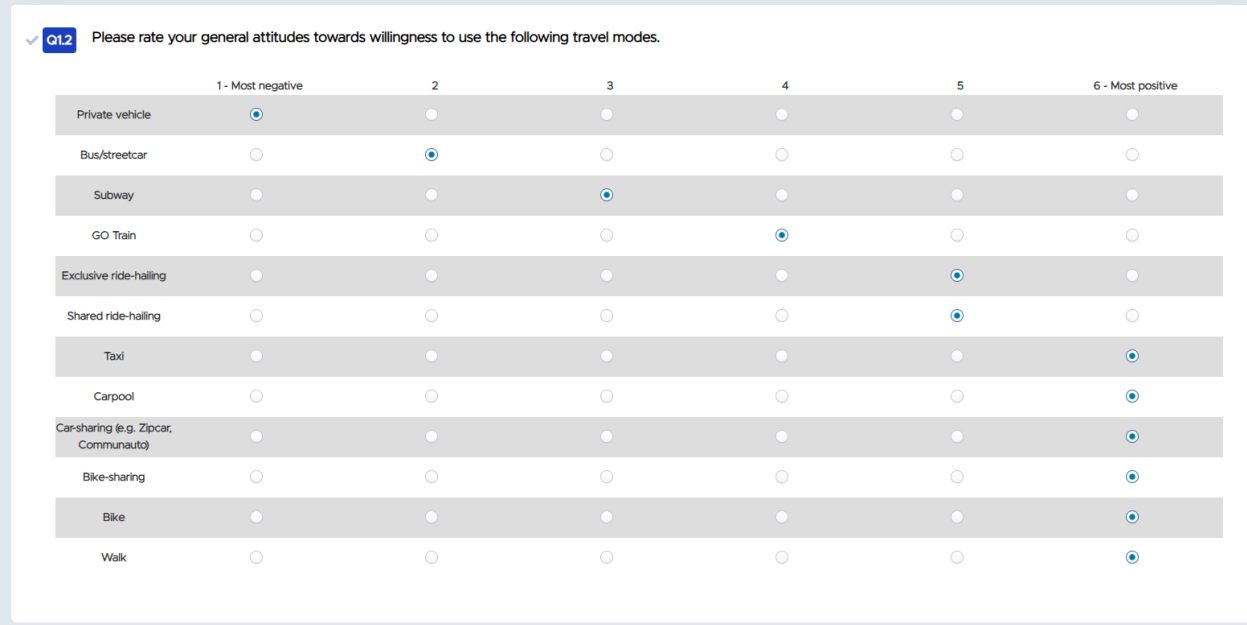
Q6.12. Travel modes rating_1



Q1.1 Please rate the following travel modes based on your perception of their levels of safety considering the current COVID-19 situation.

	1 - Least safe	2	3	4	5	6 - Most safe
Private vehicle	◉	○	○	○	○	○
Bus/streetcar	○	◉	○	○	○	○
Subway	○	◉	○	○	○	○
GO Train	○	○	◉	○	○	○
Exclusive ride-hailing	○	○	◉	○	○	○
Shared ride-hailing	○	○	○	◉	○	○
Taxi	○	○	○	○	◉	○
Carpool	○	○	○	○	○	◉
Car-sharing (e.g. Zipcar, Communauto)	○	○	○	○	○	◉
Bike-sharing	○	○	○	○	○	◉
Bike	○	○	○	○	○	◉
Walk	○	○	○	○	○	◉

Q6.13. Travel modes rating_2

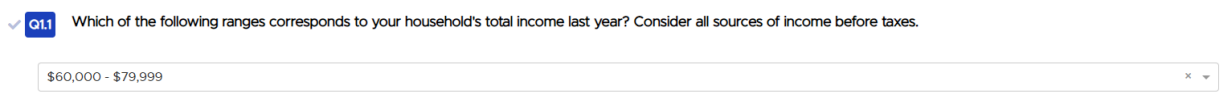


Q1.2 Please rate your general attitudes towards willingness to use the following travel modes.

	1 - Most negative	2	3	4	5	6 - Most positive
Private vehicle	◉	○	○	○	○	○
Bus/streetcar	○	◉	○	○	○	○
Subway	○	○	◉	○	○	○
GO Train	○	○	○	◉	○	○
Exclusive ride-hailing	○	○	○	○	◉	○
Shared ride-hailing	○	○	○	○	◉	○
Taxi	○	○	○	○	○	◉
Carpool	○	○	○	○	○	◉
Car-sharing (e.g. Zipcar, Communauto)	○	○	○	○	○	◉
Bike-sharing	○	○	○	○	○	◉
Bike	○	○	○	○	○	◉
Walk	○	○	○	○	○	◉

Section 7

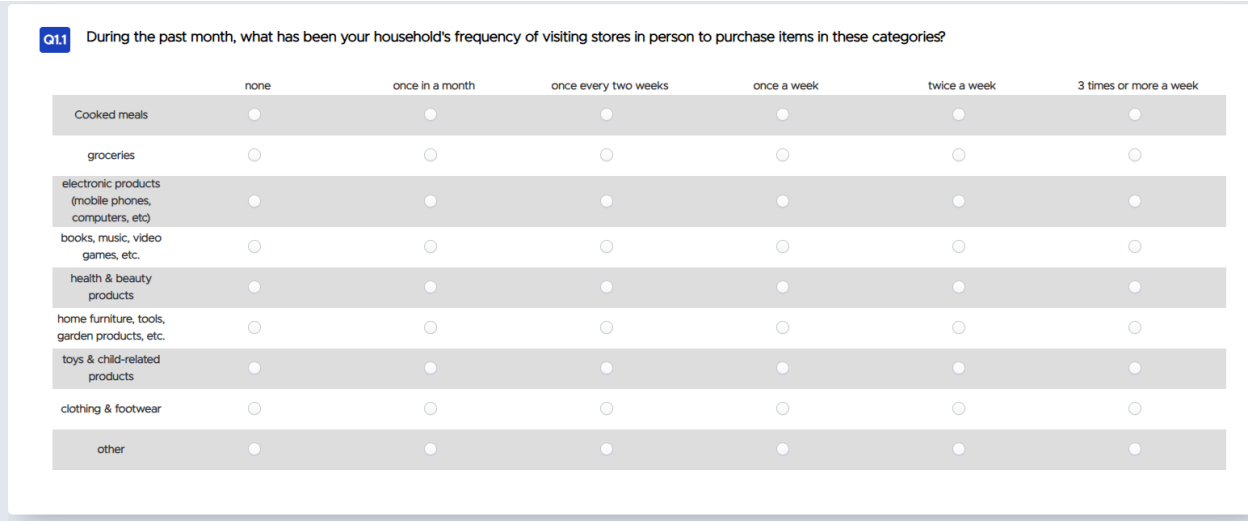
Q7.1. Household income



Q1.1 Which of the following ranges corresponds to your household's total income last year? Consider all sources of income before taxes.

$60,000 - $79,999

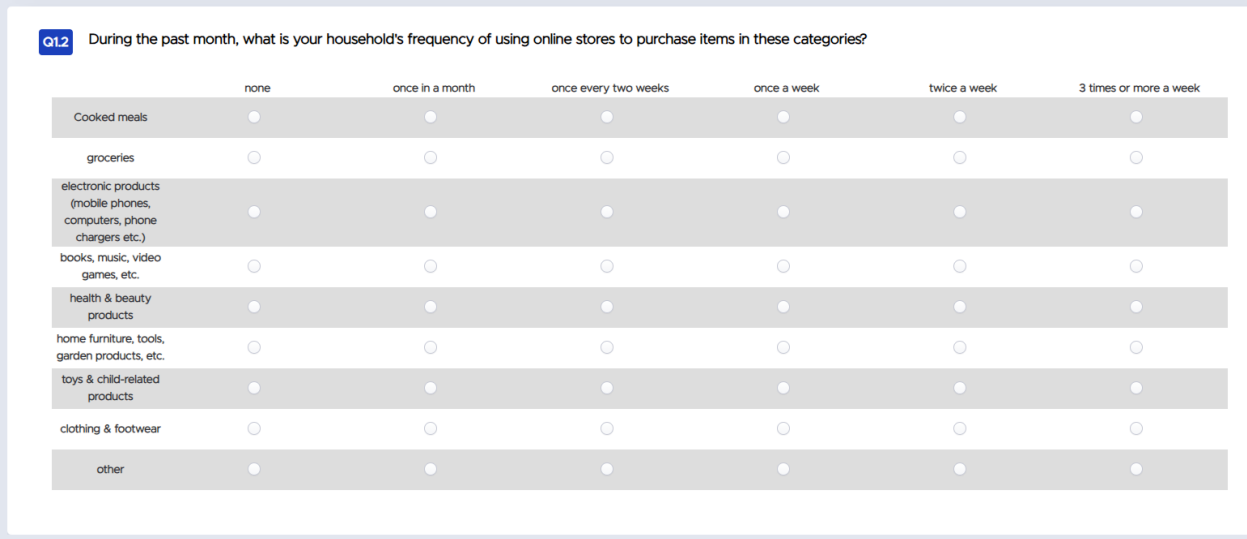
Q7.2. In-store shopping frequency



Q1.1 During the past month, what has been your household's frequency of visiting stores in person to purchase items in these categories?

	none	once in a month	once every two weeks	once a week	twice a week	3 times or more a week
Cooked meals	○	○	○	○	○	○
groceries	○	○	○	○	○	○
electronic products (mobile phones, computers, etc)	○	○	○	○	○	○
books, music, video games, etc.	○	○	○	○	○	○
health & beauty products	○	○	○	○	○	○
home furniture, tools, garden products, etc.	○	○	○	○	○	○
toys & child-related products	○	○	○	○	○	○
clothing & footwear	○	○	○	○	○	○
other	○	○	○	○	○	○

Q7.3. Online shopping frequency



Q1.2 During the past month, what is your household's frequency of using online stores to purchase items in these categories?

	none	once in a month	once every two weeks	once a week	twice a week	3 times or more a week
Cooked meals	○	○	○	○	○	○
groceries	○	○	○	○	○	○
electronic products (mobile phones, computers, phone chargers etc.)	○	○	○	○	○	○
books, music, video games, etc.	○	○	○	○	○	○
health & beauty products	○	○	○	○	○	○
home furniture, tools, garden products, etc.	○	○	○	○	○	○
toys & child-related products	○	○	○	○	○	○
clothing & footwear	○	○	○	○	○	○
other	○	○	○	○	○	○