Origin Destination
2022 Household Travel Survey

Travel Analysis Report

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TRANS

MALATEST

DAVID KRIGER
TRANSPORTATION POLICY AND RESEARCH

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The TRANS Committee conducts its business within the traditional and unceded territories of the Algonquin, an Anishinaabe people who have occupied the entire Ottawa watershed for thousands of years. Their culture and presence have nurtured and continue to nurture this land.

The survey described in this report was sponsored and guided by TRANS, a joint transportation planning committee serving the National Capital Region. The TRANS Committee comprises the City of Ottawa, la Ville de Gatineau, OC Transpo (City of Ottawa), la Société de transport de l'Outaouais, Ontario Ministry of Transportation, le Ministère des Transports et de la Mobilité durable du Québec, and the National Capital Commission. For more information about TRANS, please visit www.ncr-trans-rcn.ca/en/ or www.ncr-trans-rcn.ca/fr/.

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GLOSSARY OF KEY TERMS

The table below explains key terms and acronyms that are used in this report.

Term/Acronym	Explanation
Active modes	Active transportation modes include walk (includes skateboard, roller-blade, and assisted mobility device), bicycle (includes e-bike), and e-micromobility (such as e-scooter).
CAGR	Compound annual growth rate (annualized compounded average rate of growth).
Car-light	A household with vehicles, but fewer vehicles than workers.
CATI/CATW	Computer Assisted Telephone/Web Interview survey systems.
Choropleth map	A thematic map that provides a visualization of statistical data across a geography. Coloured shading is used to depict differences in the given measure of interest.
DA	Statistics Canada Dissemination Area.
Data weighting	The process of assigning relative weights to the data to address non-response bias and ensure that distributions in the survey data are adjusted to better represent the population universe.
Data expansion	The process of assigning expansion factors to the weighted survey data such that analysis of the survey sample yields estimates of the total households, total persons, and total trips that reflect the actual population and trip volumes.
Downtown Core	The area defined by Ottawa Centre (the area north of Gloucester Street) and Île de Hull. See Figure 104 on page 220.
EV	Electric vehicle – in this study, typically a personal vehicle.
F/T	Full-time, as in full-time worker or full-time student.
Gatineau CMA	The portion of the Study Area in Québec, composed of all municipalities in the Gatineau portion of the Ottawa-Gatineau Census Metropolitan Area (CMA).
Gender	Refers to an individual's personal and social identity as a man, woman, or non-binary person (a person who is not exclusively a man or a woman). For the purpose of this report, analysis is undertaken using aggregate categories of "men+" and "women+" that group random portions of non-binary persons with men/boys and women/girls.
Ground-oriented dwelling	Dwellings that provide individual and direct access to the outside for principal entry. Single-detached houses are the most common form of ground-oriented dwelling. Other ground-oriented dwellings include semi-detached houses, suites in a house, rowhouses, townhouses, and mobile homes.
HBW, HBS, HBO	Trips that have either the origin or the destination at the home. HBW refers to home-based work trips (trips between home and work, in either direction, with no intermediate stops). HBS refers to home-based school trips, between the home and an elementary, secondary or post-secondary institution. HBO refers to trips between the home and all other locations. Used in this report to analyze travel that is internal to a district (see section 4.7).
HOV	High-occupancy personal vehicle, with two occupants (HOV-2), three occupants (HOV-3) or four or more occupants (HOV-4+). The driver is always included in the tabulation.

Term/Acronym	Explanation
IPF	Iterative Proportional Fitting, a method of data weighting that cycles through adjustments for multiple controls, until the weights converge on a solution that satisfies all controls.
K-12 / K-S5	Kindergarten to grade 12 in Ontario and kindergarten to secondaire 5 in Québec, referring to elementary and secondary school grades.
LRT	Light rail transit (O-Train).
Men+	Aggregate category used for analysis in this report, consisting of men, boys and a portion of people who identify as non-binary or prefer to self-describe.
Mode	The means used to travel – e.g., auto, public transit, bicycle, walking, etc.
NCR	National Capital Region (also known as Canada's Capital Region or CCR).
O-D	Origin-destination.
P/T	Part-time, as in part-time worker or part-time student.
PSE	Post-secondary school or student.
%-pts	Percentage points.
SOV	Single-occupant personal vehicle, in which the driver is the only occupant.
Resident workers	Residents of the study area who are workers.
Study Area	The geographic area within which households were surveyed for this study, composed of the City of Ottawa and the entirety of the Gatineau CMA. See Figure 1 on page 3.
Sustainable modes	For the purpose of this report, 'sustainable modes' aggregates the following modes: transit, school bus, walk, and bicycle/micromobility. This differs from the City of Ottawa's definition of sustainable modes used in other contexts that also includes carpooling.
Time periods:	
AM peak period	Morning commuter peak period, covering the 2½ hours from 06:30 a.m. to 08:59 a.m. (0630-0859 in 24-hour format).
Midday	The inter-peak period, covering the 6 hours between 9:00 a.m. and 2:59 p.m. (0900 - 1459).
PM peak period	Afternoon commuter peak period, covering the 3 hours from 3:00 p.m. to 5:59 p.m. (1500-1759).
Evening	The evening period, covering the 6 hours between 6:00 p.m. to 11:59 p.m. (1800-2359)
Night	The overnight period, covering the 6½ hours between midnight and 6:29 a.m. (0000-0629).
Vehicles	Personal and business vehicles owned by or available to residents for their personal travel. These include cars, SUVs, light trucks and vans.
TAZ	Transportation Analysis Zone.
Women+	Aggregate category used for analysis in this report, consisting of women, girls and a portion of people who identify as non-binary or prefer to self-describe.

1 INTRODUCTION

1.1 Overview

This report presents the findings from the *TRANS 2022 Origin-Destination Household Travel Survey*.

The TRANS Committee is a joint technical committee on transportation systems planning in the National Capital Region (NCR). It spans both sides of the Ottawa River and various levels of government through its member agencies: the National Capital Commission (NCC), the Ontario Ministry of Transportation (MTO), City of Ottawa (including OC Transpo), Ministère des Transports et de la Mobilité durable du Québec (MTMD), Ville de Gatineau, and Société de transport de l'Outaouais (STO). An overview of TRANS can be accessed through the TRANS web site: www.ncr-trans-rcn.ca or www.ncr-trans-rcn.ca/fr/.

In Fall 2022, the TRANS Committee conducted a comprehensive trip diary (origin-destination, or O-D) survey. The survey asked about the travel made by all household members 5 years old and older, over a recent 24-hour weekday. The survey collected information at three levels:

- Household, including number of members, the number of vehicles and bicycles, type of dwelling and more.
- Person, including age, occupational status, type of occupation if employed, whether the person has a driver's licence and more.
- Trip, covering the trips made by each household member. For each trip made on the designated survey day, information was gathered about where the trip began (origin), the time the trip began, where it ended (destination), the mode(s) used for the trip (e.g., auto, public transit, bicycle or walking), the purpose of the trip (e.g., commuting to work) and more.

The survey profile will aid TRANS members in their community plans, transportation plans and other ongoing initiatives. The 2022 survey provides an update to surveys that have been conducted since the 1970s, most recently in 2011.

The 2022 survey Study Area comprised the City of Ottawa and the Gatineau portion of the Census Metropolitan Area (CMA), which includes the Ville de Gatineau, and the Municipalité régionale de comté (MRC) des Collines-de-l'Outaouais.[1] This includes several smaller municipalities within the Gatineau portion of the CMA that were not surveyed in 2011.[2]

[1] The MRC includes the municipalities of Cantley, Chelsea, L'Ange-Gardien, La Pêche, Pontiac and Val-des-Monts.

[2] Thurso, Lochaber, Lochaber-Partie-Ouest, Mayo, Mulgrave-et-Derry, Val-des-Bois, Bowman, Notre-Dame-de-la-Salette and Denholm.

The survey was conducted with a random sample of 33,940 households in the Study Area. A total of 338,270 households were invited to participate by survey invitation letter and/or phone call, for a response rate of 10% prior to data validation. Participants could respond via a web-based survey or a telephone interview. The final sample was 31,818 households after data validation and rejection of surveys with data issues. The final survey dataset includes information on 69,480 residents of the Study Area and 162,243 trips made by those residents. The survey data were weighted to address non-response bias and ensure that the survey distributions by geography, household size, dwelling type, age, and gender closely matched the Census. The survey data were expanded so that the results reflect total households, population, and estimates of total trips taken by the entire population. When weighted and expanded, the survey data represent approximately 567,200 households in the region, almost 1,365,600 residents, and almost 3.2 million daily trips. Overall, the survey dataset constitutes a randomly selected 5.6% sample of households and 5.1% sample of population. The overall household-level survey results have an estimated margin of error due to random sampling of ±0.7% and the person- and trip-level results have an estimated margin of error of ±0.5%, both at a 95% confidence level, taking into account the effects of data weighting.[3]

1.2 Survey geography

The sampled households were selected randomly from an area consisting of most of the NCR; that is, from the City of Ottawa, the Ville de Gatineau and the MRC des Collines-de-l'Outaouais.[4] The study area covered most the NCR, with the surveyed households representing at least 97% of the population of the NCR.[5] A small fraction of the households surveyed were from portions of the study area outside the NCR.[6]

Figure 1 depicts the surveyed areas. The 2022 survey area, which includes the City of Ottawa and the entire Gatineau CMA, is slightly larger than that of the 2011 and 2005 surveys, which included the City of Ottawa, the Ville de Gatineau, and the MRC des Collines-de-l'Outaouais. The new areas added in 2022 expanded the Study Area to comprise the entire Gatineau CMA. These additional areas represent 0.6% of population within the Study Area, or 2.3% of

[3] 19 times out of 20, for a given survey question, the survey response percentage should be somewhere within the margin of error of the survey results. The margin of error has been corrected to account for the increase in error associated with data weighting to correct for over-/under-sampling and/or non-response bias.

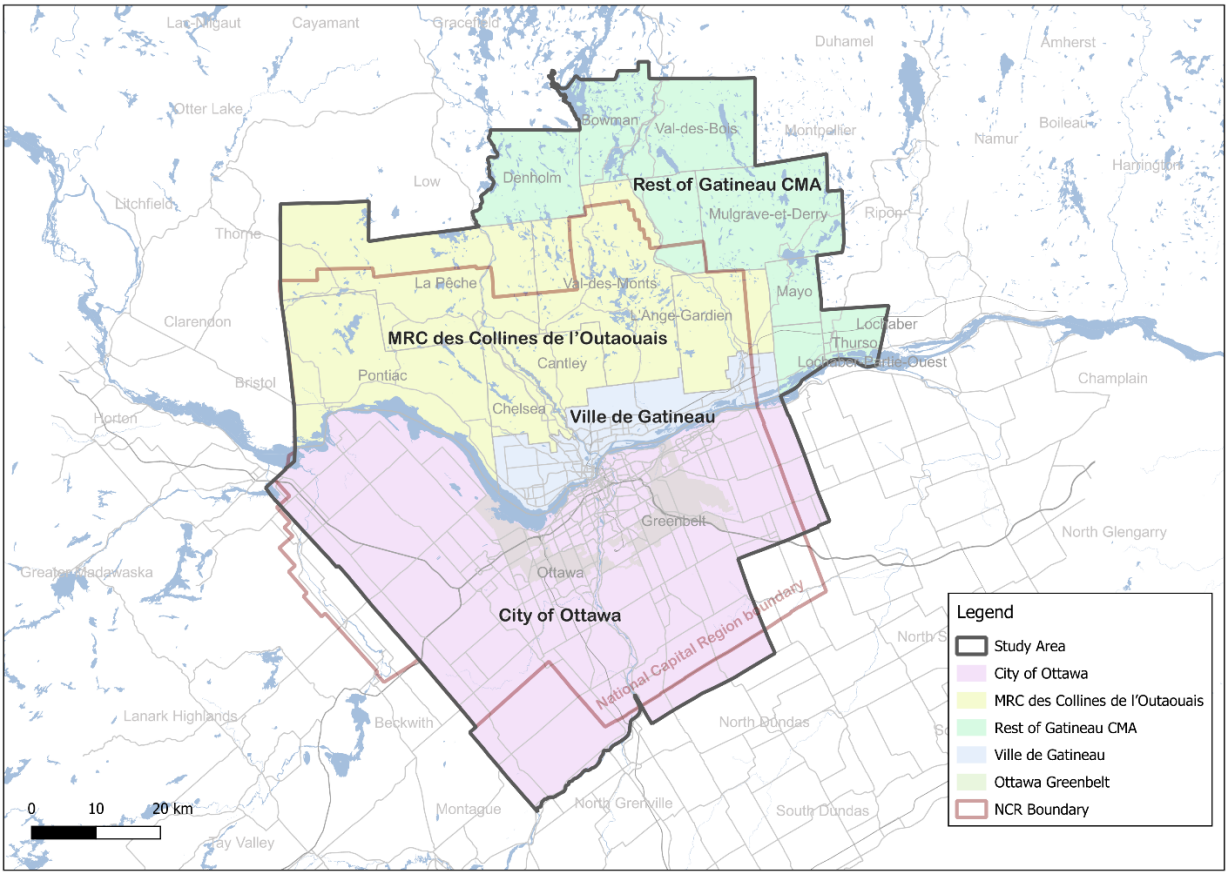
[4] Whereas the boundaries of these municipalities slightly exceed the NCR boundaries, the municipalities of Almonte, Carleton Place and Russell (all in Ontario), which are within the NCR, were not included in the survey Study Area.

[5] The Study Area population appears to represent somewhere between 97.3% and 98.6% of 2021 Census population for DBs associated with the NCR. This figure is approximate, as many DBs at the edges of the NCR are partly inside and partly outside the NCR boundary.

[6] Based on a rough comparison of Statistics Canada Dissemination Blocks (DBs) against the NCR boundary, the Study Area population appears to represent somewhere between 98.2% and 98.7% of 2021 Census population for DBs associated with the NCR. This figure is approximate, as many DBs at the edges of the NCR are partly inside and partly outside the NCR boundary (with about 7,500 population in DBs that are difficult to apportion).

population within the Gatineau CMA.

Figure 1. Map of the survey Study Area[7]



For the purposes of tabulating the survey results in the Québec parts of the survey Study Area, the Ville de Gatineau, the MRC des Collines-de-l'Outaouais and the rest of the Gatineau CMA are referred to collectively in this report as the "Gatineau CMA."

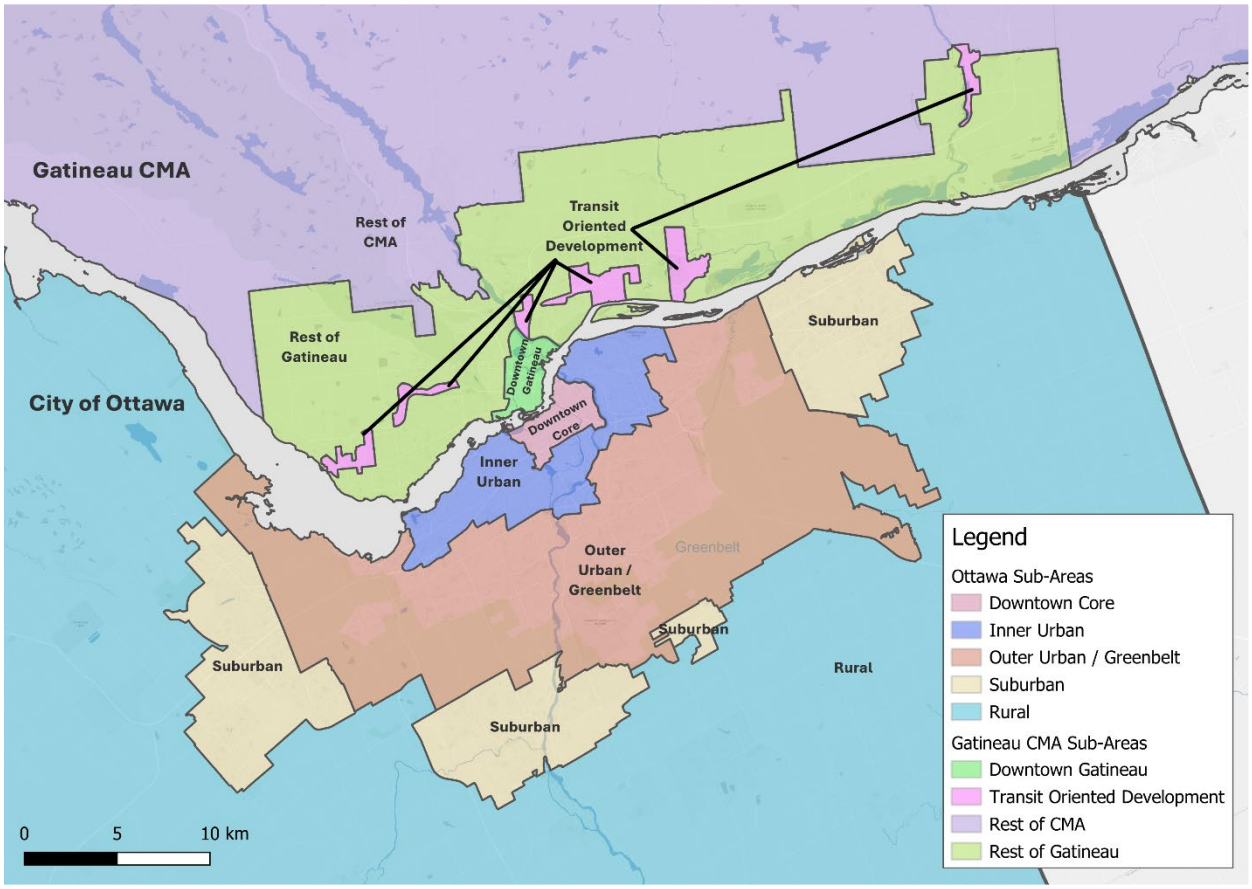
In this report, in addition to the Study Area as a whole, most results are provided for the City of Ottawa and the Gatineau CMA, also referred to as the study "regions". Some results are also provided for sub-regional geographies referred to as "sub-areas". South of the Ottawa River, the five sub-areas are based on the City of Ottawa's transect system. North of the river, the

[7] NCR Boundary source: Government of Canada, National Capital Region Boundary (https://open.canada.ca/data/dataset/6b588d7c-7e61-48d4-a87d-675ad3bf507a, last accessed February 27, 2022)

four sub-areas are custom geographies aggregating transportation analysis zones (TAZ) based on proximity to transit hubs.[8] The sub-areas are illustrated in Figure 2 below.

Selected results illustrating flows of trips within the Study Area are presented for TRANS districts (26 sub-municipal geographies) and for an adapted version of the sub-areas. Maps of these geographies are included in the relevant section of this report (Section 4.7).

Figure 2. Map of the Study Sub-Areas



The Rest of CMA and Rural sub-areas not fully depicted on the map extend to the boundaries of the Gatineau CMA and Ottawa, respectively.

1.3 A unique point in time

Many of the results presented in this summary report are compared with findings from previous O-D surveys for the Study Area, to look at how travel behaviour is changing. However, although it followed the same general procedure as previous O-D surveys, the 2022 O-D survey was unique in several ways:

[8] Note: the aggregation of TAZ to transit-oriented development zones approximates but may not match the geographies used in the Gatineau's Official Plan.

- The last survey was conducted in 2011- an interval of 11 years, compared with previous surveys conducted by TRANS, which were typically spaced every 5-6 years. The 2022 survey was originally planned for 2020, to follow the 2019 opening of the O-Train. However, the survey was delayed due to the advent of the COVID-19 pandemic and its profound impact on work and travel patterns. As the survey is intended to provide travel indicators and a forecasting model that can be used for future planning, the survey was delayed until Fall 2022, after widescale deployment of vaccines and human activity patterns were less likely to be impacted by the fear of contagion.
- The 2011 survey was conducted by phone with a landline sample and did not include cell-phone-only households, whereas the 2022 survey was conducted as mixed-mode with mostly online survey completions and used address-based sampling. Although most survey questions are very similar or identical, there may have been other methodology differences in post-processing and analysis of the data. As a result, comparability may be limited for certain indicators.
- The most severe impacts of the pandemic-induced impacts on people's activity and the corresponding changes in travel behaviour had receded by the time the survey was conducted in Fall 2022. However, some activity and travel behaviours may still be in flux – notably, a hybrid work environment.
- The introduction of the O-Train – a travel mode new to the Study Area - can be expected to have a major influence on regional travel behaviour. However, it commonly can take some time before these changes are fully presented: not just mode changes, but also how such large-scale infrastructure shapes where people choose to live and work.

Accordingly, it may be best to see 2022 O-D survey more as a new travel benchmark than purely as an extension of 2011 and earlier trends.

1.4 Report organization

The report has five chapters in addition to this introductory chapter:

- Chapter 2 reviews the design, conduct and processing of the survey.
- Chapter 3 explores the key demographic, household and mobility characteristics that were gathered from the survey, and how these have changed over time.
- Chapter 4 profiles the travel characteristics that were gathered in the survey, and how these have changed over time.
- Chapter 5 concludes the report.

The survey questionnaire is provided in Appendix A.

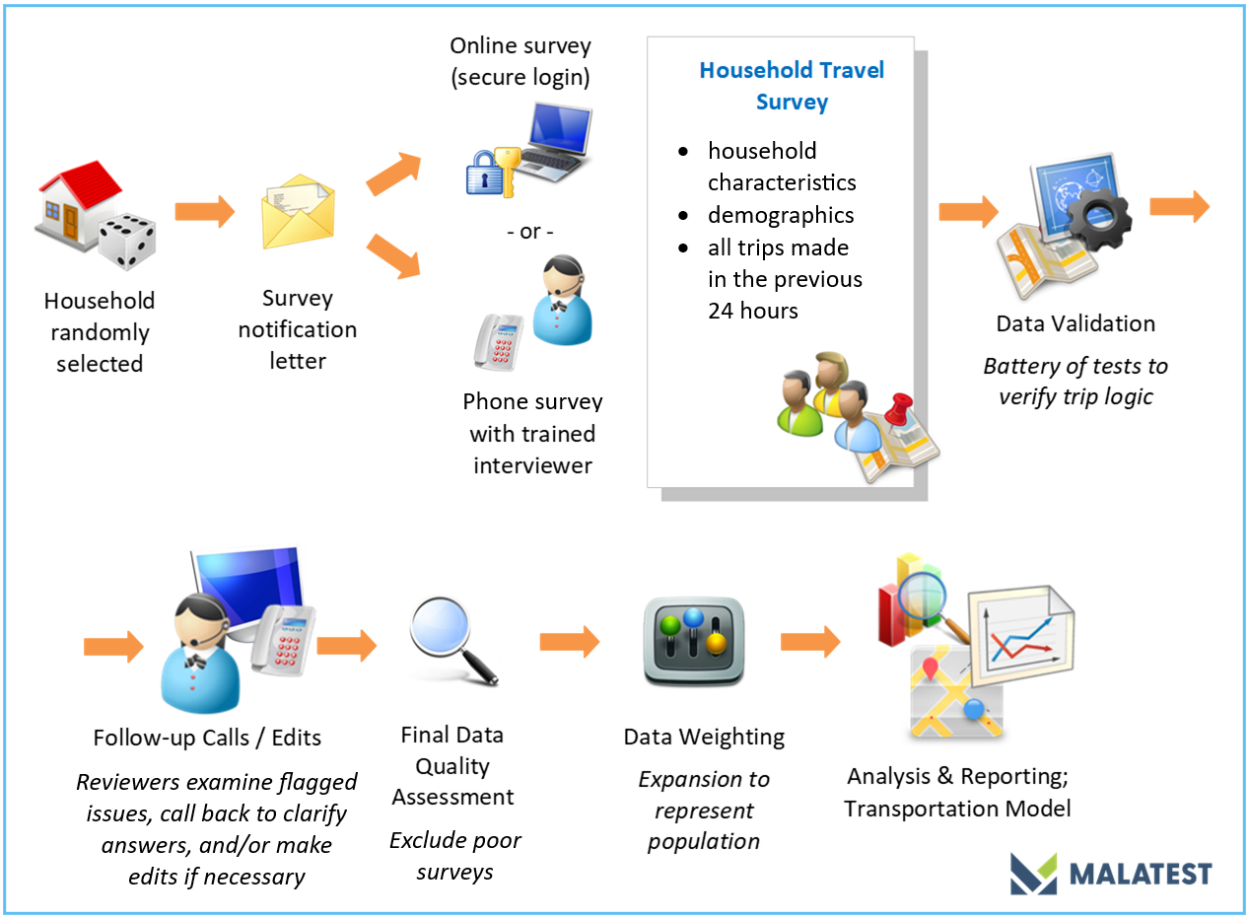
2 SURVEY CONDUCT

2.1 Overview

The TRANS 2022 Origin Destination Survey ("TRANS O-D survey" or "the survey") is a household travel survey designed to obtain information on mode shares and travel patterns in the Study Area. The survey captured information on key household characteristics (number of household members, number of vehicles, dwelling type, income); household residents' demographics, socio-economic characteristics and places of work and school; and trips taken over the course of 24 hours.

The study method allowed for the completion of surveys both by telephone and online via a 24-hour recall survey hosted on Malatest's Triptelligence™ platform. Figure 3 illustrates the general process for the household travel survey. The survey process is summarized in the sections that follow.

Figure 3. Overview of survey process



2.2 Survey design

The consultant developed a survey sampling procedure that ensured the sample was distributed uniformly in proportion to the sample frame across the entire Study Area, with some oversampling from sampling districts with smaller populations to keep the sampling errors within acceptable limits. The survey sample was address-based, with some of the addresses having matched telephone numbers from telephone listings, enabling telephone surveying with a portion of the sample. The sample plan aimed to achieve survey completions from 28,800 households, representative of the Study Area.

The geography of the Study Area was stratified into 42 different sampling districts. These sampling districts were originally developed in 2011 based on a review of Census Tract boundaries (in the Gatineau CMA), traffic zone boundaries (in Ottawa), populations and household counts, rapid transit infrastructure, and the location of mid- and high-rise apartments. The sampling frame included 31 survey areas in Ontario, and 11 in Québec. It may be noted that, as these sampling districts do not fit neatly into the 26 districts defined by TRANS for use in analysis, the survey data were instead classified into expansion zones based on TAZ superzones, which aggregate perfectly into the 26 TRANS districts.

The survey was a household-based survey that collected demographic information on all household members and trip information for household members 5 years of age and older. The survey employed a 24-hour recall method that asked survey respondents to report on their trips on the previous weekday, from 4:00 a.m. on the previous day to 3:59 a.m. the next day. Respondents could complete the survey online or over the phone, with the majority choosing to do so online.

The survey was conducted using Malatest's Triptelligence™ system, an integrated CATI/CAWI (computer assisted telephone/web interview) system incorporating Google Maps and data handling features developed specifically for origin-destination surveys.

The survey was branded as "Origin-Destination Survey", using a logo designed with TRANS. A dedicated website was developed to provide prospective participants with information about the survey, including answers to frequently asked questions and contact information should they have any concerns about the survey.

The survey collected information at three levels: at the household level, for all persons living in the household, and for all trips made by all household members 5+ years old. Table 1 lists the types of information collected by the survey. To help understand the table, the ensuing textbox explains how a trip is defined. The survey questionnaire is provided in Appendix A.

Table 1. Information collected by the survey

HOUSEHOLD LEVEL	PERSON LEVEL For each person in the household	TRIP LEVEL For each trip made by each household member 5+ years of age
Home location	Gender	Origin location
Dwelling type	Age	Destination location
Household size (# people)	Driver's licence	Trip departure time
Number of vehicles by fuel type	Condition affecting travel If yes, whether uses mobility aid, handicapped parking sticker	Purpose (destination activity)
Number of bicycles (adult, adult e-bike children's)	Car share membership	Mode(s) of travel (up to 5)
Number of e-micromobility devices	Student status (f/t, p/t)	Bus routes boarded (if bus public transit used)
Household income	Attendance type (in-class, online)	Mode transfer locations (if multiple modes used)
Dwelling tenure (rent/own)	School location	Number of vehicle occupants (if driver or passenger)
Deliveries and service calls received on the travel day	Employment status (f/t, p/t)	Whether vehicle occupants were other household members (if multiple vehicle occupants)
Agreement to participate in future research	Workplace location	Whether parking at usual place of work is free parking provided by employer, other free parking, or pay parking
	Weekdays commuted or telecommuted last week	
	Other occupational status (retired, unemployed, etc.)	
	Whether took trips on travel day	

What is a trip?

For this survey, a trip was defined as a journey from one place (origin) to another (destination) with a single purpose that may involve more than one mode of travel. Travel to work with a stop at a coffee shop is two separate trips: one with a purpose of restaurant/dining and another with a purpose of work. Travel to work which involved driving to a park & ride location and then taking public transit the rest of the way is considered a single trip, with public transit as the primary mode and driving as the public transit access mode.

2.2.1 Changes to the Survey Design since the 2011 Survey

The survey geography was expanded in 2022 to include small communities in the north and east of the Gatineau portion of the Census Metropolitan Area, including: Denholm, Bowman, Val-des-Bois, Mayo, Mulgrave-et-Derry, Mayo, Lochaber, Lochaber-Partie-Ouest, and Thurso.

The 2022 survey was conducted as a mixed-mode survey, with only one in eight completions conducted by telephone and the rest completed online. Previous O-D surveys conducted by TRANS were conducted entirely by telephone.

The core of the 2022 survey questionnaire was largely the same as the questionnaire used in 2011, to facilitate longitudinal comparison. Refinements were made to the questionnaire to reflect changing trends in vehicles, social awareness, hybrid work and transportation options.

Changes to the questionnaire are detailed below.

At the household level, the following questions were added:

- Vehicle fuel type: regular gasoline only (not a hybrid), hybrid, plug-in hybrid, electric-only, diesel, biodiesel and other alternative fuel type.
- Car-share membership.
- Whether any goods were delivered yesterday (on the survey date).
- Whether any household member(s) are immigrants.
- Willingness to participate in future surveys.

At the person level, the following questions and response categories were added or changed:

- Gender: new response categories of ‘non-binary’ and ‘prefer to self-describe’ to replace ‘other’.
- Transit pass: updated categories to reflect current transit passes for all agencies.
- Disability or cognitive or physical condition that affects mobility, use of a mobility aid, and possession of an accessible parking permit / disable parking permit.
- Occupational activity: ‘Stay-at-home parent or caregiver’ replaced ‘homemaker’.
- Workplace type: more precisely-worded definitions were used (work exclusively from home; no fixed workplace or work on the road; usual workplace travelled to regularly or occasionally).
- Commuting and telecommuting patterns: if a worker, on which weekdays last week did the person travel to/for work and on which weekdays did they telecommute;
- When immigrated: if not born in Canada, how long ago did the person immigrate to Canada (range of years).
- Removed question on nature of work (management, retail, etc.).

At the trip level, the following questions and response categories were added or revised:

- Trip mode of travel: emergent modes were added, including
    - e-bike (pedal-assist electric bicycle),
    - e-scooter (electric motorized scooter),
    - assisted mobility device (wheelchair, mobility scooter), and
    - paid ride-share (e.g., Uber, Lyft, or other smart-phone app raid-hailing service).
- If car driver and any member of the household was a car share member, asked if vehicle used was a car share vehicle.
- If biked and used transit, asked if bicycle was parked at a transit stop or whether it was carried on board.
- Removed question on cost of pay parking for trips to work.
- Trip purpose:
    - refined category descriptions and provided definitions in mouseovers,
    - split "school" into "attend post-secondary" and "attend grade school",
    - added "picking up a package or online purchase", and
    - added an open-ended text field to capture "other purpose" (answers for which were later recoded into existing categories).

Additional questions were added to assist in the data validation and to prompt respondents to provide further information if any was missing. For example, full-time students not reporting trips to school were asked whether they attended school.

Other changes were made to how response categories have been aggregated in analysis of the data. For example, the 'bicycle' mode is now called the 'bicycle and micromobility' mode, with the use of bicycles, e-bikes, micromobility devices, and e-micromobility devices now grouped under this category.

The survey data weighting was a very similar method to 2011 with the same core weighting controls from the Census. However, the size of the employed labour force was introduced as an additional weighting control. Adjustments were also made to the age-based weighting controls to take into account that the survey does not represent persons living in collective dwellings (persons in seniors' care homes, correctional facilities, or other collective dwellings). There were also some differences in the approach to the weighting of trips.[9]

[9] In 2011, surveys with poor trip information were included in the survey dataset, but if at least 50% of the trips for a given person had poor information, or the person was identified as missing trips, the travel for that person was not included in the analysis, and the weights of other trip records were increased accordingly to compensate. In 2022, only surveys with complete and fully validated and corrected information were included in the final dataset, so trip weights separate from household/person weights were not required.

2.3 Survey conduct

To obtain coverage of all households in the Study Area, including cell-phone-only households, the survey of households employed an address-based sampling approach. Households were randomly selected from databases of mailable residential addresses, with a portion of these households having only address listings (address-only) and the remaining having addresses that could be matched to listed phone numbers (address-and-phone). A sampling plan was developed to obtain an overall 5.2% sample of the Study Area. Sampling districts with smaller populations that would naturally have numerically small samples if sampled at the same rate as other districts were over-sampled to reduce the margin of sampling error. All other sampling districts had targets set based on a 5.0% sampling rate. The final valid sample numbers and the sampling rates are outlined in Table 2 at the end of this chapter.

Households were sent survey invitation letters with a branded brochure explaining the purpose of the study, along with a secure access code and instructions for completing the survey online or over the telephone. Addresses with listed landlines received follow-up telephone calls to prompt completion of the survey either over the telephone or online.

Full survey administration was launched in September 2022. Survey administration collected surveys between September 9 and December 13, 2022 for travel dates between September 8 and December 7, 2022. Survey completions were monitored by sampling district throughout the course of survey administration, and adjustments were made to the number of invitations mailed in each district to adjust for varied response rates. Additional flights of letters were added to compensate for lower-than-expected response rates. In total, eight flights of letter invitations were mailed between September 8 and November 3, 2022. Across the entire survey administration period, 334,850 letters were sent and a supplementary phone-only sample of 3,420 phone numbers was added to target two small communities in the Gatineau CMA that had been flagged with ambitious over-sampling targets. By November 1, 81% of the overall survey target had been achieved, with targets for a number of sampling districts achieved by this time. Survey administration continued into early December to boost response in districts that were below target. During that time, households in districts that had already reached their survey targets were still allowed to complete the survey, although there was no more outbound dialling to these districts.

Overall, across both sample types, the survey of households had a 10.0% response rate prior to the rejection of invalid surveys, with a total of 33,940 surveys completed. During data validation, 2,122 surveys were rejected, for a final dataset of 31,818 validated households, well exceeding the initial survey target. After the invalid surveys were excluded, the valid response rate was 9.4%.

2.4 Data processing

After data collection, the survey data were subjected to a battery of validation tests to ensure that the survey questions were completed as intended and to flag possible errors in the data or issues with trip logic. Each night, the data validation system automatically ran tests on survey completions from the previous day. The system assigned flags for different issues with different levels of priority (critical issue, possible error, warning, etc.) for review by data validation staff. The data validation staff reviewed each flagged survey and either made logical corrections, re-geocoded locations, called back respondents to clarify information, or rejected the survey as unsalvageable. Surveys that passed all data validation tests were randomly selected for manual review to verify that such surveys appeared to be correct and that validation tests were working as expected. Through the data validation process, approximately 6% of surveys were rejected.

The data were also systematically reviewed and tested by data analysts to provide quality control of the dataset and rule out the possibility of any systematic data issues.

The few person records with unknown age or gender were imputed. Those reporting non-binary gender were randomly assigned to “men+” or “women+” for data weighting and for analysis in this report. The original responses are preserved in the final dataset.

After finalization of the dataset, all latitude/longitude coordinates for locations captured by the survey (home, work, school, trip origin, trip destination) were geocoded using GIS tools to relevant study geographies and to Universal Transverse Mercator (UTM) Zone 18 x-y coordinates.

2.5 Data expansion and weighting

The data for the surveyed households were expanded to represent the total population living in residential households in the Study Area. The survey data were also weighted to more accurately represent the distributions of households by household characteristics and demographics. This is necessary to address non-response bias and uneven sampling rates in the final survey sample.

The Study Area geography was organized into expansion zones as the base geographical unit for data weighting. The expansion zones were developed based on aggregations of superzones from the transportation analysis zone (TAZ) system for which the TRANS Committee had obtained custom census profile data. Both the superzones and the expansion zones can be aggregated to the TRANS Districts for which certain analyses have been undertaken.

An iterative proportional fitting (IPF) method was employed to balance household weights and person weights for the multiple weighting controls. In this method, incremental adjustments to the household weights are made in succession for each of the household controls, as well as a composite adjustment to each household weight to account for the disproportionate distribution by age/gender amongst the members of each household. Each successive adjustment to balance a given control may slightly or significantly unbalance the correction previously introduced for a different control. However, iteratively cycling through each control results in convergence to a solution where all household and population controls have expected distributions (to within reasonable tolerance; some deviations may be expected, particularly for expansion zones with smaller sample sizes). In this manner, all persons within each household carry the same weight as the household. Maximum and minimum weights relative to the bast weight for each expansion zone were set to limit extreme weights.

The weighting controls were developed from 2021 Census data. The controls were selected for having significant influence on trip-making behaviour and for completeness of the information in the survey data. Estimates for 2022 were projected forward from 2021 Census counts based on growth rates supplied by the project partners. For the population-based weighting controls, the 2022 estimates were reduced to remove the portion of the population that lived in collective dwellings or without a fixed address who were outside the address-based survey sampling frame (approximately 1.6% of the population).[10] The adjustments to the distributions of population by age group took into account that seniors make up a greater portion of the population living in collective dwellings. In some smaller expansion zones, certain age and/or gender categories may have been collapsed further due to small sample sizes or cells with no sample.

For each expansion zone, the weighting controls included:

- total households (private dwellings occupied by usual residents),
- household counts by dwelling type (house, other ground oriented, apartment with one to five stories, apartment with five or more stories),
- household counts by household size (1-person, 2-person, 3-person, 4-person, 5-person, 6+ persons),
- population counts by age and gender (13 age ranges[11], 2 genders),

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[10] I.e., the survey data only represent population living in private dwellings, and are expanded accordingly.

[11] Age ranges used in data expansion: 0-4; 5-9; 10-14; 15-16 for Gatineau CMA residents and 15-17 for Ottawa residents, to correspond to age in usual final year of secondary school in the given region; 17-19 for Gatineau CMA residents and 18-19 for Ottawa residents, to correspond to usual age for starting CEGEP or post-secondary in the given region; 20-24; 25-29; 30-34; 35-44; 45-54; 55-64; 65-74; 75+. Age ranges and/or genders were sometimes collapsed in certain expansion zones with very small or no samples.

To contain the variance of the data weights (as such weighting could create more extreme high or low data weights), no attempt was made to adjust the weighting to balance the survey sample by day of week. It may be noted that travel on Thursdays and Fridays is somewhat over-represented, while travel on Mondays and Wednesdays is somewhat under-represented. Together, Mondays and Fridays, the weekdays with reduced commuting behaviours represent 39% of surveyed residents while Tuesday through Thursday represent 61% of surveyed residents (compared to an expected 40%-60% split if all weekdays were equally represented).

2.6 Validation of the weighted survey data

The weighted survey data were validated against Census statistics (various household and demographic characteristics, employed labour force estimates, usual mode of travel for journey to work) and other available reference data (post-secondary and grade school enrolments for larger schools). The results compared favourably for most characteristics, including geographic distributions, household size, dwelling type, age/gender and employed labour force. The survey results can be taken to be generally representative of the total population living in private dwellings.

There were a few deviations of the survey data from the reference statistics. The survey results may somewhat under-represent households with lower incomes, although it is difficult to say this with certainty given that 15% of weighted households refused to answer the income question. Households with 6 or more persons are somewhat under-represented, although this is a small percentage of total households to begin with (2.7% per the Census, 2.3% in the weighted survey data). Within the dwelling category of "other ground-oriented dwellings" used in the weighting, the survey distributions by rowhouse/townhouse, semi-detached, suite in a house and mobile home may not necessarily match Census distributions. Comparison against 2021 Census place of work and journey to work revealed differences that were more likely due to the conduct of the Census at the height of the COVID-19 pandemic (e.g., much higher incidence of people working from home than in the 2016 Census and in the 2022 household travel survey results). The survey data may under-represent post-secondary students at certain institutions and somewhat over-represent secondary students at the larger secondary schools.[12] Comparison against Statistics Canada's 2022 Labour Force

[12] While the expanded data very closely match enrolments for students living off-campus for Carleton University and Cégep de l'Outaouais, the survey data appeared to somewhat under-represent students at other institutions, including University of Ottawa (76% of reported enrolment), Algonquin College (72%), Université de Québec en Outaouais (68%), La Cité Collégiale (39%) and Cégep Heritage College (55%). It may be noted that some portion of the enrolment reported by institutions, particularly part-time enrolment, may have been in semesters other than the Fall semester, and a small portion may include students living outside the study area. In addition, it may be noted that the universities in the area provide on-campus housing for over 8,300 students in residence, who would not have been included in the survey sample frame. The headcount enrolment

Survey (LFS) estimates suggest that the survey data do a good job of representing total employment: the expanded survey data represent almost 736,600 employed persons in the Study Area, compared to the 2022 LFS estimates of 742,500 employed persons in the Ottawa-Gatineau CMA.[13]

The expanded survey data were compared against screenline counts for river crossings (Ottawa River, Gatineau River, and Rideau River) and traffic crossing the boundary of the Ottawa Greenbelt. While the screenline counts include trips outside the scope of the survey data (commercial automobile trips and those made by people living outside the Study Area), the expanded survey estimates appear to be of an appropriate order of magnitude relative to the screenline counts. The expanded auto driver trips represent between 80% and 87% of the screenline counts, depending on the crossing, except for Rideau River crossings, for which the survey data represent 72% of the screenline counts (but which might be reasonable given that this includes traffic on Highways 417 and 32 that may be through-routes for non-residents travelling through Ottawa).

2.7 Statistical reliability

2.7.1 Data reliability

The 2022 TRANS OD survey was conducted with a sample of about 5.6% of households in the Study Area. As with any survey, the data collected can be subject to sources of error or bias that can affect the reliability of the survey results. Potential sources of error can include the following:

- Undercoverage. Coverage error is associated with the failure to include some populations in the same frame used for sample selection, which may occur with samples of convenience such as telephone directories. The sample frame used was a Canada Post database of mailable residential addresses which provides excellent coverage of private dwellings in the Study Area, reducing the concern of under-coverage. However, the Canada Post database may sometimes miss some housing types, such as basement / secondary suites, mobile home parks and other non-conventional dwelling types, and some households may opt out of receiving mail sources from Canada Post's address lists.

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statistics for Fall 2022 were not necessarily available for all institutions, and it is unknown whether 2022 enrolments were higher or lower than 2021 enrolments. The survey data also appear to somewhat over-represent students at the larger secondary schools in the area (by about on average 30%), although it is not clear whether the over-representation balances out post-secondary under-representation or whether smaller secondary schools within the study area are under-represented.

[13] Statistics Canada. *Table 14-10-0380-02 Labour force characteristics, three month moving average, seasonally adjusted (x 1,000)* for the Ottawa-Gatineau CMA, *last accessed August 2023*. The Labour Force Survey estimates for September through November have been adjusted to estimate employment in the study area, which does not include portions of the CMA that are in Ontario outside the City of Ottawa

- **Non-response bias.** Non-response bias occurs when individuals who do not participate in a survey differ in relevant ways from individuals who do participate. For example, younger people are often less inclined to participate in surveys. This bias has also been addressed, in part, through the data expansion process, including the weighting by household size, dwelling type, age, gender and post-secondary enrolments. However, it should be noted that there can be other, hidden biases in the data that could not be corrected by the data weighting.
- **Measurement error.** This type of error is associated with the failure of survey instruments to capture correct information (e.g., through misunderstanding survey questions). To control for this, the questionnaire and associated materials were based on previously well-tested survey questions, thoroughly reviewed for content and meaning and field-tested with a sample of respondents prior to the full survey administration. Telephone interviewers were trained on the objectives of the survey, definitions of key terms, the intent of survey questions and how to address different trip circumstances described by respondents. During survey administration, interviews were regularly monitored by a supervisor to ensure consistent application of questions. The online survey also included several built-in tests to prompt respondents to confirm key data and clarify illogical responses.
- **Processing error.** Processing errors include data entry, coding, editing and imputation errors. These potential sources of error were addressed through comprehensive training of survey staff and survey validation staff, continuous quality management practices and data validation.
- **Sampling error.** Sampling error refers to the variability that occurs by chance because a sample was surveyed, rather than the complete population. As best as possible, sampling error was controlled for by obtaining a robust survey sample and targeting of areas with lower-than-expected response rates.
- **Error due to high weights when analysing small samples.** Notwithstanding the limiting of extreme weights in the data weighting, small sample sizes for some strata and non-response bias may contribute to the assignment of high weights for some cases relative to others within the same geographic zone or population stratum. Users of the data should take note that the sample sizes for some zones are relatively modest. The survey results for such zones should be interpreted with caution. Caution should also be exercised when analysing any small subgroups of the total population.

2.7.2 Estimates of sampling error

Sampling error can be estimated based on the size of the sample universe (number of households in the Study Area) and the number of household survey completions. The estimated margin of error for the survey results at the household level is at ±0.7% at a 95% confidence level (theoretically, for a given survey question, the true response proportion for the population would be somewhere within the margin of error of the survey results 19 times out of 20), taking into account the effects of data weighting on sampling error. For person- and trip-level survey results for the entire Study Area, the sampling error is estimated to be ±0.5%.

Sampling errors increase when the Study Area is disaggregated into sub-regions, municipal districts or when analysing population sub-samples.

Table 2 provides the household sampling rate, the household and person sample sizes and the household and person sampling errors for selected geographies in the Study Area: the Study Area total, sub-regions (City of Ottawa, Gatineau CMA), transects (five in Ottawa, four in Gatineau), and the 26 TRANS districts. It may be noted that while most districts obtained survey sample rates of at least 5.0% of all households, certain districts were oversampled and achieved much higher sampling rates. Even with these higher sampling rates, the sampling errors in these districts are often still somewhat higher than for other districts due to the numerically small samples.

Reporting of survey results related to trips originating in or destined to given sub-regions or municipal districts will include trips made by residents of the given geography as well as other residents of the Study Area from outside the given geography. Therefore, the sampling error associated with information on trips to, from or within the area would be much better than that for just the trips made by residents of the area. The sampling errors for person-level information can be considered to carry over to the trips those people make (i.e., the sampling error is associated with the entire trip chain). Therefore, the calculation of sampling error can be undertaken using the number of persons as the sample size rather than number of trips.

Table 2. Survey Samples and Sampling Errors for Different Levels of Reporting

Geography of Residence	Expanded Households	Expanded Population in Private Dwellings	Surveys	Sampling Rate (% of House-holds)	Sampling Error, House-hold Level (±%)	Persons in Surveyed House-holds	% of Population in Private Dwellings	Sampling Error for Persons, Trips Info (±%)
Study Area (Survey Total)	567,200	1,365,600	31,818	5.6%	0.7%	69,501	5.1%	0.5%
Sub-Regions								
Ottawa	414,500	1,014,400	23,126	5.6%	0.8%	50,469	5.0%	0.5%
Gatineau CMA	152,700	351,200	8,692	5.7%	1.3%	19,032	5.4%	0.9%
Ville de Gatineau	128,000	289,500	7,138	5.6%	1.4%	15,327	5.3%	1.0%
Rest of Gatineau CMA	24,700	61,700	1,554	6.3%	3.0%	3,705	6.0%	1.9%
Transects / sub-areas								
Downtown Core	43,300	70,700	2,571	5.9%	2.3%	4,074	5.8%	1.9%
Inner Urban	81,100	167,800	4,670	5.8%	1.8%	9,091	5.4%	1.3%
Outer Urban / Greenbelt	114,500	280,400	6,199	5.4%	1.6%	13,368	4.8%	1.1%
Suburban	141,600	402,700	7,358	5.2%	1.4%	18,269	4.5%	0.9%
Rural	34,100	92,800	2,328	6.8%	2.4%	5,667	6.1%	1.6%
Downtown Gatineau	6,800	11,300	364	5.3%	6.6%	571	5.1%	5.3%
Transit-Oriented Development	14,800	29,300	719	4.8%	4.7%	1,346	4.6%	3.4%
Rest of Gatineau	106,400	249,000	6,055	5.7%	1.5%	13,410	5.4%	1.0%
Rest of CMA	24,700	61,700	1,554	6.3%	3.0%	3,705	6.0%	1.9%
TRANS Districts								

Geography of Residence	Expanded Households	Expanded Population in Private Dwellings	Surveys	Sampling Rate (% of House-holds)	Sampling Error, House-hold Level (±%)	Persons in Surveyed House-holds	% of Population in Private Dwellings	Sampling Error for Persons, Trips Info (±%)
Ottawa Centre	7,200	11,000	514	7.1%	5.0%	780	7.1%	4.0%
Ottawa Inner Area	46,500	83,600	2,811	6.0%	2.2%	4,902	5.9%	1.7%
Ottawa East	25,800	52,300	1,398	5.4%	3.4%	2,579	4.9%	2.6%
Beacon Hill	13,200	31,500	725	5.5%	4.9%	1,542	4.9%	3.5%
Alta Vista	32,900	75,000	1,742	5.3%	3.2%	3,604	4.8%	2.3%
Hunt Club	20,500	55,000	1,124	5.5%	3.8%	2,501	4.5%	2.6%
Merivale	31,800	74,600	1,703	5.4%	3.1%	3,625	4.9%	2.2%
Ottawa West	25,300	50,900	1,476	5.8%	2.8%	2,876	5.6%	2.1%
Bayshore/Cedarview	31,600	75,300	1,740	5.5%	2.9%	3,645	4.8%	2.1%
Orleans	50,100	136,400	2,688	5.4%	2.2%	6,515	4.8%	1.4%
Rural East	4,300	11,500	402	9.4%	5.7%	1,016	8.8%	3.5%
Rural Southeast	9,600	26,800	595	6.2%	4.6%	1,470	5.5%	2.9%
South Gloucester/Leitrim	11,500	35,100	593	5.2%	5.2%	1,629	4.6%	3.1%
South Nepean	34,000	101,800	1,717	5.0%	2.8%	4,387	4.3%	1.7%
Rural Southwest	10,500	28,400	681	6.5%	4.3%	1,652	5.8%	2.8%
Kanata - Stittsville	50,700	140,900	2,612	5.2%	2.3%	6,319	4.5%	1.5%
Rural West	8,900	24,200	605	6.8%	4.9%	1,427	5.9%	3.2%
Île de Hull	6,200	10,500	340	5.5%	6.8%	540	5.2%	5.4%
Hull Périphérie	21,900	42,500	1,307	6.0%	3.5%	2,506	5.9%	2.5%
Plateau	15,000	34,800	793	5.3%	4.1%	1,733	5.0%	2.7%
Aylmer	22,600	57,400	1,227	5.4%	3.4%	2,976	5.2%	2.1%
Rural Northwest	9,200	22,800	619	6.7%	4.3%	1,502	6.6%	2.7%
Pointe Gatineau	24,100	52,800	1,452	6.0%	3.3%	3,004	5.7%	2.3%
Gatineau East	24,200	57,300	1,290	5.3%	3.3%	2,888	5.0%	2.2%
Rural Northeast	18,400	47,000	1,090	5.9%	3.7%	2,619	5.6%	2.4%
Masson-Angers	11,200	26,000	574	5.1%	4.7%	1,264	4.9%	3.2%

2.7.3 Caveats

It should be understood that the sampling error presented in the preceding section is not the only possible source of error. While efforts have been made to control for possible error and to weight the data to be more representative of the population, there may still remain some non-response bias or other sources of error not accounted for in the data weighting and data processing.

Differences in survey methodology may affect comparisons with earlier survey cycles. The different survey cycles may have different sampling biases and/or non-response biases. Most notably, the 2011 survey and earlier surveys were completed entirely by telephone with primarily directory-listed landline samples and did not include cell-phone-only households

(which by 2011 were beginning to emerge as a consequential minority of total households), however, survey response rates were high for these surveys. The 2022 survey was completed primarily online (with some telephone surveys) and with an address-based sample which included cell-phone-only households, although response rates were lower than in the previous surveys. There may also be differences in question wording, data processing and validation, and data weighting between survey cycles.

The 2011 and 2022 surveys both collected trip information for household members five or more years of age (the age at which children begin school and may begin to travel without being accompanied parent in the household). The 2005 survey collected trip information for household members eleven or more years of age. Therefore, most longitudinal comparisons of trip characteristics have been made between 2022 and 2011, so that all trips by persons 5+ years of age can be included. Where it is of particular interest to examine the longer-term trend since 2005, comparisons of trip characteristics have been made filtering the later datasets to trips made by persons 11+ years of age.

Differences in the survey geography may affect comparisons with earlier survey cycles. The 2022 survey expanded the Study Area by adding small communities in the north and east of the Gatineau CMA, which currently represent approximately 2.2% of the population in the Gatineau CMA or only 0.6% of the entire Study Area. While this affect certain comparisons based on expanded numbers (i.e., suggest a slightly higher rate of growth in persons in the Quebec portion of the study area), this change is not likely to substantively affect comparisons of survey percentages.

Despite the differences between cycles, the core survey questions have been maintained with only minor refinements, all cycles have achieved robust sampling rates, and both the 2011 and 2022 surveys had similar data weighting controls. Therefore, we may expect that trends in demographics and travel patterns will be revealed in longitudinal comparisons despite the 'noise' in the comparisons that may be associated with differences between the survey cycles.

Trends in transportation indicators examined in this report may be the result of a number of contributing factors, including changes in demography, social factors, economic factors, urban planning, transportation policy, and development of infrastructure. For example, the City of Ottawa's O-Train light-rail transit (LRT) is a new transit mode that did not exist at the time of the last survey.[14] This and other changes in transportation infrastructure since the last survey may contribute to mode choices and other transportation indicators. Furthermore, the COVID-19 pandemic has had a profound and persistent impact on many areas of human activity such as social and recreational activities, online commerce, and work arrangements with attendant impacts on transportation demand and travel patterns. The analysis presented in this report explores some of these impacts on travel patterns.

[14] The O-Train LRT system began operation in September 2019

The survey data represent a point in time. While COVID-19 restrictions had been lifted by Fall 2022 after widescale deployment of vaccines, this may still have been a period of flux in terms of many employers and employees' transitions to new working arrangements, with trends still evolving today. Use of the new LRT may also evolve over time. It commonly can take some time before changes associated with the introduction of new transportation options are fully presented: not just mode changes, but also how such large-scale infrastructure shapes where people choose to live and work. Future changes in transportation infrastructure such as the opening of new LRT lines will shape mode choice and the urban landscape. Application of the 2022 data and results to the present day should consider the impacts of socio-economic trends and changes to transportation infrastructure. Accordingly, it may be best to see 2022 O-D survey more as a new travel benchmark than purely as an extension of 2011 and earlier trends. Future household travel surveys will be useful for identifying evolving trends and measuring the impacts of transportation policy and infrastructure.

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

- The weighted survey data are based on a sample of population expanded to represent the total population of persons living in private dwellings (excluding population living in collective dwellings). As such, expanded counts from the survey data should be understood to be estimates, not exact counts.
- Expanded household, person, and trip counts presented in this report have usually been rounded to the closest 100 or closest 10. Note that the actual margin of error for the given statistic may be greater than rounding units used.
- Figures presented for individual categories may not always sum to exactly the reported total across those categories due to rounding.
- Survey response proportions have been rounded to either the nearest percent or one-tenth of a percent. Individual percentages may not always add to exactly 100% or 100.0% due to rounding.

3 FACTORS INFLUENCING TRAVEL

3.1 Overview

This chapter describes key household and demographic factors that influence people's travel choices and patterns. The discussion looks at how these relate to each other. It also notes how they have changed over time, especially in light of the profound pandemic-induced shifts in social, economic and travel activity that transpired between the 2011 and 2022 surveys.

Note that the factors and proportions presented in this chapter reflected the survey results, which were expanded and validated to Census and other reference statistics described in the previous chapter. As a result, in most cases the results are consistent with these references. However, references to the working population may differ from the Census, given that the 2021 Census was taken at the height of a COVID wave whereas the household travel survey was conducted 18 months later. These differences refer specifically to total employment, mode of travel to work and the number of people working at home.

3.2 Key household and demographic indicators

Table 3 traces the growth in total population, population 5+ years of age (those eligible in the 2011 and 2022 surveys for trip reporting), and population 11+ years of age (those eligible for trip reporting in the 2005 and earlier surveys). The latter figure is used as the base for trip rates and other statistics when comparisons are made with surveys earlier than 2011. Table 4 traces the growth in total population, those with primary status of worker (i.e., working population excluding students who are also workers), households and vehicles across the Study Area. The tables provide the findings for the City of Ottawa, the Gatineau CMA and the combined Study Area. Note that in this section, in order to make equivalent comparisons reaching back to 2005, the number of workers reported is based on primary occupational status and excludes part-time workers whose primary occupational status was student.

Focusing on changes between 2011 and 2022, it can be noted that:

- Historically, 75% of the Study Area's population has been in Ottawa and 25% of the population has been in the Gatineau CMA. These proportions were largely maintained in 2022.
- In 2022, the Gatineau CMA had 29.1% of the Study Area's vehicles[15] – slightly greater than the 27.3% share in 2011 and representing an 18.0% growth over the 11-year period (and a 1.5% compound annual growth rate [CAGR]).
- Across the Study Area, the number of workers grew faster than any other indicator, at 16.0% (1.4% CAGR) over the 11-year period. By comparison, the Study Area

[15] In this report, "vehicles" refers to personal and business vehicles owned by or available to residents for their personal travel. These include cars, SUVs, light trucks and vans.

population grew by 10.7% (0.9% CAGR), households by 11.2% (1.0% CAGR) and vehicles by 11.0% (1.0% CAGR).

- These Study Area-wide trends largely followed Ottawa's trends, with vehicles (8.4% or 0.7% CAGR) growing more slowly than workers (16.5%, 1.4% CAGR), population (10.0%, 0.9% CAGR) and households (9.1%, 0.8% CAGR). However, in Gatineau, vehicles (18.0%, 1.5% CAGR) grew faster than households (17.3%, 1.5% CAGR), workers (14.4%, 1.2% CAGR) and population (12.7%, 1.1% CAGR).
- The Gatineau CMA experienced faster growth than Ottawa in all indicators, except for the working population, which grew by 16.5% in Ottawa (1.4% CAGR) and 14.4% in the Gatineau CMA (1.2% CAGR). The total population in the Gatineau CMA grew by 12.7% (1.1%), compared with 10.0% (0.9%) in Ottawa. Households in the Gatineau CMA grew by 17.3% (1.5% CAGR) compared with 9.1% (0.8%) in Ottawa. Vehicles in the Gatineau CMA grew by 18.0% (1.5% CAGR) compared with 8.4% (0.7%) in Ottawa.

Although the focus is on the 2011 and 2022 surveys, the table also lists the 2005 survey values. This extended look back provides a context for the ensuing discussion of how the relationships among the demographic indicators have changed.

Both 11+ and 5+ populations were used for comparisons with the 2011 survey. This reflects the transition that year from 11+ year-olds as the survey's population threshold to 5+ year-olds.[16] To enable the ensuing comparison of the demographic relationships with older TRANS surveys, the two tables retain both age thresholds.

[16] Prior to 2011, TRANS O-D surveys captured data only from the 11+ population. From 2011, TRANS surveys included travel from the 5+ population.

Table 3. Population, 2005 - 2022

Survey Year	Geography*	Population	Population 5+	Population 11+
Study Area				
2022	CofO, GatCMA	1,365,600	1,297,600	1,200,800
2011	CofO, VdeG, MRC	1,233,800 †	1,163,200	1,081,300
2005	CofO, VdeG, MRC	1,150,600	1,090,800	1,010,500
2011-22		10.7%	11.6%	11.1%
2011-22 CAGR ‡		0.9%	1.0%	1.0%
Ottawa				
2022	CofO	1,014,400	965,500	895,900
2011	CofO	922,000 †	871,200	810,300
2005	CofO	865,700	821,200	760,500
2011-22		10.0%	10.8%	10.6%
2011-22 CAGR ‡		0.9%	0.9%	0.9%
Gatineau CMA				
2022	GatCMA	351,200	332,100	304,900
2011	VdeG, MRC	311,700	292,100	270,900
2005	VdeG, MRC	284,900	269,600	250,000
2011-22		12.7%	13.7%	12.6%
2011-22 CAGR ‡		1.1%	1.2%	1.1%

* 'CoO' refers to City of Ottawa. 'VdG' refers to the Ville de Gatineau. 'MRC' refers to the MRC des Collines-de-l'Outaouais. 'GatCMA' refers to the Gatineau CMA. The 2022 survey's inclusion of the small communities in the Gatineau CMA that were not included in the 2005 to 2011 survey geography adds about 0.6% to the total population of the Study Area, or 2.3% of the population of the Gatineau CMA. The inclusion of these small communities has only a marginal impact on the growth rates shown here.

† 2011 City of Ottawa population is based on estimates used to expand and weight the 2011 survey, which suggest a larger population (922,000) than that reported in the 2011 Census (883,391). Note that the 2011 Census undercount in Ontario was estimated to be approximately 2.9% (compared with only 1.1% in Québec). The 2011 Census and National Household Survey figures were not adjusted to account for this under coverage. (*Final estimates of 2011 Census coverage*, Statistics Canada, www150.statcan.gc.ca/n1/daily-quotidien/130926/dq130926b-eng.htm, last accessed March 19, 2024).

‡ CAGR is the compound annual growth rate between 2011 and 2022.

Table 4. Population, workers, households and vehicles, 2005 - 2022

Survey Year	Geography*	Population	Employment (Workers; Primary Status) **	Households	Vehicles
Study Area					
2022	CofO, GatCMA	1,365,600	681,600	567,200	776,400
2011	CofO, VdeG, MRC	1,233,800 †	587,800	510,000	699,200
2005	CofO, VdeG, MRC	1,150,600	543,200	465,400	657,500
2011-22		10.7%	16.0%	11.2%	11.0%
2011-22 CAGR ‡		0.9%	1.4%	1.0%	1.0%
Ottawa					
2022	CofO	1,014,400	508,300	414,500	550,800
2011	CofO	922,000 †	436,300	379,800	508,100
2005	CofO	865,700	401,300	347,900	482,100
2011-22		10.0%	16.5%	9.1%	8.4%
2011-22 CAGR ‡		0.9%	1.4%	0.8%	0.7%
Gatineau CMA					
2022	GatCMA	351,200	173,300	152,700	225,600
2011	VdeG, MRC	311,700	151,500	130,200	191,200
2005	VdeG, MRC	284,900	142,000	117,500	175,500
2011-22		12.7%	14.4%	17.3%	18.0%
2011-22 CAGR ‡		1.1%	1.2%	1.5%	1.5%

* 'CoO' refers to City of Ottawa. 'VdG' refers to the Ville de Gatineau. 'MRC' refers to the MRC des Collines-de-l'Outaouais. 'GatCMA' refers to the Gatineau CMA. The 2022 survey's inclusion of the small communities in the Gatineau CMA that were not included in the 2005 to 2011 survey geography adds about 0.6% to the total population of the Study Area, or 2.3% of the population of the Gatineau CMA.

** For all years, 'employment (primary status)' includes only those workers whose primary occupation is full time or part time employment. To enable equivalent comparisons, for 2022, this figure excludes almost 55,000 workers who were full-time student/part-time worker, full-time student/full-time worker, or part-time student/part-time worker. Other reporting on workers in this report may use total workers including students who work as a secondary occupation status.

† 2011 City of Ottawa population is based on estimates used to expand and weight the 2011 survey, which suggest a larger population (922,000) than that reported in the 2011 Census (883,391). Note that the 2011 Census undercount in Ontario was estimated to be approximately 2.9% (compared with only 1.1% in Quebec). The 2011 Census and National Household Survey figures were not adjusted to account for this undercoverage. (*Final estimates of 2011 Census coverage*, Statistics Canada, www150.statcan.gc.ca/n1/daily-quotidien/130926/dq130926b-eng.htm, last accessed March 19, 2024)

‡ CAGR is the compound annual growth rate between 2011 and 2022.

3.3 Relationships among key indicators

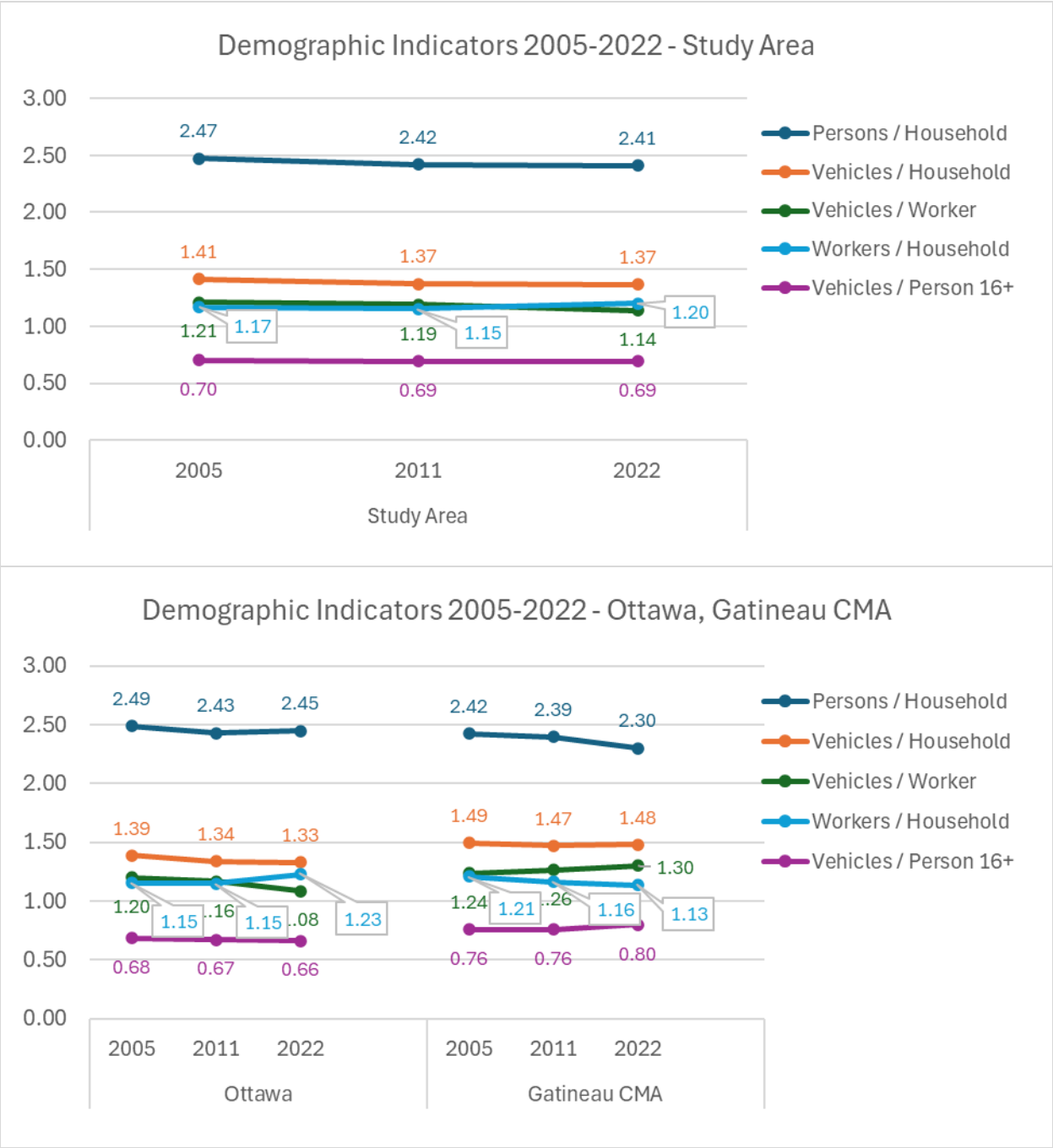
Table 5 summarizes how the demographic and household indicators relate to each other. Figure 4 shows graphically how these relationships have changed since 2005. These relationships help explain how and why travel behaviour, described in the ensuing sections, has changed over time. As in the previous section, for the purpose of comparison, the number of workers reported is based on primary occupational status and excludes part-time workers whose primary status was student.

Table 5. Relationships among demographic indicators, 2005 – 2022

Survey Year	Persons / Household	Population 5+ / Household	Population 11+ / Household	Workers / Household	Vehicles / Household	Vehicles / Worker	Vehicles / Person 16+ years
Study Area							
2022	2.41	2.29	2.12	1.20*	1.37	1.14	0.69
2011	2.42	2.28	2.12	1.15	1.37	1.19	0.69
2005	2.47	2.34	2.17	1.17	1.41	1.21	0.70
Ottawa							
2022	2.45	2.33	2.16	1.23*	1.33	1.08	0.66
2011	2.43	2.29	2.13	1.15	1.34	1.16	0.67
2005	2.49	2.36	2.19	1.15	1.39	1.20	0.68
Gatineau CMA							
2022	2.30	2.17	2.00	1.13*	1.48	1.30	0.80
2011	2.39	2.24	2.08	1.16	1.47	1.26	0.76
2005	2.42	2.29	2.13	1.21	1.49	1.24	0.76

* For comparability with previous cycles that excluded workers who had a primary occupation status other than work, the 2022 employment figures in this table have been filtered to exclude people who might be deemed as having employment as a secondary status – e.g., someone who is both a full-time student and a part-time worker. However, other reporting on workers in this report may use total workers including students who work as a secondary occupation status.

Figure 4. Changes in key demographic relationships, 2005 to 2022



The relationships have changed in different ways – some uniformly across the Study Area but others varying between Ottawa and the Gatineau CMA:

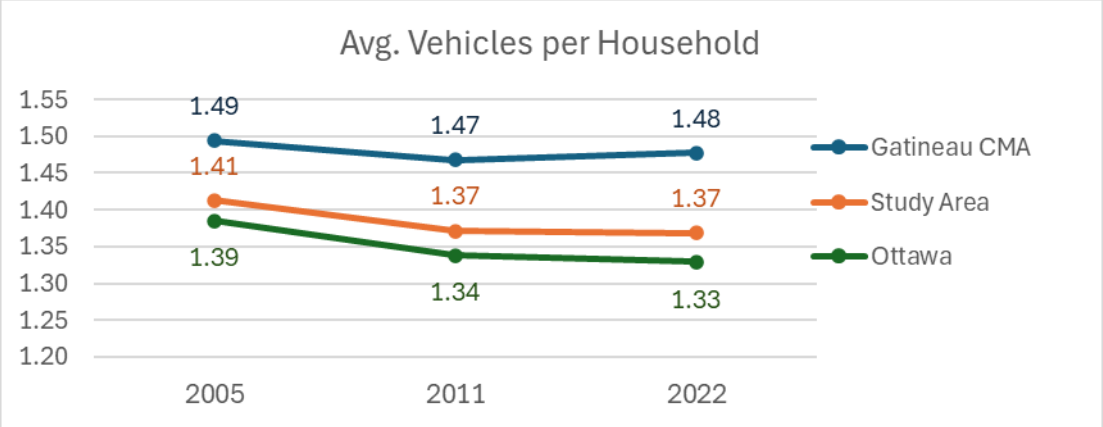
- **Household size grew slightly in Ottawa since 2011 but dropped moderately in the Gatineau CMA.** The average household size (persons per household) has dropped

steadily across the Study Area since 2005, although 2022's average of 2.41 persons per household is only marginally smaller than the 2011 average of 2.42 persons per household. Ottawa's rate increases slightly, from 2.43 to 2.45 persons per household between 2011 and 2022. However, the Gatineau CMA rate dropped moderately to 2.30 persons per household in 2022, from its 2011 rate of 2.39 persons per household.

When calculated for the 5+ population, both jurisdictions experienced increases between 2011 and 2022, reversing reductions after 2005, although Ottawa experienced only a marginal increase. A similar trend holds for the 11+ population, with Ottawa's rate being stable between 2011 and 2022.

- **The average number of workers per household increased in Ottawa since 2011 but dropped in the Gatineau CMA.** While both jurisdictions' rates were almost equal in 2011, Ottawa's rate increased to 1.23 workers per household in 2022 from 1.15 workers in 2011, while the Gatineau CMA's 2022 average of 1.13 workers per household represents a drop from 1.16 workers in 2011.
- **Average vehicle availability has been stable** since 2011, after dropping from 2005. As shown in Figure 5, Ottawa's 2022 average of 1.33 vehicles per household is marginally lower than the 2011 rate of 1.34 vehicles. However, rates in the Gatineau CMA grew marginally from 1.47 vehicles in 2011 to 1.48 vehicles per household in 2022.

Figure 5. Average vehicles per household, 2005-2022



- **Average vehicle availability for workers has dropped moderately in Ottawa since 2005 but has increased in the Gatineau CMA.** Mode choice is linked to vehicle availability. This is especially true of employed household members, who often have priority for the household's vehicles, and whose habitual trips to and from work would otherwise be more conducive to using public transit and other alternatives to driving.

  On average, in Ottawa, 1.08 vehicles were available per worker in 2022, representing a drop from 1.16 vehicles in 2011. However, in the Gatineau CMA, whose rates were higher than those of Ottawa for all three survey years, the average grew from 1.26 vehicles in 2011 to 1.30 vehicles per worker in 2022. While Ottawa's rates have dropped since 2005, the Gatineau CMA's rates have increased since 2005. Across the Study Area, these rates indicate that, on average, there was at least one vehicle available to each worker.[17]

- **Average vehicle availability for the driving-age population has dropped slightly in Ottawa since 2005 but has increased in the Gatineau CMA.** Table 5 lists the average number of vehicles that are available to the 16+ population – that is, to people who are of driving age. The changes over time and the differences between Ottawa and the Gatineau CMA echo those of vehicle availability for workers, although the actual availability rates are much lower than those for workers. On average, in Ottawa, 0.66 vehicles were available per person 16+ in 2022, representing a slight drop from 2011 and 2005 (0.67 and 0.68 vehicles, respectively). However, rates in the Gatineau CMA, which were higher than those of Ottawa for all three survey years, grew moderately to an average of 0.80 vehicles in 2022 from 0.76 vehicles in 2011 and 2005.

Finally, it should be noted that **the relative stability and the values of these key indicators are comparable with those elsewhere**. The comparison is relevant to this survey because it helps validate the survey findings. Table 6 compares key indicators with selected other Canadian urban areas. The table compares the most recent and preceding surveys. The demographic and economic structures of the five regions varies, although two regions (Capital Regional District and Quebec City) are seats of government. The comparison confirms that the key indicators are reasonable and are within expectations. Their relative stability over time is also consistent with the other urban areas. The Study Area's vehicle availability rates are noticeably lower than those of the comparator areas, more so in comparison with the western urban areas.

[17] Note that workers' priority for the household vehicle reflects experience observed in surveys across Canada because the regularity of their trip to and from home makes them most conducive to switch to that mode.

Table 6. Comparison of key indicators

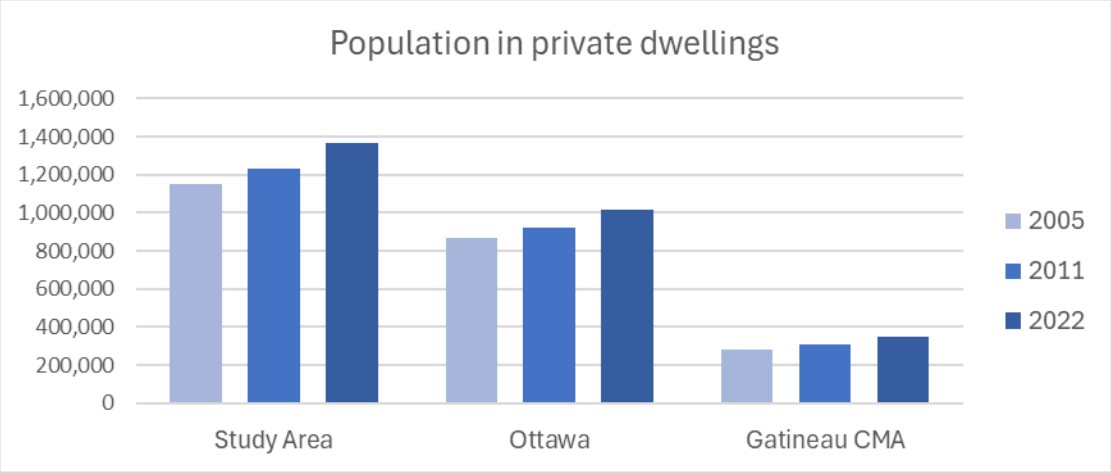
	TRANS Study Area		CRD (RPA)		Edmonton		Greater Toronto and Hamilton Area		Québec City	
Survey Year	2011	2022	2017	2022	2005	2015	2016	2022	2011	2017
Population	1,233,800	1,365,600	363,300	394,000	712,400	894,400	6,813,900	7,154,600	807,245	841,160
Persons / household	2.42	2.41	2.20	2.19	2.38	2.43	2.69	2.64	2.22	2.22
Vehicles / household	1.37	1.37	1.55	1.55	n/a	1.63	1.46	1.41	1.38	1.44
Vehicles / person	0.57	0.57	0.70	0.71	n/a	0.67	0.54	0.54	0.74	0.78

Sources:

- R.A. Malatest with David Kriger Consultants Inc., *2022 CRD Origin-Destination Survey*, Final Report, prepared for the Capital Regional District of British Columbia, September 2023. Refers to residents and households of the Regional Planning Area.
- R.A. Malatest, *2018 Okanagan Travel Survey, Report 3: Analysis of Survey Results & Trends*, prepared for the City of Kelowna et al., February 2020.
- R.A. Malatest with David Kriger Consultants Inc., *2015 Edmonton and Region Household Travel Survey, Summary Report*, prepared for the City of Edmonton, April 2018.
- R.A. Malatest, *TTS 2016: 2016, 2011, 2006, 1996 and 1986 Travel Summaries for the Greater Toronto & Hamilton Area*, prepared for the Ontario Ministry of Transportation et al., March 2018. Preliminary 2022 TTS data has been presented with permission of the Ontario Ministry of Transportation.
- *Origin-Destination Survey 2011, Summary of Results*, March 2015 and *Origin-Destination Survey 2017, Summary of Results*, October 2019, prepared for the Québec Urban Community et al.

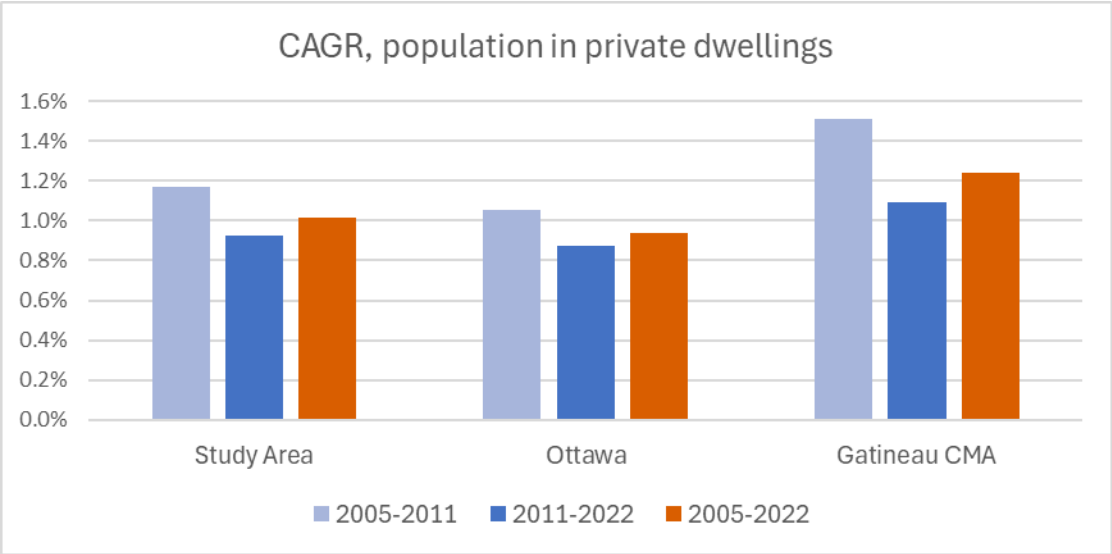
Figure 6 and Figure 7 show the growth in population for the Study Area, Ottawa and the Gatineau CMA, and the associated CAGRs, respectively. Although Ottawa continues to have the greatest concentration of population, the Gatineau CMA has had the highest annual growth rates. For both Ottawa and the Gatineau CMA, the annual population growth rates between 2005 and 2011 were greater than those since then.

Figure 6. Population growth in the Study Area, Ottawa and the Gatineau CMA, 2005 to 2022



Note: Population in private dwellings, not total population (i.e., excludes population in collective dwellings).

Figure 7. Population growth in the Study Area, Ottawa and the Gatineau CMA, CAGR, 2005 to 2022



Note: Population in private dwellings, not total population (i.e., excludes population in collective dwellings).

CAGR = Compound Annual Growth Rate (i.e., the annualized compounded average rate of growth rate).

3.4 Population characteristics

3.4.1 Age distribution of population in private dwellings

Age is an important indicator of travel behaviour, reflecting in part an individual's occupational status as well as their responsibilities in the household and the modes that are available to them. Table 7 summarizes the population distribution by age for the various surveys. Figure 8 shows the distribution of the cohorts, and Figure 9 shows their respective growth rates between surveys. Note that data presented are from the expanded survey data. While the survey results generally align with the Census results, there may be some deviations from the Census and differences in the data weighting approach in the different survey cycles. The survey results by age group are presented here to assist in interpreting and understanding other results of the survey such as how people are travelling.

One point of interest is to understand the aging of the population.

- **More than half the population is in the prime working age cohort** (25-64),[18] comprising 54.4% of the total Study Area population in 2022. However, this proportion has dropped from 56.8% since 2011, even as the absolute numbers in the 25-64 cohort have increased by 5.9%. This shift matters because this is the dominant group in the workforce. Similar growth patterns occurred in Ottawa and in the Gatineau CMA. The absolute growth was slightly higher in the Gatineau CMA, at 7.1%, with the working age cohort representing 55.2% of the population.
- **The 0-24 age cohort grew slightly faster than the working age population.** This cohort grew by 7.5% since 2011, making up 29.5% of the Study Area population in 2022.However, growth within this cohort has been uneven, with the 10-14 and the 20-24 cohorts growing fastest. These proportions are similar in Ottawa and the Gatineau CMA. The absolute growth was slightly higher in the Gatineau CMA, at 8.3%, compared with 7.3% in Ottawa.
- **Seniors (65+) were the fastest-growing cohort**. Their Study Area numbers have increased by 39% since 2011, representing a 16.1% share of the total population (from 12.8% in 2011). The 65+ cohort represents 16.3% of Ottawa's population and 35.3% absolute growth since 2011. The 65+ cohort represents 15.5% of the Gatineau CMA's population (slightly less than Ottawa's proportion) but also a 52.5% absolute increase since 2011.

Table 7. Population by age group, 2005, 2011 and 2022

Age Group (Study Area)	2005	2011	2022	2005 %	2011 %	2022 %
0 to 4	61,370	70,470	68,000	5.3%	5.7%	5.0%
5 to 9	67,600	68,820	80,560	5.9%	5.6%	5.9%
10 to 14	77,750	69,300	84,030	6.8%	5.6%	6.2%
15 to 19	85,890	81,300	78,670	7.5%	6.6%	5.8%
20 to 24	86,240	84,330	91,160	7.5%	6.8%	6.7%
25 to 34	163,310	172,970	190,030	14.2%	14.0%	13.9%
35 to 44	192,800	172,680	186,430	16.8%	14.0%	13.7%
45 to 54	180,770	202,730	180,720	15.7%	16.4%	13.2%
55 to 64	110,350	152,980	185,910	9.6%	12.4%	13.6%
65 to 74	74,340	86,810	132,140	6.5%	7.0%	9.7%
75+	50,160	71,390	87,970	4.4%	5.8%	6.4%
Total (all ages)	1,150,580	1,233,790	1,365,620	100.0%	100.0%	100.0%

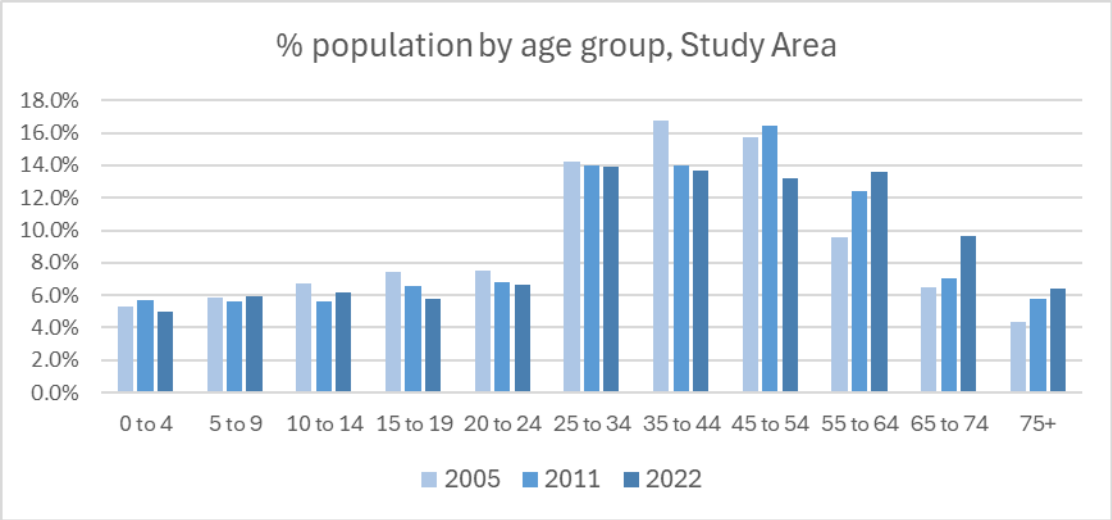
[18] While the minimum working age is 14 in both Quebec and Ontario, and Statistics Canada defines the labour force as population 15 years of age and older, the term "prime working age cohort" refers to the segment of the population that has typically completed their education and can be fully engaged in the labour market. Analysis of this more stable and economically active segment of the population reduces the noise from students or those still in the early stages of career exploration.

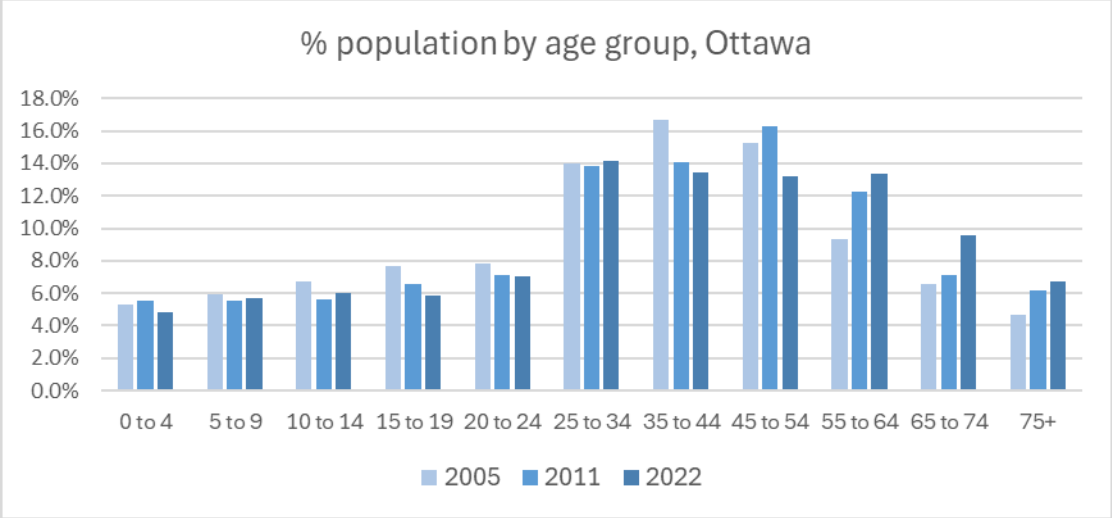
Age Group (Ottawa)	2005	2011	2022	2005 %	2011 %	2022 %
0 to 4	45,600	50,800	48,930	5.3%	5.5%	4.8%
5 to 9	51,270	50,830	57,960	5.9%	5.5%	5.7%
10 to 14	58,410	51,730	61,310	6.7%	5.6%	6.0%
15 to 19	66,370	60,170	59,510	7.7%	6.5%	5.9%
20 to 24	68,090	65,470	71,550	7.9%	7.1%	7.1%
25 to 34	121,160	127,780	143,470	14.0%	13.9%	14.1%
35 to 44	144,550	130,030	136,370	16.7%	14.1%	13.4%
45 to 54	132,210	149,970	134,240	15.3%	16.3%	13.2%
55 to 64	80,790	112,680	135,270	9.3%	12.2%	13.3%
65 to 74	56,880	65,920	97,340	6.6%	7.1%	9.6%
75+	40,370	56,660	68,450	4.7%	6.1%	6.7%
Total (all ages)	865,690	922,050	1,014,400	100.0%	100.0%	100.0%

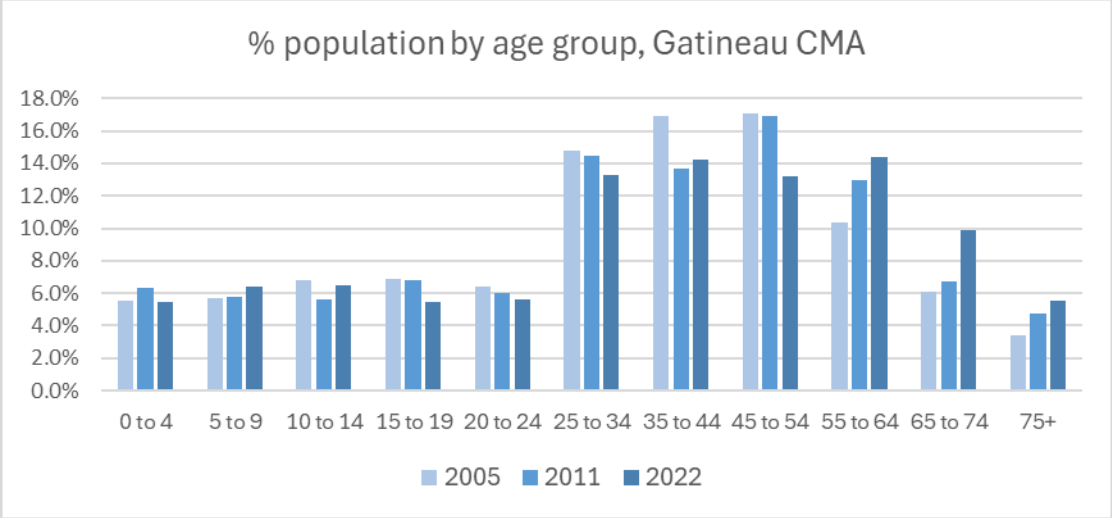
Age Group (Gatineau CMA)	2005	2011	2022	2005 %	2011 %	2022 %
0 to 4	15,770	19,670	19,070	5.5%	6.3%	5.4%
5 to 9	16,330	17,980	22,610	5.7%	5.8%	6.4%
10 to 14	19,340	17,570	22,720	6.8%	5.6%	6.5%
15 to 19	19,520	21,130	19,160	6.9%	6.8%	5.5%
20 to 24	18,150	18,860	19,600	6.4%	6.0%	5.6%
25 to 34	42,150	45,190	46,570	14.8%	14.5%	13.3%
35 to 44	48,250	42,650	50,050	16.9%	13.7%	14.3%
45 to 54	48,560	52,760	46,490	17.0%	16.9%	13.2%
55 to 64	29,560	40,310	50,640	10.4%	12.9%	14.4%
65 to 74	17,460	20,890	34,790	6.1%	6.7%	9.9%
75+	9,790	14,730	19,520	3.4%	4.7%	5.6%
Total (all ages)	284,880	311,740	351,220	100.0%	100.0%	100.0%

Note: Population in private dwellings, not total population (i.e., excludes population in collective dwellings). In 2022, Census data on the distribution of population by dwelling type by age group in each Census Subdivision were used to adjust the population of all age groups to reflect population in private dwellings. In 2011 and 2005, the data weighting used the age distributions of the total population, and did not discount these figures for to account for persons living in collective dwellings, which is more prevalent in older populations. I.e., the 2011 and 2005 results likely somewhat over-represent seniors living in private dwellings.

Figure 8. Population distribution by age group, 2005 to 2022

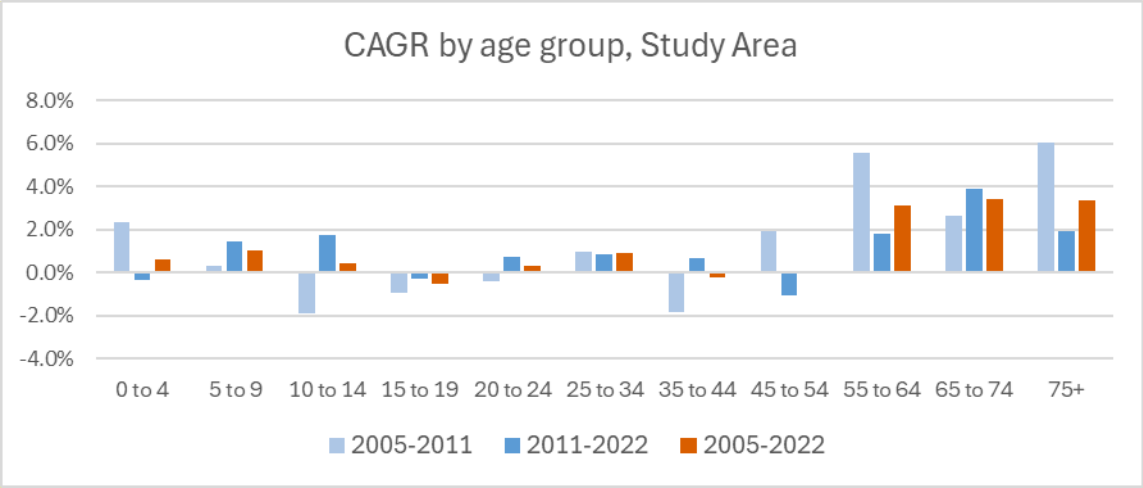


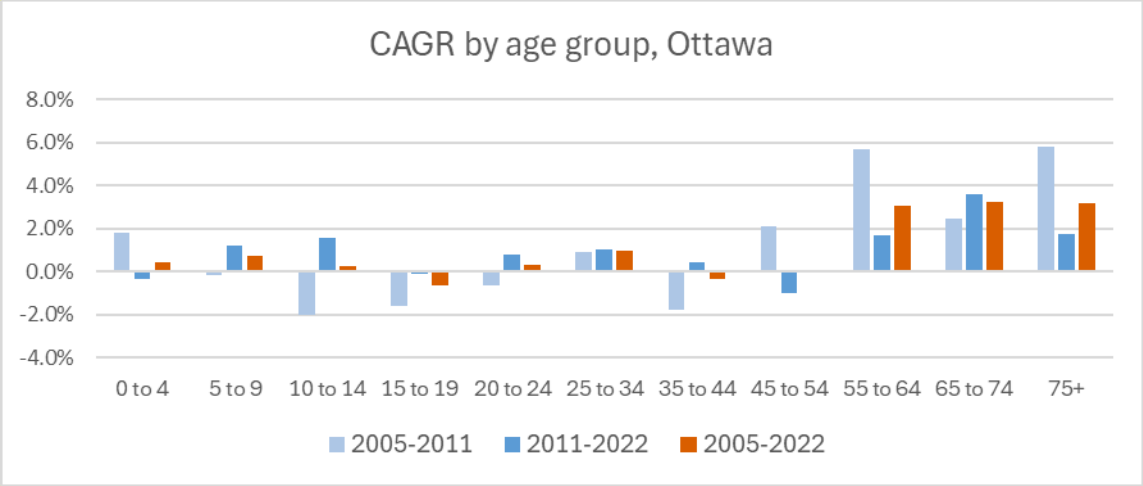


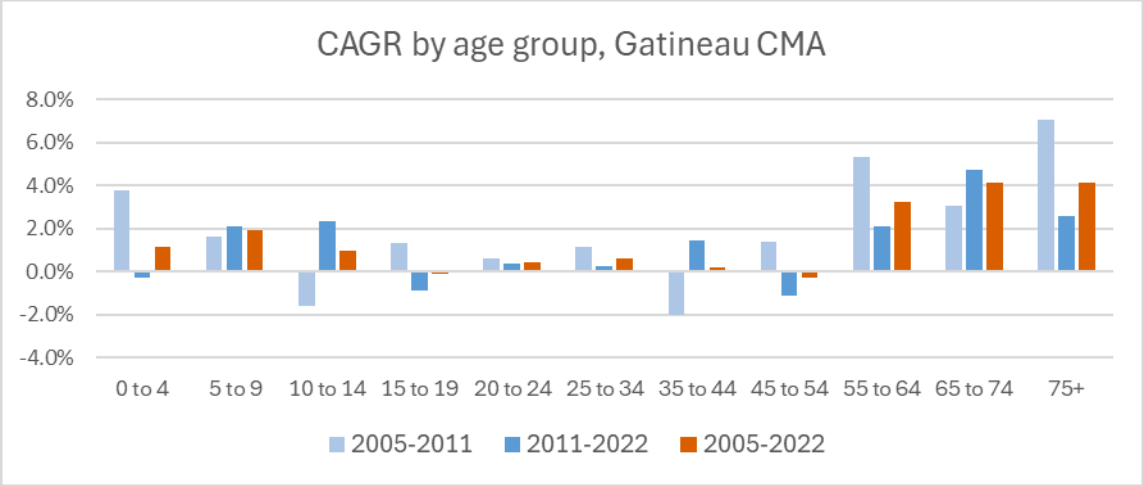


Note: The 2022 survey data represent the distribution of population by age group in private dwellings, not total population (i.e., excludes population in collective dwellings) whereas the 2011 and 2005 survey data were weighted to reflect the distribution by age group for the total population.

Figure 9. Population growth by age group, CAGR – 2005-2022







Note: The 2022 survey data represent the distribution of population by age group in private dwellings, not total population (i.e., excludes population in collective dwellings) whereas the 2011 and 2005 survey data were weighted to reflect the distribution by age group for the total population.

CAGR = Compound Annual Growth Rate (i.e., the annualized average rate of growth rate).

3.4.2 Occupational status

Occupational status influences travel behaviour – where people go and for what purpose, how often they travel, etc. Figure 10 shows the distribution of the population's employment status for 2022, using a pie chart. Table 8 summarizes the occupational status of the population between 2005 and 2022, and Figure 11 shows how occupational status has changed between surveys. Note that occupational status for the 2011 and 2022 surveys accounts for multiple responses of worker and student. (This differs from earlier sections 3.2 and 3.3 on key indicators, which report on primary occupation status.)

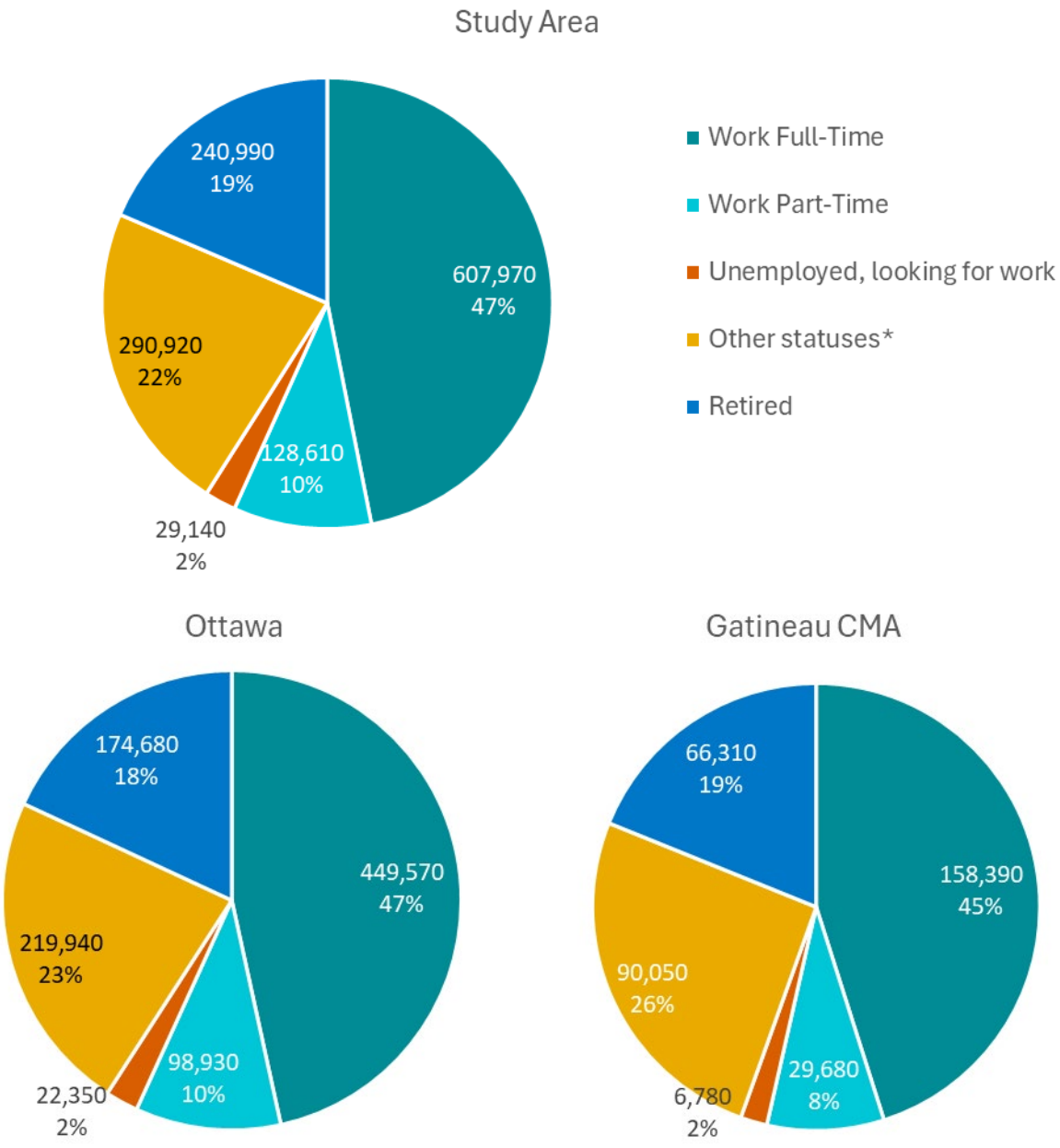
The **proportion of employed people dropped slightly,** from 56.7% of eligible respondents in 2011 to 53.9% in 2022. At 736,580 employed people in 2022, this represents a 11.7% growth since 2011. There has been a **modest drop in the proportion of part time workers**, from 11.3% to 9.4% of the Study Area population. This represents a 2.5% drop in the absolute numbers of part time workers, at 128,610 part time workers in 2022 compared with 131,877 in 2011. By comparison, total full-time employment grew by 15.3% - i.e., **full time employment grew faster than part time employment**. Note also that the overall trend in the total number of employed people masks the spike in unemployment during the pandemic, which had a high of 10.2% in June 2020.[19]

The number of students has increased by 11.8% since 2011, which is greater than the overall 7.5% growth in the 0-24 population. Retirees make up 17.6% of the population, up slightly

[19] *Labour force characteristics by census metropolitan area (CMA), three-month moving average, seasonally adjusted and unadjusted*, Table 14-10-0294-01, Statistics Canada. The cited unemployment rate refers to the Ottawa-Gatineau CMA.

from 15.5% in 2011, though representing an absolute increase of 40,750 persons since 2011, or an increase of 20.4%. Of note, the proportion of the population over the age of 65 who are employed full-time or part-time (and not counted as retired in these statistics) has increased from 11% in 2011 to 14% in 2022, with the proportion of those in the 65-69 age range increasing from 22% to 28%.

Figure 10. Employment status for total population, 2022



Other statuses: stay-at-home, student who is not working, not employed and not looking for work (disability, parental leave)

Table 8. Occupational status, Study Area, 2005 to 2022

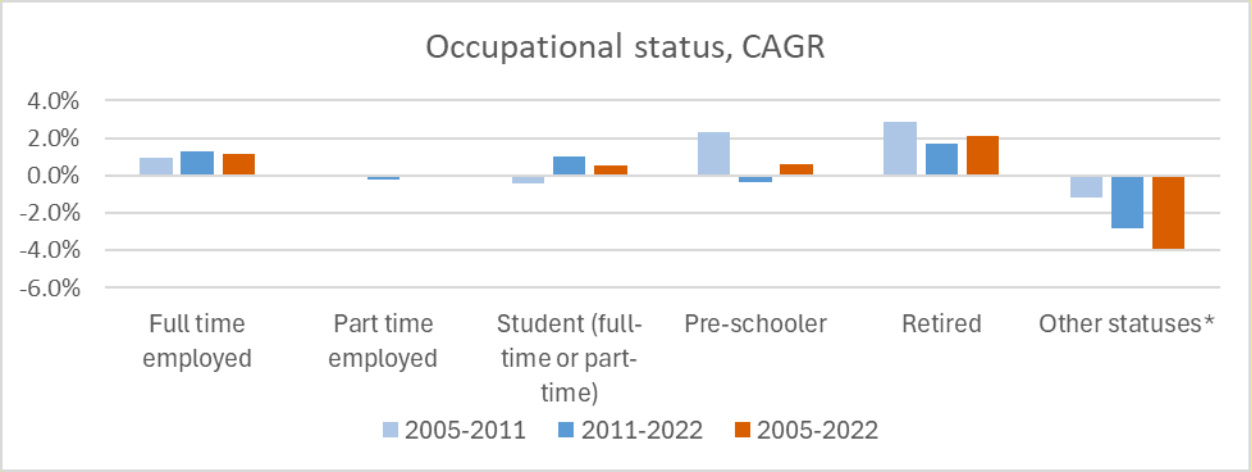
Occupational Status	2005	2011	2022	2005	2011	2022
Full time employed	497,610	527,450	607,970	43.2%	45.3%	44.5%
Part time employed*	45,680*	131,877	128,610	4.0%*	11.3%	9.4%
Student (full-time or part-time)*	283,990	276,850	309,390	24.7%	23.8%	22.7%
Pre-schooler	61,370	70,470	68,000	5.3%	5.7%	5.0%
Retired*	169,070	200,237	240,990	14.7%*	15.5%	17.6%
Homemaker/stay-at-home parent/caregiver†	46,580	35,460	15,690	4.0%	3.0%	1.1%
Other	46,230	51,020	57,250	4.0%	4.4%	4.2%
Total (expanded number of eligible survey persons)	1,150,580	1,163,320	1,365,600	100.0%	100.0%	100.0%

In the 2011 and 2022 results, the sum of rows adds to greater than 100% due to multiple responses (students who were employed were counted in both categories). 'Other' includes persons who are unemployed and looking for work, those who are unemployed and not looking for work (including on disability, on parental leave, on medical leave and other statuses not elsewhere classifiable).

* Exercise caution when interpreting the results for 'part-time employed' and 'retired'. In the 2005 results, 'retired' may have included people who considered themselves retired but who may also have been working part-time. The 2005 count of 'part-time employed' also did not take into account students who work part-time. In the 2011 and 2022 results, 'retired' includes only people who are fully retired and not also part-time workers. The 2011 results were originally reported based on a 'primary' status, and reflected fewer part-time workers, however, for this table they have been adjusted to better match the 2022 approach, by recategorizing retired people with part-time employed as 'part-time workers' and by adding students with part-time employment to the part-time employed total. Due to this treatment, total employment differs from that in Table 4.

† Exercise caution when interpreting the results for 'Homemaker / stay-at home parent or caregiver'. The response category of 'homemaker' was used in 2005 and 2011, whereas in 2022 the category was 'stay-at-home parent or caregiver'. In 2022, the 'other' category (specifically the subcategory of not employed and not looking) may include some of the types of people who might have identified as 'homemaker' in previous surveys.

Figure 11. Change in occupational status, Study Area, 2005 to 2022 CAGR



For this chart, 'other statuses' include unemployed and looking for work, unemployed and not looking, homemaker (2005, 2011) / stay-at-home parent or caregiver (2022) and other responses not elsewhere classifiable. For this chart, homemaker has been combined with other statuses because in 2022, the 'other' category may include some of the types of people who might have identified as 'homemaker' in previous surveys.

3.5 Remote work and study

3.5.1 Workplace location

The work commute is a key contributor to peak period travel by all modes. Commuters to and from work make up an important component of public transit ridership, especially those who are commuting to and from a fixed work location.

Previous TRANS surveys explored telecommuting. However, telecommuting, now called working from home (WFH), grew significantly because of the pandemic and has had a continuing effect on peak period travel. It is important to note that employer WFH policies were evolving during the survey's conduct and have continued to evolve since then – for example, the Federal government announced its hybrid return-to-the-office approach in mid-December 2022 for implementation in early 2023.[20]

Figure 12 profiles workplace location for 2022, according to usual workplace (did not telecommute last week), usual workplace (hybrid), no fixed workplace and work exclusively from home.[21] The figure combines full-time and part-time workers. Note that the results in this section (0) of this report examine the survey data for all workers, including students who work at a job that might be considered a secondary occupational status.

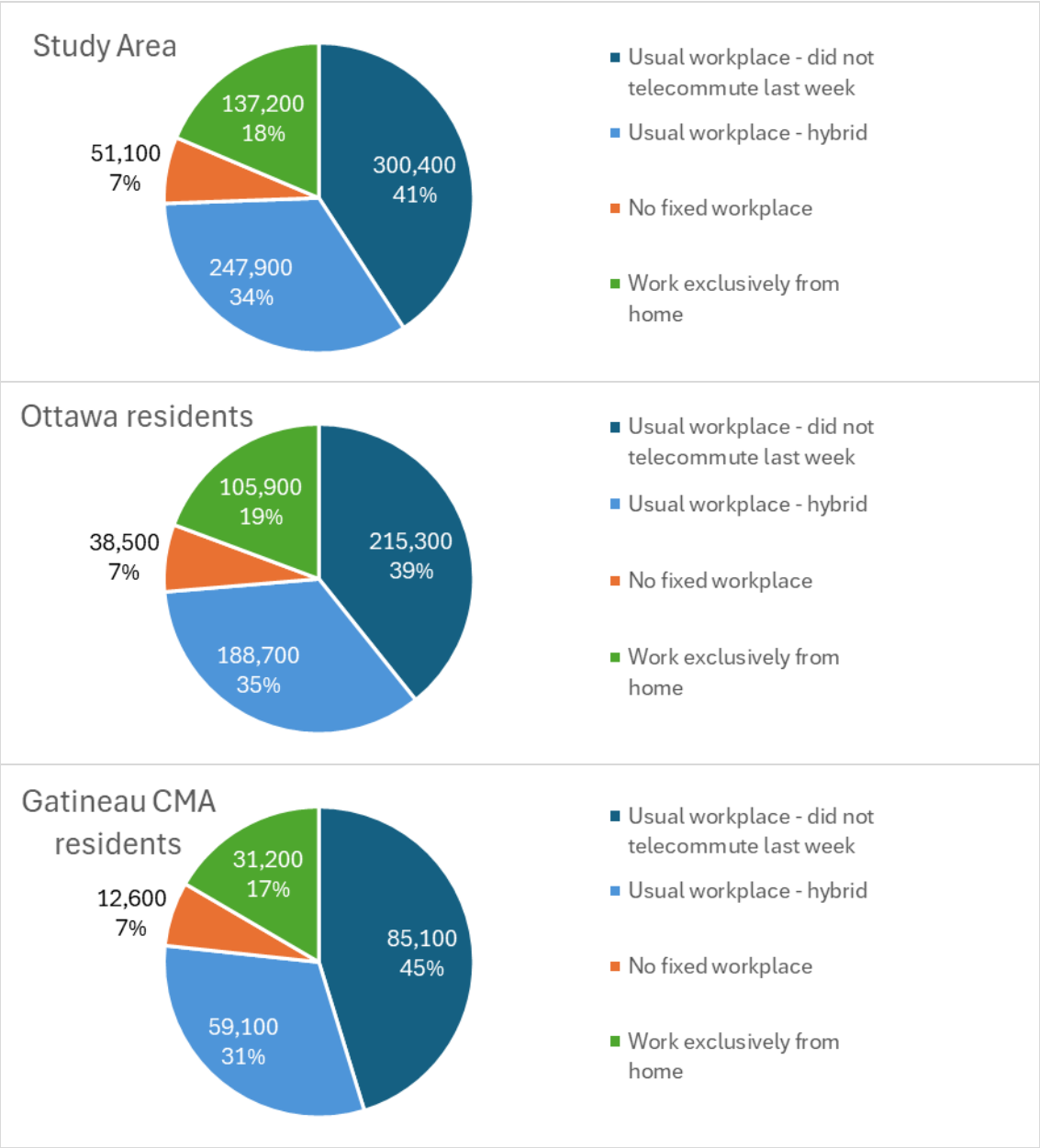
[20] *Government mandates public servants to return to office 2 to 3 days per week by April*, Ottawa Citizen, December 16, 2022.

[21] 'Usual workplace' refers to a worker's place of work that does not change (is fixed). When a worker is commuting, they always go the same location. Two options are discussed in the figure: the worker had a hybrid working arrangement, meaning they commuted to the office for only part of the work week, or they did not telecommute, meaning they worked each day in at the workplace.

"No fixed workplace" refers to itinerant workplace locations – for example, that of a construction worker, who may go to different construction sites on different days.

"Work exclusively from home" refers to workers who work entirely at their home – i.e., they do not have a workplace outside the home. An example is someone who has a home-based business.

Figure 12. Workplace location, 2022



Notes:

- These figures include both full-time and part-time workers.
- No telecommuting - did not report telecommuting instead of travelling to work in the week before being surveyed, i.e., worked exclusively at their usual workplace (may also include a small % of workers who did not work at all last week).
- Hybrid - has a usual workplace and reported telecommuting instead of going to work at least once the previous week (i.e., without also travelling to or from work on the same day).

From Figure 12, it can be seen that:

- **Three-quarters of all workers had a usual place of work outside the home.** Another fifth (18%) of workers worked exclusively from home, with the remaining 7% not having a fixed workplace. These proportions were consistent across the Study Area.
- **Among those with a usual place of work outside the home, just under half (45% of those with a usual workplace, or 34% of total workers) had a hybrid working arrangement**, representing 35% of Ottawa's workers but 31% of the Gatineau CMA's workers.
- **Just over half of those with a usual place of work outside the home (55% of such workers, or 41% of total workers) did not telecommute in the previous week.** Almost half the Gatineau CMA's workers (45%) had a usual workplace outside the home but did not telecommute the previous week. The corresponding proportion for Ottawa was 39%.
- Not shown in the figure, among full-time workers alone, 40% of Ottawa workers and 35% of Gatineau CMA workers had a hybrid working arrangement. Only 10% of part-time workers in either jurisdiction had a hybrid working arrangement.

3.5.2 Changes over time

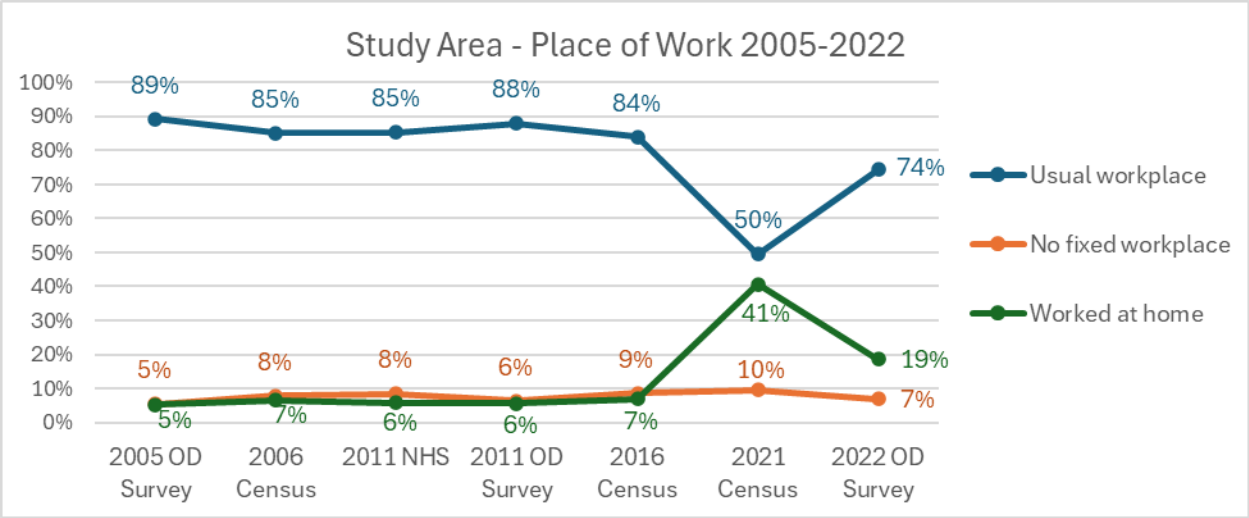
Figure 13 shows how this breakdown has varied over time across the Study Area. To provide a more complete profile, the figure shows results from the 2005, 2011 and 2022 O-D surveys as well as from the intervening Censuses. In particular, the 2021 Census shows the impact of pandemic-induced shifts to work from home. In this way, the emergence of post-pandemic behaviour recorded in the 2022 survey can be discerned.[22]

From Figure 13 it can be seen that, through the 2016 Census, the proportions of workers who had a usual workplace outside the home, no fixed workplace or worked from home remained fairly stable across the Study Area. There was a slight reduction in the usual workplace proportions from 89% in 2005 to 84% according to the 2016 Census[23] and correspondingly slight increases in the proportion of people working from home (6%-7% in 2016) and those not having a fixed workplace (8%-10%).

[22] Note that the Census data consider 'usual workplace' without distinction between hybrid and telecommuting activity, so Figure 13 shows this as a single category.

[23] Note that the 2005 and 2011 surveys appear to moderately overstate these proportions relative to the closest Census years.

Figure 13. Workplace location, Study Area, 2005 to 2022



The 2005 survey is an estimate from comparing workplace TAZ to home TAZ. The 2011 survey may be subject to sampling bias, as very few cell-phone-only households would have been sampled in 2011. Other survey cycles may be subject to non-response bias not entirely corrected for by weighting.

2011 NHS = Statistics Canada's National Household Survey, which complemented the Census in that year in lieu of a long-form Census form.

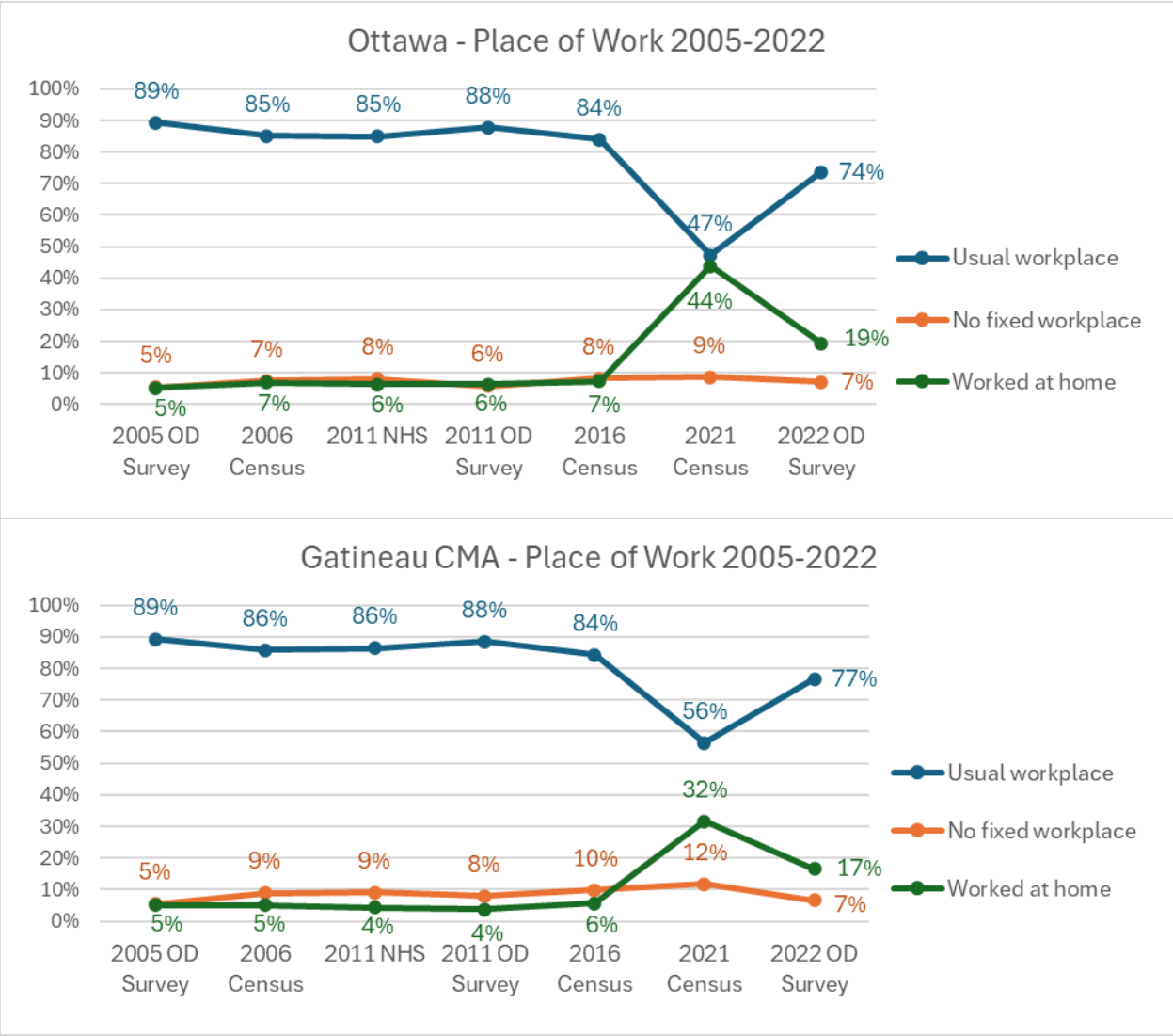
The 2016 and 2021 Censuses asked respondents whether and where they *usually* worked *most of the time* (worked from home, worked outside of Canada, had no fixed worked address, or worked at a specific address) in the week prior to the Census. In the 2021 Census, the reference week of May 2-8, 2021 was during a peak wave of the COVID-19 pandemic and many people were working from home even if they would otherwise normally commute to a usual workplace. The 2022 TRANS survey asked respondents to identify whether they had a usual workplace they travelled to *either regularly or occasionally*, no fixed workplace, or work *exclusively* from home. Even if some people were temporarily working from home or had hybrid work arrangements, the wording of the 2022 TRANS survey should capture a realistic picture of those with a usual workplace outside them home versus those whose work arrangements are entirely home-based.

However, according to the 2021 Census, across the Study Area only 50% reported a usual workplace and 41% worked from home in the week before the Census. As shown in Figure 14, these proportions varied between the two jurisdictions. In Ottawa, the proportions were almost equal, with 47% having a usual workplace and 44% working from home. In the Gatineau CMA, more than half (56%) of workers had a usual workplace but only one-third (32%) worked from home. The proportion of workers with no fixed workplace rose slightly to 10% across the Study Area.

The high 2021 WFH proportions reflect the dominance of the Federal government and high-tech sectors in the Study Area, although the differences between Ottawa and the Gatineau CMA are important.[24] While these WFH proportions are not unexpected, and the Census and survey results are not directly comparable, the 2022 TRANS survey proportions suggest that the pandemic has had some ongoing effects.

[24] By comparison, the 'usual workplace' rates in Calgary dropped to 57.3% in the Calgary CMA and 64.6% in the Québec City CMA, according to 2021 Census data.

Figure 14. Workplace location, Ottawa residents, Gatineau CMA residents, 2005 to 2022



The 2005 survey is an estimate from comparing workplace traffic zones to home traffic zones. The 2011 survey may be subject to sampling bias, as very few cell-phone-only households would have been sampled in 2011. Other survey cycles may be subject to non-response bias not entirely corrected for by weighting.

2011 NHS = Statistics Canada's National Household Survey, which complemented the Census in that year in lieu of a long-form Census form.

The 2016 and 2021 Censuses asked respondents whether and where they *usually* worked *most of the time* (worked from home, worked outside of Canada, had no fixed worked address, or worked at a specific address) in the week prior to the Census. In the 2021 Census, the reference week of May 2-8, 2021 was during a peak wave of the COVID-19 pandemic and many people were working from home even if they would otherwise normally commute to a usual workplace. The 2022 TRANS survey asked respondents to identify whether they had a usual workplace they travelled to *either regularly or occasionally*, no fixed workplace, or work *exclusively* from home. Even if some people were temporarily working from home or had hybrid work arrangements, the wording of the 2022 TRANS survey should capture a realistic picture of those with a usual workplace outside them home versus those whose work arrangements are entirely home-based.

In particular, the share of workers who worked exclusively from home had almost tripled from pre-pandemic norms. Across the Study Area, the proportions reporting a usual workplace increased from 50% in 2021 to 74% in 2022, falling short of the pre-pandemic level of 84% in 2016. There was a corresponding reduction in the share of people working from home, relative to the 41% proportion recorded in the 2021 Census. Even so, 19% (almost one in five workers) still worked from home in fall 2022, which is almost triple the pre-pandemic proportion of 7% observed in the 2016 Census.

However, with the emergent hybrid workplace environment, the rebound in those reporting a usual workplace does not necessarily mean that average peak period travel volumes and public transit ridership levels have seen a similar rebound towards pre-pandemic levels. In fact, even though population has grown since 2011, results presented later in this report will show that travel to the usual workplace is lower in the AM peak period than in 2011 and that public transit ridership is also lower in the AM peak and throughout the entire day. It is also too soon to tell whether and how much the 2022 proportions will continue to shift as workplace policies evolve.

3.5.3 Hybrid work patterns

Figure 15 describes hybrid work patterns observed in 2022 for full-time workers who had a usual place of work outside the home. [25] Several observations can be made:

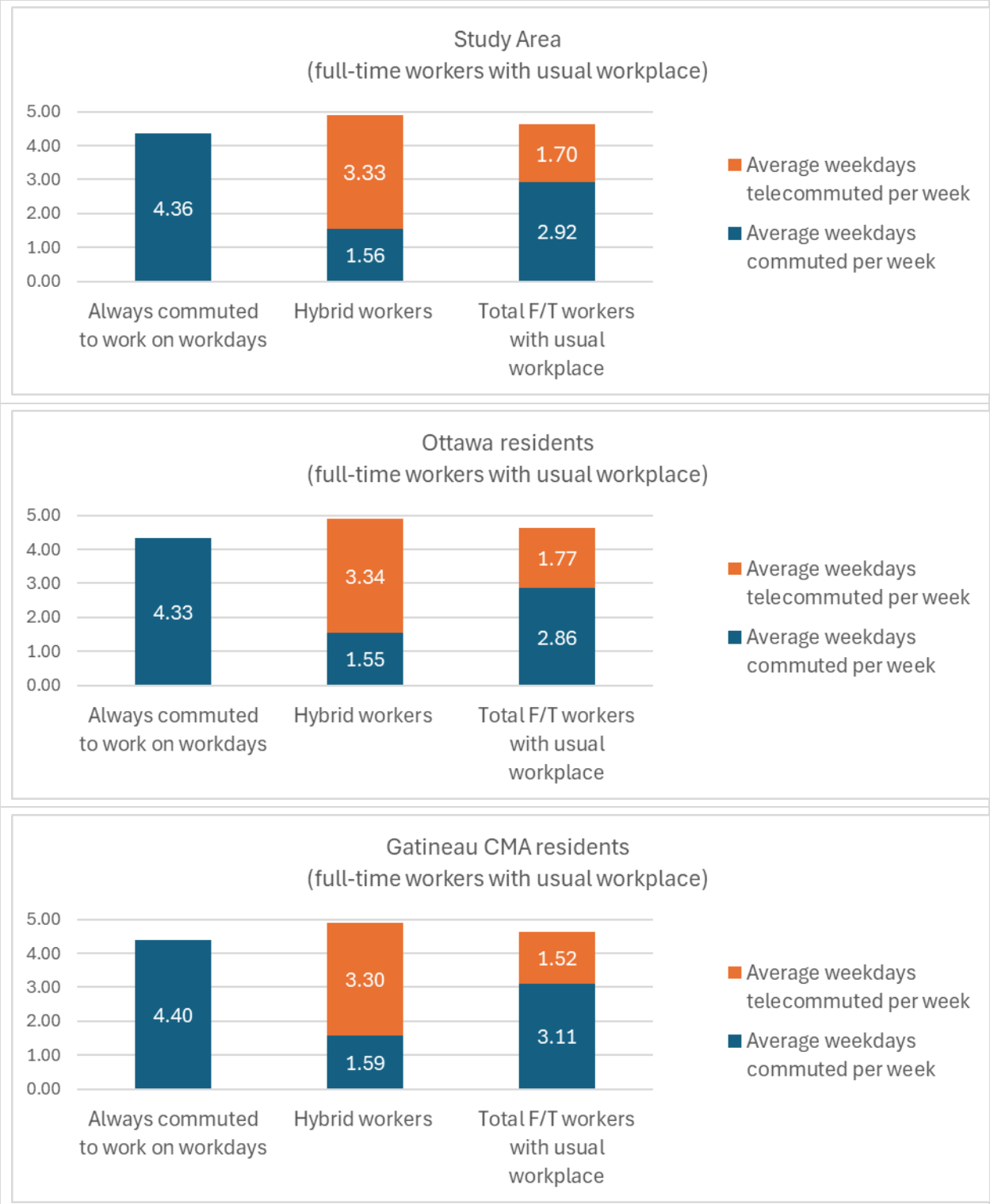
- **Half of all workers with a usual workplace telecommuted at least one weekday in the last week.** In addition to the increase in people working from home, half (51%) of all workers residing in the Study Area who have a usual workplace have hybrid work arrangements and telecommuted on at least one weekday (i.e., when they do not travel to work or for a work-related trip) in the week previous to participating in the survey. The proportion is slightly higher in Ottawa, at 53%, but lower among Gatineau CMA workers, at 46%.
- **On an average weekday, one-third of workers with a usual workplace worked from home.** On an average weekday, one-third (34%) of full-time workers living in the Study Area having a usual workplace outside the home, work from home (35% of Ottawa workers and 30% of Gatineau CMA workers). The work-from-home proportions were highest on Mondays and Fridays, at 38% and 39% respectively. These days also saw the lowest proportions of people working, whether at a workplace or at home (a total of 90% reported working on Friday and 91% on Monday, compared with 94% on other weekdays): These proportions were similar for both Ottawa and the Gatineau CMA. The day-to-day variations are consistent with flex day practices and with Mondays and Fridays being more common days for people to take vacation days.

Figure 16 shows the average numbers of weekdays commuted and telecommuted in the previous week, examining just full-time workers with a usual workplace. Hybrid workers telecommuted (worked from home) an average of 3.33 days per week, for an overall average among all full-time workers with a usual workplace of 1.70 days per week. Interestingly, all workers who commuted exclusively to a usual place of work average 4.36 working days each week. The proportions were largely consistent across the Study Area, except for the overall average of 1.52 telecommuting days per week among Gatineau CMA workers.

[25] The content in this section focusses on full-time workers with a usual workplace outside the home. Filtering to those workers provides a clear picture of those most associated with changes in workplace location and hybrid work arrangements. Part-time workers with a usual workplace and workers with no fixed workplace are not included.

Figure 15. Hybrid work patterns – full-time workers, usual workplace outside the home, 2022

Figure 16. Average number of weekdays commuted, telecommuted in previous week, full-time workers with usual workplace, 2022

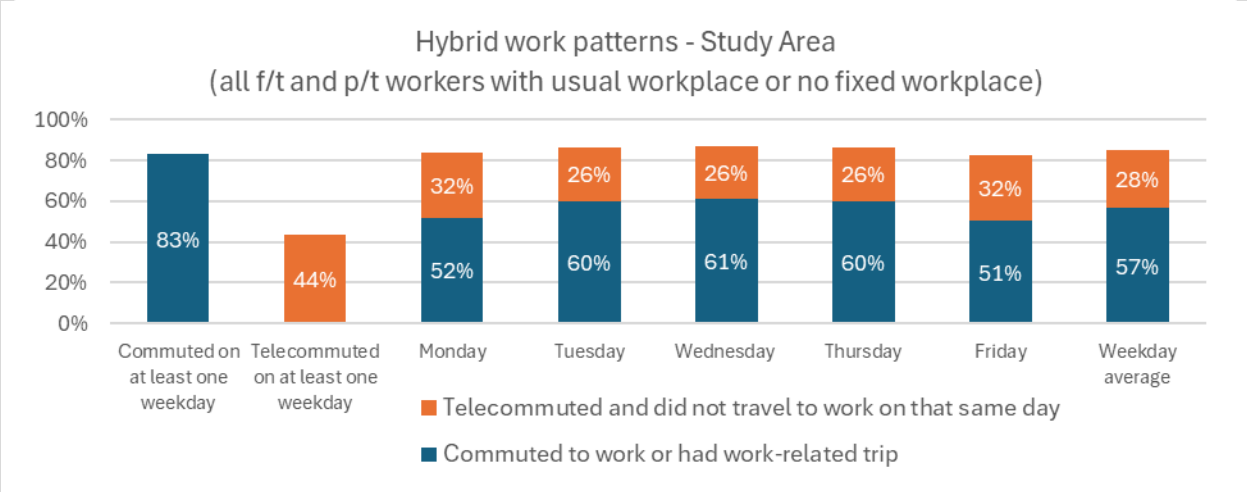


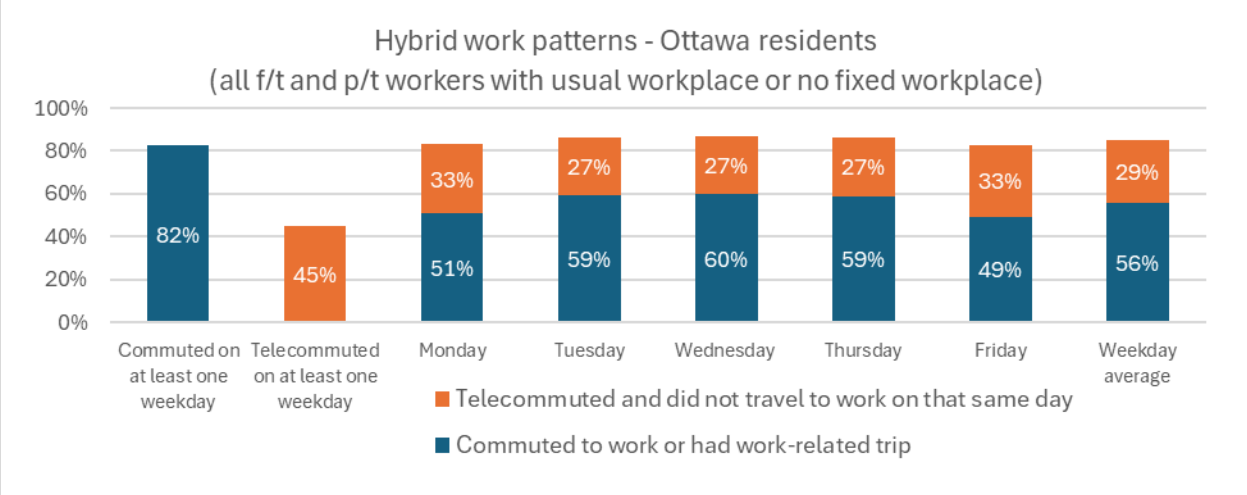
The preceding charts (in Figure 15 and Figure 16) focussed on full-time workers with a usual workplace outside the home, as filtering to those workers provides a clear picture of those most associated with changes in workplace location and hybrid work arrangements. Part-time workers with a usual workplace were not included in these charts because they are somewhat less likely to have the opportunity for hybrid work arrangements, and often work fewer than five days per week to begin with. Workers with no fixed workplace also were not included in the preceding charts because some of those with no fixed workplace would have already had flexible work arrangements prior to the pandemic, although some may always work at worksites away from home.

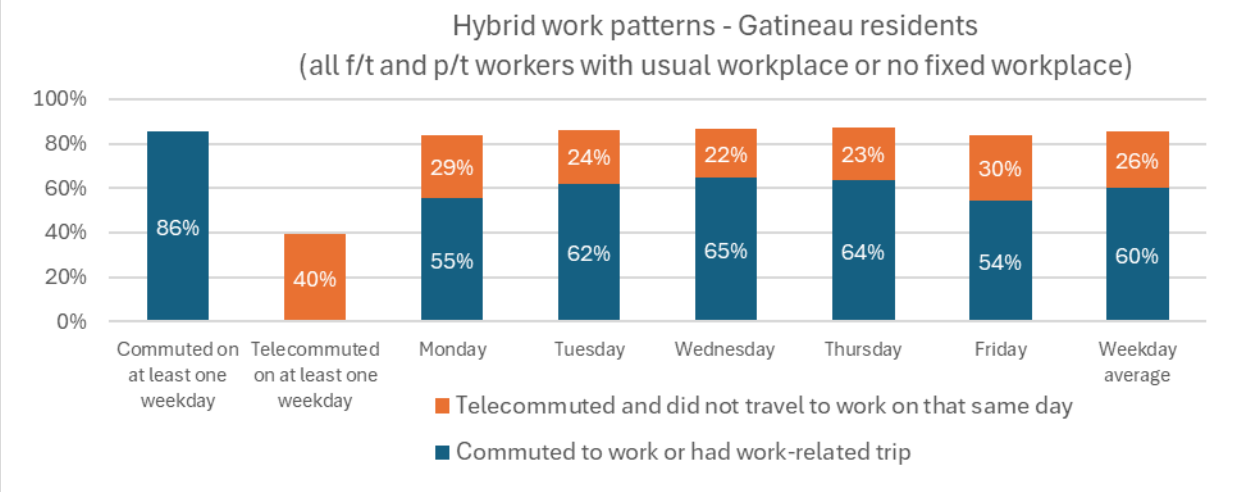
To support its Transportation Master Plan, the City of Ottawa has conducted a similar analysis to the preceding discussion, but including all workers other than those who work exclusively from home – i.e., including full-time and part-time workers with a usual workplace as well as full-time and part-time workers with no fixed workplace address. With this in mind, Figure 17 and Figure 18 present similar statistics to those discussed above for all workers other than those who work exclusively from home. The results show generally higher proportions of workers who commuted on at least one weekday and lower proportions of workers who telecommuted on at least one weekday. The average numbers of weekdays commuted, whether working exclusively from the workplace or having a hybrid arrangement, are also lower.

It should be noted that Figure 17 and Figure 18 look at Ottawa residents separately from Gatineau CMA residents. As a result, the figures may not align with other analyses in the City of Ottawa's Transportation Master Plan report that examine the commuting patterns for workers with jobs in Ottawa (i.e., jobs in Ottawa held by persons living within City of Ottawa as well as those living in Gatineau CMA) versus jobs in Gatineau (held by persons living within Gatineau CMA as well as those living in Ottawa).

Figure 17. Hybrid work patterns – full-time and part-time workers with usual workplace or no fixed workplace (only excludes exclusively work from home), 2022







For the purpose of the chart above, "hybrid work patterns" also includes those with no fixed workplace who worked from home at least one day in the previous week.

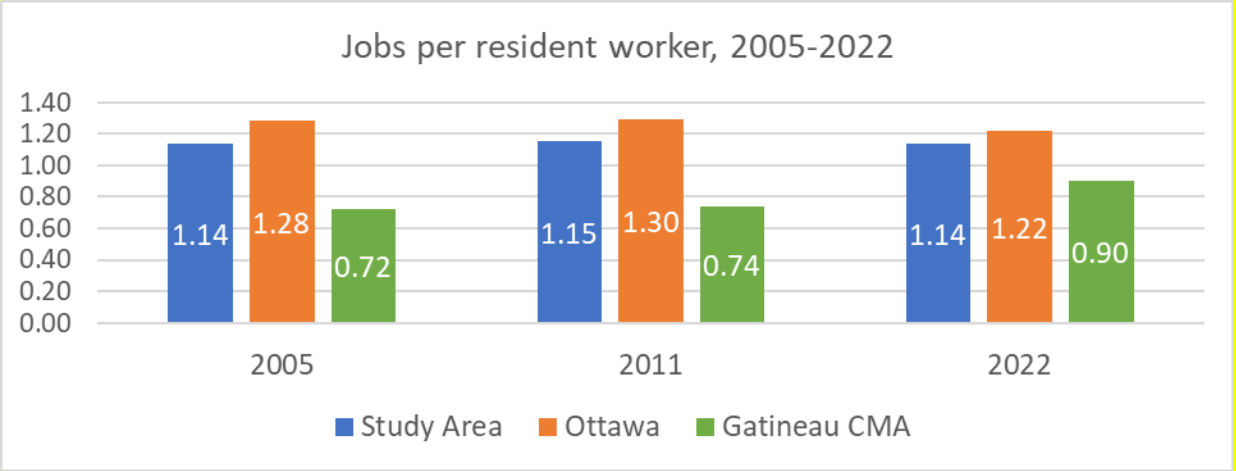
Figure 18. Average number of weekdays commuted, telecommuted in previous week, full-time and part-time workers with usual workplace or no fixed workplace (only excludes exclusively work from home), 2022

3.5.4 Workplace location and cross-river commutes

To this point, the discussion has looked at characteristics at the home end: that is, where people live. The discussion considered the characteristics of the working population, whose habitual commuting patterns have traditionally dominated peak period travel, public transit use and more. However, where the workplace is located – where people work – also shapes commuting choices. Of particular interest to TRANS Committee members is the exchange of workers across the Ottawa River – that is, people who live in the Gatineau CMA and work in Ottawa and vice versa.

Figure 19 traces the respective rates of jobs per resident worker for the Study Area, the City of Ottawa and the Gatineau CMA, using survey and Census Journey to Work linkages from 2005 to 2022.[26] Table 9 provides supporting details. Note that for the purpose of comparisons reaching back to the 2005 survey, the employed population from the survey results is based on persons whose primary status is worker and excludes part-time workers who are students.

Figure 19. Jobs per resident worker, Ottawa and the Gatineau CMA, 2005-2022



[26] The region's commutershed extends beyond the NCR's boundaries. However, these external residents are not included in the survey Study Area.

Table 9. Jobs per resident worker, details, 2005-2022

Year	Study Area			Ottawa			Gatineau CMA		
	Employed Population *	Employ-ment (Jobs)	Jobs / Resident Worker	Employed Population *	Employ-ment (Jobs)	Jobs / Resident Worker	Employed Population *	Employ-ment (Jobs)	Jobs / Resident Worker
2022	681,600	776,351	1.14	508,300	620,109	1.22	173,300	156,242	0.90
2011	587,800	677,000	1.15	436,300	565,100	1.30	151,500	111,900	0.74
2005	543,200	616,700	1.14	401,300	514,100	1.28	142,000	102,700	0.72

Notes:

- Employed population includes only those workers whose primary occupation is full-time or part-time employment. For comparability with 2011 and 2005, the 2022 figures for employed population were filtered accordingly to exclude full-time and part-time students with part-time work and full-time students with full-time work (but including part-time students with full-time work). If the 2022 figures had included all workers, including students with a 'secondary' occupation status of worker, the figures for employed population for Ottawa, Gatineau, and the Study Area would be 548,500, 188,100, and 736,600 respectively, and jobs/resident worker would be 1.13, 0.83, and 1.05, respectively.
- Values may not add due to rounding.
- Sources:
  - Employed Population: from survey results.
  - Employment – Ottawa: 2001 and 2006 Employment Surveys, with refinements to estimates in 2001 and 2006 derived from building permits from 2001-2005 and 2006-2011, respectively.
  - Employment – Gatineau CMA: 2005 Liste des industries et commerces (LIC), provided by Ville de Gatineau; 2007 LIC for Ville de Gatineau projected to 2010 provided by Emploi-Québec, with estimations for other municipalities in the survey Study Area prepared by MTQ based on the 2006 Census, LFS 2005-2009, and property data from the Ministère des Affaires municipales, des Régions et de l'Occupation du territoire;
  - Employment – Ottawa and Gatineau CMA, 2022: The 2022 estimate was derived from two sources: (1) survey estimates of workers residing within the Study Area who have a usual workplace inside the Study Area (excluding external workplaces) or who work from home or have no fixed workplace address and (2) 2021 Census commuter flow data for workers residing outside the Study Area with a usual place of work in the Study Area, scaled to mitigate impact of COVID work-from-home trend on usual workplace commuter flow data, scaled for growth in employment from comparison of Labour Force survey data for Oct-Nov 2021 to Oct-Nov 2022. The City of Ottawa's most recent estimates of jobs derived from pre-pandemic (2018) employment summaries suggest a total of 755,568 jobs in the Study Area (649,075 in Ottawa, 106,493 in the Gatineau CMA), which is a similar order of magnitude to the 2022 estimate in the table, albeit with a different distribution by geography, and possible differences in the accounting of workers with multiple jobs. Institut de la statistique du Québec (ISQ) estimates suggest 210,800 jobs in 2022, 193,100 in 2011, and 180,000 in 2006 in the Outaouais administration region of Quebec, which is larger than Gatineau CMA portion of the Study Area.
  - It may also be noted that the 2022 number of jobs in the Study Area is a sum of the survey estimate for location of employment of residents of the Study Area, plus 2021 Census Journey-to-Work data for those living outside the Study Area scaled upwards to reflect the increase in returns-to-work between 2021 and 2022 (See Section 3.5.1).

It can be observed that:

- Historically, the Study Area has had more jobs than resident workers, with the shortfall made up by workers who live in the adjoining areas outside the Study Area.[27]
- Within the Study Area, historically Ottawa has been a net importer of work trips, having more jobs than it has working residents. The Gatineau CMA has been a net exporter of work trips, with more working residents than jobs.
- Measured across the Study Area as a whole, this trend continues to hold at 1.14 jobs per worker in 2022 compared with 1.15 jobs per worker in 2011. It is important to note that the 2022 job figures are estimates – see note following Table 9.
- The Gatineau CMA's gap has closed to 0.90 jobs per resident worker in 2022, from 0.74 jobs per resident worker in 2011 and 0.72 jobs per resident worker in 2005. This has been accompanied by a modest drop in the jobs per resident worker in Ottawa to 1.22, from 1.30 in 2011 and 1.28 in 2005. Nonetheless, there is still a strong out-commute from the Gatineau CMA to Ottawa.

The increase in jobs per resident worker in the Gatineau CMA appears to be the product of the increase in workers who work exclusively from home (who count towards the total number of jobs in CMA). As presented earlier in Section 3.5.2, the proportion of Gatineau workers who work exclusively from home has increased from 4% at the time of the 2011 survey to 17% in 2022. A further exploration of the survey data revealed a concurrent shift in the proportion of Gatineau residents who work in Ottawa, dropping from 37% in 2011 to 31% in 2022.[28] In terms of absolute numbers, the survey data suggest that the number of Gatineau residents who work in Ottawa is about on par with 2011 (about 55,600 in 2011 and 55,500 in 2022). So, the 14% increase in the total workers living in the Gatineau CMA would not necessarily result in an increase in southbound work commutes. The survey data also suggest a modest increase in the number of Ottawa residents who work in the Gatineau CMA (from about 20,100 in 2011 to 22,900 in 2022), although this would not necessarily result in an equal

[27] Although now dated, a further analysis of travel patterns between the Study Area (NCR) and its extended commutershed can be found in the 2011 National Capital Region Travel Trend Study (www.ncr-trans-rcn.ca/model/transportation-demand-studies/).

[28] For comparability, this analysis was undertaken for residents whose primary status is worker. The 2011 survey did not capture workplace location for participants whose primary occupational status was student who also work, nor did it always capture workplace location for people who reported being both retired and employed part-time or a homemaker and employed part-time. Therefore, for this comparison, the 2022 survey data were filtered to exclude those who reported both working and being a student, homemaker, or retired.

increase in northbound work commutes given the rise in hybrid work.[29]

Readers are reminded that the 2022 survey was conducted at a unique point in time in relation to the COVID 19 pandemic. If there are changes since 2022 in the proportion of fully-remote workers—for example, possible shifts in work arrangements for some fully-remote workers to hybrid work—in future surveys, one may expect to see shifts in the number of jobs per resident worker in Ottawa and in the Gatineau CMA in the direction towards the pre-pandemic statistics.

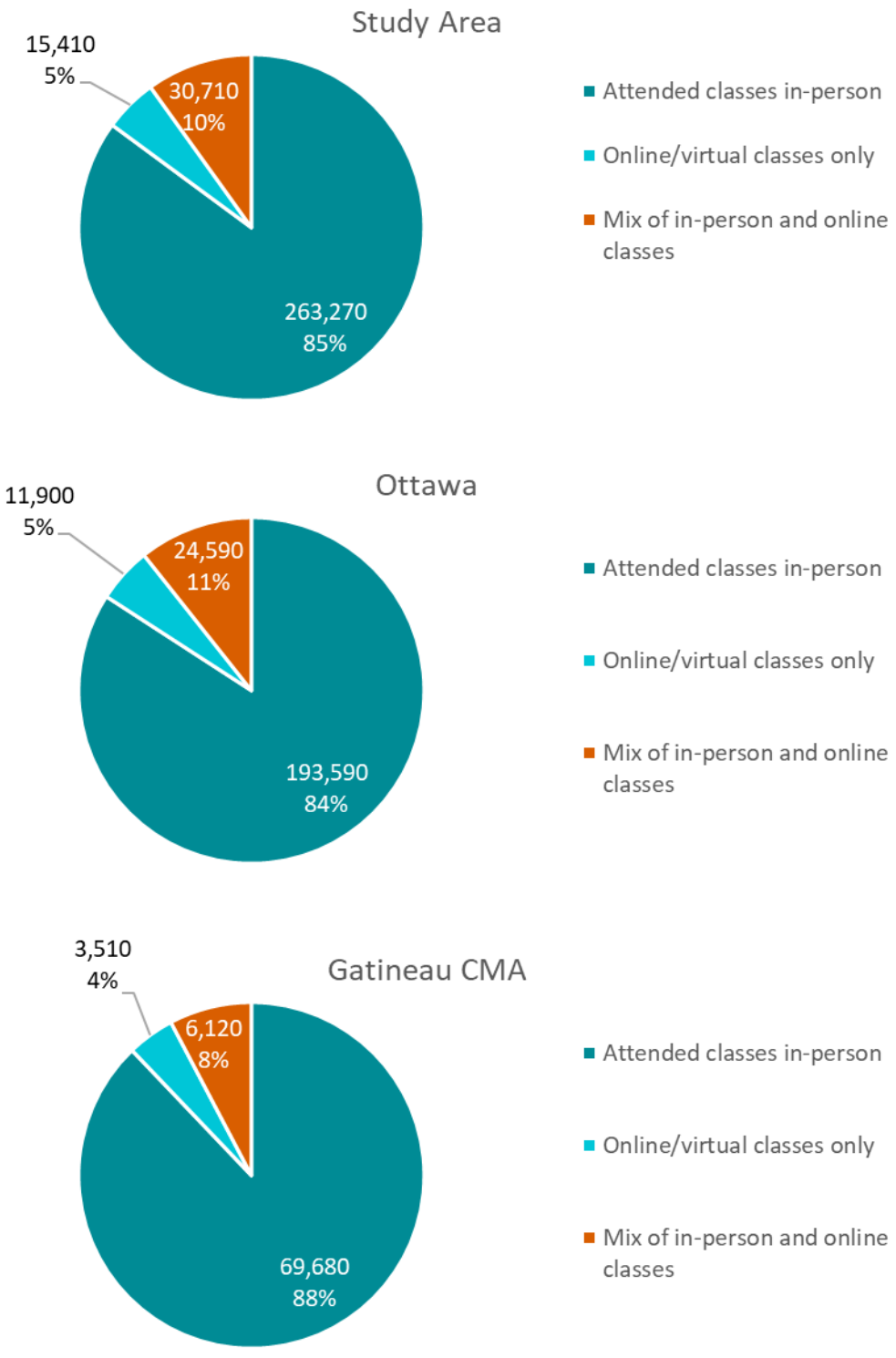
3.5.5 In-person or virtual schooling

Following on the work from home topic, students were asked if they attend classes in person, attend school online or virtually only, or a mixture of in-person and online classes. Figure 20 summarizes the results. These figures include both grade school and post-secondary students combined.

It can be seen that **85% of Study Area students attended in-person classes**, with another 5% attending online/virtual classes only and the remaining 10% having a mix. The proportion of Ottawa students attending in-person classes was slightly lower, at 84%, with a correspondingly slightly higher proportion of students having a mixed program, at 11%. A slightly higher proportion of Gatineau CMA students (88%) attended in-person classes, with a correspondingly slightly lower proportion having a mixed program, at 8%.

[29] The figures on the number of usual workplaces from the 2011 survey are estimates, the accuracy of which may be affected by the fact that the survey design did allow for the capture or workplace location for students work also worked and certain others who gave a primary occupational status other that working. Note also that the figures from the survey data may differ from 2011 and 2021 Census journey-to-work commuter flow data, in part due to methodological differences, particularly for the 2011 survey, and due to the fact that workplace location and commuter flow patterns at the time of the 2021 Census were heavily impacted by the effects of the COVID-19 pandemic.

Figure 20. In-class and virtual schooling, 2022



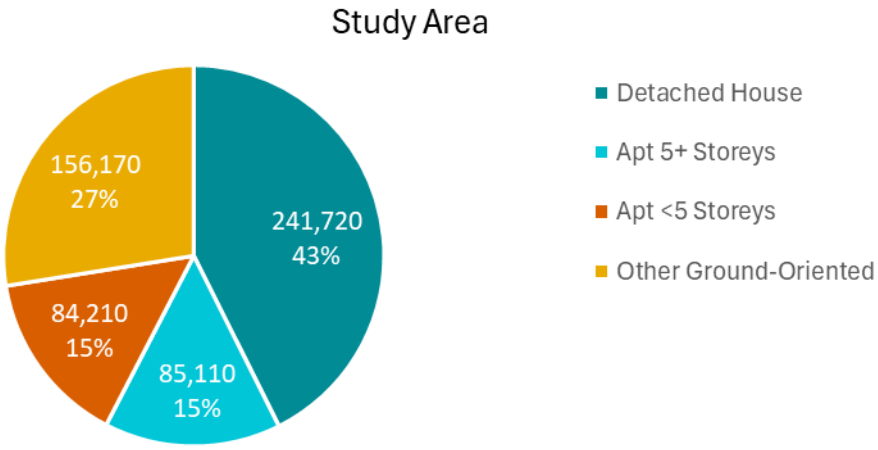
3.6 Household and dwelling characteristics

3.6.1 Dwelling type

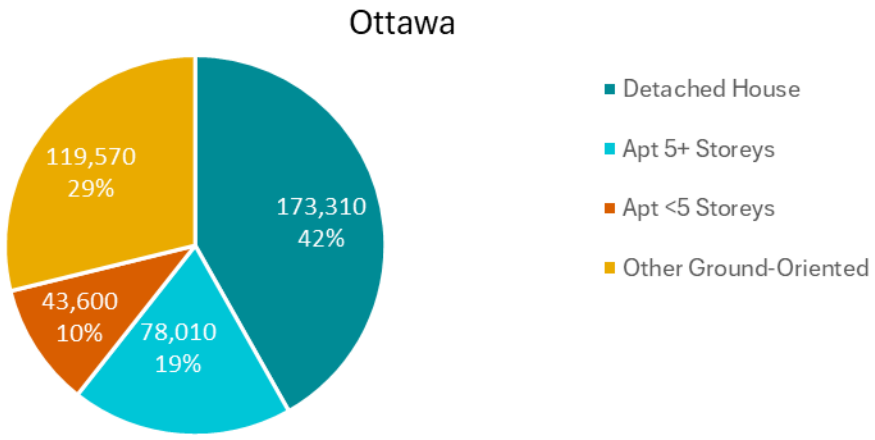
Dwelling type can be an indicator of development density and sprawl, with higher densities generally reflecting a more efficient use of land and being more conducive to the use of public transit, cycling or walking. Figure 21 shows the breakdown of private dwelling types, according to four categories: detached house, apartment 5+ storeys, apartment less than 5 storeys and other ground-oriented dwellings.[30] As dwelling type was used as a weighting control, the survey data align very closely with the Census.

Across the Study Area, ground-oriented dwellings represent 70% of all private dwellings. The remaining 30% are divided equally between apartments 5+ storeys and apartments less than 5 storeys. The breakdowns between ground-oriented dwellings and apartments are largely the same in Ottawa (71% versus 29% respectively) and in the Gatineau CMA (69% versus 31% respectively). However, while buildings of 5+ storeys dominate the apartment share in Ottawa (19% of all dwellings), in Gatineau they are only a small share (5% of all dwellings).

Figure 21. Dwelling type, 2022



[30] Detached houses constitute the most common type of ground-oriented dwelling. "Other ground-oriented dwellings" comprise rowhouses/townhouses, semi-detached houses, suites in a house and mobile homes.



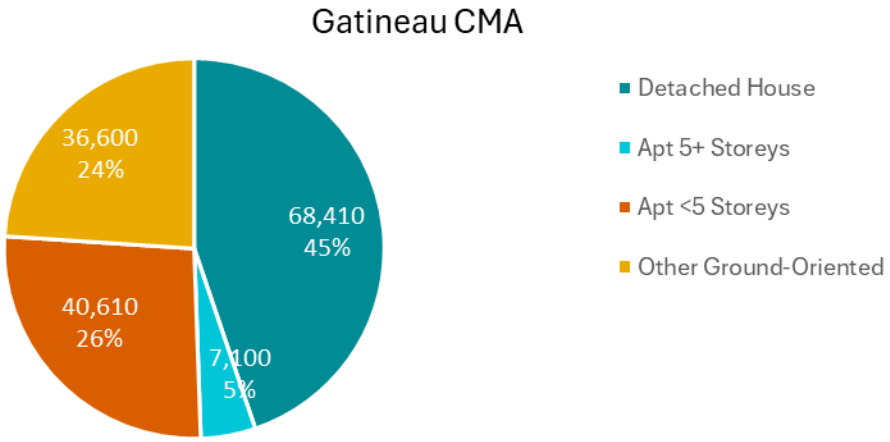


Table 10 adds details by nine sub-areas. Within Ottawa, there are five 'transects' as defined in Ottawa's Official Plan: These are the Downtown Core, Inner Urban, Outer Urban / Greenbelt, Suburban and Rural. Within the Gatineau CMA, four geographies were defined: Downtown Gatineau, areas of Transit Oriented Development, the Rest of Gatineau and the Rest of the CMA (see Figure 2 in the introductory chapter of this report). The table also lists the distribution of population by dwelling type. Of note:

- The proportions of dwelling types vary by sub-area. Apartments (i.e., dwellings in high-density buildings) dominate in Ottawa's Downtown Core (85% of all dwellings) and in Downtown Gatineau (70%). Detached houses dominate in the rural areas (94% in rural Ottawa and 88% in the Rest of the Gatineau CMA). Detached houses are also prevalent outside the two cores, representing more than half (53%) of Suburban Ottawa dwellings and 40% of Rest of Gatineau dwellings. Interestingly, 52% of Gatineau's Transit-Oriented Development area dwellings are apartments less than 5 storeys.

- More than half the Study Area population (52%) lives in detached houses (43% of the total stock of private dwellings) – consistent with the larger average household sizes that are typically associated with larger dwellings (see next section). Nineteen percent of the Study Area population lives in the 30% of dwellings that are apartments – again consistent with the smaller average household sizes that are typically associated with smaller dwellings. These distributions are largely similar in Ottawa and the Gatineau CMA, although in the Gatineau CMA most apartment dwellers (19% of the population) live in apartments less than 5 storeys (26% of the total stock). The distributions of population vary by sub-area within Ottawa and within the Gatineau CMA.

Table 10. Dwelling type details by sub-area

		Region		Ottawa					Gatineau CMA			
	Study Area	Ottawa	Gati-neau CMA	Down-town Core	Inner Urban	Outer Urban / Green-belt	Sub-urban	Rural	Down-town Gati-neau	Transit-Oriented Develop-ment	Rest of Gati-neau	Rest of CMA
Total Private Dwellings	567,210	414,490	152,720	43,260	81,060	114,480	141,610	34,070	6,810	14,850	106,370	24,690
Detached house	43%	42%	45%	4%	25%	38%	53%	94%	9%	26%	40%	88%
Apt 5+ Storeys	15%	19%	5%	58%	31%	22%	2%	0%	30%	4%	4%	0%
Apt <5 Storeys	15%	11%	27%	27%	21%	7%	5%	1%	40%	52%	28%	3%
Other Ground-Oriented	28%	29%	24%	12%	22%	33%	40%	5%	21%	18%	28%	9%
Population living in private dwellings	1,365,620	1,014,410	351,220	70,740	167,770	280,350	402,720	92,810	11,260	29,260	249,000	61,710
Detached house	52%	52%	53%	7%	35%	47%	61%	96%	14%	35%	48%	90%
Apt 5+ Storeys	9%	12%	3%	51%	22%	14%	1%	0%	31%	3%	2%	0%
Apt <5 Storeys	10%	7%	19%	25%	16%	5%	3%	1%	32%	44%	20%	2%
Other Ground-Oriented	28%	30%	25%	17%	27%	34%	35%	4%	23%	19%	30%	8%

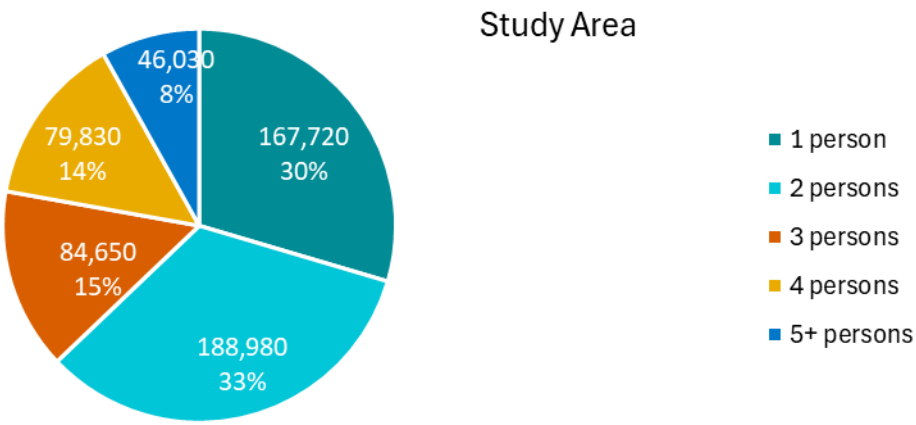
3.6.2 Household size

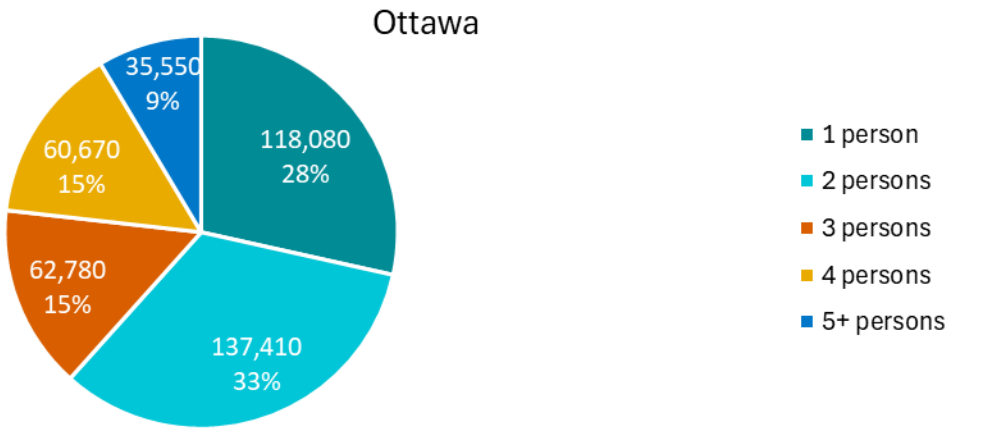
The stability in average household size (2.41 persons per household in 2022) was noted in Section 3.3. Figure 22 shows the breakdown of Study Area households by the number of occupants. Table 11provides further details by sub-area and Table 12 summarizes household size by dwelling type.

Almost two-thirds (63%) of households have 1 or 2 occupants, with the remaining 37% having 3 or more occupants. The proportions of 1- and 2-occupant households are slightly lower in Ottawa (61%), with a correspondingly slightly greater proportion of larger households (39%). In the Gatineau CMA, the proportions of smaller households are slightly higher (66%), with a correspondingly slightly lower proportion of larger households (34%).

These proportions vary by sub-area. One-person households comprise more than half the households in Ottawa's Downtown Core (56%) and Downtown Gatineau (58%) – consistent with the high proportion of apartments in these sub-areas. Two-person households are distributed approximately evenly, with lower proportions in the cores (29% in Downtown Gatineau and 31% in Ottawa's Downtown Core) and higher proportions in the rural areas (37% in the Rest of the Gatineau CMA and 39% in Rural Ottawa). Larger households are more evident in urban, suburban and rural sub-areas, commensurate with the larger, lower-density dwelling types (detached houses and other ground-oriented dwellings). Suburban and rural areas have the greatest proportions of 5+ households. In Ottawa, they make up 12% of Suburban Ottawa households and 10% of Rural Ottawa households. In the Gatineau CMA, they make up 7% of households in the Rest of Gatineau and 8% of households in the Rest of the CMA."

Figure 22. Household size, 2022





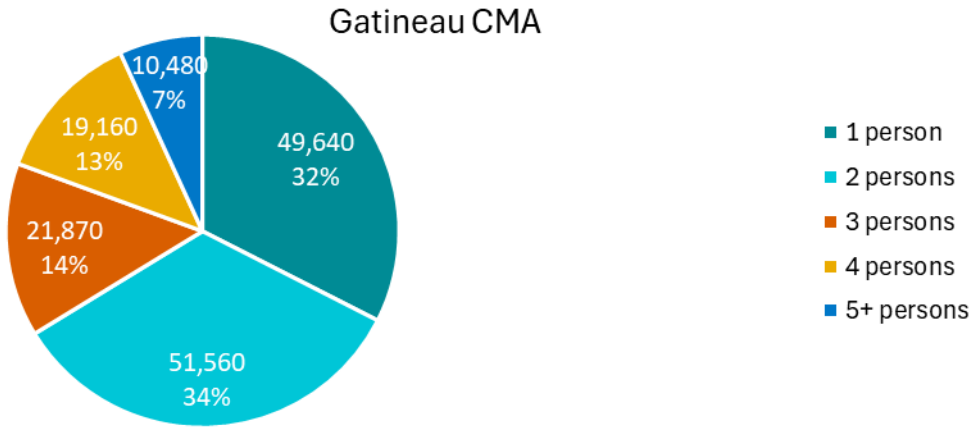


Table 11. Details of household size by sub-area

	Study Area	Region		Ottawa					Gatineau CMA			
		Ottawa	Gati-neau CMA	Down-town Core	Inner Urban	Outer Urban / Green-belt	Sub-urban	Rural	Down-town Gati-neau	Transit-Oriented Develop-ment	Rest of Gati-neau	Rest of CMA
Total Households	567,210	414,490	152,720	43,250	81,070	114,480	141,610	34,070	6,810	14,840	106,370	24,700
1 person	30%	28%	33%	56%	40%	28%	17%	16%	58%	44%	31%	23%
2 persons	33%	33%	34%	31%	34%	34%	32%	39%	29%	34%	33%	37%
3 persons	15%	15%	14%	7%	11%	16%	19%	17%	7%	11%	15%	16%
4 persons	14%	15%	13%	5%	10%	13%	21%	19%	4%	7%	13%	15%
5+ persons	8%	9%	7%	1%	5%	9%	12%	10%	3%	4%	7%	8%
Avg. household size	2.41	2.45	2.30	1.64	2.07	2.45	2.84	2.72	1.65	1.97	2.34	2.50

Table 12. Household size by dwelling type

	Dwelling Type	Total private dwellings	Household Size					
			1 person	2 persons	3 persons	4 persons	5+ persons	Total
Study Area	House	241,720	12%	34%	19%	22%	13%	100%
	Apt 5+ Storeys	85,110	62%	31%	5%	2%	1%	100%
	Apt <5 Storeys	84,210	56%	33%	6%	3%	2%	100%
	Other Ground Oriented	156,170	25%	34%	19%	14%	7%	100%
	Total	**567,210**	**30%**	**33%**	**15%**	**14%**	**8%**	100%
Ottawa	House	173,310	10%	33%	19%	23%	15%	100%
	Apt 5+ Storeys	78,010	61%	32%	5%	2%	1%	100%
	Apt <5 Storeys	43,600	56%	34%	7%	3%	1%	100%
	Other Ground Oriented	119,570	24%	35%	19%	15%	8%	100%
	Total	**414,490**	**28%**	**33%**	**15%**	**15%**	**9%**	100%
Gatineau CMA	House	68,410	16%	37%	18%	19%	10%	100%
	Apt 5+ Storeys	7,100	72%	20%	2%	3%	2%	100%
	Apt <5 Storeys	40,610	56%	31%	6%	4%	3%	100%
	Other Ground Oriented	36,600	29%	32%	20%	12%	6%	100%
	Total	**152,720**	**33%**	**34%**	**14%**	**13%**	**7%**	100%

Table 13 provides an alternate perspective, showing different-sized households broken out by aggregate ground-oriented and apartment dwelling types. As expected, larger households are more likely to live in ground-oriented dwellings. The profile of surveyed households is generally similar in Ottawa and Gatineau, excepting that about one in ten larger households live in apartments in Gatineau (9% of 4-person, 12% of 5+ households), as compared to less than one in twenty in Ottawa (4% of 4-person, 3% of 5+ households). Further research would be required to establish whether this is due to differences in the housing stock, such as more apartments with three or more bedrooms, or other reasons.

Table 13. Dwelling type by Household Size

	Dwelling Type	Household Size					
		1 person	2 persons	3 persons	4 persons	5+ persons	Total
Study Area	Total Households	167,700	189,000	84,600	79,800	46,000	567,200
	Ground Oriented	41%	72%	89%	95%	95%	70%
	Apartment	59%	28%	11%	5%	5%	30%
Ottawa	Total Households	118,100	137,400	62,800	60,700	35,600	414,500
	Ground Oriented	39%	71%	89%	96%	97%	71%
	Apartment	61%	29%	11%	4%	3%	29%
Gatineau CMA	Total Households	49,600	51,600	21,900	19,200	10,500	152,700
	Ground Oriented	44%	72%	89%	91%	88%	69%
	Apartment	56%	28%	11%	9%	12%	31%

3.6.3 Household income

Household income is a factor that can influence transportation choices – for example, whether or not a household has a vehicle. Figure 23 summarizes the proportions of households by income bracket. For comparison, Figure 24 shows the distributions for both the 2022 survey and the 2021 Census. It can be seen that:

- The responses reflected a greater proportion of lower-income households in the Gatineau CMA (less than $70,000) than in Ottawa, and more higher-income households in Ottawa ($100,000 and higher) than in the Gatineau CMA.
- In comparison to the Census, the survey data appear to somewhat under-represent lower-income households (less than $70,000) and over-represent higher-income households ($70,000 and above) in both Ottawa and the Gatineau CMA . This may in part be explained by income growth since Census reference year (household income in 2020) but may also suggest slight non-response bias amongst lower-income households.

Figure 23. Household income, 2022

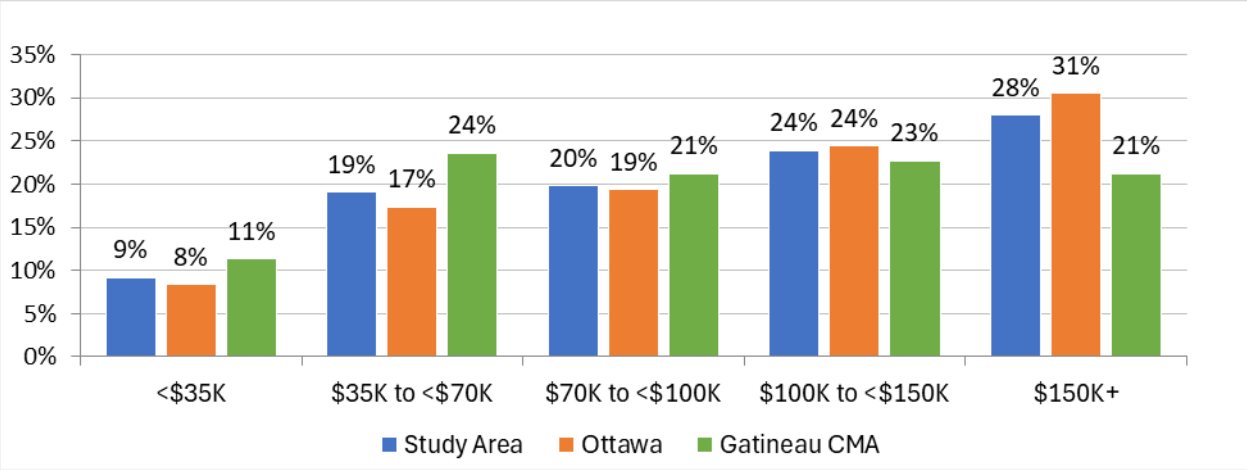


Figure 24. Household income, 2022 OD and 2021 Census

Note: These distributions reflect responses from the complete sample of the households that responded to the survey. Accordingly, these distributions are not necessarily representative of the population as a whole. Given that the number responding is a subsample, these data are not to be relied upon for any use other than information. However, for the survey records that do contain this information, in its future modelling and analytics, TRANS could use the data to better understand the travel patterns of households within different income brackets.

3.7 Vehicles and mobility

3.7.1 Vehicles and vehicle availability

There is a strong relationship between mode choice and the *availability* of a vehicle – in other words, if a household has a vehicle, it is likely to be used. This is especially true of workers, who tend to have priority over the use of the household vehicle for their commute to work. Table 14 summarizes the characteristics of households' vehicle availability.

Figure 25 shows how these characteristics have changed over time.

Vehicle availability remains high at 88% of all households, although this varies between the two jurisdictions. Vehicle availability is highest in the Gatineau CMA with 92% of all households having at least one vehicle, compared to 86% in Ottawa. Both rates are slightly higher than those recorded in 2011, which were lower than those of 2005. Meanwhile, in absolute terms households, private vehicles and households having at least one vehicle continue to grow in number.

Table 14. Vehicle availability to households, 2005-2022

	Study Area			Ottawa			Gatineau CMA		
	2005	2011	2022	2005	2011	2022	2005	2011	2022
Total Households	465,400	510,000	567,200	347,900	379,800	414,500	117,500	130,200	152,700
Private Vehicles	657,500	699,200	776,400	482,000	508,100	550,800	175,400	191,200	225,600
Avg. Vehicles per Household	1.41	1.37	1.37	1.39	1.34	1.33	1.49	1.47	1.48
% of Households with at least one Vehicle	88%	86%	88%	87%	84%	86%	91%	89%	92%

Figure 25. Vehicle availability to households, Study Area, 2005-2022

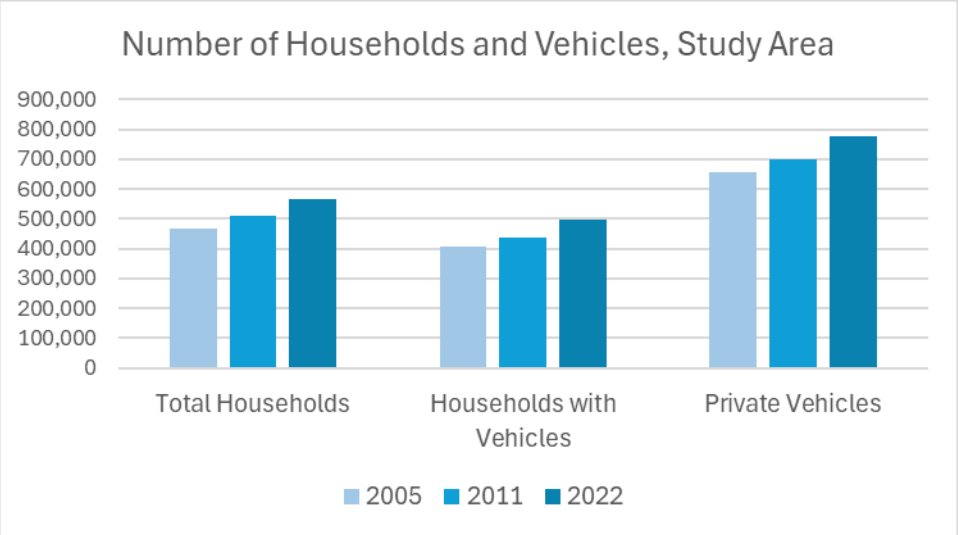


Figure 26 looks at how the proportions of 0, 1, 2 and 3+ vehicle households have changed over time. Table 15 provides additional details.

The overall average number of vehicles per household has been stable (marginal reduction in Ottawa and marginal increase in the Gatineau CMA). However, the distribution of these averages has shifted:

- **More one-vehicle households.** Growth in single-vehicle households has been faster than growth in multi-vehicle households. Table 15 shows that although a vehicle is available to most households and the number of households has increased, the single-vehicle households now comprise just under half of all households (49% in 2022 versus 45% in 2011).

Figure 26. Percent of households by number of vehicles, 2005-2022

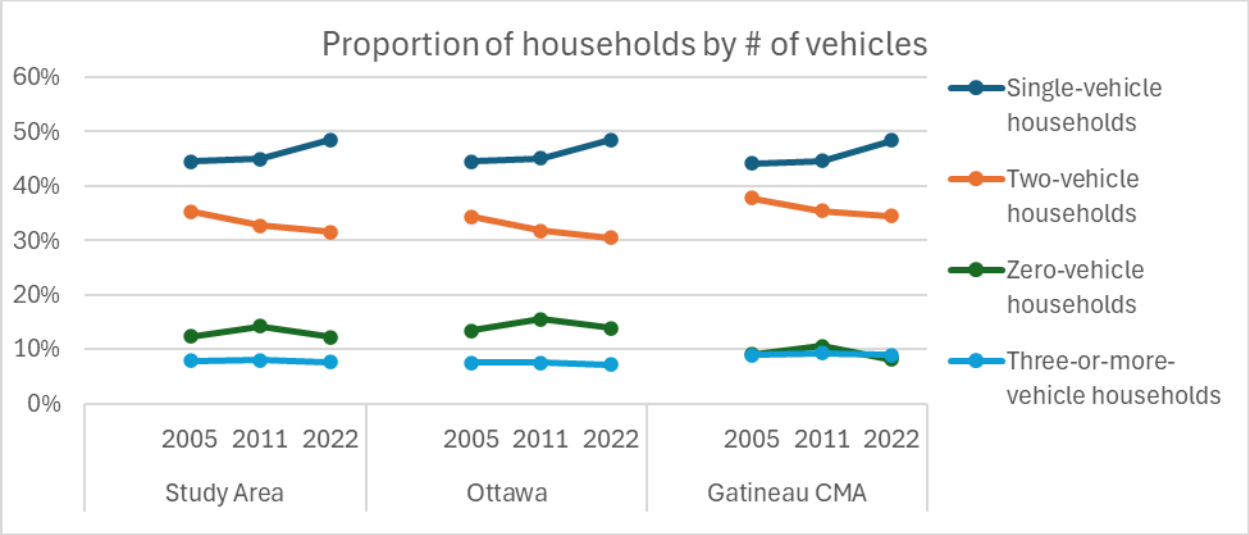


Table 15. Details of vehicles per household, 2005-2022

	Study Area		
	2005	2011	2022
Zero-vehicle households	57,400	72,800	69,700
Single-vehicle households	206,900	229,300	275,200
Two-vehicle households	164,200	167,100	179,000
Three-or-more-vehicle households	36,800	40,700	43,200
Total households	465,400	510,000	567,200
Total vehicles	657,500	699,200	776,400
Total vehicles in multi-vehicle households	450,500	469,900	501,200
Average number of vehicles in multi-vehicle households (two or more)	2.24	2.26	2.26

	Ottawa			Gatineau CMA		
	2005	2011	2022	2005	2011	2022
Zero-vehicle households	46,800	59,000	57,400	10,600	13,800	12,300
Single-vehicle households	155,000	171,300	201,200	51,900	58,100	74,000
Two-vehicle households	119,800	120,900	126,400	44,400	46,200	52,700
Three-or-more-vehicle households	26,300	28,600	29,500	10,500	12,100	13,700
Total households	347,900	379,800	414,500	117,500	130,200	152,700
Total vehicles	482,000	508,100	550,800	175,400	191,200	225,600
Total vehicles in multi-vehicle households	327,000	336,800	349,600	123,500	133,100	151,600
Average number of vehicles in multi-vehicle households (two or more)	2.24	2.25	2.24	2.25	2.28	2.28

- **Fewer zero-vehicle households.** Zero-vehicle households (69,700 households in 2022, or 12%) have decreased proportionately after a slight increase in 2011. Uniquely, these households also decreased in absolute terms, even with an overall growth in households and, again, after a slight increase in 2011.
- **Fewer multi-vehicle households, but vehicle availability remains stable.** The number of households with at least two vehicles has grown, though not as quickly as one-vehicle households. Their overall proportions have dropped slightly in Ottawa (to 37% in 2022 from 40% in 2011) and remained stable in the Gatineau CMA: at 44% in 2022 and 2011, the Gatineau CMA has a higher proportion of multi-vehicle households than Ottawa (although at less than half Ottawa's absolute number of multi-vehicle households). The proportions of three-or-more-vehicle households dropped marginally in Ottawa to 7% of all households in 2022 and stable in the Gatineau CMA at 9%. The average numbers of vehicle per multi-vehicle household remains stable, at 2.24 vehicles in Ottawa (a marginal reduction from 2011) and 2.28 vehicles in the Gatineau CMA.

3.7.2 Car-light and zero-car households

One objective of sustainable land use and transportation plans is to make alternatives to driving sufficiently convenient that households can avoid the need for a vehicle, or for a second vehicle. A comparison of the 2011 and 2022 surveys suggests that **a slight reduction in vehicle dependency is occurring** in the Study Area, as summarized in Table 16 and Figure 27. The table focuses on vehicle availability for households by number of workers who, as discussed in Section 3.3, are typically the priority users of a vehicle. For the purposes of this report, 'car-light' households are those that have vehicles, but fewer vehicles than workers.

In Ottawa, the reduction is evidenced by slight increases in the proportions of 'car-light' and zero-car 'working' households. In the Gatineau CMA, the reduction is also observed though only for zero-car working households: the proportion of car-light households has dropped slightly.

Table 16. Trends in 'car-light' households (examining number of vehicles compared to number of workers), 2011-2022

Vehicles in working households	2011			2022		
	Study Area	Ottawa	Gatineau CMA	Study Area	Ottawa	Gatineau CMA
1-worker households	162,500	119,900	42,500	186,400	134,700	51,600
No vehicles	16.5%	18.9%	9.8%	18.8%	22.0%	10.7%
At least one vehicle	83.5%	81.1%	90.2%	81.2%	78.0%	89.3%
Households with 2 or more workers	218,700	163,300	55,400	244,100	182,900	61,200
No vehicles	4.2%	5.1%	1.5%	4.3%	5.2%	1.4%
Fewer vehicles than workers (car-light household)	41.4%	44.0%	33.9%	42.7%	46.2%	32.1%
At least one vehicle per worker	54.4%	51.0%	64.6%	53.0%	48.5%	66.5%
All households with workers	381,200	283,200	97,900	430,500	317,600	112,800
No vehicles	9.4%	10.9%	5.1%	10.6%	12.3%	5.7%
Fewer vehicles than workers (car-light household)	23.8%	25.3%	19.2%	24.2%	26.6%	17.4%
At least one vehicle per worker	66.8%	63.7%	75.7%	65.2%	61.0%	76.9%

Vehicles in working households	%-pt change 2011 to 2022			Change in # of households 2011 to 2022		
	Study Area	Ottawa	Gatineau CMA	Study Area	Ottawa	Gatineau CMA
1-worker households				15%	12%	21%
No vehicles	2.3%	3.0%	0.9%	31%	30%	32%
At least one vehicle	-2.3%	-3.0%	-0.9%	12%	8%	20%
Households with 2 or more workers				12%	12%	10%
No vehicles	0.1%	0.2%	-0.1%	15%	16%	6%
Fewer vehicles than workers (car-light household)	1.3%	2.3%	-1.8%	15%	18%	5%
At least one vehicle per worker	-1.4%	-2.4%	1.9%	9%	7%	14%
All households with workers				13%	12%	15%
No vehicles	1.1%	1.4%	0.6%	27%	26%	28%
Fewer vehicles than workers (car-light household)	0.4%	1.3%	-1.8%	15%	18%	5%
At least one vehicle per worker	-1.6%	-2.7%	1.2%	10%	7%	17%

Figure 27. Trends in 'car-light' households, 2011-2022

For all households with workers:

- One in ten (10.6%) of working households did not have a vehicle in 2022. This represents an increase from 9.4% in 2011. The zero-car proportions are higher in Ottawa, reflecting 12.3% of working households in 2022 and 10.9% of households in 2011. In the Gatineau CMA, this corresponds to 5.7% of working households in 2022, from 5.1% of in 2011.
- Almost one in five (18.8%) 1-worker households did not have a vehicle in 2022 – up from 16.5% in 2011. In Ottawa, the proportion was 22.0% in 2022 and in the Gatineau CMA the proportion was 10.7% in 2022.
- Among Study Area households with 2 or more workers, 4.3% did not have a vehicle in 2022. The proportions were 5.2% in Ottawa (5.1% in 2011) and 1.4% in the Gatineau CMA (1.5% in 2011).
- Almost one in four (24.2%) working households in the Study Area were 'car-light' in 2022 – a slight increase from 23.8% in 2011. In Ottawa, 26.6% of working households were 'car-light' in 2022, compared with 25.3% in 2011. In the Gatineau CMA, 17.4% of working households were 'car-light' in 2022, representing a slight drop from 19.2% in 2011.
- The ratio of vehicles per worker has dropped slightly across the Study Area. In 2011, 66.8% of households had at least one vehicle per worker; in 2022, this proportion dropped to 65.2%. In Ottawa, the rate was 61.0% in 2022, down from 63.7% in 2011. However, the proportion rose slightly in the Gatineau CMA, to three-quarters (76.9%) of all working households in 2022, from 75.7% in 2011.

Though slight, these trends suggest that households' reliance on the private vehicle may be diminishing. The factors underlying this change are not known – in particular, the impact of the pandemic on the need to travel (hence a possible deferral of a vehicle purchase), the pandemic's impact on household finances, shortages in vehicle availability (hence higher purchase prices), food price inflation and other factors in 2022. These trends will continue to be monitored over time.

Independent of this, the higher percentage of 1-worker households with zero vehicles compared with 2+ worker households (18.8% and 4.3% respectively) might relate to factors such as household size and household income. Further research is needed to understand the underlying factors. It should also be noted that the numbers of 1-worker and 2+ worker households are comparable (43% v 57% of all Study Area households with workers), so a better understanding of the factors could provide important insights for policy.

3.7.3 Relationship to household size, composition and dwelling type

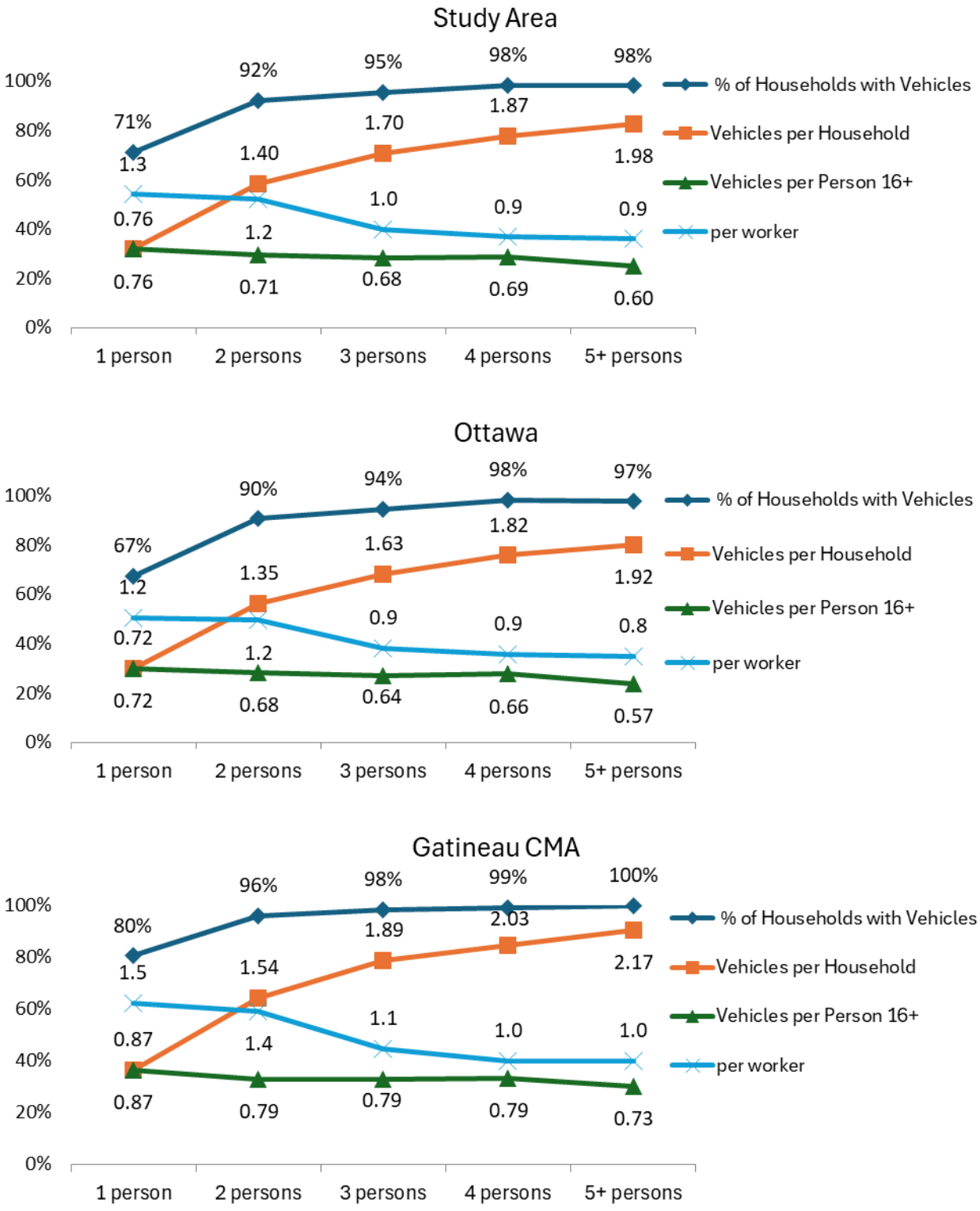
The next two figures show the relationship between vehicle availability and household characteristics.

Figure 28 shows the relationship of vehicle access with household size and composition.[31] It can be seen that:

- **Vehicle availability is virtually universal in the largest households.** A vehicle is available to 71% of one-person Study Area households. In Ottawa, 67% of one-person households have a vehicle available to them. In the Gatineau CMA, 80% of one-person households have a vehicle available to them. However, this proportion rises quickly as household size increases. Virtually all Study Area households with 4 or more members have access to a vehicle (98% of households).
- **The average number of vehicles per household rises quickly with household size.** 5+ person households have almost three times the number of vehicles as 1-person households, on average.
- **A vehicle is available to working Study Area household members, on average, except for the largest households.** There is at least 1 vehicle per worker, with 1.3 vehicles available on average in 1-person households (the occupant is a worker), 1.2 vehicles available for 2-person households and 1.0 vehicles available for 3-person households (at least one member is working). For larger households, availability is still strong, at 0.9 vehicles per household in 4 and 5+ person Study Area households. In the Gatineau CMA, on average, at least one vehicle is available for every worker, regardless of household size.
- **Driving-age (16+) persons on average, have relatively good access to a vehicle.** Even households that do not have a working member (e.g., households whose members are retired or do not work) tend to have access to a vehicle. The availability of vehicles per driving-age person drops gradually as household size increases, ranging from 0.76 vehicles per person 16+ in 1-person Study Area households to 0.60 vehicles per person 16+ in 5+ person households. The proportions are higher in the Gatineau CMA. In other words, if a household member is working, then the household is almost certain to have at least one vehicle. If no one in the household is working, then it is still likely that the household has a vehicle.

[31] Composition refers to the presence (or not) of working individuals in the household. The idea is to show vehicle availability by person and vehicle availability by working persons.

Figure 28. Relationship between vehicle availability and household size, 2022



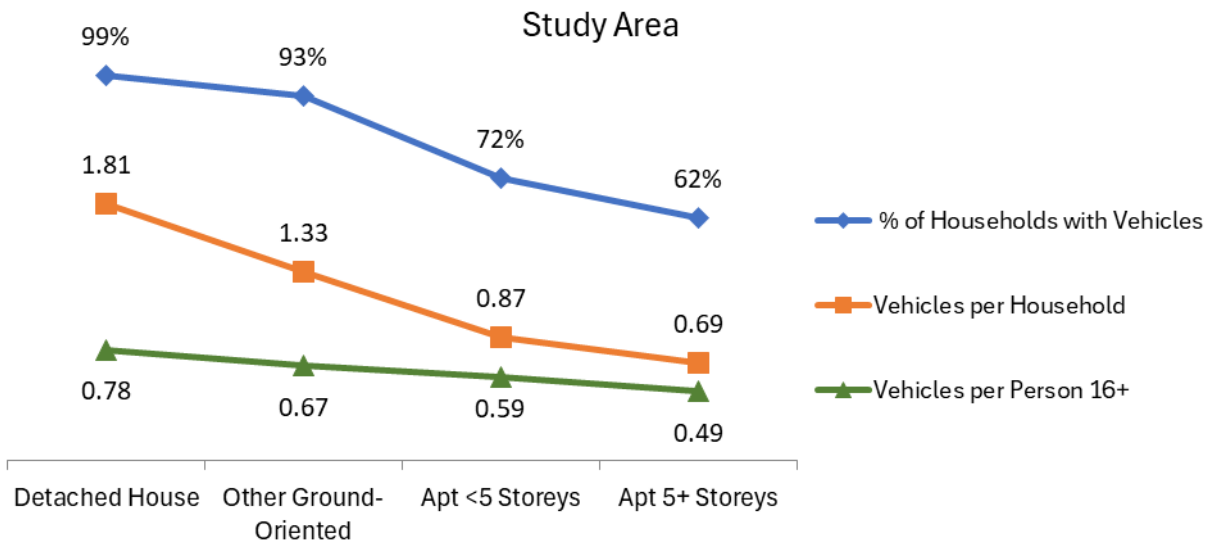
Note: Reflects vehicles accessible to households in private dwellings (i.e., excludes collective dwellings).

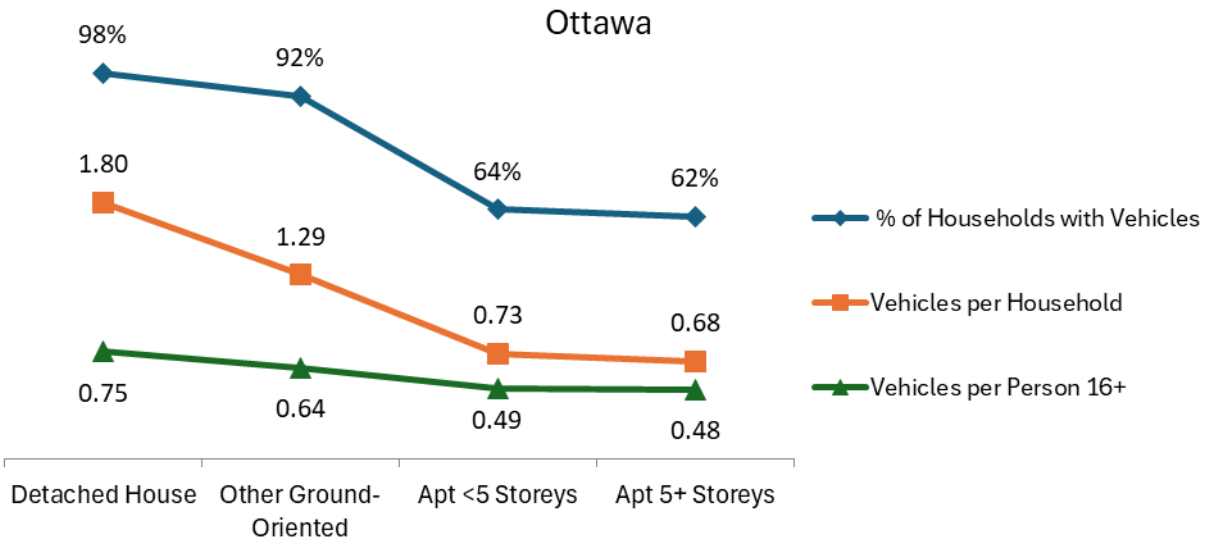
Dwelling type is also an indicator of vehicle availability. Figure 29 shows that:

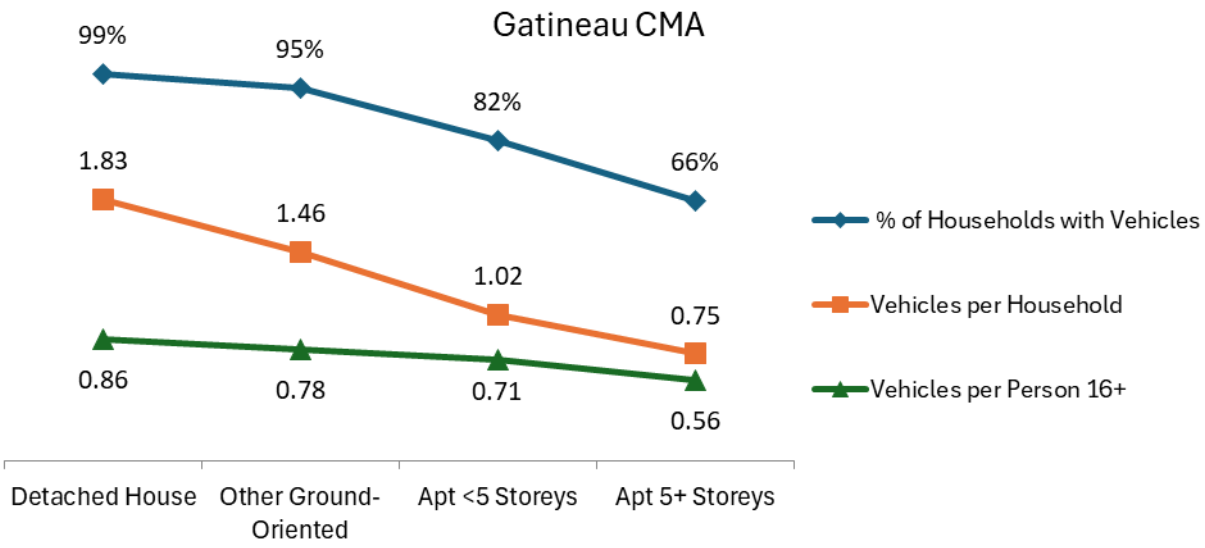
- **A vehicle is available to almost all detached houses and other ground-oriented dwellings**, with virtually all Study Area detached houses (99%) having access to a vehicle and 93% of other ground-oriented houses having access to a vehicle.
- **Households in higher-density buildings still have high vehicle availability**, at 72% of households in buildings less than 5 storeys tall and 62% of households in buildings with 5 or more storeys. In the Gatineau CMA, the rate is 82% of households in buildings less than 5 storeys tall, which are the dominant apartment type in the Gatineau CMA.
- **Vehicle access may be linked to density.** In other words, the more dwellings per unit area, the less likely a household will have a vehicle. Vehicle availability per driving-age person (16+) also drops with higher density, although the Gatineau CMA rate is greater for all dwelling types than the corresponding rates for Ottawa.

It is important to note that the findings described here reflect observed conditions. Further research is needed to understand the relationship of density with other factors, notably where the dwelling is located (e.g., dense core or low-density suburb), proximity to destinations like work or school, household composition and size, the number of workers in the household, household income and more.

Figure 29. Relationship between vehicle access and dwelling type, 2022







Note: Reflects vehicles accessible to households in private dwellings (i.e., excludes collective dwellings).

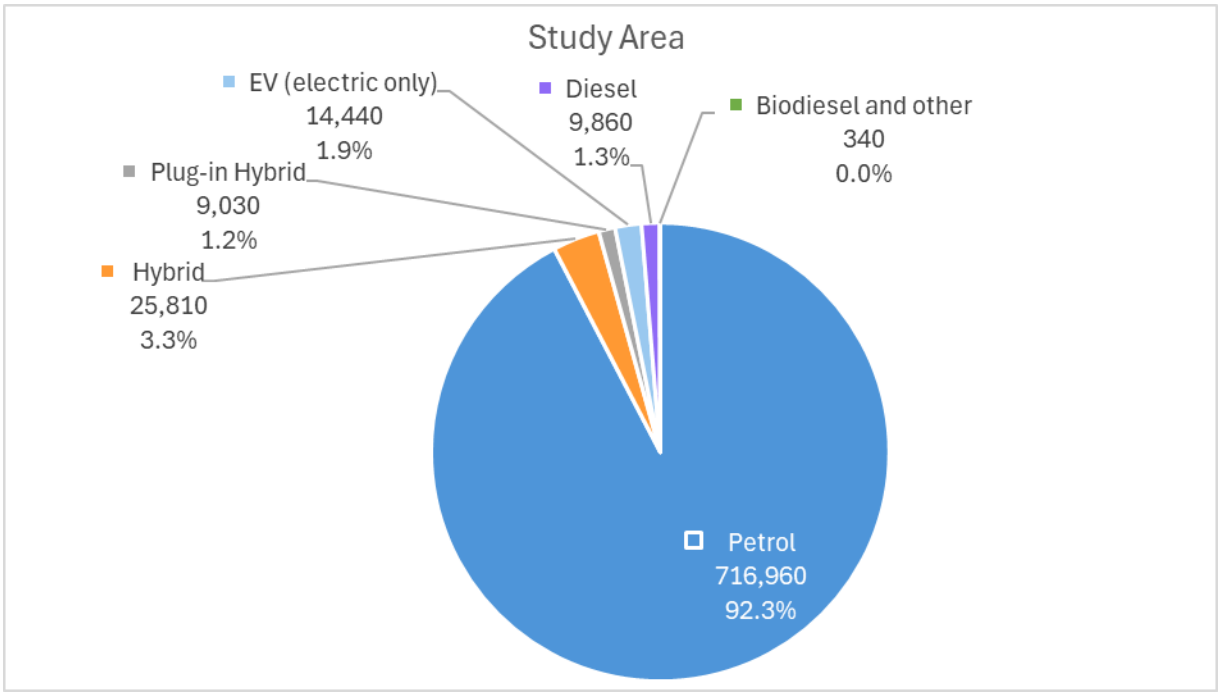
3.7.4 Vehicle fuel types

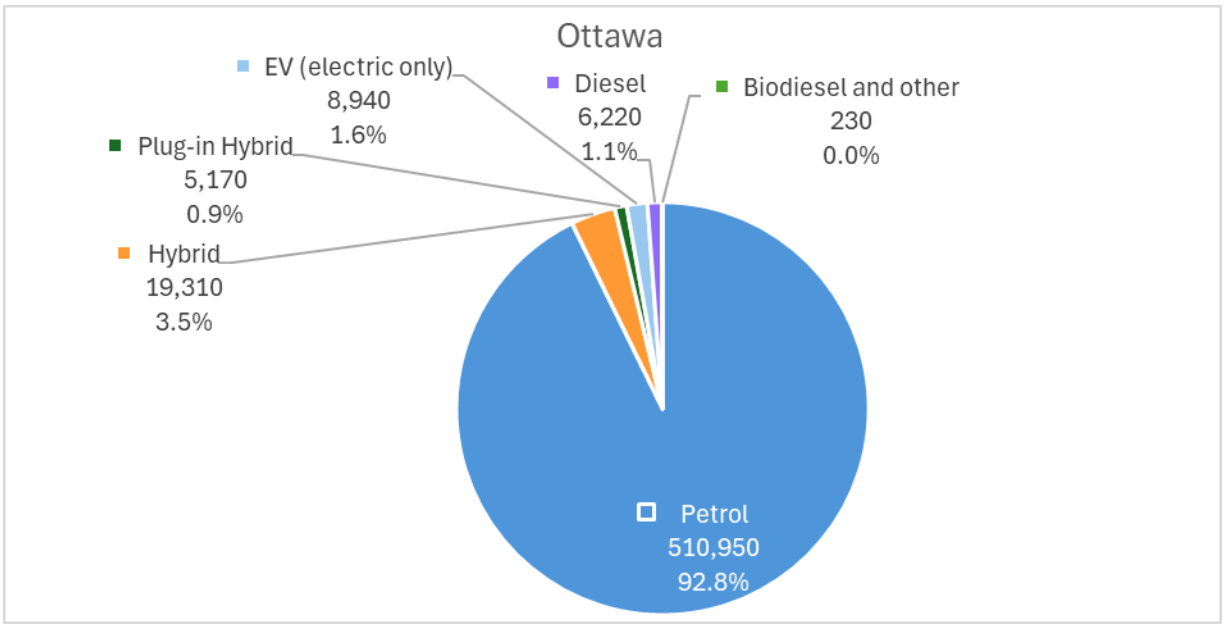
The 2022 survey asked whether any household vehicles were powered by fuels other than gasoline (petrol) – specifically, hybrids, plug-in hybrids, electric-only vehicles, diesel, biodiesel and other. These data were not collected in 2011. Figure 30 shows the breakdown of the vehicle population by fuel type. Figure 31 looks at the breakdown of households that have at least one 'green' alternative-fuelled vehicle (hybrids, plug-in hybrids, electric-only vehicles and biodiesel).

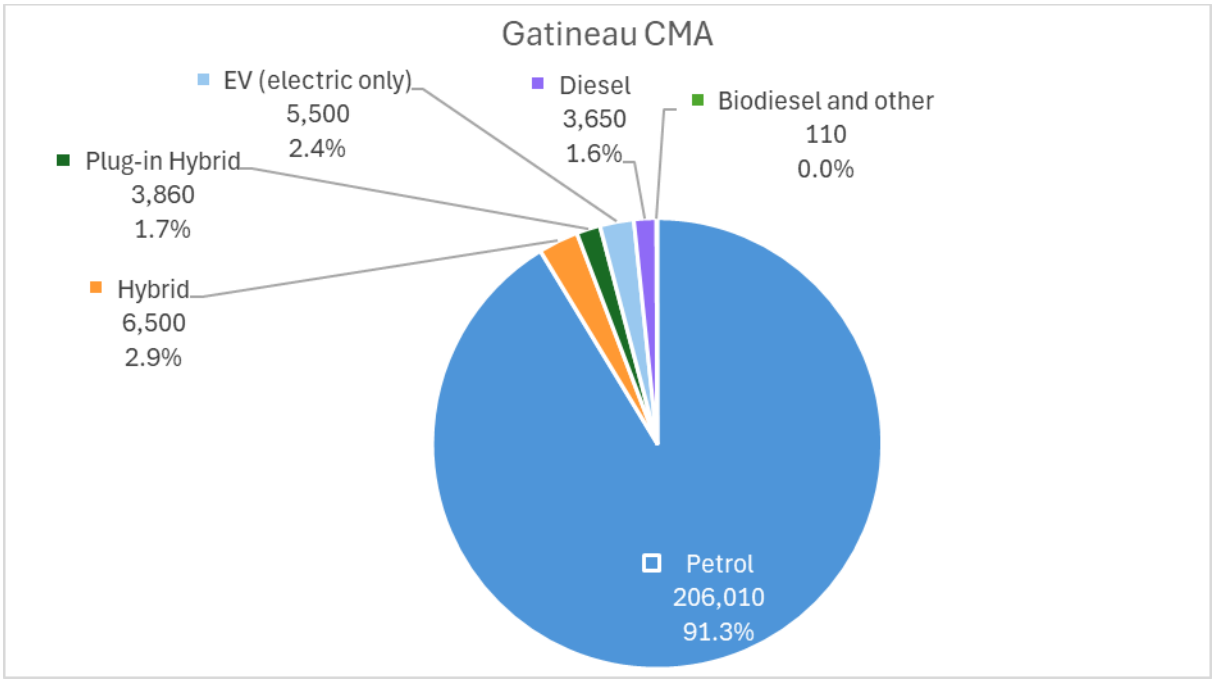
Although petrol vehicles dominated, green alternative-fuelled vehicles represented 6.3% of the reported Study Area vehicle population in 2022. In Ottawa, green vehicles represented 6.1% of reported vehicles, while the Gatineau CMA had a higher proportion, at 7.0% of reported vehicles. The proportions of hybrids were higher in Ottawa, at 3.5% of all reported vehicles, than in the Gatineau CMA, at 2.9% of all reported vehicles. However, the proportions of plug-in hybrids and electric vehicles were higher in the Gatineau CMA, at 1.7% and 2.4% respectively. The rates in Ottawa were 0.9% for plug-in hybrids and 1.6% for electric vehicles.

Note that the 'household vehicles' captured by the survey likely include privately-owned vehicles, business-owned vehicles kept at home by the business owner, and business-owned vehicles available to employees for personal use. Accordingly, the data displayed in these figures may not be directly comparable to provincial registry data.

Figure 30. Vehicle population by fuel type, 2022

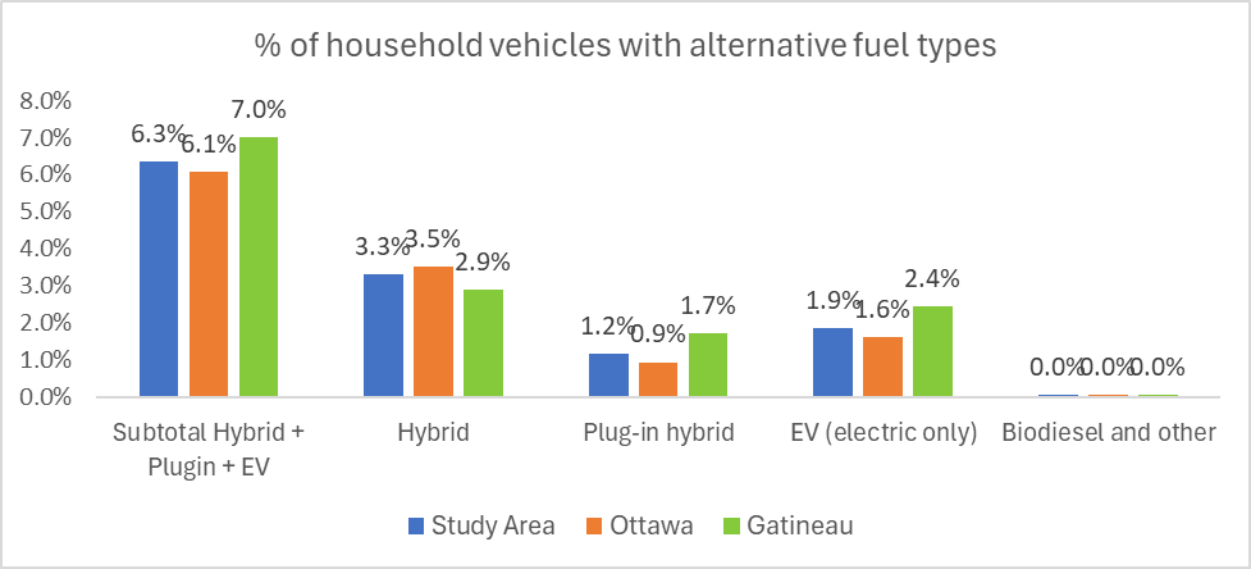






Notes: Given the relatively small numbers of some of these vehicle types, the percentages are shown to one decimal point. These figures reflect the responses of surveyed households and might not correspond to provincial vehicle population breakdowns.

Figure 31. Households with green alternative-fuelled vehicles, 2022



Note: Reflects households in private dwellings (i.e., excludes collective dwellings).

3.7.5 Licensed drivers and car share membership

The 2022 survey asked about driver licensing and membership in car-sharing services. These are also indicators of access to vehicles – i.e., who can access a vehicle, regardless of ownership. These indicators also vary by gender and by age.[32] For the purpose of this report, gender analysis is undertaken for two groups, men+ and women+. Persons with non-binary gender have been randomly distributed to these two groups.

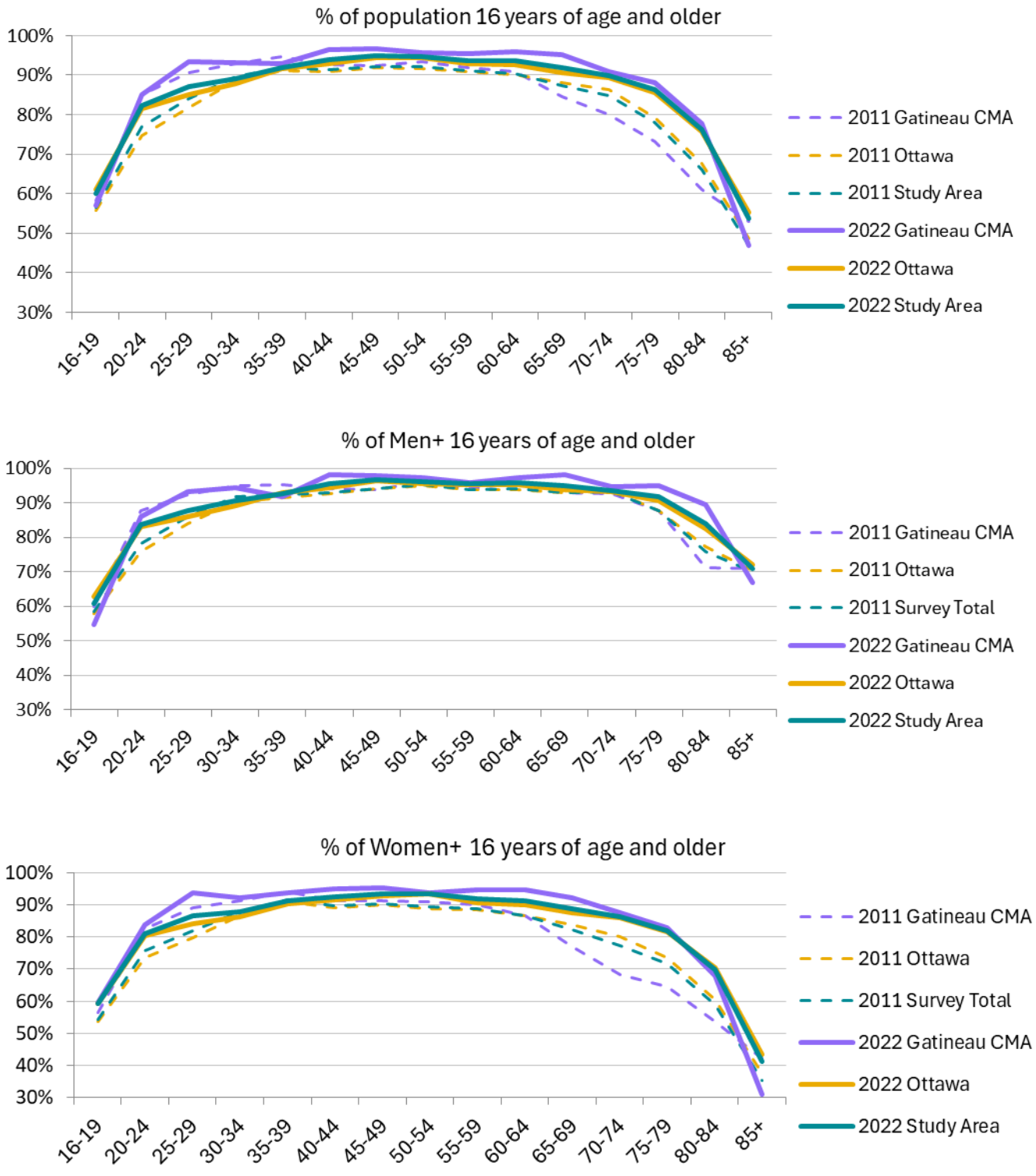
Figure 32 profiles the proportion of the eligible population that is licensed (14+ in Québec and 16+ in Ontario), breaking down the results by age and by gender. It can be seen that:

- **Licensing is pervasive among the 16+ population.** The sustained 90% proportion of licensed drivers over time means that the take-up of a licence has kept pace with population growth. The proportions of licensed male drivers are generally greater than those of female drivers for most age cohorts, with differences accentuated among younger and older cohorts.
- **More younger drivers are getting their licences.** Recent surveys elsewhere in Canada and the United States have shown a drop-off in the numbers of licensed drivers in their teens and twenties, with a suggestion that young adults might be eschewing licences and the purchase of a vehicle in favour of other mobility options. In contrast, in the Study Area, Figure 32 shows that take-up of licences among teens and young adults has increased since 2011 for both men+ and women+.
- **Older drivers are retaining their licences for longer periods.** Figure 32 also shows that older drivers are retaining their licences to a later age, although this varies between men+ and women+. For women+, the drop-off that was apparent in the 55-59 cohort in 2011 is now being delayed to the 60-64 cohort. For men+, the drop-off that began in the 70-74 cohort in 2011 is now being delayed to the 75-79 cohort. In other words, men+ are still retaining their licences longer, though both men+ and women+ are driving (or are retaining the ability to drive) at older ages.

In Quebec, the minimum age for a driver's license for a moped or motor scooter is 14 years, or 16 years for a passenger vehicle. Note that only 0.8% of men+ among age group 14 to 15 in the Gatineau CMA held a driver's licence in 2022. That percentage was 0% for women+ and 0.4% for the total population. To maintain the same scales on all the charts, Figure 32 shows data only for the 16+ population.

[32] This also speaks to the mobility of young adults, who may not yet own a vehicle, and seniors. Other surveys have shown that people are getting their licences earlier and keeping them longer – i.e., they want to retain the ability to drive if they are still eligible to do so. Membership in car-sharing services may also support this desire, with people recognizing that they do not necessarily need to own a vehicle to have this mobility. Although these data were not collected in the 2011 survey, their inclusion in 2022 provides a benchmark for the future.

Figure 32. Driver's licencing rates by age and gender, 2011 and 2022



Men+: men (and/or boys) plus some non-binary persons and some who declined to answer.
Women+: women (and/or girls) plus some non-binary persons and some who declined to answer.

Table 17 profiles membership in car-sharing services among the driving-age population eligible for a licence to operate a passenger vehicle (16+ in both province). Overall, 1.9% of driving-age persons in the Study Area have a car-share membership. The rate is slightly higher in Ottawa, at 2.1%, and lower in the Gatineau CMA, at 1.5%. These membership rates translate to 3.3% of Study Area households that have at least one member with a car-share membership. The rate is slightly higher in Ottawa, at 3.6% of households, and lower in the Gatineau CMA, at 2.3% of households. Although trend data are not available for the use of car-sharing services in the Study Area, the increased accessibility to them, for instance through dedicated smartphone apps, likely has increased their use among residents since 2011.

Table 17. Membership in car-sharing services, 2022

	Study Area: Persons 16+		City of Ottawa: Persons 16+		Gatineau CMA: Persons 16+	
	2022	%	2022	%	2022	%
Total Persons 16+ Years	1,117,510	100.00%	834,460	100.00%	283,060	100.00%
Car Share Members	21,740	1.9%	17,570	2.1%	4,170	1.5%
Households with at least one member having a car-share membership *	18,670	3.3%	15,090	3.6%	3,580	2.3%

* Only households in private dwellings participated in the survey.

By comparison, in December 2022, there were 7,688 Communauto memberships for Ottawa residents and 1,392 memberships for residents of the Gatineau CMA, which could suggest some over-representation of car share members in the survey sample.

In sum, the driver licensing characteristics indicate that people are getting their licences earlier. Drivers are also keeping their licences longer, so that they can retain the ability to drive if they are eligible to do so. While still currently representing a small proportion of residents' current mode share, car-share may increasingly support residents who do not own a vehicle to exercise that ability.

3.7.6 Limitations to mobility

New in 2022, this question asked whether any household members had a disability or a cognitive or physical condition that affected or limited their ability to travel. Figure 33 summarizes the responses (yes/no). For those responding affirmatively, Figure 34 summarized whether they used a mobility aid such as a wheelchair, walker, crutch, cane or seeing-eye dog. Figure 35 summarizes whether they had a disabled parking permit (for Québec residents) or an accessible parking permit (for Ontario residents). It can be seen that:

- Six percent (6.3%) of Study Area residents indicated that they had a cognitive or physical condition that impacted their ability to travel. The proportion was slightly higher among Ottawa residents, at 6.7%, and lower among Gatineau CMA residents, at 5.1%.
- Just under one-third (32.5%) of Study Area residents who responded affirmatively indicated that they used a mobility aid. The proportion was slightly higher among Ottawa residents, at 32.6%, and slightly lower among Gatineau CMA residents at 32.2%.
- Over one-quarter (27.7%) of Study Area residents who responded affirmatively indicated that they had a disabled parked permit or an accessible parking permit. The proportion was slightly higher among Ottawa residents, at 28.2%, and slightly lower among Gatineau CMA residents at 25.8%.

Figure 33. Limitations to mobility (of total population)

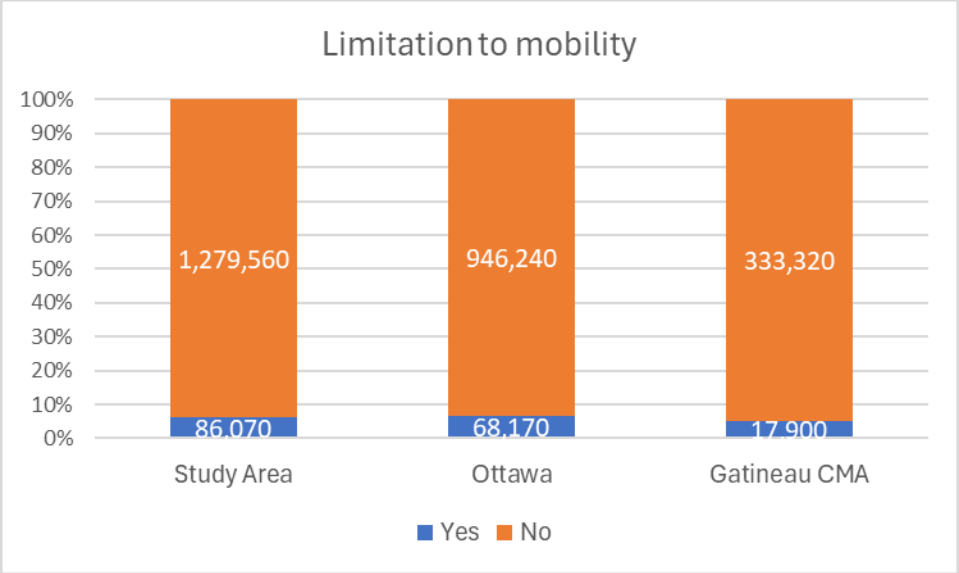


Figure 34. Use of mobility aid amongst persons with a mobility limitation

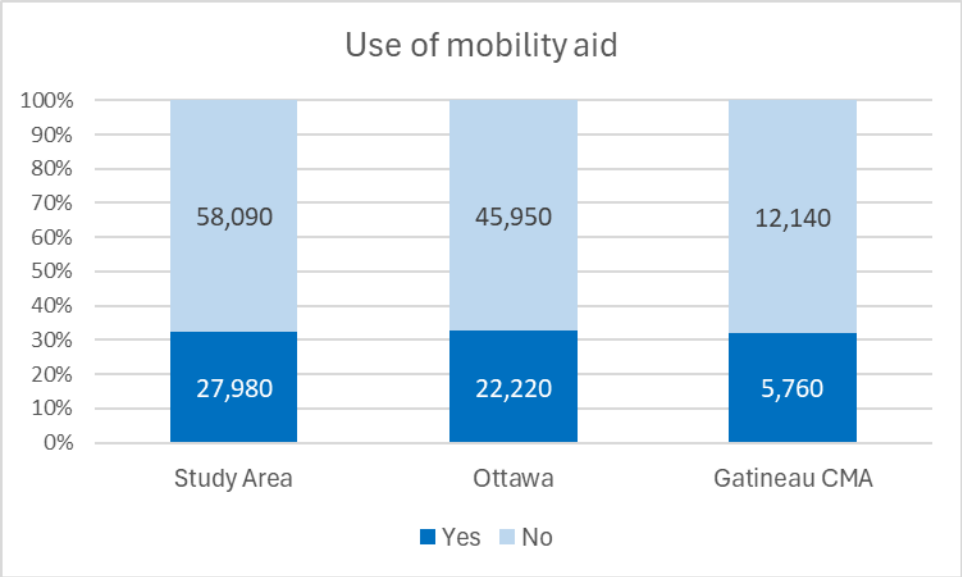
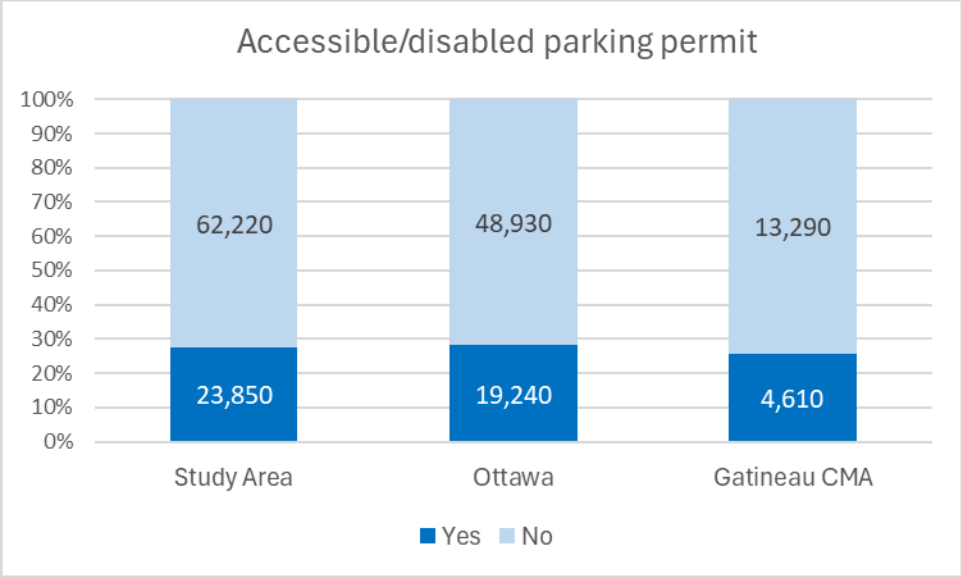


Figure 35. Accessible / disabled parking permit amongst persons with a mobility limitation



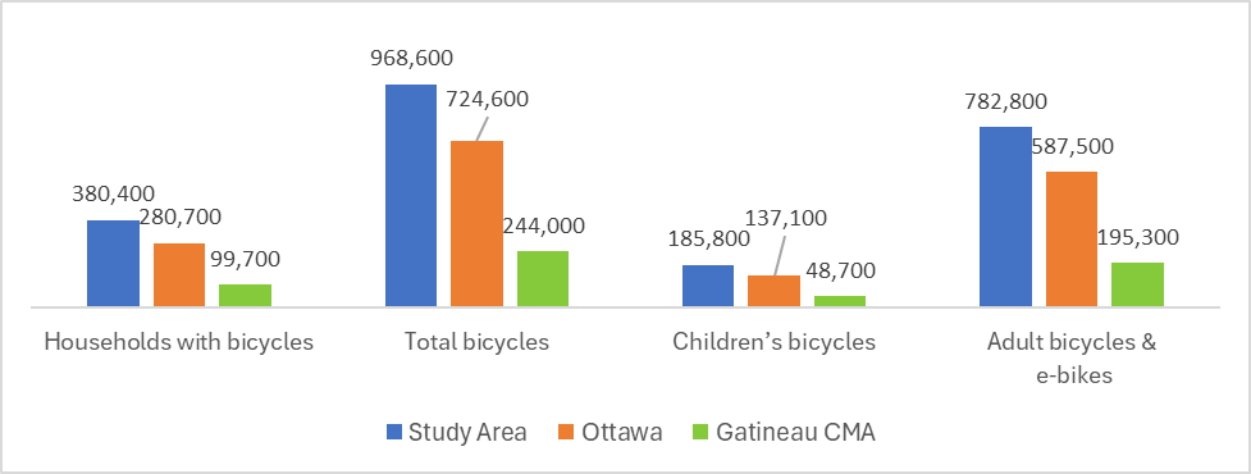
3.8 Bicycle availability

This discussion looks at households' access to bicycles, which can complement, or serve as an alternative to, owning a household vehicle. As defined in the 2022 survey, 'bicycles' include adult bicycles (which are not mechanically assisted), adult e-bikes (which have an electric motor to assist the cyclist when they are pedalling) and children's bicycles. Survey participants were asked to report only the number of children's bicycles that had been used in the past year.

Figure 36 and Figure 37 profile the numbers and proportions of the bicycle and e-bikes stock and the proportions of households with bicycles, respectively. Table 18 breaks down bicycle availability by the 9 sub-areas. Key findings are:

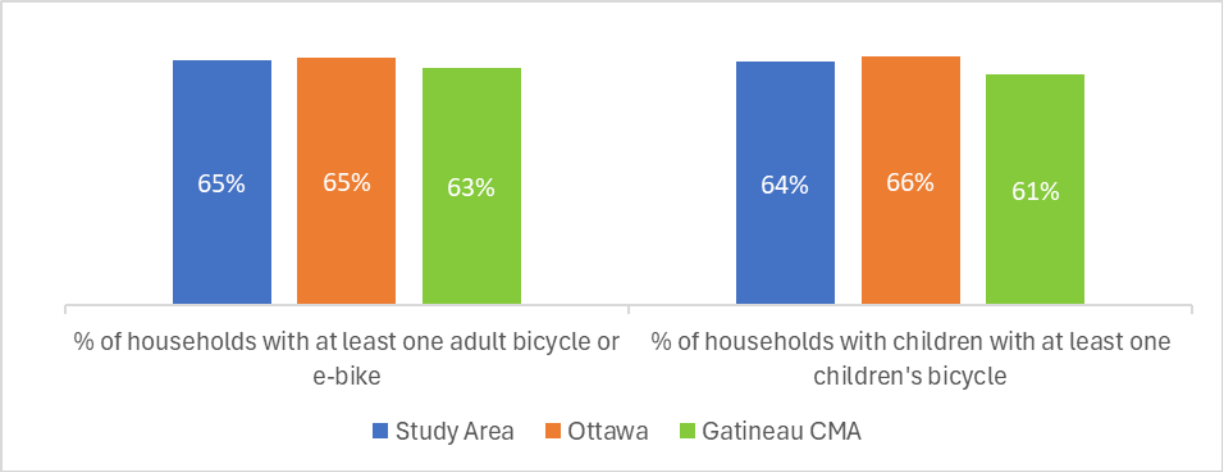
- Bicycles were pervasive among Study Area households in 2022, though not as pervasive as vehicles:
    - Two-thirds of Study Area households had at least one adult bicycle or e-bike, at 65% in 2022. The rate for Ottawa households was 65% and for the Gatineau CMA the rate was slightly lower, at 63%. By comparison, 88% of Study Area households had access to at least one vehicle.
    - A slightly smaller proportion (64%) of Study Area households with children had at least one child-sized bicycle. The rate for Ottawa households with children was 66% and, for Gatineau CMA households with children, the rate was slightly lower, at 61%.
- E-bikes made up 3.1% of the stock of all bicycles in the Study Area (including children's bicycles). In Ottawa, the rate was 2.7% and in the Gatineau CMA the rate was 4.6%. E-bikes made up 3.9% of adult bicycles in the Study Area (when regular non-motorized adult bicycles and adult e-bikes are combined). In Ottawa, the rate was 3.3% and in the Gatineau CMA the rate was 5.7%. Of note, e-bikes represented 9.3% of the expanded daily cycling/micromobility trips recorded in the survey. By region, this breaks out as 8.6% of cycling trips made by Ottawa residents and 12.4% of cycling trips made by Gatineau CMA residents were made by e-bike. This suggests that e-bike owners are more likely to purchase them with the intent of use for regular or daily travel purposes, rather than just for occasional recreational use.
- Adult bicycles and e-bikes combined made up 80.8% of the Study Area's bicycle stock in 2022 – slightly higher in Ottawa, at 81.1%, and slightly lower in the Gatineau CMA at 80.0%.

Figure 36. Household bicycles, 2022



Note: Reflects bicycles accessible to households in private dwellings (i.e., excludes collective dwellings).

Figure 37. Percent of households with access to bicycles, 2022



Note: Reflects bicycles accessible to households in private dwellings (i.e., excludes collective dwellings).

Table 18. Bicycles - statistics by sub-area, 2022

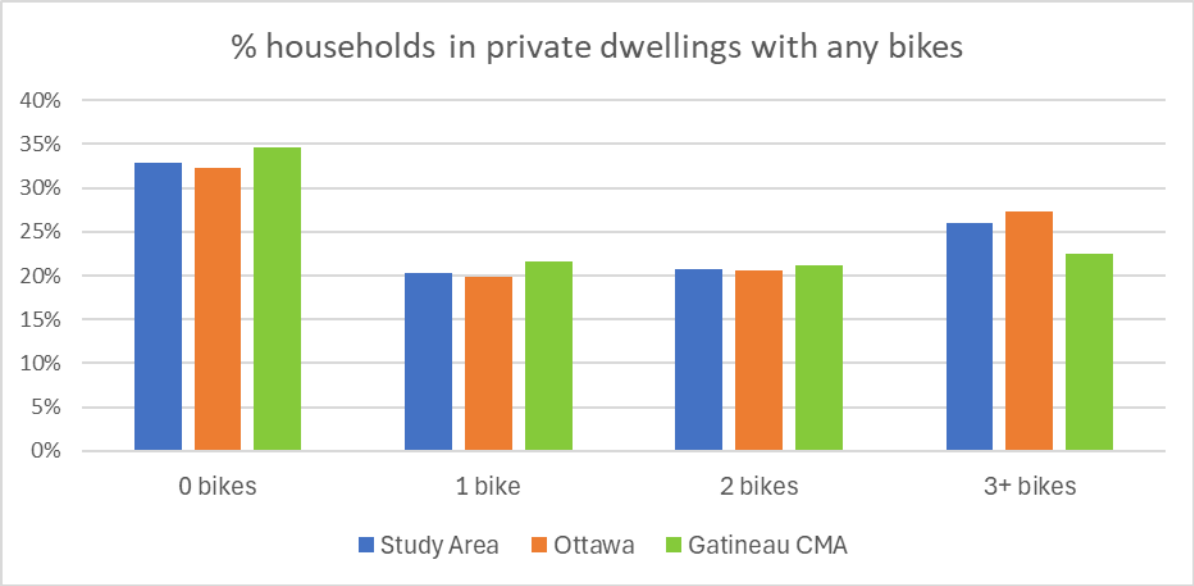
	Study Area	Region		Ottawa					Gatineau CMA			
		Ottawa	Gati-neau CMA	Down-town Core	Inner Urban	Outer Urban / Green-belt	Sub-urban	Rural	Down-town Gati-neau	Transit-Oriented Develop-ment	Rest of Gati-neau	Rest of CMA
Total Households	567,200	414,490	152,720	43,250	81,070	114,480	141,610	34,070	6,810	14,840	106,370	24,700
Population in households	1,365,700	1,014,460	351,240	70,750	167,770	280,350	402,770	92,820	11,250	29,260	249,010	61,710
Households with Children <18 Yrs	154,310	112,700	41,610	4,210	15,660	29,020	53,120	10,680	730	2,950	30,590	7,350
Total Bicycles	968,600	724,590	244,010	47,020	138,100	190,650	275,280	73,540	7,930	15,240	173,150	47,680
Adult Bicycles	752,330	568,120	184,210	41,480	113,200	150,610	206,130	56,700	6,920	12,060	128,550	36,680
Adult E-Bikes	30,470	19,360	11,110	1,720	4,450	5,210	5,970	2,010	230	850	8,020	2,010
Child Bicycles	185,800	137,110	48,690	3,820	20,450	34,830	63,180	14,830	780	2,330	36,580	8,990
Avg. bicycles per household	1.71	1.75	1.60	1.09	1.70	1.67	1.94	2.16	1.16	1.03	1.63	1.93
Avg. bicycles per capita	0.71	0.71	0.69	0.66	0.82	0.68	0.68	0.79	0.70	0.52	0.70	0.77
Persons 16+ years of age	1,133,030	846,210	286,820	65,630	144,540	235,810	323,420	76,820	10,180	24,800	201,490	50,350
Avg. adult bicycles per person 16+ years of age	0.66	0.67	0.64	0.63	0.78	0.64	0.64	0.74	0.68	0.49	0.64	0.73
Avg. adult bicycles per adult 18+ years of age	0.69	0.70	0.67	0.64	0.81	0.66	0.67	0.78	0.69	0.50	0.67	0.76
% of households with at least one bicycle	67%	68%	65%	59%	66%	65%	72%	75%	59%	53%	67%	69%
% of households with at least one adult bicycle or e-bike	65%	65%	63%	58%	65%	62%	68%	73%	59%	51%	64%	66%
% of population 16+ in households with at least one adult bicycle	69%	70%	65%	61%	71%	67%	72%	76%	63%	54%	66%	67%
% of households with children with at least one children's bicycle	64%	66%	61%	53%	70%	66%	65%	70%	49%	52%	62%	63%

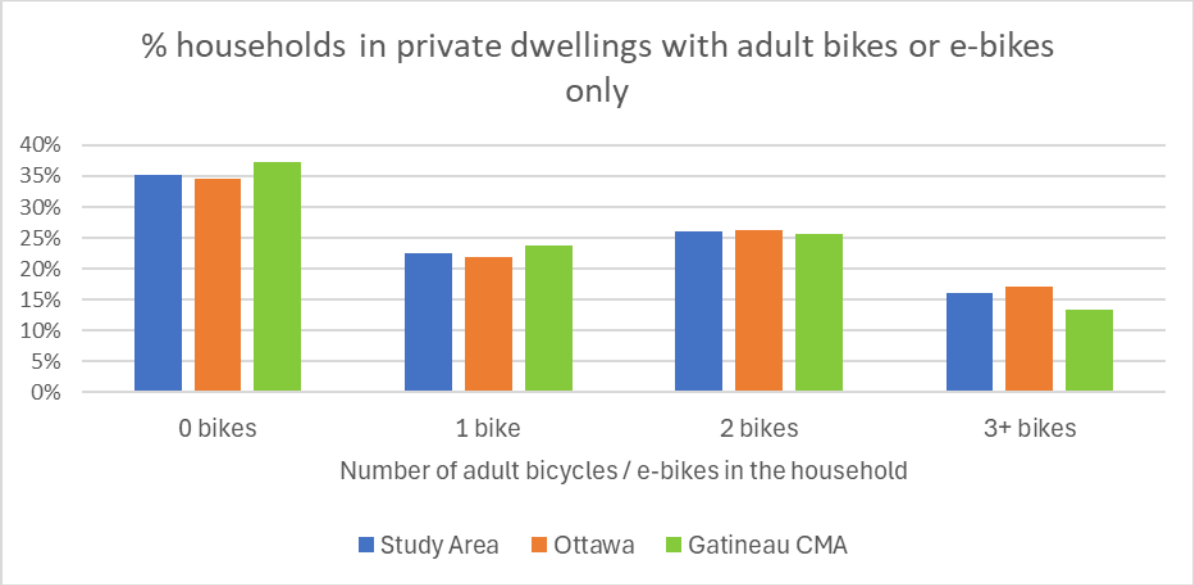
E-bikes are pedal-assisted electric bicycle with a top speed of 32 km/h. The electric motor only operates when you pedal.

Figure 38 presents the distribution of households by the number of bicycles. There are three charts. The first chart shows the distribution of households with any kind of bicycle. The second chart shows the distribution for adult bicycles and e-bikes. The third chart shows the distribution for children's bicycles alone. Households are categorized by 0, 1, 2 and 3+ bicycles. The figure shows that:

- Among the 67% of Study Area households that had bicycles of any kind in 2022, more than one-quarter (26%) had three or more bicycles. One and two-bicycle households each represented another one-fifth of households (20% and 21% respectively. The proportions varied slightly between the two jurisdictions.
- Among the 65% of Study Area households that had adult bicycles or adult e-bikes in 2022, households with 2 bicycles had the highest proportions, at just over one-quarter (26%) of all households. Households with 1 bicycle made up another 22%, with 3+ bike households making up 16%. The proportions varied slightly among the two jurisdictions.
- Eighteen percent of all Study Area households had at least one children's bicycle in 2022. Among these, 7% of households had 1 children's bicycle and 8% had two children's bicycles. Three percent of households had 3 or more children's bicycles. The proportions varied slightly among the two jurisdictions.

Figure 38. Distribution of households by number of bicycles, 2022





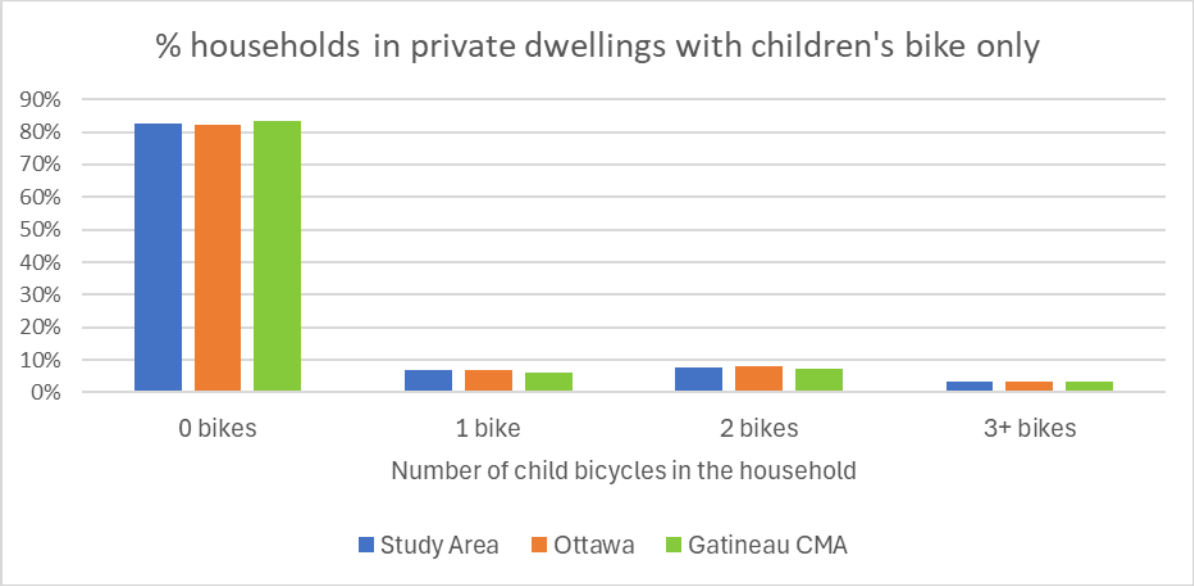
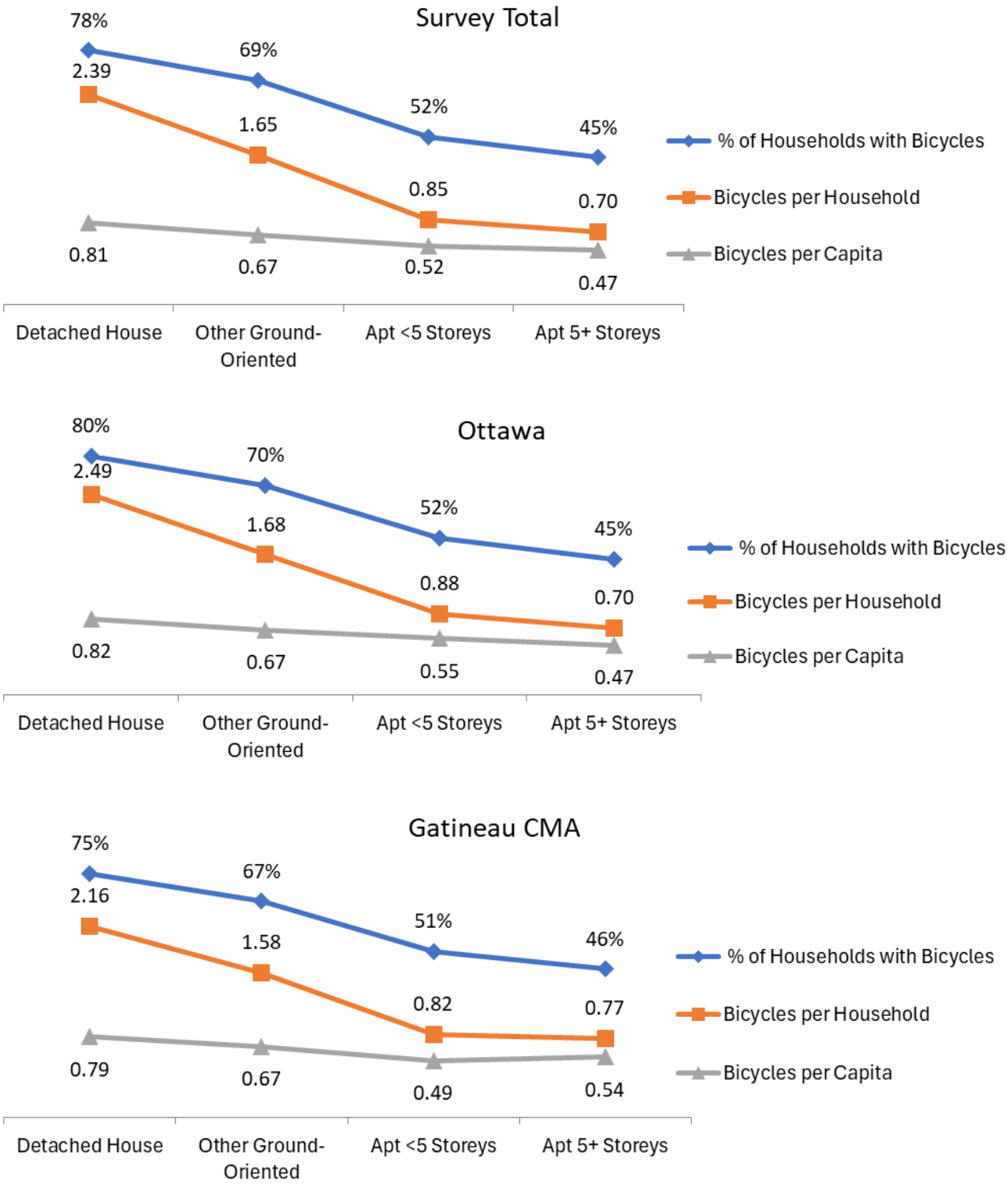


Figure 39 shows bicycle availability by dwelling type. The figure accounts for adults' and children's bicycles together. The highest proportions of Study Area households that have bicycles were among detached houses (78%) and other ground-oriented units (69%), though the proportions dropped to close to just over half (52%) of apartments in buildings with less than 5 storeys and 45% of apartments in buildings with 5 or more storeys. Similarly, the availability rates of bicycles per household were highest among detached houses, with the rates 3.4 times those for apartment households. Per capita, the differences were less pronounced. The rates varied slightly between the two jurisdictions.

Figure 39. Relationship between bicycle availability and dwelling type, 2022



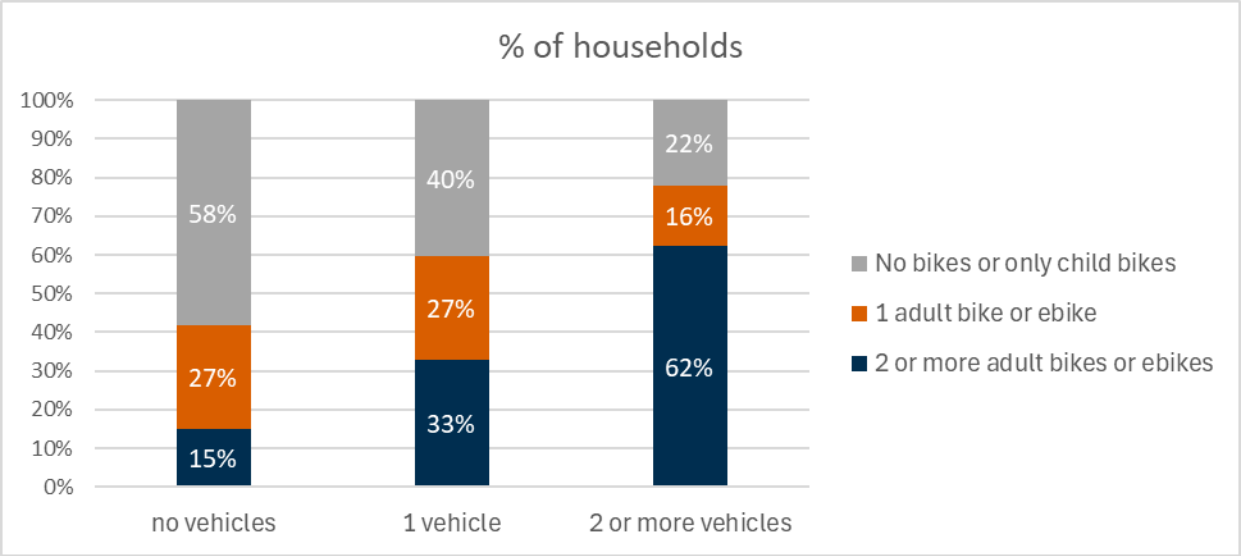
Note: Reflects bicycles accessible to households in private dwellings (i.e., excludes collective dwellings).

It is informative to compare bicycle access by dwelling type with vehicle access by dwelling type (Figure 29):

- Generally, the trend lines (the shape of the curves) are similar for both bicycles and vehicles.
- Almost all Study Area detached houses and other ground-oriented dwellings had access to a vehicle, whereas only 78% of detached houses and 69% of other ground-oriented dwellings had access to a bicycle. Three-quarters (72%) of apartments in buildings with less than 5 storeys had access to a vehicle, while just over half (52%) of these apartments had access to a bicycle. The corresponding proportions were 62% and 45% respectively for apartments in buildings with 5 or more storeys.
- Per household, the average take-up rates for bicycles were slightly to moderately higher than those for vehicles. For example, in detached houses there were 2.39 bicycles per household compared with 1.81 vehicles per household. The rates were almost equal for apartments (at 0.70 bicycles per household and 0.69 vehicles per household for buildings with 5 or more storeys and 0.85 bicycles per household and 0.87 vehicles per household for apartments with less than 5 storeys).
- Per capita, the rates were also similar, with the bicycle availability rates slightly greater than those of vehicle availability for most dwelling types except with bicycle availability less than vehicle availability for apartments in buildings less than 5 storeys. The exception is the Gatineau CMA, where per-capita bicycle availability rates are less than vehicle availability rates for all dwelling types. It should be noted that the bicycle take-up is measured against the entire population while the vehicle take-up is measured against the 16+ population (the eligible driving-age population).

Figure 40 compares the share of Study Area households that had access to an adult bicycle with those that had access to a vehicle. The figure shows that bicycle access and vehicle access, according to the average numbers of each per household, were complementary. In other words, there is no apparent indication that households were purchasing a bicycle to substitute for a vehicle, or vice versa. Other factors may be more indicative of the take-up of either mode – e.g., household size and composition and so on. Further research is needed to understand the underlying factors.

Figure 40. Bicycle availability versus vehicle availability, % of Study Area households, 2022



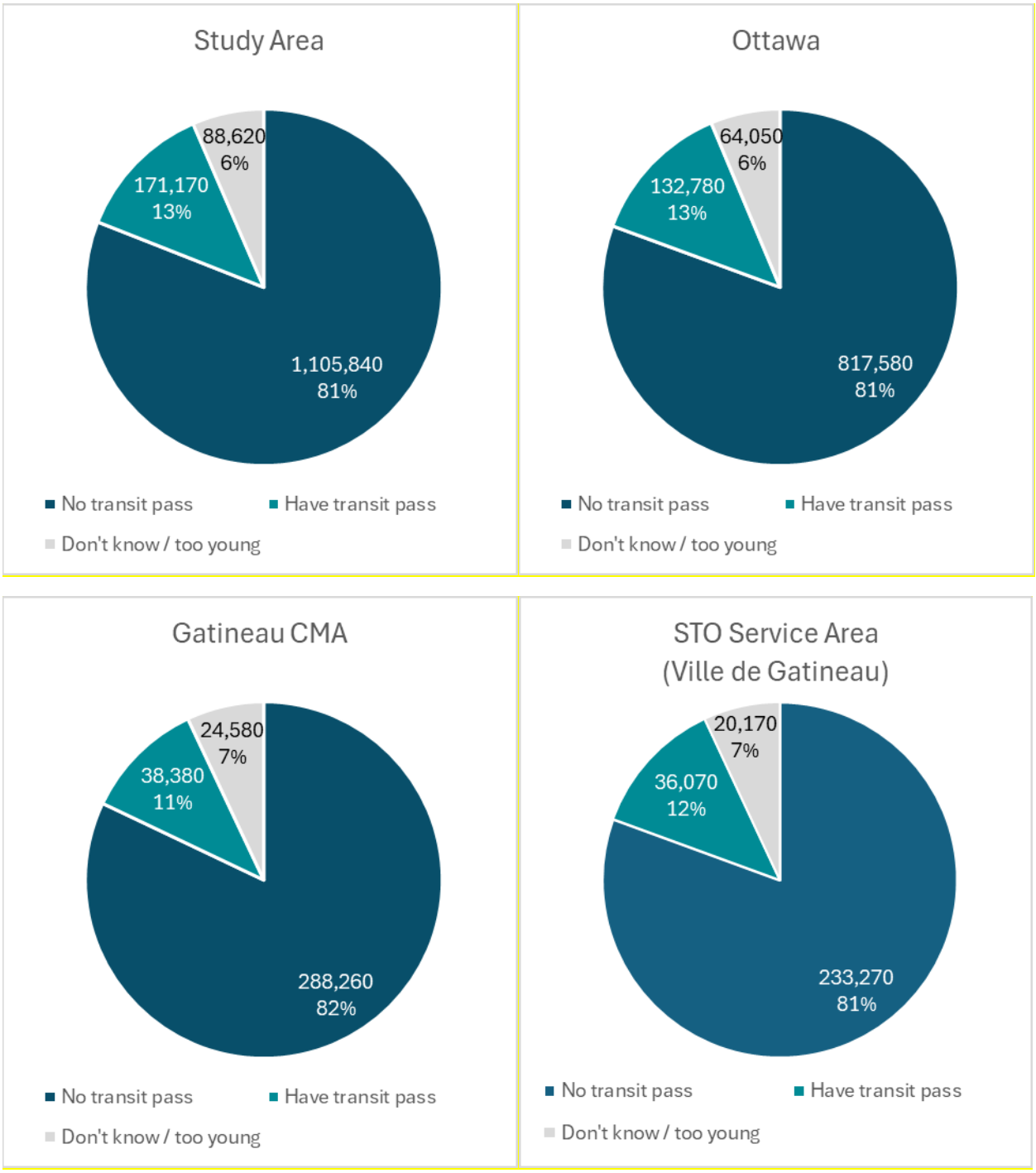
3.9 Public transit pass take-up

This discussion profiles individuals' take-up of monthly transit passes. Figure 41 profiles the numbers of pass holders among residents of the Study Area, Ottawa, Gatineau CMA, and the STO and MRC des des Collines-de-l'Outaouais. Figure 42 illustrates the change from 2011 to 2022 for the Study Area, Ottawa, and the Gatineau CMA.

Among residents of the Study Area, 13% had a transit pass, down from 17% in 2011. The proportion among Ottawa residents was also 13%, down from 18% in 2011. In the Gatineau CMA, the proportion was slightly lower, at 11% of residents, down from 14% in 2011. The overall trend is a significant drop in the proportion of population with a transit pass, enough so that the absolute number of transit pass holders also dropped compared to 2011, despite the increase in population. The number of transit pass holders dropped by about one-fifth in Ottawa and almost one-tenth in Gatineau. This may be explained in part by the increase in people working from home in hybrid workers (with the latter potentially less inclined to purchase a transit pass if they commute less frequently). Looking at just the STO service area (which covers Ville de Gatineau), the proportion of residents with a transit pass was slightly higher, at 12%. Looking at just the MRC des Collines-de-l'Outaouais,[33] which is served by the Transcollines transit service, the proportion was only 4%. Comparisons to 2011 have not been made for the service areas.

[33] The MRC des Collines-de-l'Outaouais includes the municipalities of Cantley, Chelsea, La Pêche, L'Ange-Gardien, Pontiac, and Val-des-Monts.

Figure 41. Public transit pass, 2022



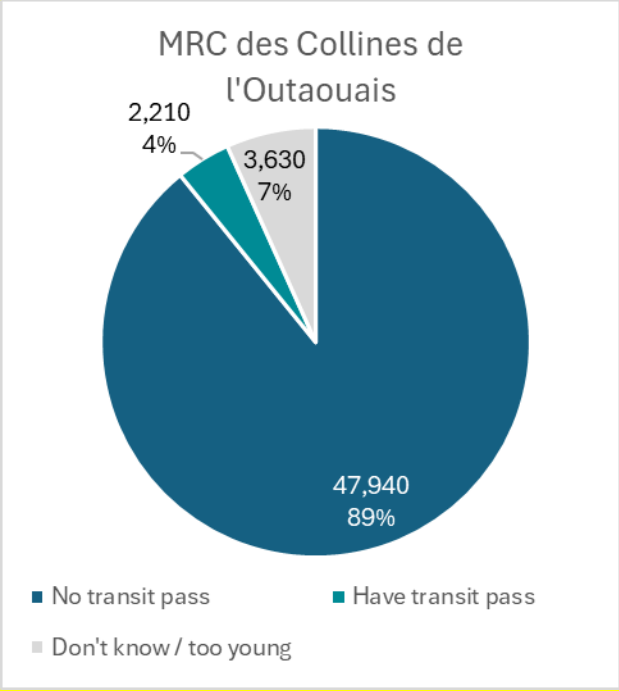


Figure 42. Public transit pass holders, 2011-2022

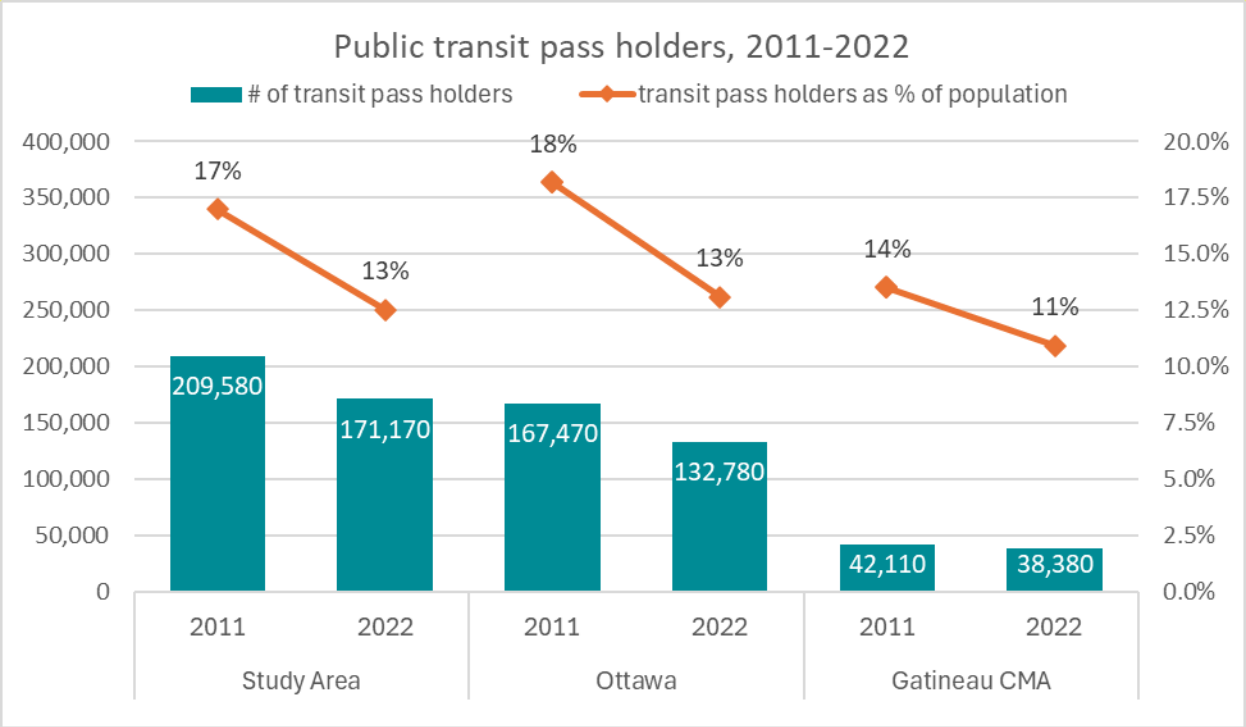


Figure 43 breaks down the uptake by type of pass. Figure 44 and Figure 45 add pass take-up by age and gender and by occupational status, respectively. The figures show that:

- Among Ottawa residents, U-Passes comprised 40% of OC Transpo passes. Discounted passes made up another 30%. Among Gatineau CMA residents, STO monthly or annual passes made up 48% of all passes, and STO student passes made up another 31%.[34]

- Transcollines passes were held by 2% of Gatineau CMA pass holders and 0.1% of Ottawa pass holders (noting that the Transcollines service does not extend beyond STO's territory into Ottawa). While 4% of all residents of the MRC des Collines de l'Outaouais had a transit pass of any kind, only a little over one quarter (27%) of these, or 1% of all residents, had a Transcollines pass. Most other transit pass holders in the MRC have STO passes, whether monthly/annual or student passes. Note that within the MRC, the municipalities of Cantley and Chelsea are covered only by the Transcollines service area.

- OC Transpo passes of all kinds were held by 20% of Gatineau CMA pass holders, of which 14% were U-Passes. STO passes were held by 4% of OC Transpo pass holders, of which 3% were STO student passes. In other words, the largest numbers of passes of one transit system that were held by persons living on the other side of the Ottawa River were post-secondary passes.

- Almost half (47%) of the 15-19 cohort held a transit pass, as did 40% of the 20-24 cohort and 19% of 10-14 cohort – consistent with the school-age population. Ottawa's proportions were 48%, 42% and 19% respectively. The Gatineau CMA's proportions were 42%, 30% and 20% respectively. The proportions drop off quickly in the 25-34 cohort (12% Study Area), before attaining a 6%-7% for all ages 35 years and older. Note that the age below which children ride for free varies by transit service.

- By occupation, transit passes were most prevalent among part-time workers. Just under one-third (32%) of Study Area part-time workers held a transit pass. The rates were slightly higher among Ottawa part-timer workers (34%) but lower among Gatineau CMA part-timer workers (28%). The higher incidence of transit passes amongst part-time workers may be due in part to a portion of these workers being post-secondary students who work while in enrolled in their studies, many of whom have transit passes covered by school fees. Part-time workers also generally have lower personal incomes, and may be less likely to afford to own and operate a vehicle.

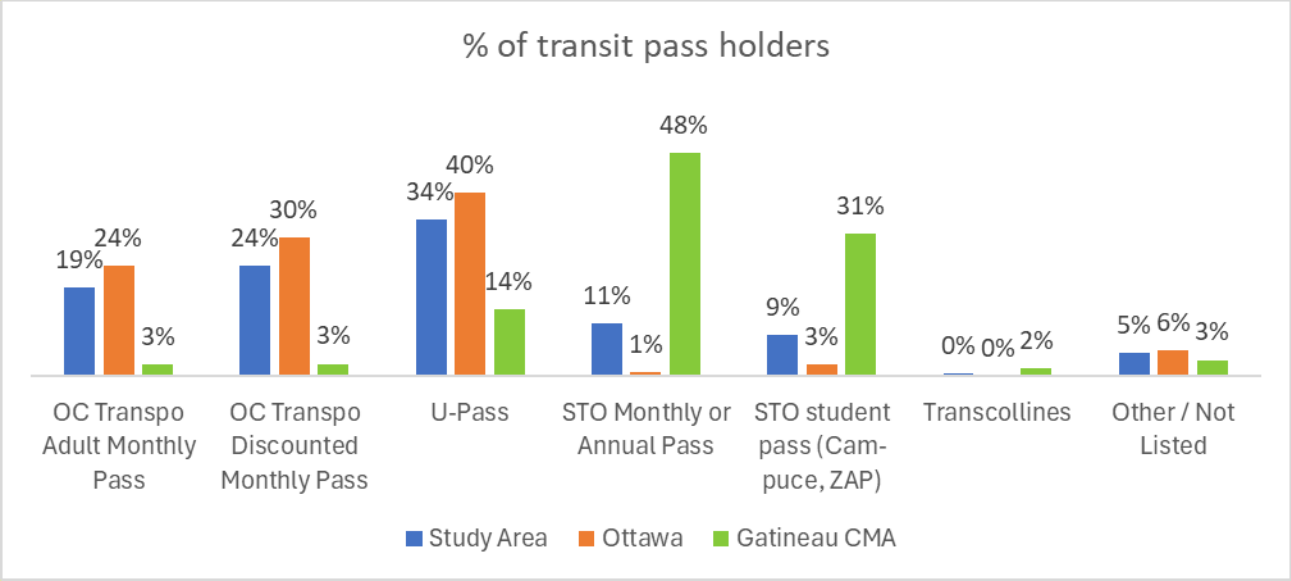
- Almost one-quarter (23%) of Study Area persons with other occupational status, which includes students who do not have a job, also held transit passes. The rates were slightly higher in Ottawa (24% of this occupation group) and moderately lower in

[34] Note that respondents could hold more than one type of passes. Accordingly, the percentages can add sum to more than 100%.

the Gatineau CMA (18% of this occupation group). By comparison, only 8% of Study Area full-time workers held a transit pass – slightly lower among Ottawa full-time workers (7%) but higher among Gatineau CMA full-time workers (9%). These proportions were similar to unemployed persons (9% in the Study Area) and retirees (6% in the Study Area).

Comparisons to 2011 were not possible for individual types of pass, given changes in fare structures and differences in survey questions. However it was possible to compare the number of U-Pass and Cam-puce passes combined. In 2011, the survey results suggested Study Area residents held 34,100 such passes. In 2022, the survey estimate approached double this, at 63,900.[35] This may be in part due to the expansion of these passes to additional schools as well as increases in the school enrolments. The increase in student pass holders underscores the drop in transit passes amongst other residents. The number of transit pass holders for all other pass types combined dropped from about 175,400 in 2011 to 107,200 in 2022. Readers are reminded that the 2022 survey was conducted after significant disruption to work arrangements, commuting, and trends may still have been in flux.

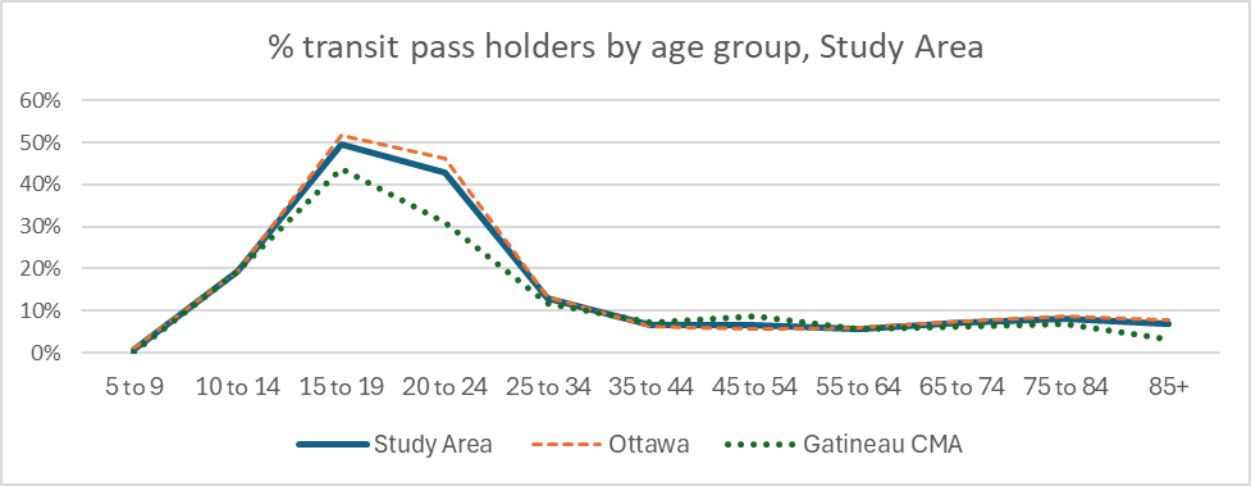
Figure 43. Public transit pass by type, 2022

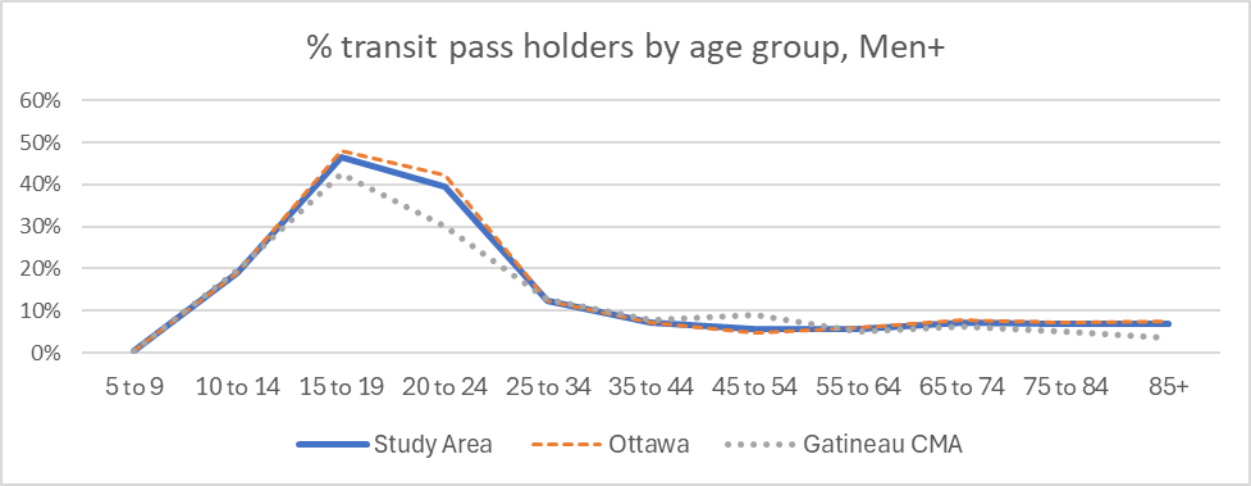


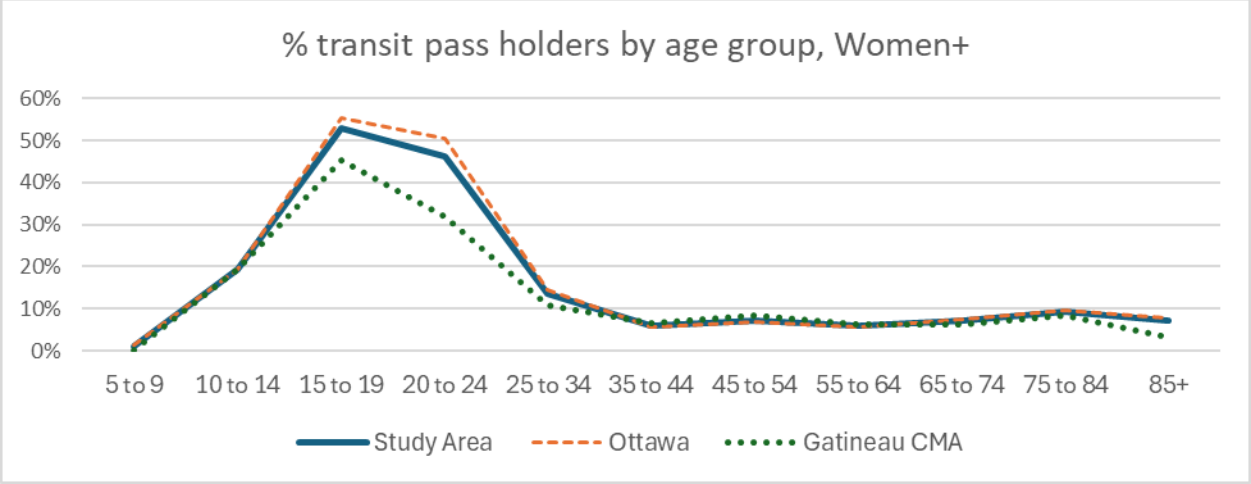
Note: Respondents could select more than one option, as such the percentage in each of the geographic region will sum up to more than 100%.
OC Transpo Discounted Monthly Passes include: Seniors, Youth, EquiPass, Access, Community, and A-Card. U-Pass is a fall/winter pass for college/university students. STO Monthly or Annual Passes include: Regular, Seniors, ECHO, and Fidélité.

[35] The 2022 survey responses of "U-Pass" and "Cam-puce or ZAP" total 73,400 when expanded to the population. The estimated 63,900 UPass and Cam-Puce passes excludes responses of "Cam-puce or ZAP" for those under the age of 17, as ZAP passes are only available to students 1-16 years. Note that neither survey sampled post-secondary students residing in on-campus residences, so actual uptake of U-Pass and Cam-puce passes is likely higher than the survey result, which only represents usual residents of private dwellings.

Figure 44. Public transit pass take-up by age and gender, 2022

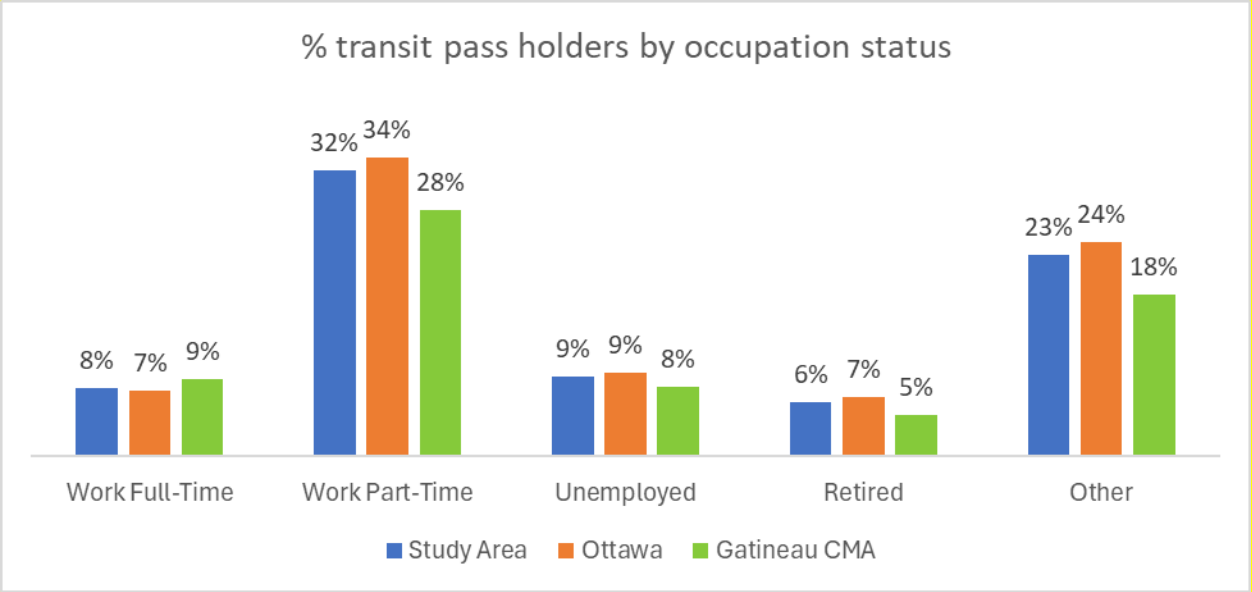






Men+: men (and/or boys) plus some non-binary persons and some who declined to answer.
Women+: women (and/or girls) plus some non-binary persons and some who declined to answer.

Figure 45. Public transit pass take-up by occupational status, 2022



Note: only persons 5+ years of age

3.10 Highlighted demographics by sub-area

Table 19 is a standalone summary table that combines the preceding demographics for the Study Area, Ottawa, the Gatineau CMA and the nine sub-areas. It is meant to be a simple reference to key facts, without additional commentary.

Table 19. Key demographic statistics by sub-area

		Region		Ottawa					Gatineau CMA			
	Study Area	Ottawa	Gatineau CMA	Down-town Core	Inner Urban	Outer Urban / Green-belt	Sub-urban	Rural	Down-town Gatineau	Transit-Oriented Develop-ment	Rest of Gatineau	Rest of CMA
Sample Size (n Person Records)	69,501	50,469	19,032	4,074	9,091	13,368	18,269	5,667	571	1,346	13,410	3,705
Population in private dwellings	1,365,700	1,014,460	351,240	70,750	167,770	280,350	402,770	92,820	11,250	29,260	249,010	61,710
Total 5+ Years	1,297,630	965,480	332,150	68,780	160,620	266,760	380,840	88,480	10,880	27,720	235,120	58,430
Persons 16+ (ON)/14+ (QC)	1,125,980	834,450	291,520	65,270	142,750	233,030	317,790	75,630	10,220	25,100	204,720	51,490
Workers living in area	736,580	548,510	188,070	46,600	92,290	144,350	215,970	49,290	6,400	15,210	133,300	33,150
Part time workers	128,610	98,940	29,680	9,590	16,060	28,230	35,840	9,230	930	2,230	21,870	4,650
Less than 15	17%	17%	18%	7%	14%	16%	20%	17%	10%	15%	19%	18%
15 to 24	12%	13%	11%	17%	11%	14%	13%	11%	13%	11%	11%	9%
25 to 44	28%	28%	28%	41%	30%	27%	27%	21%	38%	28%	28%	25%
45 to 64	27%	27%	28%	21%	26%	25%	27%	32%	23%	25%	27%	32%
65+	16%	16%	15%	14%	20%	18%	13%	18%	17%	21%	15%	16%
% eligible having driver's licence	88%	87%	88%	81%	84%	85%	90%	95%	79%	87%	88%	92%
% with Transit pass	13%	13%	11%	21%	15%	16%	11%	3%	22%	12%	12%	4%
% Working Full-Time	47%	47%	48%	54%	47%	44%	47%	45%	50%	47%	47%	49%
% Working Part-Time	10%	10%	9%	14%	10%	11%	9%	10%	9%	8%	9%	8%
% Unemployed	2%	2%	2%	3%	2%	3%	2%	2%	2%	3%	2%	2%
% Retired	19%	18%	20%	15%	21%	20%	15%	21%	20%	24%	19%	21%
% Other	22%	23%	21%	14%	19%	23%	26%	22%	19%	18%	22%	21%
% with usual place of work	80%	79%	82%	82%	80%	80%	78%	79%	80%	86%	82%	81%

3.11 Summary: key takeaways

This chapter concludes with selected takeaways from the review of the household and demographic factors that determine travel choices.

Several key takeaways are presented below:

1. **The number of workers (potential commuters) grew faster than population, households and vehicles since 2011.**

2. Across the Study Area **the relationships between these indicators have been relative stable**. However, changes varied between Ottawa households and Gatineau CMA households. Average household size grew slightly in Ottawa but dropped moderately in the Gatineau CMA after 2011, resulting in a slight reduction for the Study Area as a whole. The average number of workers per household increased slightly over the Study Area, based on an increase in Ottawa and a drop in the Gatineau CMA. The average number of vehicles per worker dropped in Ottawa but increased in the Gatineau CMA.

3. **The 25-64 age cohort**, which dominates the labour force and the formation of households, **made up more than half the population**. However, **the 0-24 population grew slightly faster than the working age population**, making up almost one-quarter of the population. **Seniors (65+) were the fastest-growing cohort**, representing 16% of the total population in 2022.

4. **Just over half (54%) of eligible Study Area residents were employed.** This was a slight drop since 2011 (57%), although **the total number of workers grew by almost 12%.** The number of full-time workers grew by 15%, while the number of part-time workers decreased by 2.5%. **The number of students grew faster than the 0-24 population.**

5. **The home-work commute continued to be a significant component of peak period travel.** However, **where people work has changed through the pandemic**. Three-quarters of workers had a usual workplace outside the home in 2022. Following the pandemic, just under half (45%) of full-time workers with usual workplaces outside the home had hybrid working arrangements. **Half of all workers with a usual workplace telecommuted at least one workday in the preceding work week.** On average, **one-third of workers with a usual workplace worked from home in 2022**. The **share of workers who work exclusively from home has tripled, from 6% in 2011 to 19% in 2022.** Around 7% of workers had no fixed workplace.

6. Historically, the Study Area has had more jobs than resident workers, with the shortfall made up by workers who live in the adjoining areas outside the Study Area. Within the Study Area, **Ottawa continued to be a net importer of work trips, having more jobs than working residents**. **The Gatineau CMA continued to be a net exporter of work trips, with more working residents than jobs**, and even though the

ratio of jobs to resident worker has increased, **the Gatineau CMA still generated a strong out-commute to Ottawa**.

7. **Most (85%) Study Area students attended in-person classes in 2022**, with 5% attending only online/virtual classes and the remaining 10% having a mix.
8. **Vehicle availability to households remained pervasive**, with 88% of Study Area households (and 92% of all Gatineau CMA households) having access to at least one vehicle. There were more one-vehicle households and fewer zero- and 2+ vehicle households.
9. On average, **there were 1.14 vehicles per worker – more than enough to serve workers (who tend to have priority for the household vehicle) and other family members**. Even so, **there was a slight reduction in vehicle dependency**, evidenced by slight increases in the number of 'car-light' households (those with fewer vehicles than workers) and zero-car 'working' households in the Study Area.
10. **Alternative-fuelled 'green' vehicles comprised 6% of the vehicle population in 2022,** of which plug-in hybrids and electric vehicles made up 3%.
11. **People started to drive earlier and retained their licences longer**, compared with 2011. More younger people were getting their driver's licence and seniors are retaining their licence longer. Just over 3% of households had at least one member with a car-share membership in 2022.
12. Just over **6% of Study Area residents indicated that they had a cognitive or physical condition that impacted their ability to travel**.
13. **Household access to an adult bicycle was pervasive**, though less so than access to vehicles. Bicycle and vehicle take-up tended to be complementary, meaning that neither mode substituted for the other mode completely.
14. **Overall, 13% of residents of the study area had a transit pass**, with similar incidence in both Ottawa and Gatineau CMA. **Transit passes are more common amongst the young (many of whom have access to subsidized passes through school),** at 19% of residents 10-14 years, 47% of residents 15-19 years, and 40% of those 20 to 24 years. The incidence drops to only 6%-7% for all ages 35 years and older. Part-time workers are more likely to have transit passes (at 32%), compared to 8% of full-time workers, 9% of unemployed people, and 6% of retirees.

4 DAILY TRAVEL CHARACTERISTICS

4.1 Overview

This section presents key travel characteristics from the 2022 survey and compares them with previous surveys. The discussion mostly describes person-trips – i.e., trips made by persons – as opposed to the vehicles or modes they use to make these trips. Total trips, trip rates, trip purposes and measures of travel activity are described. Mode share is presented in section 4.3.

It should be noted that:

- Prior to 2011, trips made by the population 11 years and older were included. Beginning with 2011, trips by the population 5 years and older are captured.
- Unless explicitly noted, to ensure consistency with previous reporting of TRANS surveys, when results are presented for Ottawa and the Gatineau CMA, the results are tabulated for Ottawa residents and Gatineau residents (as opposed to examining the trips within Ottawa and within Gatineau).

4.2 Total trips and trip rates

4.2.1 Daily trips

Figure 46 shows the immediate comparison of total daily trips and average daily trip rates per person 5+ for 2011 and 2022. Figure 47 shows these values from 2005 through 2022, for the 11+ population as well as trip rates by household, with Table 20 providing additional details.

Through 2011, the total number of daily trips made by residents of the Study Area increased, even as the average daily number of trips made per person decreased steadily. Between 2011 and 2022, **the total number of trips continued to grow, although only slightly**, by 2.9%, well less than the 11%+ increase in population, workers, households and vehicles (see Table 3). Consistent with this disproportionate growth in total trips, **2022 marked a continued drop in the average trip rate per person**, for both the 5+ and 11+ thresholds (2.47 trips per person for both thresholds) and **a stronger drop in the average trip rate per household**, to 5.23 daily trips per households for the 11+ population.[36]

Both trip rate reductions reflect ongoing trends, with almost equal reductions since 2011 (-8.2% for trips per person 11+ and -8.3% for trips per household). The continued reductions beyond the pandemic suggest that the decline in trip rates may have been reinforced by work from home and other pandemic-induced changes in people's daily activities.

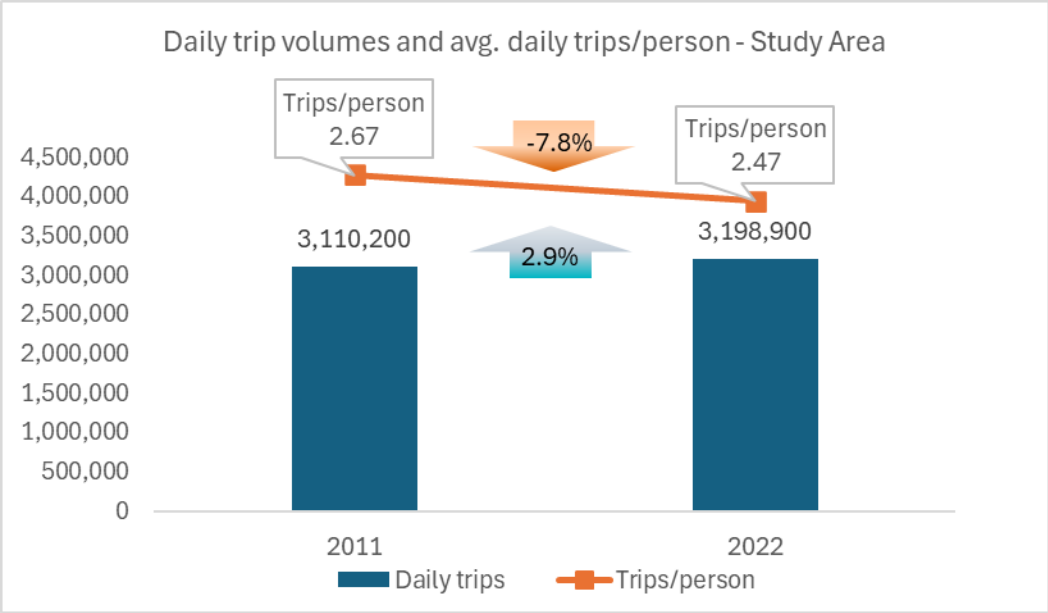
However, there are some differences between Ottawa and Gatineau CMA residents. These

[36] Including 5+ persons, there were 5.64 trips per Study Area household in 2022, down 7.5% from the 2011 average of 6.10 trips per households. See Table 21.

are shown in Figure 48 and Table 21. Between 2011 and 2022, Ottawa's trip rate for the 5+ population dropped by 9.2%, which dampened the total increase in trips by Ottawa residents to 0.7%. In the Gatineau CMA, the person trip rate dropped by only 3.0%, with a corresponding increase in daily trips of 10.3%.[37] Even so, Ottawa residents' rate of 2.50 trips per person 5+ exceeded that of Gatineau CMA residents' 2.35 trips per person 5+.

Table 21 also indicates that four out of every five people 5+ travelled on the survey date, unchanged from 2011 for Ottawa but representing a slight increase in the Gatineau CMA.

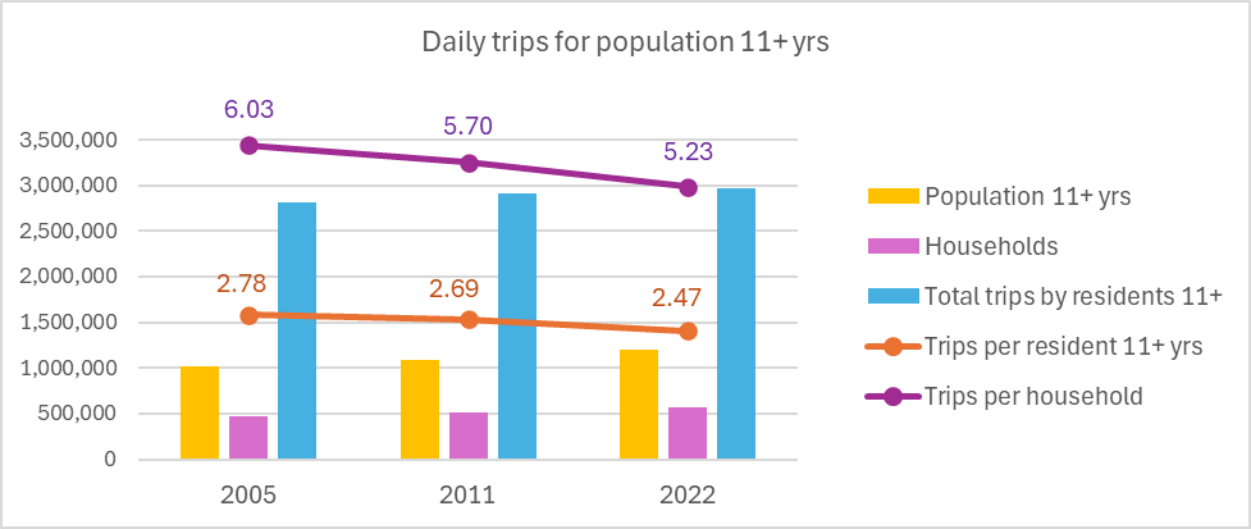
Figure 46. Daily trips for the population 5+, Study Area, 2011 and 2022



Total trip volumes: all trips in the Study Area. Trips/person: trips made by Study Area residents.

[37] Note that for the Gatineau CMA, a portion of the increase in the number of daily trips is likely due to the increase in the size of the survey area to include the small municipalities in the CMA that are outside the MRC des Collines-de-l'Outaouais. These municipalities represent about 0.6% of the entire study area and 2.3% of the population of the Gatineau CMA).

Figure 47. Trips for the population 11+, Study Area, 2005-2022



Includes all trips in the Study Area that are made by Study Area residents 11+.

Table 20. Details of trips for the population 11+, Study Area, 2005-2022

	Daily trips			% diff		
	2005	2011	2022	6-yr 2005-2011	11-yr 2011-2022	17-yr 2005-2022
Population 11+ yrs	1,010,500	1,163,200	1,200,800	7.0%	11.1%	18.8%
Households	465,400	510,000	567,200	9.6%	11.2%	21.9%
Total trips by residents 11+	2,806,200	2,909,000	2,966,300	3.7%	2.0%	5.7%
Trips per resident 11+ yrs	2.78	2.69	2.47	-3.2%	-8.2%	-11.1%
Trips per household	6.03	5.70	5.23	-5.4%	-8.3%	-13.3%

Includes all trips in the Study Area that are made by Study Area residents 11+.

Figure 48. Daily trips for the population 5+, Ottawa, Gatineau CMA residents, 2011 and 2022

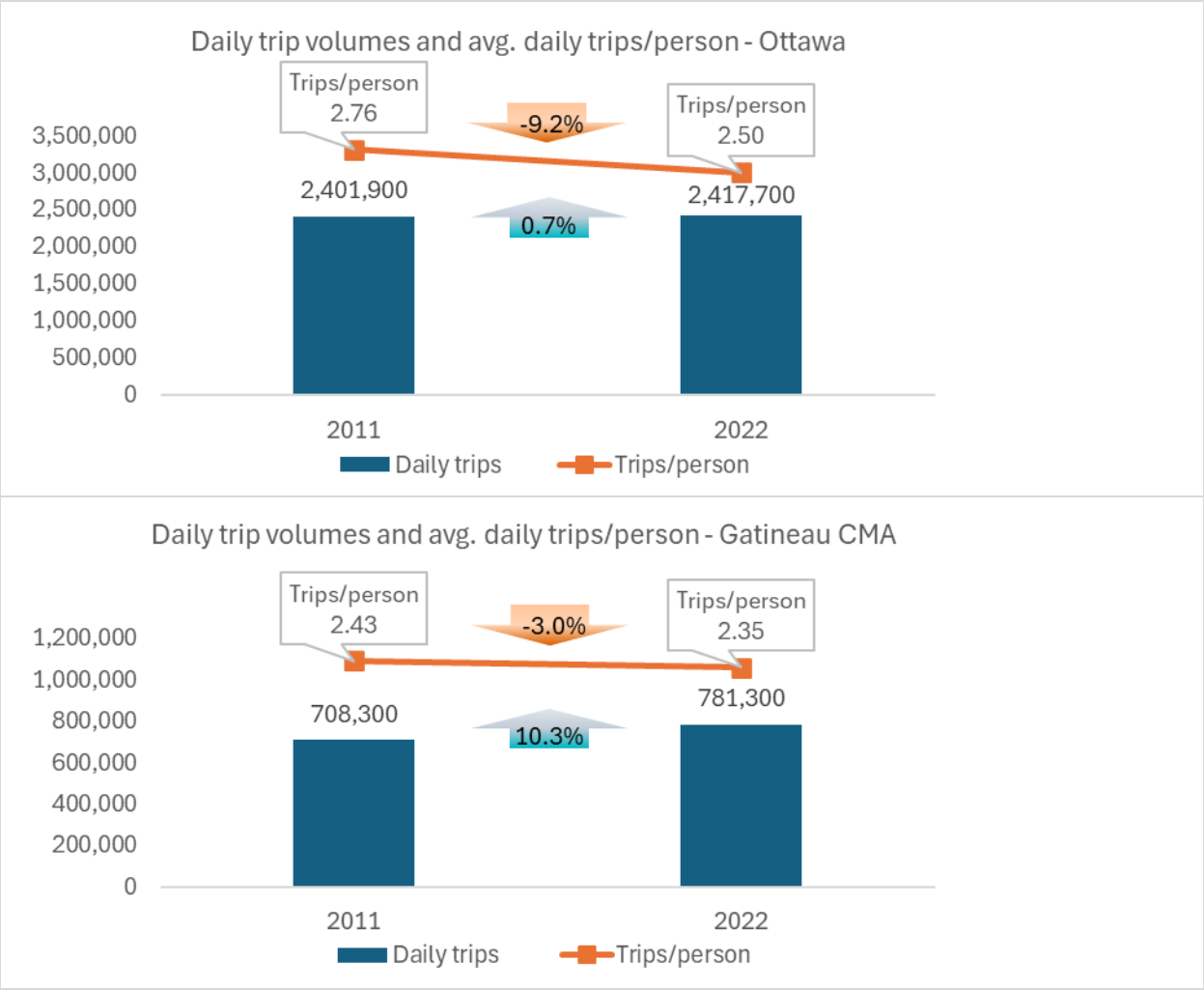


Table 21. Trips and trip rates for the population 5+, 2011 and 2022

	Study Area		Ottawa		Gatineau CMA	
	2011	2022	2011	2022	2011	2022
Households	510,000	567,200	379,800	414,500	130,200	152,700
Population 5+yrs of age	1,163,200	1,297,600	871,200	965,500	292,100	332,100
% who travelled	79.7%	79.8%	80.7%	79.8%	76.5%	79.7%
Total trips	3,110,200	3,198,910	2,401,878	2,417,651	708,322	781,259
Household trip rate	6.10	5.64	6.32	5.83	5.44	5.12
Person trip rate	2.67	2.47	2.76	2.50	2.42	2.35

Trip rates vary by sub-area. As shown in Figure 49 and detailed in Table 21, the daily trip rate per person 5+ was highest in Ottawa's Downtown Core at 2.76 trips per person 5+ and in Ottawa's Inner Urban transect, at 2.68 trips per person 5+. The trips rates were lowest in the Rest of the Gatineau CMA, at 2.25 trips per person 5+ and in the Gatineau CMA's Transit Oriented Development sub-area, at 2.27 trips per person 5+.

Ottawa's Suburban transact had the highest trips per household, at 6.49 trips per household, and in Ottawa's Rural transect, at 6.38 trips per household, consistent with these transects' higher proportions of large sizes (see section 3.6.2). The lowest rates were in Downtown Gatineau, at 3.88 trips per household, consistent with that sub-area's smaller average household sizes.

Approximately four out of every five residents 5+ of each sub-area travelled on their survey date, at rates between 77% in the Gatineau CMA's Transit-Oriented Development sub-area and 83% in Ottawa's Downtown Core.

Note that these trip rates refer to trips made by each sub-area's residents 5+, not necessarily all trips made to or from each sub-area. Readers are referred to Figure 2 in the introductory chapter of this report for a map of the sub-areas.

Figure 49. Details of daily trips by sub-area, 2022

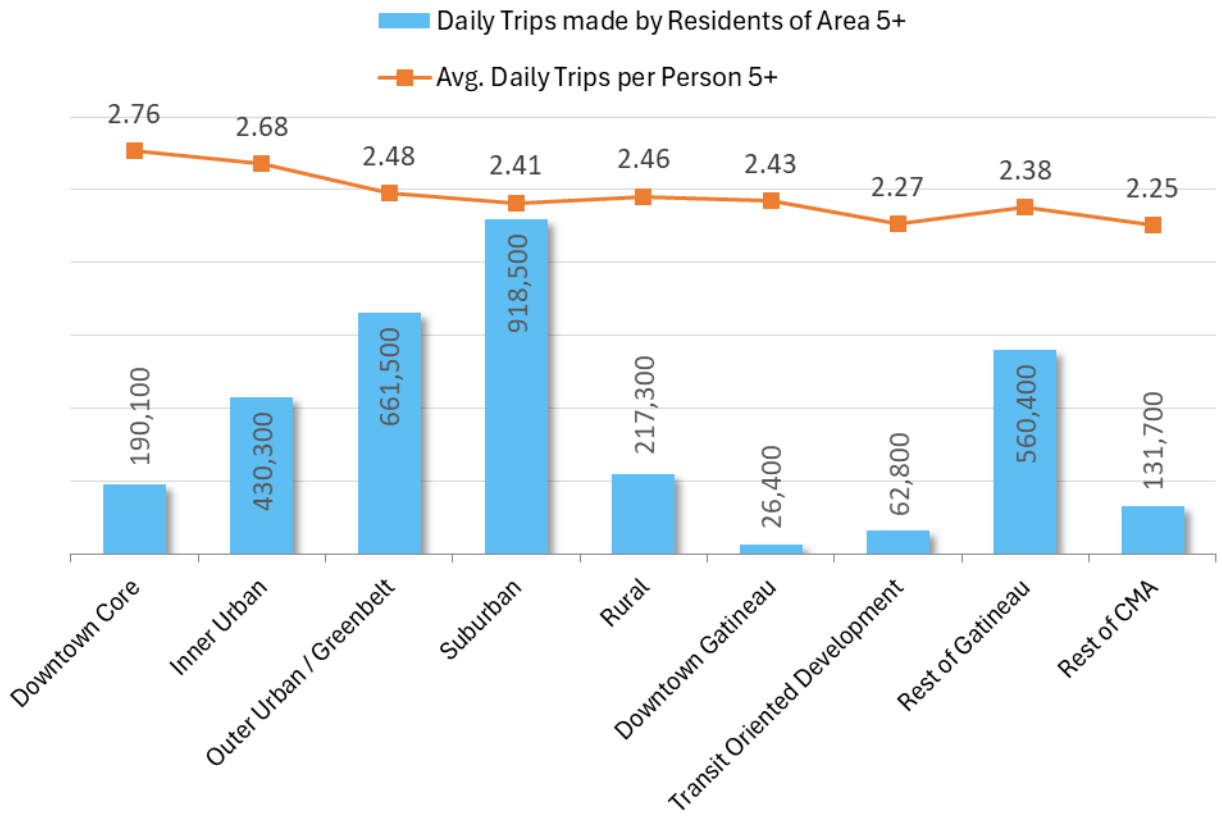


Table 22. Trips, trip rates and tour rates for population 5+ years, by sub-area, 2022

	Study Area	Ottawa	Gatineau CMA
Households	567,200	414,490	152,720
Total persons aged 5+ years	1,297,630	965,480	332,150
% who travelled	80%	80%	80%
Total trips	3,198,900	2,417,700	781,300
Household trip rate	5.64	5.83	5.12
Person trip rate	2.47	2.50	2.35

	Ottawa					Gatineau CMA			
	Down-town Core	Inner Urban	Outer Urban / Green-belt	Sub-urban	Rural	Down-town Gati-neau	Transit-Oriented Develop-ment	Rest of Gati-neau	Rest of CMA
Households	43,250	81,070	114,480	141,610	34,070	6,810	14,840	106,370	24,700
Total persons aged 5+ years	68,780	160,620	266,760	380,840	88,480	10,880	27,720	235,120	58,430
% who travelled	80%	80%	80%	83%	81%	79%	79%	80%	79%
Total trips	190,100	430,300	661,500	918,500	217,300	26,400	62,800	560,400	131,700
Household trip rate	4.40	5.31	5.78	6.49	6.38	3.88	4.23	5.27	5.33
Person trip rate	2.76	2.68	2.48	2.41	2.46	2.43	2.27	2.38	2.25

Note: The table presents All trips in the Study Area that are made by each sub-area's residents 5+.

4.2.2 Comparison with other jurisdictions

Table 23 compares daily person and household trip rates of the Study Area (which closely approximates the NCR) from the 2011 and 2022 TRANS household travel surveys with selected rates from recent surveys in several other Canadian and US urban regions. The comparison validates these key travel characteristics, both the most recent characteristics and as they have evolved before and through the pandemic. All sources are publicly available or used with permission, although not all information was available for all jurisdictions. Note that differences in survey methodology (including sampling approaches, survey method, the definition of a trip, and the ages for which trips were captured) may affect comparisons.

Table 23. Comparison of trip rates

City	Year of Survey	Daily Person Trip Rate	Daily Household Trip Rate	Population *
NCR (Study Area)	2022	2.47	5.23	1,365,600
	2011	2.69	5.70	1,233,800
	2005	2.78	6.03	1,150,600

City	Year of Survey	Daily Person Trip Rate	Daily Household Trip Rate	Population *
Québec-Lévis Region	2017	2.57	--	841,404
	2011	2.40	--	827,929
	2006	2.73	--	743,392
Greater Montréal Region **	2023	2.01	4.44	4,674,080
	2018	2.22	4.97	4,474,181
	2013	2.30	4.13	4,287,629
	2008	2.16	--	3,939,761
Greater Toronto and Hamilton Area ***	2022 5+	2.10	5.27	7,154,600
	2022 11+†	1.96	4.61	
	Fall 2021 ††	--	2.60	--
	2016	2.22	5.24	6,813,900
	2011	2.36	5.76	6,577,200
	2006	2.40	5.67	5,871,900
City of Kingston	2024	2.69	5.66	157,600
	2019	2.98	6.43	139,600
Regina Census Metropolitan Area	2024	2.67	6.11	252,500
	2009	3.37	--	203,400
City of Saskatoon	2023	2.74	5.60	281,700
	2008	3.29	7.42	218,800
City of Red Deer	2024	2.48	5.67	94,100
	2016	2.83	6.55	91,900
City of Calgary	2022	3.4	8.2	--
	2020	2.8	7.3	--
	2019	3.5	9.3	--
City of Edmonton	2015	3.51	8.54	894,400
	2005	3.63	8.57	712,400
City of Vancouver †††	2024	3.17	--	714,600
	2023	3.03	--	687,700
	2022	2.90	--	674,100
	2021	2.85	--	663,900
	2020	2.71	--	--
	2019	3.73	--	--
	2018	3.76	--	--
Central Okanagan (Kelowna region)	2018	3.02	6.67	237,250
	2013	3.22	7.14	220,470
	2007	3.37	7.63	198,870
Capital Regional District (Victoria region)	2022	2.63	5.23	394,000
	2017	3.20	6.35	363,300

City	Year of Survey	Daily Person Trip Rate	Daily Household Trip Rate	Population *
	2011	3.30	6.58	338,000
Raleigh-Durham, North Carolina, USA	2022	3.86	--	--
	2021	3.08	--	--
	2018	4.29	--	--
Ohio Statewide, USA	2022-2023	3.81	--	--
	2021-2022	3.89	--	--
	2019-2020	4.14	--	--
Minneapolis – St Paul, Minnesota, USA	2021-2022	3.89	--	--
	2018-2019	4.29	--	--
Seattle, Washington, USA	2021	4.10	--	--
	2019	4.19	--	--

Notes:

* In some jurisdictions, the Study Areas varied between surveys.

** Trips per person aged 5+. Sources:

Enquête origine-destination 2018, La mobilité des personnes dans la région métropolitaine de Montréal, ARTM, 2020.

Enquête origine-destination 2013, La mobilité des personnes dans la région métropolitaine de Montréal, AMT (now ARTM), 2015.

Enquête origine-destination 2008, La mobilité des personnes dans la région métropolitaine de Montréal, AMT (now ARTM), 2011.

*** Transportation Tomorrow Survey (TTS) results are for trips per person aged 11+ unless otherwise noted. The TTS trip definition in all survey cycles does not include incidental stops of less than 15 minutes (such as stopping for gas or a drive-through coffee) on the way to a main destination. In 2016 and earlier cycles, non-commute walk trips were not captured, and the age for trip capture was 11+ years. In 2022, trips for persons 5+ non-commute walking trips were captured.

Sources:

2022 TTS preliminary results presented with permission of the Ontario Ministry of Transportation.

RA Malatest, *TTS 2016: 2016, 2011, 2006, 1996 and 1986 Travel Summaries for the Greater Toronto & Hamilton Area*, MTO, 2018. Person-trip rates shown were were available only to the single decimal place.

† 2022 TTS 11+ statistic is for comparability to previous TTS survey cycles. It filters the 2022 result to ages 11+ years and filters out non-commute walking trips that would not have been captured in 2016 and earlier cycles.

†† Very small sample. Unweighted results. Source: *COVID-19 influenced Households' Interrupted Travel Schedules (COVHITS) Survey: Fall 2021 Cycle Report*, University of Toronto, December 31, 2021.

††† Small sample (panel survey) of adults 18+ years of age. Source: *2022 Vancouver Transportation Fall Survey, Final Report*, City of Vancouver, July 2023.

Other sources (from east to west):

- *Enquête origine-destination 2017, La mobilité des personnes dans la région de Québec-Lévis, Faits saillants*, MTMD, 2019.
- The City of Calgary, unpublished data from panel surveys. Used with permission by The City of Calgary. Rates shown were provided only to the single decimal place. This study reports each segment of a multi-mode journey as an individual trip.
- As-yet unpublished results for the 2024 Kingston Household Travel Survey, 2024 Regina Household Travel Survey, and 2024 Red Deer Household Travel Survey, used with permission of City of Kingston, City of Regina, and City of Red Deer, respectively.
- RA Malatest with David Kriger Consultants Inc., *2015 Edmonton and Region Household Travel Survey, Summary Report*, City of Edmonton, 2018.
- RA Malatest with David Kriger Consultants Inc., *Capital Region District (CRD) Origin Destination Household Travel Survey 2022, Final Report*, September 2023.
- US surveys data provided by Resource Systems Group.

The comparison shows that **the Study Area's person and household trip rates are comparable with those of the other urban areas**, although the rates vary, and the US rates are generally higher than most of their Canadian counterparts.[38] Note that the surveys conducted in the US often have significant methodological differences from Canadian surveys, often with lower sampling rate targets and lower response rates, and differences in recruitment methods (e.g., use of supplementary email samples), survey methods, approaches to data weighting and data processing, and/or may have different definitions of what constitutes a trip. Canadian surveys that are most similar to the 2022 TRANS survey in sampling and survey methods include the most recent surveys completed in Montréal, the Greater Toronto Hamilton Area, Saskatoon, Edmonton, the B.C. Capital Regional District (Victoria), and the Central Okanagan (Kelowna area). Even where there are differences in methods, the results over time may still shed light on common trends.

The comparative data also show that **person and household trip rates were declining prior to the pandemic** in several urban regions. The Greater Montréal Region, the Greater Toronto and Hamilton Area, Edmonton, the Capital Regional District and Vancouver show evidence of reductions in person-trip and/or household-trip rates prior to the pandemic. The Québec-Lévis Region shows a rebound after a drop.

Reductions in rates have continued through the pandemic, although they may be recovering in some urban regions. Vancouver, the Capital Regional District, and three of the US surveys show continued reductions in post-pandemic person-trip rates compared with pre-pandemic rates. On the other hand, the Calgary data show an almost complete recovery in the post-pandemic person-trip rate, although the household rate remains lower. Raleigh-Durham's person-trip rate has also recovered, although it is still below its pre-pandemic level. The GTHA 2021 survey, although a very small sample, provides evidence of the extreme drop in travel during the pandemic.

The clearest trend is provided by the City of Vancouver. These annual small-sample (panel) surveys reflect steady daily-person trip rates prior to the pandemic (3.73 daily person-trips in 2019). The precipitous 2020 drop to 2.71 daily person-trips has been recovering slowly, although the 2022 rate of 2.90 daily person-trips is still well below the 2019 rate.[39]

[38] The US surveys were collected via smartphone app and web-based surveys. Source: *Pre- and Post-Pandemic Trip Rates*, Resource Systems Group memorandum to the consultants, December 29, 2023.

[39] *2022 Vancouver Transportation Fall Survey, Final Report*, City of Vancouver, July 2023. Though unique in providing annual travel profiles, it should be noted that the survey sample sizes are small compared with the other, region-wide surveys cited in this discussion.

4.2.3 Daily trips by household characteristics

Table 24 summarizes how trip rates vary by key household characteristics. Historically, trip rates generally have varied according to *household* level indicators such as dwelling type, income and vehicle access. Trip rates per household can further vary when measured at the person level, e.g., when distinguished by household size and household type.[40]

- The highest average person-trip rates were for single parents with one or more children 0-17 years, people with household incomes greater than $150,000, and people living in 4-person households.
- The lowest average person-trip rates were for people living in households that have three or more adults and no children, people living in households with no workers, people living in households with no vehicles, and for those with household incomes between $35,000 and $70,000.
- The highest household trip rates were for 5+ person households, and the lowest household trip rates were for single-person households and no-worker households.

These Study Area highs and lows largely held true for Ottawa and the Gatineau CMA.

Table 24. Total daily trips and trip rates by household characteristics, population 5+, 2022

	Study Area			Ottawa			Gatineau CMA		
Household Characteristic	Trips made by Residents	Household Trip Rate	Person Trip Rate	Trips made by Residents	Household Trip Rate	Person Trip Rate	Trips made by Residents	Household Trip Rate	Person Trip Rate
Study Area	3,198,900	5.64	2.47	2,417,700	5.83	2.50	781,300	5.12	2.35
Household Size									
1 person	427,000	2.55	2.55	312,200	2.64	2.64	114,800	2.31	2.31
2 people	878,300	4.65	2.33	661,300	4.81	2.41	217,000	4.21	2.11
3 people	561,100	6.63	2.38	422,000	6.73	2.40	139,100	6.35	2.32
4 people	775,100	9.71	2.66	588,500	9.70	2.65	186,600	9.75	2.70
5+ people	557,400	12.11	2.46	433,600	12.20	2.47	123,800	11.82	2.45
Dwelling Type									
House	1,681,800	6.96	2.48	1,263,000	7.29	2.52	418,800	6.12	2.37
Apartment 5+ storeys	298,800	3.51	2.40	275,900	3.54	2.40	22,800	3.21	2.30
Apartment <5 storeys	324,400	3.85	2.44	180,200	4.13	2.64	144,200	3.55	2.23
Other Ground-Oriented	894,000	5.72	2.48	698,500	5.84	2.49	195,400	5.34	2.42

[40] Household type refers to the composition of the household: number of adults and number of children, presence of workers in the household or not.

Household Characteristic	Study Area			Ottawa			Gatineau CMA		
	Trips made by Residents	Household Trip Rate	Person Trip Rate	Trips made by Residents	Household Trip Rate	Person Trip Rate	Trips made by Residents	Household Trip Rate	Person Trip Rate
Household Income									
Less than $35K	171,900	5.72	2.48	126,300	5.84	2.49	45,600	5.34	2.42
$5K to <$70K	394,500	3.31	2.04	275,900	3.65	2.13	118,600	2.64	1.83
$70K to <$100K	530,400	3.65	2.21	376,800	3.83	2.29	153,500	3.29	2.05
$100K to <$150K	826,600	4.71	2.42	614,900	4.70	2.44	211,700	4.74	2.36
$150K+	1,275,500	6.09	2.52	1,023,700	6.08	2.53	251,900	6.11	2.50
Household Type									
Single person	427,000	2.55	2.55	312,200	2.64	2.64	114,800	2.31	2.31
Two adults, no children	839,800	4.62	2.31	637,000	4.79	2.39	202,700	4.16	2.08
Three or more adults, no children	434,500	6.87	1.98	355,000	7.02	2.00	79,500	6.26	1.88
Single parent, one or more children 0-17 yrs	103,800	7.22	2.95	61,100	7.28	2.97	42,600	7.15	2.93
Two adults, one or more children 0-17 yrs	1,076,500	9.63	2.85	801,100	9.77	2.89	275,400	9.26	2.74
Three or more adults, one or more children 0-17 yrs	317,400	11.27	2.38	251,200	11.28	2.38	66,200	11.21	2.38
Vehicle Ownership									
No household vehicles	213,400	3.06	2.17	184,500	3.21	2.22	29,000	2.35	1.90
At least one vehicle	2,985,500	6.00	2.49	2,233,200	6.25	2.53	752,300	5.36	2.37
Worker vs. Non-Worker Households									
No workers	459,400	3.36	2.15	344,200	3.55	2.26	115,300	2.89	1.88
1 worker	806,400	4.33	2.48	603,700	4.48	2.51	202,700	3.93	2.38
2 or more workers	1,933,100	7.92	2.55	1,469,800	8.04	2.57	463,300	7.57	2.49

Blue shading highlights higher values. The intensity of the shade increases as the value approaches the highest value.

4.2.4 Daily trips by demographic characteristics

Table 25 examines how daily trips and person-trip rates vary by employment status, student status, gender and age group. The table shows that trip rates were highest for people in the 35-44 cohort (i.e., people who are generally in the midst of their work careers and have established households), workers with a usual place of work outside the home, and full- and part-time workers. Among students, part-time post-secondary students had the highest trip rates. The lowest trip rates were associated with people 85+. Interestingly, the person-trip rates for people who worked exclusively from home were the lowest among all workers, and

only slightly greater than the rates for people who were not workers. Overall, the Study Area highs and lows generally held true for Ottawa and the Gatineau CMA.

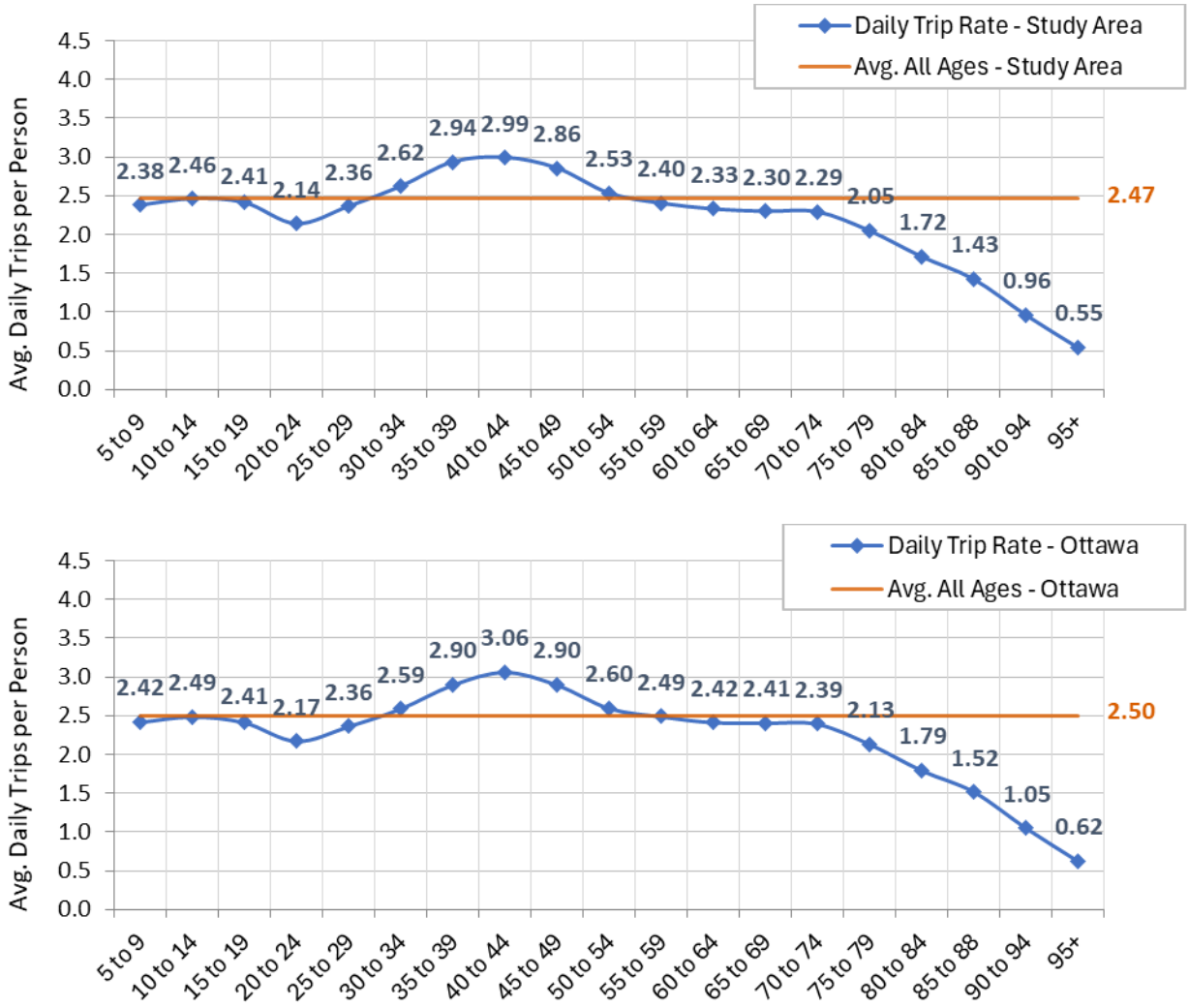
Table 25. Total daily trips and trip rates by demographic characteristics, population 5+, 2022

	Study Area		Ottawa		Gatineau CMA	
	Daily Trips	Person Trip Rate	Daily Trips	Person Trip Rate	Daily Trips	Person Trip Rate
Study Area	3,198,900	2.47	2,417,700	2.50	781,300	2.35
By Employment Status						
Work Full-Time	1,624,100	2.67	1,211,800	2.70	412,300	2.60
Work Part-Time	341,300	2.67	267,400	2.71	73,900	2.52
Unemployed	49,100	1.69	38,900	1.74	10,200	1.50
Other (includes students 15+ who do not work)	271,500	2.14	216,900	2.15	54,700	2.10
Retired	514,400	2.13	390,000	2.23	124,400	1.88
Not applicable (5-14 yrs)	398,600	2.42	292,700	2.45	105,900	2.34
By Workplace Location						
Not a worker	1,231,800	1.96	937,700	2.01	294,100	1.80
Work exclusively from home	280,300	2.04	220,300	2.08	60,000	1.92
No fixed workplace	137,100	2.68	104,900	2.72	32,200	2.56
Usual place of work	1,549,600	2.83	1,154,700	2.86	394,900	2.74
By Student Status						
Not a student	2,446,600	2.32	1,854,900	2.36	591,700	2.18
K-12/K-S5 student	513,800	2.46	387,100	2.49	126,600	2.36
PSE Full-time	197,300	2.33	146,900	2.31	50,400	2.39
PSE Part-time	41,200	2.60	28,700	2.57	12,500	2.66
Gender						
Men+	1,589,600	2.51	1,198,200	2.55	391,300	2.40
Women+	1,609,400	2.42	1,219,400	2.46	390,000	2.31
Age Group						
05 to 14	398,600	2.42	292,700	2.45	105,900	2.34
15 to 24	384,800	2.27	299,200	2.28	85,700	2.21
25 to 34	473,500	2.49	355,200	2.48	118,300	2.54
35 to 44	552,700	2.96	406,700	2.98	145,900	2.92
45 to 54	486,500	2.69	368,800	2.75	117,700	2.53
55 to 64	440,000	2.37	331,900	2.45	108,100	2.13
65 to 74	303,400	2.30	233,800	2.40	69,600	2.00
75 to 84	139,200	1.93	111,700	2.01	27,500	1.67
85+	20,300	1.27	17,700	1.37	2,600	0.86

Figure 50 shows visually how the daily trip rate varied by 5-year age groups. Following a slight decline in trip-making as children enter their late teens and young adulthood, peak trip-making activity occurred in the 35-39 and 40-44 cohort which, as noted, is consistent with a stage in life in which people are active in their work careers and may be raising children – all of which contribute to increased travel activity. From a high of 2.99 trips per person in the 40-44 cohort, the average trip rate per person dropped gradually with age, reaching below the daily average of 2.47 trips per person in the 55-59 cohort and then starting to drop more steeply with the 70-74 cohort.

The general pattern across the Study Area applied in both Ottawa and the Gatineau CMA. However, two of Gatineau CMA's transitions occurred at an earlier cohort than Ottawa's: in Gatineau, the peak trip rate occurred in the 35-39 cohort, and the trip rate dropped below the daily average in the 50-54 cohort.

Figure 50. Trip rates by age (5-year age groups), 2022



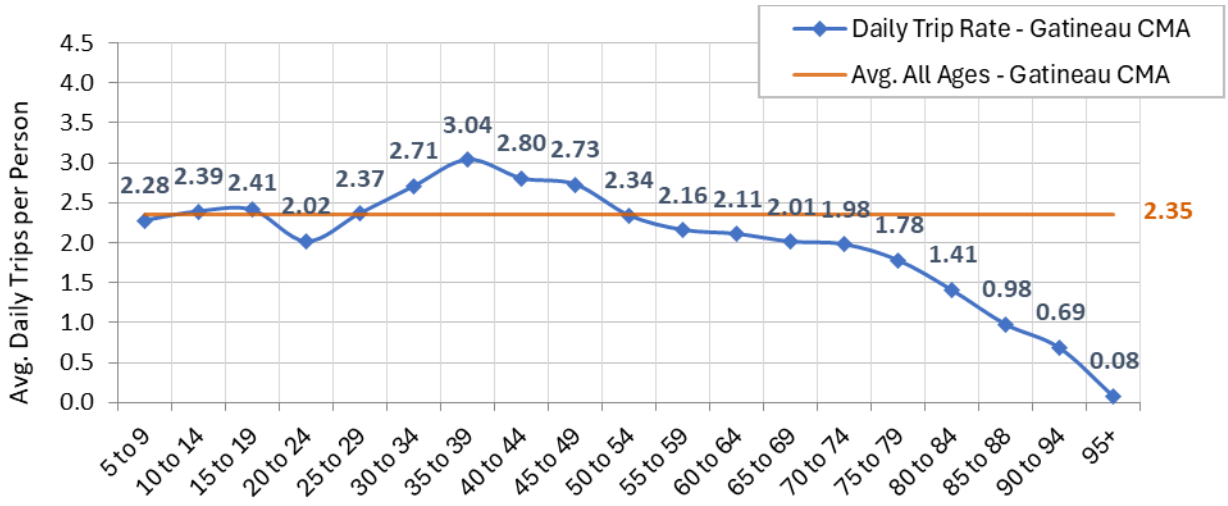
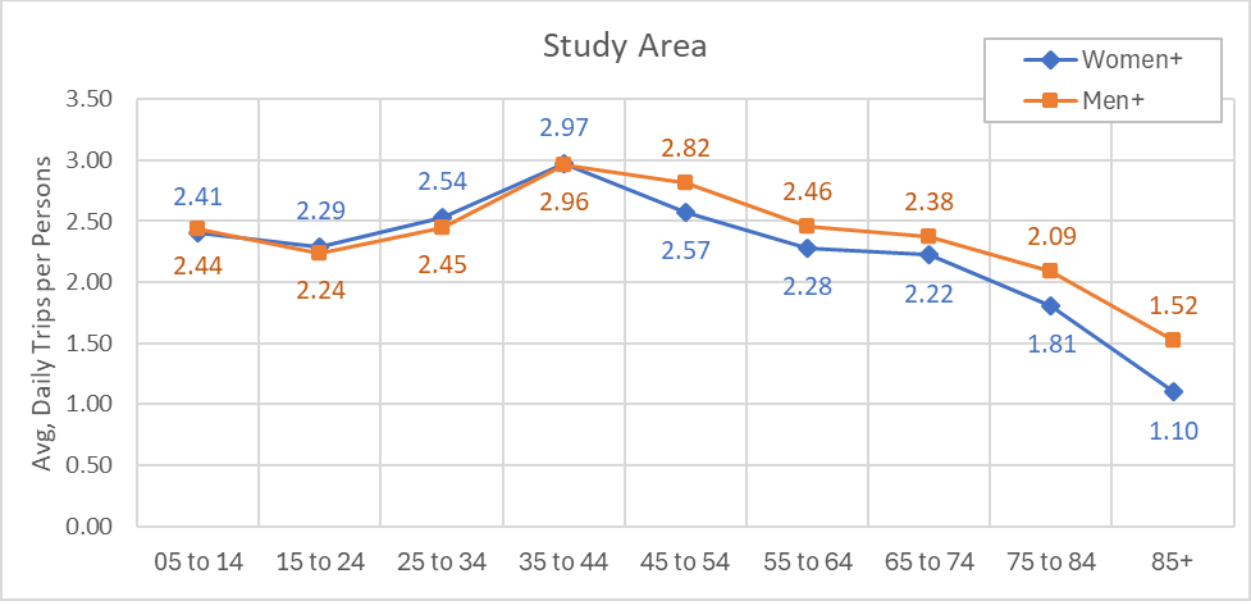
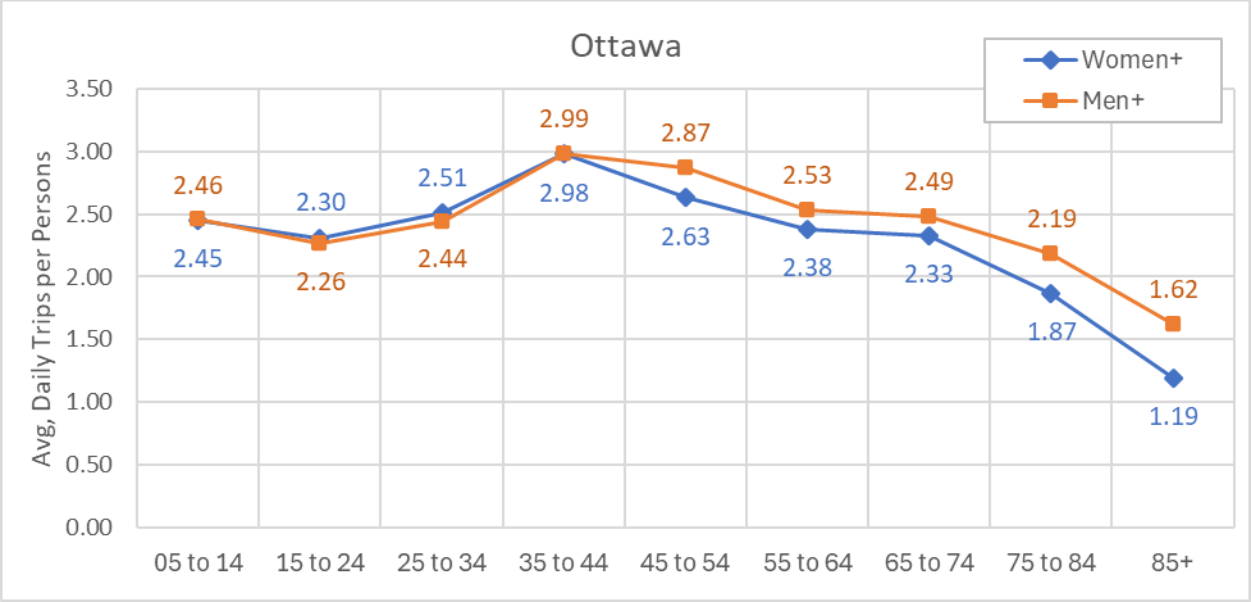


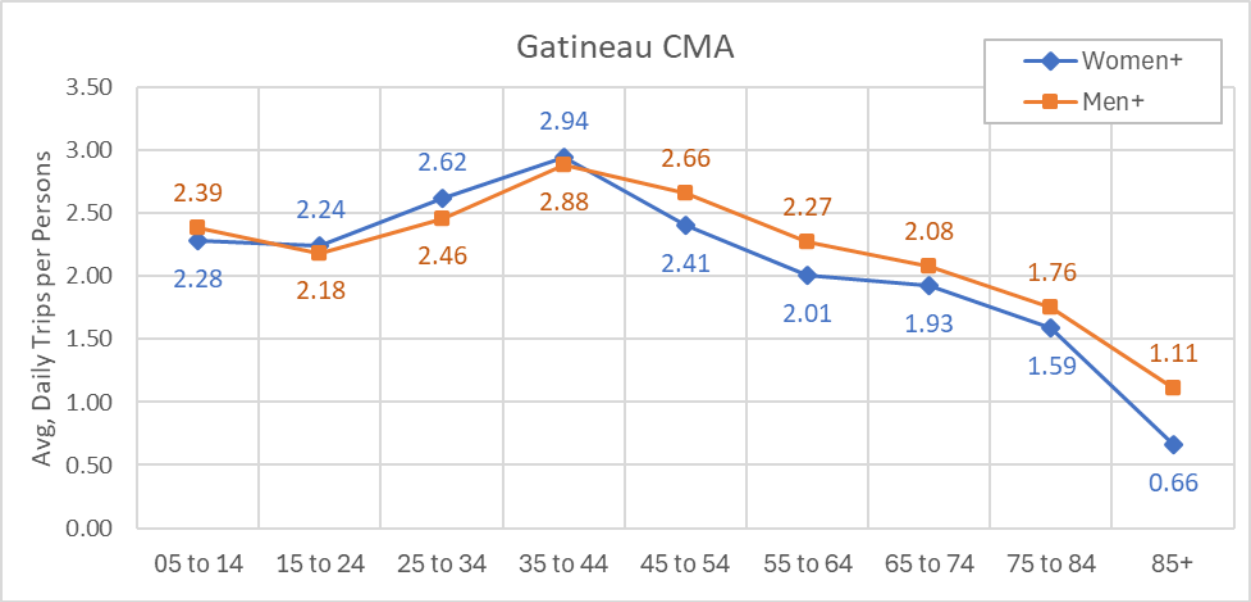
Figure 51 further breaks down the Study Area trip rate by gender, using 10-year age groups. Women+ had consistently higher trip rates through the 35-44 cohort, after which men+ had higher trip rates and women's travel activity dropped faster than men's activity. The highest trip rates overall were in the 35-44 cohort, at 2.97 trips per persons for women+ and 2.96 trips per person for men+. Women+ 85+ had the lowest trip rate, at 1.10 trips per person.

When Ottawa and the Gatineau CMA are examined individually, there are some differences from the survey average, but the overall pattern of the differential between men+ and women+ is very similar.

Figure 51. Trip rates by gender by age (10-year age groups), 2022







Men+: men (and/or boys) plus some non-binary persons and some who declined to answer.
Women+: women (and/or girls) plus some non-binary persons and some who declined to answer.

4.2.5 Trips by hour of the day

The first chart, Figure 52, plots person-trip volumes by hour of the day for 2011 and 2022 across the Study Area. The person-trip volumes are plotted by start time. This figure addresses three important questions: how the temporal distribution and magnitude of travel have changed after the pandemic, whether the PM peak period is beginning earlier (as it is in several Canadian cities) and whether inter-peak daytime activity has grown (as is also the case in some Canadian cities).

The general profile of the trips remained the same, with the morning and afternoon commuter peaks registering the greatest volumes of the day. As shown by the shading in the figure, the AM peak period ranged from 6:30 to 8:59 a.m. (a 2½-hour duration) and the PM peak period ranged between 3:00 and 5:59 p.m. (a 3-hour duration).[41] As in 2011, the rise in afternoon volumes begins at 1 p.m., with a long evening taper, which ends slightly earlier in 2022.[42]

However, the number of trips dropped during the AM peak period, evening and overnight, while increases were recorded from the end of the AM peak period through the PM peak period. The most notable changes were in the hours starting at:

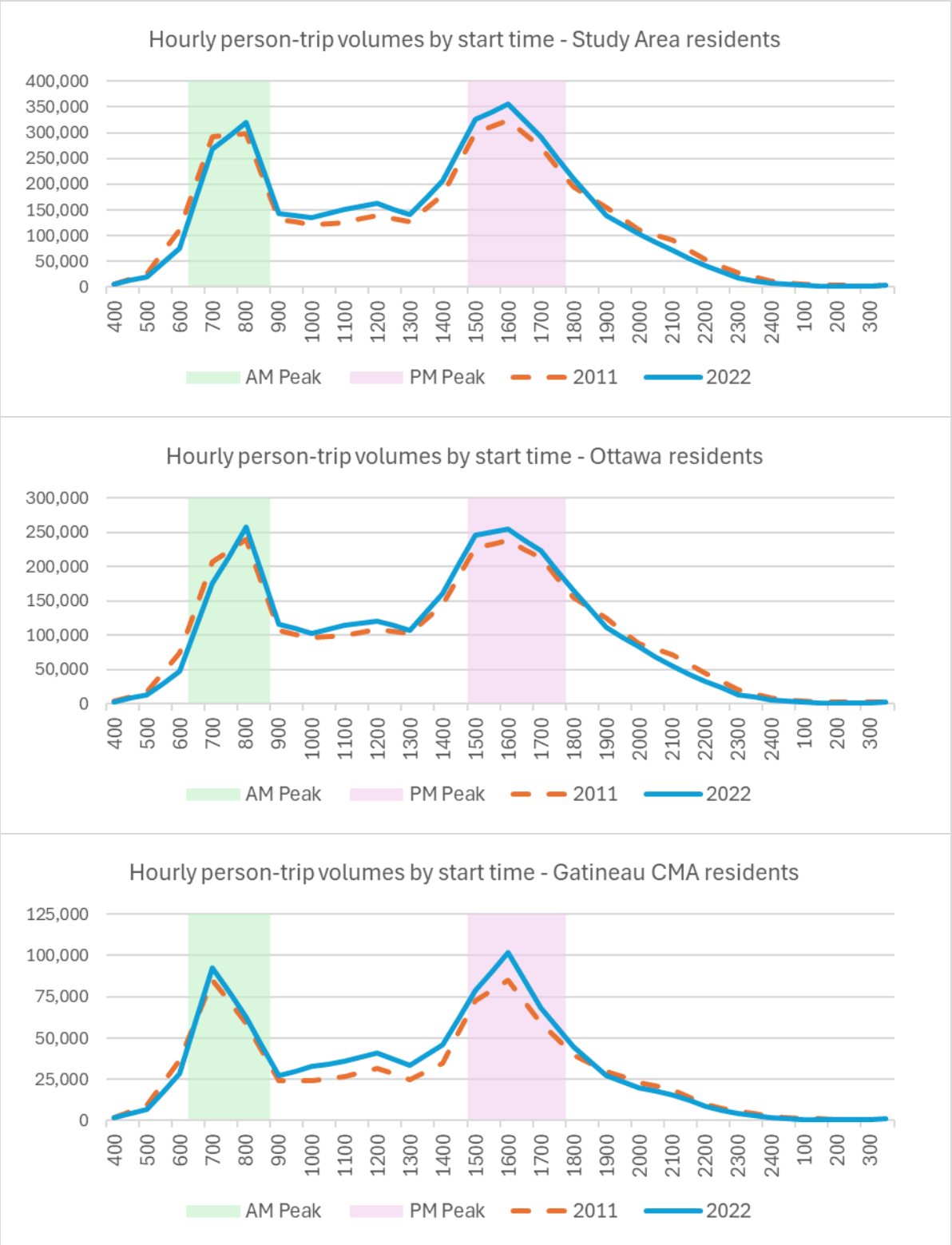
- 6 a.m. and 7 a.m., at -35,200 trips (the largest single hourly drop in the day) and -24,500 trips, respectively (the peak of the AM commuter peak). These reductions reflect a delay in morning peak volumes, with an increase of 21,900 trips at 8 a.m.
- 11 a.m., at +24,600 trips, noon, at +22,500 trips and 2 p.m. +28,000 trips (the midday peak).
- 4 p.m. through 6 p.m., with increases of +32,800 at 4 p.m. (the largest single hourly gain), +18,800 trips at 5 p.m. and +15,600 trips at 6 p.m. (during the PM commuter peak).
- 7 p.m., at -15,000 trips and 9 p.m., at -19,800 trips (through the evening).
- 10 p.m., at -12,800 trips and 11 p.m., at -8,900 trips (during the late evening).

In other words, the changes were not limited to the typical peak travel times. Their breadth across the day may reflect changes in work and school commutes, as well as shopping, restaurant/bar and social activities and other activities that occur outside the commuter peaks.

[41] Note that the peak periods changed in 2022, and the survey reporting here matches the definition for the new transportation model. The 2011 survey reporting and the 2019 transportation model both used the same range for its definition of the AM peak period, but had a shorter PM peak period from 3:30 – 5:59 p.m., while the 2019 transportation model had a PM peak period from 3:30 – 6:29 p.m.

[42] Note that for visual clarity and ease of legibility, Figure 52 shows hours in 24-hour format. Thus, 6:00 a.m. is 0600 and 5:00 p.m. is 1700.

Figure 52. Person-trip volumes by hour of day, population 5+, 2011 and 2022



Note that these data are aggregated by hour. Drilling deeper into the data for the Study Area by 15-minute period reveals that the single busiest hour in the AM peak period spans 7:30 – 8:29 a.m., at 346,500 trips. The single busiest hour in the PM peak period (and the busiest hour of the day) spans 3:45 – 4:44 p.m., at 367,200 trips. Compared with 2011, these times are 15 minutes later in the AM and 15 minutes earlier in the PM, respectively.

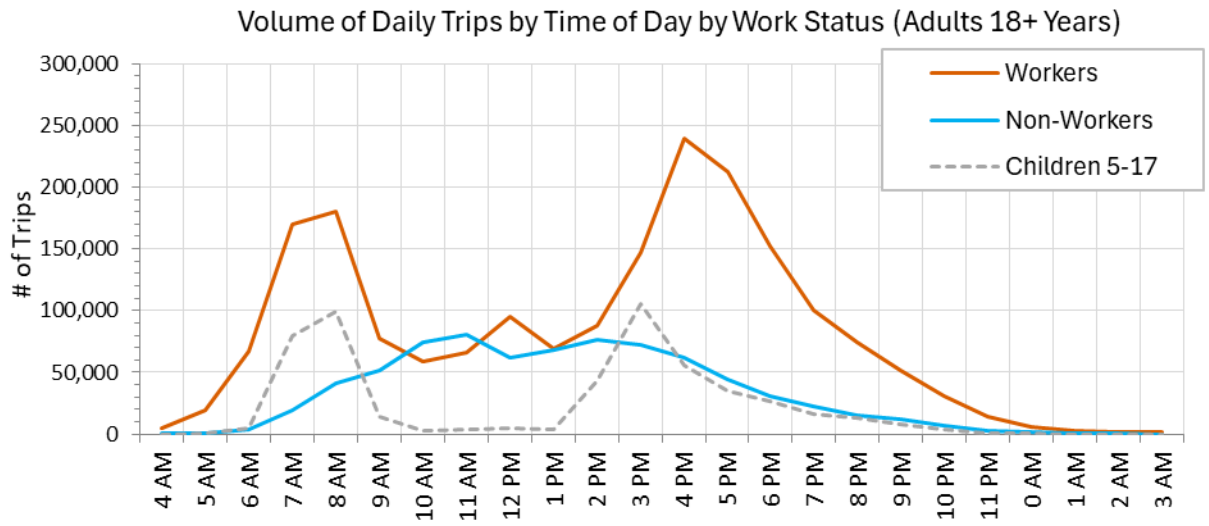
Finally, it should also be noted that the largest hourly reduction, which began at 6 a.m., was consistent across the Study Area. Breaking down the 6 a.m. reduction of -35,200 trips: in Ottawa, the reduction was -27,200 trips, and in the Gatineau CMA, the reduction was -8,000 trips. However, the largest hourly gain occurred at different times of the day: the largest single hourly gain in Ottawa was +18,500 trips, at 8 a.m. In the Gatineau CMA, the largest single hourly gain was +16,300 trips, at 4 p.m. These times correspond to the peak AM and PM commuting hours, respectively.

Figure 53 shows how travel patterns varied by time of day among working and non-working adults and children 5-17 for the Study Area. Figure 54 and Figure 55 show the same information for Ottawa and the Gatineau CMA respectively. As expected, the peak travel times for workers and children occurred during the commuter peaks, which is consistent with their commutes to and from work and school respectively.[43] However, while there was still some activity by workers between the two commuter peaks (including work-related trips), children's travel dropped to near-zero volumes during this time, consistent with their presence at school. The morning peak hour occurred at 8 a.m. for both workers and children (students). However, the afternoon peak hour for students occurred at 3 p.m. and an hour later for workers. The respective afternoon peaks were greatest for both students and workers.

Trips made by non-working adults peaked during the midday period, which is consistent with shopping, personal appointments, and other discretionary activities.

[43] Because these are habitual trips that workers and students 'must' make as part of their employment or schooling, they are described as 'non-discretionary' trips, even if they do not occur every day. In contrast, trips for shopping, recreation, going to a restaurant and so on are characterized as 'discretionary' trips because they commonly have flexible schedules.

Figure 53. Trips by start hour for workers, non-workers and children, Study Area, 2022



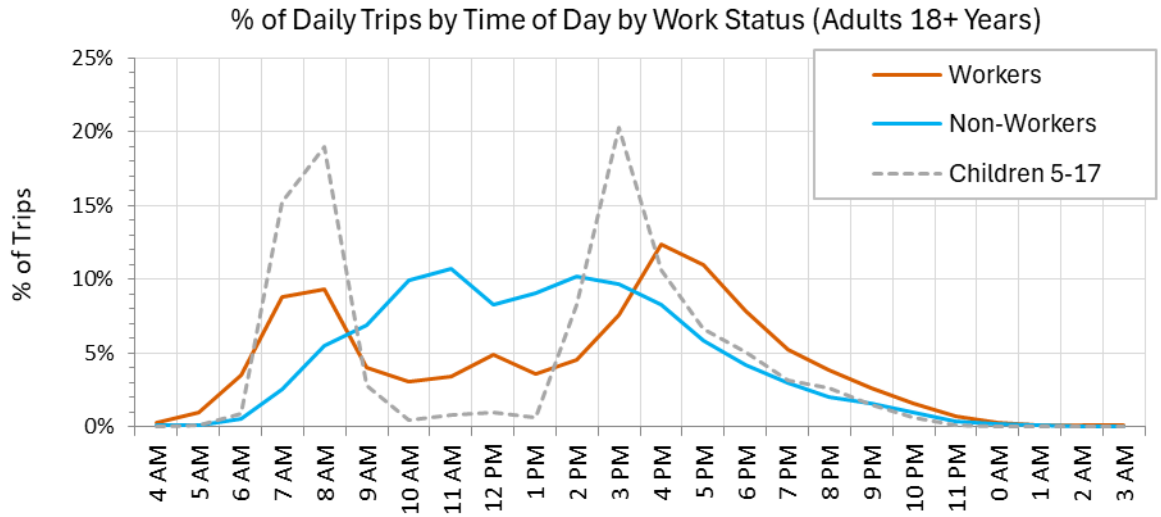


Figure 54. Trips by start hour for workers, non-workers and children, Ottawa, 2022

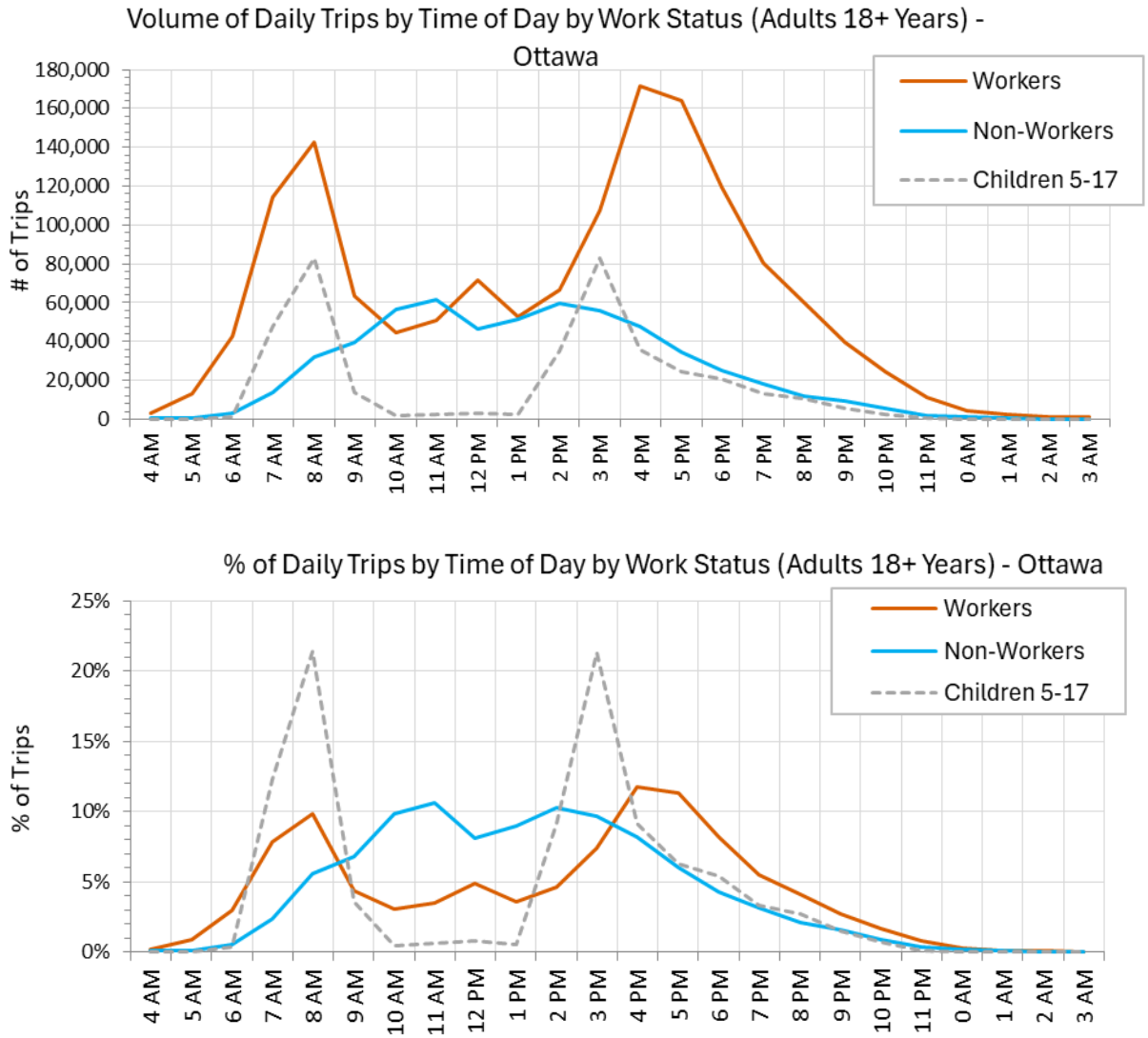


Figure 55. Trips by start hour for workers, non-workers and children, Gatineau CMA, 2022

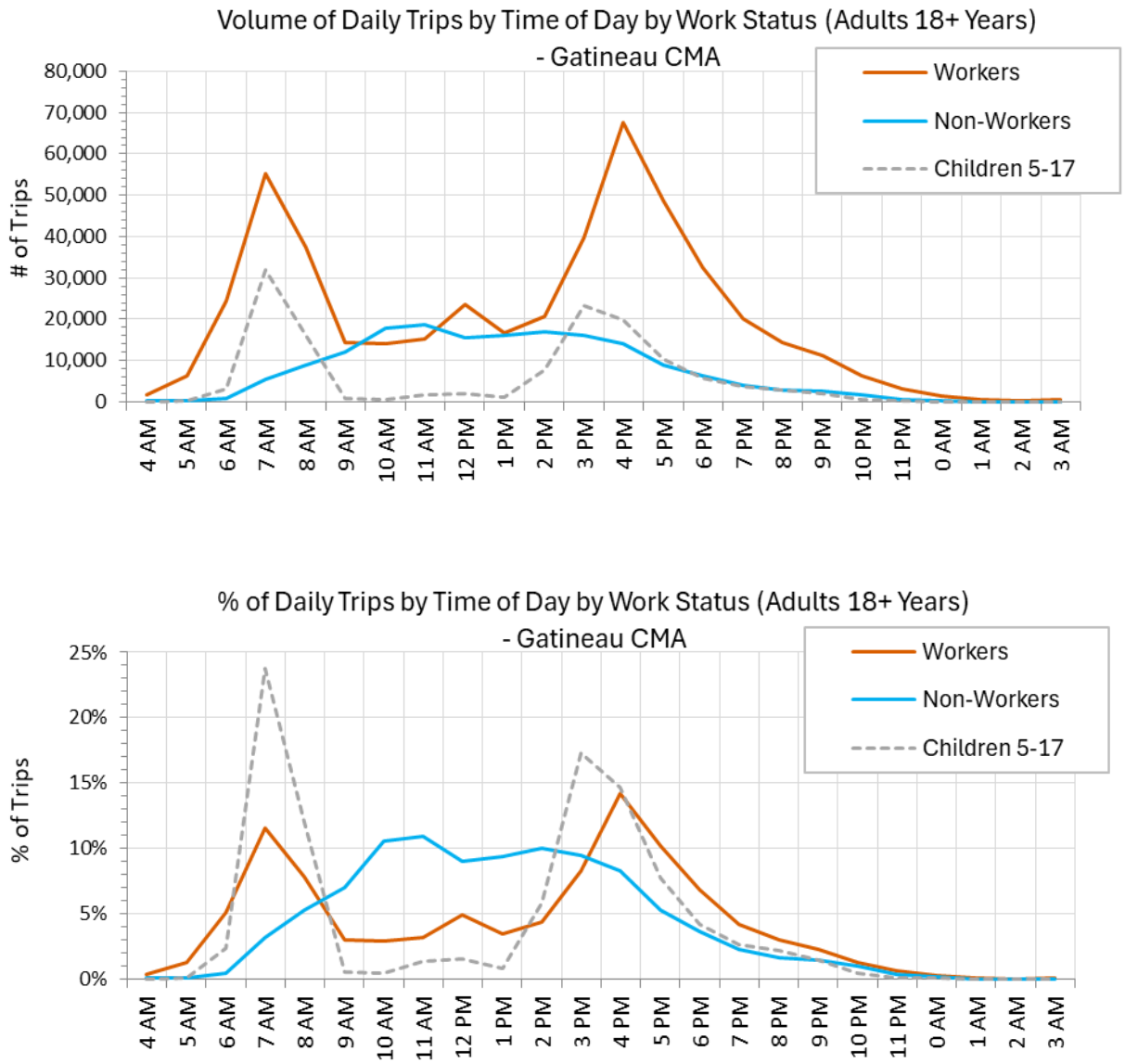
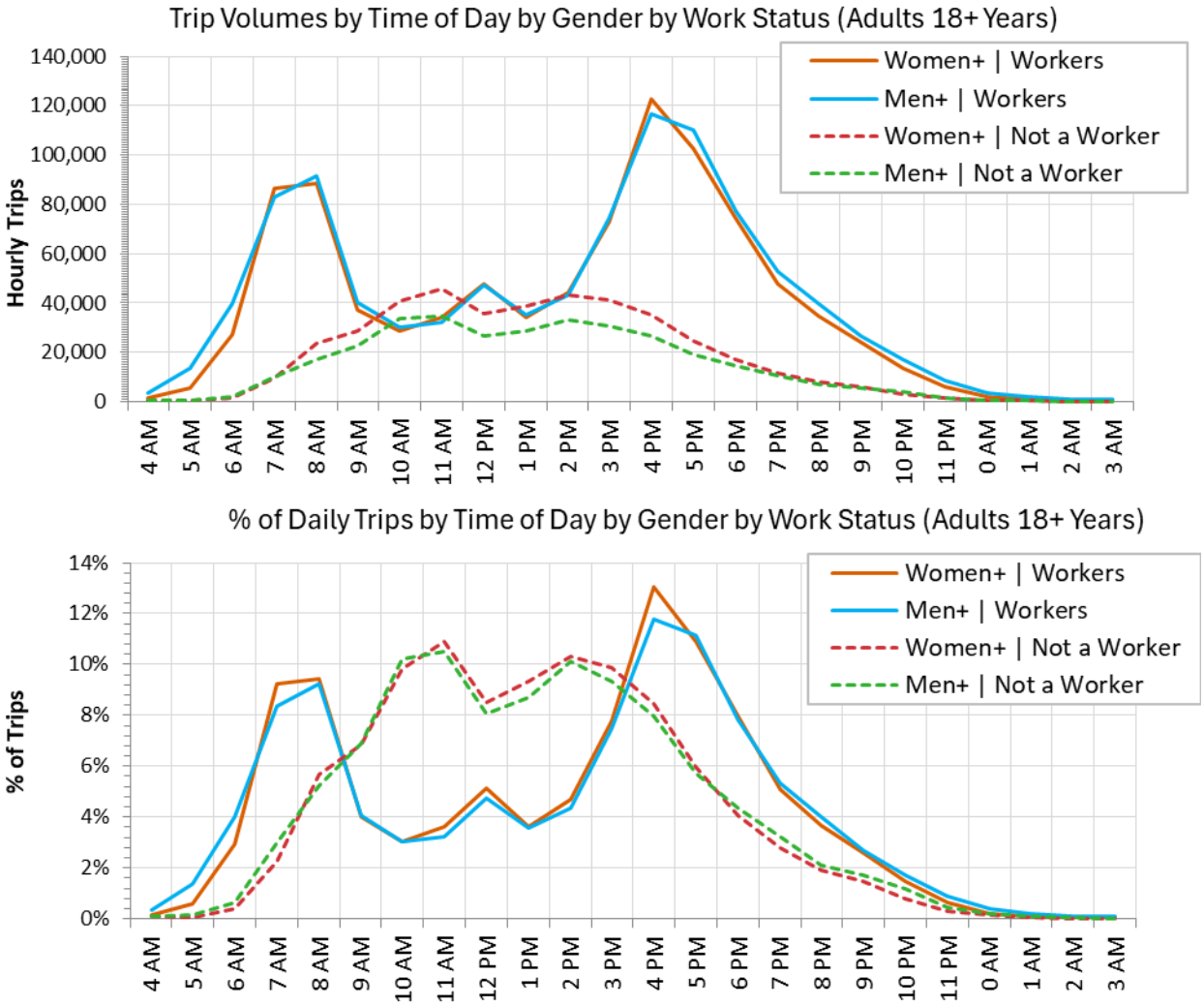


Figure 56 shows hourly trip volumes by work status and gender, among Study Area adults 18+. The distributions through the day were similar for both genders although, as expected, workers' trips were concentrated in the two commuter peak periods. Men+ workers had a slightly higher peak than women+ in the AM peak period. The reverse was true in the PM peak period, with volumes for both genders higher in the PM peak period than in the AM peak period. Men+ activity in the PM tapered slightly more gradually than that of women+. The proportion of women+ workers' activity during the two peaks was sharper than that for men+ workers.

For non-workers, the distributions were also similar by gender, although men+ non-workers had more of a trough in their midday activity than women+, and women+ non-workers had a higher mid-morning peak.

Figure 56. Trips by start hour by work status by gender, adults (18+), Study Area, 2022



Men+: men (and/or boys) plus some non-binary persons and some who declined to answer.
Women+: women (and/or girls) plus some non-binary persons and some who declined to answer.

Figure 57 compares the hourly volumes for Study Area working and non-working adults 18+ and children 5-17 for 2011 and 2022. As noted in section 4.2.5 (see also Figure 52), reductions and increases were observed throughout the day, and this was true also for each of the three groups:

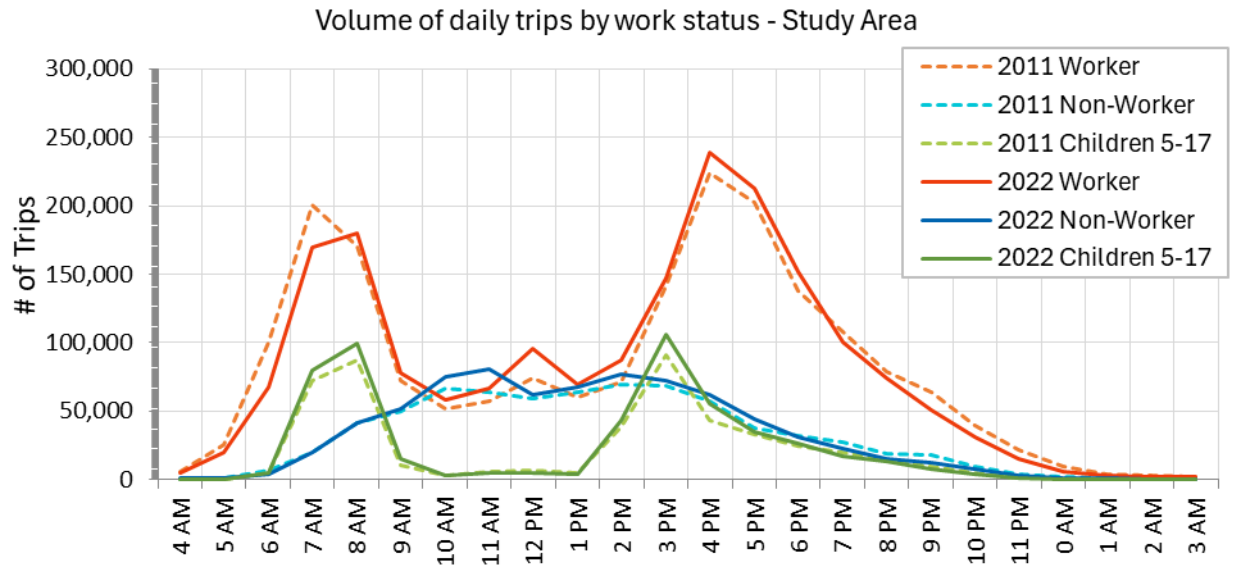
- Workers experienced significant drops in trip volumes during the AM commuter peak, especially at 6 a.m. and 7 a.m. (-32,950 and -31,100 trips respectively). Reductions also occurred through the evening and overnight, especially at 9 p.m. (-12,300 trips).

Workers' trips increased at other times of the day, with the strongest gain recorded at noon (20,900 trips), consistent with lunchtime activities.

- Non-workers made fewer trips throughout the evening and overnight, up to 7 a.m., especially at 9 p.m. (-5,700 trips). Non-workers' trips increased over the rest of the day, with the largest increase occurring at 11 a.m. (16,700 trips).
- Children made more trips in the AM peak period and in the afternoon, marked especially by gains at 8 a.m. (12,100 trips), 3 p.m. (14,900 trips) and 4 p.m. (12,600 trips) –consistent with school start and end time. Reductions were observed during the evening hours.

To sum, trip volumes grew at all times of the day, except the AM peak period, which was driven by reductions in workers' trips, and the evening and overnight, which was driven by reductions in travel by all three groups.

Figure 57. Trips by start hour by work status, adults (18+), Study Area, 2011-2022



Finally, the following discussion explores the hourly volumes of trips for Study Area workers by type of workplace arrangement (usual workplace, work from home, no fixed workplace/work on the road) for both 2011 and 2022. Figure 58 illustrates trip volumes associated with workers by type of work arrangement in both years. For consistency with the preceding analysis, data have been filtered to adult workers (18+). For workers with a usual workplace, the volume of trips has dropped, particularly during the peak hours. This is due, in part, to the decrease in the absolute number of workers with a usual workplace (see Section 3.5.2), about a 7% drop from 2022. The volume of trips made by workers with no fixed workplace has increased somewhat, while the volume of trips made by those who work from home has increased significantly. This is in step with the increases in such workers (a one-third increase in the workers with no fixed workplace address and approaching a four-fold increase in workers who work from home).

Figure 58. Trips by start hour by workplace arrangement, adults (18+), Study Area, 2011-2022

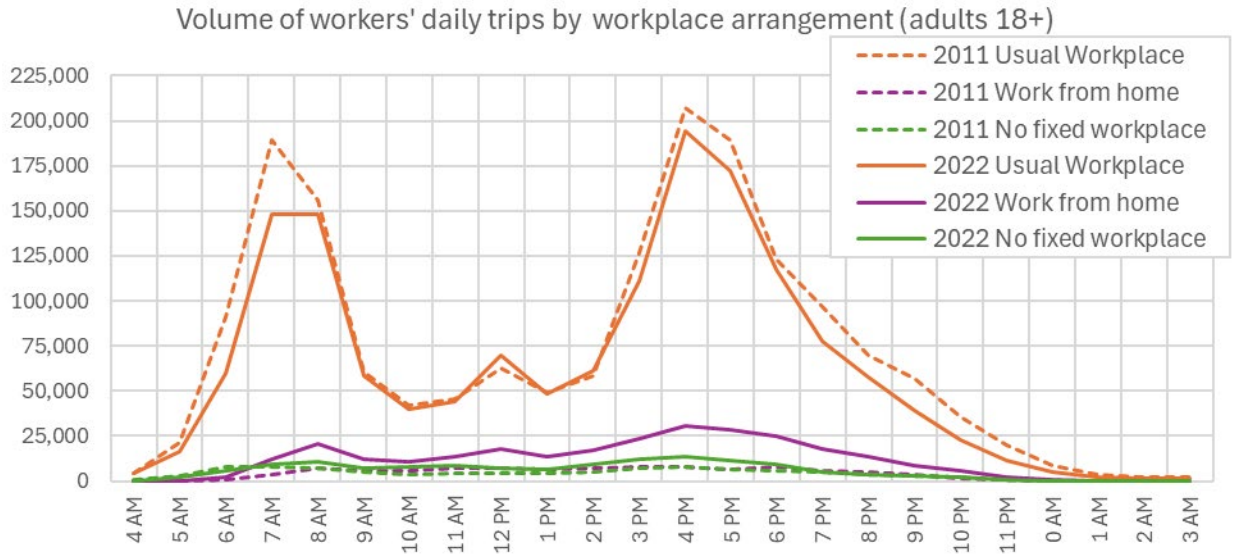


Figure 59 on the following page sheds light on the patterns underlying these changes in volumes, by presenting survey results in terms of hourly trips per worker in the Study Area.

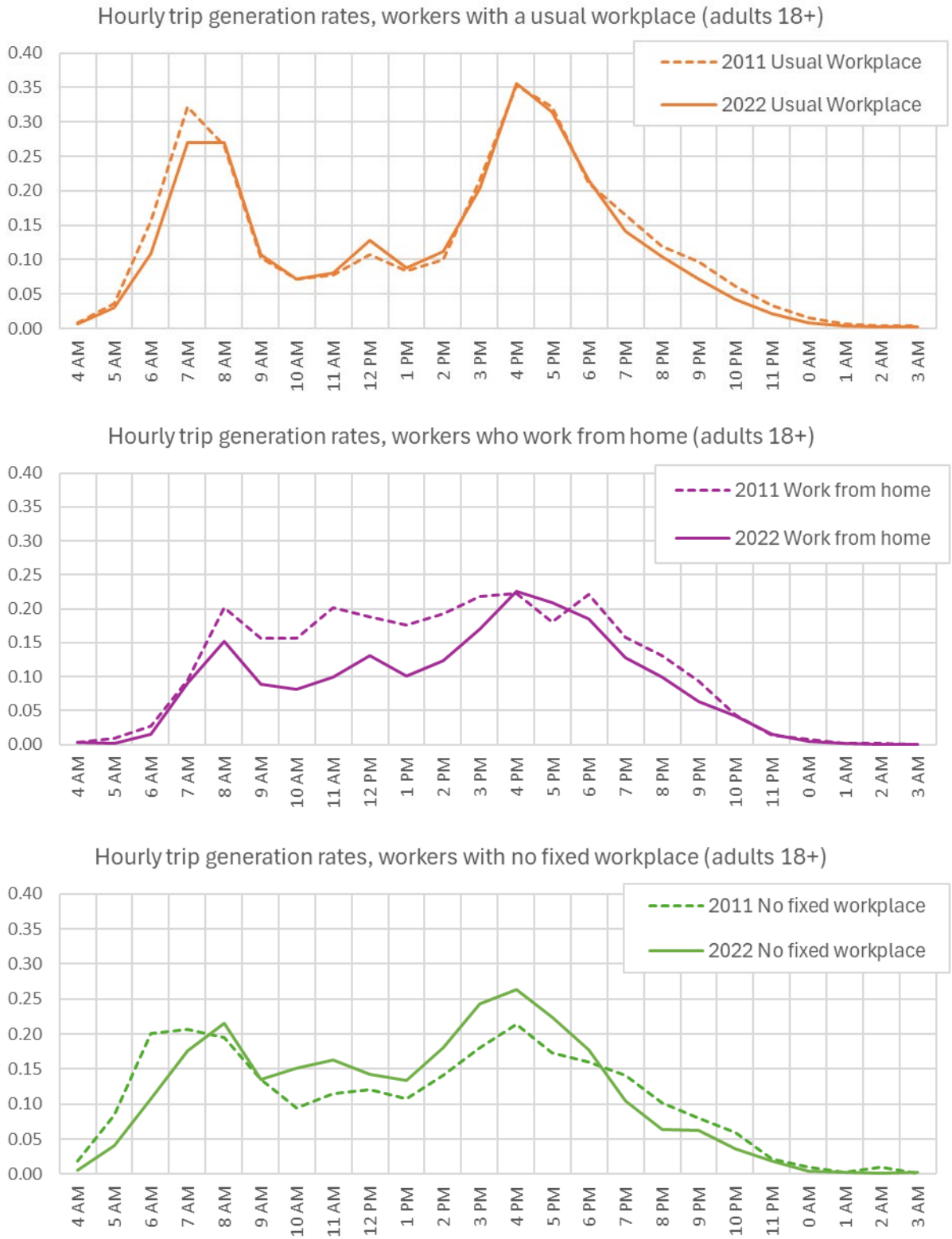
The hourly profile of trips per worker with a usual workplace in 2022 is generally similar to that in 2011, although with somewhat fewer trips per worker generated in the AM, slightly more at noon, almost identical rates during the PM peak, and fewer evening trips. Note that this is for all trips of all types, including both commute and non-commute purposes and does not examine whether the purposes have changed. The change in the hourly profile for these workers may be influenced by shifts in commuting patterns (such as hybrid workers not commuting as frequently) as well as non-commute trip patterns (such as hybrid workers making short local trips on days they work from home, or other trends in activity patterns that apply to the population as a whole).

Workers who worked exclusively from home in 2022 appear to have quite different trip patterns compared to their 2011 counterparts, generating notably fewer trips in the hours between 8 a.m. and 3 p.m., and fewer evening trips. It is possible that workers who more recently transitioned to working from home have different patterns than those who historically worked from home.

Trip making by workers with no fixed workplace or who work on the road has shifted, with fewer early-morning trips, more midday and afternoon trips, and fewer evening trips.

Across all 24 hours, the survey results suggest that the average daily trip rate for adult (18+) workers with a usual workplace has decreased 6% (from 2.94 daily trips/worker to 2.76), that for workers who work from home has decreased by 25% (from 2.71 to 2.04), while that for workers with no fixed workplace has increased slightly, by 3% (from 2.58 to 2.66).

Figure 59. Trip generation rates by start hour by workplace arrangement, adults (18+), Study Area, 2011-2022



4.3 Primary mode shares

4.3.1 Daily mode shares

This section describes daily modal shares and how these have changed since 2011. For the purpose of analysis, modes have been aggregated as follows:

Mode Group	Included Modes
Driver	auto driver, motorcycle / motor scooter
Passenger	auto passenger
Public Transit	public transit bus, O-Train, other bus/minibus
School Bus	school bus (yellow bus)[44]
Bike + Micromobility	bike, e-bike, e-scooter
Walk	walk, assisted mobility (wheelchair)
Other	all other modes: paratransit[45], taxi, paid rideshare, intercity bus, rail, air, other

Figure 60 compares the 2011 and 2022 mode shares for the population 5+. Table 26 provides details and Table 27 expresses these details in percentages. While auto driver and auto passenger shares are general similar across the Study Area, among non-auto shares there has been a shift from public transit to active transportation (bicycle, micro-mobility and walking). The bicycling and micro-mobility volumes represent a more-than-doubling increase, to 117,000 trips (a 4% share) from 53,900 trips in 2011 (2%). Walk trips have increased by 30%, to 427,000 daily trips (a 13% share, from 10% in 2011). Combined, active transportation's share increased to 17% in 2022 from 12% in 2011.

All modal volumes have increased except for public transit, which contracted by 39% (-155,200 trips) across the Study Area, school bus (-4% or -5,500 trips) and other (-11% or -2,700 trips). [46] In 2022, public transit had an 8% share, down from 13% in 2011. The reduction is consistent with increases in working and studying from home (see section 3.5).

[44] School oriented trips on regular public transit service (e.g., OC Transpo 600 series) are included within the "Public Transit" and not the "School Bus" category.

[45] Although paratransit is operated under the purview of OC Transpo and STO in their respective service areas, it serves a specialized "eligible" market of riders who cannot otherwise use conventional public transit, has a different fare structure from conventional public transit, and operates as a shared-ride, book-in-advance service between customer-specified origins and destinations. Accordingly, for the purposes of this report it is not grouped with public transit. For more information, see www.octranspo.com/en/para-transpo/ and www.sto.ca/transport-adapte/demandes-et-conditions-dadmission/.

[46] A trip can entail more than one mode of travel, such as Park & Ride trips. In these instances, the primary mode was assigned based on the following hierarchy (with public transit, at the top of the hierarchy, always being assigned if a trip involved public transit and another mode): public transit, school bus, auto driver, auto passenger, other, bicycle, walked. Generally speaking, the primary mode assigned to a multi-mode trip is usually the mode by which the greatest distance would be travelled.

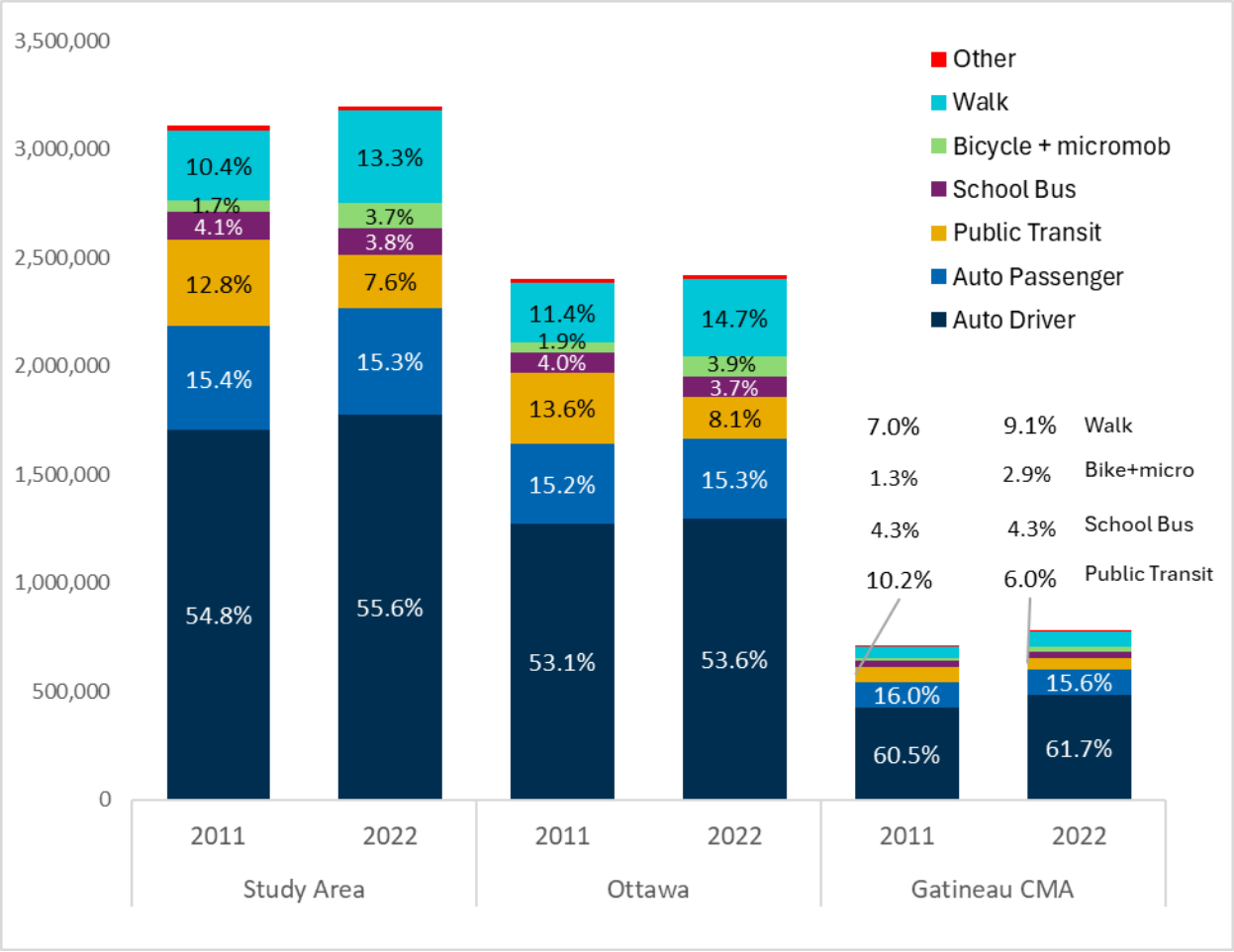
The auto driver share remained dominant, at 56% of all daily travel, or 1,777,400 trips. This represented a marginal (1%) increase in the auto driver's share. The daily auto passenger share remained stable at 15%, or 490,700 trips. Combined, then, trips by auto comprise 71% of all daily activity.

However, although the stability of the auto and non-autos shares as a group was consistent across the Study Area, the changes in individual modal shares and volumes were more accentuated in the Gatineau CMA than in Ottawa. In the Gatineau CMA, the volume of residents' auto driver trips increased by 13%, auto passenger by 7%, bicycle and micromobility by 146%, and walking by 43%. Public transit trips experienced a profound reduction of -35%. School bus trips increased by 8%, to 33,300 trips. Trips by Other modes in the Gatineau CMA dropped by 38% (albeit representing only 1,800 trips). These various changes in volumes translate into a 1.2 percentage point increase in auto driver mode shares, increases in active mode shares (walking, +2.1 percentage points; bicycle and micromobility, +1.6 percentage points), and decreases in the mode shares for transit (-4.1 percentage points), auto passenger (-0.4), and other modes (-0.3).

In Ottawa, the volume of auto driver trips increased by 2%, auto passenger by 1%, bicycle and micromobility by 111%, and walking by 30%. Public transit trips experienced a profound reduction of -40%. The school bus trips dropped by 8% (-8,100 trips – a much smaller drop than in Gatineau). These changes in volumes translate into a 0.5% increase in auto mode shares, increases in active mode shares (walking, +3.3 percentage points; bicycle and micromobility, +2.0 percentage points), and decreases in the mode shares for transit (-5.5 percentage points) and school bus (-0.4).

In sum, trips by auto remained dominant but stable at 71%, active transportation trips increased to a 17% share from 12% in 2011 but public transit trips contracted to an 8% share from 13% in 2011, consistent with increases in remote working and schooling, with ridership down by 39%. These Study Area-wide shifts largely reflect conditions in Ottawa. However, differences were noted in the Gatineau CMA, especially with more accentuated growth in auto driver, auto passenger, active transportation and school bus numbers than Ottawa.

Figure 60. Daily mode shares, population 5+, 2011 and 2022



Other mode percentages and volumes are not labelled; within 0.8% of total trips in each survey cycle.

Table 26. Details of daily mode shares and changes, population 5+, 2011 and 2022

	Study Area		Ottawa		Gatineau CMA	
	2011	2022	2011	2022	2011	2022
Daily Trip Volumes	#	#	#	#	#	#
Total Trips	3,110,200	3,198,900	2,401,900	2,417,700	708,300	781,300
Auto Driver	1,703,600	1,777,400	1,275,400	1,295,300	428,200	482,100
Auto Passenger	479,600	490,700	366,100	368,900	113,400	121,800
Public Transit	398,500	243,300	326,500	196,300	72,000	47,000
School Bus	127,800	122,300	97,100	89,000	30,700	33,300
Bicycle + micromobility	53,900	117,000	44,600	94,200	9,300	22,900
Walk	322,900	427,000	273,000	355,800	49,800	71,300
Other	23,900	21,200	19,100	18,200	4,800	3,000
Active Mode Subtotal	376,800	544,000	317,600	450,000	59,100	94,200
Sustainable Subtotal	903,100	909,600	741,200	735,300	161,800	174,500
Change 2011 to 2022	#	% change	#	% change	#	% change
Total Trips	88,700	3%	15,800	1%	73,000	10%
Auto Driver	73,800	4%	19,900	2%	53,900	13%
Auto Passenger	11,100	2%	2,800	1%	8,400	7%
Public Transit	-155,200	-39%	-130,200	-40%	-25,000	-35%
School Bus	-5,500	-4%	-8,100	-8%	2,600	8%
Bicycle + micromobility	63,100	117%	49,600	111%	13,600	146%
Walk	104,100	32%	82,800	30%	21,500	43%
Other	-2,700	-11%	-900	-5%	-1,800	-38%
Active Mode Subtotal	167,200	44%	132,400	42%	35,100	59%
Sustainable Subtotal	6,500	1%	-5,900	-1%	12,700	8%

Active = Walk + Bicycle + Micromobility. Sustainable = Public Transit + Walk +Bicycle + Micromobility

Blue shading highlights higher values. The intensity of the shade increases as the value approaches the highest value.

Pink shading highlights lower values. The intensity of the shade increases as the value approaches the lowest value.

Table 27. Daily mode shares and changes, percentages, population 5+, 2011 and 2022

	Study Area		Ottawa		Gatineau CMA	
	2011	2022	2011	2022	2011	2022
Mode Share	%	%	%	%	%	%
Total Trips	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Auto Driver	54.8%	55.6%	53.1%	53.6%	60.5%	61.7%
Auto Passenger	15.4%	15.3%	15.2%	15.3%	16.0%	15.6%
Public Transit	12.8%	7.6%	13.6%	8.1%	10.2%	6.0%
School Bus	4.1%	3.8%	4.0%	3.7%	4.3%	4.3%
Bicycle + micromobility	1.7%	3.7%	1.9%	3.9%	1.3%	2.9%
Walk	10.4%	13.3%	11.4%	14.7%	7.0%	9.1%
Other	0.8%	0.7%	0.8%	0.8%	0.7%	0.4%
Active Mode Subtotal	12.1%	17.0%	13.2%	18.6%	8.3%	12.0%
Sustainable Subtotal	29.0%	28.4%	30.9%	30.4%	22.8%	22.3%
Change in mode share 2011 to 2022		%-pt change		%-pt change		%-pt change
Auto Driver		0.8%		0.5%		1.2%
Auto Passenger		-0.1%		0.0%		-0.4%
Public Transit		-5.2%		-5.5%		-4.1%
School Bus		-0.3%		-0.4%		-0.1%
Bicycle + micromobility		1.9%		2.0%		1.6%
Walk		3.0%		3.3%		2.1%
Other		-0.1%		0.0%		-0.3%
Active Mode Subtotal		4.9%		5.4%		3.7%
Sustainable Subtotal		-0.6%		-0.4%		-0.5%

Active = Walk + Bicycle + Micromobility. Sustainable = Public Transit + Walk +Bicycle + Micromobility

Blue shading highlights higher values. The intensity of the shade increases as the value approaches the highest value.

Pink shading highlights lower values. The intensity of the shade increases as the value approaches the lowest value.

4.3.2 Mode shares by sub-area

Figure 61 and Table 28 show how mode shares vary-by sub-area.[47] It can be seen that:

- **Auto trips dominated in the rural and suburban areas, while the auto shares were lower in and closer to the downtowns.** In the Rest of Gatineau CMA, 87.4% of residents' trips were made by auto, as were 86.2% of trips in Rural Ottawa. Three-quarters of suburban trips were made by auto, with the proportion rising to 79.3% in Gatineau's Transit Oriented Development sub-area. The auto share in Ottawa's Inner Urban was 55.2%, dropping to 49.6% in Downtown Gatineau and 32.6% in Ottawa's Downtown Core. These auto share figures include both auto driver and auto passenger trips. Auto passenger mode shares by themselves were lowest in in Ottawa's Downtown Core (7.5% of all trips), Downtown Gatineau (10.2%) and Ottawa's Inner Area (11.6%) and highest in the Rest of the Gatineau CMA (15.5%) and Ottawa's Suburban sub-area (17.8%).

- **The public transit shares were higher in the downtowns**, at 12.2% of all trips made by Downtown Ottawa residents and 12.5% of Downtown Gatineau residents' trips. Elsewhere, the public transit shares ranged from 2% in the rural areas, to 6%-7% in the other Gatineau sub-areas and Ottawa's Suburban sub-area, and 10% in Ottawa's Inner Urban and Outer Urban areas.

- **The active transportation shares were highest among downtown residents.** In Ottawa's Downtown Core, the active transportation share (52.6%) was greater than that its auto share (32.6%). Downtown Gatineau residents' active transportation share was 36.3%. Walking trips made up 44.7% of Ottawa's Downtown Core trips, 26.1% of Downtown Gatineau's trips and 23.5% of Ottawa's Inner Urban trips. Downtown Gatineau had the highest bicycle and micromobility share (at 10.2%), followed by Ottawa's Inner Area , at 8.3%, and Ottawa's Downtown Core, at 7.9%.

- **School bus shares were highest in the rural areas**, at 8.1% in Ottawa's Rural sub-area and 7.0% in the Rest of the Gatineau CMA. The downtown school bus shares were 0.4%-0.5%.

[47] Readers are referred to Figure 2 in the introductory chapter of this report for a map of the sub-areas.

Figure 61. Mode shares by sub-area, 2022

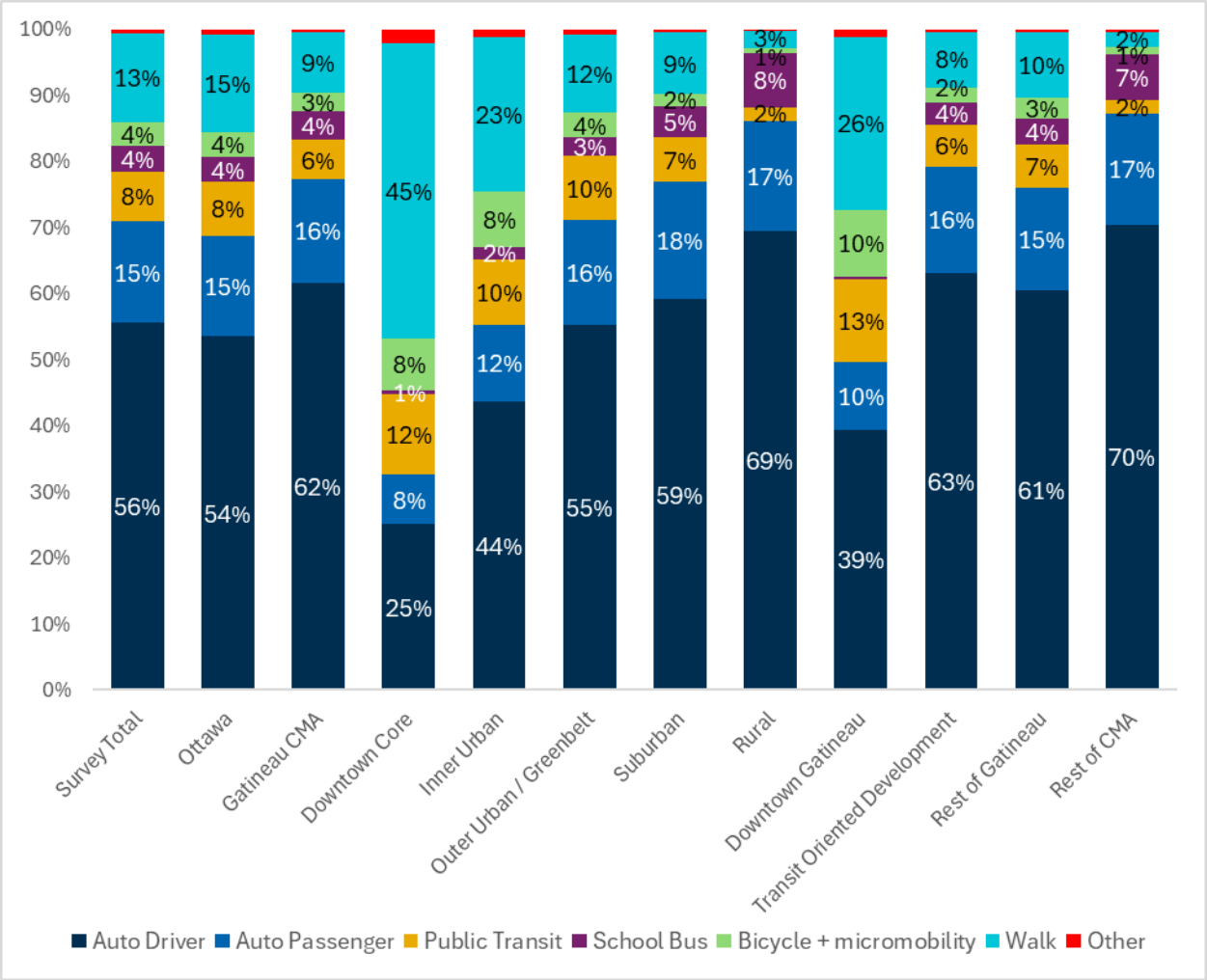


Table 28. Details of mode shares by sub-area, 2022

		Region		Ottawa					Gatineau CMA			
	Study Area	Ottawa	Gatineau CMA	Down-town Core	Inner Urban	Outer Urban / Green-belt	Sub-urban	Rural	Down-town Gati-neau	Transit-Oriented Develop-ment	Rest of Gati-neau	Rest of CMA
Total Trips	3,198,900	2,417,700	781,300	190,100	430,300	661,500	918,500	217,300	26,400	62,800	560,300	131,700
Auto Driver	55.6%	53.6%	61.7%	25.1%	43.6%	55.3%	59.1%	69.4%	39.4%	63.2%	60.5%	70.5%
Auto Passenger	15.3%	15.3%	15.6%	7.5%	11.6%	15.8%	17.8%	16.8%	10.2%	16.1%	15.5%	16.9%
Public Transit	7.6%	8.1%	6.0%	12.2%	9.9%	9.7%	6.8%	2.1%	12.5%	6.2%	6.6%	2.0%
School Bus	3.8%	3.7%	4.3%	0.5%	2.0%	2.8%	4.7%	8.1%	0.4%	3.5%	3.9%	7.0%
Bicycle+micromob.	3.7%	3.9%	2.9%	7.9%	8.3%	3.7%	1.9%	0.7%	10.2%	2.2%	3.1%	1.1%
Walk	13.3%	14.7%	9.1%	44.7%	23.5%	11.9%	9.3%	2.6%	26.1%	8.4%	10.0%	2.4%
Other	0.7%	0.8%	0.4%	2.1%	1.1%	0.7%	0.5%	0.2%	1.1%	0.3%	0.4%	0.2%

Blue shading highlights higher values. The intensity of the shade increases as the value approaches the highest value.

4.3.3 Mode shares by age group

Mode shares vary by age, as people's mobility needs and abilities change. Figure 62 depicts the shares for each mode by age range, with details provided in Table 29:

- **Auto driver shares dominated all Study Area age cohorts from 25 years on**, commensurate with people joining the workforce and, for many, starting families. The dominance peaked in the 45-54 cohort, at 74.7% of all Study Area trips, then dropped steadily – although driving is still the dominant mode for the 85+ cohort, at 56.7% of all trips.
- **Auto passenger shares were highest among those who lacked a licence or do not drive.** The auto passenger shares were highest among children below the driving age (and who might not have been old enough to travel independently). The auto passenger share dropped quickly for teens, bottoming out among the 45-54 cohort at 7.3% before rising steadily to 26.5% for the 85+ cohort.
- **The public transit shares were correspondingly highest among students and young adults**. The 15-19 cohort had the highest share, at 26.6%, followed by the 20-24 cohort at 25.7%. These shares were consistent with cohorts that could travel independently though lacked access to a vehicle.
- **Approximately one-quarter of school-age children travelled by school bus**, representing 26.6% of the 5-9 cohort's trips and 24.9% of the 10-14 cohort's trips. Ten percent (10.3%) of the 15-19 cohort's trips were by school bus.
- **Bicycle and micromobility had consistently small shares by age group, peaking in the 10-14 cohort**, with a 4.9% share. The shares drop steadily for the two cohorts between 15 and 24 years, before they start to rise again in the 25-24 cohort (4.5%), after which shares then start to decline, again gradually and with some fluctuations, from 35 years on. Interestingly, the 85+ cohort retained a 2.0% share.
- **Walking was pervasive among all age groups**, though its share varied by age. The highest shares were among children under the age of 16 (21.0% for the 5-9 cohort and 20.7% for the 10-14 cohort). The lowest shares were in the cohorts from 45 years on, ranging between a high of 10.8% in the 65-74 cohort and a low of 7.2% in the 85+ cohort.

These patterns were generally similar in Ottawa and the Gatineau CMA, although (with some fluctuations) the auto driver and auto shares in Gatineau CMA were generally slightly higher and the public transit shares were slightly lower than those in Ottawa.

Figure 62. Mode shares by age range, Study Area, 2022

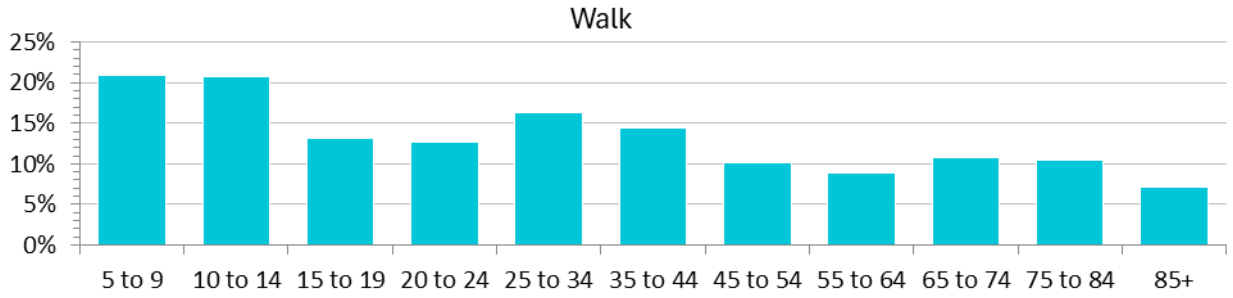


Table 29. Details of mode shares by age range, 2022

	Total Trips	Auto Driver	Auto Passenger	Public Transit	School Bus	Bicycle + micromobility	Walk	Other
Study Area	3,198,900	1,777,400	490,700	243,300	122,300	117,000	427,000	21,200
5 to 9	191,700		48.4%	1.1%	26.6%	2.8%	21.0%	0.2%
10 to 14	206,900		37.3%	11.9%	24.9%	4.9%	20.7%	0.2%
15 to 19	189,800	17.4%	27.8%	26.6%	10.3%	4.3%	13.1%	0.5%
20 to 24	195,100	43.0%	13.7%	25.7%	0.1%	3.7%	12.7%	1.1%
25 to 34	473,500	59.0%	10.6%	8.6%	0.0%	4.5%	16.3%	1.0%
35 to 44	552,700	68.2%	7.6%	4.7%	0.0%	4.3%	14.5%	0.7%
45 to 54	486,500	74.7%	7.3%	3.9%	0.0%	3.4%	10.2%	0.5%
55 to 64	440,000	74.1%	9.5%	3.4%	0.0%	3.5%	8.9%	0.5%
65 to 74	303,300	69.6%	13.8%	3.1%	0.0%	2.1%	10.8%	0.5%
75 to 84	139,200	66.0%	17.4%	3.2%	0.0%	1.6%	10.5%	1.3%
85+	20,300	56.7%	26.5%	4.5%	0.0%	2.0%	7.2%	3.0%

	Total Trips	Auto Driver	Auto Passenger	Public Transit	School Bus	Bicycle + micromobility	Walk	Other
Ottawa	2,417,700	1,295,300	368,900	196,300	89,000	94,200	355,800	18,200
5 to 9	140,100	0.0%	46.9%	1.3%	28.0%	2.9%	20.6%	0.2%
10 to 14	152,600	0.0%	36.7%	12.6%	23.9%	5.3%	21.2%	0.2%
15 to 19	143,600	15.3%	28.4%	27.5%	8.9%	5.0%	14.3%	0.5%
20 to 24	155,500	38.1%	14.2%	27.4%	0.1%	4.3%	14.6%	1.2%
25 to 34	355,200	54.4%	11.0%	9.2%	0.0%	5.2%	18.9%	1.3%
35 to 44	406,700	65.7%	7.6%	5.1%	0.0%	4.4%	16.3%	0.8%
45 to 54	368,800	73.3%	7.2%	3.9%	0.0%	3.5%	11.5%	0.5%
55 to 64	331,900	72.5%	9.6%	3.8%	0.0%	3.7%	9.7%	0.6%
65 to 74	233,800	68.3%	13.6%	3.4%	0.0%	2.0%	12.2%	0.5%
75 to 84	111,700	64.9%	17.1%	3.4%	0.0%	1.6%	11.7%	1.3%
85+	17,700	56.6%	25.9%	4.8%	0.0%	1.6%	7.8%	3.3%

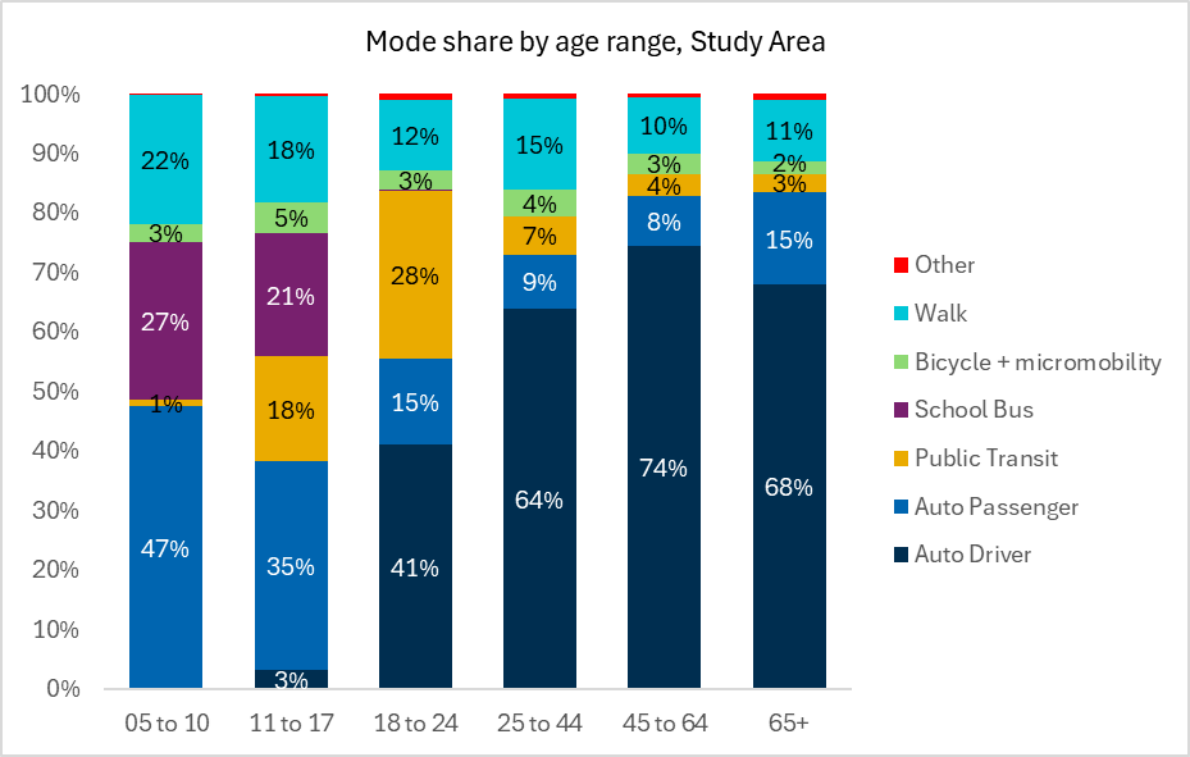
	Total Trips	Auto Driver	Auto Passenger	Public Transit	School Bus	Bicycle + micromobility	Walk	Other
Gatineau CMA	781,300	482,100	121,800	47,000	33,300	22,900	71,300	3,000
5 to 9	51,500	0.0%	52.6%	0.5%	22.6%	2.4%	21.8%	0.1%
10 to 14	54,400	0.1%	38.9%	10.0%	27.6%	3.6%	19.5%	0.3%
15 to 19	46,200	24.2%	25.9%	23.7%	14.4%	2.1%	9.2%	0.5%
20 to 24	39,500	62.2%	11.5%	18.8%	0.1%	1.7%	5.1%	0.7%
25 to 34	118,300	72.5%	9.4%	6.8%	0.0%	2.7%	8.3%	0.3%
35 to 44	145,900	75.1%	7.4%	3.7%	0.0%	4.2%	9.3%	0.3%
45 to 54	117,700	79.2%	7.5%	4.0%	0.0%	2.9%	6.2%	0.3%
55 to 64	108,100	78.9%	9.2%	2.4%	0.0%	2.8%	6.3%	0.4%
65 to 74	69,600	74.1%	14.8%	2.1%	0.0%	2.7%	5.8%	0.5%
75 to 84	27,500	70.5%	18.8%	2.3%	0.0%	1.3%	5.7%	1.3%
85+	2,600	57.6%	30.7%	2.8%	0.0%	5.1%	2.7%	1.0%

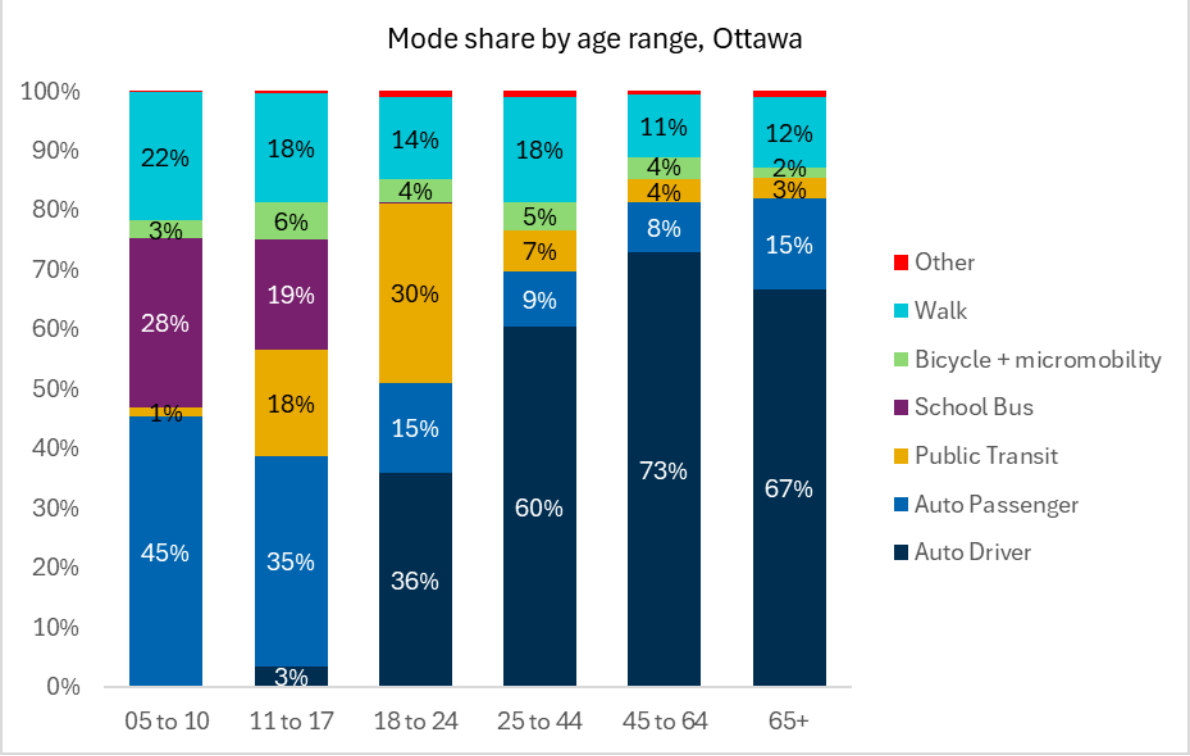
Blue shading highlights higher values. The intensity of the shade increases as the value approaches the highest value.

Figure 63 provides another way of looking at mode shares for Ottawa and the Gatineau CMA, now with age ranges regrouped for students, teens and young adults that fit more closely to their school levels. (The figure shows all ages, for context.)

In both jurisdictions, the shares of non-auto trips increased in the 11-17 age group compared with the 5-10 age group. In other words, while auto passenger trips remained the single most dominant mode, at approximately one-third of all trips, there was a significant shift to public transit in the 11-17 age group relative to the 5-10 age group, followed by a further increase in the 18-24 age group (to 30% in Ottawa and 20% in the Gatineau CMA). In the Gatineau CMA, the school bus share grew, to 27% from 22% in the 5-10 age group. However, the reverse was true in Ottawa, where the share dropped to 19% from 28%. The walk shares also dropped between the two age groups in both jurisdictions. The bicycle and micromobility shares doubled in Ottawa, although they stayed the same in the Gatineau CMA. Walk, bicycle and micromobility, and auto passenger shares dropped in the 18-24 age group relative to the 11-17 age group in both jurisdictions, while the auto driver shares grew significantly, to 36% in Ottawa and 59% in the Gatineau CMA.

Figure 63. Mode shares by age range, 2022





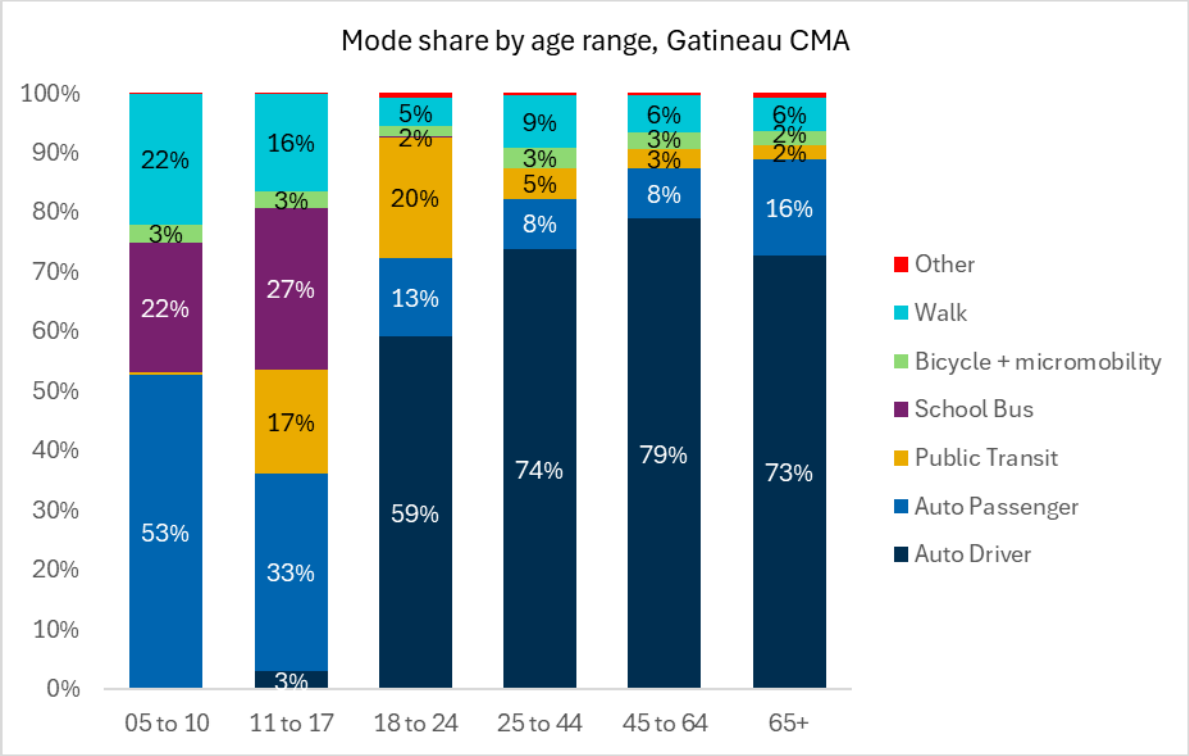


Figure 64 summarizes the shares for sustainable modes (all non-auto modes combined) and for active modes (walk and bicycle), by age group:

- More than one-quarter of all Study Area trips (28.4%) were made by sustainable modes.
- The share of sustainable modes was highest among children, teens and young adults. The share peaked at 62.4% in the 10-14 cohort. The shares dropped steadily among adults, corresponding to people joining the workforce and, in some cases, starting families. From a 29.4% share in the 25-34 cohort and a 23.6% share in the 35-44 cohort, the shares for older cohorts ranged between 15% and 18%, finally dropping to 13.8% for the 85+ cohort.
- Approximately one in six trips (17.0%) were made on foot or by bicycle and micromobility.
- Active transportation shares were highest for children, reaching a maximum share of 25.6% for the 10-14 cohort. The active transportation shares then gradually dropped, though with some fluctuations (notably, a jump to 20.8% for the 25-34 cohort). The 85+ cohort had the lowest active transportation share, at 9.2%.

Figure 64. Sustainable and active mode shares by age range, Study Area, 2022

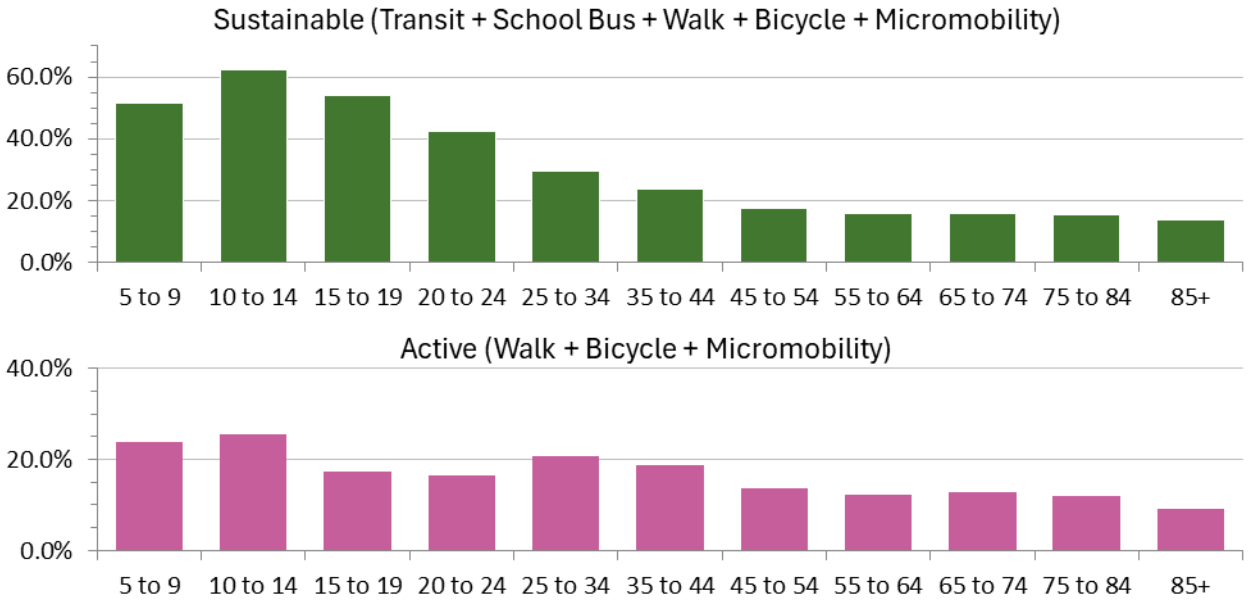


Table 30. Details of sustainable and active mode shares for each age range, 2022

	Sustainable mode shares (Transit + School Bus + Walk + Bicycle + Micromobility)			Active mode shares (Walk + Bicycle + Micromobility)		
	Study Area	Ottawa	Gatineau CMA	Study Area	Ottawa	Gatineau CMA
Trips	909,700	735,300	174,500	544,100	450,000	94,200
5 to 9	51%	53%	47%	24%	24%	24%
10 to 14	62%	63%	61%	26%	26%	23%
15 to 19	54%	56%	49%	17%	19%	11%
20 to 24	42%	46%	26%	16%	19%	7%
25 to 34	29%	33%	18%	21%	24%	11%
35 to 44	24%	26%	17%	19%	21%	13%
45 to 54	18%	19%	13%	14%	15%	9%
55 to 64	16%	17%	11%	12%	13%	9%
65 to 74	16%	18%	11%	13%	14%	8%
75 to 84	15%	17%	9%	12%	13%	7%
85+	14%	14%	11%	9%	9%	8%

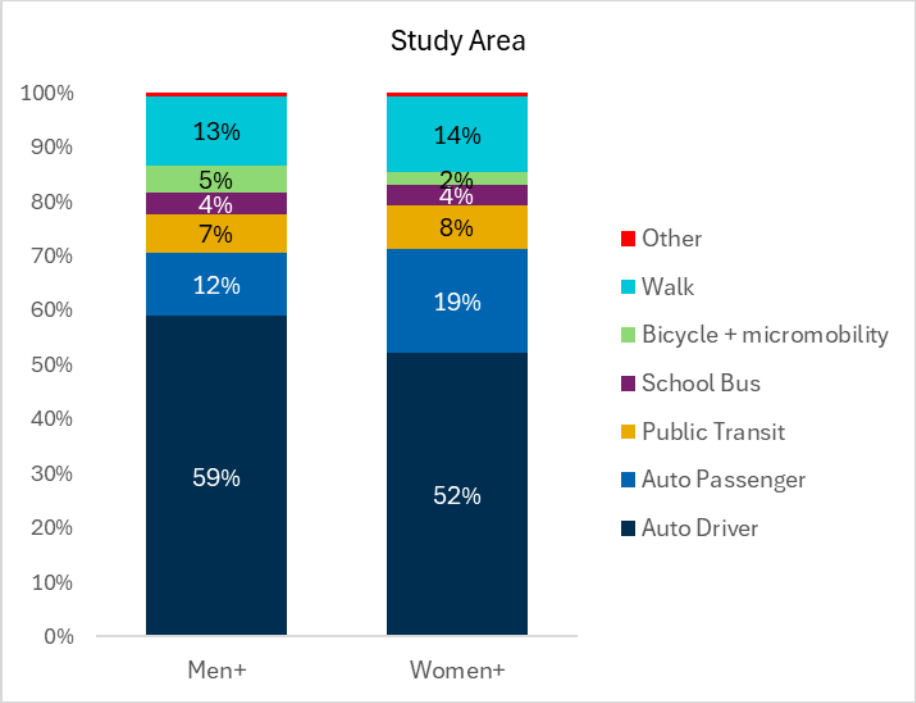
4.3.4 Mode shares by gender

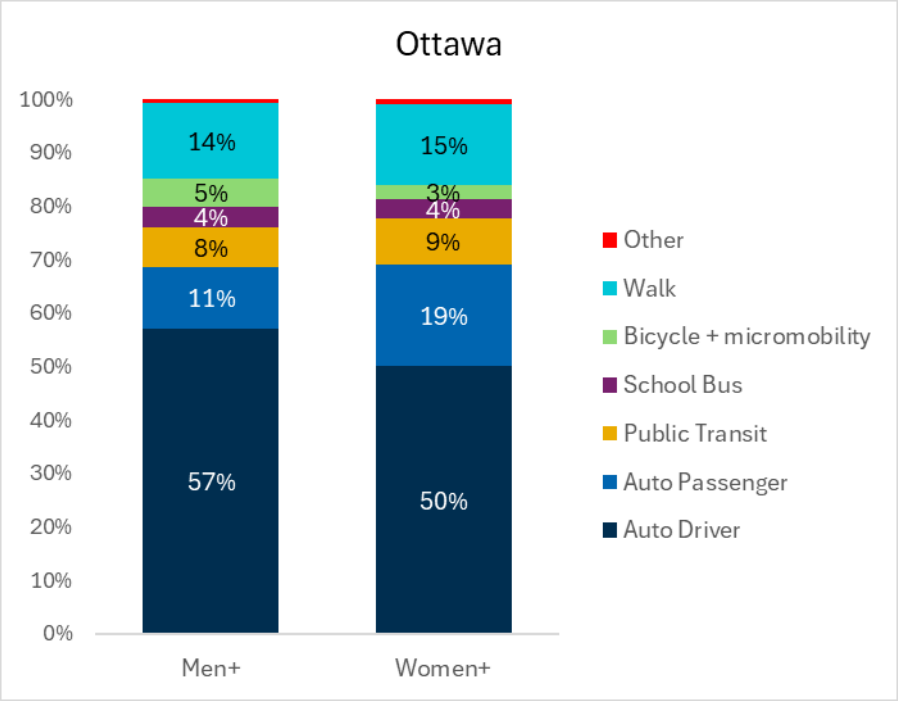
Figure 65 shows how mode shares varied by gender:

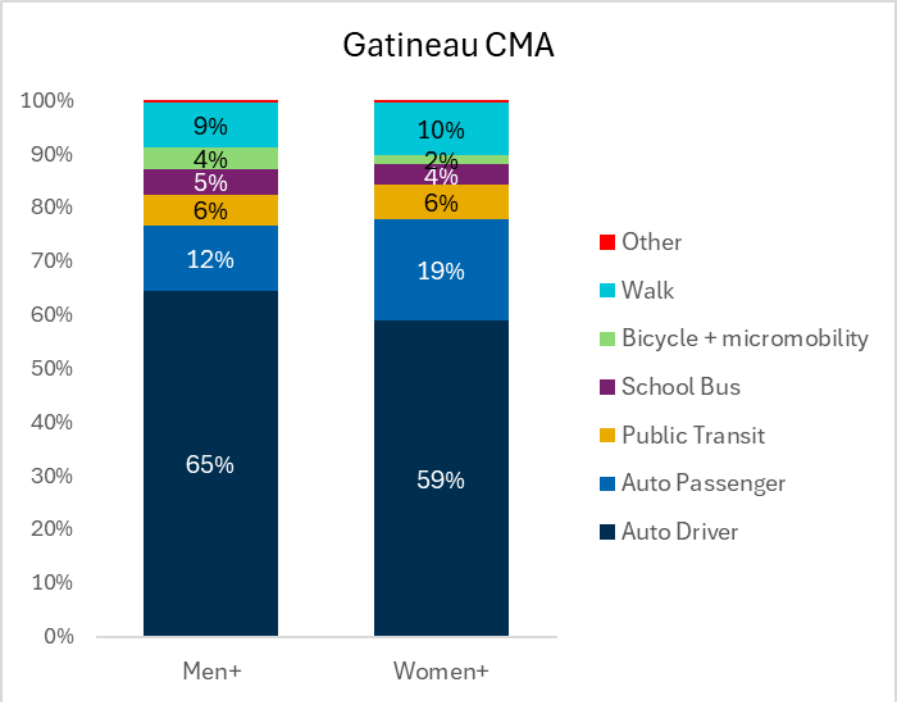
- In the Study Area, women+ drove moderately less than men+ (52.2% compared with 59.0%) and were more likely to be passengers (19.0% compared with 11.6%). This was the most significant difference in mode share between the genders. As a result, **women+ had a slightly higher share of auto trips**, at 71.2% compared with 70.6% for men+.
- **Women+ made slightly more walking trips than men+**, although **women+ made only about half as many cycling trips as men+**. Overall, **men+ made slightly more trips by active modes** (17.7%), compared with 16.3% of trips made by women+.
- **Women+ had a higher share of public transit use** than men+ (8.1% compared with 7.1%).

These findings are for the Study Area. The patterns and relationships between women+ and men+ were similar for Ottawa and the Gatineau CMA.

Figure 65. Mode shares by gender, 2022







Men+: men (and/or boys) plus some non-binary persons and some who declined to answer.
Women+: women (and/or girls) plus some non-binary persons and some who declined to answer.

4.3.5 Mode shares by household characteristics

This section presents mode shares according to three household characteristics: household structure (Figure 66), household income (Figure 67) and dwelling type (Figure 68). While these characteristics may be related (e.g., dwelling type and household income), it is useful to summarize the findings for each one separately:

By household structure:

- **Auto shares generally increased with the number of adults in the household**,[48] within which **auto driver shares were highest in households *without* children** and **auto passenger shares were highest in households *with* children**.
- **Sustainable mode shares were highest among single-adult households** with and without children and **two-adult households with children** (all at 34%). Households with two and three or more adults and no children had the lowest sustainable shares, at 21% and 22% respectively. Walking was the largest component for one and two-person households, with and without children. For larger households, public transit had the largest sustainable share. Cycling shares were highest for one-person households.

These figures reflect Study Area patterns, which were largely similar to (and driven by) patterns in Ottawa. Auto shares in the Gatineau CMA followed the same patterns, although with one fluctuation[49] and with higher proportions than in Ottawa. Sustainable shares similarly dropped by household size, again with one fluctuation[50] and with lower proportions than in Ottawa.

By dwelling type:

- **Auto trips made up most trips for each dwelling type**, including almost three-quarters of all travel by people living in detached houses (76%) and other ground-oriented dwellings (72%). Auto mode shares were notably lower for people living in apartments, at 61% of trips by people in <5 storey apartments and just over half (51%) of trips by people in 5+ storey apartments.
- **Trips by sustainable modes made up almost half of all travel by people living in 5+ storey apartments** (47%) and **37% of travel by people living <5 storey apartments**. Walk trips made up more than one-quarter (26%) of trips made by people living in 5+ storey apartments and public transit added another 16%, while bicycle and

[48] The auto share dropped slightly for households that had three or more adults and no children, compared with households that had two adults and no children.

[49] The auto share dropped slightly for households that had two or more adults with children, compared with households that had one adult with children.

[50] The sustainable share increased slightly for households that had two adults with children, compared with households that had one adult with children.

micromobility trips were only 4% of their trips. For people living in <5 storey apartments, the walk share was 19% and 5% for bicycle and micromobility.

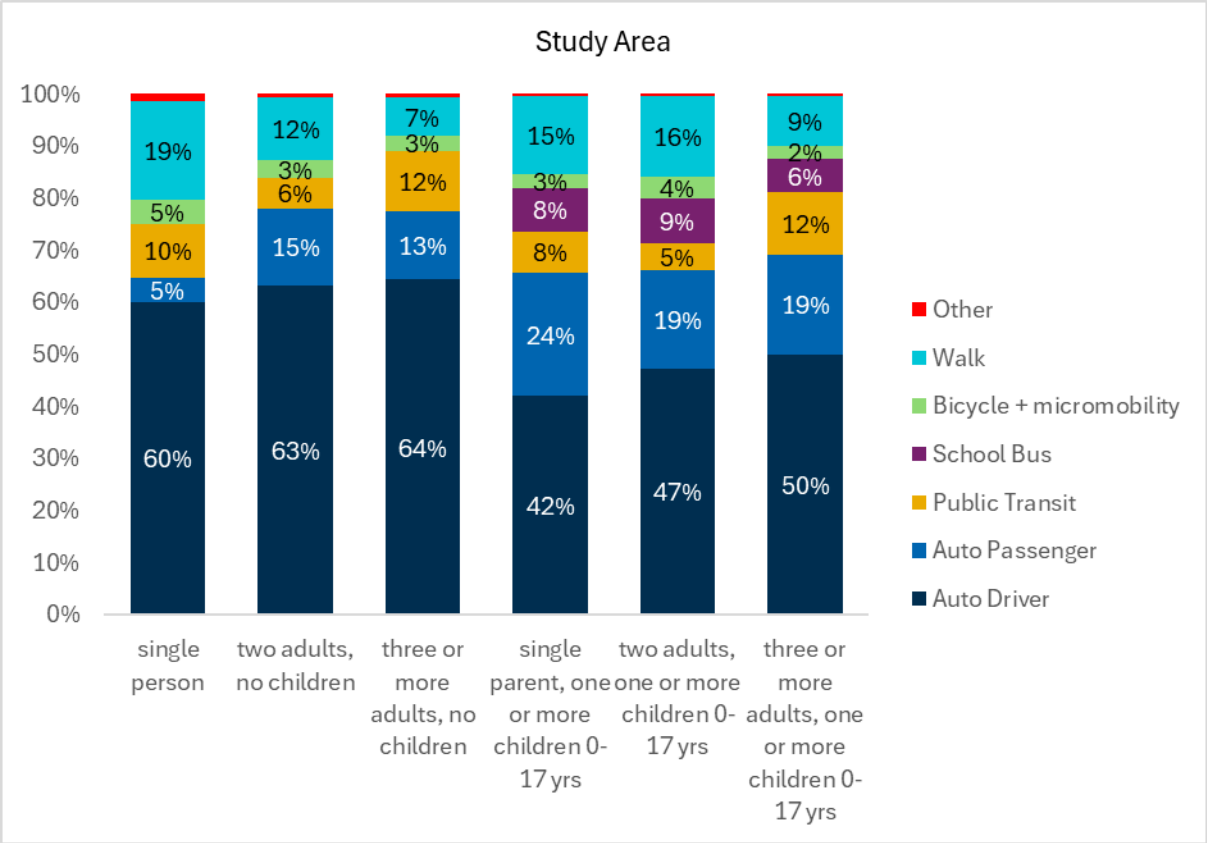
These figures reflect Study Area patterns, which again were largely similar to (and driven by) patterns in Ottawa. The patterns were similar in the Gatineau CMA, although auto shares were moderately higher among all dwelling types and the sustainable mode shares were correspondingly lower. As in Ottawa, people in 5+ storey apartments had the highest public transit and walk shares, though at 14% and 16% respectively, these were lower than the corresponding shares in Ottawa.

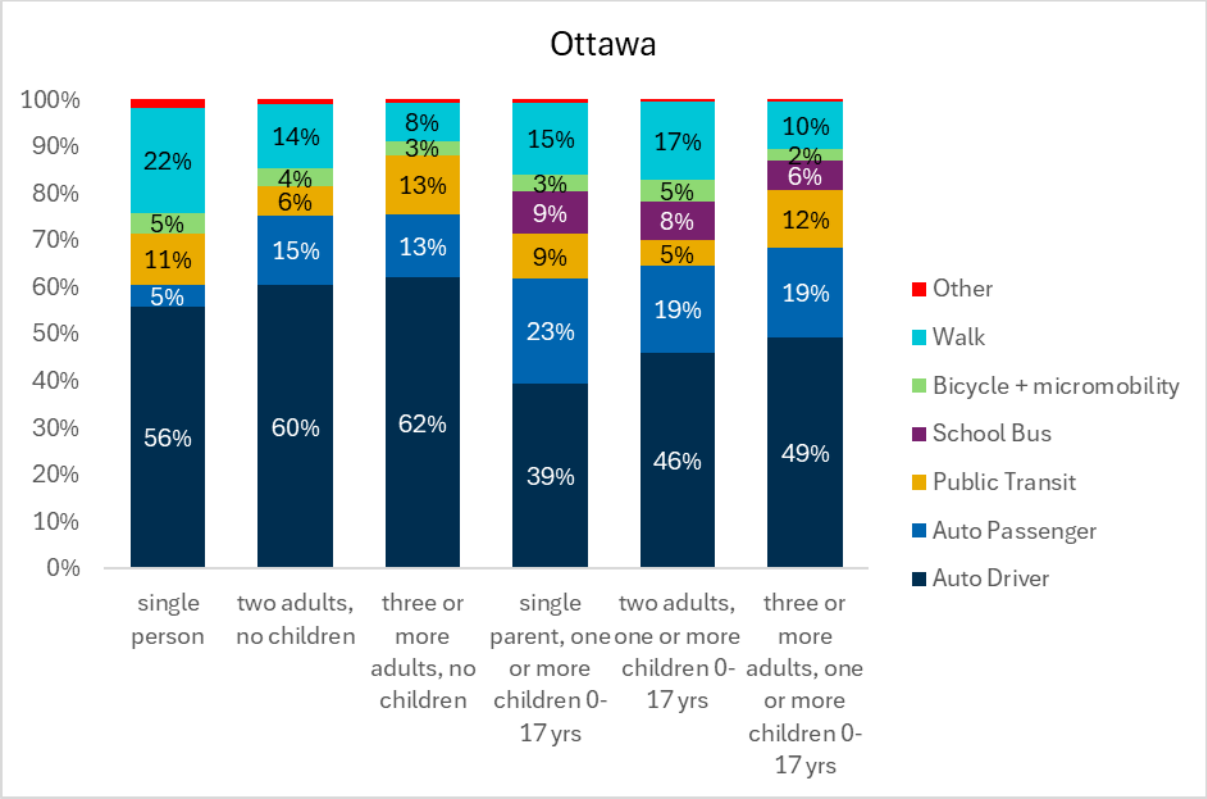
By household income:

- **Households with incomes of less than $35,000 had the lowest auto shares** (51%) and **the highest public transit** (21%), **walk** (19%) and **bicycle and micromobility shares** (5%). Auto shares rose to their highest level among households with incomes between $70,000 up to $100,000, at 74%, then dropped slightly to 72% for all higher income groups. Public transit and walk shares dropped correspondingly, with some fluctuations. Households in the $150,000+ group had the highest school bus share, at 5%.

Again, these patterns in the Study Area were largely similar to (and determined by) patterns in Ottawa, which represents almost three-quarters of the Study Area population. Auto driver shares were higher among all income groups in the Gatineau CMA, with differences especially pronounced in households with incomes less than $35,000 (65%), the $35,000 - $70,000 group (78%) and the $70,000 - $100,000 group (82%). Public transit and walk shares were highest in the <$35,000 group, although at 15% and 12% respectively, the shares were lower than those in Ottawa.

Figure 66. Mode shares by household structure, 2022




Ottawa
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
22%
5%
11%
5%
56%
14%
4%
6%
15%
60%
8%
3%
13%
13%
62%
15%
3%
9%
9%
23%
39%
17%
5%
8%
5%
19%
46%
10%
2%
6%
12%
19%
49%
single person
two adults, no children
three or more adults, no children
single parent, one or more children 0-17 yrs
two adults, one or more children 0-17 yrs
three or more adults, one or more children 0-17 yrs
Other
Walk
Bicycle + micromobility
School Bus
Public Transit
Auto Passenger
Auto Driver

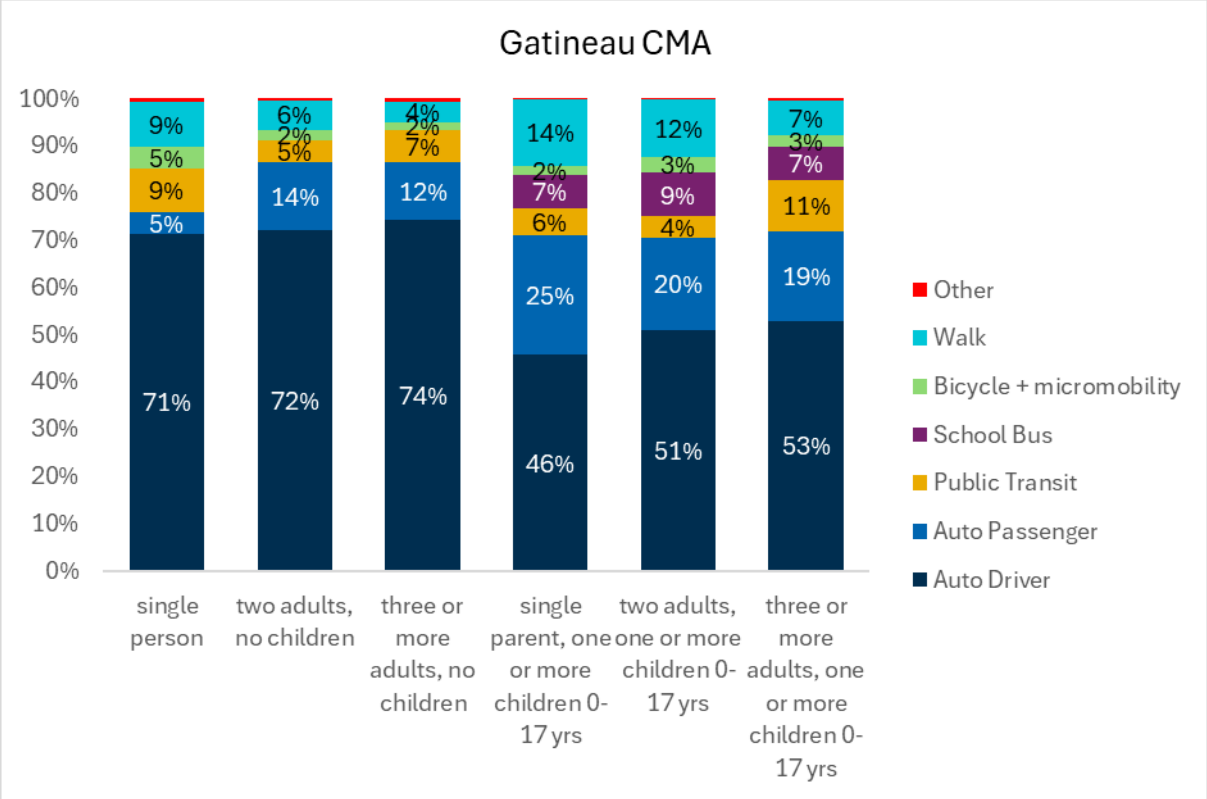
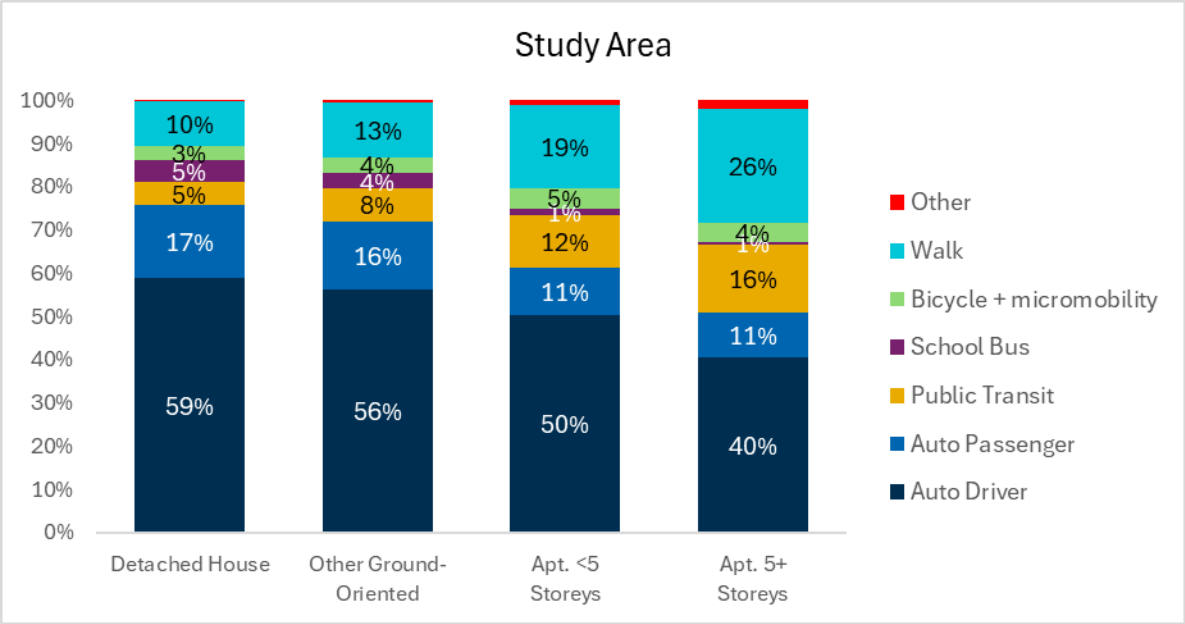
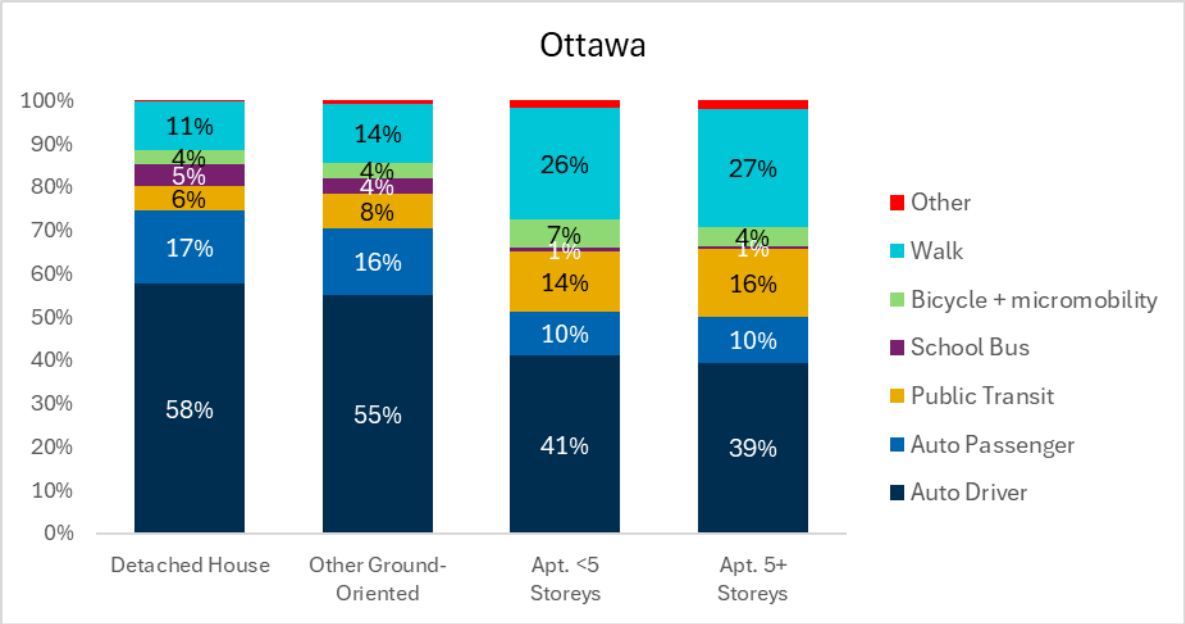

Gatineau CMA
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
9%
5%
9%
5%
71%
6%
2%
5%
14%
72%
4%
2%
7%
12%
74%
14%
2%
7%
6%
25%
46%
12%
3%
9%
4%
20%
51%
7%
3%
7%
11%
19%
53%
single person
two adults, no children
three or more adults, no children
single parent, one or more children 0-17 yrs
two adults, one or more children 0-17 yrs
three or more adults, one or more children 0-17 yrs
Other
Walk
Bicycle + micromobility
School Bus
Public Transit
Auto Passenger
Auto Driver

Figure 67. Mode shares by dwelling type, 2022





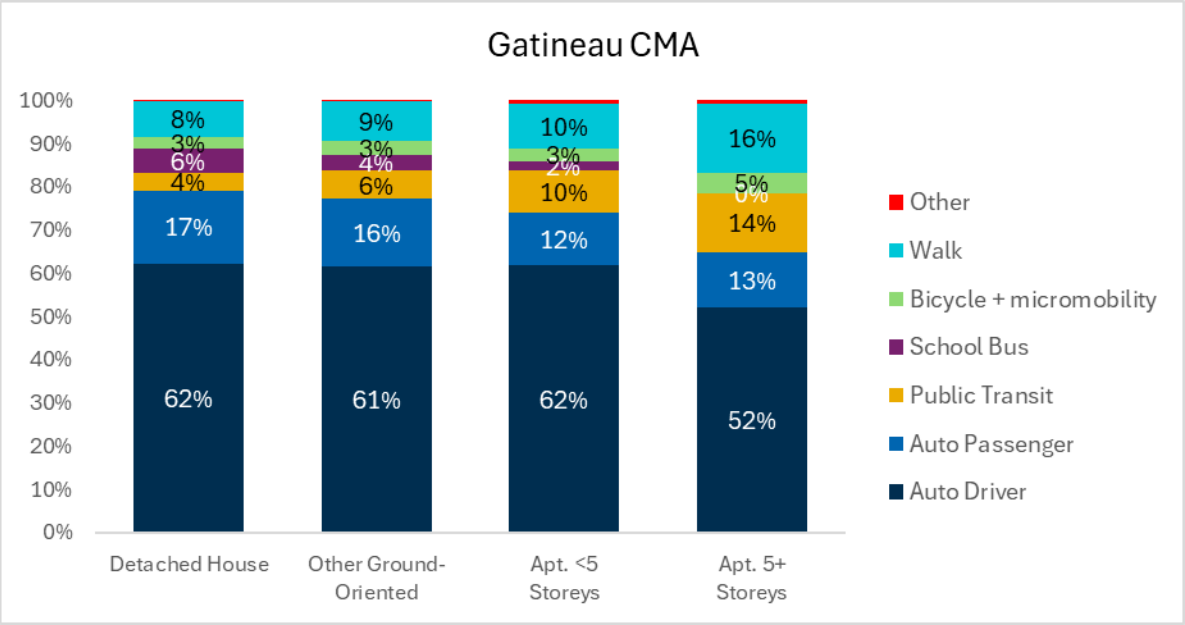
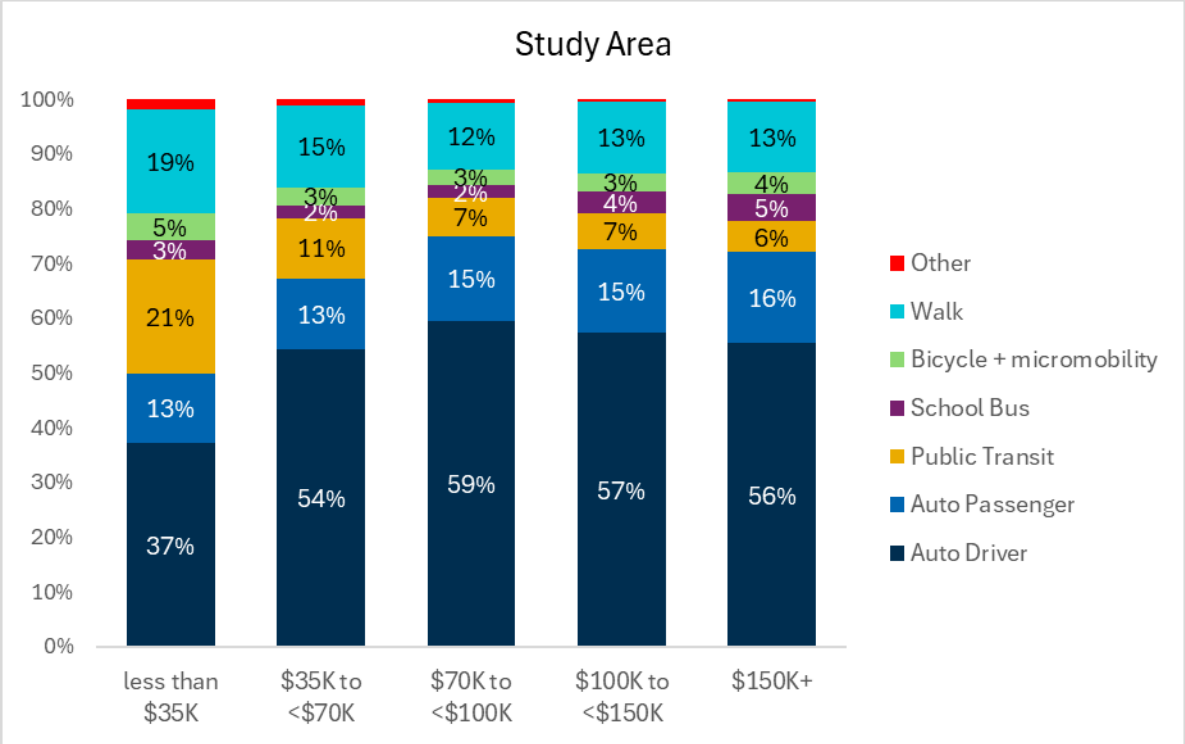
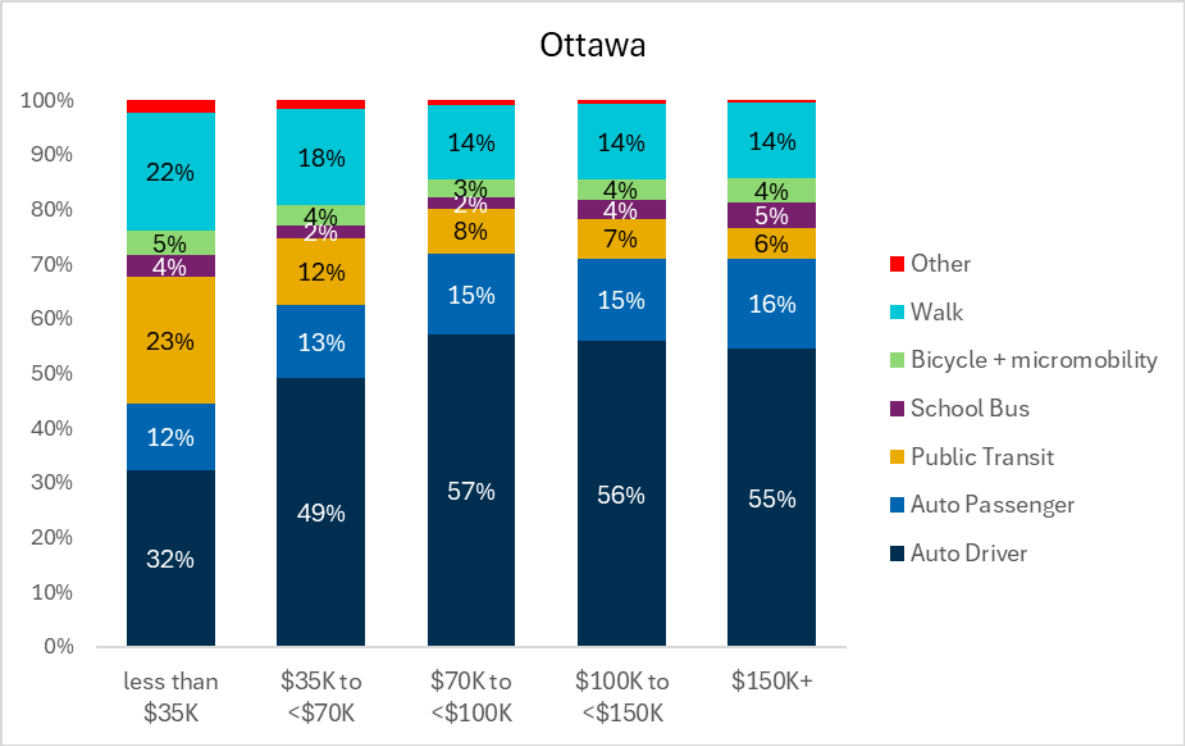
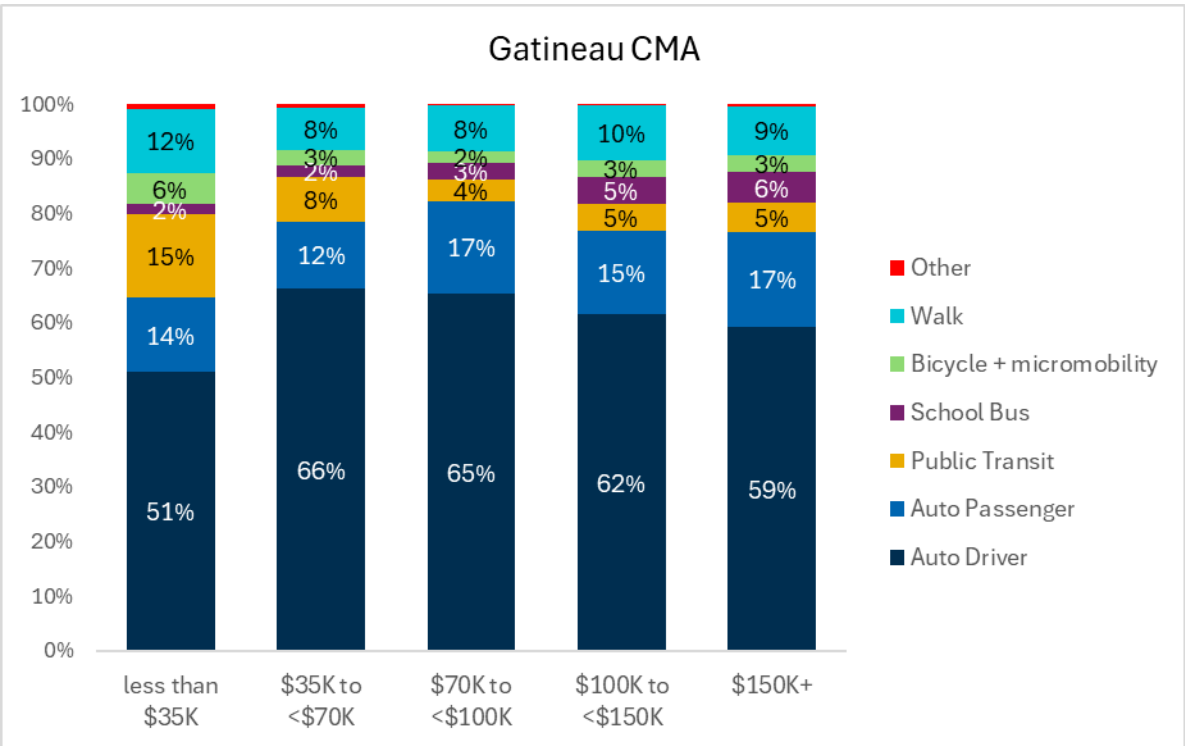


Figure 68. Mode shares by income, 2022




Ottawa
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
22%
5%
4%
23%
12%
32%
18%
4%
2%
12%
13%
49%
14%
3%
2%
8%
15%
57%
14%
4%
4%
7%
15%
56%
14%
4%
5%
6%
16%
55%
less than $35K
$35K to <$70K
$70K to <$100K
$100K to <$150K
$150K+
Other
Walk
Bicycle + micromobility
School Bus
Public Transit
Auto Passenger
Auto Driver


Gatineau CMA
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
12%
6%
2%
15%
14%
51%
8%
3%
2%
8%
12%
66%
8%
2%
3%
4%
17%
65%
10%
3%
5%
5%
15%
62%
9%
3%
6%
5%
17%
59%
less than $35K
$35K to <$70K
$70K to <$100K
$100K to <$150K
$150K+
Other
Walk
Bicycle + micromobility
School Bus
Public Transit
Auto Passenger
Auto Driver

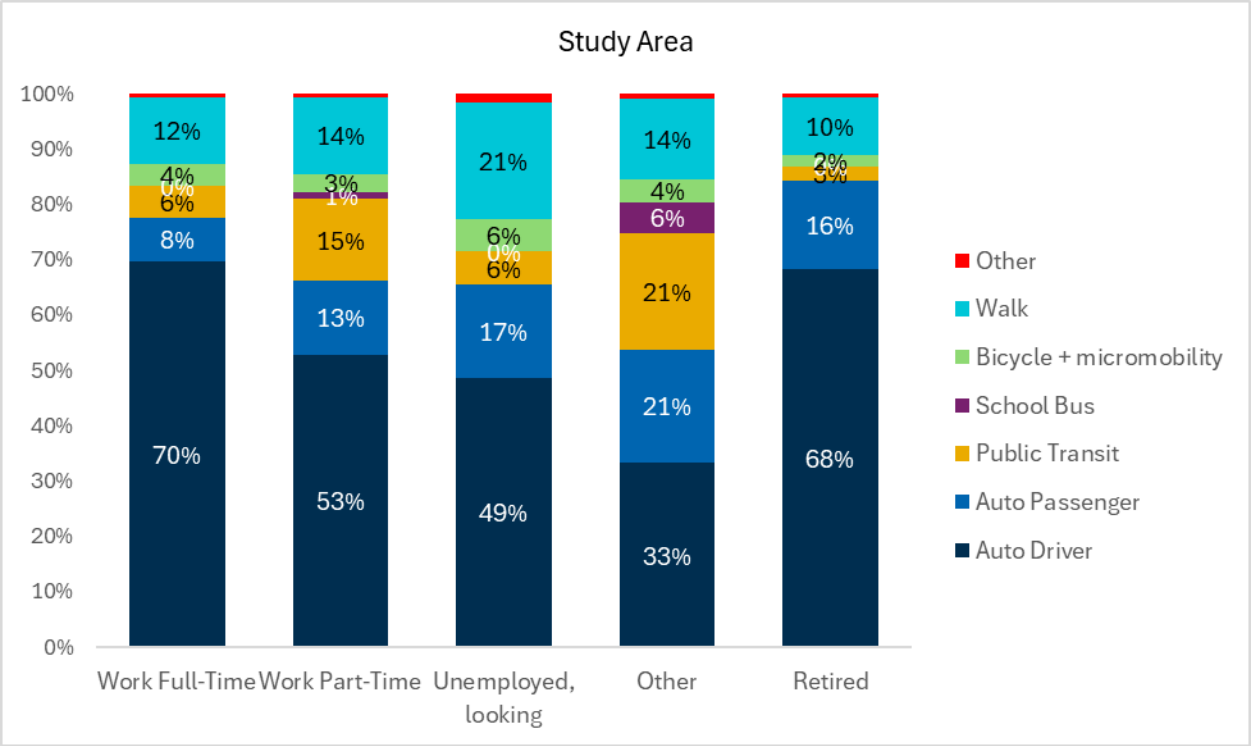
4.3.6 Mode shares by employment and student status

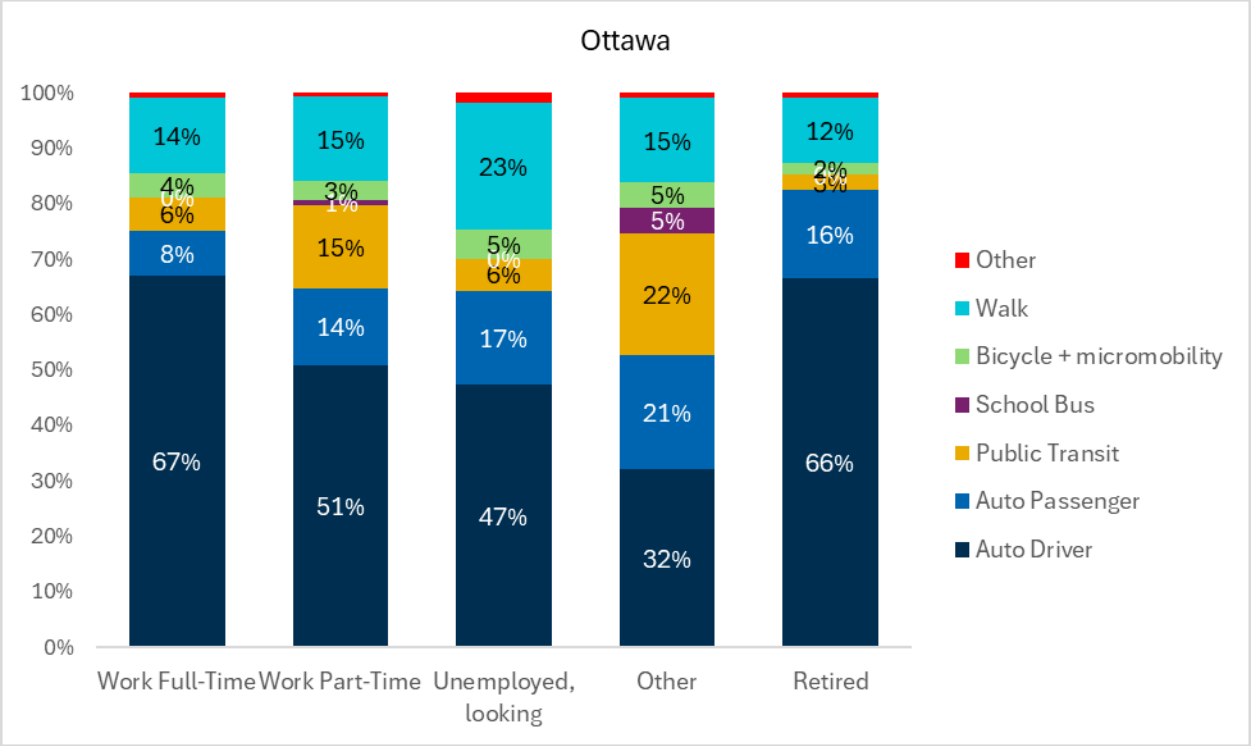
Figure 69 and Figure 70 profile how mode shares varied by employment status and student status, respectively:

- Auto shares were highest among full-time workers (78% share) and retirees (84%), with retirees having the highest auto passenger shares (16%) and the lowest active transportation shares (12%).
- Public transit shares were highest among full-time post-secondary students (35%). The public transit share was lowest among retirees (2%), and among full-timer workers and those who were unemployed and looking for work (6%).
- Walking shares were highest among the unemployed and looking (21%) and among primary and secondary students (20%). Among other statuses, the walk share ranged between 10% (retirees) and 16% (part-time post-secondary students).
- The bicycle and micromobility shares were highest among the unemployed and looking (6%). All other statuses had shares between 3% and 4%, except for retirees, who had a 2% share.

These Study Area patterns were again largely similar to (and driven by) patterns in Ottawa. The auto shares were higher in the Gatineau CMA among all statuses, with correspondingly smaller shares in the other modes.

Figure 69. Mode shares by employment status, 2022





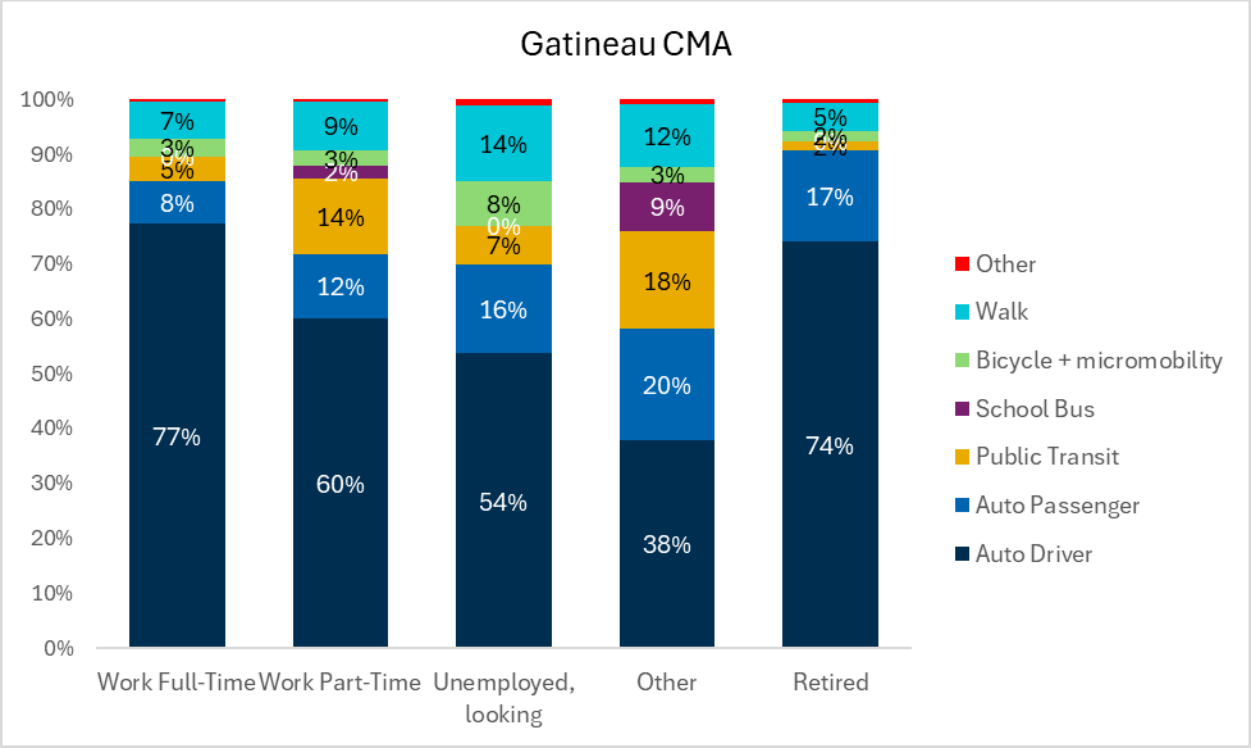
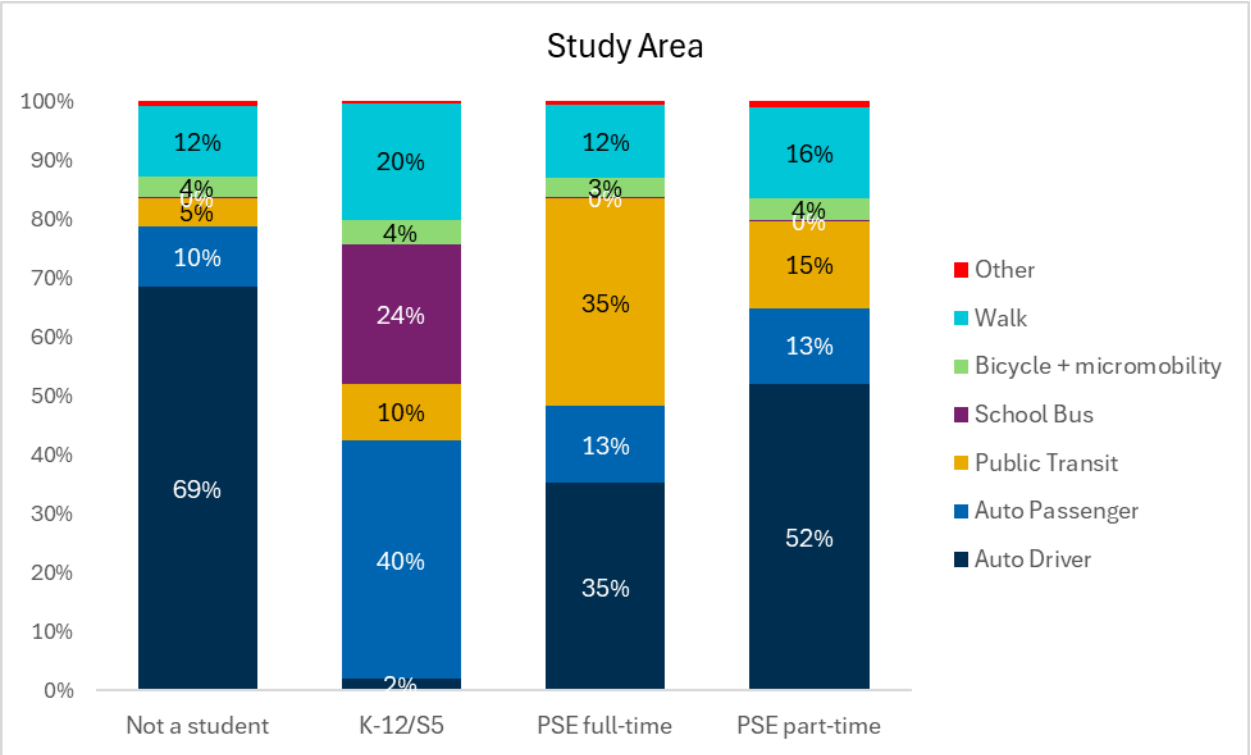
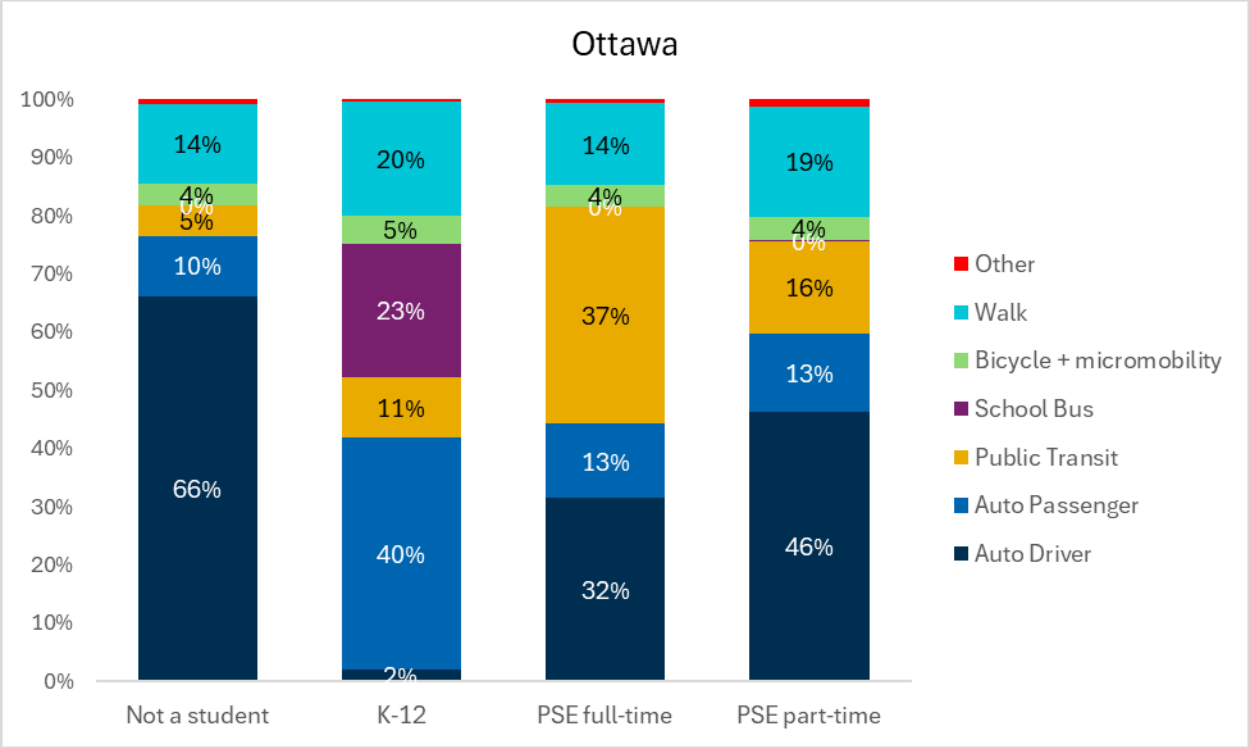
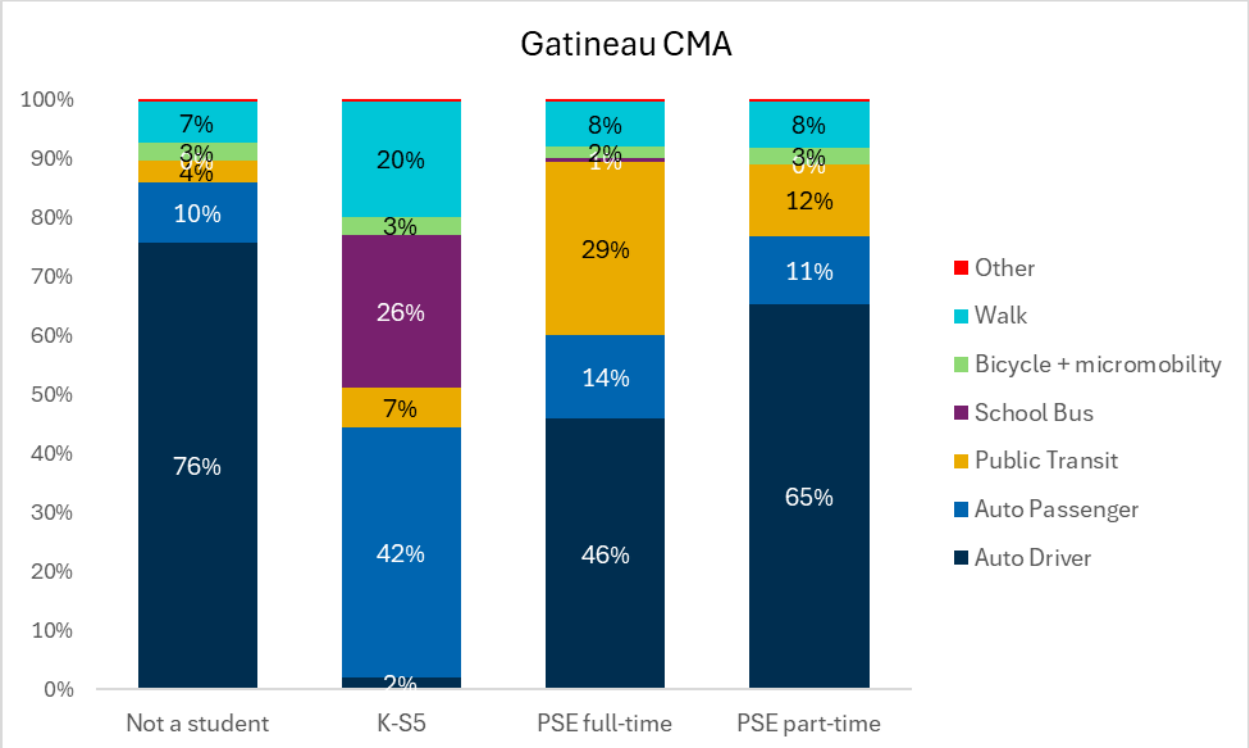


Figure 70. Mode shares by student status, 2022




Ottawa
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
14%
4%
5%
10%
66%
20%
5%
23%
11%
40%
2%
14%
4%
37%
13%
32%
19%
4%
16%
13%
46%
Not a student
K-12
PSE full-time
PSE part-time
Other
Walk
Bicycle + micromobility
School Bus
Public Transit
Auto Passenger
Auto Driver


Gatineau CMA
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
7%
3%
4%
10%
76%
20%
3%
26%
7%
42%
2%
8%
2%
29%
14%
46%
8%
3%
12%
11%
65%
Not a student
K-S5
PSE full-time
PSE part-time
Other
Walk
Bicycle + micromobility
School Bus
Public Transit
Auto Passenger
Auto Driver

4.3.7 Mode shares by trip start hour

Figure 71 shows the hourly variation of mode shares, according to trip start hour. The AM peak hour occurred at 8a.m., with 320,400 person-trips and the PM peak hour occurred at 4 p.m., with 356,100 person-trips.

The auto driver share was highest at all times of day, with auto drivers comprising the majority of all trips by all modes throughout most of the day. There are notable exceptions. The AM peak hours beginning at 7 a.m. and 8a.m. had auto mode shares of 50% and 46% respectively, when overall trip volumes were their peak, at 268,100 and 320,400 trips by all modes, respectively. Auto mode shares then dominate for the remainder of the day, although briefly dropping to 46% in the hour starting at 3 p.m. (when many grade-school students' classes end) before becoming the majority of trips again in the hours from 4 p.m. onwards.

The highest absolute auto driver volumes corresponded to the morning and afternoon times of peak volumes (7–9 a.m. and 2–6 p.m.), coinciding in large part with commute trips to and from work or school. These times largely overlapped the times of the highest auto passenger volumes (7-9 a.m. and 3-7 p.m.). As a proportion of hourly volumes, however, auto passenger trips were greatest during the evening hours, reaching a maximum of 24% during the hour beginning at 8 p.m.: these shares were consistent with evening recreational, social and other after-hours activities.

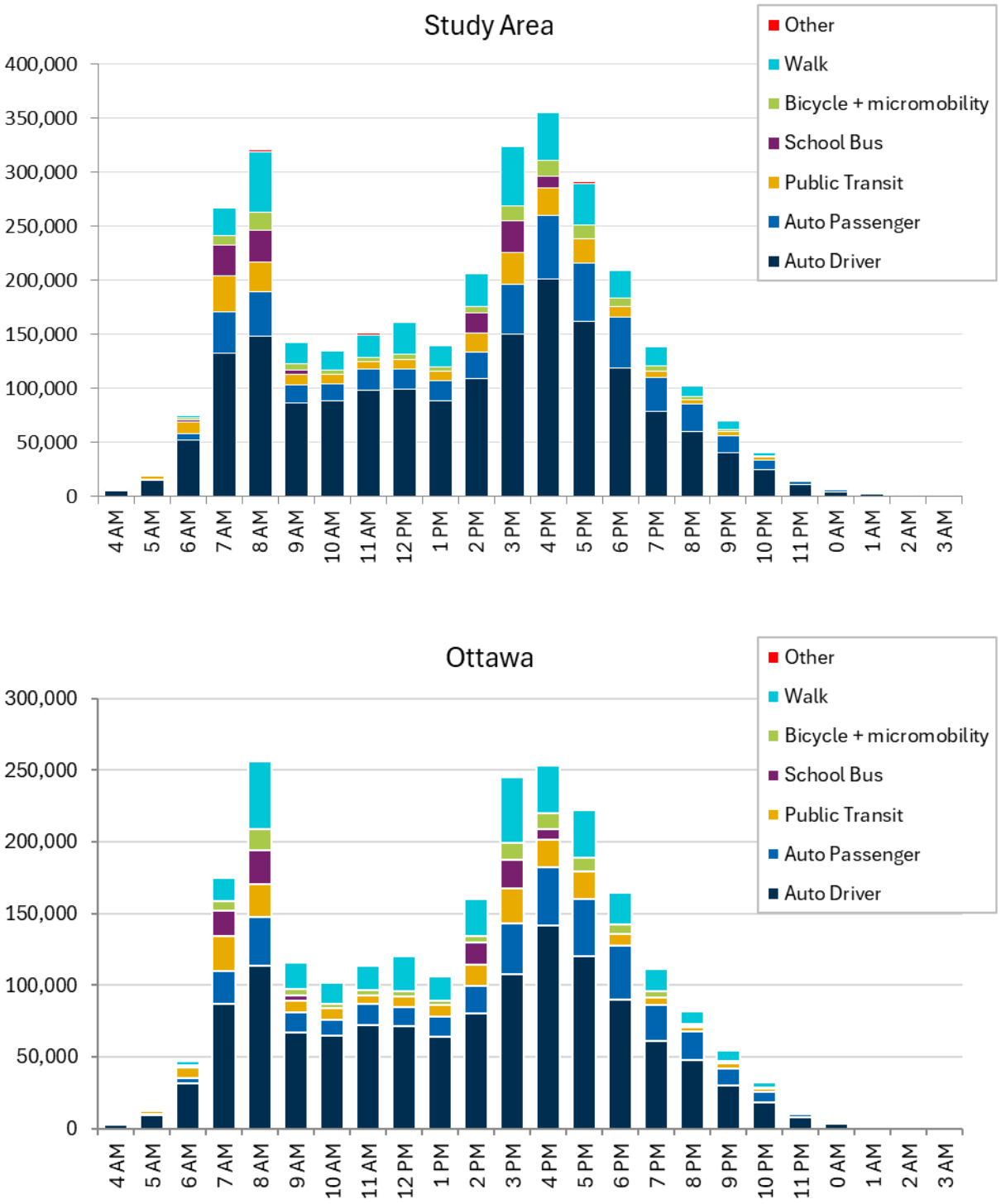
Public transit volumes were highest during the two commuter peaks, with volumes reaching 33,000 riders in the hour beginning at 7 a.m. Public transit's highest shares occurred during and just before the AM peak period, at 13.9% at 5 a.m., 14.6% at 6 a.m. and 12.3% at 7 a.m.

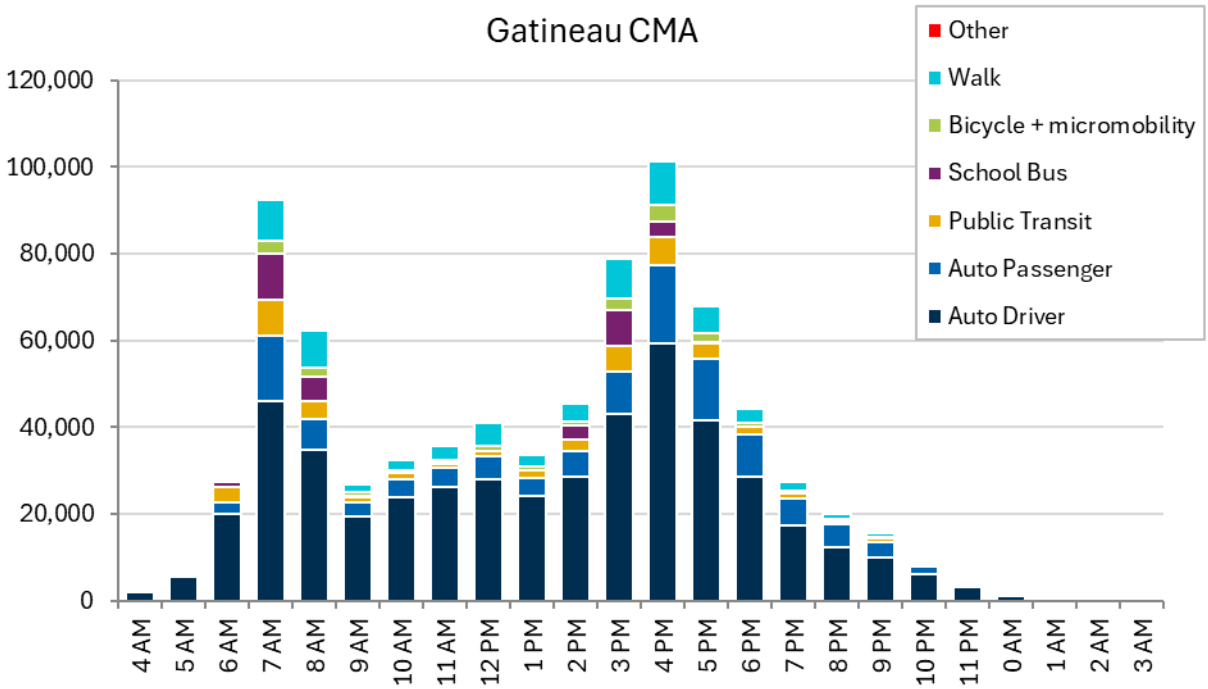
School bus volumes were highest at 7 a.m., at 28,500 trips, 8 a.m. at 29,200 trips and 3 p.m., at 29,000 trips – coincident with the start and end of the school day.

Walk and bicycle and micromobility trips achieved their greatest numbers during the AM peak hour, at 73,100 trips in the hour beginning at 8 a.m. Volumes were also high during the afternoon, rising to 68,700 trips in the hour beginning at 3 p.m. (coincident with the end of the school day). Walk trips peaked at 56,100 trips in the hour beginning at 8 a.m. and again with 54,600 trips at 3 p.m., with high volumes continuing throughout both peak periods. The profile was similar for bicycle and micromobility in the morning, at 17,000 in the hour beginning at 8 a.m. and again at 3 p.m. (14,200 trips), 4 p.m. (15,100 trips) and 5 p.m. (12,100 trips).

The Study Area patterns were mirrored in Ottawa. Those of the Gatineau CMA were broadly similar, with two notable exceptions: the AM peak hour occurred at 7 a.m., an hour earlier than Ottawa's; and the PM peak was sharper, with the shoulders of the 4 p.m. peak hour being smaller than those in Ottawa.

Figure 71. Mode volumes by trip start hour, 2022



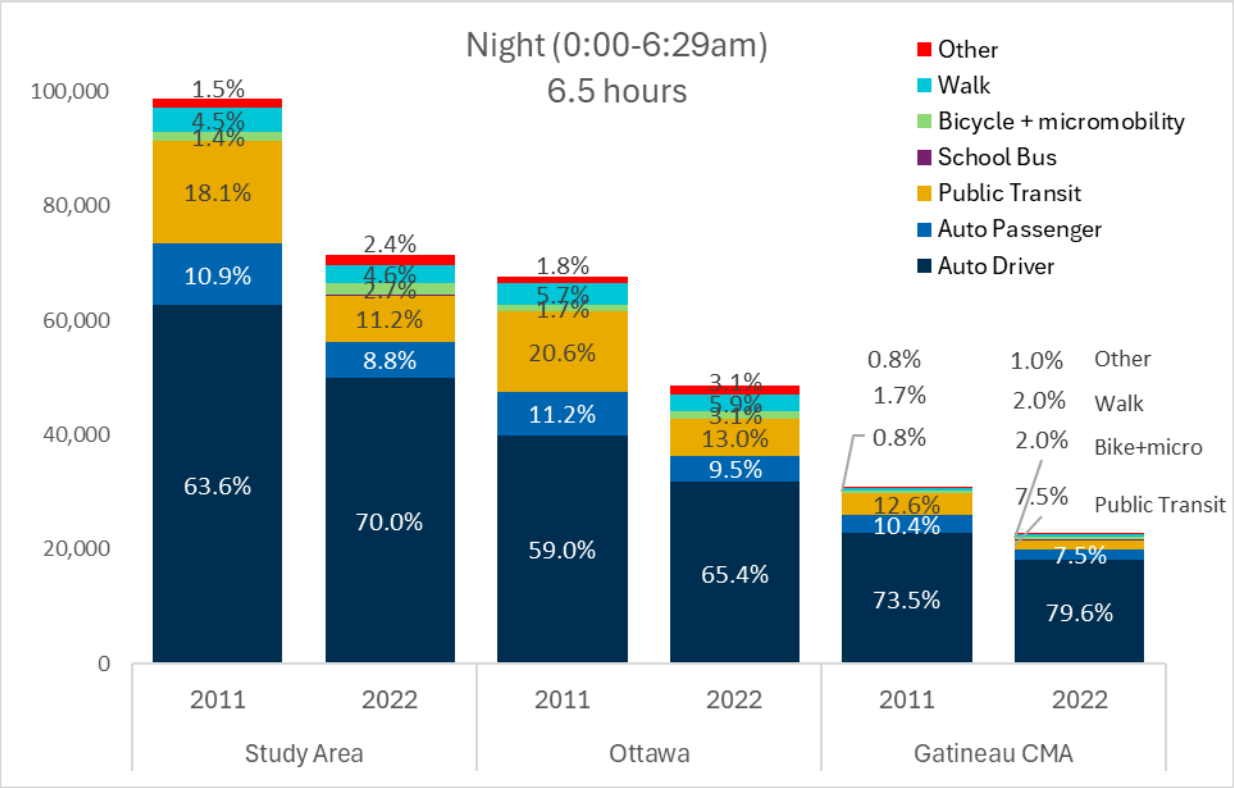


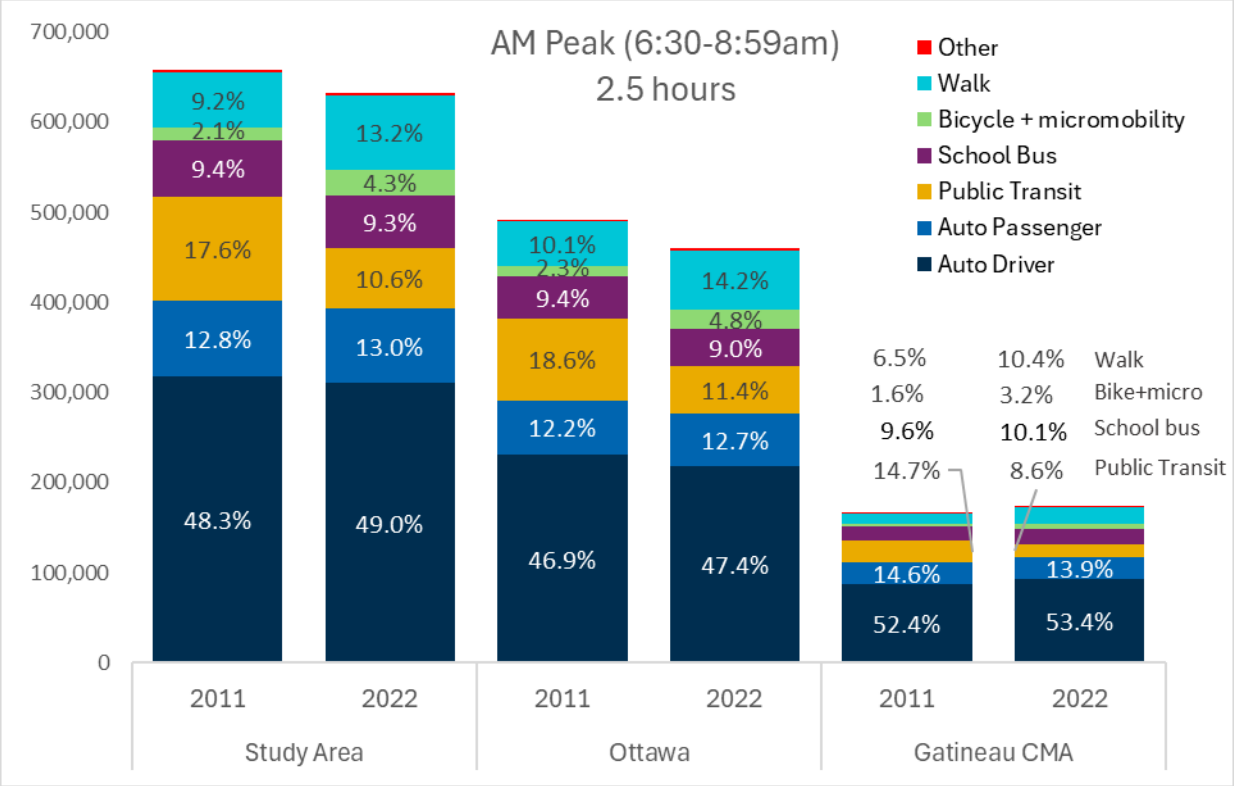
4.3.8 Mode shares by time period of day

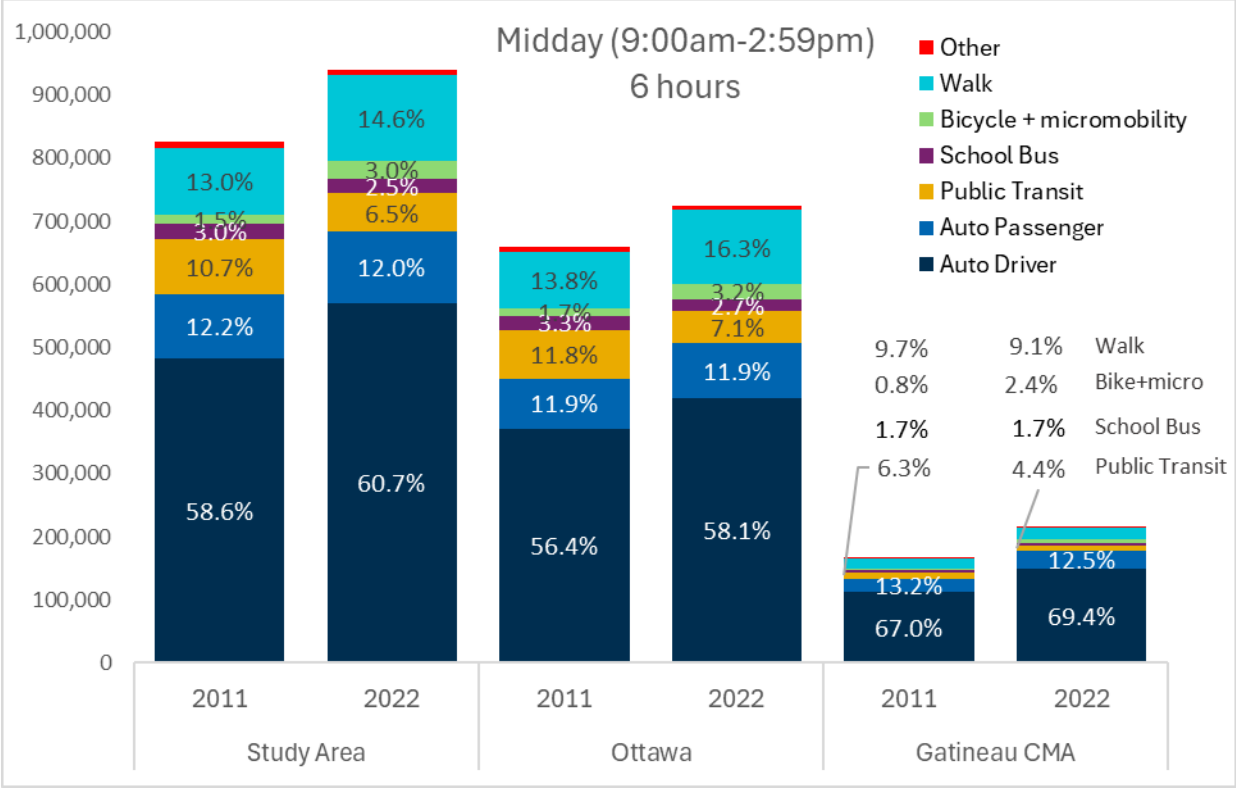
This section extends the previous discussion, now comparing how mode shares have changed since 2011 according to five periods of the day. Figure 72 presents the results. Key points to note:

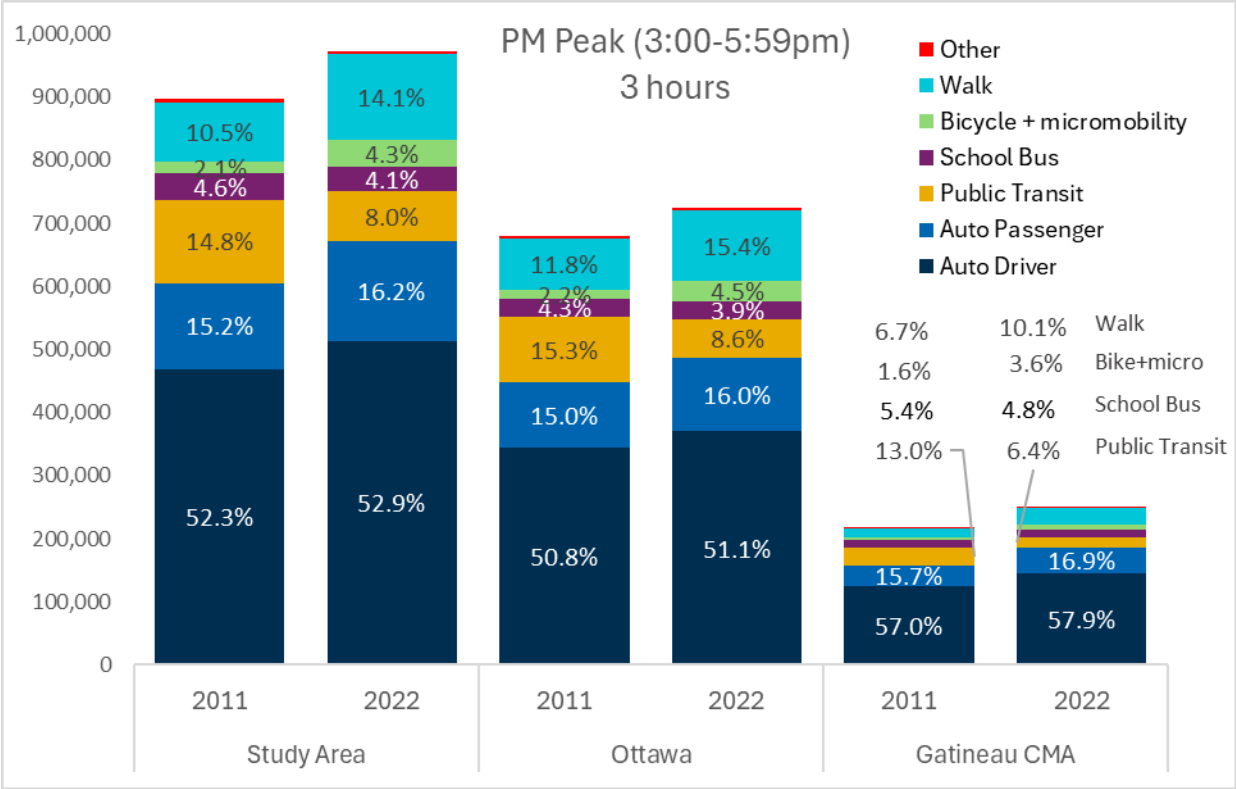
- Total person-trip volumes dropped in the AM peak period, in the evening and at night. However, volumes increased during the midday and the PM peak period.
- The auto driver share was dominant at all times of day, especially at night (70%, up from 64% in 2011) and midday (61%, up from 59% in 2011).
- Auto passenger shares were highest in the PM peak period (16%, up slightly from 15% in 2011) and especially in the evening (22%, down slightly from 23% in 2011). The AM peak period and midday shares were stable, at 13% and 12% respectively.
- Public transit shares and volumes contracted at all times of day, especially during the AM peak period (11% share in 2022 from 18% in 2011) and the PM peak period (8% share in 2022 compared with 15% in 2011), which are typically the times of peak public transit usage.
- The walking and cycling shares and volumes correspondingly increased at all times of day, especially during the AM peak period (17% share in 2022 compared with 11% in 2011) and the PM peak period (18% share in 2022, from 13% in 2011). The midday share increased to 18% in 2022 from 15% in 2011.

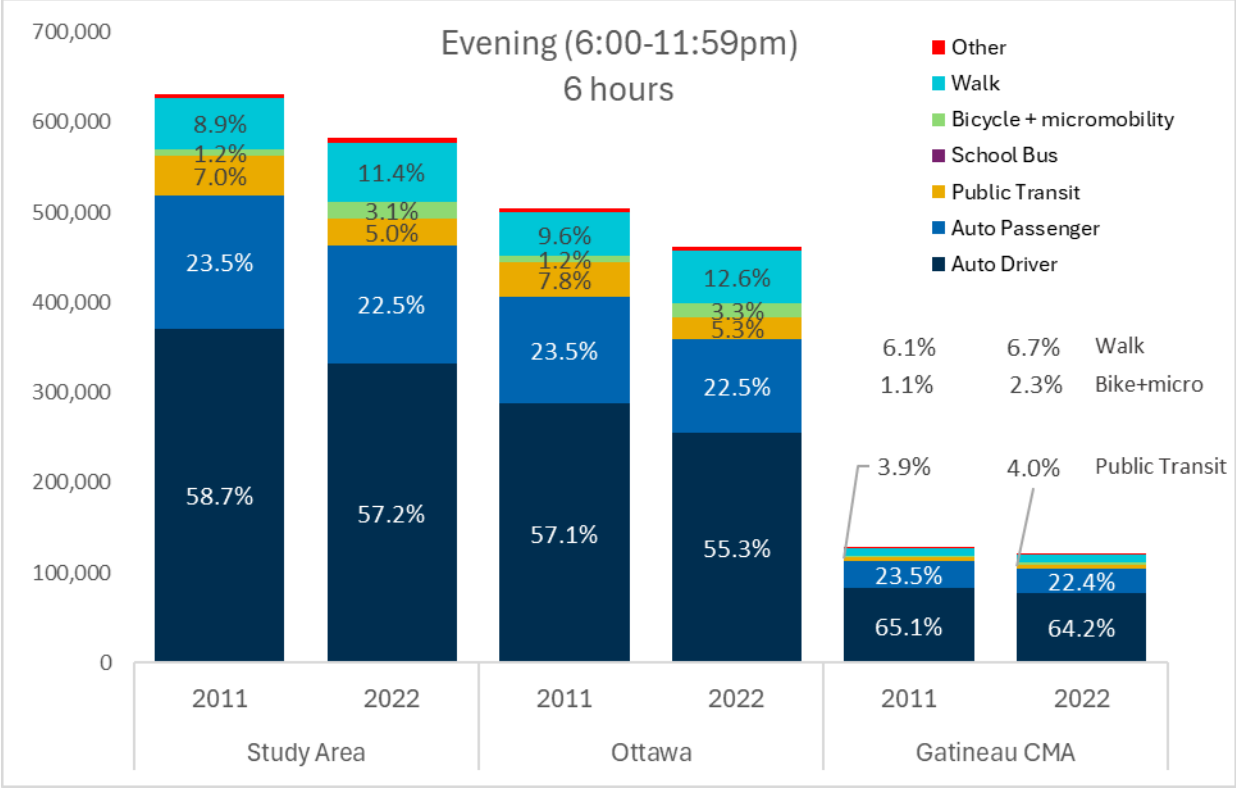
Figure 72. Travel by mode across the day, population 5+, 2011 and 2022






Midday (9:00am-2:59pm)
6 hours
Other
Walk
Bicycle + micromobility
School Bus
Public Transit
Auto Passenger
Auto Driver
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
13.0%
1.5%
3.0%
10.7%
12.2%
58.6%
14.6%
3.0%
2.5%
6.5%
12.0%
60.7%
13.8%
1.7%
3.3%
11.8%
11.9%
56.4%
16.3%
3.2%
2.7%
7.1%
11.9%
58.1%
9.7%
0.8%
1.7%
6.3%
13.2%
67.0%
9.1%
2.4%
1.7%
4.4%
12.5%
69.4%
Walk
Bike+micro
School Bus
Public Transit
2011
2022
2011
2022
2011
2022
Study Area
Ottawa
Gatineau CMA


PM Peak (3:00-5:59pm)
3 hours
Other
Walk
Bicycle + micromobility
School Bus
Public Transit
Auto Passenger
Auto Driver
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
10.5%
2.1%
4.6%
14.8%
15.2%
52.3%
14.1%
4.3%
4.1%
8.0%
16.2%
52.9%
11.8%
2.2%
4.3%
15.3%
15.0%
50.8%
15.4%
4.5%
3.9%
8.6%
16.0%
51.1%
6.7%
1.6%
5.4%
13.0%
15.7%
57.0%
10.1%
3.6%
4.8%
6.4%
16.9%
57.9%
Walk
Bike+micro
School Bus
Public Transit
2011
2022
2011
2022
2011
2022
Study Area
Ottawa
Gatineau CMA



A series of tables breaks down these changes by modal volume and by modal share for the Study Area (Table 31 and Table 32), Ottawa (Table 33 and Table 34) and the Gatineau CMA (Table 35 and Table 36).

Large increases in auto driver and walk trips, and lesser increases in auto passenger trips occurred during the midday and PM peak period. Walking and bicycling and micromobility trips grew throughout the day, except for the nighttime. Offsetting these increases were losses in public transit throughout the day, especially during the AM and PM peak periods. Combined, the increases resulted in a slight net increase in total daily trips between 2011 and 2022. The patterns by mode in Ottawa and the Gatineau CMA were largely similar, although the gains and losses were more accentuated in the Gatineau CMA, as noted.

The shifts at different times of day are consistent with pandemic-induced increases in remote working and schooling but also may reflect shifts in people's trip purposes at other times of day, as evidenced in section 4.4.2. The pandemic-induced public transit service changes should also be considered. At the same time, activity like the increased use of active transportation modes may reflect supportive policies and new infrastructure. The increase in remote shopping over the last several years (e-commerce), inflation and other factors beyond this analysis could also be important. Further research is needed.

Table 31. Mode volumes by time period, population 5+, Study Area, 2011-2022

Study Area	Night	AM Peak	Midday	PM Peak	Evening
2011 Mode Volumes					
Total Trips	**98,600**	**658,300**	**825,300**	**896,800**	**631,300**
Auto Driver	62,600	317,900	483,300	469,100	370,600
Auto Passenger	10,800	84,100	100,600	136,000	148,100
Public Transit	17,900	115,800	88,300	132,400	44,100
School Bus	100	62,000	24,700	41,000	100
Bicycle + micromobility	1,400	14,000	12,700	18,500	7,400
Walk	4,400	60,700	107,000	94,400	56,400
Other	1,400	3,700	8,600	5,400	4,800
2022 Mode Volumes					
Total Trips	**71,500**	**632,900**	**939,900**	**972,500**	**582,100**
Auto Driver	50,000	310,400	570,300	514,000	332,700
Auto Passenger	6,300	82,500	113,200	157,900	130,800
Public Transit	8,000	67,200	60,700	78,200	29,100
School Bus	100	58,900	23,100	40,000	200
Bicycle + micromobility	2,000	27,500	28,100	41,400	18,100
Walk	3,300	83,300	137,300	136,900	66,300
Other	1,700	3,000	7,300	4,200	4,900
Change 2011 to 2022					
Total Trips	**-27,100**	**-25,400**	**114,600**	**75,700**	**-49,200**
Auto Driver	-12,600	-7,500	87,000	44,900	-37,900
Auto Passenger	-4,500	-1,600	12,600	21,900	-17,300
Public Transit	-9,900	-48,600	-27,600	-54,200	-15,000
School Bus	0	-3,100	-1,600	-1,000	100
Bicycle + micromobility	600	13,500	15,400	22,900	10,700
Walk	-1,100	22,600	30,300	42,500	9,900
Other	300	-700	-1,300	-1,200	100

Table 32. Mode shares by time period, population 5+, Study Area, 2011-2022

Study Area	Night	AM Peak	Midday	PM Peak	Evening
2011 Mode Shares					
Total Trips	**98,600**	**658,300**	**825,300**	**896,800**	**631,300**
Auto Driver	63.6%	48.3%	58.6%	52.3%	58.7%
Auto Passenger	10.9%	12.8%	12.2%	15.2%	23.5%
Public Transit	18.1%	17.6%	10.7%	14.8%	7.0%
School Bus	0.1%	9.4%	3.0%	4.6%	0.0%
Bicycle + micromobility	1.4%	2.1%	1.5%	2.1%	1.2%
Walk	4.5%	9.2%	13.0%	10.5%	8.9%
Other	1.5%	0.6%	1.0%	0.6%	0.8%
2022 Mode Shares					
Total Trips	**71,500**	**632,900**	**939,900**	**972,500**	**582,100**
Auto Driver	70.0%	49.0%	60.7%	52.9%	57.2%
Auto Passenger	8.8%	13.0%	12.0%	16.2%	22.5%
Public Transit	11.2%	10.6%	6.5%	8.0%	5.0%
School Bus	0.2%	9.3%	2.5%	4.1%	0.0%
Bicycle + micromobility	2.7%	4.3%	3.0%	4.3%	3.1%
Walk	4.6%	13.2%	14.6%	14.1%	11.4%
Other	2.4%	0.5%	0.8%	0.4%	0.8%
%-pt difference					
Auto Driver	6.4%	0.8%	2.1%	0.5%	-1.5%
Auto Passenger	-2.1%	0.3%	-0.2%	1.1%	-1.0%
Public Transit	-6.9%	-7.0%	-4.2%	-6.7%	-2.0%
School Bus	0.1%	-0.1%	-0.5%	-0.5%	0.0%
Bicycle + micromobility	1.3%	2.2%	1.5%	2.2%	1.9%
Walk	0.2%	3.9%	1.6%	3.5%	2.5%
Other	1.0%	-0.1%	-0.3%	-0.2%	0.1%

Table 33. Mode volumes by time period, population 5+, Ottawa residents, 2011-2022

Ottawa	Night	AM Peak	Midday	PM Peak	Evening
2011 Mode Volumes					
Total Trips	**67,600**	**492,100**	**658,700**	**679,400**	**504,100**
Auto Driver	39,900	230,900	371,700	345,200	287,800
Auto Passenger	7,600	59,900	78,700	101,800	118,200
Public Transit	14,000	91,400	77,900	104,100	39,100
School Bus	0	46,100	21,800	29,100	100
Bicycle + micromobility	1,100	11,300	11,300	15,000	6,000
Walk	3,900	49,900	90,900	79,800	48,600
Other	1,200	2,700	6,500	4,400	4,300
2022 Mode Volumes					
Total Trips	**48,600**	**459,800**	**724,000**	**723,800**	**461,500**
Auto Driver	31,800	217,900	420,400	369,900	255,200
Auto Passenger	4,600	58,400	86,100	115,900	103,800
Public Transit	6,300	52,300	51,200	62,200	24,300
School Bus	0	41,500	19,400	28,000	200
Bicycle + micromobility	1,500	21,900	22,900	32,500	15,300
Walk	2,800	65,200	117,700	111,700	58,300
Other	1,500	2,500	6,300	3,500	4,400
Change 2011 to 2022					
Total Trips	-19,000	-32,300	65,300	44,400	-42,600
Auto Driver	-8,100	-13,000	48,700	24,700	-32,600
Auto Passenger	-3,000	-1,500	7,400	14,100	-14,400
Public Transit	-7,700	-39,100	-26,700	-41,900	-14,800
School Bus	0	-4,600	-2,400	-1,100	100
Bicycle + micromobility	400	10,600	11,600	17,500	9,300
Walk	-1,100	15,300	26,800	31,900	9,700
Other	300	-200	-200	-900	100

Table 34. Mode shares by time period, population 5+, Ottawa residents, 2011-2022

Ottawa	Night	AM Peak	Midday	PM Peak	Evening
2011 Mode Shares					
Total Trips	**67,600**	**492,100**	**658,700**	**679,400**	**504,100**
Auto Driver	59.0%	46.9%	56.4%	50.8%	57.1%
Auto Passenger	11.2%	12.2%	11.9%	15.0%	23.5%
Public Transit	20.6%	18.6%	11.8%	15.3%	7.8%
School Bus	0.1%	9.4%	3.3%	4.3%	0.0%
Bicycle + micromobility	1.7%	2.3%	1.7%	2.2%	1.2%
Walk	5.7%	10.1%	13.8%	11.8%	9.6%
Other	1.8%	0.5%	1.0%	0.7%	0.9%
2022 Mode Shares					
Total Trips	**48,600**	**459,800**	**724,000**	**723,800**	**461,500**
Auto Driver	65.4%	47.4%	58.1%	51.1%	55.3%
Auto Passenger	9.5%	12.7%	11.9%	16.0%	22.5%
Public Transit	13.0%	11.4%	7.1%	8.6%	5.3%
School Bus	0.1%	9.0%	2.7%	3.9%	0.0%
Bicycle + micromobility	3.1%	4.8%	3.2%	4.5%	3.3%
Walk	5.9%	14.2%	16.3%	15.4%	12.6%
Other	3.1%	0.5%	0.9%	0.5%	1.0%
%-pt difference					
Auto Driver	6.4%	0.5%	1.6%	0.3%	-1.8%
Auto Passenger	-1.7%	0.5%	0.0%	1.0%	-1.0%
Public Transit	-7.7%	-7.2%	-4.8%	-6.7%	-2.5%
School Bus	0.0%	-0.3%	-0.6%	-0.4%	0.0%
Bicycle + micromobility	1.4%	2.5%	1.4%	2.3%	2.1%
Walk	0.2%	4.1%	2.5%	3.7%	3.0%
Other	1.3%	0.0%	-0.1%	-0.2%	0.1%

Table 35. Mode volumes by time period, population 5+, Gatineau CMA residents, 2011-2022

Gatineau CMA	Night	AM Peak	Midday	PM Peak	Evening
2011 Mode Volumes					
Total Trips	**31,000**	**166,200**	**166,600**	**217,400**	**127,200**
Auto Driver	22,800	87,000	111,700	124,000	82,800
Auto Passenger	3,200	24,200	21,900	34,200	29,800
Public Transit	3,900	24,400	10,400	28,300	4,900
School Bus	0	16,000	2,900	11,800	0
Bicycle + micromobility	300	2,700	1,400	3,500	1,400
Walk	500	10,800	16,200	14,600	7,700
Other	300	1,000	2,100	1,000	500
2022 Mode Volumes					
Total Trips	**22,900**	**173,100**	**216,000**	**248,700**	**120,600**
Auto Driver	18,200	92,500	149,800	144,100	77,500
Auto Passenger	1,700	24,100	27,000	41,900	27,000
Public Transit	1,700	14,900	9,600	16,000	4,800
School Bus	100	17,500	3,700	12,000	0
Bicycle + micromobility	500	5,600	5,200	8,900	2,700
Walk	400	18,100	19,600	25,100	8,000
Other	200	600	1,000	700	500
Change 2011 to 2022					
Total Trips	**-8,100**	**6,900**	**49,400**	**31,300**	**-6,600**
Auto Driver	-4,600	5,500	38,100	20,100	-5,300
Auto Passenger	-1,500	-100	5,100	7,700	-2,800
Public Transit	-2,200	-9,500	-800	-12,300	-100
School Bus	100	1,500	800	200	0
Bicycle + micromobility	200	2,900	3,800	5,400	1,300
Walk	-100	7,300	3,400	10,500	300
Other	-100	-400	-1,100	-300	0

Table 36. Mode shares by time period, population 5+, Gatineau CMA residents, 2011-2022

Gatineau CMA	Night	AM Peak	Midday	PM Peak	Evening
2011 Mode Shares					
Total Trips	**31,000**	**166,200**	**166,600**	**217,400**	**127,200**
Auto Driver	73.5%	52.4%	67.0%	57.0%	65.1%
Auto Passenger	10.4%	14.6%	13.2%	15.7%	23.5%
Public Transit	12.6%	14.7%	6.3%	13.0%	3.9%
School Bus	0.1%	9.6%	1.7%	5.4%	0.0%
Bicycle + micromobility	0.8%	1.6%	0.8%	1.6%	1.1%
Walk	1.7%	6.5%	9.7%	6.7%	6.1%
Other	0.8%	0.6%	1.2%	0.4%	0.4%
2022 Mode Shares					
Total Trips	**22,900**	**173,100**	**216,000**	**248,700**	**120,600**
Auto Driver	79.6%	53.4%	69.4%	57.9%	64.2%
Auto Passenger	7.5%	13.9%	12.5%	16.9%	22.4%
Public Transit	7.5%	8.6%	4.4%	6.4%	4.0%
School Bus	0.3%	10.1%	1.7%	4.8%	0.0%
Bicycle + micromobility	2.0%	3.2%	2.4%	3.6%	2.3%
Walk	2.0%	10.4%	9.1%	10.1%	6.7%
Other	1.0%	0.3%	0.5%	0.3%	0.4%
%-pt difference					
Auto Driver	6.1%	1.0%	2.3%	0.9%	-0.9%
Auto Passenger	-2.9%	-0.6%	-0.7%	1.1%	-1.0%
Public Transit	-5.1%	-6.1%	-1.8%	-6.6%	0.1%
School Bus	0.3%	0.5%	0.0%	-0.6%	0.0%
Bicycle + micromobility	1.2%	1.6%	1.6%	2.0%	1.2%
Walk	0.2%	3.9%	-0.6%	3.4%	0.6%
Other	0.2%	-0.3%	-0.8%	-0.2%	0.0%

Finally, Table 37 summarizes how total trip volumes have changed across the day. Key points to note:

- Increases and reductions occurred throughout the day. Across the Study Area, the greatest absolute reductions occurred during in the evening (the largest absolute reduction, at -49,200 trips), at night (proportionately the greatest reduction, at -27%) and during the AM peak period. Increases occurred during the midday (proportionately the greatest increase, at 14%) and the PM peak period. These increases were sufficient to offset the reductions, for an overall 3% increase in daily trips, as noted (88,700 trips).

- For trips made by Ottawa residents, a 1% increase was recorded over the day. Midday trips increased by 10% and PM peak period trips increased by 7%, while AM peak period trips dropped by -7%.
- For trips made by Gatineau CMA residents, a 10% increase was recorded over the day. Midday trips increased by 30% and PM peak period trips increased by 14%, while AM peak period trips grew by 4%.

Table 37. Trip volumes by time period, population 5+, 2011-2022

Study Area	Trips				% of daily trips		
	2011	2022	difference	% diff.	2011	2022	%-pt diff.
Night (0:00-6:29am, 6.5 hrs)	98,600	71,500	-27,100	-27%	3.2%	2.2%	-0.9%
AM Peak (6:30-8:59am, 2.5 hrs)	658,300	632,900	-25,400	-4%	21.2%	19.8%	-1.4%
Midday (9:00am-2:59pm, 6 hrs)	825,300	939,900	114,600	14%	26.5%	29.4%	2.8%
PM Peak (3:00pm-5:59pm, 3 hrs)	896,800	972,500	75,700	8%	28.8%	30.4%	1.6%
Evening (6:00pm-11:59pm, 6 hrs)	631,300	582,100	-49,200	-8%	20.3%	18.2%	-2.1%
24-Hour Total	3,110,200	3,198,900	88,700	3%	100%	100%	

Ottawa*	Trips				% of daily trips		
	2011	2022	difference	% diff.	2011	2022	%-pt diff.
Night (0:00-6:29am, 6.5 hrs)	67,600	48,600	-19,000	-28%	2.8%	2.0%	-0.8%
AM Peak (6:30-8:59am, 2.5 hrs)	492,100	459,800	-32,300	-7%	20.5%	19.0%	-1.5%
Midday (9:00am-2:59pm, 6 hrs)	658,700	724,000	65,300	10%	27.4%	29.9%	2.5%
PM Peak (3:00pm-5:59pm, 3 hrs)	679,400	723,800	44,400	7%	28.3%	29.9%	1.7%
Evening (6:00pm-11:59pm, 6 hrs)	504,100	461,500	-42,600	-8%	21.0%	19.1%	-1.9%
24-Hour Total	2,401,900	2,417,700	15,800	1%	100%	100%	

Gatineau CMA*	Trips				% of daily trips		
	2011	2022	difference	% diff.	2011	2022	%-pt diff.
Night (0:00-6:29am, 6.5 hrs)	31,000	22,900	-8,100	-26%	4.4%	2.9%	-1.4%
AM Peak (6:30-8:59am, 2.5 hrs)	166,200	173,100	6,900	4%	23.5%	22.2%	-1.3%
Midday (9:00am-2:59pm, 6 hrs)	166,600	216,000	49,400	30%	23.5%	27.6%	4.1%
PM Peak (3:00pm-5:59pm, 3 hrs)	217,400	248,700	31,300	14%	30.7%	31.8%	1.1%
Evening (6:00pm-11:59pm, 6 hrs)	127,200	120,600	-6,600	-5%	18.0%	15.4%	-2.5%
24-Hour Total	708,300	781,300	73,000	10%	100%	100%	

* As noted in section 4.1, all figures measure trips made by residents of the respective jurisdictions as opposed necessarily to where the trips originate or are destined.

In sum, changes occurred during the commuter peak periods but also throughout the day. Some of these changes may be consistent with the pandemic-induced shifts to remote

working and schooling described in previous sections. At the same time, these changes suggest shifts in activity patterns that go beyond simple changes to commuting, with the midday and PM peak periods gaining in activity while the evening, night and AM peak periods losing activity. At a broad level, these changes are consistent with pandemic-induced changes observed in surveys elsewhere.[51] At the same time, it is important to note that the 2011 comparator is eleven years old: as noted, some of these shifts may be the result of intervening changes in demographics and local economic conditions, as well as the pandemic and possibly the introduction of major new infrastructure like the O-Train. Further research is needed.

4.3.9 Mode shares by employment and student status for AM and PM peak period

Table 38 summarizes mode shares at different time periods of the day for three commuter groups: students between five and 17 years of age (most of whom would be in kindergarten to grade 12), adult students 18+ (most of whom would be in post-secondary schools), and workers.

Figure 73, Figure 74 and Figure 75 illustrate the volumes of their trips by different modes in the five time periods. For example, children's commutes to and from school appeared to account for much of their daily travel, with the majority of their trips during the AM and PM peak periods being via sustainable modes (especially school bus) and 80% of their trips in the evening being made as auto passengers.

Students 18 years and older reported fewer trips in the AM Peak than they made after 9 a.m. in the Midday period or during the PM Peak period. Except for the Night period, around half their travel was via sustainable modes, with the balance made as auto drivers or auto passengers.

In contrast, auto was the primary mode for workers at all times of day. Two-thirds of workers' trips were made as auto driver during most times of day (72% at night) and 6%-8% of their trips were made as auto passengers (14% in the evening, consistent with non-work evening activities). Public transit was highest during the AM Peak, at 10% of all workers' trips. Travel by bicycle and micromobility modes was highest during the AM Peak, at 5%, and the PM Peak, at 4%. Walk was pervasive at all times of day, though was highest in the Midday at 16%.

Ottawa's patterns mirrored those of the Study Area. The Gatineau CMA's patterns were largely similar, with the important exceptions of higher auto shares in all three groups. Specifically, these were higher auto passenger shares for students 0-17 years; higher auto driver shares, lower auto passenger shares and lower public transit shares for students 18+; and higher auto driver shares and lower public transit shares for workers.

[51] For example, the Capital Regional District (Victoria area) survey, which was conducted in 2022. Other post-pandemic surveys may offer further insights.

Table 38. Mode shares for students and workers by time period, 2022

Study Area

Population Group	Mode	000 - 0629 Night	0630 - 0859 AM Peak	0900 - 1459 Midday	1500 - 1759 PM Peak	1800 - 2359 Evening	24-Hour
Students 0-17 yrs	Total Trips	1,400	182,300	72,600	195,400	67,900	519,700
	Auto Driver	11.7%	1.1%	2.7%	1.3%	3.7%	1.8%
	Auto Passenger	61.8%	30.5%	25.8%	41.3%	80.0%	40.5%
	Public Transit	14.3%	12.2%	12.8%	10.2%	2.6%	10.3%
	School Bus	8.6%	32.2%	31.3%	20.3%	0.2%	23.4%
	Bicycle + micromobility	0.0%	4.1%	3.4%	4.9%	3.8%	4.2%
	Walk	2.3%	19.6%	23.8%	21.7%	9.3%	19.6%
	Other	1.2%	0.2%	0.2%	0.2%	0.4%	0.2%
Students 18+ yrs	Total Trips	5,700	39,000	72,900	59,300	55,500	232,500
	Auto Driver	46.0%	39.0%	36.3%	40.0%	42.5%	39.4%
	Auto Passenger	17.4%	9.0%	10.2%	11.9%	17.5%	12.3%
	Public Transit	22.6%	37.6%	33.3%	31.2%	22.5%	30.6%
	School Bus	0.0%	0.5%	0.3%	0.3%	0.0%	0.3%
	Bicycle + micromobility	1.8%	3.8%	3.2%	3.6%	3.1%	3.3%
	Walk	6.8%	9.4%	15.8%	12.8%	13.5%	13.2%
	Other	5.4%	0.8%	0.8%	0.2%	0.8%	0.8%
Workers	Total Trips	64,900	397,800	461,400	610,900	432,000	1,967,100
	Auto Driver	72%	68%	66%	67%	66%	67%
	Auto Passenger	8%	6%	7%	8%	14%	9%
	Public Transit	11%	10%	6%	8%	5%	7%
	School Bus	0%	1%	0%	0%	0%	0%
	Bicycle + micromobility	3%	5%	3%	4%	3%	4%
	Walk	5%	10%	16%	12%	12%	12%
	Other	2%	0%	1%	0%	1%	1%

Ottawa

Population Group	Mode	000 - 0629 Night	0630 - 0859 AM Peak	0900 - 1459 Midday	1500 - 1759 PM Peak	1800 - 2359 Evening	24-Hour
Students 0-17 yrs	Total Trips	800	131,500	58,500	142,300	53,000	386,000
	Auto Driver	14.0%	1.2%	2.9%	1.4%	3.7%	1.9%
	Auto Passenger	70.5%	29.5%	24.5%	40.4%	80.4%	39.8%
	Public Transit	5.4%	13.0%	13.2%	10.7%	1.9%	10.6%
	School Bus	6.3%	31.4%	32.5%	19.5%	0.3%	22.9%
	Bicycle + micromobility	0.0%	4.8%	3.5%	5.5%	4.0%	4.7%
	Walk	1.5%	19.8%	23.3%	22.3%	9.4%	19.8%
	Other	2.3%	0.2%	0.2%	0.3%	0.5%	0.3%
Students 18+ yrs	Total Trips	4,400	27,200	58,300	43,500	43,300	176,700
	Auto Driver	43.5%	33.6%	31.4%	34.1%	36.6%	34.0%
	Auto Passenger	17.4%	10.0%	10.9%	12.1%	18.3%	13.0%
	Public Transit	24.4%	40.8%	35.6%	35.1%	24.6%	33.3%
	School Bus	0.0%	0.5%	0.4%	0.3%	0.0%	0.3%
	Bicycle + micromobility	1.3%	4.2%	3.6%	3.9%	3.6%	3.7%
	Walk	8.3%	10.0%	17.3%	14.3%	16.1%	14.9%
	Other	5.1%	0.9%	0.9%	0.2%	0.8%	0.8%
Workers	Total Trips	44,100	287,200	355,500	450,900	342,200	1,479,900
	Auto Driver	67%	66%	63%	64%	63%	64%
	Auto Passenger	8%	6%	7%	8%	14%	9%
	Public Transit	13%	10%	7%	8%	5%	8%
	School Bus	0%	0%	0%	0%	0%	0%
	Bicycle + micromobility	3%	5%	4%	5%	3%	4%
	Walk	6%	12%	18%	14%	13%	14%
	Other	3%	1%	1%	0%	1%	1%

Gatineau CMA

Population Group	Mode	000 - 0629 Night	0630 - 0859 AM Peak	0900 - 1459 Midday	1500 - 1759 PM Peak	1800 - 2359 Evening	24-Hour
Students 0-17 yrs	Total Trips	700	50,800	14,200	53,100	14,900	133,700
	Auto Driver	9.2%	1.0%	1.8%	1.0%	3.7%	1.5%
	Auto Passenger	52.3%	33.1%	31.2%	43.8%	78.8%	42.3%
	Public Transit	24.2%	10.0%	11.4%	9.1%	5.2%	9.3%
	School Bus	11.2%	34.2%	26.2%	22.5%	0.0%	24.8%
	Bicycle + micromobility	0.0%	2.3%	3.1%	3.4%	3.1%	2.9%
	Walk	3.1%	19.1%	25.7%	20.0%	9.2%	19.0%
	Other	0.0%	0.3%	0.5%	0.1%	0.0%	0.2%
Students 18+ yrs	Total Trips	1,300	11,800	14,600	15,800	12,300	55,800
	Auto Driver	54.3%	51.5%	56.3%	56.3%	63.5%	56.8%
	Auto Passenger	17.2%	6.8%	7.5%	11.3%	14.6%	10.2%
	Public Transit	16.6%	30.1%	24.2%	20.5%	15.1%	22.2%
	School Bus	0.0%	0.4%	0.1%	0.3%	0.0%	0.2%
	Bicycle + micromobility	3.5%	2.8%	1.5%	2.6%	1.6%	2.2%
	Walk	1.9%	7.9%	10.1%	8.7%	4.3%	7.8%
	Other	6.5%	0.4%	0.3%	0.2%	0.8%	0.6%
Workers	Total Trips	20,900	110,600	106,000	160,000	89,800	487,100
	Auto Driver	82%	75%	76%	73%	73%	75%
	Auto Passenger	6%	6%	6%	9%	14%	8%
	Public Transit	7%	8%	5%	6%	4%	6%
	School Bus	0%	1%	0%	0%	0%	0%
	Bicycle + micromobility	2%	4%	2%	4%	2%	3%
	Walk	2%	7%	10%	7%	6%	7%
	Other	1%	0%	0%	0%	0%	0%

Figure 73. Students 5-17 years of age, trips by mode by time period, Study Area, 2022

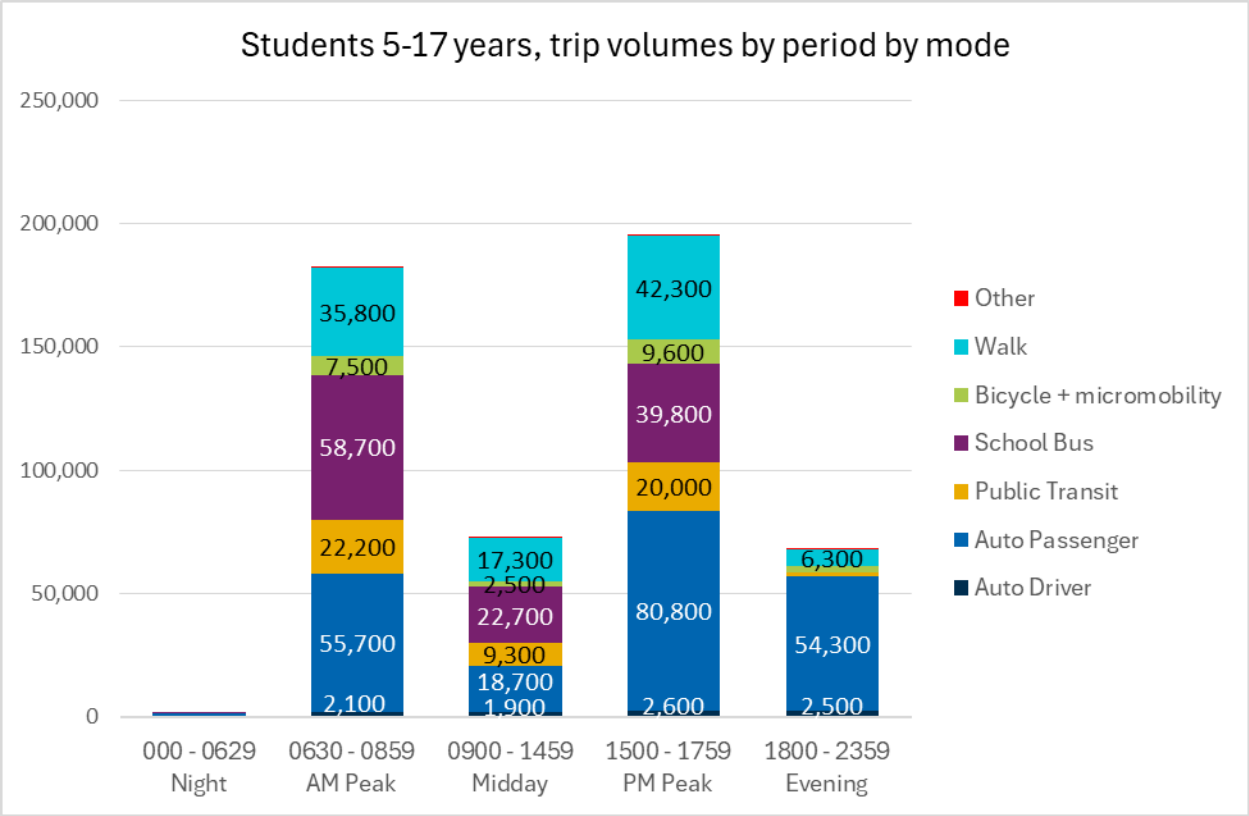


Figure 74. Students 18+ years of age, trips by mode by time period, Study Area, 2022

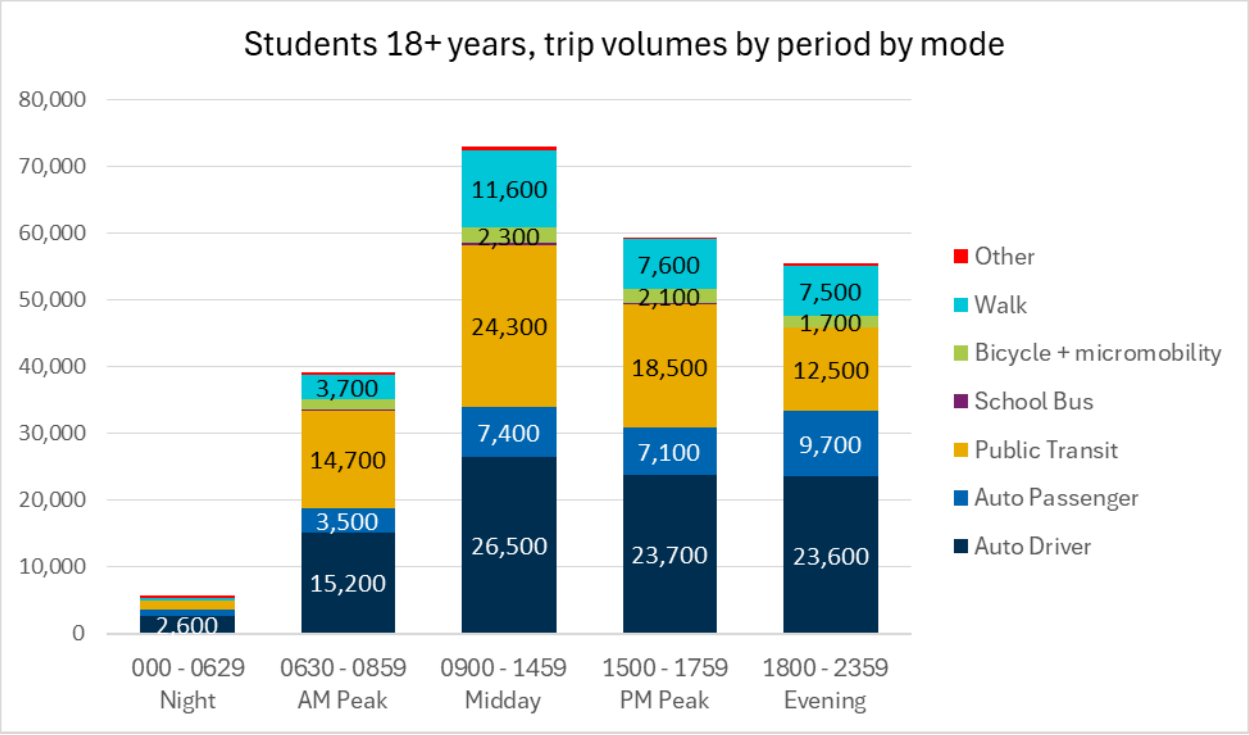
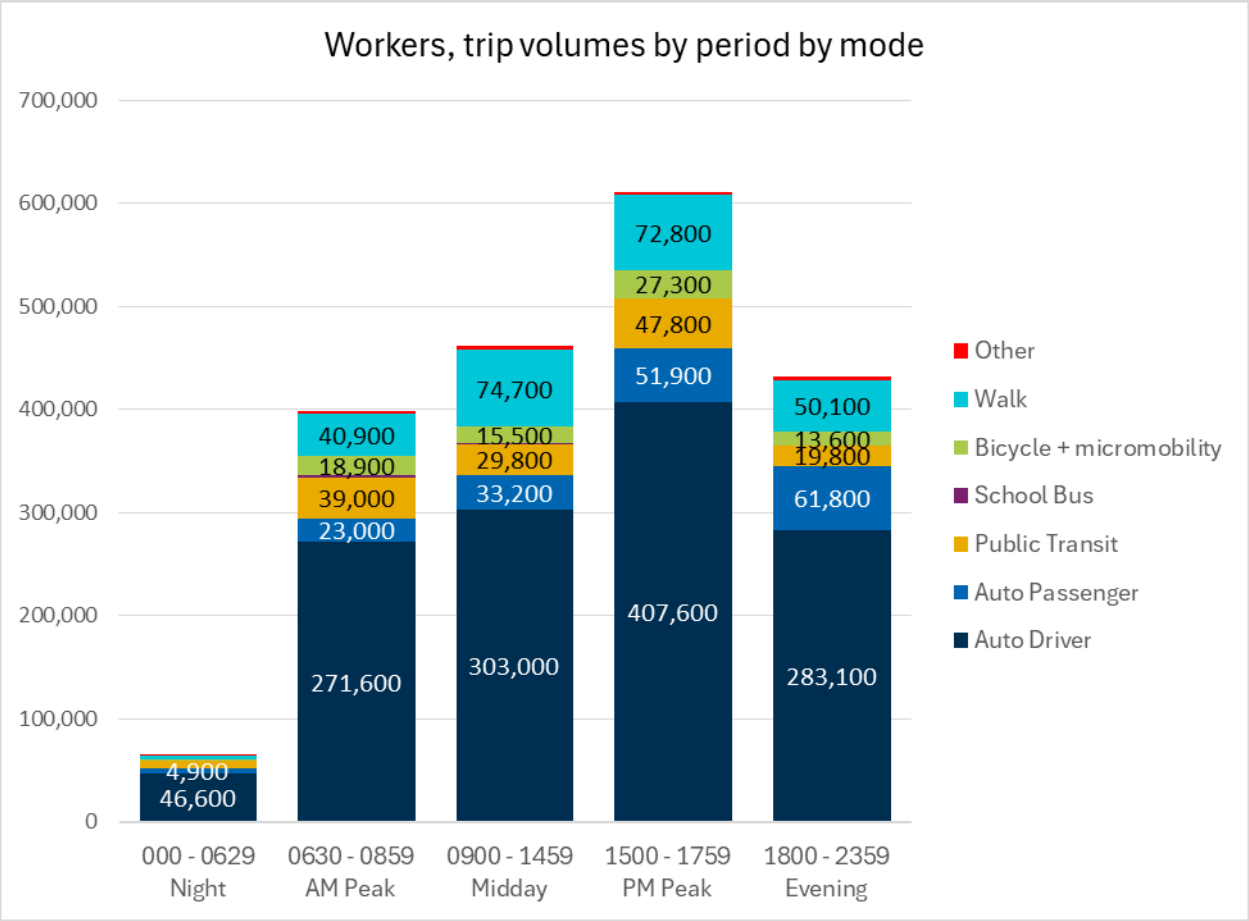


Figure 75. Workers, trips by mode by time period, Study Area, 2022



4.3.10 Influence of mobility limitations on mode share

Section 3.7.6 profiled limitations to mobility for household members. Table 39 summarizes the mode shares of people without and with limitations to their mobility. While aspects of the mode share profiles for each population group are similar—e.g., auto driver being the predominant mode—persons with mobility limitations are somewhat less likely to travel by walking, cycling, or school bus, the latter of which stands to reason as older people are more likely to have mobility limitations. Persons with mobility limitations are more likely to drive, travel as a passenger, take public transit or use Other modes, the latter of which includes paratransit, taxi, and ride hail.

Figure 76 illustrates the proportion of trips made by each mode that were made by someone with a disability. It can be seen that:

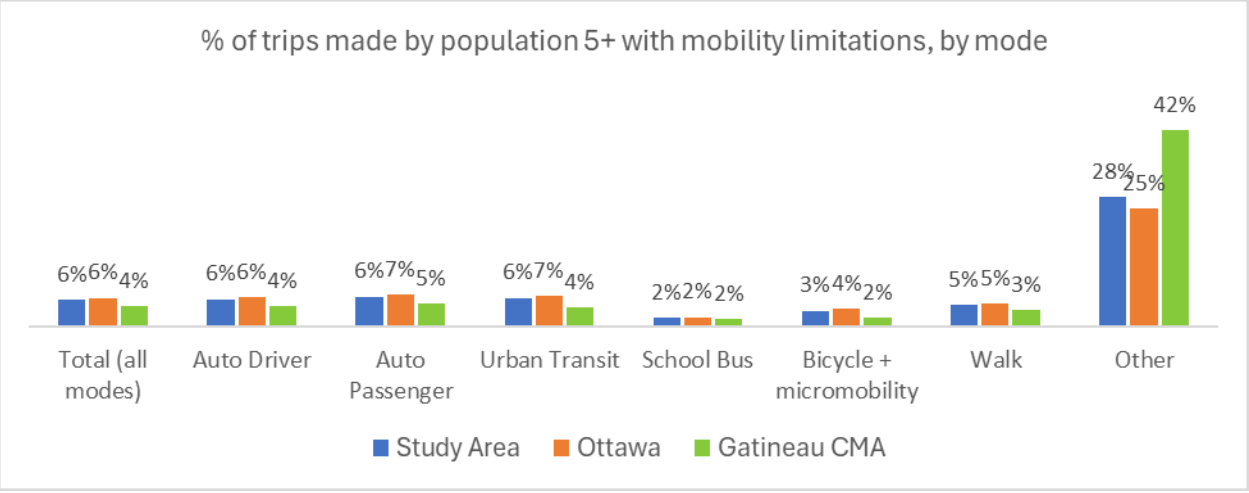
- Around 6% of all Study Area trips by all modes were made by people 5+ who reported mobility limitations. Ottawa residents' rate of 6.2% was slightly higher than the Study Area rate, while Gatineau CMA residents reported a lower rate of 4.4%.

- Mobility limitations were reported for all modes in both jurisdictions. The lowest overall rates were for school bus. Except for Other, the highest rates were for auto passenger trips at 6.9% and for public transit trips at 6.6%, both reported by Ottawa residents.
- Gatineau CMA residents' rates were lower for all modes except Other.
- More than one-quarter of Study Area residents (28%) who made trips by Other modes reported a mobility limitation. Among Ottawa residents, 25% reported a mobility limitation and 42% of Gatineau CMA residents reported a mobility limitation. The high proportions are consistent with the use of paratransit, which is categorized as "Other".

Table 39. Daily mode shares, population 5+ reporting mobility limitations, 2022

	Trips	Auto Driver	Auto Passenger	Public Transit	School Bus	Bicycle + micro-mobility	Walk	Other
Study Area								
No mobility limitation	3,015,000	55.5%	15.2%	7.6%	4.0%	3.7%	13.5%	0.5%
Has mobility limitation	183,900	56.9%	17.2%	8.1%	1.3%	2.2%	11.1%	3.2%
Ottawa								
No mobility limitation	2,268,000	53.4%	15.1%	8.1%	3.8%	4.0%	14.9%	0.6%
Has mobility limitation	149,700	55.6%	17.0%	8.7%	1.2%	2.4%	12.0%	3.1%
Gatineau								
No mobility limitation	747,000	61.7%	15.5%	6.0%	4.4%	3.0%	9.2%	0.2%
Has mobility limitation	34,300	62.7%	17.8%	5.7%	1.7%	1.3%	7.2%	3.6%

Figure 76. Proportion of trips by mode made by population 5+ with mobility limitations, 2022



4.3.11 Mode share by distance

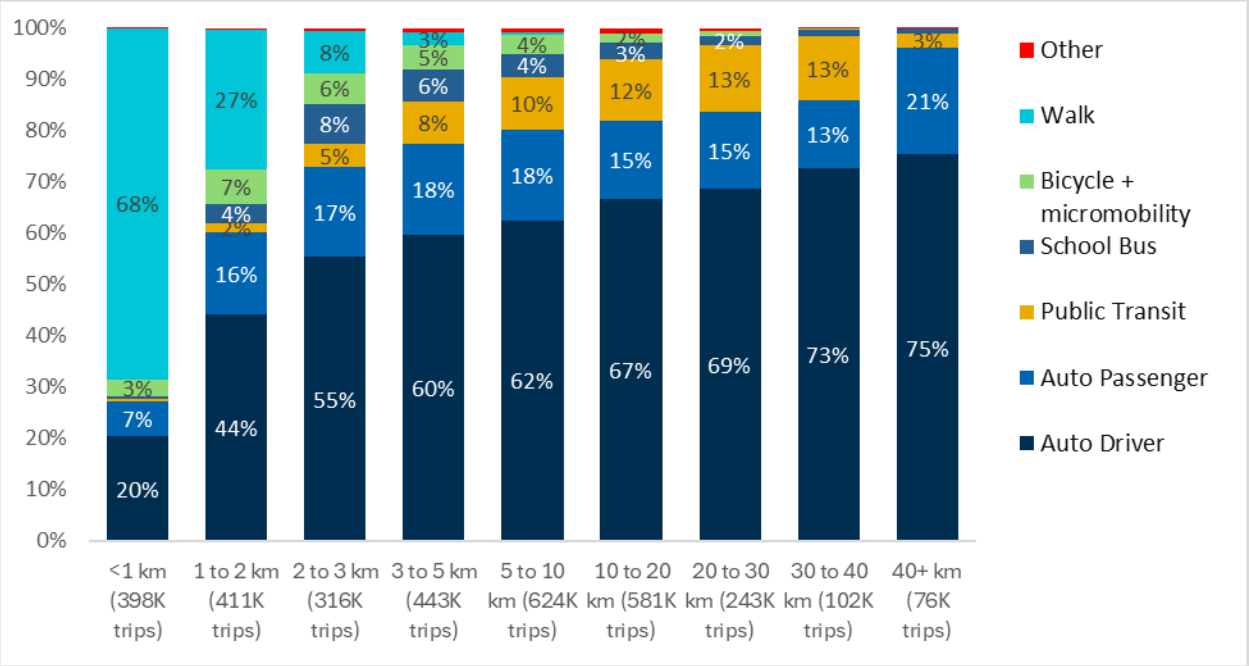
Figure 77 summarizes daily mode shares by distance from Google Map Directions[52]. For very short distances – less than 1 kilometre – walking dominated, at 68% of all trips, although 27% of all trips in this range were by auto (20% as the driver).

Walk still had a strong share for trips between 1 and 2 kilometres long, at 27% of all trips. However, beyond 2 kilometres, auto trips dominated. The auto driver shares jumped from 44% for the 1 to 2 kilometre range to 55% for trips 2 to 3 kilometres long, then rose steadily to three quarters (75%) for trips over 40 kilometres long. The auto passenger share increased steadily, to 18% for trips that were 5 to 10 kilometres long. For longer trips, the auto passenger share then diminished gradually but increased to 21% for trips 40+ kilometres long.

Public transit's shares increased from 0.5% for trips less than 1 kilometre, to 12% for trips between 10 and 20 kilometres long and 13% for trips between 20 and 40 kilometres long.

Bicycle and micromobility trips had a 3% share for trips less than 1 kilometre long, though increased to 7% for trips up to 2 kilometres long. Beyond 3 kilometres, the bicycle and micromobility share dropped steadily, although a 1% share was observed for the 20 to 30 kilometre range.

Figure 77. Mode share by distance, Study Area, 2022



[52] School bus may be shorter than actual distance travelled on the school route in many cases, as they are treated as regular driving trips.

4.4 Trip purpose

4.4.1 Daily trip purpose

Trip purpose – the reason for making a trip – is an important indicator of travel patterns and choices. Trip purposes are broken out in Figure 78 for 2022, based on the activity at the trip destination. Table 40 compares the purposes for 2011 and 2022, for the 5+ population across the Study Area, noting that one purpose (picking up a package or online purchase) is new to the 2022 survey. Across the Study Area:

- For context, 59% of all trips were to destinations outside the home, and 41% returned home in both survey years.
- Commuting trips to work and school comprised 20% of daily trips.[53] Stated another way, these commuting trips represented one-third (34%) of all trip destinations outside the home. Including trips to pick up or drop off passengers (which typically are mostly associated with commuting to and from work or school) brings the total commuting and commuting-related trips to just under half (49%) of the non-return-home trips.
- Trips for shopping, household maintenance and personal business comprised 16% of all trips, or 27% of all trips other than return home. Note that trips for shopping and household maintenance represented the largest single trip purpose, apart from return home trips, at 13% of all trips.
- Trips for recreational, dining (restaurant) and social activities made up 13% of all trips, or 23% of all trips other than return home.
- Other trips, including picking up a package or online purchase, were 1% of all trips.

While the work and school commutes remain dominant, the 2022 volumes represent an important reduction from 2011, likely due to the increased popularity of work from home and study from home. Notably, there were 140,000 fewer trips to work, a reduction of more than one quarter (-28%), and 8,200 fewer post-secondary commutes (-12%).

'Other' trips also represent notable reductions (-88,100 or -70%) although this may be related to more detailed definitions in the 2022 survey and/or to differences in re-coding of 'other, specify' responses to existing categories.[54]

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[53] Note that these trips represent travel *to* work or to school. The return trip *from* work or school is categorized according to the destination – e.g., return home or a trip *to* a shopping destination.

[54] 'Other' purpose aggregates 'picking up a package or online purchase' (new category in 2022), voting in the election (Ontario municipal elections and Québec provincial elections occurred during the Fall 2022 data

These losses were offset by increases in trips for other purposes, notably elementary and secondary school trips, shopping, household maintenance, health and personal care, restaurant, recreation, social and pick-up or drop-off passenger. Combined with return home trips, which increased by 53,100 trips, or 4%, these gains offset the losses and result in a net 3% increase in daily trips (see Figure 46).

Excluding return home trips, the trip purposes can be grouped as non-discretionary (meaning trips to work or school, which are typically habitual and at a set time) and discretionary (meaning all other trips, whose frequency and time-of-day can vary). Table 40 shows that non-discretionary trips dropped by -123,900 trips (-16%). Discretionary trips increased by 159,500 trips (15%). Combined with the 4% increase in return home trips, there was an overall increase of 3%.

These findings generally held true across the Study Area. Figure 79 and Table 41 present the corresponding data for Ottawa. Figure 80 and Table 42 present the corresponding data for the Gatineau CMA. In Ottawa, the drop of -99,600 non-discretionary trips (-17%) was offset by an increase of 87,000 discretionary trips (10%) which, coupled with a 3% increase in return home trips, resulted in a 1% overall increase in travel by Ottawa residents. In the Gatineau CMA, the drop of -24,300 non-discretionary trips (-13%) was offset by an increase of 72,500 discretionary trips (33%) which, combined with an 8% increase in return home trips, resulted in an overall 10% increase in travel by Gatineau CMA residents.

collection period), and 'other (please specify)' purposes not recoded to other categories. For 2011 data, 'other' includes both 'other purpose' and 'don't know / refused'. There were no 'don't know / refused' responses in validated 2022 data. The apparent reduction in 'Other' purposes may be related in part to more detailed definitions in the 2022 survey (which provided mouseover definitions for each category) and differences in recoding of 'other, specify' responses to existing categories. In 2011, selection of 'other purpose' did not allow for capture of the specifics of that other purpose. In 2022, selection of 'other purpose' led to the capture of a description of that purpose that could later be recoded to an existing category. In total 39,800 recodes to other categories were made. In 2022, the majority of such recodes were to 'shopping / household maintenance' (15,700 recodes), 'recreation, sports, leisure, arts, or other activities' (10,500 recodes), and 'social / visiting friends / family, religious gathering' (6,000 recodes). As such recodes of the 2011 'other purpose' trips were not possible, the 2022 recodes may contribute in part to the increases observed in the noted categories.

Figure 78. Daily trip purpose, Study Area, population 5+, 2022

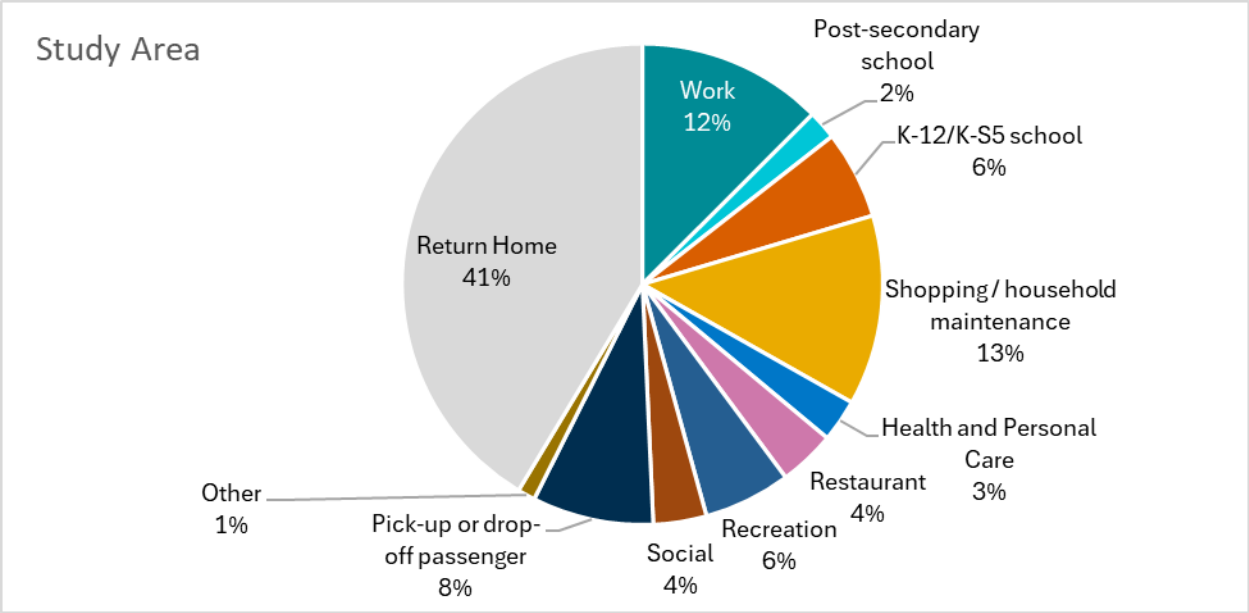


Table 40. Details of trip purpose, Study Area, population 5+, 2011-2022

Trip Purpose	2011	2022	change	difference
Work*	540,400	400,300	-140,100	-26%
Post-secondary school^	70,600	62,300	-8,200	-12%
K-12/K-S5 school^	165,200	189,700	24,500	15%
Shopping / household maintenance	356,900	408,900	52,000	15%
Health and personal care	64,300	91,600	27,400	42%
Restaurant	74,000	121,500	47,600	64%
Recreation	147,300	187,500	40,200	27%
Social	78,300	114,400	36,100	46%
Pick-up or drop-off passenger	216,800	261,100	44,200	20%
Other	126,000	37,900	-88,100	-70%
Return Home	1,270,500	1,323,600	53,100	4%
Total	**3,110,200**	**3,198,900**	**88,700**	**3%**
Non-discretionary subtotal †	776,200	652,300	-123,900	-16%
Discretionary subtotal ‡	1,063,500	1,223,000	159,500	15%

* Work includes travel to usual work and work-related trips such as business meetings or working on the road, but does not include commercial driving trips.
^ 2011 break out of school trips in to post-secondary and K-12/K-S5 is an estimate based on age, and the difference between 2022 and 2011 should be interpreted with caution.
† Non-discretionary subtotal = work and school purposes; ‡ Discretionary subtotal = all other purposes except Return Home.
Apparent reduction in 'Other' purposes may be related to more detailed definitions in the 2022 survey and/or differences in recoding of 'other, specify' responses to existing categories.

Blue shading highlights higher values. The intensity of the shade increases as the value approaches the highest value.

Pink shading highlights lower values. The intensity of the shade increases as the value approaches the lowest value.

Figure 79. Daily trip purpose, Ottawa residents, population 5+, 2022

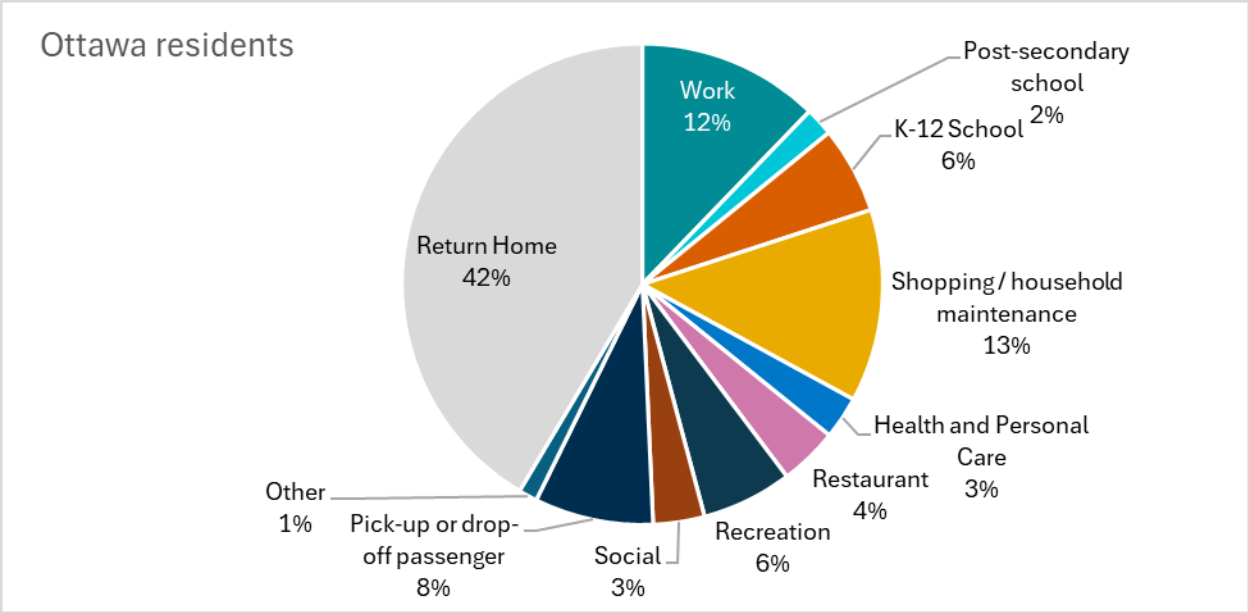


Table 41. Details of trip purpose, Ottawa residents, population 5+, 2011-2022

Trip Purpose	2011	2022	change	difference
Work *	404,500	295,700	-108,800	-27%
Post-secondary school ^	54,000	46,100	-7,900	-15%
K-12 school ^	124,500	141,600	17,100	14%
Shopping / household maintenance	287,100	313,100	26,000	9%
Health and personal care	52,100	69,200	17,100	33%
Restaurant	61,500	95,000	33,500	54%
Recreation	116,200	147,400	31,200	27%
Social	60,200	83,500	23,300	39%
Pick-up or drop-off passenger	162,000	193,300	31,300	19%
Other	105,800	30,500	-75,300	-71%
Return Home	973,900	1,002,200	28,300	3%
Total	**2,401,900**	**2,417,700**	**15,800**	**1%**
Non-discretionary subtotal †	583,000	483,400	-99,600	-17%
Discretionary subtotal ‡	845,000	932,100	87,000	10%

* Work includes travel to usual work and work-related trips such as business meetings or working on the road, but does not include commercial driving trips.
^ 2011 break out of school trips in to post-secondary and K-12/K-S5 is an estimate based on age, and the difference between 2022 and 2011 should be interpreted with caution.
† Non-discretionary subtotal = work and school purposes; ‡ Discretionary subtotal = all other purposes except Return Home.
Apparent reduction in 'Other' purposes may be related to more detailed definitions in the 2022 survey and/or differences in recoding of 'other, specify' responses to existing categories.

Blue shading highlights higher values. The intensity of the shade increases as the value approaches the highest value.

Pink shading highlights lower values. The intensity of the shade increases as the value approaches the lowest value.

Figure 80. Daily trip purpose, Gatineau CMA residents, population 5+, 2022

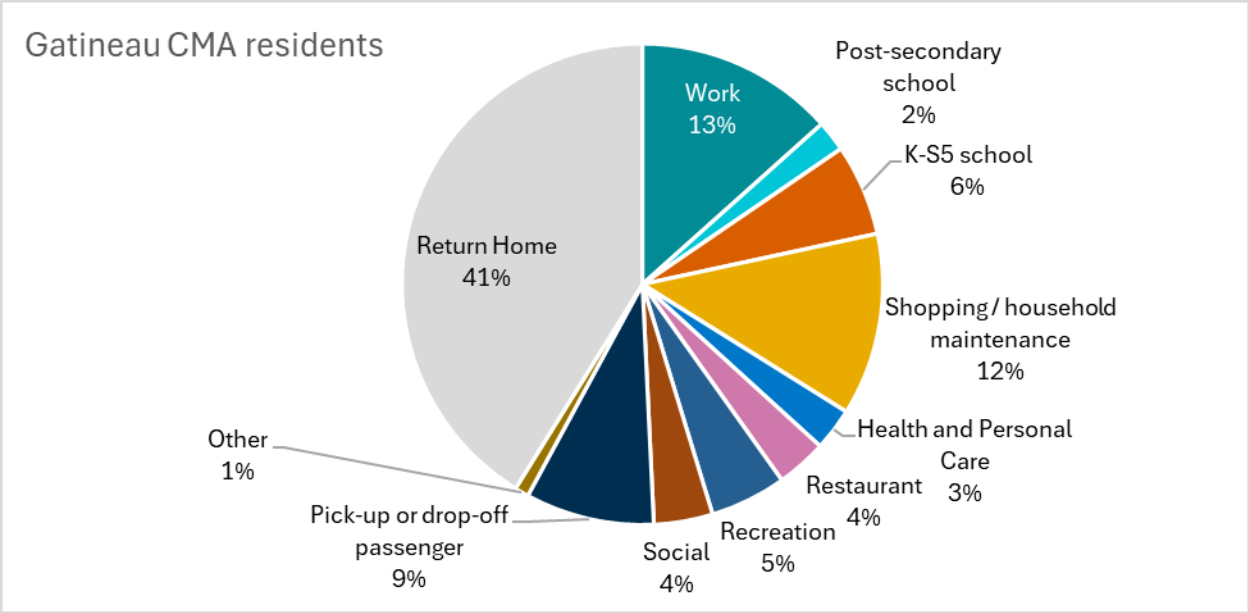


Table 42. Details of trip purpose, Gatineau CMA residents, population 5+, 2011-2022

Trip Purpose	2011	2022	change	difference
Work*	136,000	104,600	-31,300	-23%
Post-secondary school ^	16,600	16,200	-300	-2%
K-S5 school ^	40,700	48,100	7,300	18%
Shopping / household maintenance	69,800	95,800	26,000	37%
Health and personal care	12,200	22,400	10,200	84%
Restaurant	12,400	26,500	14,100	114%
Recreation	31,000	40,100	9,100	29%
Social	18,100	30,900	12,900	71%
Pick-up or drop-off passenger	54,800	67,700	12,900	24%
Other	20,200	7,400	-12,800	-63%
Return Home	296,600	321,400	24,800	8%
Total	**708,300**	**781,300**	**72,900**	**10%**
Non-discretionary subtotal †	193,200	168,900	-24,300	-13%
Discretionary subtotal ‡	218,500	290,900	72,500	33%

* Work includes travel to usual work and work-related trips such as business meetings or working on the road, but does not include commercial driving trips.
^ 2011 break out of school trips in to post-secondary and K-12/K-S5 is an estimate based on age, and the difference between 2022 and 2011 should be interpreted with caution.
† Non-discretionary subtotal = work and school purposes; ‡ Discretionary subtotal = all other purposes except Return Home.
Apparent reduction in 'Other' purposes may be related to more detailed definitions in the 2022 survey and/or differences in recoding of 'other, specify' responses to existing categories.

Blue shading highlights higher values. The intensity of the shade increases as the value approaches the highest value.

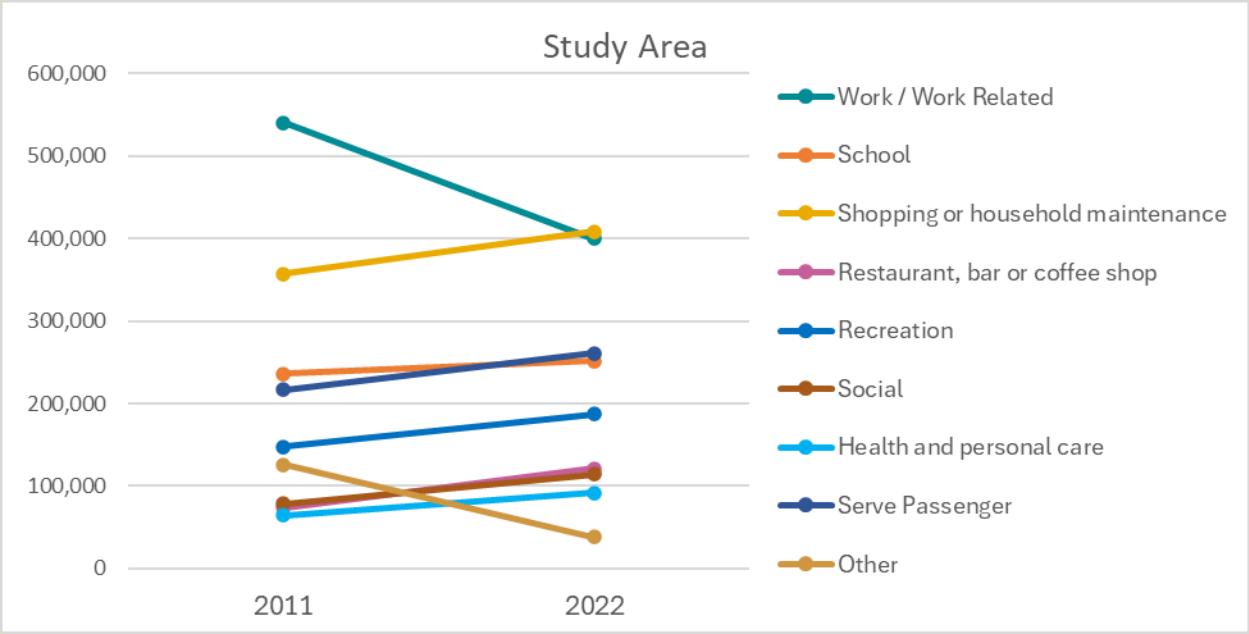
Pink shading highlights lower values. The intensity of the shade increases as the value approaches the lowest value.

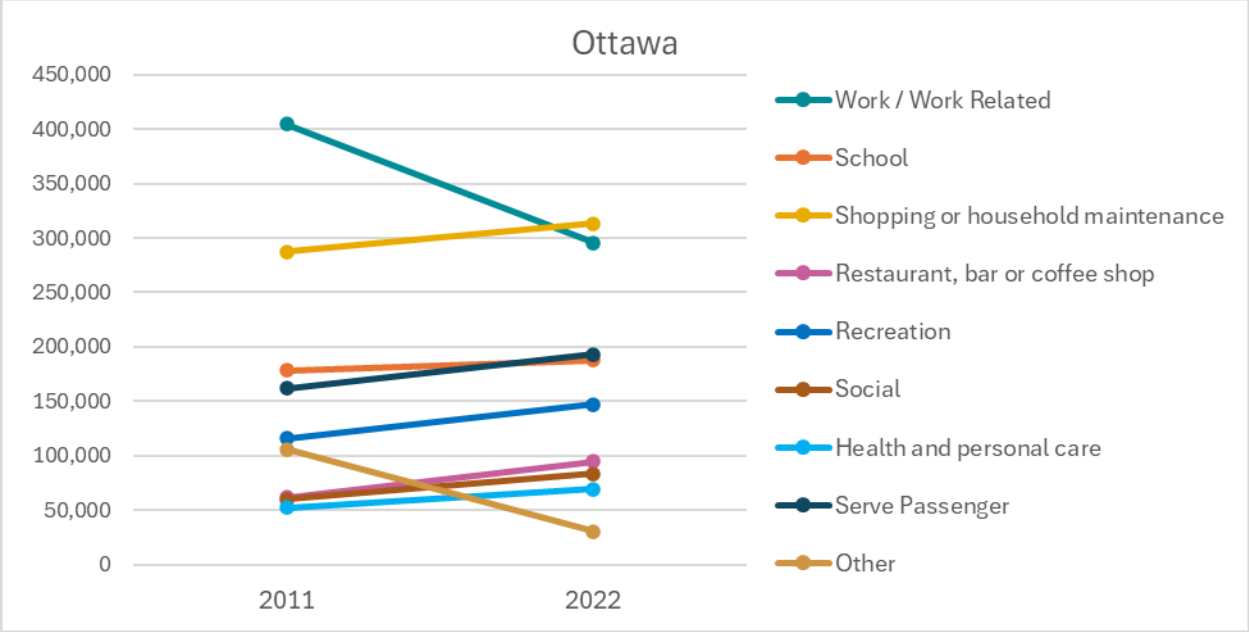
To sum, the large losses in work and post-secondary trips are consistent with the increased work from home and remote studying that was induced by the pandemic and continued through to fall 2022. However, these effects might since have been partly mitigated by the introduction of the Federal government's hybrid return-to-work policies which did not come into effect until early 2023.

Growth in almost all the remaining purposes was much greater than population growth over the 11-year interval. A portion of the growth in trips may reflect a post-pandemic return to in-person activities like shopping, dining out. Growth in trips for these purposes may also be enabled by more people working from home, which gives people the ability to make trips that they otherwise would have to make outside the workday or not at all (see next section). On the other hand, regarding the growth in school trips appearing to be somewhat greater than growth in population, some of the changes might be attributable to differences in data weighting (with 2022 having a more precise balance between people 15-17/18-19 in Ottawa and 15-16/17-19 in the Gatineau CMA), or might be due to limits on high weights for groups that are more difficult to survey, such as post-secondary students, in one or the other survey cycle.

Figure 81 and Table 43 provide more context for these trends from 2011. The charts in Figure 81 illustrate how trip volumes for work and work-related purposes and other purposes declined considerably, while volumes for all other purposes increased. Table 43 provides the presents the results from each survey cycle as a proportion of total trips. The work and work-related declines may reflect the pandemic-induced prohibitions on in-person work and the subsequent ongoing transition to a hybrid work environment: further research may be warranted to fully understand the causes.

Figure 81. Daily volume of trips by trip purpose, population 5+, 2011-2022





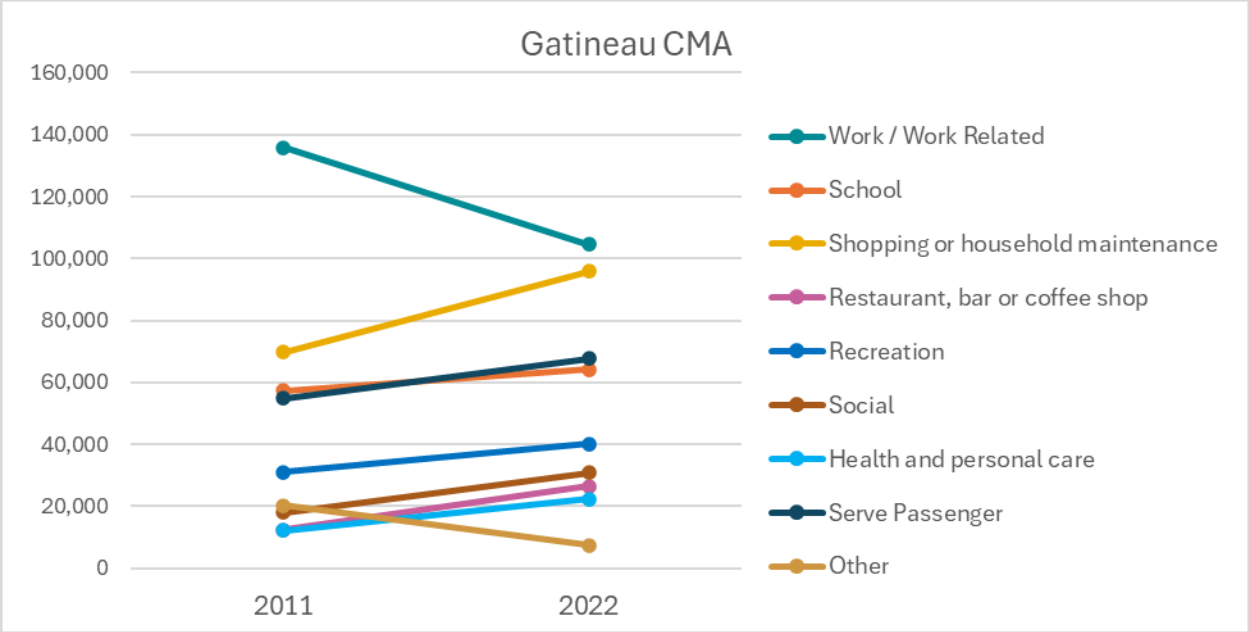


Table 43. Details of trip purposes, population 5+, 2011-2022

	Study Area		Ottawa		Gatineau CMA	
	2011	2022	2011	2022	2011	2022
Total Trips	3,110,200	3,198,900	2,401,900	2,417,700	708,300	781,300
Work / Work Related	17.4%	12.5%	16.8%	12.2%	19.2%	13.4%
School	7.6%	7.9%	7.4%	7.8%	8.1%	8.2%
Shopping or household maintenance	11.5%	12.8%	12.0%	13.0%	9.9%	12.3%
Restaurant, bar or coffee shop	2.4%	3.8%	2.6%	3.9%	1.8%	3.4%
Recreation	4.7%	5.9%	4.8%	6.1%	4.4%	5.1%
Social	2.5%	3.6%	2.5%	3.5%	2.6%	4.0%
Health and personal care	2.1%	2.9%	2.2%	2.9%	1.7%	2.9%
Serve Passenger	7.0%	8.2%	6.7%	8.0%	7.7%	8.7%
Return home	40.8%	41.4%	40.5%	41.5%	41.9%	41.1%
Other	4.1%	1.2%	4.4%	1.3%	2.9%	1.0%
Total (all trips combined)	100%	100%	100%	100%	100%	100%

Includes only trips for residents of the Study Area 11+ years of age.

4.4.2 Trip purpose by time of day

This section breaks down trip purpose by time of day. For clarity, the discussion distinguishes work trips to the usual workplace from work-related travel / work on the road.[55] The aim is to better understand these two aspects of work travel by time of day, including any changes from 2011. Trips to pick up or drop off a passenger are shown separately, as time of day is relevant to these types of trips.

Figure 82 shows the distribution of trip purposes across the Study Area in each of five time periods:[56]

- Night 0000 to 0629 trip depart times from 12:00 a.m. to just before 6:30 a.m.
- AM peak 0630 to 0859 6:30 a.m. to just before 9:00 a.m.
- Midday 0900 to 1459 9:00 a.m. to just before 3:00 p.m.
- PM peak 1500 to 1759 3:00 p.m. to just before 6:00 p.m.
- Evening 1800 to 2359 6:00 p.m. to just before midnight

The AM peak period featured high proportions of trips to work, trips to primary and secondary (K-12 / K-S5) school and drop-off trips. Shopping / household maintenance trips represented the largest shares of non-home destinations in the midday and PM peak periods.

Figure 83 provides a different view, looking at Study Area-wide volumes of trip purposes by period along with a comparison to 2011. Table 44 provides details. Notable observations include:

- Travel to a usual workplace work showed important reductions over the day, with reductions of 31% in the AM peak period (at -88,900 trips, the largest single reduction for any purpose), 24% in the evening and 32% overnight. The overall daily reduction in work trips was 25%. Daily work-related travel / work on the road dropped by 30%. This is consistent with the reduction in usual-workplace trips and with fewer offsite meetings. It may also reflect changes in employment activity by workers who do not have a usual workplace.
- Primary and secondary school trips increased by 15% in the AM peak period (22,000 trips). This is consistent with, though greater than, the overall population growth. These increases, along with increases in discretionary trips (see below), may explain

[55] As worded in the survey questionnaire, the distinction is between "going to work (usual place of work)," and "business meeting or work-related (other than usual place of work) and "working on the road / itinerant workplace / no fixed work address." Note that commercial driving trips were not captured by the survey; survey participants who drive professionally were asked to provide only their first trip to start work and their last trip from their last work location to return home or to go to another personal destination.

[56] For visual clarity and ease of reading, the 24-hour clock is used in the ensuing figures and tables (e.g., 1500-1759, rather than 3:00 pm to 5:59 pm).

the large increase in passenger drop-off trips, which grew by 26,000 trips: the corresponding drop in travel to a usual workplace suggest that families now had the time to drive their children to school or chose to drive their children rather than let them take public transit or walk or bicycle to school. A closer exploration of the survey data confirms this shift: the auto passenger mode share for trips to primary and secondary school grew from about 23% in 2011 to 29% in 2022.

- Travel to post-secondary school dropped moderately in the AM peak period by 13% or -4,200 trips with a larger proportional drop recorded in the PM peak period (-43% or -2,600 trips).
- Return-home trips increased during the AM peak period and especially midday (with a gain of 23% or 63,200 trips, the largest single increase of any purpose). However, return-home trips dropped at all other times of day, notably during the PM peak period which saw increases in personal and recreational activities like shopping and dining: these gains nonetheless were not sufficient to offset the decreases in work, work-related, post-secondary school and other trips.
- The evening period had the greatest drop in total trips, especially for work, work-related, shopping / household maintenance, recreational and other trips. Restaurant / bar / coffee trips increased by 22%.[57]
- Interestingly, the AM peak, midday and PM peak periods saw increases in discretionary trips like shopping / household maintenance, health and personal care, restaurant / bar / coffee, recreation and social trips, even as many of these activities declined in the evening peak period. These increases may explain the corresponding increases in passenger pick-ups, return home trips and, to some extent, passenger drop offs.
- Figure 84 and Table 45 summarize the changes between 2011 and 2022 for non-discretionary and discretionary trips (excluding return home trips). The drop in non-discretionary trips is especially evident in the AM peak, as is the absolute growth in discretionary trips in the AM peak, midday and, especially, the PM peak.
- Finally, it can be noted that these findings generally held true across the Study Area. Figure 85 and Figure 86 present the 2022 distributions and comparisons with 2011 for Ottawa. Figure 87 and Figure 88 present the corresponding data for the Gatineau CMA.

[57] Some behaviour associated with this trip purposes may not be captured in the survey. Specifically, some people now have their meals, groceries and other purchases delivered, rather than going to the restaurant or store themselves. These deliveries are considered as commercial trips, which are not captured in this household survey.

Figure 82. Distribution of trips by trip purpose by time period, population 5+, Study Area, 2022

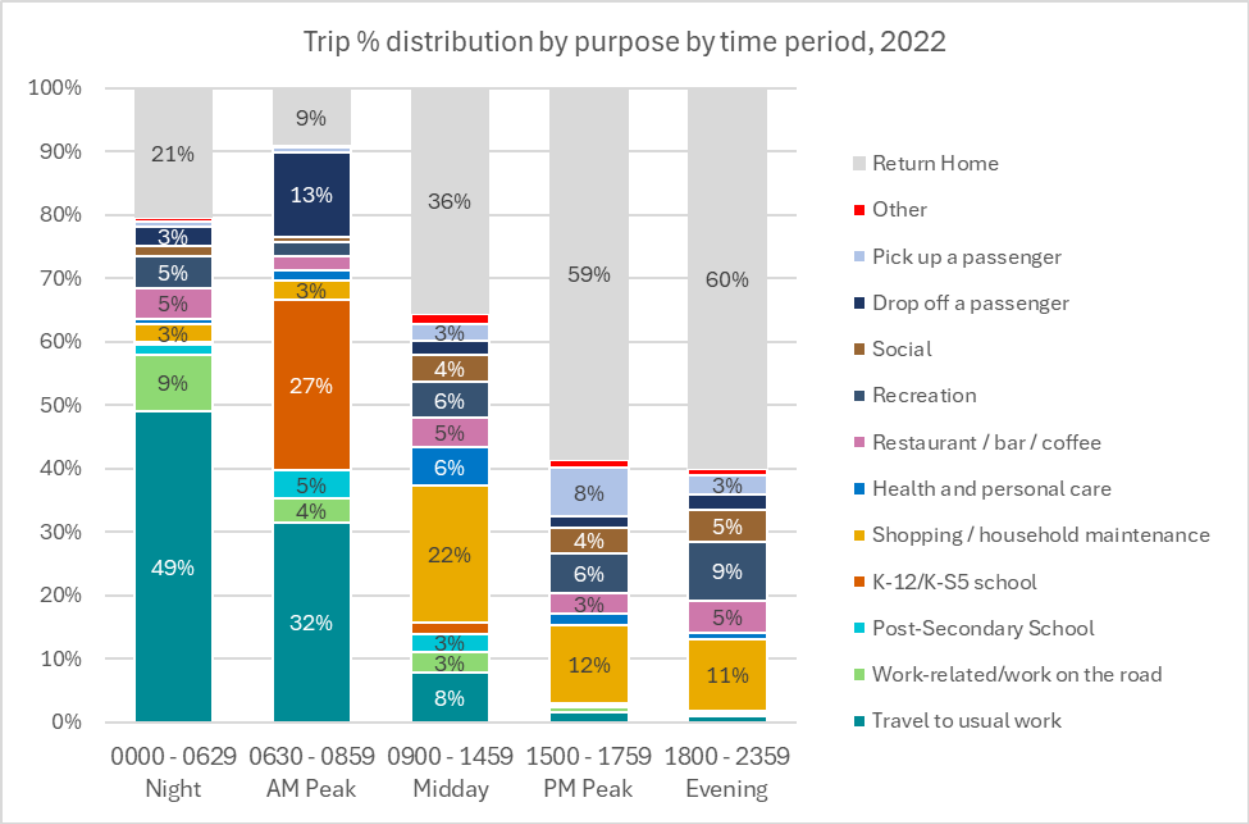


Figure 83. Trip volumes by trip purpose by time period, population 5+, Study Area, 2011-2022

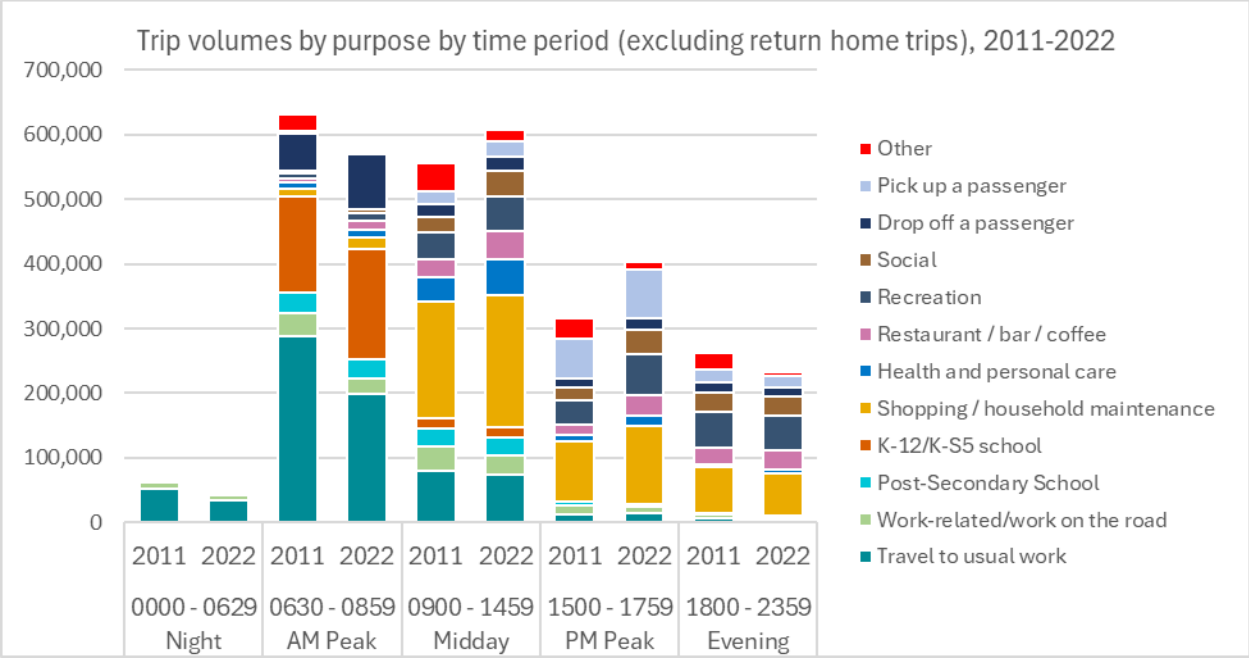


Table 44. Trips by trip purpose by time period, population 5+, Study Area, 2022, with change from 2011

	0000 – 0629 Night	0630 – 0859 AM Peak	0900 – 1459 Midday	1500 – 1759 PM Peak	1800 – 2359 Evening	24-Hour Total
Total Trips	71,500	632,900	939,900	972,500	582,100	3,198,900
Travel to usual work	35,100	199,700	73,400	15,400	5,200	328,900
Work-related/work on the road	6,300	23,300	31,300	8,200	2,400	71,500
Post-Secondary School	1,200	29,100	26,400	3,400	2,300	62,300
K-12/K-S5 school	300	170,100	16,700	1,600	1,000	189,700
Shopping / household maintenance	1,900	18,400	203,000	120,000	65,700	408,900
Health and personal care	700	11,200	56,600	17,300	5,800	91,600
Restaurant / bar / coffee	3,400	13,700	43,400	31,600	29,400	121,500
Recreation	3,600	13,600	54,300	62,100	53,900	187,500
Social	1,100	5,600	39,600	39,200	28,900	114,400
Drop off a passenger	2,100	84,800	21,400	17,100	14,200	139,500
Pick up a passenger	700	4,700	23,600	74,400	18,100	121,500
Other	300	2,300	16,600	12,600	6,200	37,900
Return Home	14,700	56,600	333,700	569,600	349,000	1,323,600
Difference from 2011						
Total Trips	-27,100	-25,400	114,600	75,800	-49,200	88,700
Travel to usual work	-16,300	-88,900	-6,400	3,200	-1,700	-110,100
Work-related/work on the road	-4,700	-10,900	-6,100	-5,500	-2,900	-30,100
Post-Secondary School	200	-4,200	-1,600	-2,600	0	-8,200
K-12/K-S5 school	-100	22,000	1,600	400	600	24,500
Shopping / household maintenance	1,000	6,500	22,000	27,900	-5,400	52,000
Health and personal care	-500	800	18,700	7,000	1,400	27,400
Restaurant / bar / coffee	2,400	8,900	15,500	15,500	5,200	47,600
Recreation	1,100	4,300	12,200	25,200	-2,700	40,200
Social	600	2,400	15,600	17,900	-300	36,100
Drop off a passenger	-1,700	26,600	2,000	3,100	-2,300	27,700
Pick up a passenger	-200	1,500	4,800	12,900	-2,400	16,500
Other	-2,300	-23,700	-26,800	-17,200	-18,000	-88,100
Return Home	-6,500	29,300	63,200	-12,100	-20,700	53,100
% difference						
Total Trips	-27%	-4%	14%	8%	-8%	3%
Travel to usual work	-32%	-31%	-8%	27%	-24%	-25%
Work-related/work on the road	-43%	-32%	-16%	-40%	*	-30%
Post-Secondary School	*	-13%	-6%	-43%	*	-12%
K-12/K-S5 school	*	15%	10%	*	*	15%
Shopping / household maintenance	*	55%	12%	30%	-8%	15%
Health and personal care	*	8%	49%	68%	31%	43%
Restaurant / bar / coffee	*	188%	56%	96%	22%	64%
Recreation	46%	46%	29%	68%	-5%	27%
Social	*	74%	65%	84%	-1%	46%
Drop off a passenger	*	46%	10%	23%	-14%	25%
Pick up a passenger	-26%	48%	25%	21%	-12%	16%
Other	*	-91%	-62%	-58%	-74%	-70%
Return Home	-31%	108%	23%	-2%	-6%	4%

* Comparison suppressed due to very small sample size in cell in at least one survey year.
2011 break out of school trips into post-secondary and K-12/K-S5 is an estimate based on age, and the difference between 2022 and 2011 should be interpreted with caution.
Blue shading highlights higher values. The intensity of the shade increases as the value approaches the highest value.
Pink shading highlights lower values. The intensity of the shade increases as the value approaches the lowest value.

Figure 84. Trips by aggregated non-home purpose by time period, population 5+, Study Area, 2011-2022

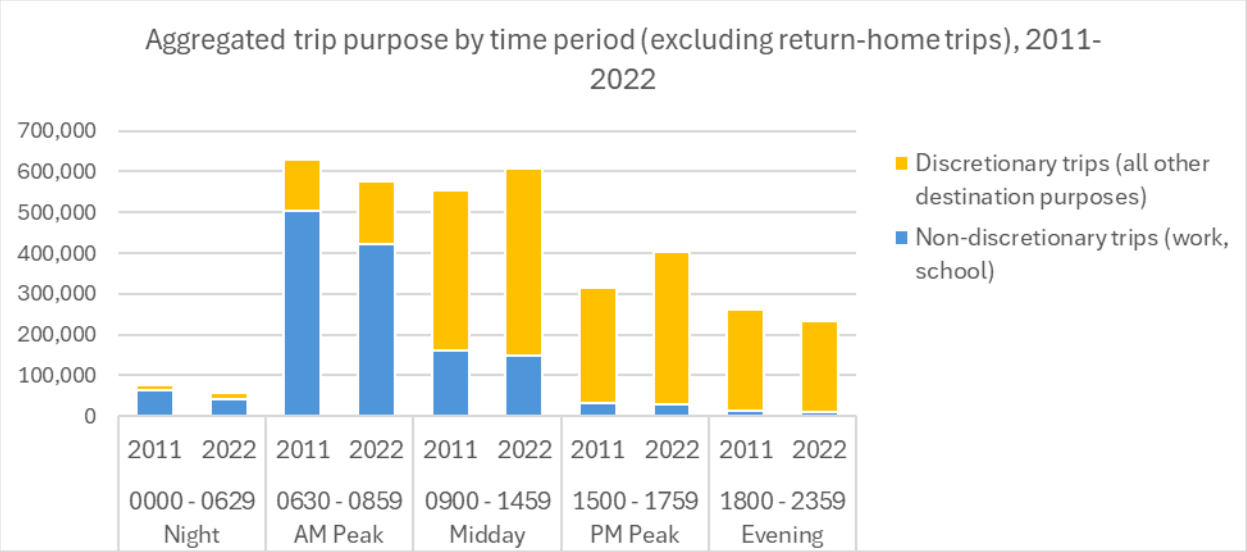


Table 45. Trip volumes by aggregated non-home purpose by time period, population 5+, Study Area, 2022, with change from 2011

Study Area	0000 – 0629 Night	0630 – 0859 AM Peak	0900 – 1459 Midday	1500 – 1759 PM Peak	1800 – 2359 Evening	24-Hour Total
2022 Subtotals						
Non-discretionary (work, school)	42,900	422,098	147,868	28,549	10,910	652,325
Discretionary (other non-home destinations)	13,923	154,235	458,363	374,361	222,124	1, 223,006
Difference from 2011						
Non-discretionary (work, school)	-20,896	-82,129	-12,497	-4,400	-3,970	-123,893
Discretionary (other non-home destinations)	367	27,422	63,948	92,271	-24,523	159,485
% difference						
Non-discretionary (work, school)	-33%	-16%	-8%	-13%	-27%	-16%
Discretionary (other non-home destinations)	3%	22%	16%	33%	-10%	15%

Excludes trips with Return Home trip purpose.
Blue shading highlights higher values. The intensity of the shade increases as the value approaches the highest value.
Pink shading highlights lower values. The intensity of the shade increases as the value approaches the lowest value.

Figure 85. Distribution of trips by trip purpose by time period, population 5+, Ottawa residents, 2022

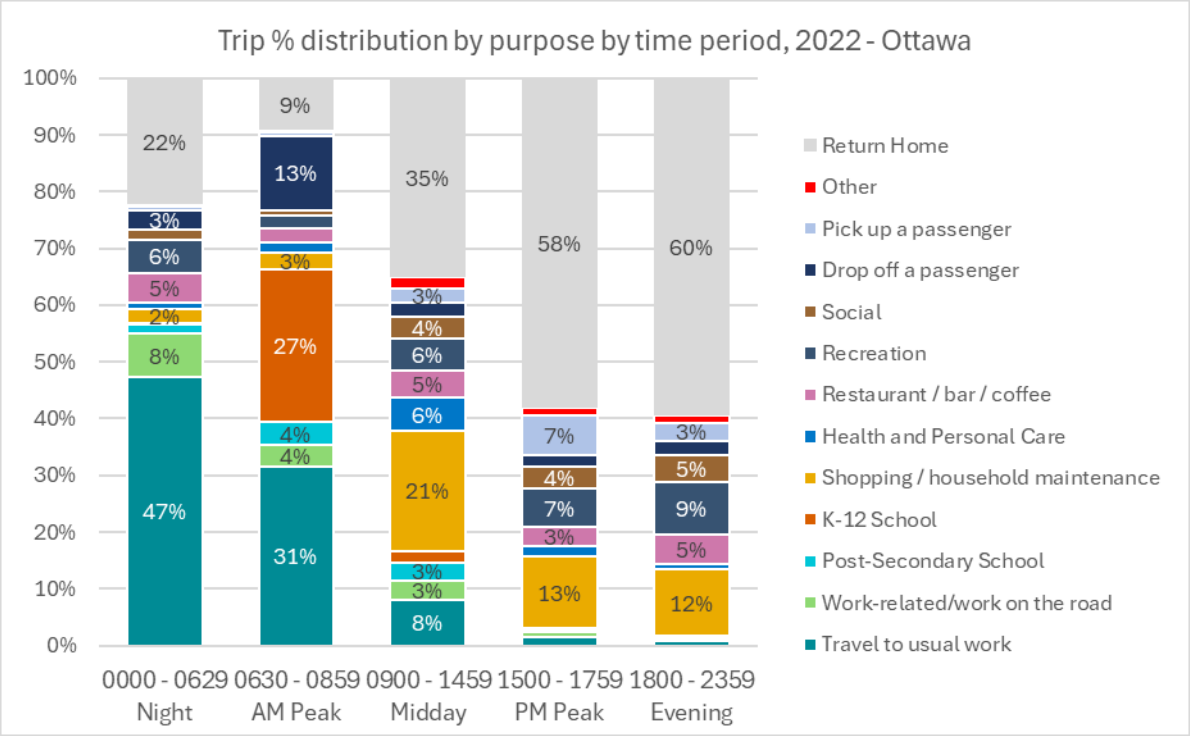


Figure 86. Trip volumes by trip purpose by time period, population 5+, Ottawa residents, 2011-2022

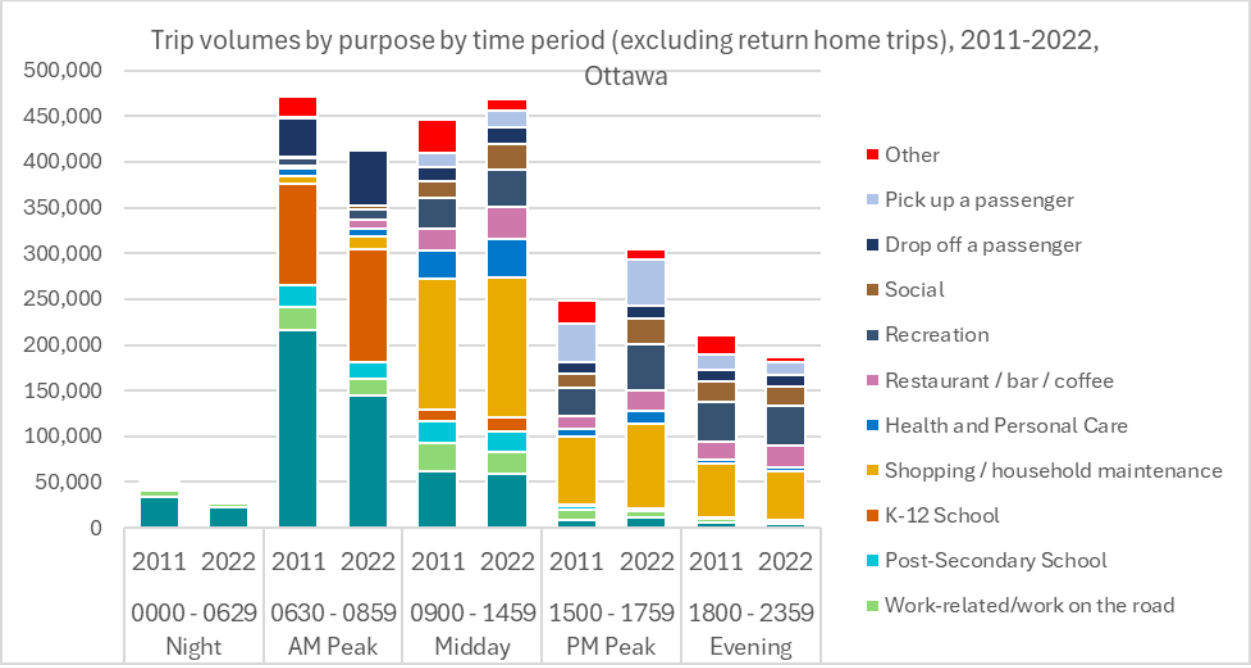


Figure 87. Distribution of trips by trip purpose by time period, population 5+, Gatineau CMA residents, 2022

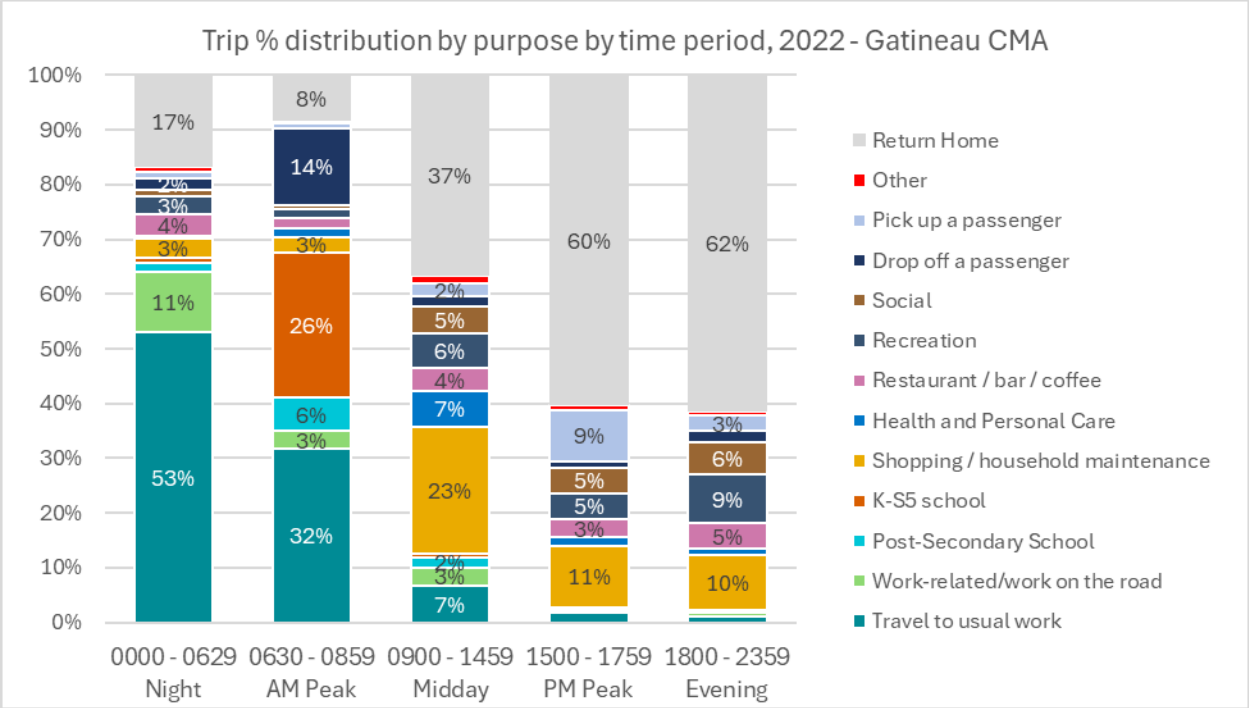
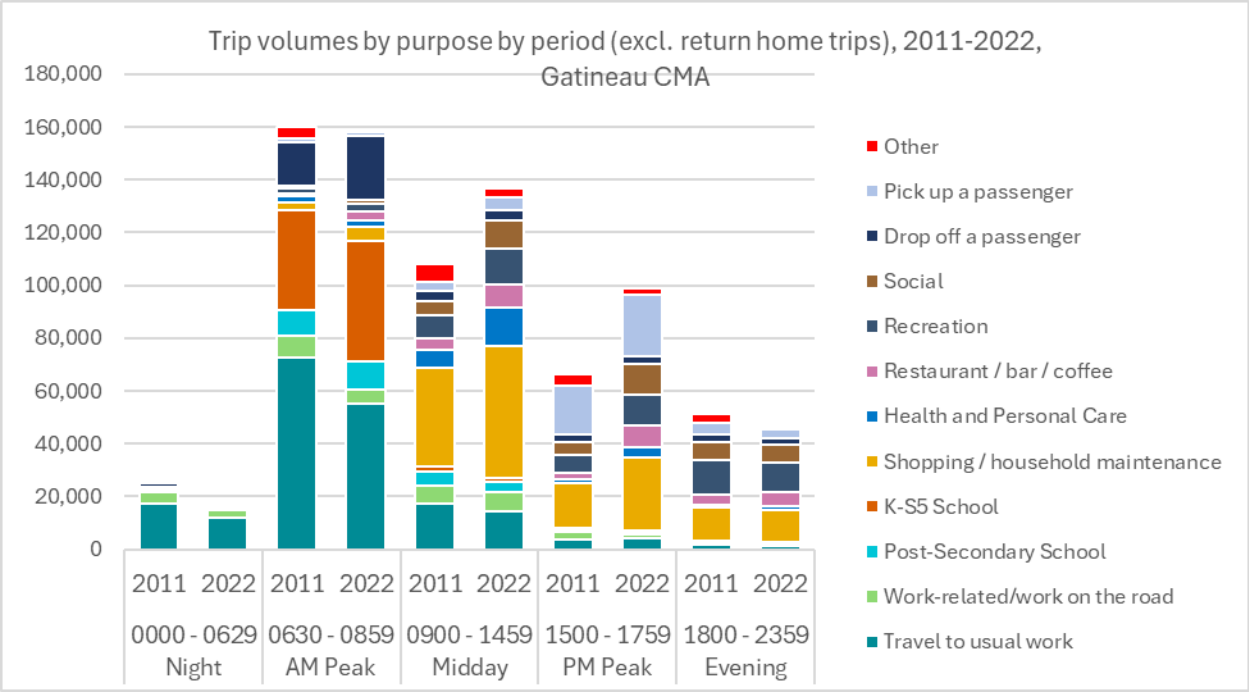


Figure 88. Trip volumes by trip purpose by time period, population 5+, Gatineau CMA residents, 2011-2022



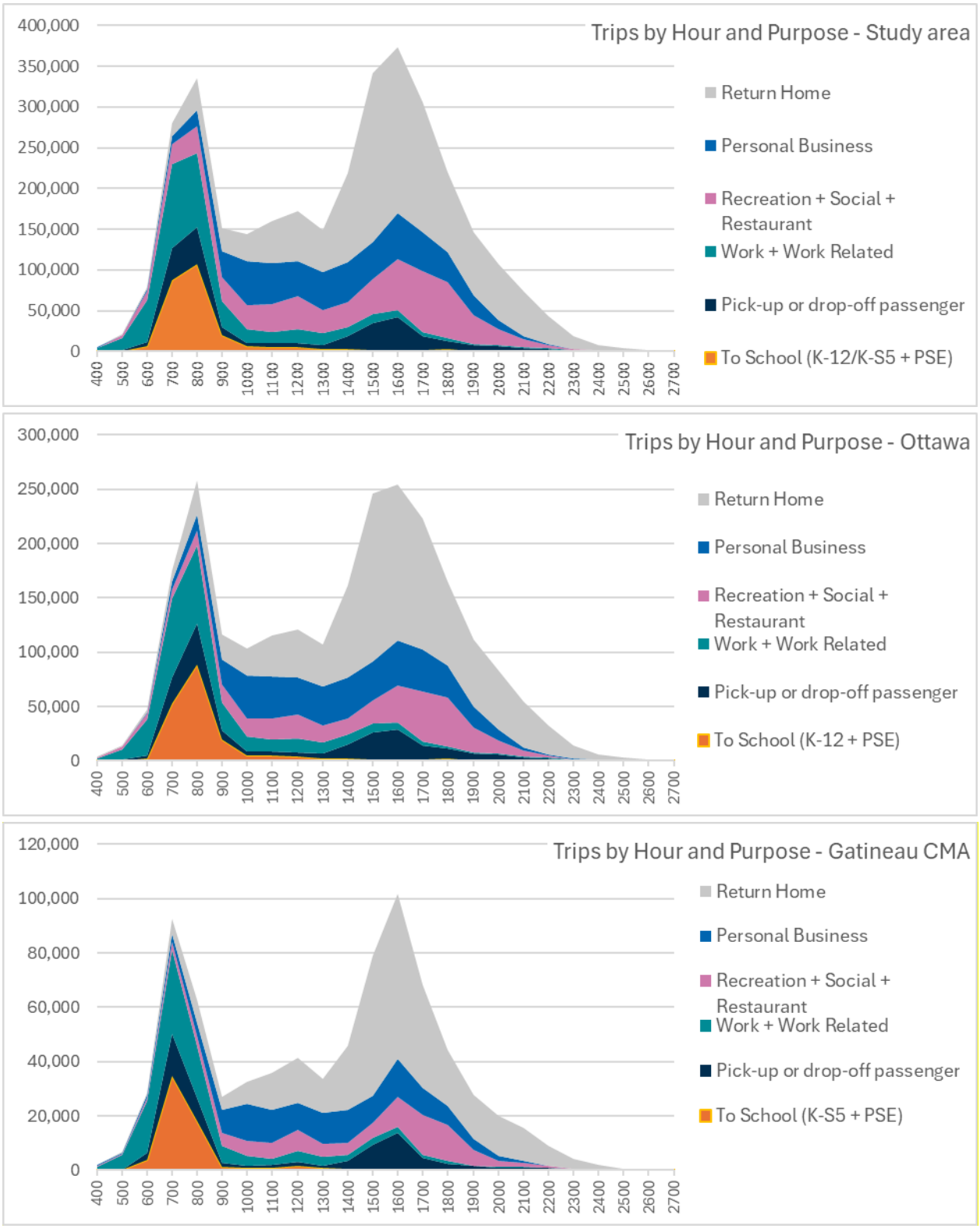
4.4.3 Trip purpose by start hour

Figure 89 looks at the distribution of trip purposes by time of day (by hour according to the time the trip started). Some of the trip purposes have been grouped together in the chart for clarity.

For the Study Area, the results show a concentration of work, work-related, and pick-up and drop-off trips that dominated the AM peak period. After the AM peak period, personal trips (including shopping) began to increase, peaking in the hour beginning at 4 p.m. Recreation, social and restaurant trips also increased towards the end of the workday, peaking in the hour beginning at 5 p.m. All these purposes tapered off significantly by late evening. In the meantime, the return home trip started to build after the AM peak period. The return home trip dominated travel from 2 p.m. onward, peaking in the hour beginning at 3 p.m.

These Study Area profiles were similar for both Ottawa and the Gatineau CMA, although the AM peak hour occurred an hour earlier in the Gatineau CMA, at 7 a.m., compared to 8 a.m. in Ottawa.

Figure 89. Trip purpose by start hour, 2022



All trips made by population 5+.

4.4.4 Trip purpose by travel mode

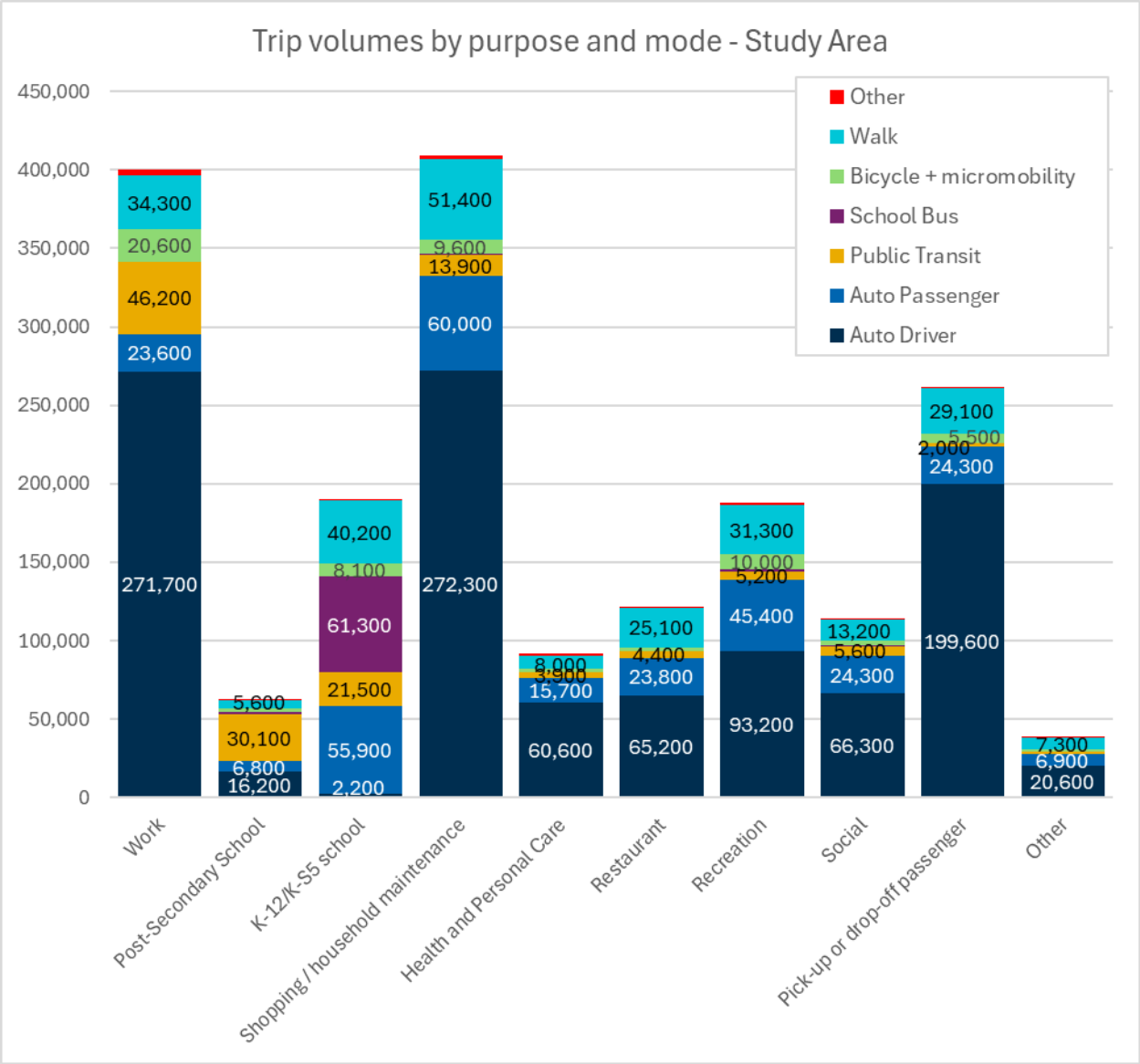
Figure 90 breaks down trip purpose by travel mode and modal share, with details provided in Table 46.

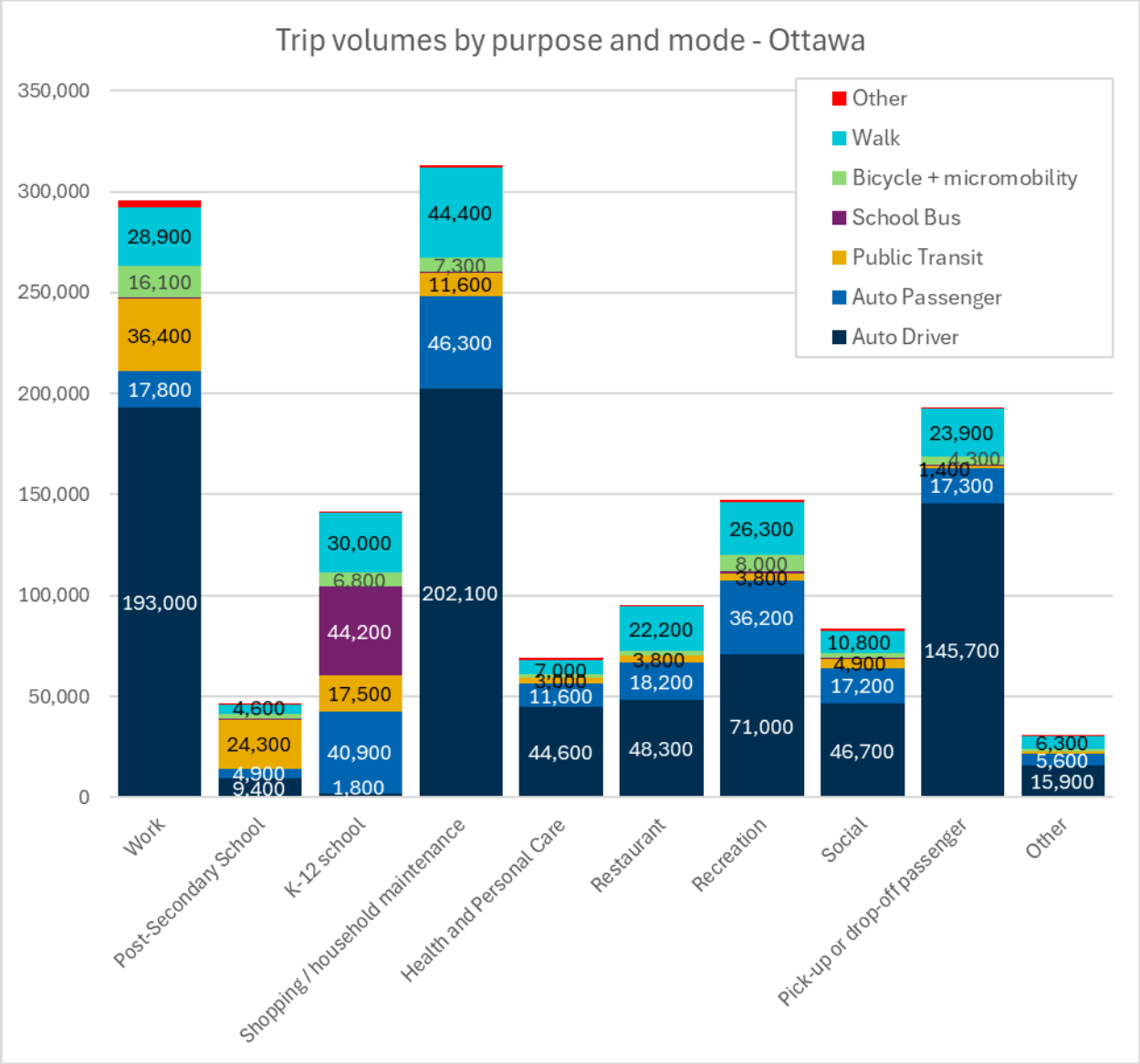
- For the Study Area, auto driver dominated all trip purposes except those for going to K-12/K-S5 (elementary and secondary schools) and post-secondary schools. The greatest auto driver volumes occurred for shopping trips (272,300 daily trips) and to work and work-related trips (271,700).
- The very low proportions of auto passengers for work and work-related trips indicate that most trips for these purposes were made as single-occupant auto commutes. Auto passengers featured more prominently in other purposes, notably a 30% share for K-12/K-S5 commutes. Auto passengers also were important for discretionary activities that are done with others – for example, 24% for recreation trips.
- The public transit share was highest for post-secondary students, at almost half (48%) of their commutes. For work and K-12/K-S5 school commutes, the public transit shares were 12% and 11% respectively.
- Travel by school bus made up one-third (32%) of K-12/K-S5 school commutes. Nominal numbers of school bus trips for other purposes were also noted, including 1.8% of post-secondary school commutes, 0.7% of recreation trips and 0.4% of social trips.[58]
- One in five (21.2%) of K-12/K-S5 trips were walk trips, as were restaurant trips (20.7%). The walk trip to work represented 8.6% of all trips.
- The shares of trips by bicycle and micromobility were highest for recreation (5.3%), work (5.1%) and K-12/K-S5 school commutes (4.3%).

The profiles for trips made by Ottawa and Gatineau CMA residents were similar. However, the auto driver shares of Gatineau CMA residents' trips were generally higher than those of Ottawa residents for all purposes (except K-12/K-S5). Gatineau CMA residents' trips had correspondingly smaller shares for all other modes except school bus. School bus was higher for Gatineau CMA K-S5 students than for Ottawa K-12 students.

[58] The non-commute trips may reflect social or recreational trips made by adults or PSE students via a school bus, or a parent accompanying school children on an outing.

Figure 90. Trip purpose by travel mode, 2022




Trip volumes by purpose and mode - Ottawa
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
Other
Walk
Bicycle + micromobility
School Bus
Public Transit
Auto Passenger
Auto Driver
28,900
16,100
36,400
17,800
193,000
4,600
24,300
4,900
9,400
30,000
6,800
44,200
17,500
40,900
1,800
44,400
7,300
11,600
46,300
202,100
7,000
3,000
11,600
44,600
22,200
3,800
18,200
48,300
26,300
8,000
3,800
36,200
71,000
10,800
4,900
17,200
46,700
23,900
4,300
1,400
17,300
145,700
6,300
5,600
15,900
Work
Post-Secondary School
K-12 school
Shopping / household maintenance
Health and Personal Care
Restaurant
Recreation
Social
Pick-up or drop-off passenger
Other

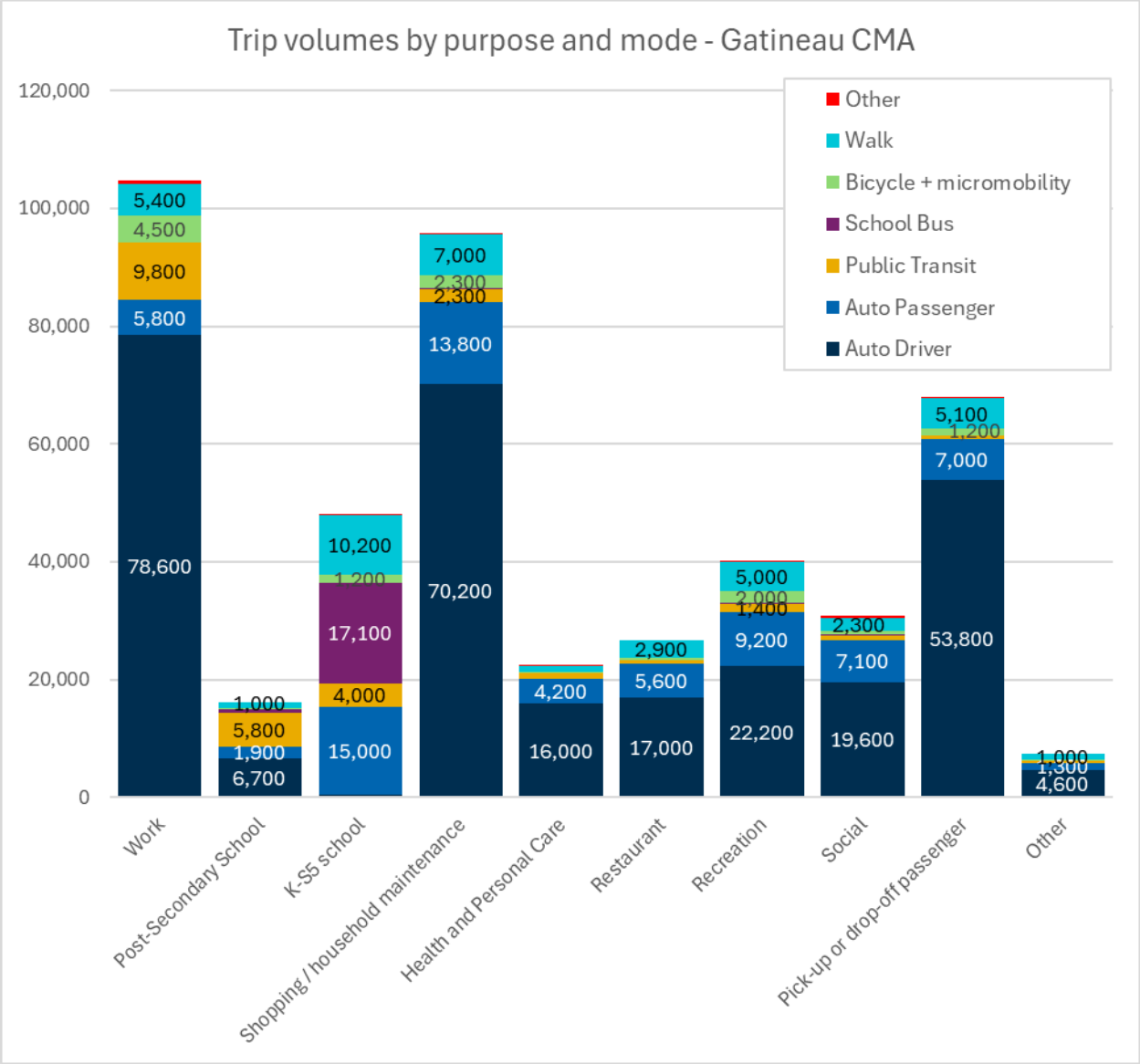

Trip volumes by purpose and mode - Gatineau CMA
120,000
100,000
80,000
60,000
40,000
20,000
0
Other
Walk
Bicycle + micromobility
School Bus
Public Transit
Auto Passenger
Auto Driver
78,600
5,800
9,800
4,500
5,400
6,700
1,900
5,800
1,000
15,000
4,000
17,100
1,200
10,200
70,200
13,800
2,300
2,300
7,000
16,000
4,200
17,000
5,600
2,900
22,200
9,200
1,400
2,000
5,000
19,600
7,100
2,300
53,800
7,000
1,200
5,100
4,600
1,300
1,000
Work
Post-Secondary School
K-S5 school
Shopping / household maintenance
Health and Personal Care
Restaurant
Recreation
Social
Pick-up or drop-off passenger
Other

Table 46. Details of trip purpose by travel mode, 2022

Trip Purpose (Study Area)	Trips	Auto Driver	Auto Passenger	Public Transit	School Bus	Bicycle + micromobility	Walk	Other
Work	400,300	68%	6%	12%	0%	5%	9%	1%
Post-Secondary School	62,300	26%	11%	48%	2%	4%	9%	0%
K-S5 school	189,700	1%	29%	11%	32%	4%	21%	0%
Shopping / household maintenance	408,900	67%	15%	3%	0%	2%	13%	0%
Health and Personal Care	91,600	66%	17%	4%	0%	2%	9%	2%
Restaurant	121,500	54%	20%	4%	0%	2%	21%	0%
Recreation	187,500	50%	24%	3%	1%	5%	17%	1%
Social	114,400	58%	21%	5%	0%	3%	11%	1%
Pick-up or drop-off passenger	261,100	76%	9%	1%	0%	2%	11%	0%
Other	37,900	54%	18%	4%	0%	3%	19%	0%
Return Home	1,323,600	54%	15%	8%	4%	4%	14%	1%
Study Area Total	**3,198,900**	**56%**	**15%**	**8%**	**4%**	**4%**	**13%**	**1%**

Trip Purpose (Ottawa)	Trips	Auto Driver	Auto Passenger	Public Transit	School Bus	Bicycle + micromobility	Walk	Other
Work	295,700	65%	6%	12%	0%	5%	10%	1%
Post-Secondary School	46,100	20%	11%	53%	1%	4%	10%	1%
K-S5 school	141,600	1%	29%	12%	31%	5%	21%	0%
Shopping / household maintenance	313,100	65%	15%	4%	0%	2%	14%	0%
Health and Personal Care	69,200	64%	17%	4%	0%	2%	10%	2%
Restaurant	95,000	51%	19%	4%	0%	2%	23%	1%
Recreation	147,400	48%	25%	3%	1%	5%	18%	1%
Social	83,500	56%	21%	6%	0%	3%	13%	1%
Pick-up or drop-off passenger	193,300	75%	9%	1%	0%	2%	12%	0%
Other	30,500	52%	18%	4%	1%	4%	21%	0%
Return Home	1,002,200	52%	15%	9%	4%	4%	15%	1%
Ottawa Total	**2,417,700**	**54%**	**15%**	**8%**	**4%**	**4%**	**15%**	**1%**

Trip Purpose (Gatineau CMA)	Trips	Auto Driver	Auto Passenger	Public Transit	School Bus	Bicycle + micromobility	Walk	Other
Work	104,600	75%	6%	9%	0%	4%	5%	1%
Post-Secondary School	16,200	41%	12%	35%	3%	2%	6%	0%
K-S5 school	48,100	1%	31%	8%	36%	3%	21%	0%
Shopping / household maintenance	95,800	73%	14%	2%	0%	2%	7%	0%
Health and Personal Care	22,400	72%	19%	4%	0%	1%	4%	0%
Restaurant	26,500	64%	21%	3%	0%	1%	11%	0%
Recreation	40,100	55%	23%	3%	1%	5%	12%	0%
Social	30,900	63%	23%	2%	1%	2%	8%	1%
Pick-up or drop-off passenger	67,700	79%	10%	1%	0%	2%	8%	0%
Other	7,400	62%	17%	5%	0%	1%	13%	0%
Return Home	321,400	60%	16%	6%	5%	3%	9%	0%
Gatineau CMA Total	**781,300**	**62%**	**16%**	**6%**	**4%**	**3%**	**9%**	**0%**

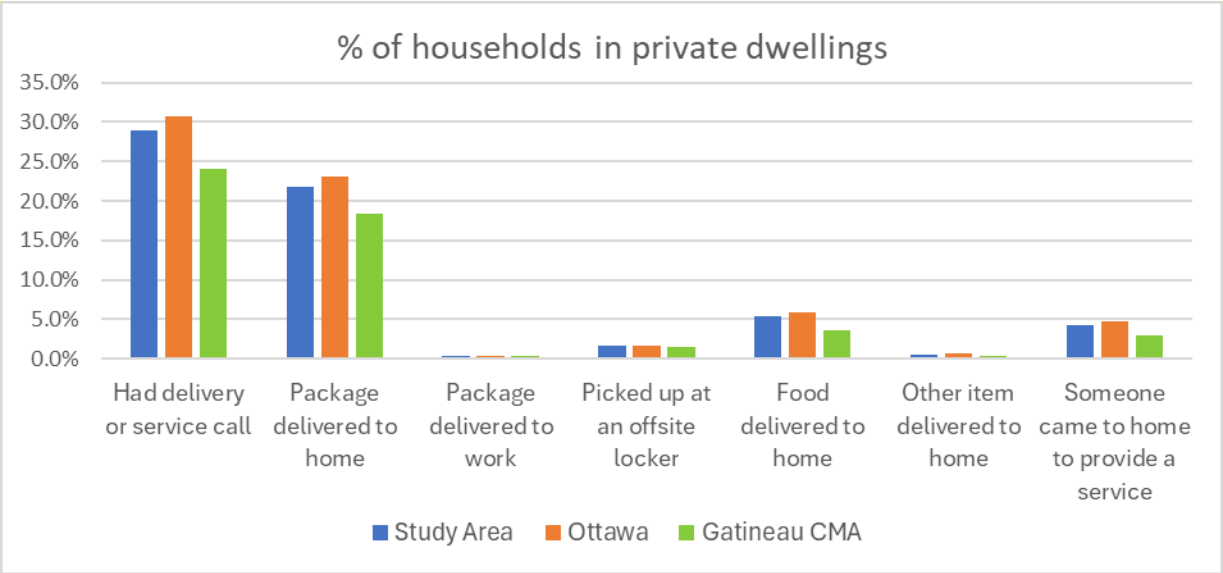
4.5 Service calls and package pick-up or delivery

New in 2022, households were asked about activities related to the pick-up or delivery of a package, groceries or a meal, or whether someone came to the home to provide a service or deliver a large item like an appliance (i.e., something that is too large for someone to pick up themselves). Figure 91 summarizes the results (noting that respondents could choose more than one option). Key points to note:

- **More than one-quarter (28.9%) of all Study Area households reported a delivery or service call.**
- Of these, deliveries to the home comprised (noting that respondents could choose more than one option):
    - Packages, to more than one in five (21.8%) homes.
    - Food, to 5.3% of homes.
    - Other items, such as appliances or furniture, to 0.6% of homes.
    - Services, such as landscaping, plumbing or housecleaning, to 4.3% of homes.
- Households also reported deliveries to the workplace (0.4% of households) or to an offsite locker (1.7% of households).

The same profiles generally were evident in both Ottawa and the Gatineau CMA, although the proportions of households reporting deliveries were higher in Ottawa (30.7%) and lower in the Gatineau CMA (24.1%).

Figure 91. Service calls, pick-ups and deliveries, 2022



Note: Respondent could choose more than one option

4.6 Public transit trips

Table 47 summarizes the characteristics of public transit use, the number of public transit routes used, and the modes used to access public transit. The survey results indicate that in the fall of 2022, 243,300 public transit trips were made each weekday by residents living in private dwellings and, when considering transfers, these trips involved around 363,400 transit boardings. It may be noted that these figures are somewhat higher than the OC Transpo and STO boarding count estimates for the same period, although it is not clear whether the survey data over-represent public transit users or whether the agency estimates may slightly under-represent actual boardings.[59] Other key findings were:

- On average, Study Area residents made 0.18 daily transit trips per person. The rate was very slightly higher among Ottawa residents (0.19 trips) and lower among residents of the Gatineau CMA (0.11 trips). Ottawa Downtown Core residents had the highest rate, at 0.33 daily transit trips per person, followed by Downtown Gatineau residents, at 0.29 and Ottawa Inner Urban at 0.25. Rural residents had the lowest rates, at 0.05 daily transit trips per person in Rural Ottawa and 0.04 in the Rest of the Gatineau CMA.
- Almost two in five (40.4%) public transit trips required a transfer, representing an overall rate of 1.49 boardings per transit trip. The highest boarding rates were observed among Suburban Ottawa residents, at 1.67 boardings per transit trip. Outer Urban / Greenbelt and Rural Ottawa residents also had high rates, at 1.56 and 1.67 boardings per transit trip, respectively. Boarding rates for residents of Gatineau were lower than for Ottawa residents, with little variation by sub-area (between 1.28 and 1.33), with the observation that the suburban Gatineau sub-areas had lower boarding rates than suburban Ottawa sub-areas. In Ottawa, the lowest boarding rates were observed among residents of Ottawa's Downtown Core, at 1.31 boardings per transit trip, consistent with the Downtown Core being the focus of OC Transpo's transit network (and, to some extent, that of the STO as well).

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[59] OC Transpo ridership counts, which are based on sampled routes scaled up to account for bus trips that were not sampled, suggest over 210,000 daily boardings during the survey period. LRT data based on walk-ups to transit stations suggest 72,000 daily boardings. STO estimates, which are based on use of passes recorded across entire months (including weekends) crudely scaled to estimate average weekday travel, suggest 45,100 daily boardings. By system, the expanded survey data suggest almost 223,000 OC Transpo bus boardings, 77,900 LRT boardings, and 52,000 STO boardings each day. This appears to over-represent the agency boarding estimates by between 6% and 15%, depending on the system. A number of factors may contribute to the difference between the agency estimates and the survey estimates, including: the accuracy of agency counting technology (e.g. under-counting during busy periods when riders crowd through person-counters), estimation methodologies applied to boarding count samples, fare evasion, and/or possible survey bias not corrected for by data weighting for various household and demographics characteristics. Note that the survey data also suggest another 5,500 boardings of other public or private transit routes (Transcollines routes, 417 Bus Line, or unknown) and 5,000 boardings of minibuses, shuttle buses or other buses. Note also that as the sample frame comprised occupied private dwellings, the survey does not include the public transit trips made by students living in residence on campus, visitors to the area or unhoused people.

- Three-fifths (59.6%) of Study Area public transit users travelled on only one route (no transfers were required). Ottawa's rate was slightly lower, at 55.7%, while Gatineau CMA residents' rate was notably higher, at 75.9%, indicating more direct routes serving trip destinations. Suburban Ottawa and Downtown Gatineau residents were most likely to make trips requiring two or more transfers, at 13.2% and 12.9% of all users, respectively, (although Downtown Gatineau residents also had the most direct trips and few one-transfer trips). Outer Urban / Greenbelt and Inner Urban residents also had above-average shares of trips with two or more transfers, at 9.4% and 9.3%, respectively.
- Most public transit users accessed public transit on foot (89.7% of all Study Area residents), although Gatineau CMA users had a higher auto access rate (6.0%) than Ottawa users (3.5%). Rural sub-areas had high auto driver access rates, at 16.5% among Rural Ottawa residents and 7.8% among the Rest of Gatineau CMA residents. The figures for access as auto passengers were higher for these areas, at 18.4% and 20.2% respectively. Interestingly, residents of Transit Oriented Development areas in Gatineau also reported high auto driver (9.3%) and auto passenger (12.0%) access.
- A further 0.7% of Study Area users used their bicycle or micromobility device to access public transit, comprising 0.8% of Ottawa public transit users and only 0.2% of Gatineau CMA public transit users. Residents of Transit-Oriented Development areas had the highest rate, at 2.1% of users.

Table 47. Characteristics of public transit use by sub-area, 2022

		Region		Ottawa					Gatineau CMA			
	Study Area	Ottawa	Gatineau CMA	Downtown Core	Inner Urban	Outer Urban / Greenbelt	Suburban	Rural	Downtown Gatineau	Transit-Oriented Development	Rest of Gatineau	Rest of CMA
Population in private dwellings	1,365,700	1,014,460	351,240	70,750	167,770	280,350	402,770	92,820	11,250	29,260	249,010	61,710
Transit Trips	243,300	196,300	47,000	23,200	42,400	64,200	62,000	4,500	3,300	3,900	37,200	2,600
Transit trips per resident	0.18	0.19	0.13	0.33	0.25	0.23	0.15	0.05	0.29	0.13	0.15	0.04
Boardings	363,400	302,700	60,700	30,400	61,800	100,200	103,500	6,800	4,400	5,000	47,900	3,400
Avg. Boardings per Transit Trip	1.49	1.54	1.29	1.31	1.46	1.56	1.67	1.51	1.33	1.28	1.29	1.30
# of buses taken (% of trips)												
1 route (no transfers)	59.6%	55.7%	75.9%	71.0%	63.5%	53.9%	46.6%	54.3%	79.6%	74.1%	75.9%	74.3%
2 routes (1 transfer)	31.8%	34.7%	19.5%	26.7%	27.4%	36.7%	40.3%	40.6%	7.5%	23.5%	20.0%	21.1%
3 or more routes (2 or more transfers)	8.6%	9.6%	4.6%	2.3%	9.1%	9.4%	13.2%	5.1%	12.9%	2.3%	4.1%	4.6%
Transit Access (% of trips)												
Walk-Access Transit (WAT)	89.7%	90.1%	87.9%	97.0%	96.4%	93.4%	83.8%	38.0%	99.4%	75.5%	89.7%	66.0%
Drive-Access Transit (DAT)	3.6%	3.0%	6.0%	0.1%	0.8%	1.3%	6.3%	16.5%	0.0%	9.3%	6.1%	7.8%
Drive-Access Transit - Passenger (DAT-P)	3.7%	3.5%	4.4%	1.0%	1.6%	2.3%	5.8%	18.4%	0.6%	12.0%	2.9%	20.2%
Bicycle-Access Transit (BAT)	0.7%	0.8%	0.2%	1.1%	0.3%	1.2%	0.5%	0.7%	0.0%	2.1%	0.0%	0.0%
Other-Access Mode (OAT)	0.2%	0.2%	0.4%	0.1%	0.0%	0.4%	0.2%	0.6%	0.0%	0.0%	0.4%	0.5%

Blue shading indicates above-average values for the given row, with greater colour intensity for larger values.

Respondents who indicated they used a bicycle to access public transit but did not report an onward bicycle trip were asked whether they parked their bicycle at a public transit station before accessing the public transit vehicle, or whether they took the bicycle on board with them.

Eight respondents indicated that they parked their bicycle at a public transit station. Another five respondents noted that they took their bicycle on board with them. These are unweighted responses. Given the very small number of responses, it is not meaningful to draw conclusions from these data beyond the fact that there is a mix of riders who take their bicycle on board and those who do not.

4.7 Travel between and within districts

This section presents intra- and inter-district person-trips (flows). To provide context, Figure 92 first provides an overview of the two-way flows between sub-areas adapted from the Ottawa transects on the south side of the river (breaking up Outer Urban/Greenbelt into East and West, and breaking up Suburban into four separate different communities) and three broad geographies on the Gatineau side (East, West, and Downtown). Internal flows for trips entirely within the given geography are depicted as green circles.

On the Ottawa side, the most significant flows are between the Outer Urban/Greenbelt East area and Inner Urban (119,000 trips), between Outer Urban/Greenbelt West and Inner Urban (94,000 trips), and between Inner Urban and Downtown Core (118,000 trips). Of the four outer suburbs depicted, Orleans and Kanata-Stittsville have the greatest flows to the two Outer Urban/Greenbelt areas. On the Gatineau side, the most significant flows are between Gatineau East and Gatineau West at 74,000 person-trips crossing the Gatineau River.

Figure 92. Prominent desires lines in the Study Area – overall flows by adapted sub-area, 2022

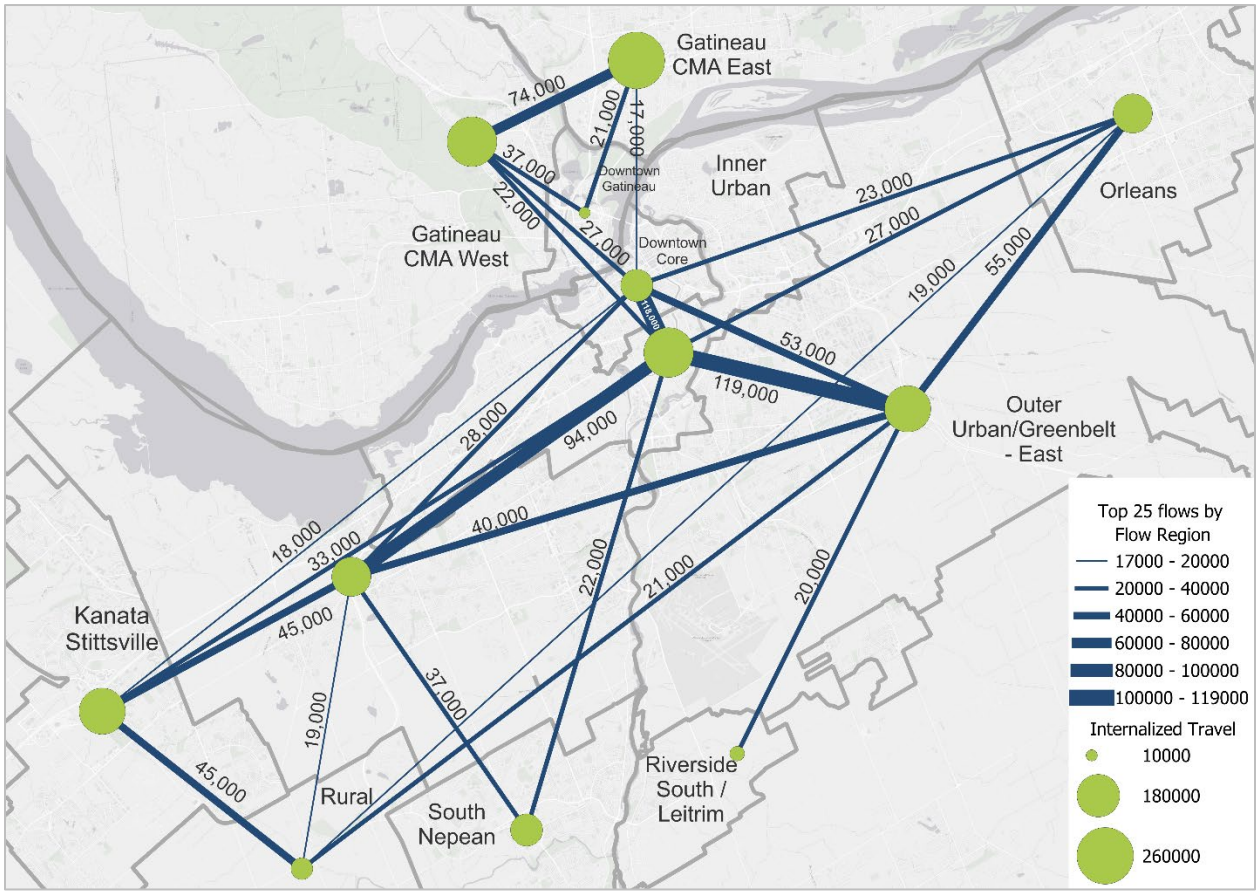


Table 48 summarizes the total 24-hour flows from and to the 26 TRANS districts that make up the Study Area.[60] Figure 93 maps the 25 most prominent 'desire lines' (origin-destination flows) among these districts. For ease of reference, the figure also presents a geographically more aggregated version of these flows. Table 49 adds details of the prominent flows, as a comparison with 2011. The origin-destination matrices, provided under separate cover, offer a complete breakdown of these flows. Note that these figures, tables and matrices refer to all trips made to, from and within each district by residents and non-residents.

The Ottawa Inner Area was the top generator and receiver of trips to and from other districts, with 320,000 total daily two-way person-trips or 10.0% of total Study Area inter-district trips.

Although most of the same districts feature among the 25 most prominent inter-district flows in both 2011 and 2022, the **relative importance of the districts has changed**. As well, **most**

[60] The depiction of 24-hour person-trip flows is a departure from previous TRANS O-D survey reports, which focused on the AM peak period. The use of daily flows a more meaningful presentation of intra- and inter-district flows, given the growth of travel across the entire day.

inter-district trip volumes have contracted significantly between 2011 and 2022 – notably, selected flows to and from Alta Vista, Merivale, Bayshore/Cedarview, Ottawa Centre and Ottawa Inner Area. However, **a smaller number of districts recorded increases**, notably between Pointe Gatineau and Gatineau East and the Gatineau CMA's Rural Northeast and between Beacon Hill and Orleans.

Table 48. Overview of 24-hour inter-district trips (trips generated or received by 26 districts)

		Internalized	Inter-District Flows			
	District *	Trips Entirely Within District	From District to Other Districts	To District From Other Districts	Two-Way Total	% of Total Two-Way Inter-District Trips
1	Ottawa Centre	21,700	81,900	82,200	164,100	5.1%
50	Ottawa Inner Area	113,800	159,600	160,400	320,000	10.0%
100	Ottawa East	51,600	69,400	69,700	139,100	4.4%
120	Beacon Hill	33,000	54,400	54,600	109,000	3.4%
140	Alta Vista	92,800	122,400	122,700	245,100	7.7%
180	Hunt Club	43,600	69,100	67,400	136,500	4.3%
200	Merivale	95,800	120,900	120,700	241,500	7.6%
240	Ottawa West	68,900	78,800	78,600	157,400	4.9%
260	Bayshore/Cedarview	78,900	93,500	93,800	187,300	5.9%
300	Orleans	193,800	75,200	74,700	150,000	4.7%
350	Rural East	3,700	12,900	12,900	25,700	0.8%
360	Rural Southeast	19,500	24,400	24,200	48,600	1.5%
400	South Gloucester / Leitrim	24,900	35,200	35,500	70,700	2.2%
425	South Nepean	123,400	70,900	70,300	141,200	4.4%
450	Rural Southwest	17,500	32,500	32,400	64,900	2.0%
500	Kanata - Stittsville	220,200	94,100	93,900	188,000	5.9%
560	Rural West	12,200	22,600	22,600	45,200	1.4%
600	Île de Hull	7,500	29,100	29,200	58,300	1.8%
625	Hull Périphérie	53,700	70,500	70,800	141,300	4.4%
650	Plateau	28,600	35,100	34,700	69,800	2.2%
700	Aylmer	63,800	40,900	40,700	81,600	2.6%
750	Rural Northwest	20,000	21,800	22,000	43,800	1.4%
800	Pointe Gatineau	71,800	73,100	73,100	146,200	4.6%
820	Gatineau East	50,300	51,900	51,500	103,400	3.2%
840	Rural Northeast	20,800	37,800	38,200	75,900	2.4%
845	Masson-Angers	29,200	20,900	20,400	41,300	1.3%
	Total Trips	1,561,000	1,599,000	1,597,100	3,196,100	

* Includes only the 26 Study Area districts. External districts are not included.

Figure 93. Prominent desires lines in the Study Area – top 25 two-way inter-district flows, 2022

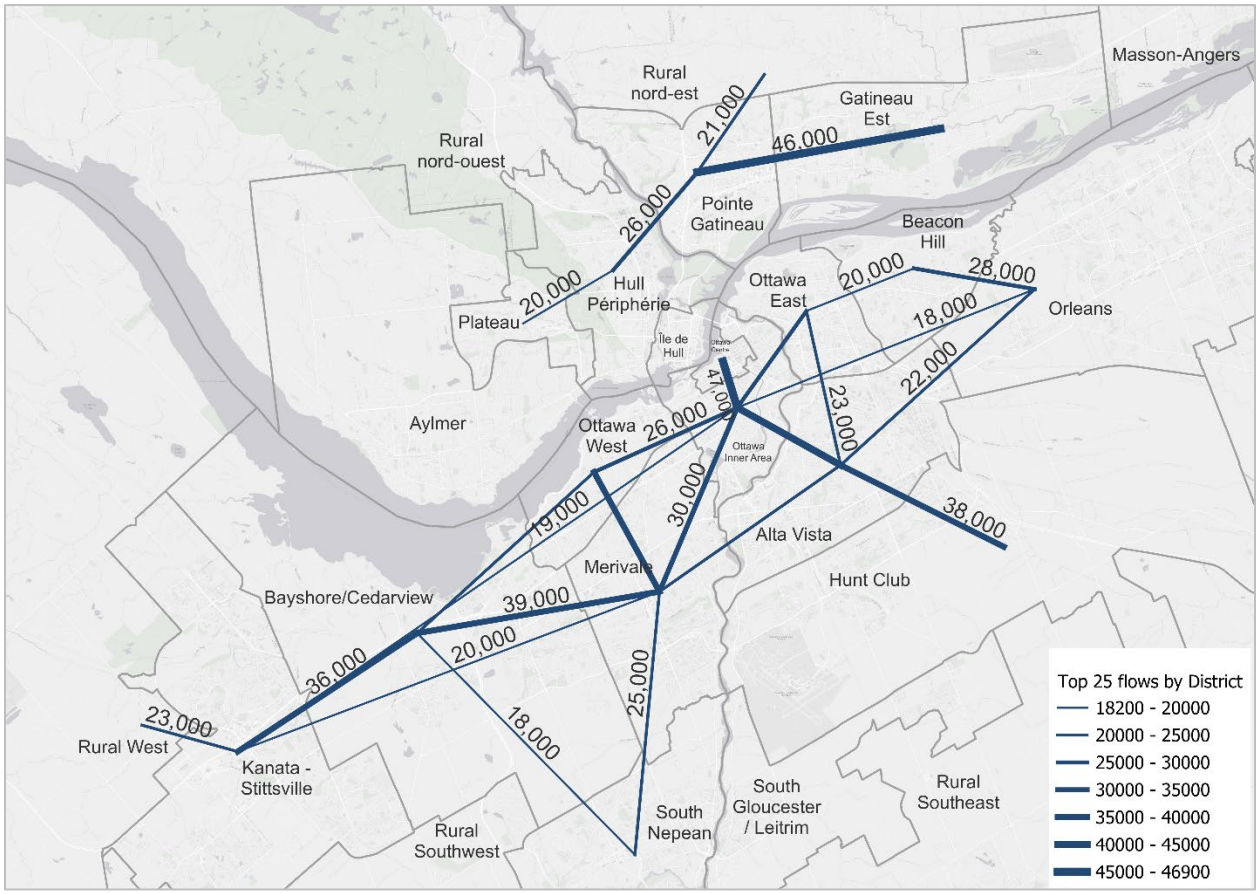


Table 49. Top 25 inter-district flows within the Study Area

District #'s	Districts *	24-hour two-way flows			
		2011	2022	diff (#)	diff (%)
1 <-> 50	Ottawa Centre <-> Ottawa Inner Area	57,800	46,900	-10,900	-19%
800 <-> 820	Pointe Gatineau <-> Gatineau East	41,300	46,200	4,900	12%
50 <-> 140	Ottawa Inner Area <-> Alta Vista	48,800	45,000	-3,800	-8%
200 <-> 260	Merivale <-> Bayshore/Cedarview	51,400	38,600	-12,800	-25%
140 <-> 180	Alta Vista <-> Hunt Club	42,800	37,700	-5,100	-12%
260 <-> 500	Bayshore/Cedarview <-> Kanata - Stittsville	37,200	35,900	-1,300	-3%
200 <-> 240	Merivale <-> Ottawa West	41,000	35,600	-5,400	-13%
50 <-> 200	Ottawa Inner Area <-> Merivale	38,900	30,100	-8,800	-23%
50 <-> 100	Ottawa Inner Area <-> Ottawa East	28,900	29,400	500	2%
120 <-> 300	Beacon Hill <-> Orleans	23,500	27,800	4,300	18%
50 <-> 240	Ottawa Inner Area <-> Ottawa West	25,100	26,400	1,300	5%
625 <-> 800	Hull Périphérie <-> Pointe Gatineau	27,600	26,200	-1,400	-5%
240 <-> 260	Ottawa West <-> Bayshore/Cedarview	34,500	24,900	-9,600	-28%
200 <-> 425	Merivale <-> South Nepean	25,200	24,500	-700	-3%
500 <-> 560	Kanata - Stittsville <-> Rural West	21,900	23,300	1,400	6%
100 <-> 140	Ottawa East <-> Alta Vista	27,500	22,800	-4,700	-17%
140 <-> 300	Alta Vista <-> Orleans	33,100	21,500	-11,600	-35%
140 <-> 200	Alta Vista <-> Merivale	28,000	20,800	-7,200	-26%
800 <-> 840	Pointe Gatineau <-> Rural Northeast	15,000	20,700	5,700	38%
100 <-> 120	Ottawa East <-> Beacon Hill	20,800	20,000	-800	-4%
625 <-> 650	Hull Périphérie <-> Plateau	19,800	19,900	100	1%
200 <-> 500	Merivale <-> Kanata - Stittsville	24,000	19,600	-4,400	-18%
50 <-> 500	Ottawa Inner Area <-> Kanata - Stittsville	16,800	18,800	2,000	12%
50 <-> 300	Ottawa Inner Area <-> Orleans	23,000	18,300	-4,700	-20%
260 <-> 425	Bayshore/Cedarview <-> South Nepean	19,700	18,200	-1,500	-8%

No longer in top 25:

1 <-> 300	Ottawa Centre <-> Orleans	22,379	10,700	-11,679	-52%
50 <-> 180	Ottawa Inner Area <-> Hunt Club	20,837	15,400	-5,437	-26%
180 <-> 200	Hunt Club <-> Merivale	20,390	14,700	-5,690	-28%
50 <-> 260	Ottawa Inner Area <-> Bayshore/Cedarview	20,316	15,200	-5,116	-25%

* Includes only the 26 Study Area districts. External districts are not included.

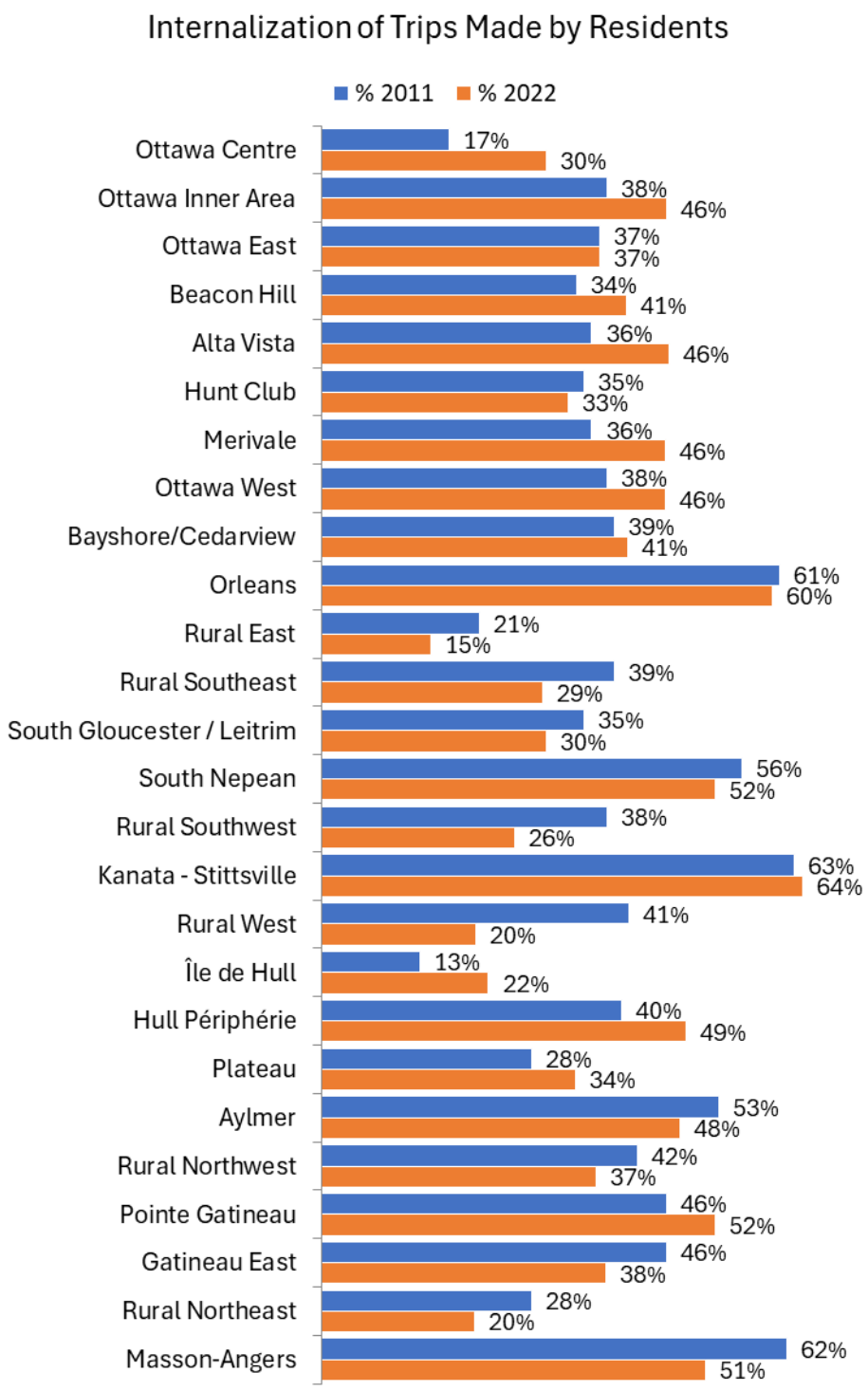
Blue shading highlights higher values. The intensity of the shade increases as the value approaches the highest value.

Pink shading highlights lower values. The intensity of the shade increases as the value approaches the lowest value.

The discussion now focuses on internalized trips made by residents of each district. Figure 94 and Table 50 examine internal travel – that is, trips made within the same district as a traveller's residence. This is a measure of the accessibility of activities – work, school, shopping and so on – relative to a travellers' place of residence. A closer proximity of these activities to one's home can be more conducive to sustainable transportation alternatives to driving alone, especially walking and cycling. **Most districts recorded higher proportions of internalized trips in 2022, compared with 2011**.

Almost two thirds of the trips generated by residents of Kanata-Stittsville and Orleans were internal, at 64% and 60% of all daily person-trips generated by district residents, respectively. Close to or more than half the daily person-trips generated by residents of Pointe Gatineau, Hull Périphérie, Masson-Angers (a drop from 2011), Aylmer (also a drop), Ottawa Inner Area, Alta Vista, Merivale and South Nepean. Ottawa's Rural East and Rural West, and the Gatineau CMA's Rural Northeast, and Ile-de-Hull recorded the lowest internalization rates in 2022 – all drops from 2011, except for Ile-de-Hull.

Figure 94. Internalization of trips by home district, 2011-2022



Includes only the 26 Study Area districts. External districts are not included.

Table 50 breaks down the internalization of trips by purpose: home-based work (HBW), home-based school (HBS)[61] and home-based other (HBO, e.g., including shopping trips). Because these trips start or end at home, they do not capture all activity – for example, a trip to or from school that has been interrupted by a stop along the way (non-home-based) is not included in this analysis. Nonetheless, the table provides a good indicator of the extent (proportions) of internalization:

- **Proximity to the workplace was most evident in Kanata-Stittsville, at 42% of all HBW trips. Upwards of one-quarter of HBW trips in other districts were also internalized,** notably the Ottawa Inner area (29%), Ottawa Centre (28%) and Hull Périphérie (28%) but also several suburban districts in both Ottawa and the Gatineau CMA. In absolute terms, Kanata-Stittsville and Orleans had the greatest numbers of internalized HBW trips, at 51,200 and 48,200 HBW trips each.[62]
- **Most districts had a high proximity rate to elementary and secondary schools,** which was consistent with these schools generally being constructed close to where students live. There were some notable exceptions, such as Ottawa Centre (10%), Hull Périphérie (33%) and several rural districts. Kanata-Stittsville and Orleans had the greatest number of internal HBS trips, at 54,300 trips and 48,200 trips respectively.
- **Most districts had good proximity rates to HBO activities,** which similarly reflected the availability of shopping, restaurants, recreational activities and other activities close to where people live. Orleans and Kanata-Stittsville again had the highest numbers of internalized HBO trips, at 166,200 and 165,800 internal HBO trips respectively.

[61] HBS includes home-based trips to and from elementary and secondary schools but excludes trips to post-secondary schools, which fall under the HBO category. This distinction reflects the wide catchment area that is typical of post-secondary schools: including these schools in the HBS category would distort the intra-district trip proportions.

[62] Multiple of the total number of HBW trips generated in a district by the rate of internalization.

Table 50. Details of intra-district flows, 2022

District of Residence *	Total Trips Made by Residents of Area		HBW Trips Made by Residents of Area		HBS Trips Made by Residents of Area **		HBO Trips Made by Residents of Area	
	Trips Made by Residents	% Internal to Home District	HBW Trips	% Internal to Home District	HBS Trips	% Internal to Home District	HBO Trips	% Internal to Home District
Ottawa Centre ***	28,300	30%	5,200	28%	1,700	10%	16,200	36%
Ottawa Inner Area	227,500	46%	34,800	29%	23,400	77%	129,400	51%
Ottawa East	130,100	37%	22,900	14%	13,900	40%	70,700	49%
Beacon Hill	72,800	41%	12,700	23%	11,000	66%	38,300	46%
Alta Vista	180,200	46%	28,100	27%	23,900	55%	98,200	55%
Hunt Club	124,500	33%	20,500	14%	18,900	33%	65,000	45%
Merivale	182,300	46%	28,900	24%	24,500	57%	97,200	55%
Ottawa West	135,000	46%	18,100	19%	14,000	63%	78,800	55%
Bayshore/Cedarview	178,000	41%	29,900	21%	21,200	56%	94,600	50%
Orleans	313,800	60%	48,200	26%	48,200	76%	166,200	70%
Rural East	25,400	15%	4,500	8%	3,300	26%	12,700	19%
Rural Southeast	64,300	29%	11,200	12%	8,600	61%	32,100	35%
South Gloucester / Leitrim	81,700	30%	13,500	6%	15,600	51%	40,100	36%
South Nepean	227,100	52%	39,300	17%	42,500	75%	111,900	63%
Rural Southwest	64,300	26%	11,700	7%	9,300	40%	31,200	34%
Kanata - Stittsville	323,600	64%	51,200	42%	54,300	71%	165,800	74%
Rural West	58,900	20%	8,400	8%	6,800	48%	28,700	26%
Île de Hull	24,400	22%	4,600	11%	3,000	33%	12,600	28%
Hull Périphérie	96,500	49%	18,200	28%	12,300	70%	49,400	56%
Plateau	78,800	34%	13,900	5%	13,500	43%	38,500	46%
Aylmer	131,800	48%	21,400	19%	21,900	62%	67,500	58%
Rural Northwest	52,500	37%	8,500	20%	6,300	52%	26,500	47%
Pointe Gatineau	115,800	52%	21,000	25%	15,500	69%	61,500	62%
Gatineau East	128,800	38%	24,100	19%	20,600	60%	60,700	44%
Rural Northeast	98,100	20%	18,900	15%	14,700	23%	44,700	28%
Masson-Angers	54,500	51%	11,600	26%	8,000	73%	26,100	61%

* Includes only the 26 Study Area districts. External districts are not included.

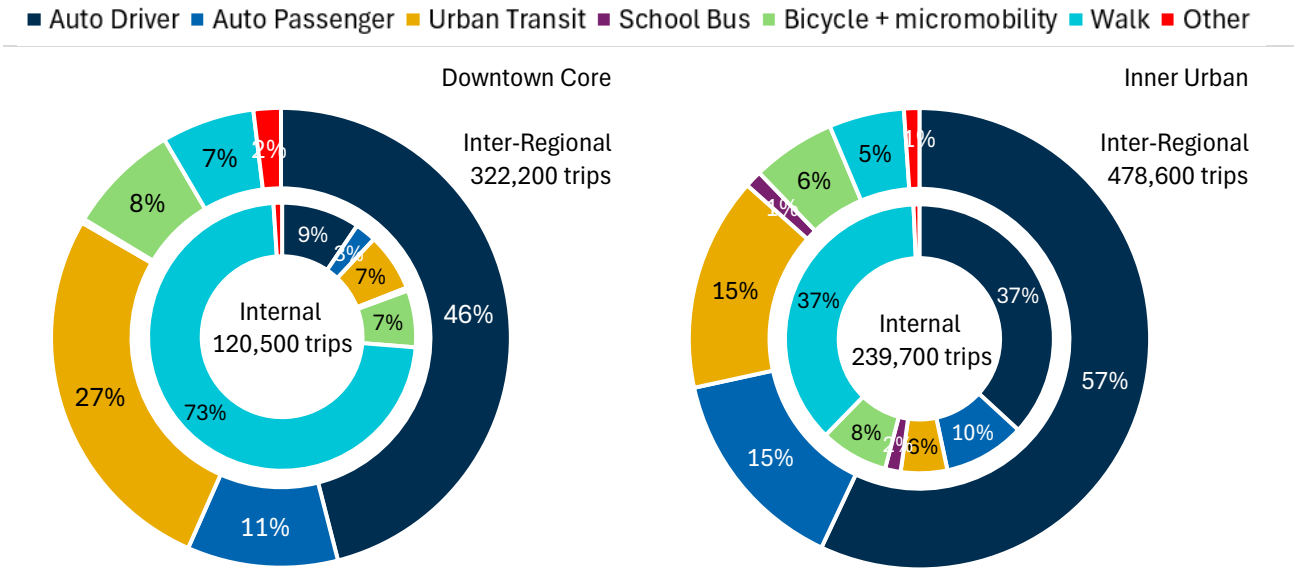
** HBS, HBW and HBO trips include trips from home or returning to home. NHB trips are included in the total trips. However, NHB trips are not broken out separately. 'Internal' = both origin and destination are in the same district as the traveller's home.

*** Interpret Ottawa Centre HBS with caution due to low n.

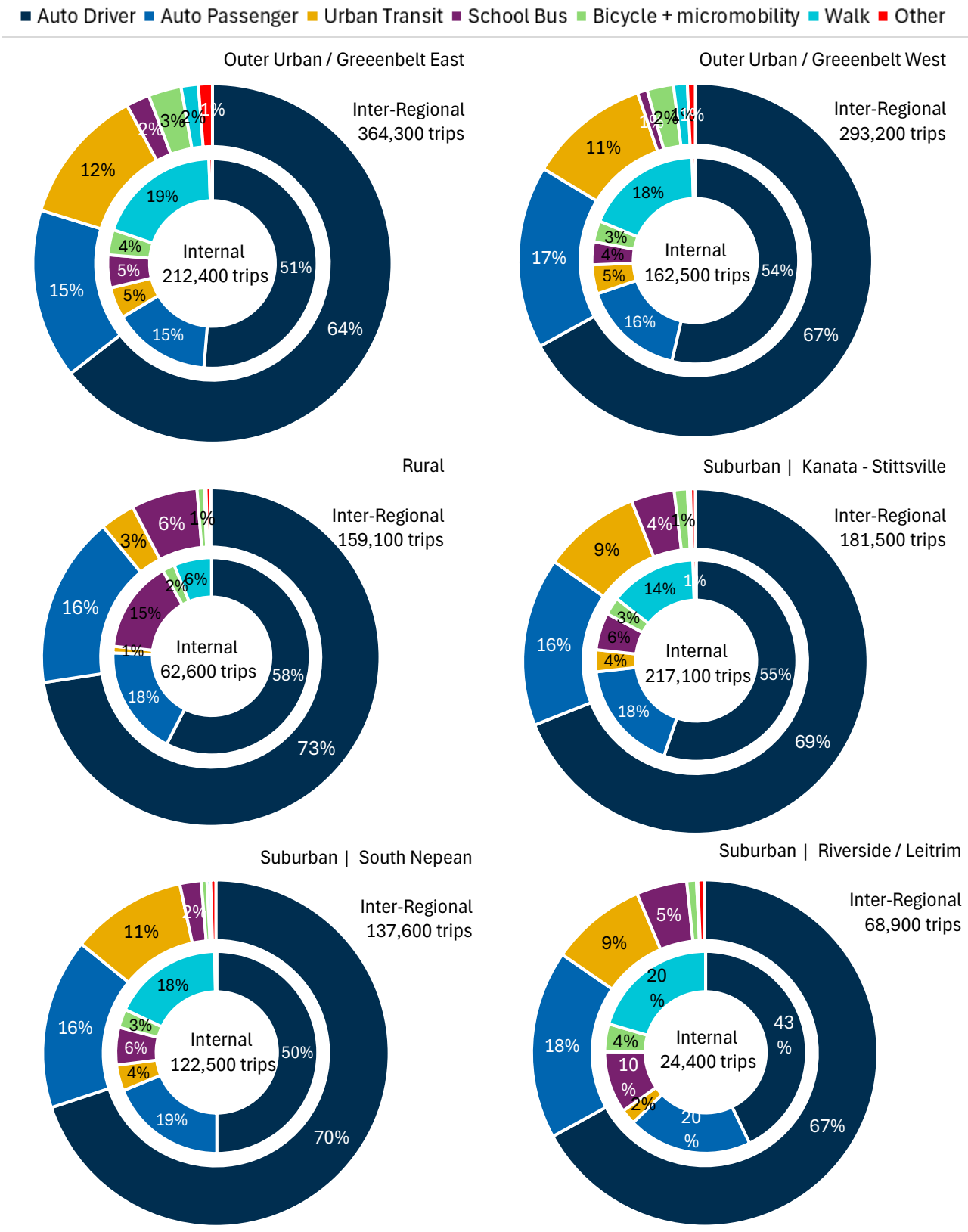
Blue shading highlights higher values. The intensity of the shade increases as the value approaches the highest value.

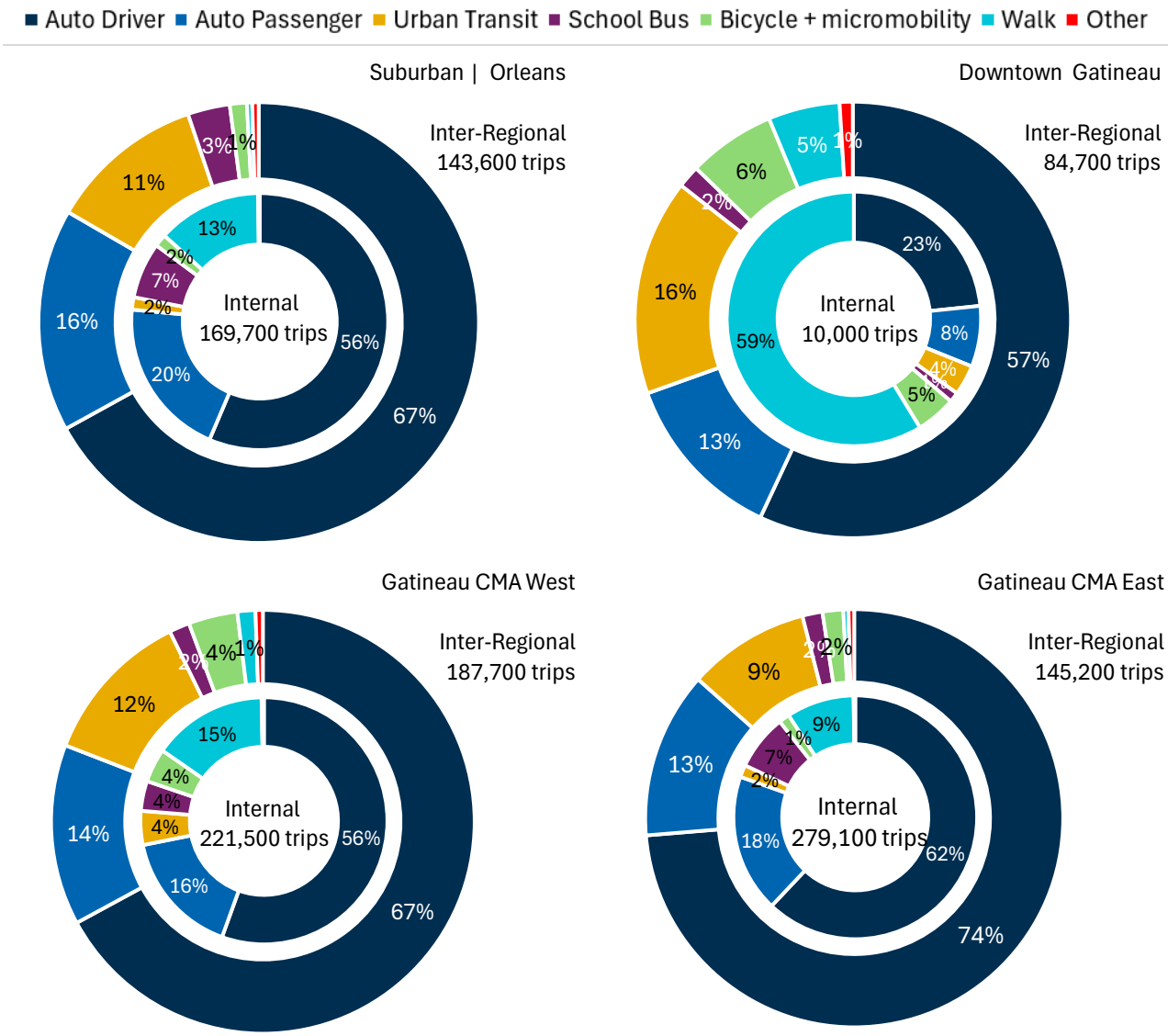
Finally, Figure 95 compares the inter- and intra-district daily mode shares by the broader adapted sub-area geographies depicted in Figure 92 at the start of this chapter. The comparison covers trips made by residents and non-residents. This analysis informs an understanding of how sustainable mode choices vary between shorter (within district) trips and longer trips. It serves as an indirect proxy for understanding how smaller geographies, like 15-minute neighbourhoods and transit-oriented development, fare with respect to mode choice and greenhouse gas emissions.[63] It can be seen that the internalized walk share generally was higher than for inter-district trips, in some case exceptionally so (Ottawa Centre at 73% and Downtown Gatineau at 59%), and the auto driver and public transit shares were generally lower. Internalized bicycle and micromobility shares also increased slightly in some sub-areas.

Figure 95. Mode shares of inter- and intra-district trips by adapted sub-area, 2022



[63] Most of these geographies are generally larger than what might be envisioned as a '15-minute' neighbourhood. An analysis of smaller geographies is feasible but it is beyond the scope of this work.


Auto Driver
Auto Passenger
Urban Transit
School Bus
Bicycle + micromobility
Walk
Other
Outer Urban / Greeenbelt East
Inter-Regional
364,300 trips
Internal
212,400 trips
51%
64%
15%
12%
2%
3%
2%
1%
19%
4%
5%
5%
15%
Outer Urban / Greeenbelt West
Inter-Regional
293,200 trips
Internal
162,500 trips
54%
67%
17%
11%
2%
1%
18%
3%
4%
5%
16%
Rural
Inter-Regional
159,100 trips
Internal
62,600 trips
58%
73%
16%
3%
6%
1%
2%
6%
15%
1%
18%
Suburban | Kanata - Stittsville
Inter-Regional
181,500 trips
Internal
217,100 trips
55%
69%
16%
9%
4%
1%
14%
1%
3%
6%
4%
18%
Suburban | South Nepean
Inter-Regional
137,600 trips
Internal
122,500 trips
50%
70%
16%
11%
2%
18%
3%
6%
4%
19%
Suburban | Riverside / Leitrim
Inter-Regional
68,900 trips
Internal
24,400 trips
43
%
67%
18%
9%
5%
20
%
4%
10
%
2%
20
%


Auto Driver
Auto Passenger
Urban Transit
School Bus
Bicycle + micromobility
Walk
Other
Suburban | Orleans
Inter-Regional
143,600 trips
Internal
169,700 trips
56%
67%
20%
16%
2%
7%
2%
13%
11%
3%
1%
Downtown Gatineau
Inter-Regional
84,700 trips
Internal
10,000 trips
23%
57%
8%
4%
5%
13%
59%
16%
2%
6%
5%
1%
Gatineau CMA West
Inter-Regional
187,700 trips
Internal
221,500 trips
56%
67%
16%
14%
4%
4%
4%
15%
12%
2%
4%
1%
Gatineau CMA East
Inter-Regional
145,200 trips
Internal
279,100 trips
62%
74%
18%
13%
2%
7%
1%
9%
9%
2%
2%

4.8 Interprovincial travel

This section profiles interprovincial travel - that is, travel across the Ottawa River between Ottawa and the Gatineau CMA. Note that this excludes trips made to or from locations external to the Study Area that may have crossed the provincial border.

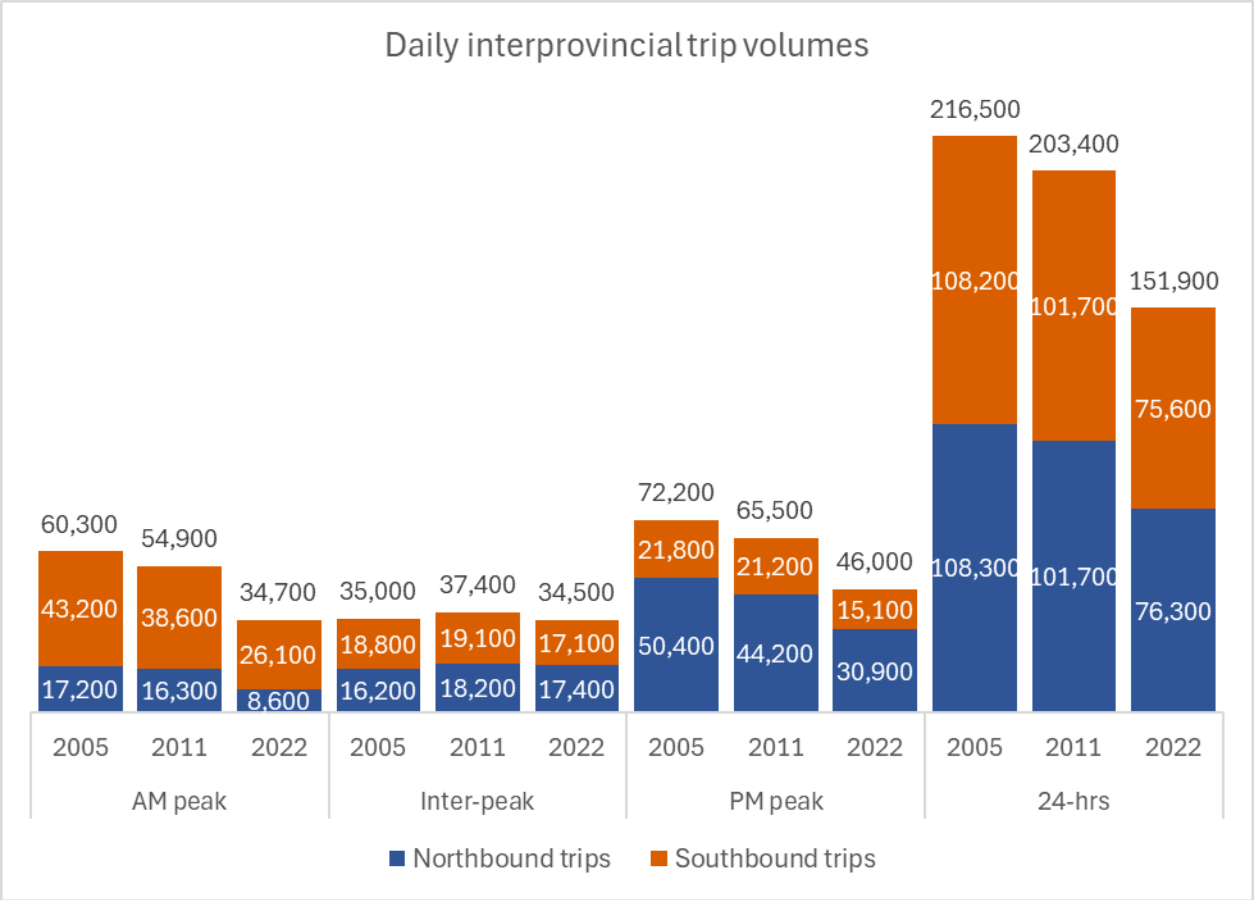
Figure 96 shows how cross-river person-trip travel volumes have changed over time for the 11+ population, for the AM peak period, PM peak period and midday (inter-peak).[64] Figure 97 and Figure 98 show the percentage distribution of these trips, by origin and destination respectively, with details provided in Table 51.

The figures and table show that:

- Interprovincial person-trip volumes have dropped, modestly so from 2005 and 2011, then more dramatically between 2011 and 2022. The reductions were evident in both directions, though especially in the peak southbound direction during the AM peak period (at 26,100 person-trips in 2022) and in the peak northbound direction in the PM peak period (at 30,900 person-trips in 2022).
- Directional totals were virtually equal over the 24-year period.
- Measured against total Study Area travel, interprovincial travel has dropped steadily, to 5.2% of total 24-hour travel, 6.4% of AM peak period travel and 5.4% of PM peak period travel.
- More trips remained internal to each jurisdiction, reflecting the drops in interprovincial person-trip volumes, while total Study Area person-trip volumes increased daily, in the PM peak period and between the peaks (although total Study Area AM trips dropped).
- Interprovincial trips were a greater proportion of Gatineau CMA travel activity than Ottawa activity. Measured by trip origin, southbound interprovincial person-trips represented 12% of all daily trips originating in the Gatineau CMA in 2022, and 18% of AM peak period trips. By comparison, northbound interprovincial person-trips made up 3% of daily Ottawa trip origins and 2% of AM peak period Ottawa origins. Measured by trip destination, southbound interprovincial person-trips represented 6% of AM peak period trips with destinations in Ottawa and only 3% of all daily trips with destinations in Ottawa. Northbound interprovincial travel represented 15% of PM peak period trips with destinations in the Gatineau CMA, and 12% of all daily trips with destinations in the Gatineau CMA.

[64] This presentation updates and augments Tables 4-34 and 4-35 in the 2011 TRANS O-D survey report.

Figure 96. Interprovincial and internal travel, 11+, Study Area, 2005, 2011 and 2022



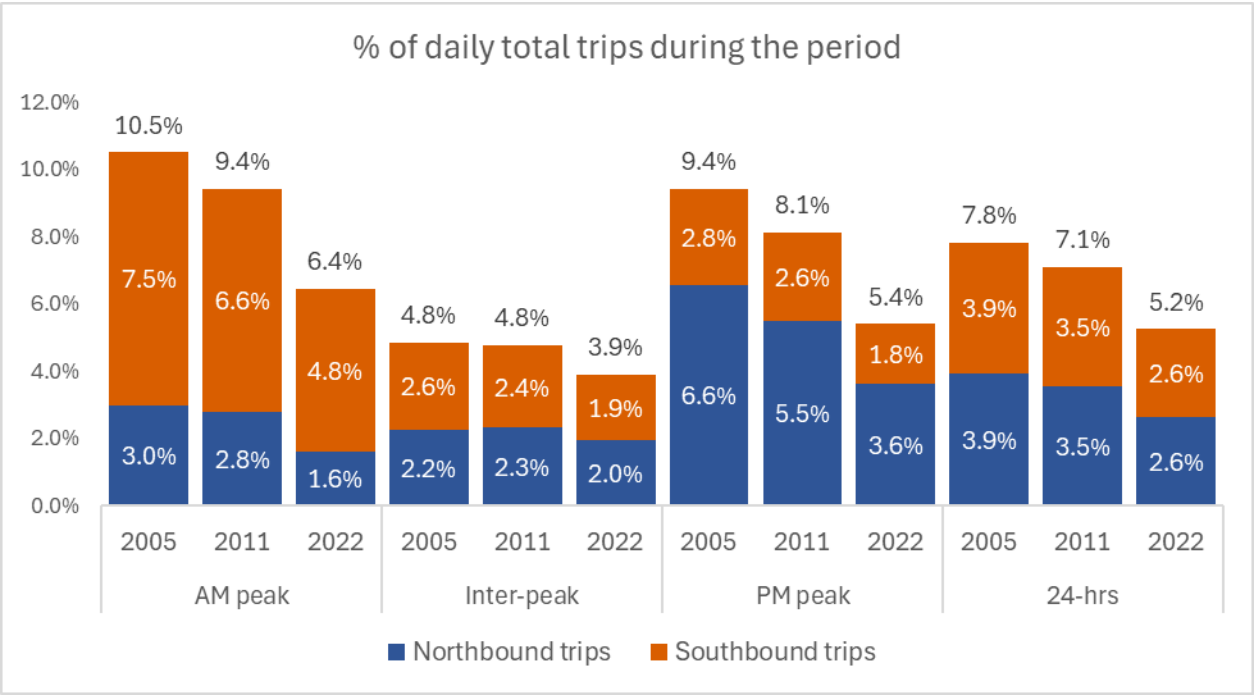


Figure 97. Interprovincial and internal travel distribution by origin, 11+ – 2005, 2011 and 2022

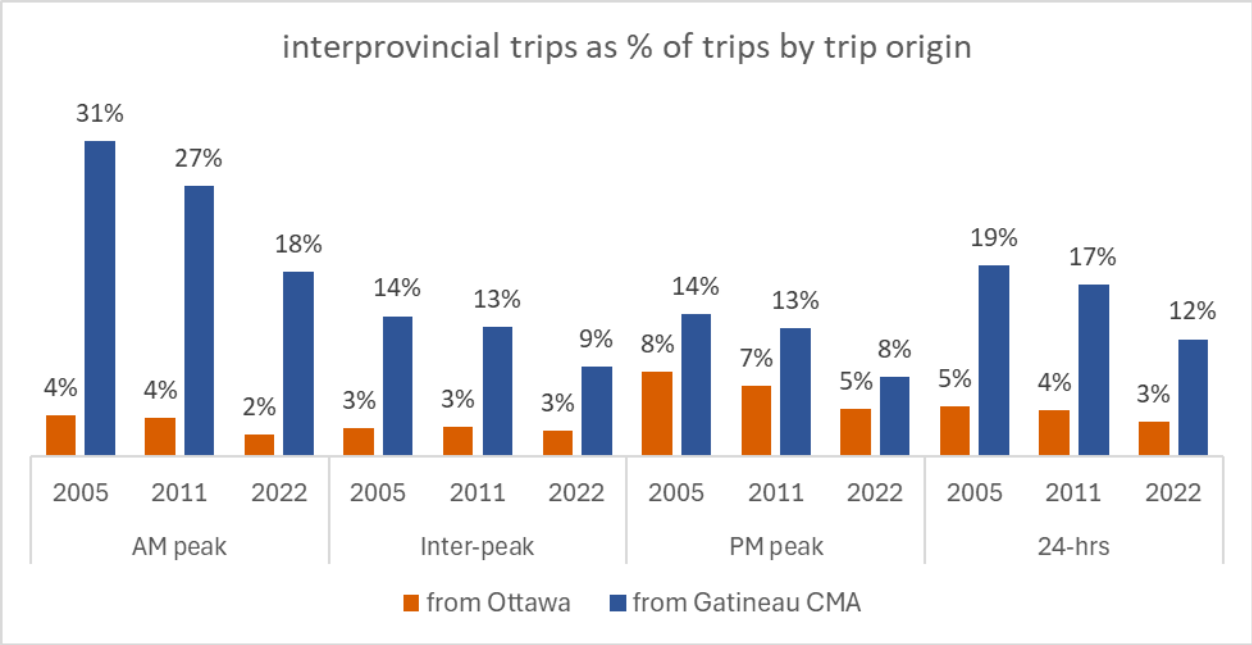


Figure 98. Interprovincial and internal travel distribution by destination, 11+ – 2005, 2011 and 2022

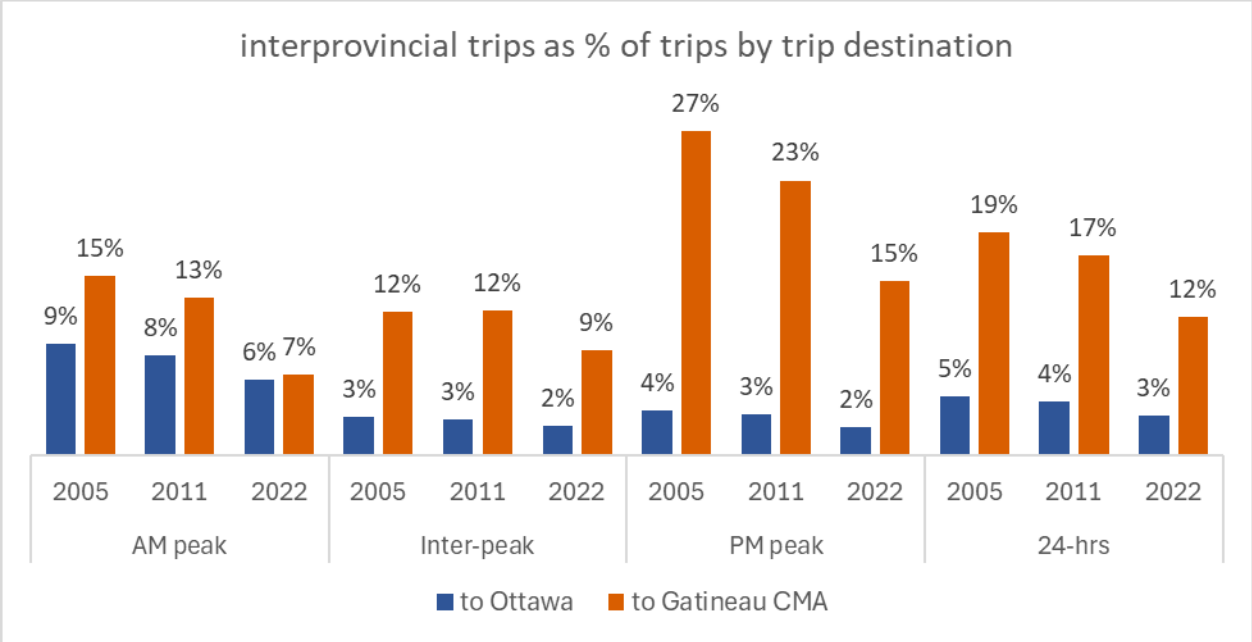


Table 51. Details of interprovincial person-trips for persons 11+, 2005, 2011 and 2022

	AM Peak			Inter-peak (Midday)		
	2005	2011	2022	2005	2011	2022
Total trips	574,800	582,900	539,300	723,100	785,400	888,500
Internal trips	514,500	528,000	504,600	688,100	748,000	854,000
Interprovincial trips	60,300	54,900	34,700	35,000	37,400	34,500
Northbound trips	17,200	16,300	8,600	16,200	18,200	17,400
Southbound trips	43,200	38,600	26,100	18,800	19,100	17,100
% interprovincial	10.5%	9.4%	6.4%	4.8%	4.8%	3.9%
% northbound	3.0%	2.8%	1.6%	2.2%	2.3%	2.0%
% southbound	7.5%	6.6%	4.8%	2.6%	2.4%	1.9%
by Origin						
from Ottawa	435,200	437,900	395,700	586,700	635,500	693,000
% interprovincial	4.0%	3.7%	2.2%	2.8%	2.9%	2.5%
from Gatineau CMA	139,500	145,000	143,600	136,400	149,900	195,500
% interprovincial	31.0%	26.6%	18.2%	13.8%	12.7%	8.7%
by Destination						
to Ottawa	461,200	460,300	413,300	589,300	636,400	692,700
% interprovincial	9.4%	8.4%	6.3%	3.2%	3.0%	2.5%
to Gatineau CMA	113,600	122,648	126,033	133,800	148,900	195,800
% interprovincial	15.1%	13.3%	6.8%	12.1%	12.2%	8.9%

	PM Peak			24-hrs		
	2005	2011	2022	2005	2011	2022
Total trips	766,500	804,900	852,400	2,768,500	2,866,900	2,894,600
Internal trips	694,300	739,400	806,400	2,552,000	2,663,500	2,742,700
Interprovincial trips	72,200	65,500	46,000	216,500	203,400	151,900
Northbound trips	50,400	44,200	30,900	108,300	101,700	76,300
Southbound trips	21,800	21,200	15,100	108,200	101,700	75,600
% interprovincial	9.4%	8.1%	5.4%	7.8%	7.1%	5.2%
% northbound	6.6%	5.5%	3.6%	3.9%	3.5%	2.6%
% southbound	2.8%	2.6%	1.8%	3.9%	3.5%	2.6%
by Origin						
from Ottawa	610,900	637,100	658,200	2,193,100	2,263,900	2,238,200
% interprovincial	8.3%	6.9%	4.7%	4.9%	4.5%	3.4%
from Gatineau CMA	155,600	167,900	194,100	575,400	603,000	656,500
% interprovincial	14.0%	12.6%	7.8%	18.8%	16.9%	11.5%
by Destination						
to Ottawa	582,300	614,100	642,400	2,193,100	2,263,900	2,237,500
% interprovincial	3.7%	3.5%	2.4%	4.9%	4.5%	3.4%
to Gatineau CMA	184,200	190,800	210,000	575,400	603,000	657,200
% interprovincial	27.4%	23.2%	14.7%	18.8%	16.9%	11.6%

Figure 99 shows the daily interprovincial trip rates by resident workers and by all residents 5+, respectively (i.e., to Ottawa by Gatineau CMA resident or worker and to the Gatineau CMA by Ottawa resident or worker), for 2022 and 2011. Trips made by workers dominated interprovincial activity, whether related to work or not. The 2011 survey recorded 0.26 interprovincial trips each day per resident worker as compared to 0.18 per resident 5+, with 84% of daily interprovincial trips having been made by residents of the Study Area were made by workers. Both interprovincial trip rates dropped by 35% between 2011 and 2022, with trips by workers continuing to dominate, at 0.17 trips per resident worker in 2022 as compared to 0.11 per resident 5+. **In 2022, resident workers, who made up 54% of the resident population 5+, made 81% of residents' interprovincial trips.**

Figure 99. Interprovincial trip rates, 2011 and 2022 by Study-Area resident worker, 2011 and 2022

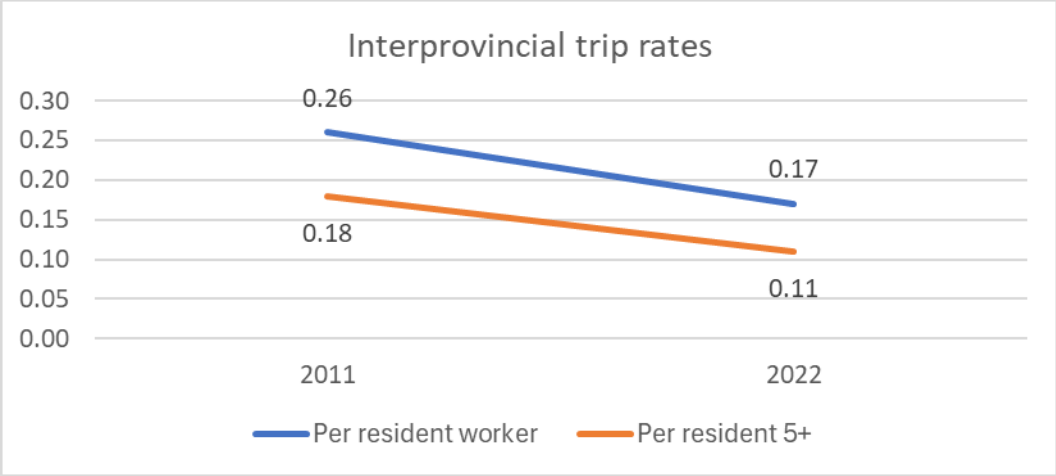
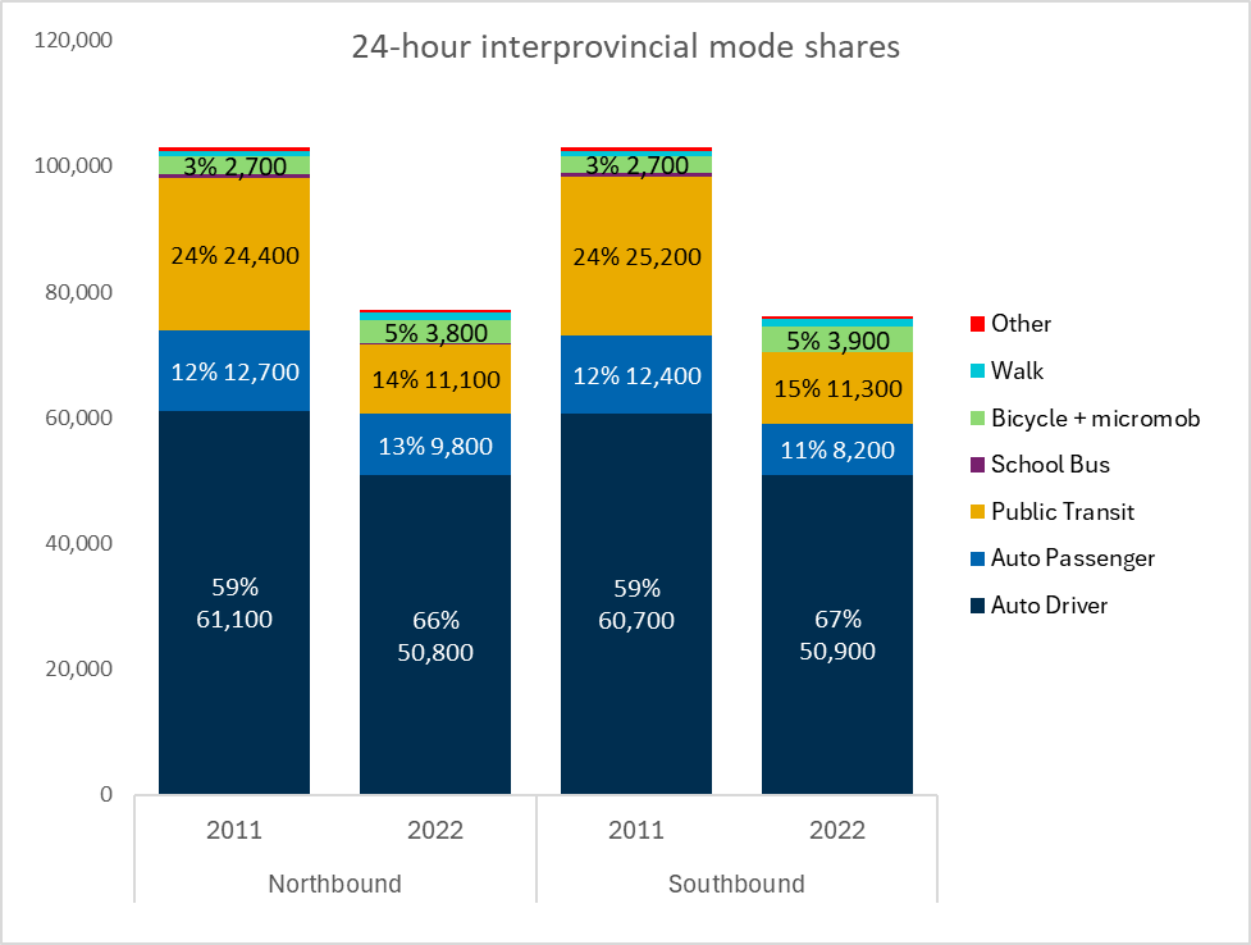


Figure 100 shows daily interprovincial travel by mode for 2011 and 2022. The figure shows that:

- Total interprovincial trip volumes dropped across the day in each direction.
- Across the day, reductions were observed for all motorized modes. The greatest absolute and proportional reductions occurred for public transit, whose bi-directional share dropped by more than half (-55%). Active transportation modes recorded gains, with walk trips increasing by 56% in both directions combined (a gain of 900 trips) and bicycling and micromobility trips increased by 43% (a gain of 2,300 trips).

Figure 100. Interprovincial travel by mode, Study Area population 5+, 2011 and 2022 – daily



Modes with shares of 2% or less are not labelled in the graph.

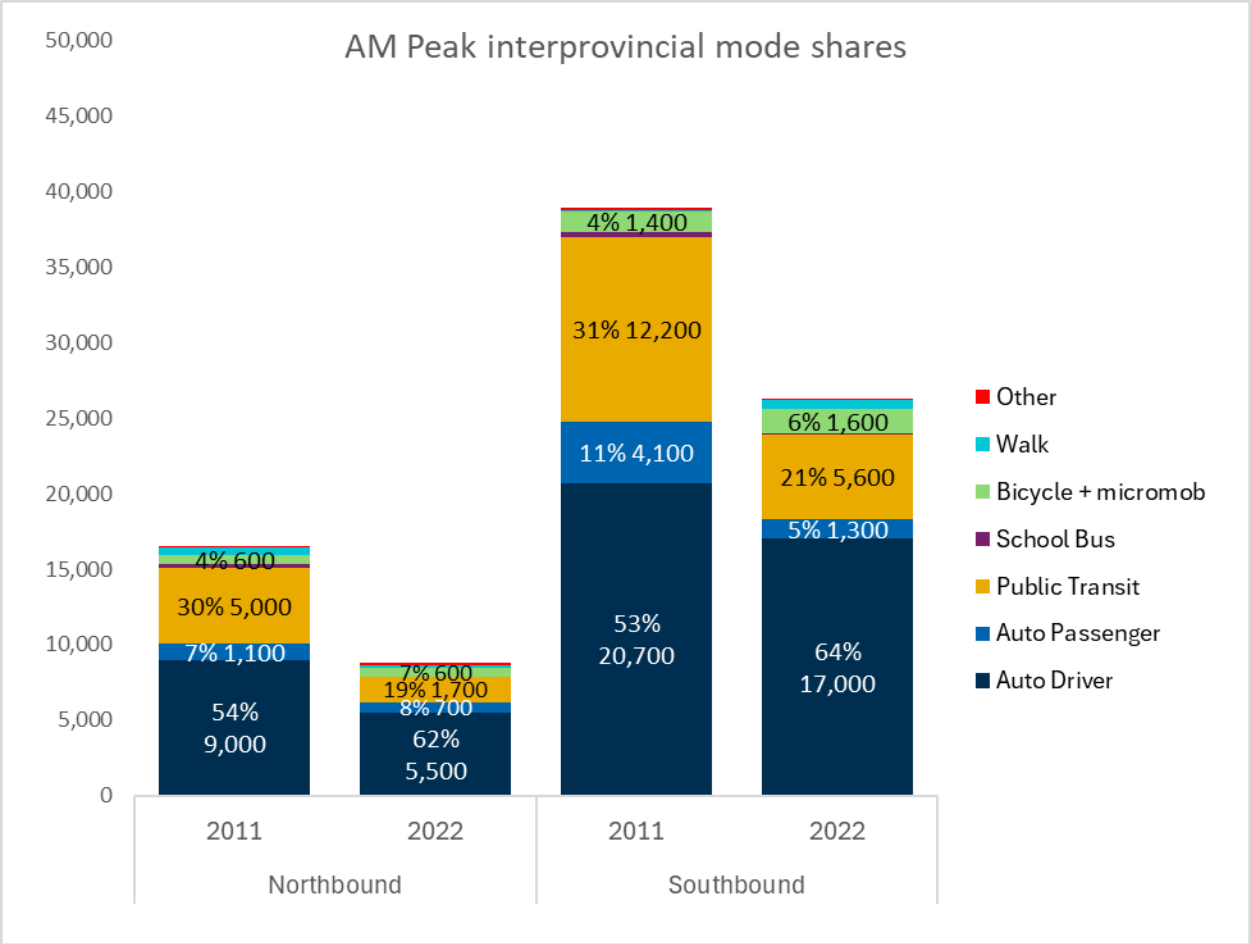
Figure 101 and Figure 102 present AM peak period and PM peak period interprovincial travel, respectively. The daily changes cited above also occurred during the two commuter peak periods, although not always at the same percentage as the daily reduction. The reductions in public transit trips were slightly more pronounced in both peaks, which is consistent with peak daily public transit ridership occurring during the two commuter peaks. During the AM peak period, auto passenger trips in the southbound direction dropped by 68%, while during the PM peak period, auto passenger trips in the northbound direction dropped by 37% – both exceeding the overall daily reductions for this mode. In the AM peak, auto driver trips in the northbound direction dropped by 39%, exceeding the overall daily reduction for this mode, while auto driver trips in the southbound direction dropped by 18%, just slightly exceeding the overall daily reduction. These shifts may reflect changes in trip purposes that occurred in the two peak periods (see section 4.4.2).

Walking and bicycling/micromobility trips during the peak periods grew between 10% and 29% - strong gains, though less than the 56% and 43% gains in daily interprovincial trips

recorded for these modes respectively. In other words, much of the gain in active transportation trips occurred outside the commuter peaks.

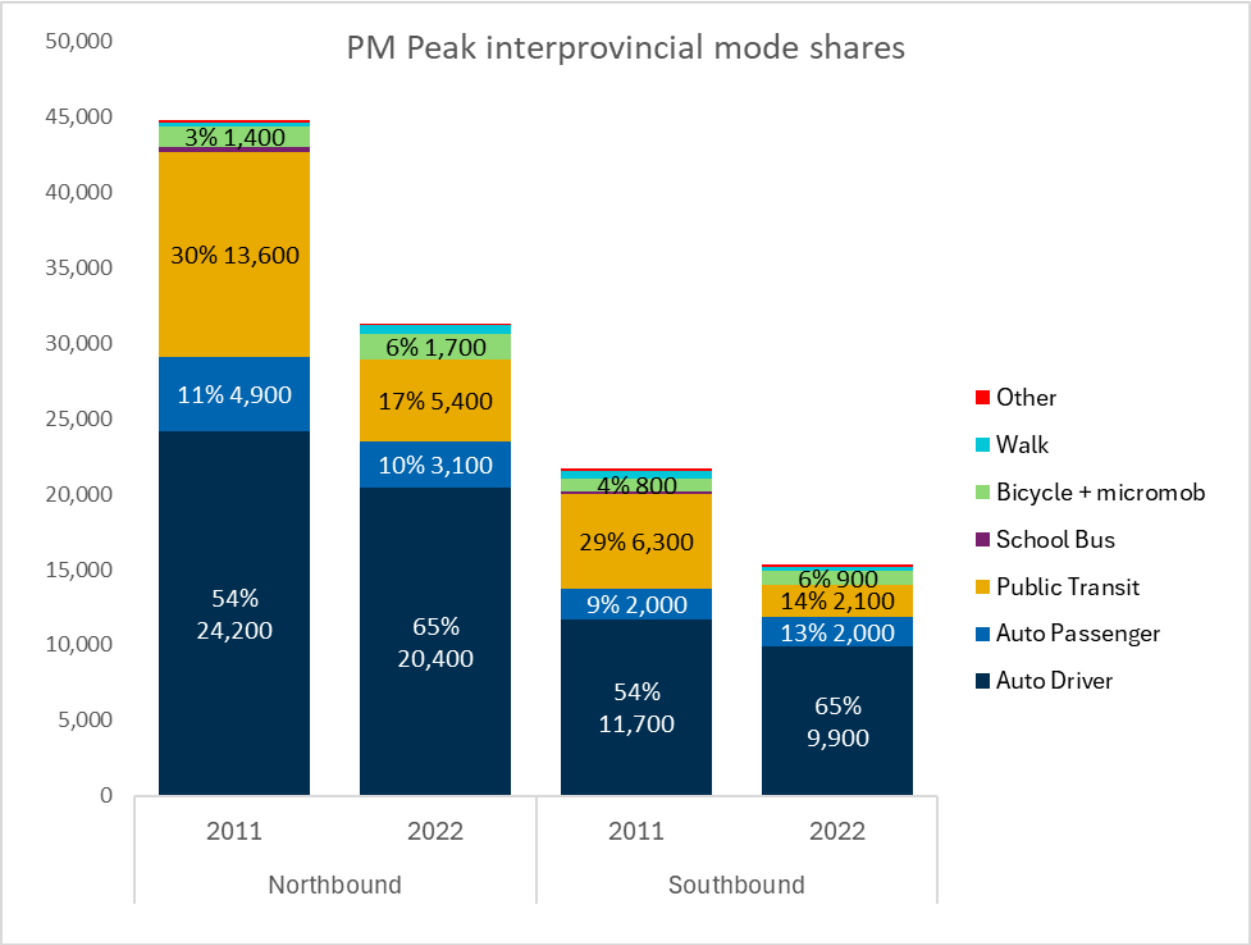
A total of 2% of the interprovincial trips examined were made by people who started their travel day away from home.

Figure 101. Interprovincial travel by mode, Study Area population 5+, 2011 and 2022 – AM peak period



Modes with shares of 2% or less are not labelled in the graph.

Figure 102. Interprovincial travel by mode, Study Area population 5+, 2011 and 2022 – PM peak period



Modes with shares of 2% or less are not labelled in the graph.

Finally, Figure 103 presents a series of choropleth maps that show the home and non-home locations (i.e., trip ends, whether origins or destinations) of daily interprovincial trips for auto driver / auto passenger, public transit and cycling trips. There are two figures for each mode. The left-most figure shows the trip origin of the interprovincial trip by jurisdiction of residence. The right-most figure shows the trip destination for interprovincial trips.

Note that the trips were included only if the destination province was not the same as the resident's home province, and the origin province was not the same as the destination province. For this reason, the maps exclude any trips made inside their home province, trips made entirely inside the non-home province, and trips returning to their home province from

the other province. In all cases, the figures depict interprovincial trips of all purposes, whether or not the trip originated at home.[65]

The maps are based on the density of trip origins/destinations (trip ends) per square kilometre. The maps show the dispersion of cross-river trips relative to their proximity to the Ottawa River. It can be seen that:

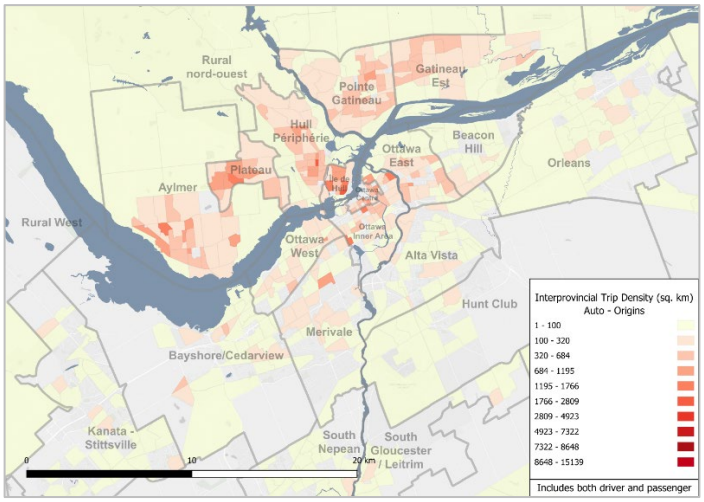
- For interprovincial auto trips, Gatineau CMA residents' trip origins were more dispersed geographically than those in Ottawa. Their destinations, though focused in and around Ottawa's Downtown Core and selected Inner Urban area venues, were more dispersed than those of Ottawa residents' trips to the Gatineau CMA. Prominent cross-river destinations included Ottawa Centre and Ile-de-Hull destinations, University of Ottawa and the Ottawa General Hospital / CHEO campus in Alta Vista.
- Similarly, for interprovincial public transit trips, Gatineau CMA travellers' trip origins were much more dispersed geographically than their Ottawa counterparts. The cross-river destinations were much more concentrated than those who travelled by auto. Public transit destinations were focused in the two downtowns (where destinations were either served directly by public transit or were within walking distance) and, to a lesser extent, other selected sites that were well served by public transit (e.g., Tunney's Pasture).
- Cycling trip origins were more diverse among Gatineau CMA travellers than among Ottawa travellers. Although destinations on the other side of the river were more concentrated in Ottawa Centre and Ile-de-Hull, there was some dispersion for destinations outside the downtown cores.

For reference, Table 52 provides contextual details for the origins and destinations depicted in the maps. Overall, 84% of the origins of trips depicted are the travellers' home locations, i.e., the traveller left directly from home on the great majority of interprovincial trips, while 16% originated from another type of location. While 52% of all interprovincial trip destinations were commute destinations (work or school), this proportion was notably higher for southbound trips to Ottawa, at 58%, than for northbound trips to Gatineau, at 36%. These percentages may vary by mode depicted in the maps.

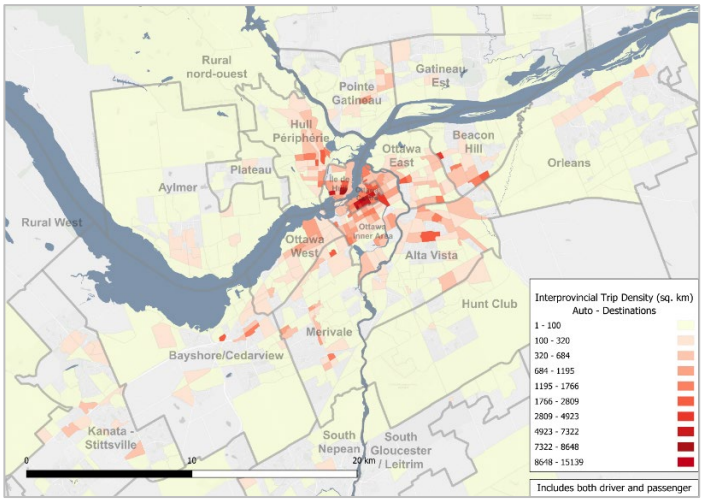
[65] This approach ensures that interprovincial commute trips that involve a stop along the way were also included. For example, a commuter who stopped at a coffee shop before crossing the river on their to work would be included (home to shop, shop to work), in addition to someone who travelled directly from home to work.

Figure 103. Location density maps of daily interprovincial trip ends by mode, Study Area, 2022

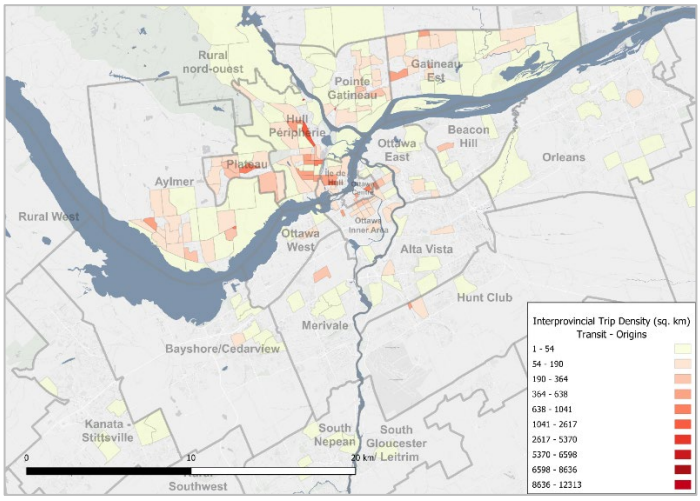
Auto driver/passenger trips – origins



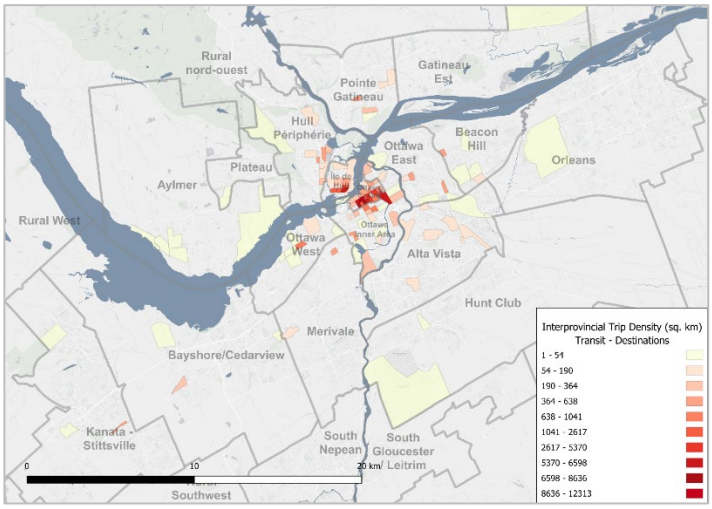
Auto driver/passenger trips – destinations



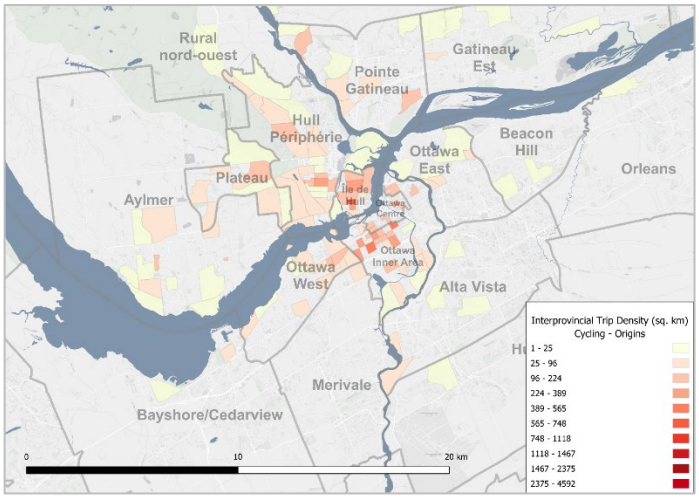
Public transit trips – origins



Public transit trips – destinations



Cycling – origins



Cycling – destinations

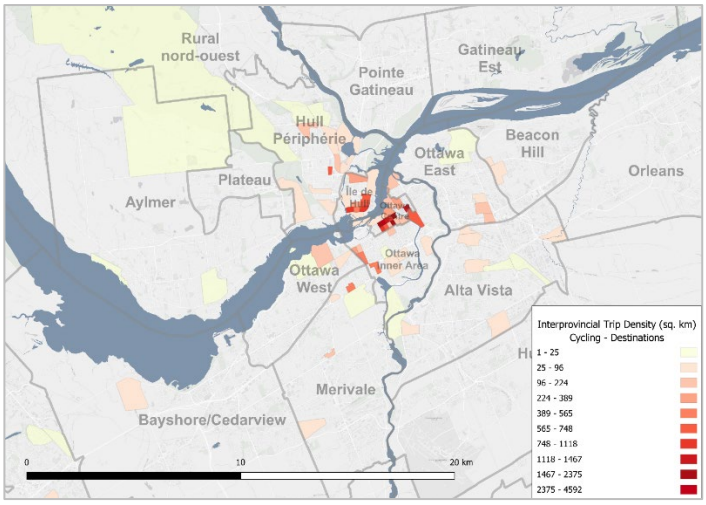


Table 52. Interprovincial trips with non-home destination, Study Area persons 5+, 2022

Direction	Interprovincial trips	Origin type		Destination type	
		% with home origin	% with non-home origin	% with commute destination*	% with non-commute destination
Northbound	24,000	78%	22%	36%	64%
Southbound	57,600	86%	14%	58%	42%
Total	81,600	84%	16%	52%	48%

* commute trips include trips to usual work or school.

4.9 Travel to downtown core business districts

This section looks at travel to and from the downtown core business districts in Gatineau and Ottawa. As shown in Figure 104, the area examined is defined by Ottawa Centre (the area north of Gloucester Street) and Île de Hull.[66] This area is referred to as 'the core' in the remainder of this discussion.

Figure 104. Map of Downtown Core

[66] This area is a sub-geography of the larger downtown core formed by the Ottawa Downtown Core transect and the Downtown Gatineau sub-area. These sub-areas include the two noted TRANS districts as well as parts of the Hull Périphérie and Ottawa Inner Area districts. Note that the National Capital Commission defines a different boundary for the core area. See *National Capital Core Area Plan*, https://ncc-ccn.gc.ca/our-plans/canadas-capital-core-area-sector-plan.

Because details are found in the district summaries, this section is primarily a synopsis of key AM and PM peak period trends. It reports on the proportion of all survey area trips that are destined to the core in the AM (and originate in the PM) as well as the public transit shares to and from the core during these time periods. The synopsis also features a comparison with 2011 and earlier surveys, to update the same discussion in the 2011 survey report. The comparison means that the reporting is for trips made by the 11+ population.

Figure 105 reports on the mode shares of AM peak period trips that were destined to the core. All motorized modes recorded absolute and proportionate reductions. However, the drop was sharpest for public transit, whose volumes dropped by almost two-thirds (-65%) to 15,400 person trips in 2022. This reflected a mode share of 30% in 2022 (compared with 45% in 2011). Public transit trips destined to Ottawa Centre dropped by 66%, resulting in a 32% mode share (compared with 49% in 2011). Public transit trips to Île de Hull experienced a 60% drop, resulting in a 26% mode share (compared with 33% in 2011). These reductions, and those of auto driver and auto passenger trips, were consistent with remote working (especially at downtown core Federal offices but also hi-tech and other office workers and nearby retail areas) as well as remote schooling at nearby post-secondary institutions.

The walk and bicycling and micromobility shares both increased to a combined 24%, and there was an absolute increase in the number of bicycling and micromobility trips.

Figure 105. AM peak period travel by mode to downtown core business districts, Study Area population 5+, 2011 and 2022

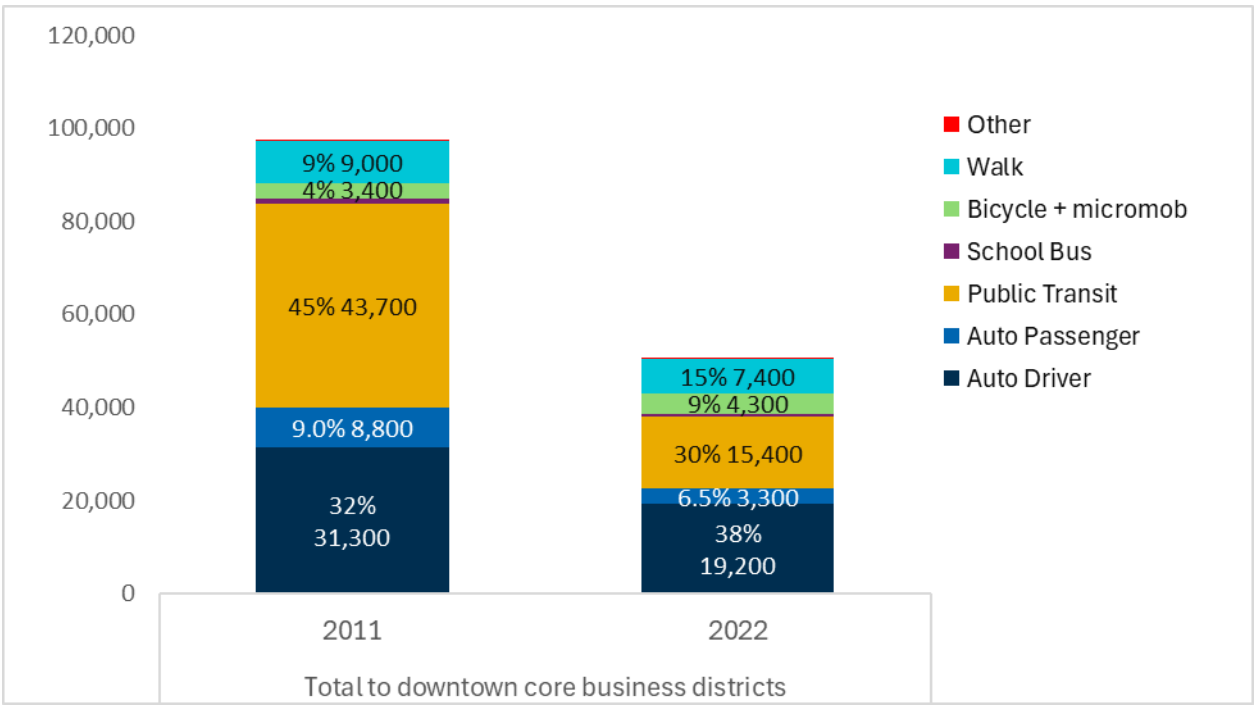
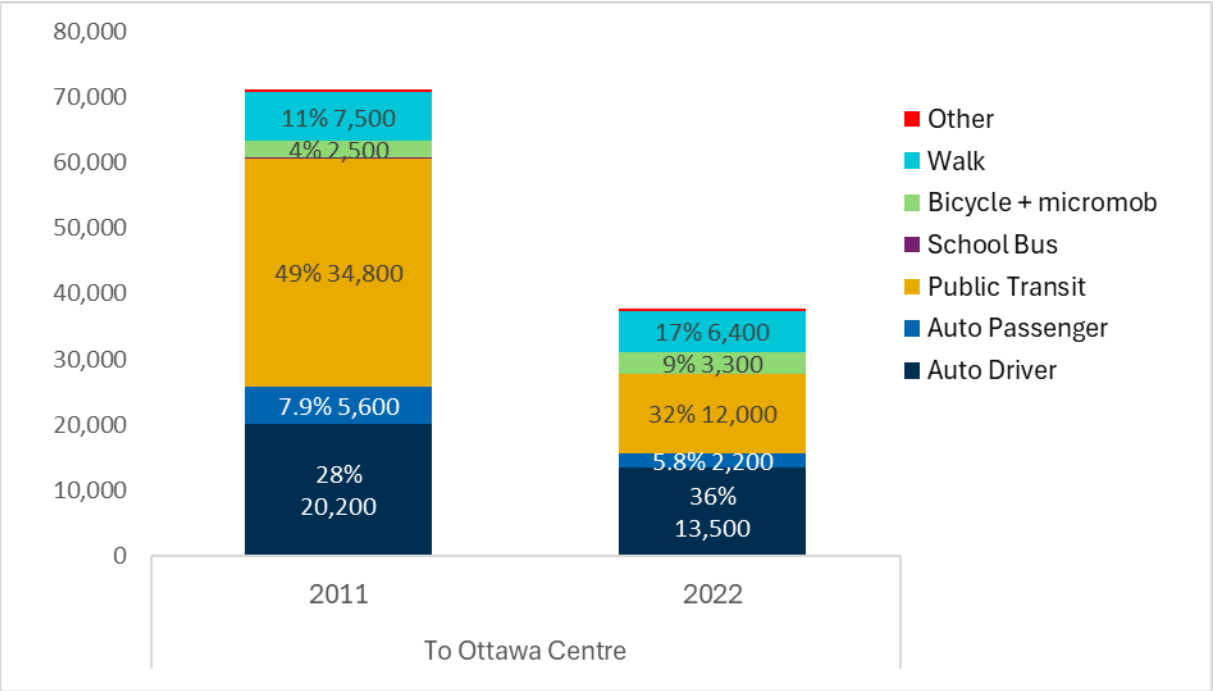


Figure 105. AM peak period travel by mode to downtown core business districts, Study Area population 5+, 2011 and 2022



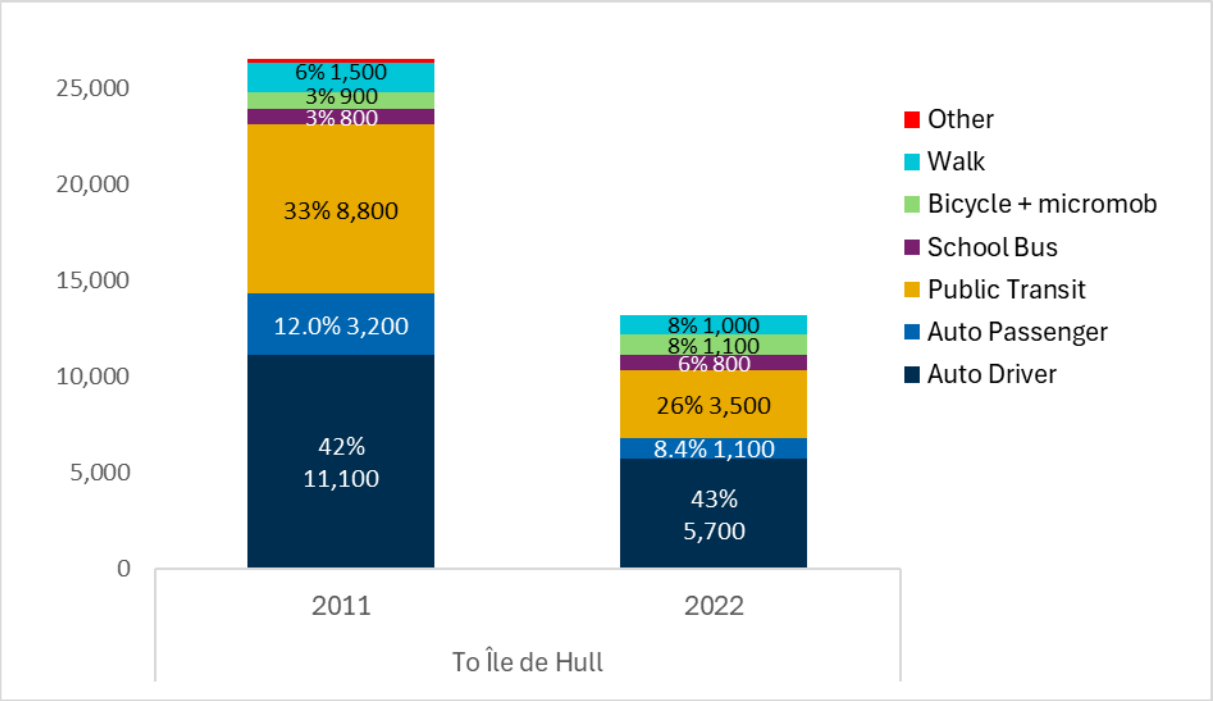


Figure 106 is a choropleth map that shows the home locations of people who made trips to or in the core for auto driver/passenger, public transit and cycling. As with the interprovincial heat map, the aim is to understand how the proximity of travellers' homes to the core relates to mode choice when they travel to or within the core. While most of the trips were trips from outside the core to a destination within the core, for any purpose, the map also includes destinations for trips that were made entirely within the core. Note that the reverse trip from the core (e.g., the Return Home trip) is not included, except for travellers whose homes were within the core. In other words, the maps reflect the home locations for travellers who have a reason to travel *to* a destination within the core.

The maps are based on the density of trip origins/destinations ('trip ends') per square kilometre. The heat scales are different for each mode, although they are the same for the home and non-home versions of each mode:

- For auto driver/passenger trips, the home-end concentration of downtown core trip destinations was relatively diffused. Interestingly, the densest home locations were for locations within the downtown core business districts. This is consistent with residents of the core either travelling outside the core by automobile and returning again, or travelling within the core by automobile, which could include interprovincial travel.
- Public transit riders' homes were also relatively diffused on both sides of the Ottawa River. The highest concentrations were in or near the downtown core, which again is consistent with returning to the core via transit from destinations outside the core or making transit trips within the core, which could include interprovincial travel.
- Cyclists' homes were generally concentrated in the downtown core and, in Ottawa, in Inner Urban districts closer to the core (especially the Ottawa Inner Area, Ottawa East and Ottawa West) – locations within a reasonable cycling distance to the core.

Figure 106. Map of home locations for trips to the downtown core business districts, Auto Driver trips, Study Area, 2022

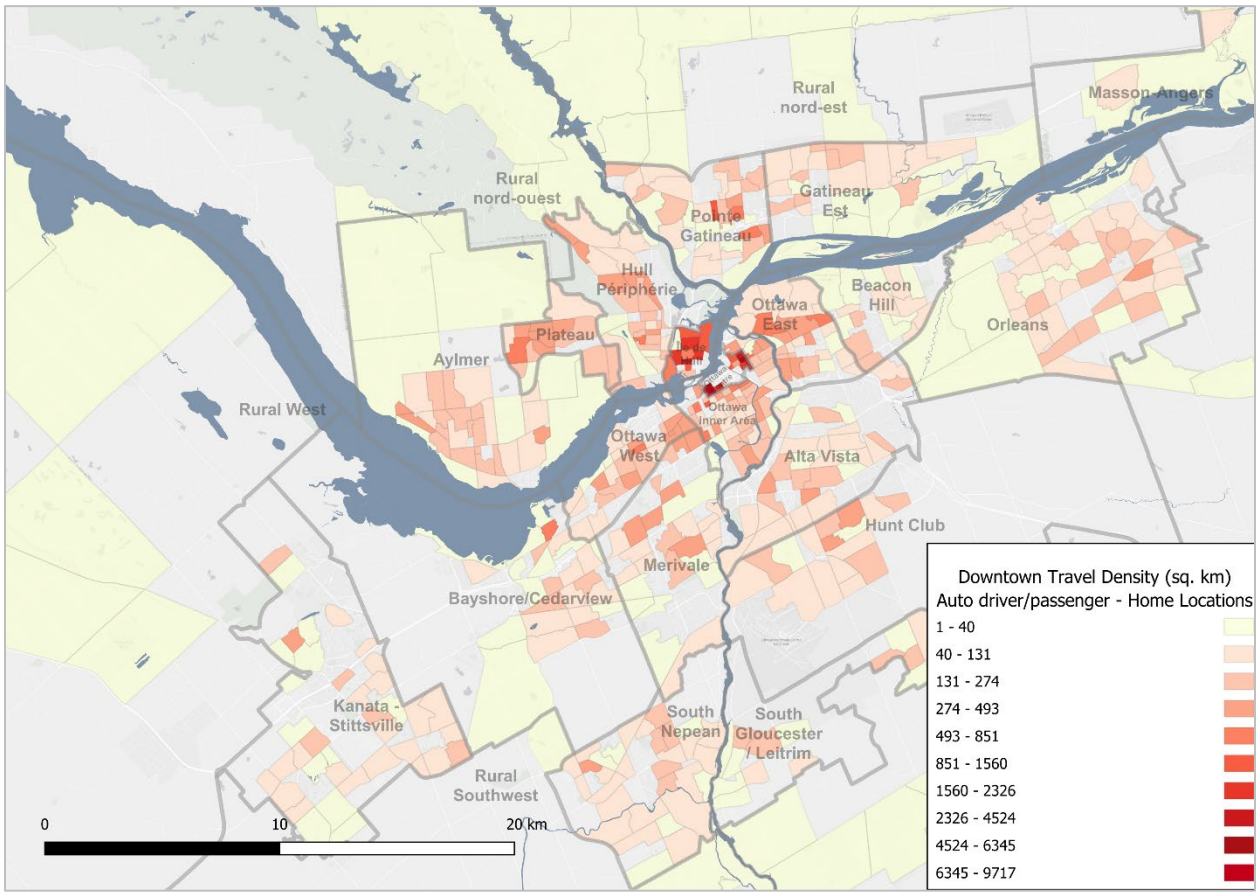


Figure 107. Map of home locations for trips to the downtown core business districts, Transit trips, Study Area, 2022

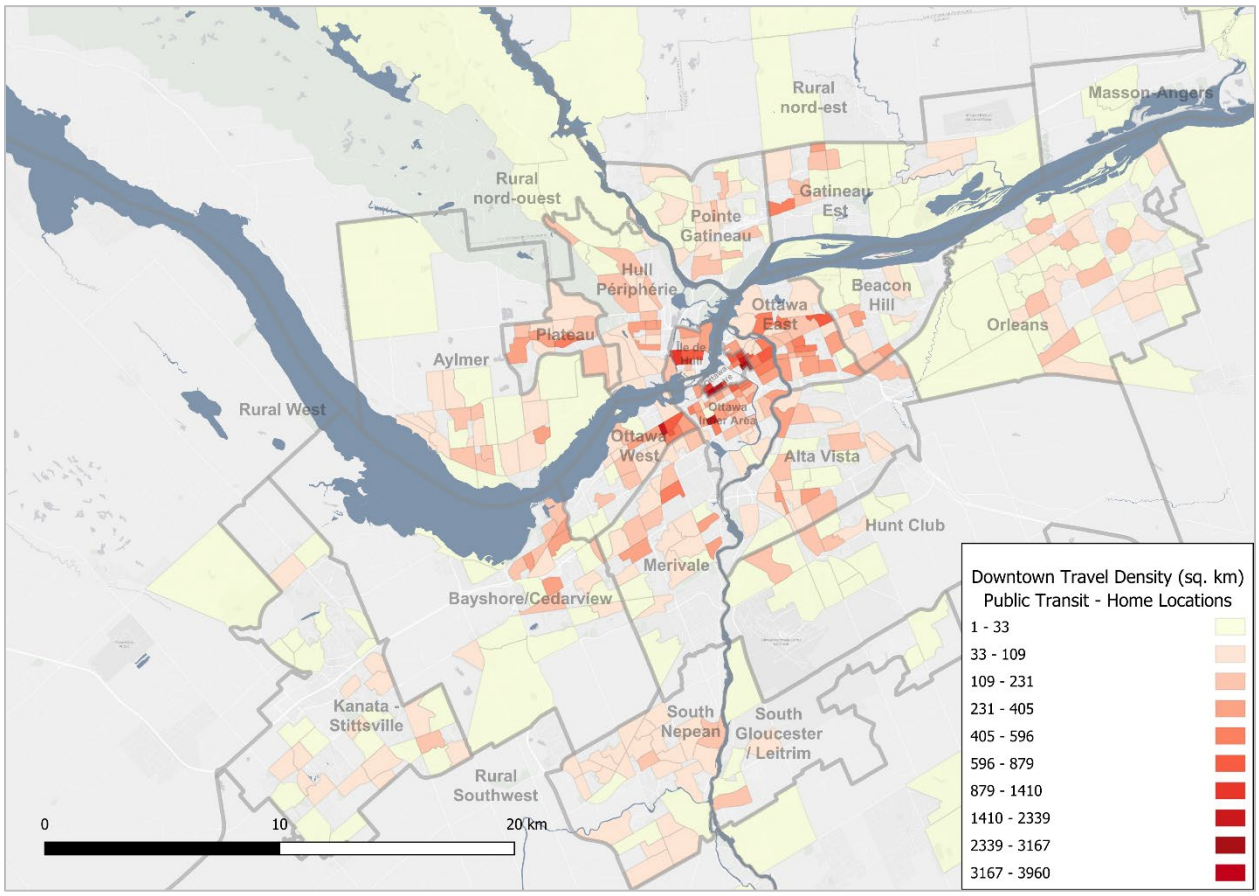
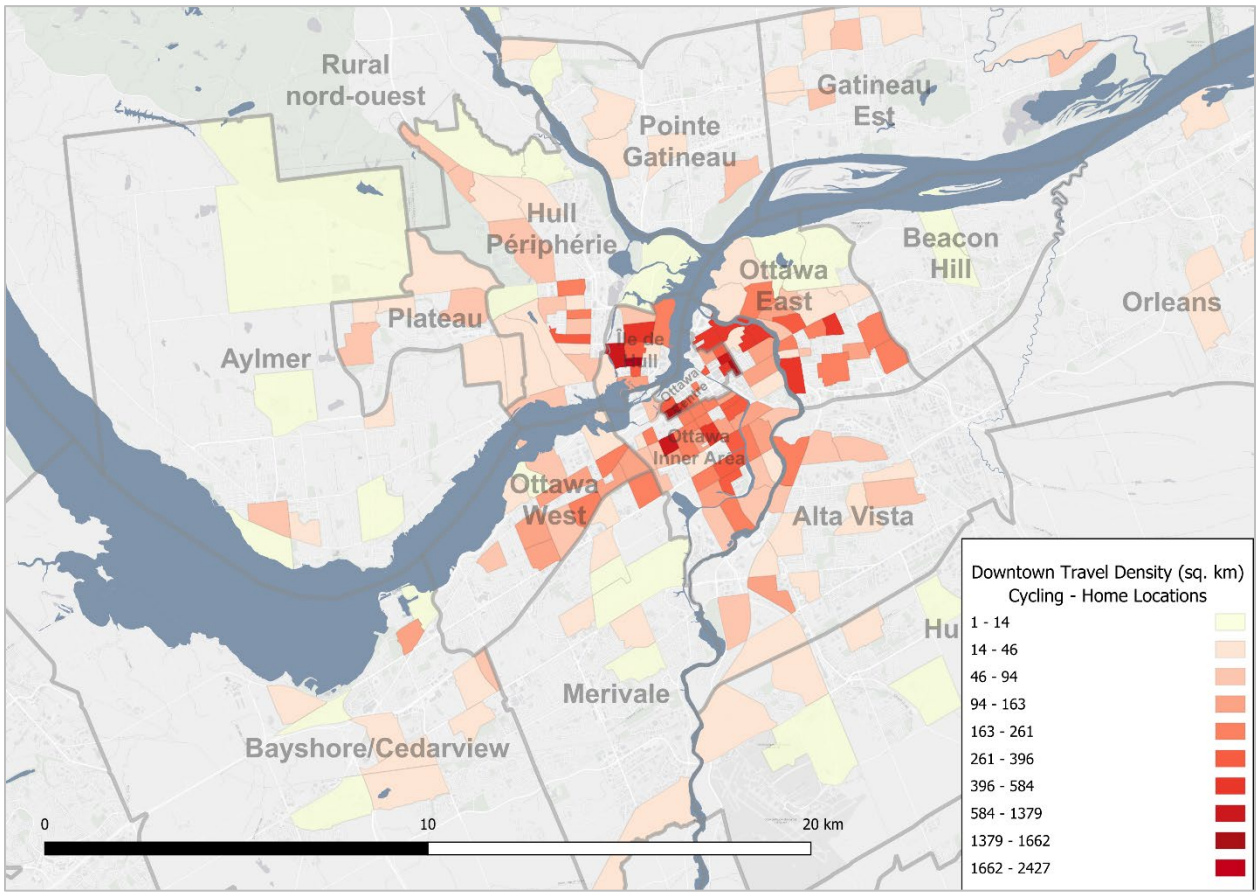


Figure 108. Map of home locations for trips to the downtown core business districts, Cycling trips, Study Area, 2022



4.10 Trip distance

This section considers the distribution of all daily trips for all purposes, by mode by distance. Table 53 lists the characteristics of trip distance by mode for 2022 using the TRANS model. The table presents the average (mean) distance, the most common 1-kilometer distance interval (the 'mode' in statistical terminology), and the distance within which 50% of trips occur (the median). For comparison, Table 54 summarizes the average trip distances by mode for 2011 and 2022. To maintain consistency with the 2011 results, distances in the two tables were calculated from the TRANS model network for each mode.[67]

Starting with the 2022 results, on average, Study Area public transit trips were longer than any other mode, at 14.9 kilometres. The average walk trip was shortest, at 1.9 kilometres. The average bicycle and micromobility trip was 5.2 kilometres – just over half the average auto driver trip length (10.0 kilometres) and just under one-third the average public transit trip length. For all modes except public transit, average distances in the Gatineau CMA were slightly to moderately longer than those in Ottawa. Average public transit distances in the Gatineau CMA were moderately shorter than those in Ottawa (13.0 kilometres versus 15.0 kilometres, respectively).

Data were grouped into 1-kilometre distance intervals to identify the most common distance interval for each mode. For the Study Area, the most common intervals were generally much shorter than the average distance, ranging from 0-1 kilometre for walk to 1-2 kilometres for bicycles and micromobility, auto drivers and auto passengers, 2-3 kilometres for other and 4-5 kilometres for public transit.

The most common intervals were consistent in both jurisdictions for most modes. However, the most common one-kilometre interval for public transit trips in the Gatineau CMA was 8-9

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[67] The TRANS transportation model was used to develop the distances. The model divides the Study Area into small geographies called transportation analysis zones (TAZs). For modelling purposes, each TAZ is represented as a single point (centroid) and is connected to the model's road network via short centroid connectors. These connectors represent the local roads within the TAZ. The zone-to-zone distance, accordingly, represents the centroid-to-centroid distance (centroid of TAZ A to road network to centroid of TAZ B, and so on). The centroid connectors (local roads) typically represent only a very small portion of the overall zone-to-zone distance. Distances were determined for the different modes as follows: auto driver / passenger distances used congested assignment distances as proxies for daily travel, recognizing that relatively few trips occur in the free-flow night times; public transit distances used public transit assignment distances; walk and bicycle and micromobility distances used free-flow auto assignment distances as proxies for the active transportation network. Free-flow distances were on the basis that bicycle and walk paths generally are uncongested.

Note that there is a slight approximation in the calculation of zone-to-zone trip distances, attributable to the depiction of transportation analysis zones (TAZs) in the model network through their centroids, with the distances varying according to the geography and the location of the connection point on the network. On the other hand, the use of 'straight line' distance between each geocoded point and/or the use of the same distances for each mode would have introduced more significant and unrealistic distortions in the values (e.g., due to significant number of trips that cross one or more of the Study Area's rivers, or which cross the Greenbelt; and also recognizing that the transit path between an origin and destination is not the same as the auto path).

Only trips entirely within the study area (both origin and destination) were examined. To match the approach used in previous survey cycles, trips with TRANS model distances of greater than 75 km were excluded.

kilometres, compared with 4-5 kilometres in Ottawa. The frequent 8-9 kilometer trips in the Gatineau CMA are consistent with the strong market for Gatineau CMA transit patrons for travel to and from the Downtown Core, coupled with the more linear geography of the transit service area. The most common one-kilometre interval for other trips was 4-5 kilometres in the Gatineau CMA, compared to 2-3 kilometres in Ottawa.

The distances by which half the trips had occurred for each transportation mode (the medians) were generally closer to the average trip lengths.[68] These distances were consistent in both jurisdictions for most modes, except for public transit and "other" modes, for which the median distances were higher in the Gatineau CMA than Ottawa.

Overall, trip distances from the TRANS model averaged across all modes were shorter in 2022 than in 2011, dropping from 9.5 km on average in 2011 to 8.6 km in 2022 (Table 54). For the individual modes, average 2022 trip distances were in the same ranges as the 2011 averages. However, auto driver and auto passenger averages in 2022 were slightly shorter than in 2011. For all other modes, average trip distances were slightly greater (walk, bicycle and micromobility, and other) or moderately greater (public transit). The drop in the overall average across all modes may be in part due to the shorter auto trips and in part due to changes in the balance of mode shares since 2011. The shorter auto driver and auto passenger averages may reflect activity changes that became widespread during the pandemic or arose more recently, such as the shift to hybrid work, e-commerce purchases, other remote activities, economic conditions, inflation and other factors, all of which may reduce the need to travel. Further research, beyond this analysis, may be warranted.

Table 55 provides an alternative calculation of average trip distances for 2022, using 'Google Distances' derived by passing trip origin, destination, transportation mode, and time of day through the Google Map Directions API. [69] This provides a more accurate depiction of distances than was available in 2011 and is now widely used in transportation planning.

[68] The distance by which 50% of trips occur, which in statistical terminology is also referred to as the median or the 50th percentile, is usually less than the average given that very long distance trips tend to push the average higher, whereas the median only takes into consideration the ranking of trips by distance.

[69] Only trips that were entirely within the study area (both origin and destination) were included in this analysis. Unlike the analysis of TRANS model distances, which limited the analysis to trips of within 75 km in order to match the approach in 2011 and earlier, all trips were included in the analysis of Google Distances as long as they were entirely within the study area.

Table 53. Characteristics of trip distance using TRANS model distances, 2022

TRANS model distances	Study Area			Ottawa			Gatineau CMA		
Mode	Average Trip Distance	Most Common 1-km Interval	Distance by Which 50% of Trips Occur	Average Trip Distance	Most Common 1-km Interval	Distance by Which 50% of Trips Occur	Average Trip Distance	Most Common 1-km Interval	Distance by Which 50% of Trips Occur
Auto Driver	10.0 km	1-2 km	7.2 km	9.7 km	1-2 km	6.8 km	10.6 km	1-2 km	8.0 km
Auto Passenger	8.8 km	1-2 km	6.0 km	8.7 km	1-2 km	5.9 km	8.9 km	1-2 km	6.2 km
Bicycle	5.2 km	1-2 km	3.5 km	5.0 km	1-2 km	3.4 km	6.1 km	1-2 km	4.0 km
Public transit	14.9 km	4-5 km	13.3 km	15.0 km	4-5 km	13.5 km	13.0 km	8-9 km	11.5 km
Walk (entire trip)	1.9 km	0-1 km	1.5 km	1.8 km	0-1 km	1.5 km	2.0 km	0-1 km	1.5 km
Other *	7.9 km	2-3 km	5.5 km	7.5 km	2-3 km	4.9 km	9.1 km	4-5 km	7.3 km
Total trips (all modes)	8.6 km	1-2 km	5.1 km	8.2 km	1-2 km	4.8 km	9.9 km	1-2 km	6.4 km

Excludes trips with either origin or destination outside the study area. Excludes trips with distances greater than 75 km for consistency with methods used in 2011.

* 'Other' includes taxi, school bus, other bus and minibus, paratransit, VIA Rail train, airplane, ferry and other. Excludes trips with distances greater than 75 km.

Table 54. Average trip distance using TRANS model distances, 2011 and 2022

TRANS model distances	Study Area		Ottawa		Gatineau CMA	
	2011	2022	2011	2022	2011	2022
Mode	Average Trip Distance	Average Trip Distance	Average Trip Distance	Average Trip Distance	Average Trip Distance	Average Trip Distance
Auto Driver	10.7 km	10.0 km	10.3 km	9.7 km	11.9 km	10.6 km
Auto Passenger	9.1 km	8.8 km	8.7 km	8.7 km	10.0 km	8.9 km
Bicycle	5.0 km	5.2 km	4.7 km	5.0 km	6.7 km	6.1 km
Public transit	13.4 km	14.9 km	13.3 km	15.0 km	13.8 km	13.0 km
Walk (entire trip)	1.3 km	1.9 km	1.3 km	1.8 km	1.4 km	2.0 km
Other *	7.7 km	7.9 km	7.1 km	7.5 km	9.6 km	9.1 km
Total trips (all modes)	9.5 km	8.6 km	9.2 km	8.2 km	10.8 km	9.9 km

Excludes trips with either origin or destination outside the study area. Excludes trips with distances greater than 75 km for consistency with methods used in 2011.

* 'Other' includes taxi, school bus, other bus and minibus, paratransit, VIA Rail train, airplane, ferry and other. Excludes trips with distances greater than 75 km.

Table 55. Characteristics of trip distance using Google distances, 2022

By Google Distance	Study Area			Ottawa			Gatineau CMA		
Mode	Average Trip Distance	Most Common 1-km Interval	Distance by Which 50% of Trips Occur	Average Trip Distance	Most Common 1-km Interval	Distance by Which 50% of Trips Occur	Average Trip Distance	Most Common 1-km Interval	Distance by Which 50% of Trips Occur
Auto Driver	10.2 km	1-2 km	6.7 km	9.8 km	1-2 km	6.5 km	11.3 km	1-2 km	7.5 km
Auto Passenger	8.6 km	1-2 km	5.4 km	8.5 km	1-2 km	5.3 km	9.0 km	1-2 km	5.5 km
Public Transit	12.2 km	3-4 km	9.6 km	12.3 km	3-4 km	9.3 km	12.1 km	3-4 km	10.6 km
School Bus	6.6 km	1-2 km	4.2 km	6.2 km	1-2 km	3.8 km	7.7 km	1-2 km	5.7 km
Bicycle	4.6 km	0-1 km	2.9 km	4.5 km	1-2 km	2.9 km	5.3 km	0-1 km	3.1 km
Walk (entire trip)	1.0 km	0-1 km	0.8 km	1.0 km	0-1 km	0.8 km	1 .0 km	0-1 km	0.8 km
Other *	9.2 km	2-3 km	7.4 km	9.2 km	2-3 km	7.5 km	8.9 km	1-2 km	6.0 km
Total trips (all modes)	8.6 km	1-2 km	5.0 km	8.2 km	1-2 km	4.7 km	9.7 km	1-2 km	6.0 km

Excludes trips with either origin or destination outside the study area.

* 'Other' includes taxi, school bus, other bus and minibus, paratransit, VIA Rail train, airplane, ferry and other. Excludes trips with distances greater than 75 km.

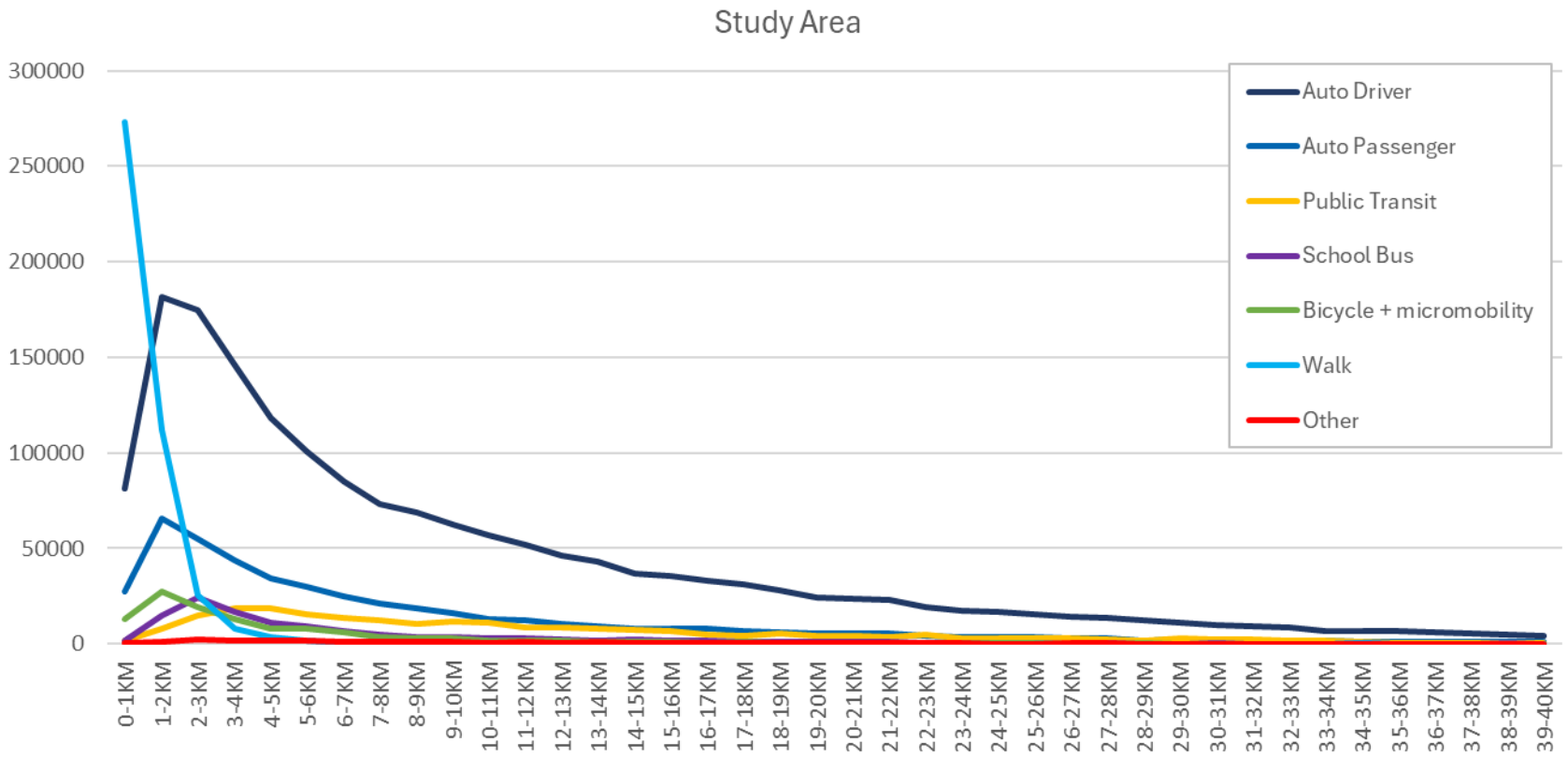
Google's returned API data is generally consistent to those developed from the TRANS model, although with some differences across transportation modes and jurisdictions. For example, for auto drivers in the Gatineau CMA, the TRANS model reports a shorter average trip distance of 10.6 km for the Study Area compared to Google's 11.3 km. Walking trips show the largest discrepancy, with the TRANS model estimating nearly double the average trip distance (1.9 km vs. 1.0 km). Public transit trips also have significant differences, with the TRANS model estimating an average trip length of 14.9 km compared to Google's 12.2 km. Bicycle and micromobility trips also are longer in the TRANS model's, at 5.2 km on average compared to Google's 4.6 km. The reasons for differences between the TRANS model and Google distances are unclear. The Google Directions API may provide a more nuanced understanding of actual routes including pedestrian, transit and cycling routes; Google Direction may handle complex trips differently (such as multi-route transit trips); and/or the 2011 TRANS model zone-to-zone transit distances may not have made use of the entirety of the transportation infrastructure (all small roads, paths and laneways) and may have some imprecision in estimation assumptions.

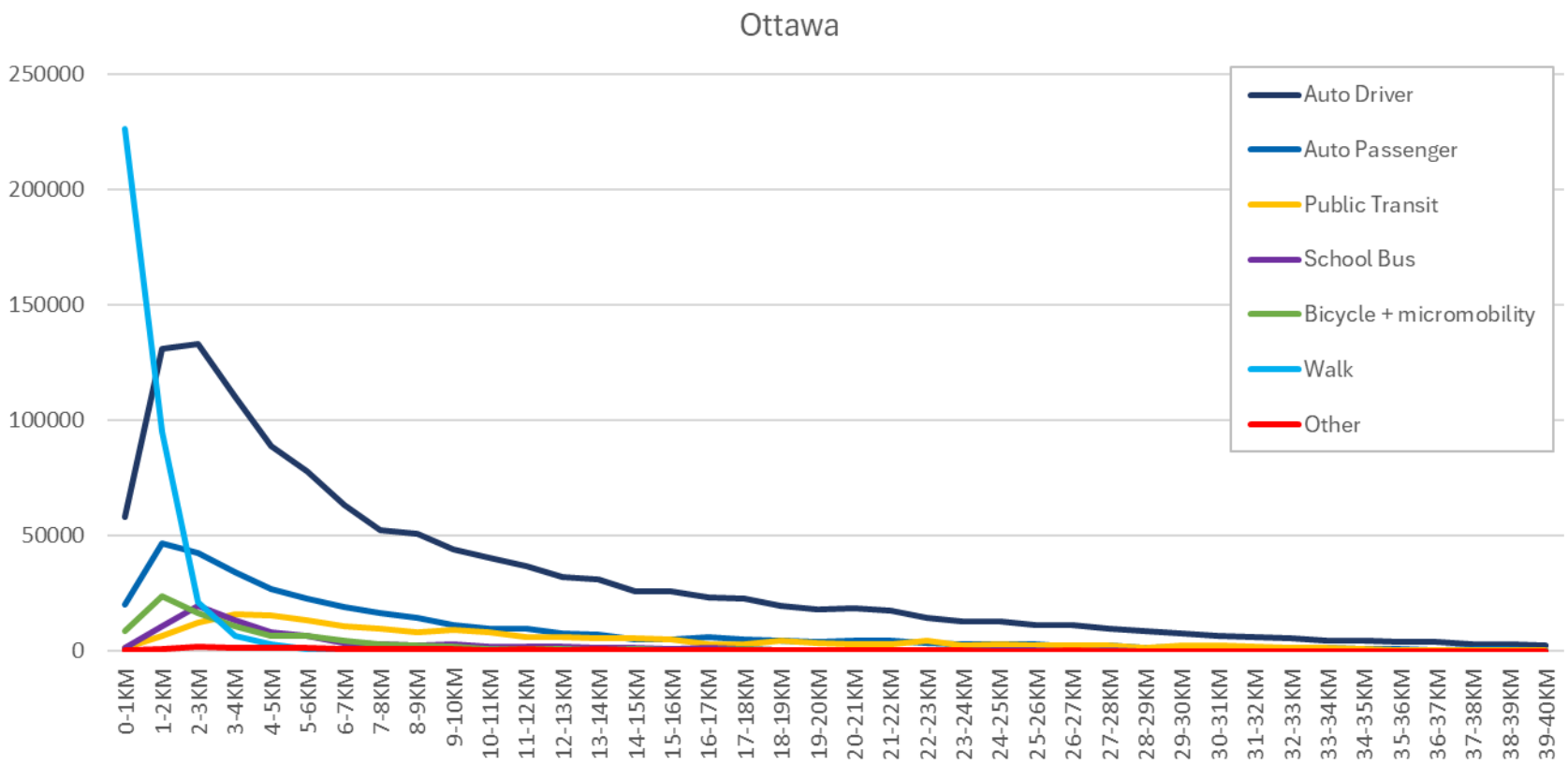
Using Google distances (referring again to Table 55, above), certain differences between Ottawa and Gatineau are more pronounced than when looking at the TRANS model estimates. Auto driver trips made by Gatineau residents were longer on average, at 11.3 km compared to 9.8 km for Ottawa residents. Auto passenger trips had a similar pattern, at 9.0 km for Gatineau residents and 8.5 km for Ottawa residents. Bicycle/micromobility trip distances were again longer on average in the Gatineau CMA, at 5.3 km, compared to 4.5 km in Ottawa, although seemingly with more short trips, with the most common interval being within 1 km, compared to 1 to 2 km for Ottawa residents. Google's distance estimates suggest that there are longer school bus trips in the Gatineau CMA (7.7 km) compared to Ottawa (6.2 km). Note that school bus trips were returned by Google as simple A-to-B driving routes rather than actual school bus routes, and may be somewhat less than real-world distances. Also note that many students use public transit to travel to school rather than school bus. Walk trip distances were similar throughout the study area, at 1 km on average in both jurisdictions.

Figure 109, below, shows the Google Distance results graphically. All trips up to 40 kilometres long are included and are shown in one-kilometre increments.[70] Figure 110 presents the cumulative distribution of trip distances (trip length) by mode, over the same 40-kilometre range.

[70] 40 kilometres represents a reasonable inclusion of trips in the Study Area, covering 98.0% of auto driver trips, 98.5% of transit trips, 98.7% of auto passenger trips, 99.9% of cycling trips and 100% of walk trips.

Figure 109. Number of trips by distance (kilometre) by mode using Google Distances, daily, 2022




Ottawa
250000
200000
150000
100000
50000
0
Auto Driver
Auto Passenger
Public Transit
School Bus
Bicycle + micromobility
Walk
Other
0-1KM
1-2KM
2-3KM
3-4KM
4-5KM
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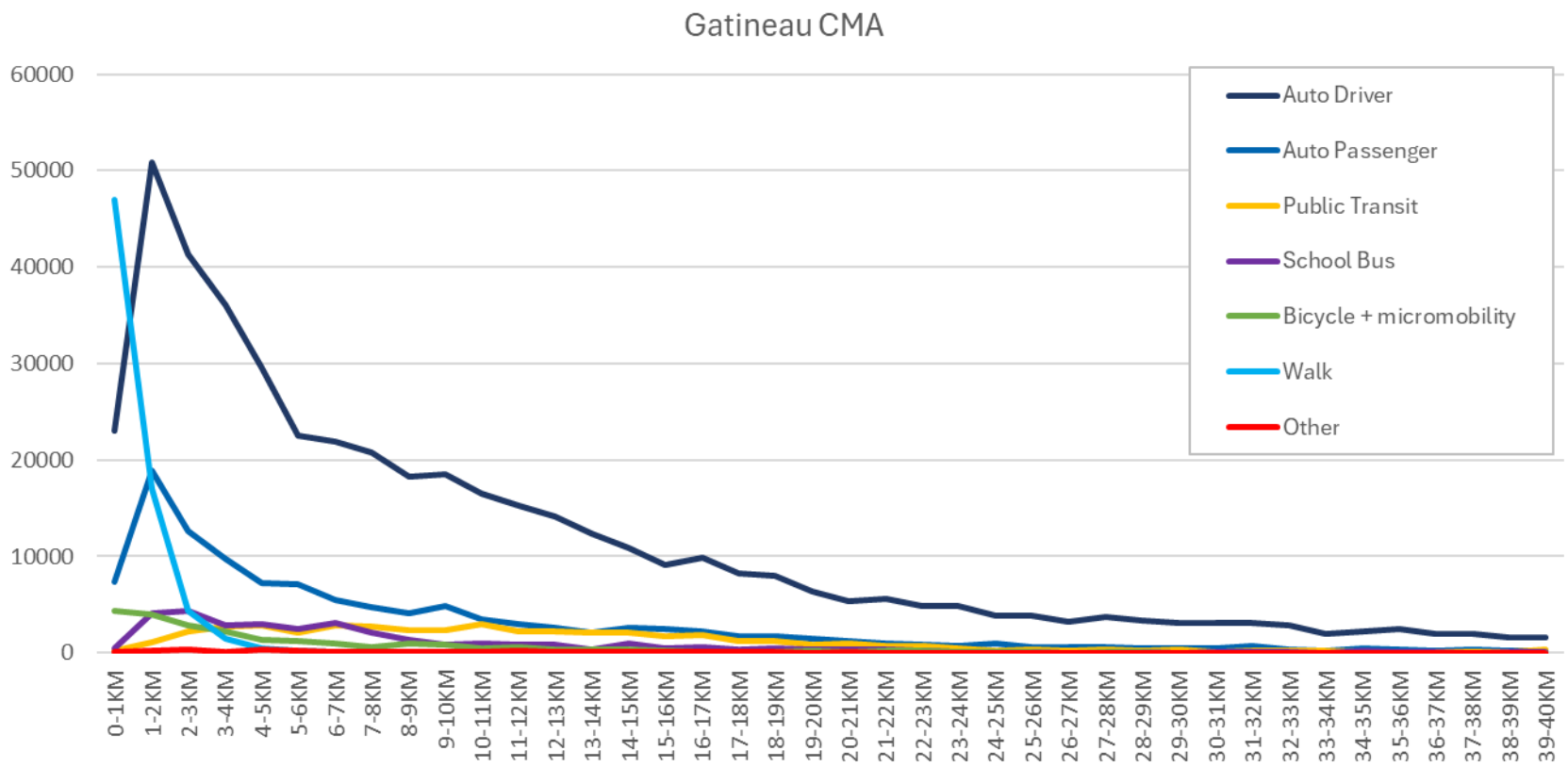
Gatineau CMA
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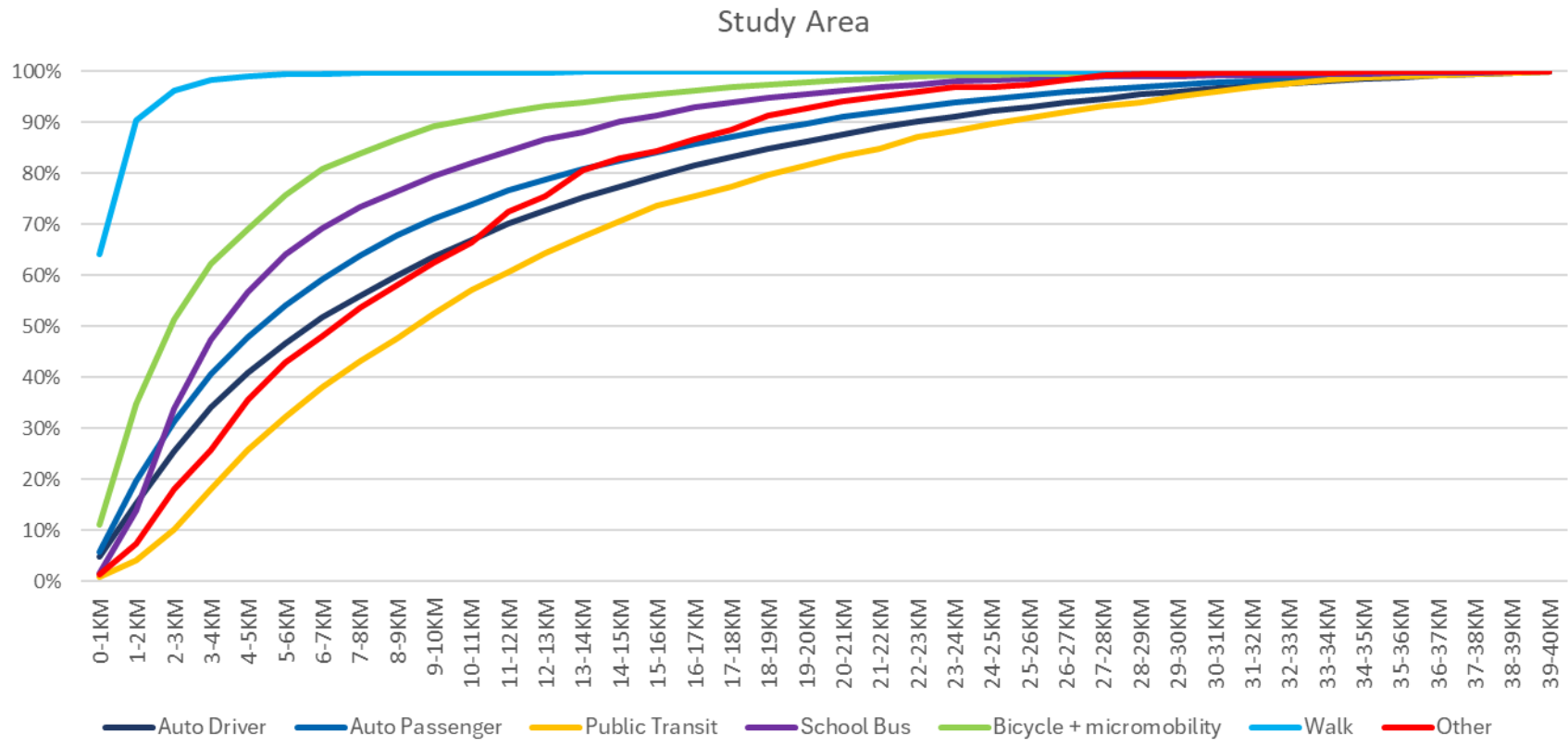
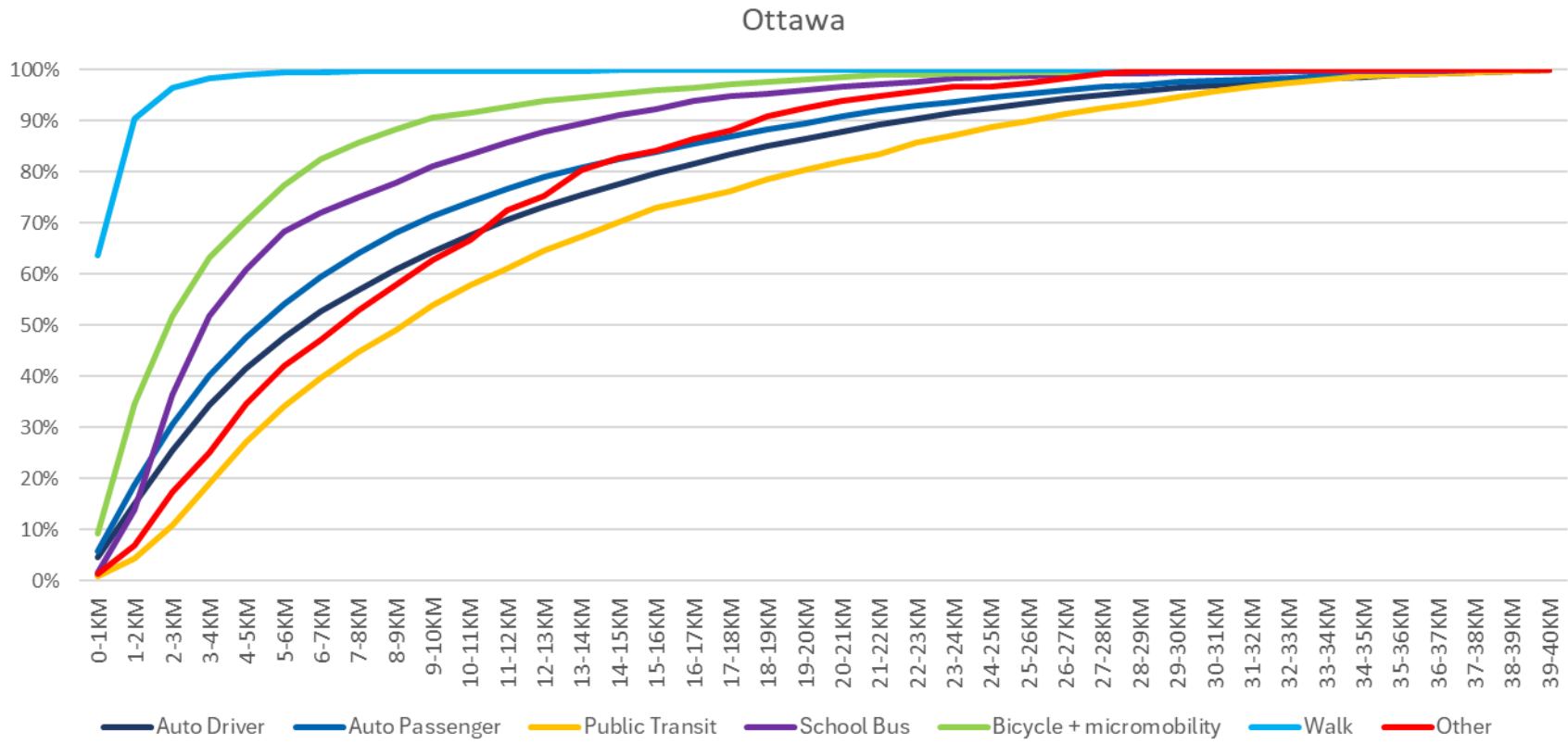
38-39KM
39-40KM
Auto Driver
Auto Passenger
Public Transit
School Bus
Bicycle + micromobility
Walk
Other

Figure 110. Cumulative trip length distribution by mode using Google Distances, daily, 2022




Ottawa
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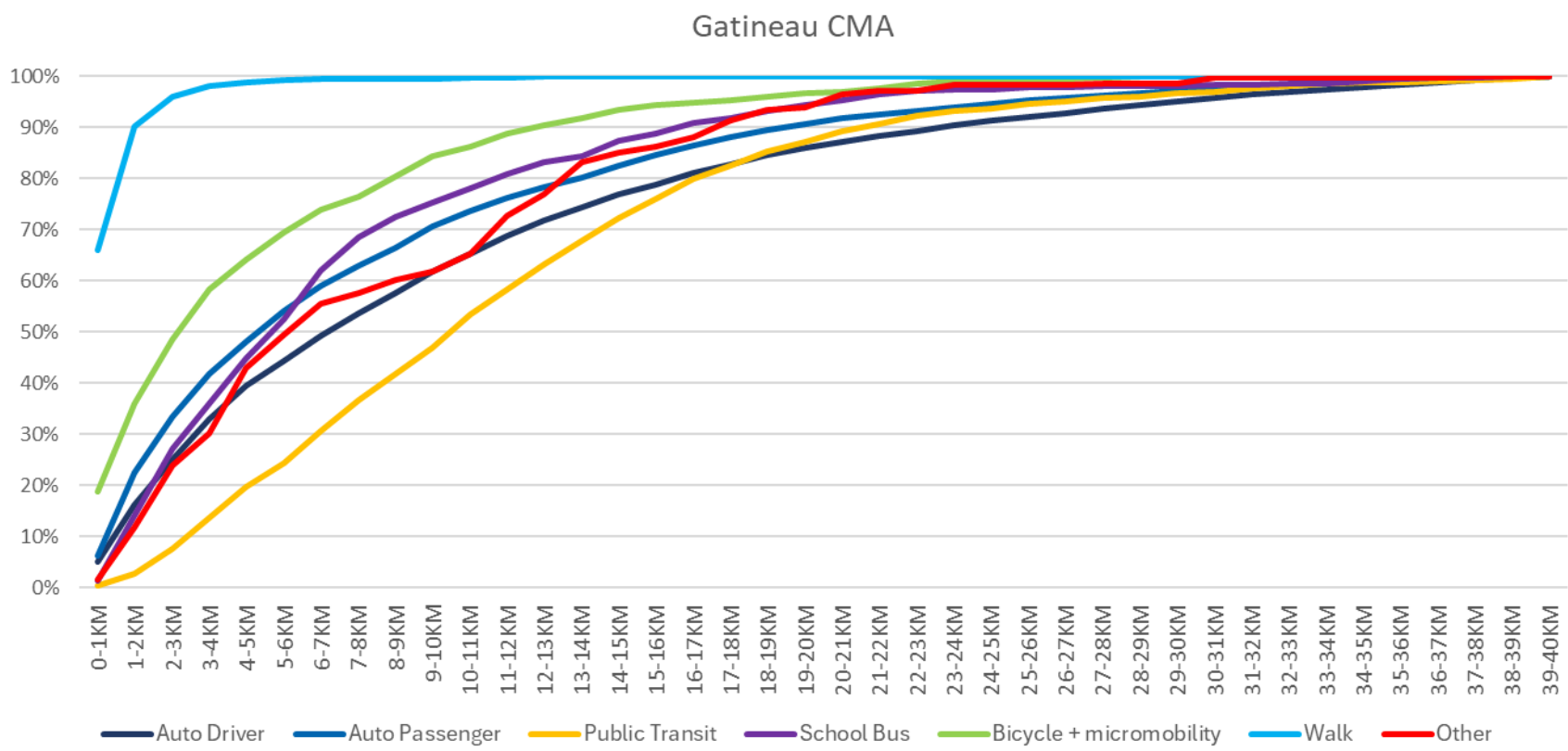
Auto Driver
Auto Passenger
Public Transit
School Bus
Bicycle + micromobility
Walk
Other


Gatineau CMA
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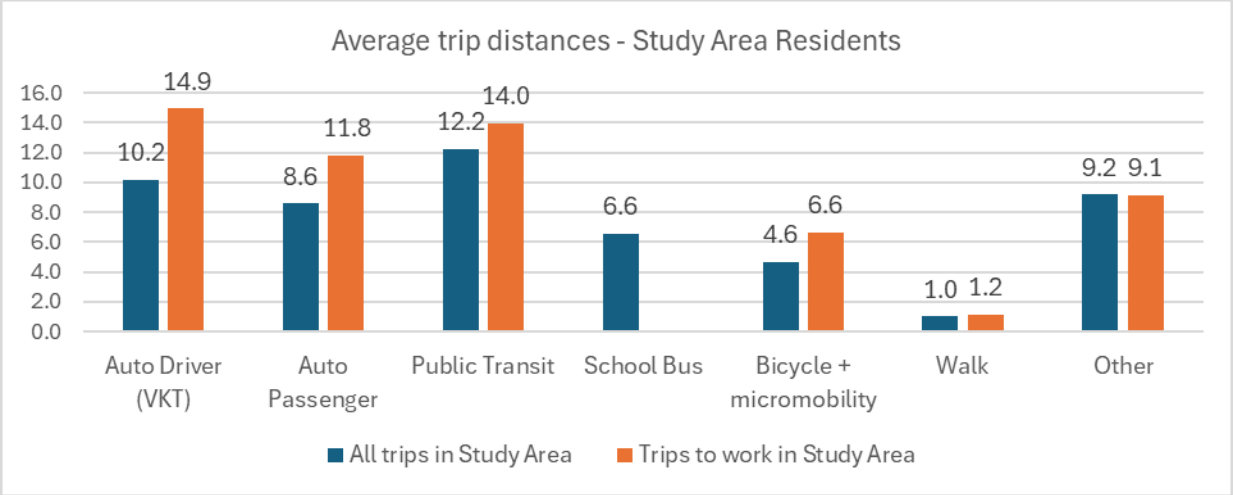
Auto Driver
Auto Passenger
Public Transit
School Bus
Bicycle + micromobility
Walk
Other

4.11 Passenger- and vehicle-kilometres travelled

Passenger-kilometres travelled (PKT) and vehicle kilometres travelled (VKT) are useful measures of travel activity. PKT measures kilometres travelled by all persons using all modes. VKT measures auto vehicle activity (i.e., kilometres travelled by auto drivers).

Figure 111 presents average trip distance, VKT for auto driver trips, and PKT for other modes of travel using 'Google distances' for trips entirely within the Study Area (excludes the 6% of trips with either origin or destination outside the Study Area). Table 56 provides the details for the Study Area, Ottawa and the Gatineau CMA. The Google distance for a trip is for the route on actual roads, public transit routes, bike paths or pedestrian paths recommended by Google Map Directions for the given mode of travel, origin, destination, and time of day, and may not necessarily reflect the traveller's actual route choice on their travel day. The Google algorithm did not return a value in a small number of trips[71]. Trip records with missing distance data have been compensated for in the calculation of VKT and PKT by scaling up the result to represent all trips. Note that the work trip VKT and PKT only reflect trips to a work destination, and not the return home trip. The figures presented here differ slightly from those previously published in the *Regional Travel Trends Preview Report*,[72] as the dataset has since been updated to fill in a number of missing distance estimates.

Figure 111. 'Google distance' VKT and PKT, Study Area, 2022



Refers to all trips within the Study Area made by population 5+.

[71] Google Map Directions did not provide a result in 0.6% of total public transit trips. The algorithm does not always immediately return a good result for public transit trips, particularly multi-mode transit trips with auto access mode. Non-return of Google distances for Other modes (including taxi, paid ride hail, intercity bus, etc.) for trips within the study area was 2.2%, while that for the remaining modes was less than 0.5%.

[72] The *Preview Report* is an abbreviated version of this report, prepared by the consultant team for the TRANS Committee in June 2024.

Table 56. 'Google distance' VKT and PKT, 2022 – Study Area, Ottawa, and Gatineau CMA

	All trips		Trips to work	
	Daily VKT or PKT	Average Trip Km	Daily VKT or PKT	Average Trip Km
Study Area residents				
Total	26,549,400	8.6	5,033,200	12.9
Auto Driver (VKT)	17,570,400	10.2	3,910,900	14.9
Auto Passenger	4,059,400	8.6	269,000	11.8
Public Transit	2,969,900	12.2	645,300	14.0
School Bus	794,900	6.6	n/a	n/a
Bicycle + micromobility	542,900	4.6	136,500	6.6
Walk	428,000	1.0	39,800	1.2
Other	183,900	9.2	31,700	9.1
Ottawa residents				
Total	19,199,200	8.2	3,562,600	12.4
Auto Driver (VKT)	12,301,200	9.8	2,685,700	14.5
Auto Passenger	3,008,500	8.5	202,700	11.7
Public Transit	2,404,900	12.3	513,200	14.1
School Bus	542,800	6.2	n/a	n/a
Bicycle + micromobility	422,900	4.5	100,500	6.2
Walk	358,000	1.0	33,500	1.2
Other	160,900	9.2	27,100	9.2
Gatineau CMA residents				
Total	7,350,800	9.7	1,470,800	14.4
Auto Driver (VKT)	5,269,800	11.2	1,225,400	16.0
Auto Passenger	1,051,000	8.9	66,400	11.9
Public Transit	564,900	12.1	132,100	13.5
School Bus	252,000	7.7	n/a	n/a
Bicycle + micromobility	120,000	5.3	36,000	8.0
Walk	70,000	1.0	6,300	1.2
Other	22,900	8.9	4,700	9.1

Excludes trips with origin or destination outside the Study Area. Estimates have been adjusted to compensate for trips for which a Google distance was not returned. Refers to all trips made by population 5+.

Note that, as used here, auto driver is a proxy for unique vehicle trips (person-trips with the auto driver as the mode = unique vehicle trips). The driver may or may not have had passengers in the vehicle with them. Auto passenger trips are person-trips made as auto passengers (often, though not always, with a driver from the same household).

School bus distances use driving distances as a proxy, as school bus routes are not available to Google Directions. Note that many students travel to school using special public transit routes that are not counted in 'School Bus'.

Trips to work are those for which work is the destination. The trips to work figures do not include trips returning home from work.

As shown above, trips to work were longer than distances for other trips. This was true for all modes except "other" trips, where the reverse was true (although only marginally). The differences were greatest for auto drivers (with trips to work 47% longer than the average for all trips), auto passengers (38%), and bicycle + micromobility (43%). For public transit, the difference was 14%, and for walking trips, the difference was 13%. The extent of these differences reflects several factors, including the proportions of work trips that are made by each mode, the number of trips and the network configuration (i.e., public transit, sidewalks and bicycling paths are found across large parts of the Study Area but roads are everywhere). Work trips made up 19% of total daily PKT, with this proportion being highest for bicycling and micromobility (with 25% of total daily distance travelled via bicycle being for trips to work), 22% for both auto driver and public transit, and lowest for walking (at 9%). Readers are reminded that the PKT and VKT for trips to work does not include the distance travelled home from work.

Table 57 provides a basis for comparison to historical data from previous survey cycles, for the Study Area, using model-equivalent distances. Table 58 adds a comparison for Ottawa and the Gatineau CMA. For the comparison, the 2022 data have been analysed using the 2011 transportation model zone-to-zone distances. [73] The data have been filtered to only trips with both origin and destination within the 2011 Study Area (excluding parts of the Gatineau CMA), as well as filtering outliers with high distances, as was done for the historical figures from the 2011 report. The 2011 data have also been reanalysed to determine the 2011 PKT for the Study Area and both 2011 VKT and 2011 PKT for Ottawa and Gatineau CMA. For 2005, comparable data were not available for PKT due to 11+ age cut-off for trip capture in that survey. However comparable VKT data are available, given that only persons 16+ years can be auto drivers.

The results reveal overall reductions in VKT and PKT. For all trips, between 2011 and 2022, VKT dropped marginally by -2% (consistent with the -1% 2005 to 2011 drop) while PKT dropped by -8%. Reductions were greater for work trips, registering -17% in work VKT (compared with the -6% reduction between 2005 and 2011) and -27% in work PKT.

Examined on a per capita basis, the reductions from 2011 to 2022 are pronounced, with -12% in overall VKT per capita and a one-quarter reduction (-25%) in work VKT per worker. For

[73] For the 2011 survey, the TRANS transportation model was used to develop the distances. The model divides the Study Area into small geographies called transportation analysis zones (TAZs). For modelling purposes, each TAZ is represented as a single point (centroid) and is connected to the model's road network via short centroid connectors. These connectors represent the local roads within the TAZ. The zone-to-zone distance, accordingly, represents the centroid-to-centroid distance (centroid of TAZ A to road network to centroid of TAZ B, and so on). The centroid connectors (local roads) typically represent only a very small portion of the overall zone-to-zone distance. To calculate the zone-to-zone distances among all TAZs, an auto vehicle matrix derived from the 2011 survey was assigned to the model network, which traces the path taken by all vehicles (such that their journey time is minimized). The TRANS model considers the zone-to-zone distances as close to the distances generated from Google.

person-trips across all modes, the reductions are more dramatic, with -18% in PKT per capita and a one-third reduction (-34%) in work PKT per worker. The work-trip reductions likely result from the ongoing impact of remote working. Interestingly, while the average vehicle trip length dropped overall (-5% for all vehicle trips) between 2011 and 2022, it increased (7%) for work trips. Put together, these results suggest that while the shift to remote work has had a profound impact on the number of daily work trips, but this impact has been has not been uniform across all work trip lengths.

Table 57. 2011-model-equivalent VKT and PKT for 2005, 2011 and 2022 comparisons, Study Area population 5+

	Study Area			Change		% Change	
	2005	2011	2022	2005 to '11	2011 to '22	2005 to '11	2011 to '22
VKT							
All	18,126,700	17,867,700	17,549,000	-259,000	-318,700	-1%	-2%
Work	4,917,800	4,625,800	3,851,800	-292,000	-774,000	-6%	-17%
Avg. Vehicle Trip Km							
All	11.4	10.7	10.2	-0.7	-0.5	-6%	-5%
Work	14.4	13.7	14.7	-0.7	1.0	-5%	7%
Avg. Km Per Capita							
VKT per capita 5+	16.6	15.4	13.5	n/a	-1.8	n/a	-12%
Work VKT per worker	n/a	7.0	5.2	n/a	-1.8	n/a	-25%
	2005	2011	2022	2005 to '11	2011 to '22	2005 to '11	2011 to '22
PKT							
All	n/a	29,262,400	26,863,100	n/a	-2,399,300	n/a	-8%
Work	n/a	6,806,200	4,980,400	n/a	-1,825,800	n/a	-27%
Avg. Person-Trip Km							
All	n/a	9.5	8.6	n/a	-0.9	n/a	-10%
Work	n/a	12.8	12.8	n/a	0.0	n/a	0%
Avg. Km Per Capita							
PKT per capita 5+	n/a	25.2	20.7	n/a	-4.5	n/a	-18%
Work PKT per worker	n/a	10.3	6.8	n/a	-3.5	n/a	-34%

Blue shading highlights higher values. The intensity of the shade increases as the value approaches the highest value.

Pink shading highlights lower values. The intensity of the shade increases as the value approaches the lowest value.

VKT per worker is not available for 2005 as this cycle only assigned counted workers with a primary status of worker and did not count people with a primary status of student, homemaker, and retired who also worked. 2011 and 2022 count all workers, including those with other concurrent occupational statuses.

PKT is not available for 2005 due to the different age threshold for trip capture in this survey cycle.

Table 58. 2011-model-equivalent VKT and PKT for 2011 and 2022 comparisons, Ottawa and Gatineau CMA residents 5+

	Ottawa				Gatineau CMA			
	2011	2022	Change	%	2011	2022	Change	%
VKT								
All	12,879,800	12,139,600	-740,200	-6%	4,987,300	5,409,400	422,100	8%
Work	3,242,900	2,618,200	-624,700	-19%	1,383,600	1,233,600	-150,000	-11%
Avg. Vehicle Trip Km								
All	10.3	9.7	-0.6	-6%	11.8	11.5	-0.3	-3%
Work	13.3	14.1	0.8	6%	14.8	16.1	1.4	9%
Avg. Km Per Capita								
VKT per capita 5+	14.8	12.6	-2.2	-15%	17.1	16.3	-0.8	-5%
Work VKT per worker	6.6	4.8	-1.8	-28%	8.2	6.6	-1.6	-20%
	2011	2022	Change	%	2011	2022	Change	%
PKT								
All	21,714,000	19,271,000	-2,443,000	-11%	7,548,400	7,592,000	43,600	1%
Work	4,932,500	3,501,800	-1,430,700	-29%	1,873,800	1,478,600	-395,200	-21%
Avg. Person-Trip Km								
All	9.2	8.2	-1.0	-11%	10.8	9.9	-0.9	-8%
Work	12.3	12.2	-0.1	-1%	14.0	14.5	0.5	4%
Avg. Km Per Capita								
PKT per capita 5+	24.9	20.0	-5.0	-20%	25.8	22.9	-3.0	-12%
Work PKT per worker	10.0	6.4	-3.6	-36%	11.1	7.9	-3.2	-29%

Blue shading highlights higher values. The intensity of the shade increases as the value approaches the highest value.
Pink shading highlights lower values. The intensity of the shade increases as the value approaches the lowest value.

In sum, the reductions that occurred in total VKT and PKT and in average trip lengths may suggest a welcome progress towards more sustainable travel behaviour. However, the impact of remote working and studying, as well as growth in e-commerce shopping, may also be factors. The changes could also reflect higher walking, bicycling and micromobility shares or they could be a function of other demographic and economic factors that cannot be explored further here. The addition of more data points from future surveys would help to determine trends and the underlying explanations.

4.12 Walkable and bikeable trips

This section examines the extent to which trips made by auto or public transit could feasibly have been made on foot or by bicycle instead. The analysis uses trip distance to assess 'walkability' and 'bikeability.' The thresholds for walkability and bikeablility are based on the trip length that would equate to about a 20-minute journey for an average pedestrian or cyclist, i.e., a relatively convenient trip to make using the given mode, or a 1.6 km walk and 5.5 km bicycle ride.[74] For trips made via auto or public transit, the trip origin, destination and time of day are processed via the Google API to determine the auto and public transit trips whose lengths fall within the eligible cycling and walking thresholds, if they were to be undertaken on available cycling and pedestrian paths.

Note that this examination assumes that 'bikeability' includes micromobility devices. The analysis does not consider the potential impact of increased use of e-bikes on cycling trip distances.

Figure 112 presents the findings. Table 59 and Table 60 detail the potential shifts in auto driver and public transit person trips, respectively, by sub-area. The analysis suggests that just over two-fifths (43%) of Study Area auto driver trips could be made by bicycle, and 13% could be made by walking. The potential is slightly higher in Ottawa (45%) and slightly lower in the Gatineau CMA (40%).

In terms of mode share, in the Study Area, a 24% auto driver mode share could be bikeable, and a 7% auto driver mode share could be walkable. These potential shares are slightly higher in the Gatineau CMA, at 25% for the bikeable share and 8% for the walkable share. The potential shares are lowest in the downtowns and in the rural sub-areas and highest in the urban and suburban areas.

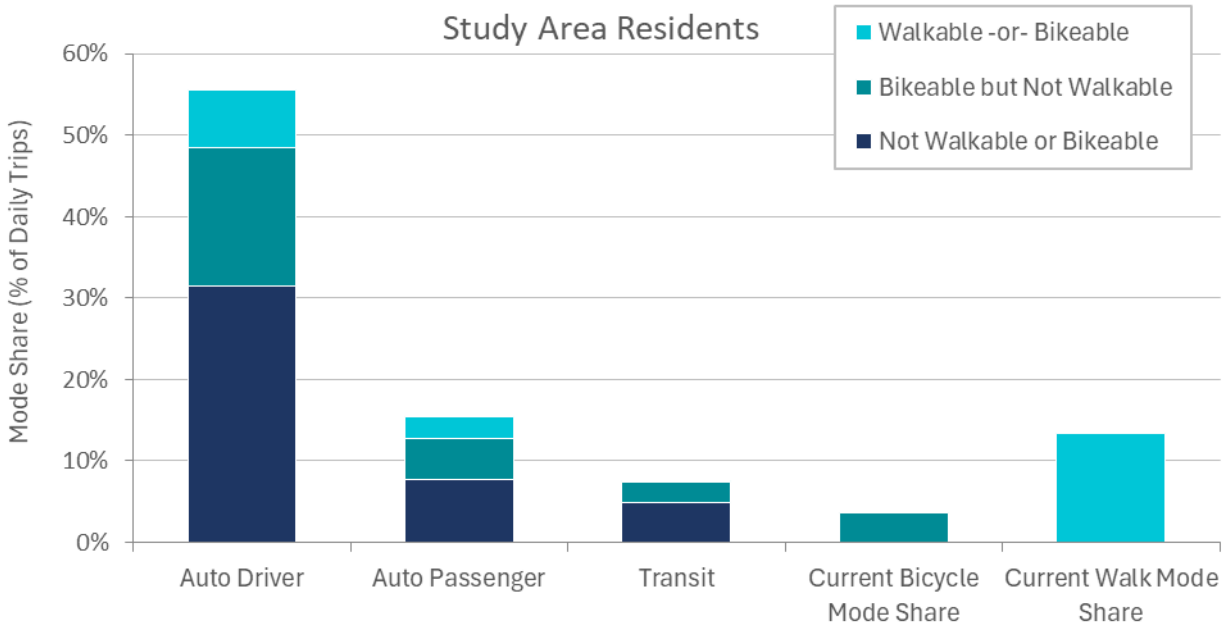
For public transit, 36% of Study Area public transit trips are bikeable (2.8% potential mode share). Only 3% of public transit trips are walkable (0.3% potential mode share) – consistent with the generally longer average trip lengths for public transit. The bikeable and walkable proportions are lower for the Gatineau CMA, as are the potential mode shares.

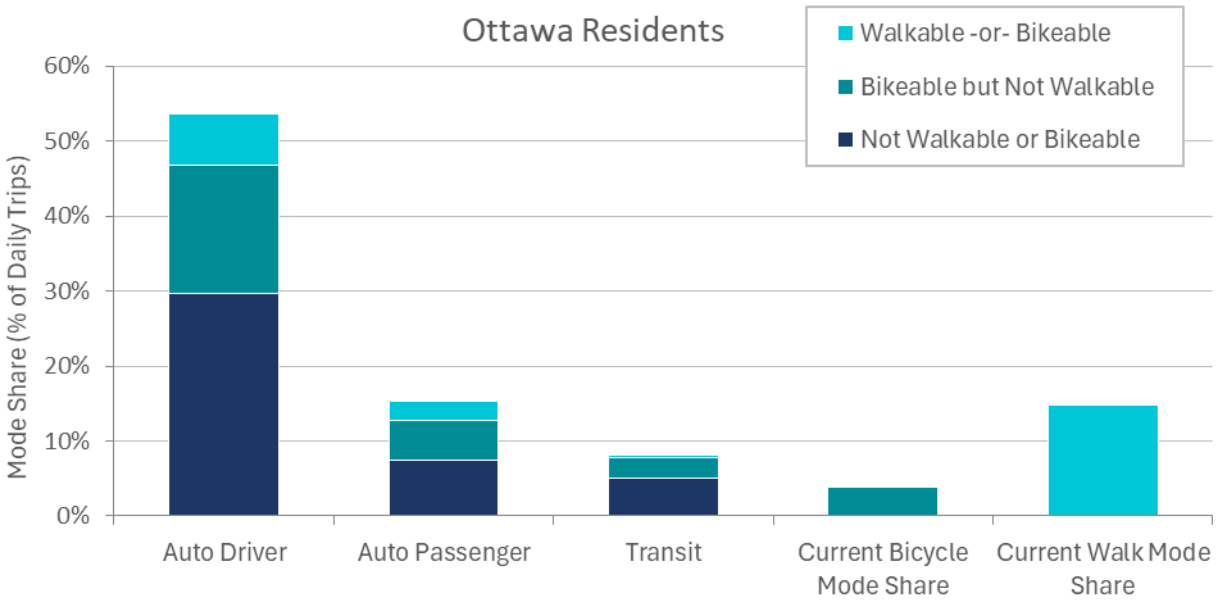
However, the results above should be caveated, in that this analysis is based only on distance. Some of the auto or public transit trips that are of walkable or bikeable distance may be impractical. For example, these trips may be part of a trip chain that requires a vehicle, an auto is needed to carry heavy items not easily carried by walking or biking, the traveller might have disability or health condition that limits ability to walk or bike, and so on.

[74] These thresholds are based on assumptions of an average walking speed of about 4.8 km/hour and an average cycling speed of about 16.5 km/hour, which includes allowance for stoppages at intersections. Overall, 84% of reported walking trips and 72% of reported cycling trips are within the threshold distances for a 20-minute journey. The intent of this analysis was to identify trips of a distance conveniently walked or cycled by most people, not just avid walkers or cyclists.

There may also be a need to ensure that the 'supply' of bicycle and pedestrian paths is available to meet traveller needs and itineraries. Finally, to support sustainable transportation goals, active transportation measures would presumably focus on drawing travellers from the private automobile, rather than from public transit. Nonetheless, the analysis provides insights into the potential market for shifting modal use towards active transportation.

Figure 112. Auto driver, auto passenger, and public transit trips that are walkable or bikeable, 2022




Ottawa Residents
Walkable -or- Bikeable
Bikeable but Not Walkable
Not Walkable or Bikeable
Mode Share (% of Daily Trips)
60%
50%
40%
30%
20%
10%
0%
Auto Driver
Auto Passenger
Transit
Current Bicycle Mode Share
Current Walk Mode Share

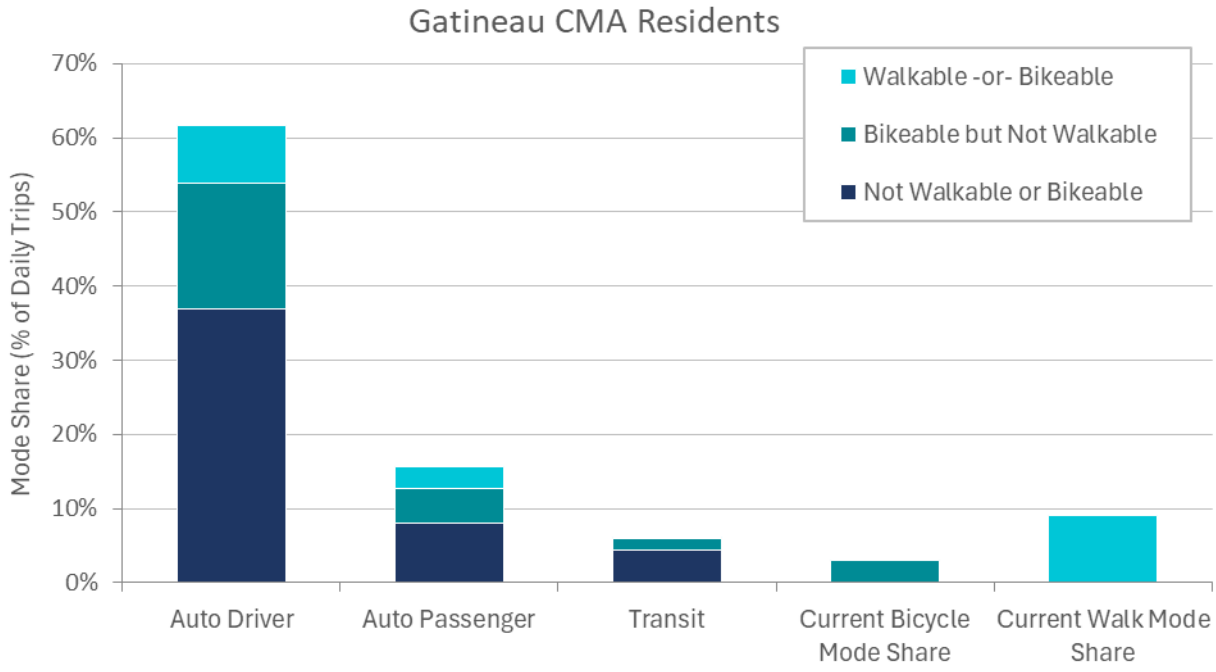

Gatineau CMA Residents
Walkable -or- Bikeable
Bikeable but Not Walkable
Not Walkable or Bikeable
Mode Share (% of Daily Trips)
70%
60%
50%
40%
30%
20%
10%
0%
Auto Driver
Auto Passenger
Transit
Current Bicycle Mode Share
Current Walk Mode Share

Table 59. Auto driver trips that are walkable or bikeable by sub-area, 2022

	Study Area	Region		Ottawa					Gatineau			
		Ottawa	Gatineau CMA	Down-town Core	Inner Urban	Outer Urban / Green-belt	Sub-urban	Rural	Down-town Gati-neau	Transit-Oriented Develop-ment	Rest of Gatineau	Rest of CMA
Total Trips	3,198,900	2,417,700	781,300	190,100	430,300	661,500	918,500	217,300	26,400	62,800	560,300	131,700
Auto Driver Trips	1,777,400	1,295,300	482,100	47,700	187,800	365,800	543,200	150,800	10,400	39,700	339,200	92,800
Auto Driver Mode Share	56%	54%	62%	25%	44%	55%	59%	69%	39%	63%	61%	70%
Bikeable Trips	770,700	576,600	194,100	22,500	101,600	180,900	241,600	30,000	5,700	17,800	150,700	19,900
% of Auto Driver Trips	43%	45%	40%	47%	54%	49%	44%	20%	55%	45%	44%	21%
Mode shift potential	24%	24%	25%	12%	24%	27%	26%	14%	22%	28%	27%	15%
Walkable Trips	227,500	166,500	61,000	6,100	30,100	51,700	68,600	10,000	1,600	6,900	46,100	6,400
% of Auto Driver Trips	13%	13%	13%	13%	16%	14%	13%	7%	16%	17%	14%	7%
Mode shift potential	7%	7%	8%	3%	7%	8%	7%	5%	6%	11%	8%	5%

Table 60. Public transit person trips that are walkable or bikeable by sub-area, 2022

		Region		Ottawa					Gatineau			
	Study Area	Ottawa	Gatineau CMA	Down-town Core	Inner Urban	Outer Urban / Green-belt	Sub-urban	Rural	Down-town Gati-neau	Transit-Oriented Develop-ment	Rest of Gatineau	Rest of CMA
Total Trips	3,198,900	2,417,700	781,300	190,100	430,300	661,500	918,500	217,300	26,400	62,800	560,300	131,700
Public Transit Person Trips*	243,294	196,301	46,993	23,181	42,418	64,226	61,976	4,500	3,296	3,890	37,224	2,583
Public Transit Mode Share	7.6%	8.1%	6.0%	12.2%	9.9%	9.7%	6.7%	2.1%	12.5%	6.2%	6.6%	2.0%
Bikeable Trips	88,300	75,000	13,300	14,400	23,500	22,600	13,800	600	1,700	700	10,600	300
% of Public Transit Trips	36.3%	38.2%	28.4%	62.3%	55.4%	35.2%	22.3%	13.6%	52.7%	18.8%	28.5%	10.0%
Mode shift potential	2.8%	3.1%	1.7%	7.6%	5.5%	3.4%	1.5%	0.3%	6.6%	1.2%	1.9%	0.2%
Walkable Trips	8,400	7,200	1,200	2,300	1,800	1,900	1,000	200	300	100	800	0
% of Public Transit Trips	3.4%	3.7%	2.5%	9.7%	4.2%	3.0%	1.6%	4.4%	8.0%	2.8%	2.1%	0.0%
Mode shift potential	0.3%	0.3%	0.1%	1.2%	0.4%	0.3%	0.1%	0.1%	1.0%	0.2%	0.1%	0.0%

* Includes all public transit modes combined.

4.13 Vehicle use and carpooling

Vehicle occupancy is an indicator of the efficiency of vehicle use – that is, whether vehicles are occupied by the driver alone or are carrying passengers as well. Figure 113 shows the number of occupants in personal vehicles. Table 61 provides a comparison with 2011.[75]

The single-occupant (drive alone) trips dominated. Three-quarters of vehicle trips were occupied by the driver alone (71.6%). Another one-fifth had two occupants (21.7%), with the remaining 6.7% carrying three or more occupants. Combined, these **multi-person trips represented just under half of all person-trips made by auto (47.8%).** This was a slight reduction from the 49.9% share of person-trips in 2011. **The share of single-occupant trips rose slightly between 2011 and 2022.**

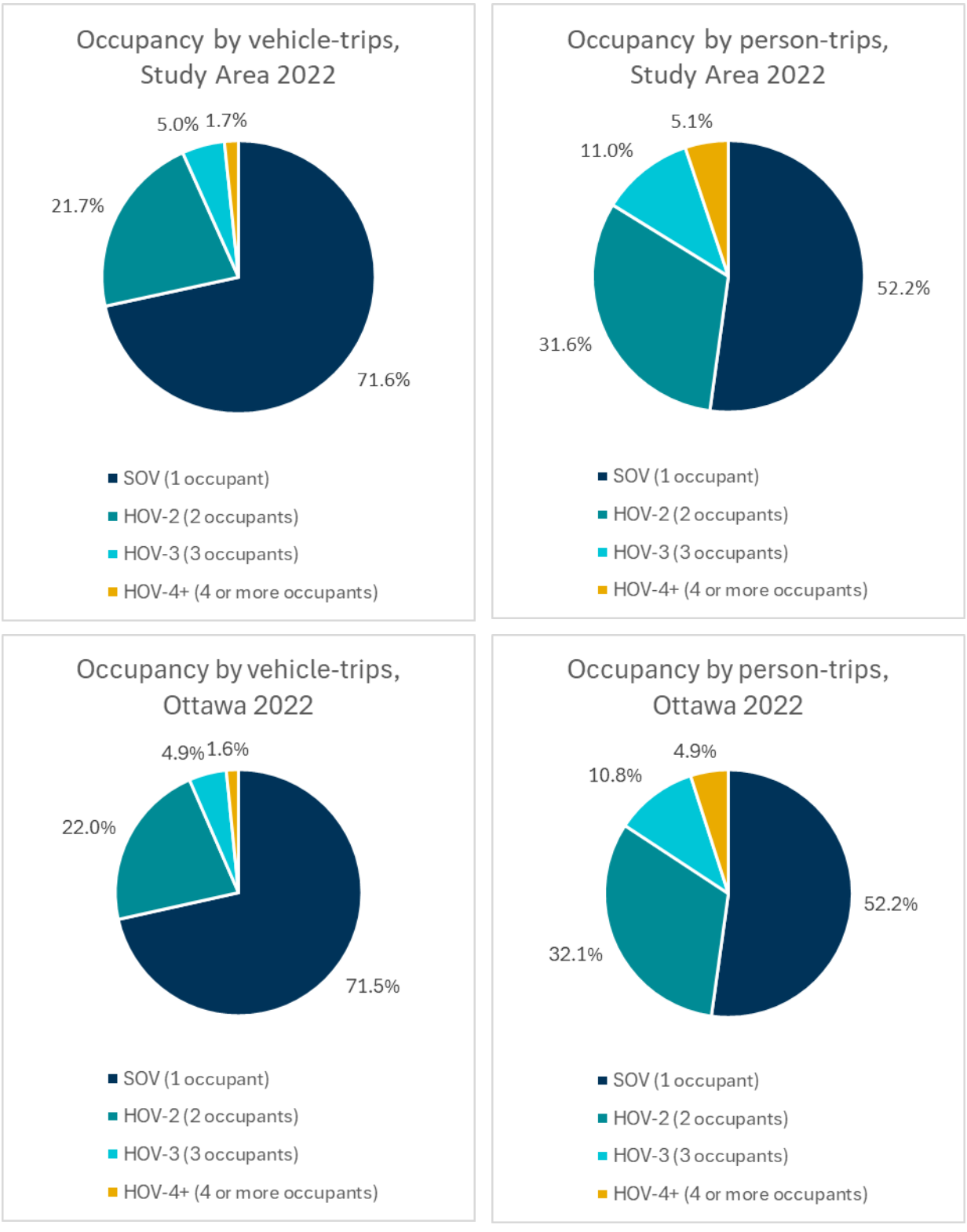
The patterns were similar among Ottawa and Gatineau CMA residents, with some fluctuations.

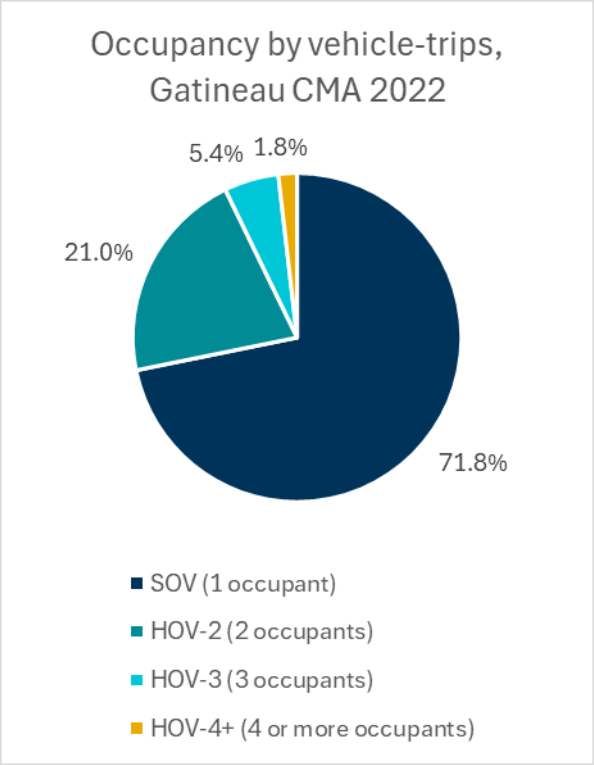
The **average Study Area vehicle occupancy was 1.37 persons per vehicle**, which was **a slight decline from the 2011 average of 1.40 persons per vehicle**.[76] **These figures reflect a corresponding decline among Ottawa auto users. Vehicle occupancy among Gatineau CMA auto users was slightly higher,** averaging 1.38 persons per vehicle in 2022: a modest decline from 1.39 persons per vehicle in 2011.

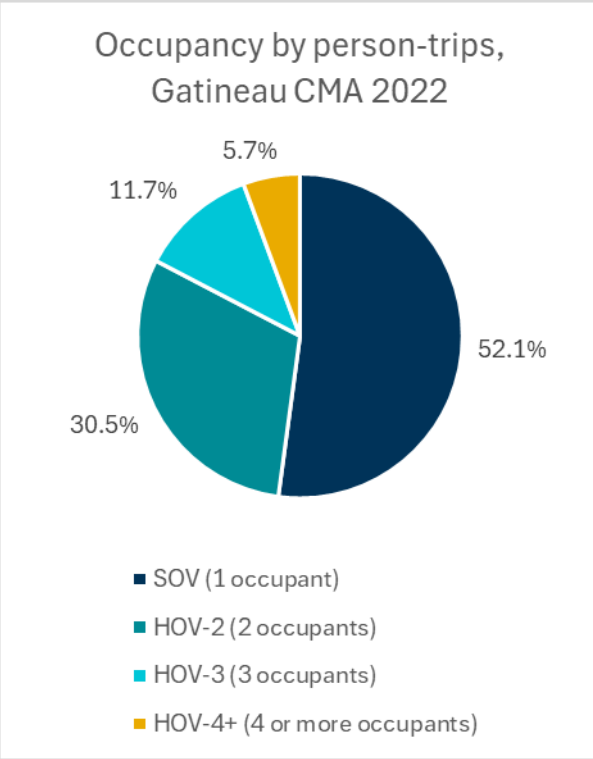
[75] Survey participants who indicated they were the driver for an auto trip were asked how many people were in the vehicle. Note that the question was asked only of the primary respondent. Respondents could not report this information for other people.

[76] It should be noted that these rates were derived from the survey responses. These occupancies may include very young children in the respondent's household, whose trips were not surveyed. They may also include carpools made with people from other households, whose trips were surveyed only if that household was also sampled.

Figure 113. Weekday daily average reported vehicle occupancy, 2022







Question asked only of primary survey respondent. All occupancy calculations include the driver.

Table 61. Details of weekday daily average reported vehicle occupancy, 2011 and 2022

Vehicle Occupancy (Study Area)	Vehicle-Trips	% in 2022	*% in 2011*	Person-Trips	% in 2022	*% in 2011*
SOV (1 occupant)	773,500	71.6%	*70.2%*	773,500	52.2%	*50.1%*
HOV-2 (2 occupants)	234,400	21.7%	*22.3%*	468,800	31.6%	*31.9%*
HOV-3 (3 occupants)	54,500	5.0%	*5.3%*	163,600	11.0%	*11.4%*
HOV-4+ (4 or more occupants)	18,000	1.7%	*2.2%*	76,300	5.1%	*6.6%*
Total	1,080,400	100.0%	*100.0%*	1,482,200	100.0%	*100.0%*
Vehicle Occupancy (Ottawa)	Vehicle-Trips	% in 2022	*% in 2011*	Person-Trips	% in 2022	*% in 2011*
SOV (1 occupant)	555,200	71.5%	*69.9%*	555,200	52.2%	*49.7%*
HOV-2 (2 occupants)	170,500	22.0%	*22.6%*	341,000	32.1%	*32.2%*
HOV-3 (3 occupants)	38,200	4.9%	*5.3%*	114,700	10.8%	*11.4%*
HOV-4+ (4 or more occupants)	12,400	1.6%	*2.2%*	52,600	4.9%	*6.7%*
Total	776,300	100.0%	*100.0%*	1,063,400	100.0%	*100.0%*
Vehicle Occupancy (Gatineau CMA)	Vehicle-Trips	% in 2022	*% in 2011*	Person-Trips	% in 2022	*% in 2011*
SOV (1 occupant)	218,300	71.8%	*71.2%*	218,300	52.1%	*51.3%*
HOV-2 (2 occupants)	63,900	21.0%	*21.4%*	127,800	30.5%	*30.8%*
HOV-3 (3 occupants)	16,300	5.4%	*5.3%*	48,900	11.7%	*11.5%*
HOV-4+ (4 or more occupants)	5,600	1.8%	*2.1%*	23,700	5.7%	*6.3%*
Total	304,100	100.0%	*100.0%*	418,700	100.0%	*100.0%*

All values are from the 2022 survey, except for the values in italics, which are included from the 2011 survey for comparison.

Vehicle trips include trips with primary mode of auto driver as well as public transit trips with an auto driver access mode.

Person trips indicate the total number of people conveyed by the vehicle trips, including the vehicle drivers.
SOV = single occupant vehicle, HOV = high-occupancy vehicle.

Question asked only of primary survey respondent. All occupancy calculations include the driver.

Figure 114 provides a breakdown by trip purpose. All occupancy calculations include the driver. It can be seen that:

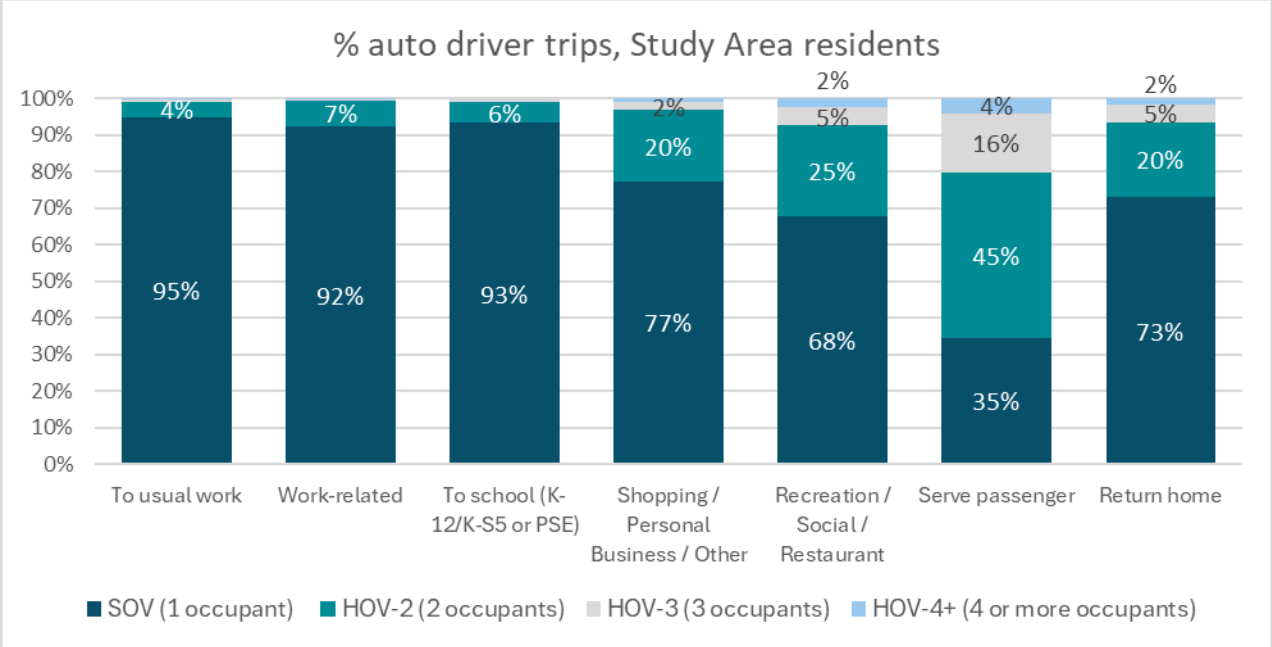
- The vast majority (92% - 95%) of Study Area auto commute trips to work, work-related venues and school were made as single-occupant trips.
- Activities that commonly (though not exclusively) involve others had greater proportions of high-occupancy vehicle trips. These included 23% of shopping, personal business and “other” trips and 32% of recreation, social and restaurant trips,

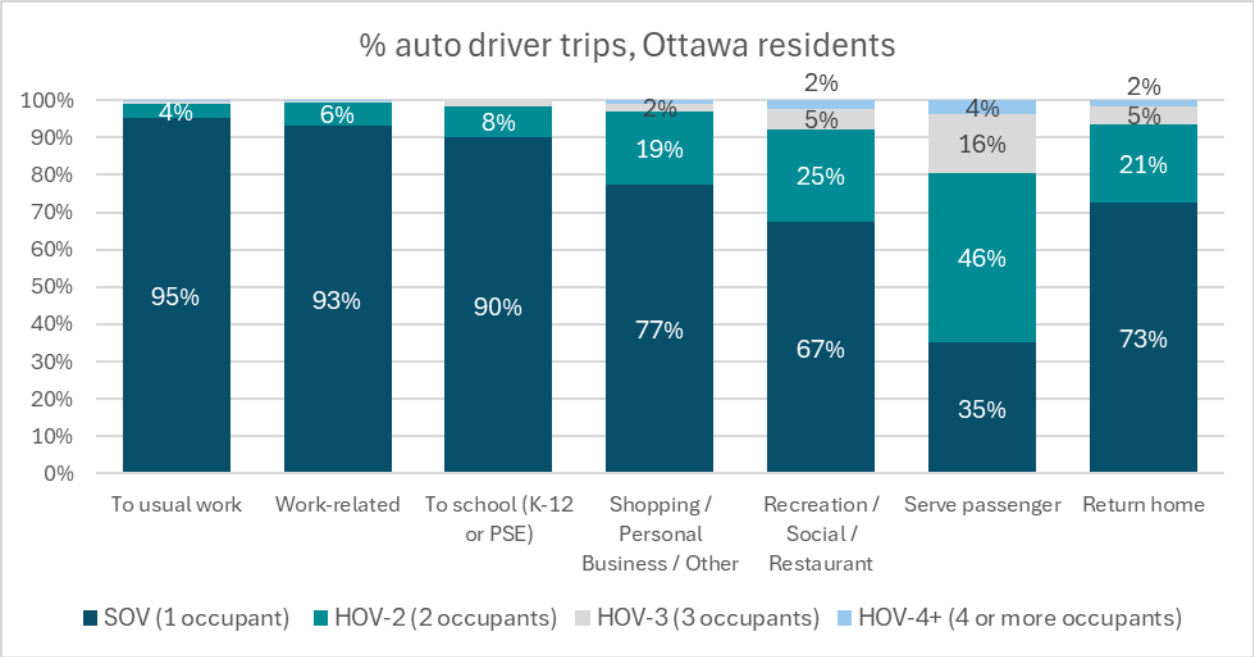
Not surprisingly, serve-passenger trips (to pick up or drop off passengers) had the highest proportion of high-occupancy trips, at 65% (with the other 35% of serve-passenger trips being single-occupancy trips to pick up a passenger or passengers). Overall, 27% of return home auto trips involved multiple occupants.

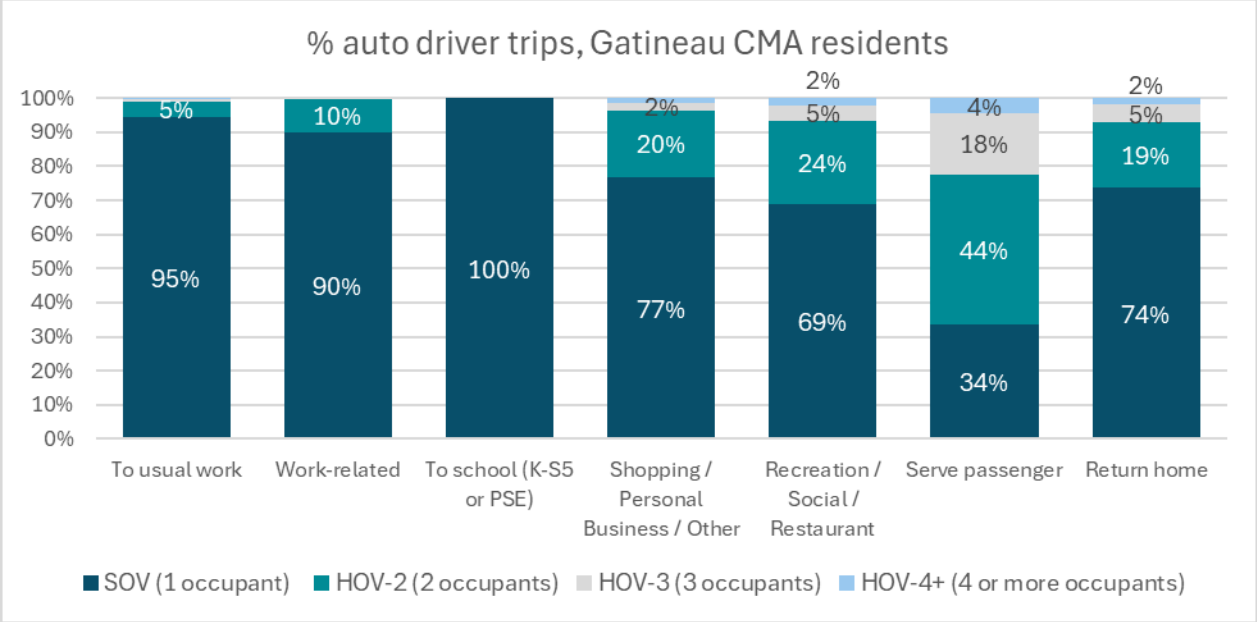
- The high-occupancy trips were primarily two-passenger trips (HOV-2). Serve passenger trips had the highest proportions of trips with more occupants, at 16% of HOV-3 trips and 4% of HOV-4+ trips.

The profiles were largely the same for Ottawa and Gatineau CMA residents, with some variations: Gatineau CMA residents had moderately higher proportions of multiple-occupant work-related trips, and 100% of all school auto trips (K-S5 and PSE) were made as single-occupant trips.

Figure 114. Vehicle occupancy by trip purpose, 2022







Only a small percentage of all auto driver trips to one's own school are to K-12/S5 school. Auto driver trips to take children to or pick children up from school are included in the 'serve passenger' category (along with other types of destinations associated with serve passenger trips)

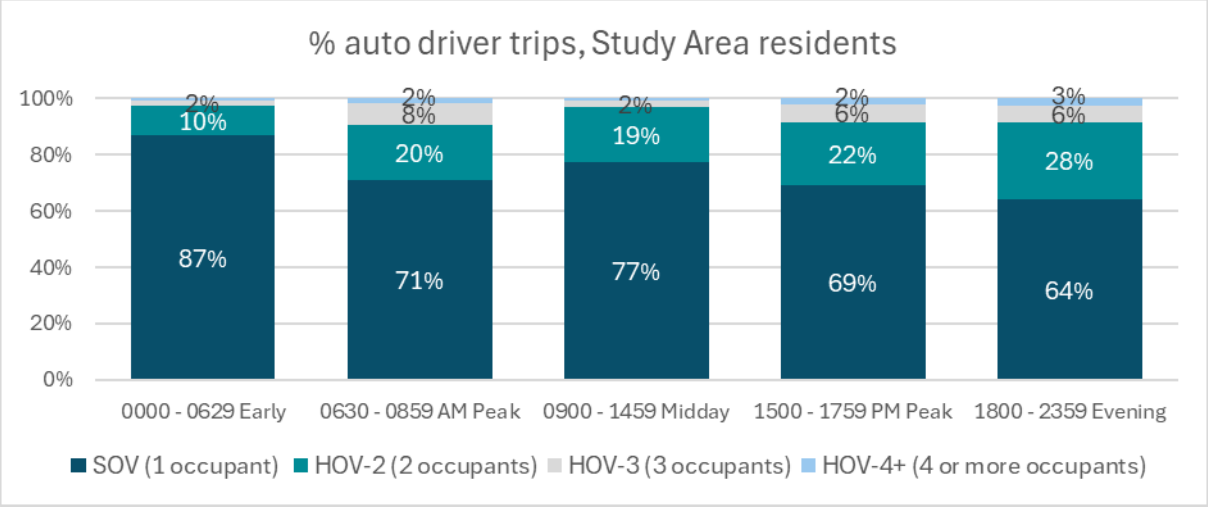
Question asked only of primary survey respondent. All occupancy calculations include the driver.

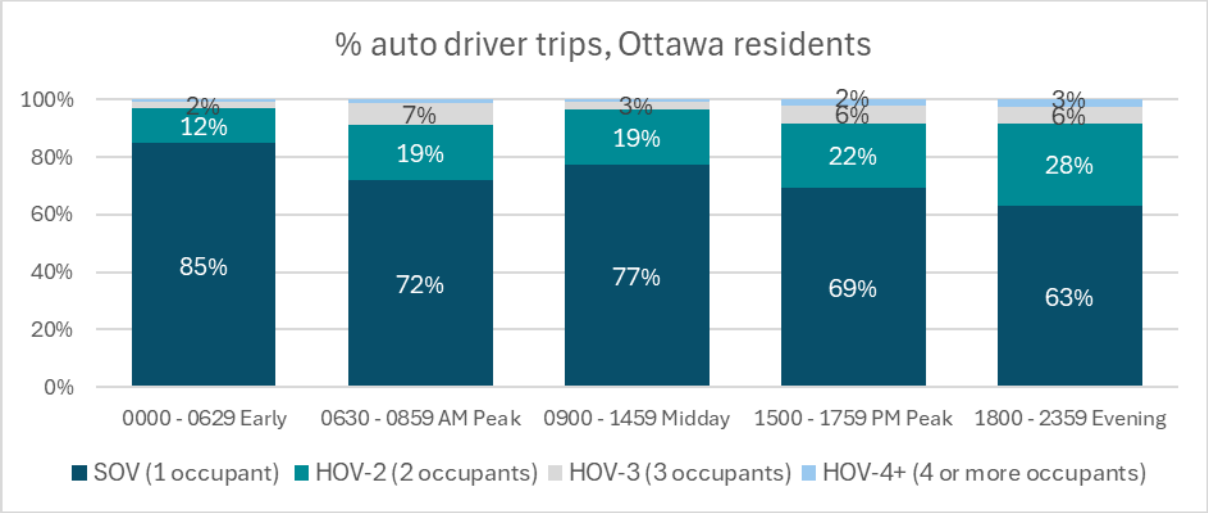
Figure 115 provides a breakdown by time of day. All occupancy calculations include the driver. It can be seen that:

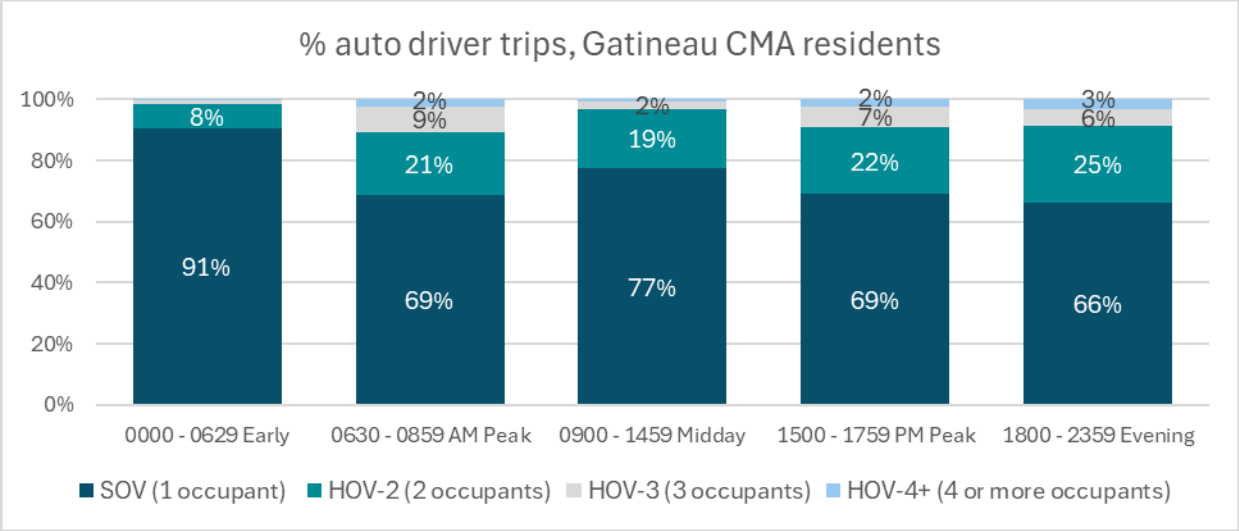
- Single-occupant vehicle trips dominated all times of day in the Study Area, although occupancy rates varied by time of day.
- Multi-occupant vehicle trip rates were lowest in the early (overnight) hours, at 13% of all auto trips. They were highest in evening, at 36% of all auto trips, consistent with activities that commonly involve other people, like recreation, social and restaurant trips.
- Peak period multi-occupancy vehicle trip rates were similar to each other, at 29% in the AM peak period and 31% in the PM peak period. Midday muti-occupant trip rates were moderately lower, at 23% of all auto trips.
- The two peak periods had the highest proportions of 3+ occupant trips, at 9% of all trips in these periods. These higher rates were consistent with the pick-up and drop-off trips that are associated with the work and school commutes.

The profiles were generally similar for Ottawa and Gatineau CMA residents, with some fluctuations – such as slightly lower proportions of drive-alone trips during the AM peak and evening periods.

Figure 115. Vehicle occupancy by time of day, 2022



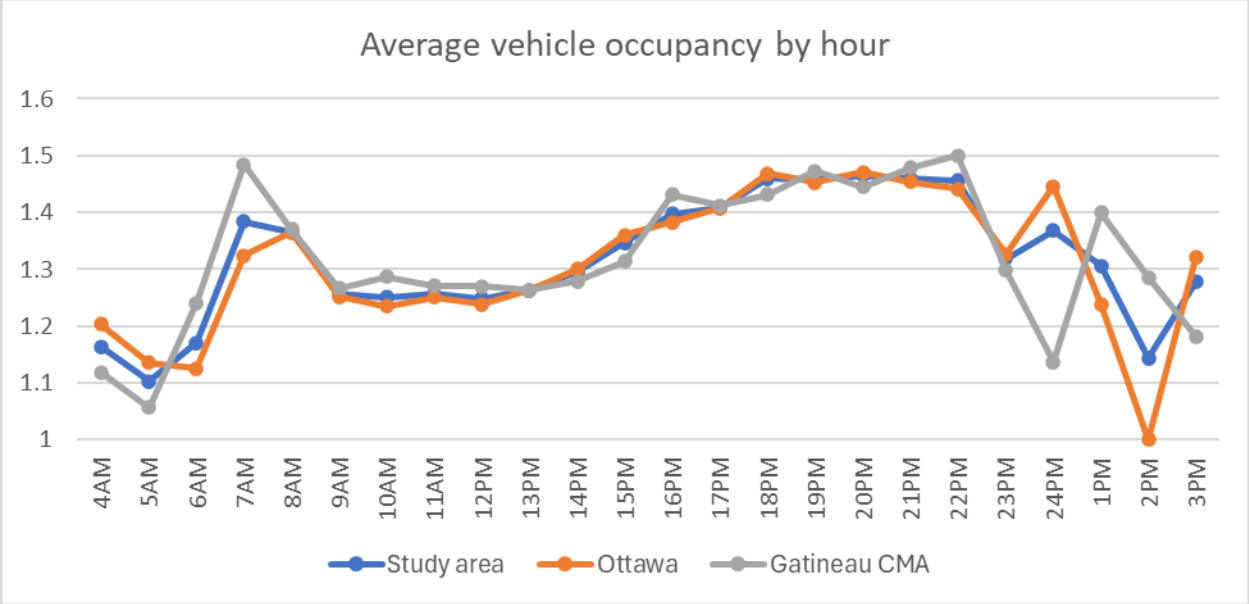




Question asked only of primary survey respondent. All occupancy calculations include the driver. Percentages under 2% are not labelled.

Figure 116 plots average vehicle occupancy rates by hour of day, according to the start time of the trip. With some fluctuations, the average rates were generally similar among Ottawa residents and Gatineau CMA residents. Notable exceptions included an earlier peaking of AM peak period rates among Gatineau CMA residents in the hour starting at 7 a.m., compared with Ottawa's peak occupancy rate in the hour starting at 8 a.m. There were also variations in high and low occupancy rates in the overnight hours.

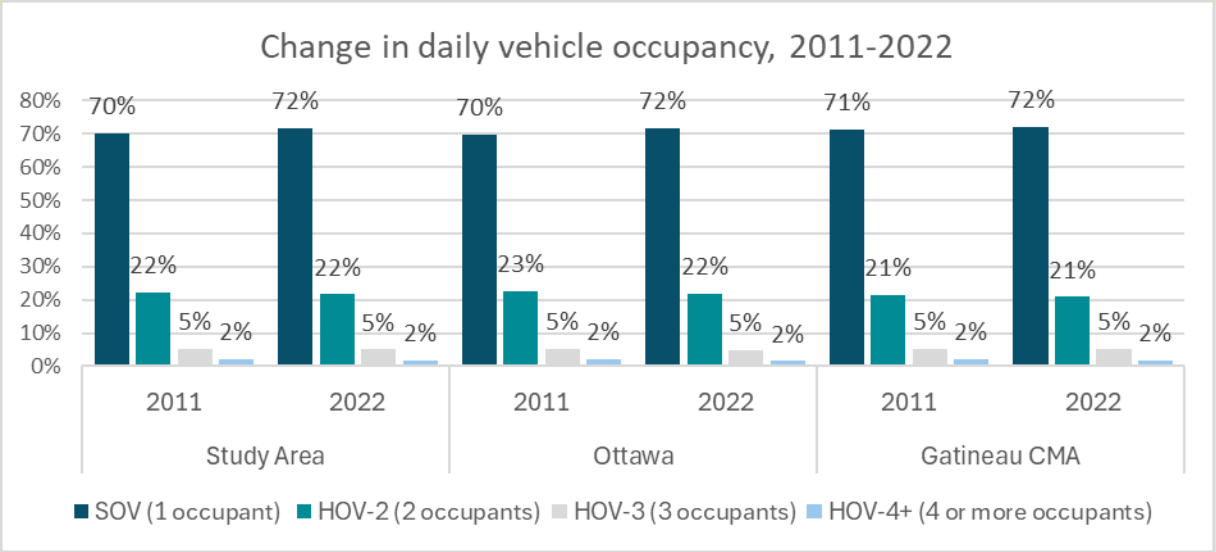
Figure 116. Average vehicle occupancy by trip start hour, 2022



Question asked only of primary survey respondent. All occupancy calculations include the driver.

Figure 117 shows how auto occupancy has changed over time. The distributions of single- and high-occupancy trips were largely similar over time and between jurisdictions. However, the proportions of single-occupant vehicle trips have increased slightly in both jurisdictions, with correspondingly slight reductions in HOV-2 trips.

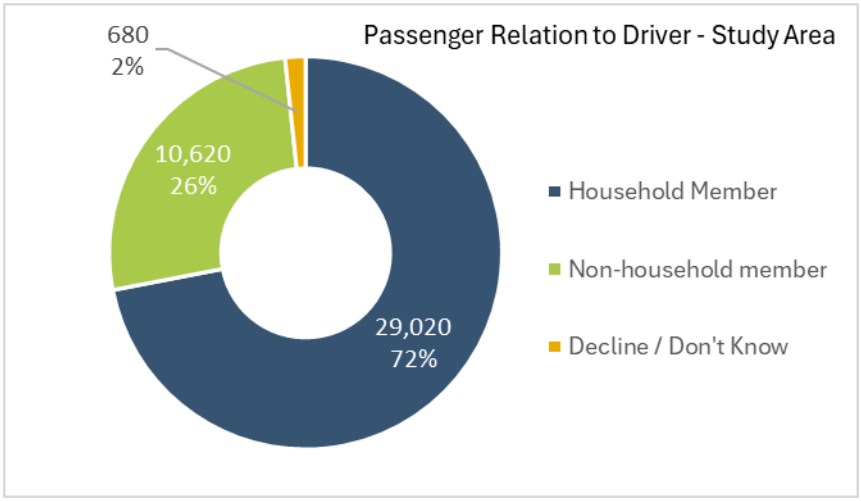
Figure 117. Change in daily vehicle occupancy, 2011-2022

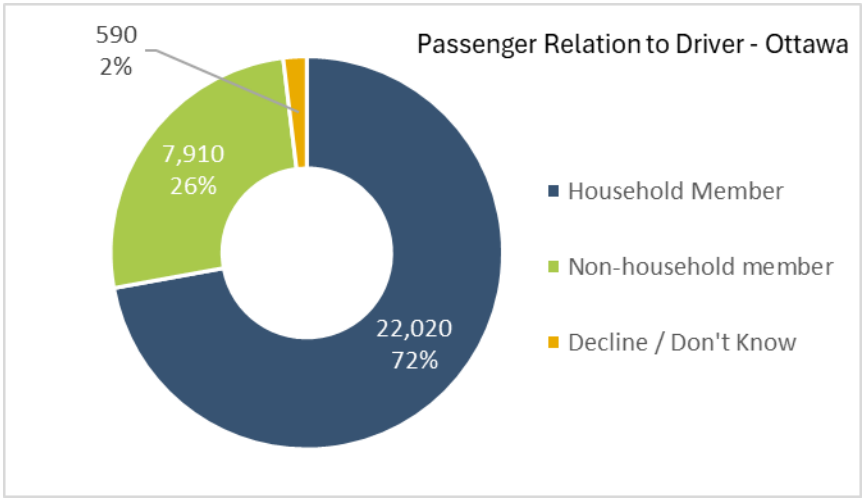


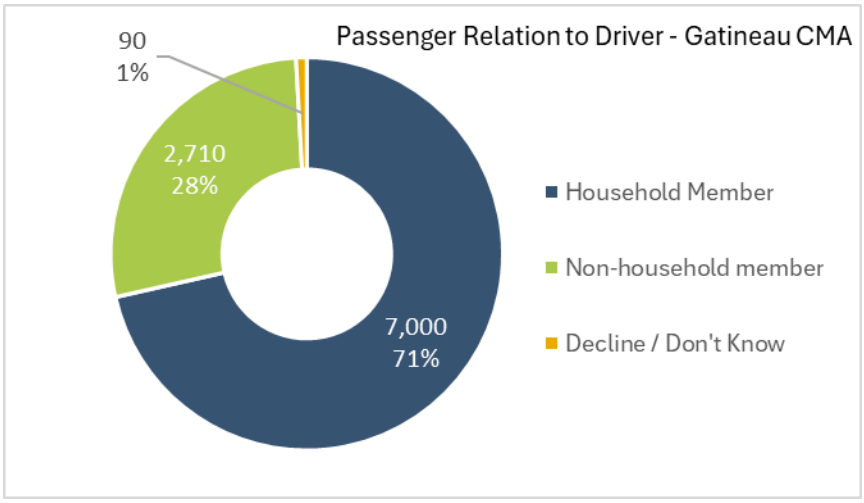
Question asked only of primary survey respondent. All occupancy calculations include the driver.

Figure 118 presents the relationship of the passenger to the driver (member of the same household, a work or study colleague, other or decline to answer / don't know). This is useful in understanding the characteristics of "true" ridesharing; that is, for people who are not members of the same household. The question was asked whenever an auto passenger trip was recorded. Most auto passenger trips were made with a member of the same household (72% in the Study Area). Just over one-quarter of all trips were made with drivers from another household – 26% among Ottawa residents and in the Study Area overall, and a slightly higher 28% rate among Gatineau CMA residents.

Figure 118. Relationship of passenger to driver, % daily passengers to work, work related or post secondary school, 2022







4.14 Car-sharing

The 2022 survey introduced a question about car-sharing. As reported in Section 3.7.5, a small proportion of the population, about 1.9% of persons 16+, has a car-share membership. The proportion of trips made using a car-share vehicle was even smaller, at approximately 0.2% overall, and the same for Ottawa and Gatineau CMA residents. Another 0.2% of all auto driver trips were reported as using a borrowed vehicle, rental, or work vehicle not kept at home.

Of trips made using a car-share vehicle, 69% were made by people living in households with no household vehicles, with the other 31% were made by people living in households with at least one vehicle (with this proportion being 22% for Ottawa residents and 51% for Gatineau CMA residents). This suggests that some residents make use of car-share services as an alternative to buying an additional car.

Table 62. Car-share characteristics, 2022

Auto driver trips	Study Area	Ottawa	Gatineau CMA	Study Area	Ottawa	Gatineau CMA
	Number of auto driver trips			% of auto driver trips		
Total auto driver trips	1,774,700	1,293,800	481,000	100%	100%	100%
Made using a car-share vehicle	3,100	2,100	900	0.2%	0.2%	0.2%
Made by person in household without any vehicles	2,100	1,600	500	0.1%	0.1%	0.1%
Made by person in household with at least one vehicle	1,000	500	500	0.1%	0.04%	0.1%
Made using a borrowed vehicle, rental car, or work vehicle not kept at home (by a person in a household without any vehicles)	3,400	2,200	1,200	0.2%	0.2%	0.2%

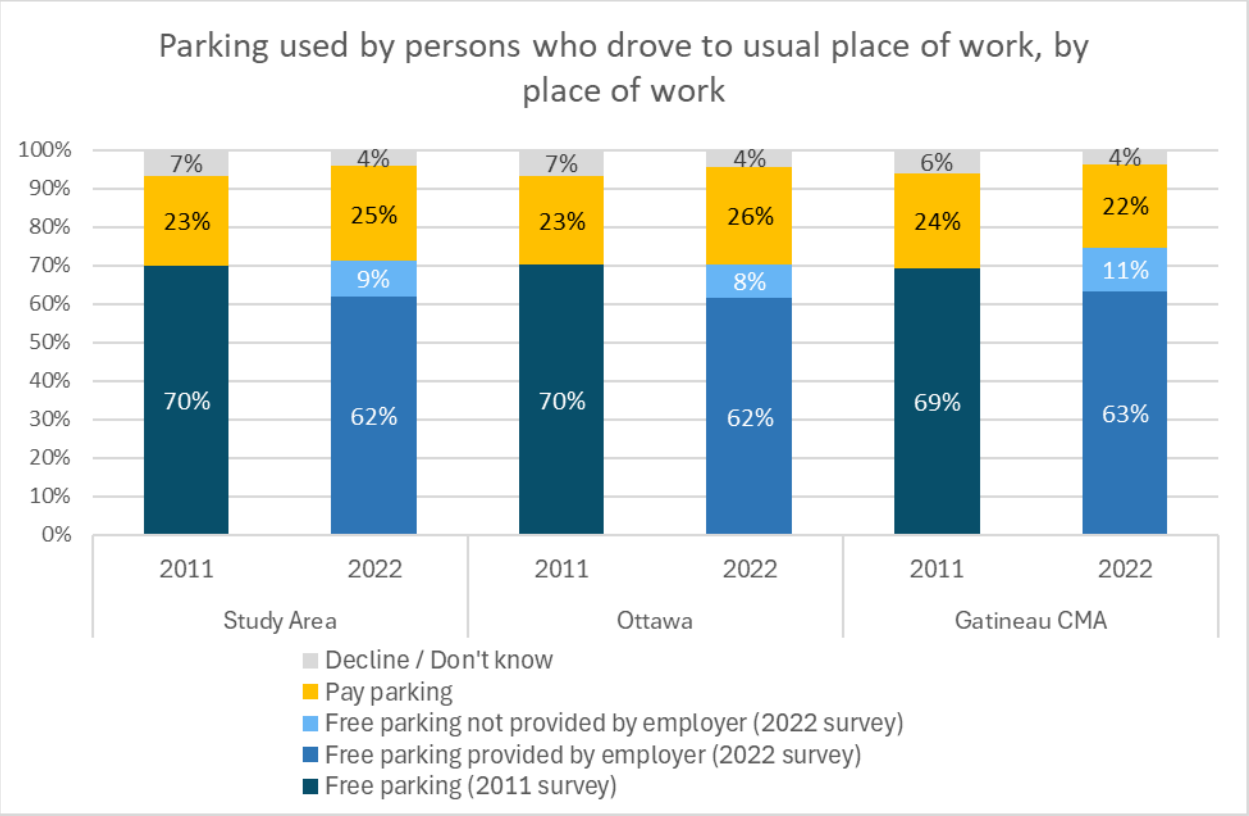
Car-share members who reported auto driver trips were asked if the trips were made using a car-share vehicle. People who lived in households without vehicles who reported auto driver trips were asked if the trips were made using a car-share vehicle or a borrowed, rented, or work vehicle. People who lived in households with vehicles and who did not have a car-share membership were not asked about what type of vehicle was used for their auto driver trips (i.e., use of a household vehicle is assumed), therefore, the actual incidence of trips using borrowed / rented / work vehicles not kept at home may actually be somewhat higher than in the table.

4.15 Parking costs

Figure 119 summarizes the type of parking used by people who drove to their usual place of work. The choices were free parking provided by the employer, free parking not provided by the employer and pay parking. The chart compares the 2022 and 2011 results, noting that the current survey did not ask respondents to quantify the actual parking cost due to problematic reporting in the past.

The figure shows that approximately one in four Study Area drivers (25%) paid for parking in 2022 – up slightly from 23% in 2011. Approximately 4% of drivers declined to answer or did not know. Of the remaining 71%, the majority (62%) reported that their employer provided free parking with the other 9% reporting that they had free parking that was not provided by the employer. Although the total proportion of free parking was nearly identical to that in 2011 (70%), differences in how the question was posed that year preclude a meaningful break down by employer-provided versus non-employer-provided free parking. The proportions for both years were similar in both jurisdictions, with a slightly lower rate of paid parking (22%) in the Gatineau CMA compared to Ottawa (26%), slightly higher employer-provided free parking rates (63% versus 62%) and moderately higher non-employer free parking rates (11% versus 8%).

Figure 119. Parking costs, usual place of work, 2011 and 2022



4.16 Highlighted travel characteristics

Table 63 provides a standalone summary table that combines key indicators in the preceding sections on travel characteristics. It is meant to be a simple reference to key facts, without additional commentary. The Ottawa and Gatineau CMA columns provide statistics for residents of these areas except for transit trips by trip origin which is based on the origin of the transit trip.

Table 63. Summary of key travel characteristics

	Study Area		Ottawa		Gatineau CMA	
	#	%	#	#	#	%
Total Trips	3,198,900	100%	2,417,700	76%	781,300	24%
Trips / Person	2.47		2.50		2.35	
Mode						
Auto Driver	1,777,400	56%	1,295,300	54%	482,100	62%
Auto Passenger	490,700	15%	368,900	15%	121,800	16%
Public Transit	243,300	8%	196,300	8%	47,000	6%
School Bus	122,300	4%	89,000	4%	33,300	4%
Bicycle + micromobility	117,000	4%	94,200	4%	22,900	3%
Walk	427,000	13%	355,800	15%	71,300	9%
Other	21,200	1%	18,200	1%	3,000	0%
Transit trips by trip origin[77]	243,100	8%	203,400	8%	39,700	5%
Trip Purpose						
Work	400,313	13%	295,677	12%	104,637	13%
Post-Secondary School	62,326	2%	46,088	2%	16,238	2%
K-12/K-S5 school	189,686	6%	141,625	6%	48,062	6%
Shopping / household maintenance	408,939	13%	313,119	13%	95,819	12%
Health and Personal Care	91,624	3%	69,234	3%	22,389	3%
Restaurant	121,525	4%	95,006	4%	26,519	3%
Social	114,388	4%	83,457	3%	30,931	4%
Recreation	187,522	6%	147,402	6%	40,120	5%
Pick-up or drop-off passenger	261,064	8%	193,329	8%	67,735	9%
Return Home	1,323,578	41%	1,002,201	41%	321,377	41%
Other	37,946	1%	30,512	1%	7,432	1%

[77] Transit trips by trip origin excludes 200 public transit trips that originated outside the study area. The 'public transit' mode group includes local transit bus services, the LRT, and 'other bus/minibus'.

	Study Area		Ottawa		Gatineau CMA	
	#	%	#	#	#	%
Average distance by Mode						
Auto Driver	10.2 km	9.8 km	11.3 km	10.2 km	9.8 km	
Auto Passenger	8.6 km	8.5 km	9 km	8.6 km	8.5 km	
Public Transit	12.2 km	12.3 km	12.1 km	12.2 km	12.3 km	
Bicycle + micromobility	4.6 km	4.5 km	5.3 km	4.6 km	4.5 km	
Walk	1 km	1 km	1 km	1 km	1 km	
Auto-Driver Walkable	227,500	13%	166,500	13%	61,000	13%
Auto-Driver Bikeable	770,700	43%	576,600	45%	194,100	40%
Average # Vehicle Occupants	1.4		1.4		1.4	

4.17 Summary: key takeaways

This chapter concludes with selected takeaways from the review of the travel characteristics from the 2022 survey and, where appropriate, comparisons with previous surveys. Key takeaways are presented below:

1. **The total number of daily Study Area trips in grew compared to 2011, although only slightly** at 2.9%, less than the 11%+ increase in Study Area population, workers, households and vehicles. Ottawa residents recorded a 0.7% increase while Gatineau CMA residents recorded a 10.3% increase in daily trips.

2. **Average daily trip rates in the Study Area fell 8% to 2.47 trips per person and 5.23 trips per household** (from 2.67 and 5.70, respectively, in 2011). Trip rates varied by sub-area, by household characteristics such as household composition, dwelling type, income level and vehicle availability, and by demographic characteristics like occupational status, age group and gender. The decline in trip rates was largely driven by a reduction in work commutes.

3. **Even with pandemic-driven shifts in hybrid work and other remote activities across the day, the two commuter peak periods still generated the greatest volumes of trips.** This was driven by the work and school commutes. The AM peak period was sharper than the PM peak period; the PM peak period had higher overall volumes and a lengthy tail.

4. **More than two-thirds of daily trips are made by auto** (with 56% auto driver and 15% auto passenger). 8% of daily trips are made by public transit. 17% of trips are made by active transportation modes, with 13% made on foot, and 4% by bicycle or e-bike.

5. **Trips by auto remained dominant but stable** at 71%. **Active transportation trips increased** to a 17% share from 12% in 2011. **Public transit trips contracted** to an 8% share from 13% in 2011, consistent with increases in remote working and schooling, with transit trips reported on the survey down by 39%. These Study Area-wide shifts

largely reflected conditions in Ottawa. However, **the Gatineau CMA had more accentuated growth in auto driver, auto passenger, active transportation and school bus trips than Ottawa**, in terms of the percentage growth in the daily volumes. In terms of absolute numbers, Ottawa saw a much larger increase in the actual number of active trips (+132,400) than the Gatineau CMA (+35,100), but numerically fewer daily auto driver and auto passenger trips.

6. **Mode shares varied by sub-area.** Auto trips dominated in the rural and suburban areas, while auto shares were lower in and closer to the downtowns. Public transit shares were higher in the downtowns. School bus shares were highest in the rural areas. Active transportation shares were highest among downtown residents. Mode shares also varied by household and demographic characteristics, and by time of day.

7. **More than one-quarter of all Study Area trips were made by sustainable modes** (all non-auto modes combined).[78]

8. **Commuting trip purposes recorded a drop in numbers from 2011 to 2022, while other purposes saw increases**. Reductions in work commute trips and post-secondary commutes are consistent with pandemic-induced contractions in travel for these activities, although some of these reductions continued trends that began prior to 2011 (albeit at accelerated rates). Trips to elementary and secondary school trips increased. Shopping, restaurant, social, recreational, and health and personal care trips recorded increases in numbers.[79]

9. **Commute trips to work and school remained dominant, though their 2022 volumes dropped compared to 2011. Trips for other purposes increased, resulting in a slight overall increase in total daily trips** of 3% between 2011 and 2022. However, reflecting the lower daily trip rate, **this increase was smaller than that of the Study Area's key demographic indicators**.

10. **More than one-quarter (29%) of all Study Area households received a delivery** of a package, food, other items, or services.

11. **Two in five public transit trips (40%) required a transfer, with the transfer rate highest in suburban areas in Ottawa.** Three-fifths (60%) of Study Area public transit users travelled only one route. Most (90%) of public transit users accessed transit on foot.

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[78] For the purpose of this report, 'sustainable modes' aggregates the following modes: transit, school bus, walk, and bicycle/micromobility. This differs from the City of Ottawa's definition of sustainable modes used in other contexts that also includes carpooling.

[79] Note: some caution should be exercised when reviewing the increases in the non-commute purposes, as the 2011 survey had a large number of 'other' purposes that were not recoded to specific categories, whereas the 2022 survey saw the majority of 'other' responses recoded to specific categories. While there certainly were increases, the magnitude of those increases may somewhat overstate the actual increases.

12. **The Ottawa Inner Area was the top generator and receiver of trips to and from other districts.** However, most inter-district trip volumes contracted significantly between 2011 and 2022. More districts recorded higher proportions of internalized trips in 2022, compared with 2011.

13. **Interprovincial person-trip volumes continued to drop**, with more trips remaining internal to each jurisdiction. Interprovincial trips constituted a greater proportion of Gatineau CMA residents' travel activity than Ottawa residents' activity. For interprovincial auto driver/passenger trips, Gatineau CMA home locations were more dispersed geographically than those in Ottawa. Their destinations were also more dispersed, though more focused in and around Ottawa's Downtown Core and selected Inner Area locations. The same was true for interprovincial public transit trips, although the cross-river destinations were much more concentrated than those who travelled by auto. Home locations for cyclists were also more diverse among Gatineau CMA travellers.

14. **All motorized modes recorded absolute and proportional reductions in AM peak period trips to the downtown core business districts.** These reductions were consistent with increased pandemic-induced remote working and other activities. Walk and bicycle and micromobility shares increased. The absolute number of walking trips decreased (though less so than motorized modes, hence the mode share increase). Uniquely, bicycle and micromobility had an increase both in mode share and in the absolute number of trips to the core.

15. **Average trip distances** were in the same ranges as 2011 averages. Auto driver and auto passenger averages were slightly shorter than in 2011. Averages for transit were greater, while averages for walking and cycling were slightly greater. The shorter auto distances may reflect activity changes that became widespread during the pandemic or arose more recently, such as the shift to hybrid work, e-commerce purchases, other remote activities, economic conditions, inflation and other factors. **Trips to work were longer** than they were for other trip purposes.

16. **About two-fifths of auto driver trips were within the distances travelled by most cyclists.** This means that these trips potentially could be made by bicycle and micromobility modes rather than by auto, all else being equal.

17. **One in four workers (25%) with a usual workplace who drove to work paid for parking.** Of the remainder, 62% had free parking provided by their employer and the rest found free parking elsewhere.

18. **The average vehicle occupancy was 1.37 persons per vehicle,** a slight reduction from 2011. Almost three-quarters (72%) of all vehicle trips were occupied by the driver alone.

5 CONCLUSION

This report details the findings of the *TRANS 2022 Origin-Destination Household Travel Survey*. It provides a comprehensive look into regional travel patterns from the 2022 survey, broken down between Ottawa and the Gatineau CMA and by several sub-areas within each jurisdiction. The report identifies several changes in travel patterns since the last (2011) survey.

Most evident were lower daily trip rates and increased work from home (even as many workers transition to a post-pandemic hybrid work environment).

Linked to these changes, trip purposes have shifted. Although commute trips to work and school remained dominant, there was a significant decrease in the volume of these trips from 2011 to 2022. At the same time, trips for other purposes increased. Taken together, there was a slight overall increase in total daily trips of 3% between 2011 and 2022. However, this increase was much smaller than that of the Study Area's key demographic indicators, namely population (10.7% growth over the same period), working population (16.0%)[80] , households (11.2%) and vehicles (11.0%).

In terms of mode shares, auto driver and auto passenger shares were similar to 2011. However, the public transit mode share decreased from 13% in 2011 to 8% in 2022, while the walking mode share increased from 10% to 13% and the cycling mode share increased from 2% to 4%.

The report profiles travel in the Study Area at a unique point in time, given the 11-year interval since the last survey; the introduction of the O-Train, a key new infrastructure; the severe disruptions to people's activities and travel, caused by the pandemic; and ongoing changes to these activities, notably the transition to a hybrid work environment as well as ongoing economic fluctuations. As such, it may be best to see the 2022 O-D survey more as a new travel benchmark than purely as an extension of 2011 and earlier trends.

[80] Growth in population with primary status of worker (i.e. excluding students who work part-time).

APPENDIX A : Questionnaire

2022 Origin-Destination Household Travel Survey

Triptelligence	*Question / Content*

WEB INTRODUCTION (FOR ONLINE RESPONDENTS)

WEB_LOGIN

To begin the survey, please enter the secure access code found on the top of your notification letter.

Secure Access Code:_____ **Begin Survey**

WEB_INTRO

Welcome to the 2022 Origin-Destination Survey.

The [*if Ontario login:* City of Ottawa / *if Quebec login:* Ministère des Transports du Québec] and its partner agencies are undertaking a Household Travel Survey to learn more about the travel patterns of local residents.

The goal of the survey is to understand where people are going, the purpose of their travel, and how they get there by collecting information about the trips made by each household member, as well as other factors that influence travel, such as age and vehicle ownership. The information you provide will be used to analyze travel trends and make informed decisions on future planning for drivers, public transit users, cyclists, and pedestrians. The data will also be used for research purposes and developing transportation models.

[paragraphs below expand on click]

How long does it take to complete the survey? Approximately 10-25 minutes or more depending on the number of people in your household and their travel activity. It is extremely important that all your data is entered completely and accurately, including short or unusual trips. You can also complete the survey by telephone with one of our professional interviewers by calling us toll-free at **1-855-688-1131**.

What kinds of questions are asked? The first two sections of the survey contain questions about your household and the people living in your household. The final section asks questions about the trips taken by each member of your household (5 years of age or older) for a particular weekday (your Travel Day).

Why is the survey being conducted while travel is affected by the COVID-19 pandemic?
The COVID-19 pandemic has had a significant impact on travel patterns, and will likely bring about long-lasting changes to the way people work, attend school, and engage in other activities. This survey and future surveys will help track the recovery from the COVID-19 pandemic and

better understand how travel patterns are evolving. We need new origin-destination data as so much has changed since the last origin-destination survey in 2011.

Will my privacy be protected? Yes. The information you provide will be kept confidential and will not be shared with anyone for any other purpose outside of this survey. Your survey responses will be combined with other responses before they are analysed. No information that could be traced to you or other members of your household will ever be released. Click here to view our **Privacy Statement [link]**.

How was I selected for the survey? Your household was selected at random from households in the National Capital Region and nearby communities. A limited number of households are invited to join the survey, so the few minutes you take to participate will have a big impact. The survey is voluntary, but to truly represent the travel behaviour of all types of residents in your neighbourhood, we hope that you will choose to participate.

[Programmer: include a pop up modal window with a map of the study area when click on the link in the text]

Who is being surveyed? We will be surveying randomly selected households across the City of Ottawa, Ville de Gatineau, the MRC des Collines-de-l'Outaouais, and other selected communities in the Ottawa-Gatineau area. Only a limited number of invitations are sent out, so your participation is important.

Who is conducting the survey? The survey is a joint effort between the City of Ottawa, Ville de Gatineau, Ontario and Québec provincial governments, National Capital Commission, and the transit agencies in Ottawa and Gatineau. Canada-based independent research firm R.A. Malatest & Associates Ltd. has been contracted to conduct the survey.

What day of the week should I report on? We are interested in collecting your most recent trip information from a previous weekday (your Travel Day). It is important that you provide a snapshot of what you actually did on that day, even if it was not a typical day, and even if you did not travel.

Who do I contact for more information or for help?

- If you would prefer to complete the survey by telephone, please call **1-855-688-1131** (toll free).
- You may also call the number above for assistance with the online survey, or email us at info@ODsurvey.ca [English] info@EnqueteOD.ca [French].
- If you wish to validate the authenticity of this survey you may contact
  - Elizabeth Whyte, Strategic Programs and Projects Officer, City of Ottawa, via email at Elizabeth.Whyte@Ottawa.ca or via phone at (613) 315-5713
  or
  - ministère des Transports du Québec via phone at Québec 511 (or 1-888-355-0511).
- For more information about this survey, please visit www.ODsurvey.ca [English] www.EnqueteOD.ca [French].

Triptelligence	*Question / Content*

Your answers to the survey are saved each time you click on the Previous or Next Buttons. All personal information collected in the survey will be kept strictly confidential.

Next

A1, A1X (web)

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?

1. Yes
2. No

[if no]
This survey must be completed by someone 16 years of age or older who is familiar with your household's weekday travel.

The survey may only be completed by someone under the age of 16 if consent is provided by their parent or legal guardian.

Please have a parent or legal guardian review and answer the following question before proceeding:

The 2022 Origin-Destination Survey is a confidential and voluntary travel survey that tells us how, why and where residents of the National Capital Region travel. The data collected helps government agencies at the local, provincial, and federal level make informed decisions on transportation planning and investments. To do this, the survey collects information on existing household travel patterns. All the information you provide is strictly confidential. Click here to view our **Privacy Statement [link]**.

1. I am a parent or legal guardian of a person in this household who is under the age of 16 and I consent to this young person filling out the 2022 Origin-Destination Survey on behalf of the household
2. No, I do not consent to having a younger household member fill out the survey

If consent is not given, please click 'Previous' to go back to the introduction, and ask an older member of the household to complete the survey.

[Programmer: If answer is No, do not allow respondent to proceed. Provide error message of: Please either obtain consent or ask an older member of the household to complete the survey.]

[Map of study area for pop-up modal window]

A1Z (web) *[Online text:]*

Notice and Consent to Participate

The 2022 Origin Destination Survey is being jointly conducted by the TRANS Committee, which coordinates transportation data collection and analysis in the National Capital Region. The TRANS Committee consists of six members, the Ministère des transports du Québec, Ministry of Transportation of Ontario, National Capital Commission, Ville de Gatineau, City of Ottawa, and Société de transport de l'Outaouais. The 2022 Origin Destination Survey [*If Ottawa sample:*was approved by Council of the City of Ottawa as part of the 2019 Budget and]is being jointly funded by all members of the TRANS Committee.

As part of the survey, you will be asked questions about the trips made by each member of your household and information about your household (such as the type of building you live in, number of vehicles you have access to, and age of each household member). The information collected will help us understand the factors that influence people's travel choices and will be

used for transportation planning purposes, including updating travel forecasting tools; analyzing travel patterns and trends; and undertaking studies to assist in planning, building, operating, and maintaining the region's transportation system.

An independent, Canadian research firm, R.A. Malatest & Associates Ltd., has been contracted to administer the survey. Click here for a link to the firm's privacy policy. The TRANS Committee and R.A. Malatest & Associates Ltd. are dedicated to protecting the privacy of participants.

This survey is voluntary and the personal information you provide will be kept confidential and will only be used for the purpose of conducting this survey. Click here to view our **Privacy Statement** [link].

Questions about this survey and use of your personal information may be directed to:

- Elizabeth Whyte, Strategic Programs and Projects Officer, City of Ottawa, via email at Elizabeth.Whyte@Ottawa.ca, via phone at (613) 315-5713, or via mail at 110 Laurier Ave, Ottawa ON KIP 1J1.

or

- Madame Émilie Desjardins-Robitaille, responsable du module Coordination avec le milieu de la DGO via email at dto@transports.gouv.qc.ca, via phone at 819 772-3849, or via mail at 170, rue de l'Hôtel-de-Ville, 5e étage Gatineau (Québec) J8X 4C2.

Select "**I Agree**" to confirm that you have read the above statement and agree to participate in the survey.

PHONE INTRODUCTION (FOR TELEPHONE INTERVIEWS)

TEL_INTRO (phone)

[This introduction is read to telephone respondents over the phone. The 'persuaders' section include scripts that are optional to read and are available to interviewers so that they can respond to questions from respondents.]

Hello, my name is _____ and I am calling on behalf of [*If Ottawa sample:* the City of Ottawa / *If Quebec sample:* Ministère des Transports du Québec]. As reported in the media, we are conducting a major household travel survey in the Ottawa-Gatineau region and surrounding area.

I would like to ask you some questions about the trips made by the members of your household yesterday. I need to talk to the person, 16 or older, who is most familiar with your household's travel yesterday. Are you that person?

1. Yes *[continue]*
2. No *[ask to speak to appropriate person]*

If person not available, try to make appointment.
If refusal, offer to send information about the purpose of the study.
If refusal maintained: "Thank you for your time. Have a pleasant day / evening."

Triptelligence	*Question / Content*

PERSUADERS

Use the following scripts as necessary:

- This survey is about the transportation choices people make. The survey results will be used to analyze travel trends and will help us plan improvements to roads, public transit, and pedestrian and cycling facilities in your community. The information may also be used for research purposes, to improve our understanding of the relationship between transportation, land use, and other factors.

- Your household has been randomly selected to participate in this survey. Participation in the survey is important to understand travel behaviour within the National Capital Region. The last time this transportation survey was conducted was more than 10 years ago, in 2011, and we need to update the data to better understand residents' current transportation habits. The survey is voluntary, but to truly represent the travel behaviour of residents in your neighbourhood, it is important that you participate.

- The survey takes about 10-25 minutes to complete depending on the number of people in your household and their travel activity.

- The survey contains questions about your household and the people in your household. It also asks about the trips made by each member of your household on the previous weekday.

- Even if you did not make any trips yesterday, it is important that we record that information as well. The survey will be shorter for you.

- I work for R.A. Malatest & Associates Ltd, a professional research firm. We are conducting this survey on behalf of the TRANS Committee, which includes the Province of Ontario, the Province of Quebec, the City of Ottawa, the Ville de Gatineau, the National Capital Commission, and the local transit agencies.

- *If asked why do a survey now, given the COVID pandemic:* The COVID-19 pandemic has had a significant impact on travel patterns, and will likely bring about long-lasting changes to the way people work, attend school, and engage in other activities. This survey and future surveys will help track the recovery from the COVID-19 pandemic and better understand how travel patterns are evolving. We need new origin-destination data as so much has changed since the last origin-destination survey in 2011.

- If you wish to validate the authenticity of this survey you may contact **Elizabeth Whyte**, Strategic Programs and Projects Officer, City of Ottawa, via email at **Elizabeth.Whyte@Ottawa.ca** or via phone at **(613) 315-5713**
  or
  ministère des Transports du Québec, by telephone at **Québec 511** (or **1-888-355-0511**)**.**

Triptelligence	*Question / Content*

- I can send you an email with information about the survey, and a link to the survey website. (If you prefer I can mail you information about the purpose of the survey, and call you back after you have reviewed the information.)

A2 (phone)

[Phone only]
Read to all:

The 2022 Origin Destination Survey is being jointly conducted by City of Ottawa, the Ministère des transports du Québec, Ville de Gatineau, Ministry of Transportation of Ontario, National Capital Commission, and Société de transport de l'Outaouais. The 2022 Origin Destination Survey [*if Ottawa sample*: was approved by Council of the City of Ottawa as part of the 2019 Budget and]is being jointly funded by the partner agencies.

As part of the survey, you will be asked questions about the trips made by each member of your household and information about your household (such as the type of building you live in, number of vehicles you have access to, and age of each household member). The information will be used for transportation planning purposes, such as updating travel forecasting tools; analyzing travel patterns; and undertaking transportation studies.

If you have questions about this survey and use of your personal information, I can provide you with contact information for a person in charge from the [*depending on whether ON or QC sample:* City of Ottawa / Province of Quebec]

IF ASKED:

- For residents of Ottawa: Elizabeth Whyte, Strategic Programs and Projects Officer, City of Ottawa, via email at Elizabeth.Whyte@Ottawa.ca, via phone at (613) 315-5713, or via mail at 110 Laurier Ave, Ottawa ON K1P 1J1
- For residents of Quebec: Madame Émilie Desjardins-Robitaille, responsable du module Coordination avec le milieu de la DGO via email at dto@transports.gouv.qc.ca, via phone at 819 772-3849, or via mail at 170, rue de l'Hôtel-de-Ville, 5e étage, Gatineau (Québec) J8X 4C2

This survey is voluntary, and I can assure you all personal information will be kept confidential and will only be used for the purpose of this survey.

(INTERVIEWER: click here for the Privacy Statement if more info is required: View our Privacy Statement.)

Do you agree to take part in the study?

1: Agree
2: Call later / appointment
3: Refuse

[The respondent must indicate that they agree with the above statement in order to continue participating in the survey]

SURVEY PRIVACY STATEMENT

Privacy statement pop-up

[Available anywhere there is a link to the Privacy Statement. Not read out loud but available to interviewers and to online respondents]

We are dedicated to protecting the privacy of participants.

Collection of personal information is being undertaken in accordance with Ontario's *Municipal Freedom of Information and Protection of Privacy Act* (MFIPPA) and Québec's *Loi sur l'accès aux documents des organismes publics et sur la protection des renseignements personnels.*

The confidentiality of any information collected by the survey is protected under the provisions of these Acts. **The information you provide will not be shared with anyone for any other purpose outside of this survey**. Your responses will be combined with other responses in your area before they are used for analysis or reporting. No information that could be traced to you or other members of your household will ever be released.

Personal information is being collected on behalf of the City of Ottawa, Ville de Gatineau, Ministry of Transportation of Ontario, Ministère des transports du Québec, National Capital Commission, and the transit agencies in Ottawa and Gatineau (OC Transpo and the Société de transport de l'Outaouais). These agencies are members of the **TRANS Committee**, which coordinates transportation data collection, analysis, and modelling within the National Capital Region. *[link on TRANS Committee: http://www.ncr-trans-rcn.ca/about-trans/]*

Canadian-based research firm R.A. Malatest & Associates Ltd. is conducting the survey under the direction of the TRANS Committee. The firm is subject to the *Personal Information Protection and Electronic Documents* Act (PIPEDA) and is committed to the highest standards for the protection of privacy and confidentiality. Click here for a link to the firm's **Privacy Policy** *[Malatest Privacy Policy Page URL: http://www.malatest.com/Privacy.htm - launch in separate window].*

In accordance with privacy legislation, your personal information will be retained for at least 12 months after the completion of data collection (so that we may respond to any requests you may have about your own information). After 12 months, we will delete your contact information (name, phone number, e-mail address) unless you direct otherwise. If after completing the survey, you wish to withdraw your consent to collect your information, please contact the individuals listed below. You may also contact these individuals if you have any privacy questions or concerns, or if you wish to validate the authenticity of this survey.

Elizabeth Whyte, Strategic Programs and Projects Officer, City of Ottawa, via email at Elizabeth.Whyte@Ottawa.ca or via phone at or via phone at (613) 315-5713 or by mail at 110 Laurier Ave, Ottawa ON K1P 1J1

Madame Émilie Desjardins-Robitaille, responsable du module Coordination avec le milieu de la Direction générale de l'Outaouais by email at dto@transports.gouv.qc.ca, by telephone at 819 772-3849, or by mail at 170, rue de l'Hôtel-de-Ville, 5e étage, Gatineau (Québec) J8X 4C2

For more information about the 2022 Origin Destination Survey, please visit the project website at **www.ODsurvey.ca** [English] **www.EnqueteOD.ca** [French]. You may also contact **1-855-688-1131** (toll free) or email **info@ODsurvey.ca** [English] **info@EnqueteOD.ca** [French].

B1A WEB: Please provide a phone number and email address that we can reach you at if we need to clarify your responses.

PHONE: Can you please provide a phone number and email address in case one of our staff needs to reach you?

Name: [NAME]
Phone Number: [PHONE NUMBER] [optional field] Extension: _____ [optional]
Email: _____[optional field]

Your contact information will be kept confidential and will not be shared with anyone. We will contact you only in the event we need to clarify your responses. After 12 months, we will delete any contact information you provide on this page.

All fields on this page are optional; you may select Continue to proceed if you do not wish to provide your contact information.

This survey is entirely confidential and uses secure internet protocols. Your responses will be combined with other responses before they are analysed and will only be used for transportation and city planning purposes. Click here to view our Privacy Statement.

HOUSEHOLD

B2 *[Ask this question if home address exists in sample file. Skip to home location capture if no home address on file or if address is not a mailing address, e.g., PO Box]*

WEB: The home address we have for you is listed below. Please verify the address and correct it if necessary.
PHONE: Is your current home address...? *[Interviewer: read address]*

We are interested in the physical address of your home, not your mailing address. This information is required to identify the location of your trips.

STREET ADDRESS
CITY / TOWN
POSTAL CODE

Once you have made any necessary edits, select "I confirm the address is correct" and click Continue.

1. I confirm the address above is correct

Triptelligence	*Question / Content*
	9. Decline to answer / don't know
B2X	*[if decline to confirm address]* Unfortunately, the survey cannot proceed without an answer to this question. Your participation is very important, and all personal information you provide will be kept strictly confidential. Click here to view our Privacy Statement. If you are uncomfortable providing us your exact street address and you live in an urban area, you may provide your postal code. If you live in a rural area, please provide your street address, or at least the closest cross-streets. PHONE: Rather than ending the survey, would you reconsider answering this question? *If agree: Go back to previous question* *If still refuse:* "Unfortunately, the survey cannot proceed without this information. Thank you for your time. Have a good day / evening."
HOME_ LOCATION	*[Map the address provided using Google Maps]* *[If no address in sample or if address flag indicates a mailing address such as PO Box and address page was skipped:]* Please provide the address of your current place of residence. This information is required to identify the location of your trips. Please do not provide a rural route or a PO Box. *[If confirmed address on previous page:]* *[display confirmed address above Google Map]* WEB: Does the map correctly show where your home address is located? If not, please move the marker to where it is located, or use the Search box to search for your correct address. PHONE: *Confirm with respondent what the map shows: e.g.,* "I am looking at the location on Google Maps. It looks like your home is near the intersection of [STREET] and [STREET]. Is that correct?" [Text for confirmed address:] Home location confirmed: [RECALL CONFIRMED ADDRESS] (Click Previous to modify this location).
OUTSIDE_STUDY_ AREA_TERM	*[If mapped location coordinates are not within the bounds of the polygon defining the survey area:]* The location of your home address found by Google Maps does not appear to be part of our survey area. Please check the location of the marker on the map. If the marker is not precisely where your home is physically located, move the marker, or search again. If the location of the marker is

Triptelligence	*Question / Content*
	correct, then you live outside of the survey area and we cannot proceed any further in the survey (but we thank you for your participation!). Please contact us at 1-855-688-1131 or info@ODsurvey.ca if there has been an error or to confirm if your household should participate in this study PHONE: I will stop the interview here and thank you for your time. Have a good day / evening.
B3	What type of dwelling do you live in? 1: Single-detached house 2: Semi-detached house or duplex 3: Secondary suite in a house (e.g., basement apartment, upstairs apartment) 4: Row / townhouse 5: Apartment or condo in a building with 1 to 4 floors 6: Apartment or condo in a building with 5 to 9 floors 7: Apartment or condo in a building with 10 or more floors 77: Other (e.g. mobile home, houseboat, cottage, etc.), please specify: _____ 99: Decline to answer / don't know *Mouseovers:* *Single-detached house:* A single dwelling not attached to any other dwelling or structure (except its own garage or shed). Has open space on all sides, and has no dwellings either above it or below it. Includes mobile homes if they are permanently attached to a foundation. *Semi-detached house or duplex:* Two dwellings attached side by side, back to back, or one above the other. Include basement apartments in houses with only two dwelling units. *Secondary suite in a house:* Choose this option if you live in a secondary suite in a house and you are not sure whether it should be classified as a semi-detached house or duplex or an apartment in a building with 1 to 4 floors. *Row/townhouse:* Three or more dwellings joined side by side or occasionally back to front, such as a townhouse or garden home, but not having other dwellings either above or below. Include triplexes or quadruplexes only if all dwelling units are on the same level. *Apartment or condo in a building with 1 to 4 floors:* A dwelling unit attached to other residential dwelling units, commercial units, or other non-residential space in a building that has fewer than five storeys. Includes basement apartments in houses with three or more dwelling units. Include triplexes or quadruplexes if there are dwelling units on different levels (some units are above or below).
B3A	*[if dwelling type = secondary suite in a house]* Is the secondary suite in a building with 3 or more apartments or dwelling units? 1. Yes

Triptelligence	*Question / Content*
	2. No
B4	How many people currently live in your household, including yourself? *Include:* *- all persons who normally live in the household unit, including babies, children, grandparents etc.* *- children in joint custody if living in the household on the previous weekday ([RECALL TRAVEL DAY]).* *– roommates, live-in housekeepers and lodgers who share communal facilities.* *Exclude:* *Exclude anyone living in a separate apartment within the building.* *Exclude persons living elsewhere for more than 1 month (e.g., son or daughter living away at school) and temporary guests living with you for less than one month.* ____ [1 to 11] 99: Decline to answer / don't know
B5	*[If decline to answer]* Unfortunately, the survey cannot proceed without an answer to this question. Household size is highly related to transportation options and is important for the analysis. Your participation is very important, and all personal information you provide will be kept strictly confidential. Click here to view our Privacy Statement. Click the Previous button to go back and provide a response, or click End Survey to quit. PHONE: "Rather than ending the call here, would you reconsider answering this question?" *If still decline to answer:* "Unfortunately, the survey cannot proceed without this information. Thank you for your time. Have a good day / evening."
B6	How many vehicles does your household have available for personal use? Please include personal and business vehicles, including cars, SUVs, light trucks and vans. *Include vehicles provided by employers which household members use to go to work or for personal use, or which self-employed household members drive for their own business and personal use.* *Exclude motorcycles/scooters, bicycles, ATVs, and RVs.* *Exclude vehicles that are not insured to be on the road.* *Exclude car share vehicles (e.g., Communauto, Zipcar).* ___ [1 to 15] 99: Decline to answer / don't know
B7A	*[if # vehicles=1] SKIP TO B7B* *[if # vehicles>1]* Are any of these vehicles hybrid, electric, diesel, or powered by another alternative fuel? (i.e., an alternative fuel source other than gasoline) 1. Yes 2. No

Triptelligence	*Question / Content*
	99. decline / don't know
B7B	*[if yes; # vehicles=1]* What type of fuel source does your vehicle use? 9. Regular gasoline only (not a hybrid) 1. A hybrid 6. Plug-in hybrid 2. Electric-only 3. Diesel 4. Biodiesel 5. Other alternative fuel type, please specify: _____ 99. Decline / don't know
B7C	*[if yes; # vehicles > 1]* How many of the [B6 #] vehicles are… *(Note: the remainder of vehicles are assumed to be gasoline powered)* 1. Hybrid? ____ 6. Plug-in hybrid ___ 2. Electric-only? ____ 3. Diesel? ____ 4. Biodiesel? ____ 5. Other alternative fuel type*: ____ 99. Decline / don't know * Other type, please specify: _____
B8	How many working bicycles and electric bicycles are available to members of your household? Include children's bicycles only if they have been used in the last year. Adult bicycles: ____ Adult e-bicycles: ____ Children's bicycles (used in last year): ____ 99. Decline / don't know
B8A	*[if total # of adult bicycles + adult e-bicycles across all categories > 0]* *[if total=1]* You indicated one adult [bicycle / e-bicycle]. Has this bicycle been used in the last 30 days? 1. Yes 2. No 99. Decline / don't know *[if total>1]* How many of the adult bicycles or e-bicycles in your household have been used in the past 30 days? Out of [recall #] adult bicycles: ____ have been used in the past 30 days

Out of [recall #] adult e-bicycles: ____ have been used in the past 30 days
99. Decline / don't know

DEMOGRAPHICS

DEMOINTRO

Your responses are entirely confidential. Your personal information will be protected and will not be shared with anyone for any other purpose outside of this survey. Click here to view our Privacy Statement.

[IF ONE-PERSON HOUSEHOLD]
The next section is about your demographics. You will be asked to provide some information about yourself before moving on to recording your trips in the next section of the survey.

Click on the 'Begin Demographics' link to answer your demographic questions.

Household Member	Age	Gender	Status	
You	-	-	Begin Demographics	

Before proceeding, please ensure that all information provided is accurate.
If the number of people in the household is not correct, use the Previous button to go back to the question about the number of people in the household.
Upon selecting 'Continue,' the information provided up to this point will be saved and processed.

[once all demographics complete:] To edit your demographic information, please click on the Edit Demographics link in the above table. Once your demographic questions are complete, you can enter your trips.

[IF MORE THAN ONE PERSON]
The next section is about the demographics of your household. You will be asked to provide some information about yourself and the other members of your household.
Please fill in the following table with a way of identifying each person. This will make it easier to refer to them in questions later in the survey. You could use a name, nickname, initials, or family relationship ('spouse', 'son #2', 'child 12 years', etc.). These names or nicknames will be removed from the final data file to preserve your household's anonymity.

If anyone is missing, click the + sign to add another person to the list.

Person #1 ID	**You**
Person #2 ID	
Person #3 ID	
Etc.	

[TABLE LISTING ALL HOUSEHOLD MEMBERS]

[After entering nicknames, list is redisplayed]

Household Member	Age	Gender	Status	
You	-	-	Complete	Edit
[recall Person #2 ID]	-	-	Begin Demographics	
[recall Person #3 ID]	-	-	Begin Demographics	
Etc.				

1 record complete out of 3

Click 'Begin Demographics' to start entering demographics for each person.
To edit the information for any household member, please click on the Edit Demographics links in the above table.

Once demographic information is entered for all members of your household, you can start entering your trips.

[Once completed for all household members display the following instructions:]
The demographics section of the survey is now complete. You can use the Edit links to update/edit your previously entered responses, or click Continue to start entering information about your trips.

Before proceeding, please ensure that all information provided is accurate.

Upon selecting 'Continue,' the information provided up to this point will be saved and processed.

C2 *[If PERSON # >= 2:]* The next questions are about [PERSON]

What is [your/PERSON's] age?

_____ [0-98]
99: 99 and over
100: Decline to answer

[If PERSON # >=2:] If younger than 1 year of age, please enter 0.

C2A *[If decline to answer:]*
What age group do [you/PERSON] belong to?
PHONE: Interviewer: Read the age ranges, starting at a relevant one:
1: 0-4 years
2: 5-9
3: 10-15
4: 16-19
5: 20-24
6: 25-29

7: 30-34
8: 35-39
9: 40-44
10: 45-49
11: 50-54
12: 55-59
13: 60-64
14: 65-69
15: 70-74
16: 75-79
17: 80-84
18: 85-89
19: 90-94
20: over 95 years of age
99: Decline to answer

C2B

[If decline to answer:]
Unfortunately, the survey cannot proceed without an answer to this question. Demographic information such as age is crucial to understanding travel behaviour.

Your participation is very important, and all personal information you provide will be kept strictly confidential. Click here to view our Privacy Statement.

PHONE: Rather than terminating the survey, can you provide an approximate age range? For example, are [you/PERSON] in [your/their] 30s? 40s?
WEB: If you are uncomfortable providing us [your / PERSON's] exact age, please select from the ranges below to continue the survey.
INTERVIEWER: Go back to previous question if precise range given or select from broad ranges below

1. 0-4 years (infant or toddler, will not ask about trips)
2. 5-15 years (child or youth not eligible for driver's licence)
3. 16-19 years (youth eligible for driver's licence)
4: 20-29 years
5: 30-49 years
6: 50-64 years
7: 65+ years of age
99: Decline to answer

[Termination Page]
[If decline to answer:]

PHONE: INTERVIEWER: Go back to previous question if precise range given or select from the broad ranges above.

Triptelligence	*Question / Content*
	[If still refuse:] Unfortunately, the survey cannot proceed without this information. Thank you for your time. Have a good day / evening.
	WEB: Close your browser window to end the survey.
C2C	*[if age of primary respondent (PERSON #1) is <16]* *[Cul-de-sac page with only Previous and End Survey buttons]* *[if # of people in household=1]:* You indicated that only one person lives in your household, and that you are [AGE years or AGE RANGE] old. This survey must be completed by someone 16 years of age or older who is familiar with your household's weekday travel. If you are 16 years of age or older, click the Previous button to change your answer. *[if # of people in household>1]:* This survey must be completed by someone 16 years of age or older who is familiar with your household's weekday travel. If you are 16 years of age or older, click the Previous button to change your answer. Please fill in the information for Person #1 identified as "You" with your own information. If you are under the age of 16, please have a member of your household who is 16 years of age or older fill out the survey.
C1	What is [your/PERSON's] gender? Refers to current gender which may be different from sex assigned at birth and may be different from what is indicated on legal documents. 2. Female 1. Male 3. Non-binary 4. Prefer to self-describe: _____ 99. Prefer not to say
C3	*[Only ask if 16 years of age or older if based in Ontario, or 14 years of age or older if based in Quebec, or if age range is unknown]* [Do you/Does PERSON] have a valid driver's licence? 1: Yes 2: No 99: Decline to answer / don't know 77: Not applicable (under [16 if Ontario sample, 14 if Quebec sample] years of age)

Mouseover:
valid driver's licence: This includes any category of motor vehicle licence, including a temporary learner's permit, or a motorcycle / scooter licence (available in Quebec to youth 14+ years of age). Answer 'No' if the licence has expired and has not been renewed, or if it has been suspended.

Ontario, display option 77 if: AQAGE is 15 to 19 years of age OR QAGE_RANGE is 16 to 19 years of age OR QAGE_RANGE_FINAL is 16 to 19 years of age
For Quebec, display option 77 if: AQAGE is 10 to 14 years of age OR QAGE_RANGE is 10 to 15 years of age OR QAGE_RANGE_FINAL is 5 to 15 years of age

CAR_SHARE

[Ask only if driver's license = Yes in previous question]
[Are you/Is PERSON] a member of a car-sharing service (such as Communauto or ZipCar)?

1. Yes
2. No
99. Don't know

C3B

[if age>=5 years of age]
[Do you/Does PERSON] currently have a valid public transit pass for unlimited travel during the month of [recall current month]?

*If yes, w*hat type?

A Presto pay-per-use e-Purse or STO pay-per-use e-Wallet is not considered a pass for unlimited travel.
Select all that apply.

2. No transit pass
--- OC Transpo --------
10. OC Transpo Adult Monthly Pass
20. OC Transpo Discounted Monthly Pass (Seniors, Youth, EquiPass, Access, Community, A-Card)
30. U-Pass (fall/winter pass for college/university students)
--- STO -------------------
40. STO Monthly or Annual Pass (Regular, Seniors, ECHO, Fidélité)
60. STO student pass (Cam-puce, ZAP)
--- Transcollines -------
70. Transcollines Monthly Pass
--- Other -----------------
75. Monthly pass for another transit company (e.g., 417 Bus Line, Leduc Bus Line, other)
76. Other not listed above, please specify: _____
99. Decline to answer / don't know
77. Not applicable (under 5 years old) [Do not display if age>=5 years of age; code assigned post-survey]

Triptelligence	*Question / Content*

C4

[If age 5+]
Which of the following apply to [you/PERSON]? Select all that apply.
PHONE:
[If 15+years:] Interviewer: Ask about both employment status and student status. If no to both, probe as to unemployed / stay-at-home parent/caregiver / retired.

[Are you / Is PERSON] currently working (i.e., an employee or self-employed)? Is that full-time or part-time?
[Do you / Does PERSON] currently attend school or another educational institution? (K-12 or post-secondary) Is that full-time or part-time?

1. Work full-time (30 or more hours per week) *[display only if age 12+]*
2. Work part-time (less than 30 hours per week) *[only display if age 12+]*
3. Student full-time
4. Student part-time
5. Unemployed (available for and actively seeking work) *[only display if age 15+]*
8. Not employed and not looking for work (disability, unpaid volunteer , parental leave) *[only display if age 15+]*
6. Retired *[only display if age 40 +]*
7. Stay-at-home parent or caregiver *[only display if age 16+]*
77. Other, specify: _____

[PROGRAMMING NOTE: cannot select 'unemployed' if work full-time or part-time]

C4X

[if respondent indicated both f/t student and f/t worker, provide confirmation:]
From your answers, it appears that [you attend/PERSON attends] school full-time and also [work/works] full-time (more than 30 hours per week at [your/PERSON's] main job).

Is this correct?
1. Yes, [I attend / PERSON attends] school full-time and [work/works] full-time (more than 30 hours/week)
2. No, attend school part-time and work full-time (more than 30 hours/week)
3. No, attend school full-time and work part-time (less than 30 hours/week)
4. Unsure

DEMOGRAPHICS – WORK DETAILS

QWORK_LOC
GWK

[If worker:]
Do [you/PERSON] have a usual place of work outside the home?

[Note added for field test only (should not be necessary for full admin, if WFH has stabilized):] If [you/PERSON] are currently working from home due to the COVID pandemic, but would otherwise go in to work, select 'usual workplace'

6: Work at a usual workplace that [you go/PERSON goes] to regularly or occasionally (use Google Map on the next page to map [your/PERSON's] usual workplace)
3: No fixed workplace address / no usual place of work / work on the road / worksite changes daily
1: Work exclusively from home (and do not have a workplace [you/PERSON] would usually travel to)

Mouseover on "usual workplace" in response option 6: A permanent workplace location outside the home that you travel to for work, whether you go there frequently or only occasionally.

Mouseover on "No fixed workplace address": If you regularly work outside the home but do not travel to the same worksite every day, please select "No fixed workplace address". Do not use this option if you work from home all of the time. Do not use this option if you have a fixed workplace address, terminal, or base outside the home that you start or end your day at.

[Google Map based location capture]

What is the address or location of your usual place of work (main job)?
(This is the address of the worksite that you normally commute to, whether regularly or occasionally)

To search for an address, start typing in the searchbox, or double-click on the map.

Mouseover on "regularly or occasionally": Even if you are currently working from home most of the time due to the COVID pandemic, identify the worksite you would normally commute to.

QTELECOMM_FREQ

[if work at a usual workplace outside the home or have no fixed workplace address (i.e., exclude those who work exclusively from home)]

In the last week, on which weekdays did [you/PERSON] telecommute (work from home) rather than travel to [your/PERSON's] usual workplace? Select all that apply.

1. Monday
2. Tuesday
3. Wednesday
4. Thursday
5. Friday
77. Did not work from home at all in the last week *[mutually exclusive to 1 through 5]*
88. Don't know

QCOMMUTE_FREQ

[if work at a usual workplace outside the home, or if have no fixed workplace address (i.e., exclude those who work exclusively from home)]

In the last week, on which weekdays did [you/PERSON] travel to work or travel for work-related purposes? Select all that apply

1. Monday
2. Tuesday
3. Wednesday
4. Thursday
5. Friday
77. Did not travel to work or for work purposes in the last week *[mutually exclusive to 1 through 5]*
88. Don't know

If [you/PERSON] traveled to work and telecommuted on the same day, you can select the same day of the week for both questions.

DEMOGRAPHICS – SCHOOL DETAILS

QSCHOOL_NAME

[If student:]
What is the name of [your/PERSON's] school?

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

If you attend more than one campus of a university or college, please enter the campus you attend most often.

1. School Name: _____
8. Home schooled

QSCHOOL_TYPE

[if not home schooled]
Do [you/PERSON] travel to school to attend classes, are [your/PERSON] classes online only, or a mixture of both?
1. Travel to school to attend classes in person
2. Attend school online only / home-based or virtual learning only
3. Mix of in-person and online classes

QSCHOOL_LOC GSC1

[If student and not home schooled, confirm on map:]

[if school name not in list:]
What is the location of this school ([recall school name])
To search for an address, start typing in the searchbox, or double-click on the map.

[if school name in list, map location:]
Does this location appear to be correct?
If it is not correct, please drag the marker on the map, double-click, or click "Search again" to search for the correct address of your school.
[Google Map based location capture]

Triptelligence	*Question / Content*
QSCHOOL_TELECOMMUTE	*[if attend a school (i.e., not home schooled) AND (school type = 2 (online only) OR 3 (mix in-person/online))]* In the last week, on which weekdays did [you/PERSON] attend classes online rather than travelling to school? Select all that apply. 1. Monday 2. Tuesday 3. Wednesday 4. Thursday 5. Friday 77. Did not attend any classes online in the last week [PROGRAMMER: mutually exclusive to 1 through 5] 88. Don't know
QSCHOOL_COMMUTE	*[if attend a school (i.e., not home schooled) AND (did not indicate that they attend school online only i.e., school type = 1 (travel to attend in person) OR =3 (mix in-person/online))]* In the last week, on which weekdays did [you/PERSON] travel to school? Select all that apply 1. Monday 2. Tuesday 3. Wednesday 4. Thursday 5. Friday 77. Did not travel to school in the last week *[mutually exclusive to 1 through 5]* 88. Don't know
DISABILITY	*[Household size = 1:]* Do you have a disability or cognitive or physical condition that affects or limits your ability to travel? *[Household size is greater than 1:]* Does any member of your household have a disability or cognitive or physical condition that affects or limits their ability to travel? This includes both ongoing and temporary conditions. 1. Yes 2. No 99. Don't know / Prefer not to answer *[if yes and household size =1]* *Do you use a mobility aid such as a wheelchair, walker, crutch, cane, or seeing-eye dog?* 1. Yes 2. No 99. Don't know / Prefer not to answer *Do you have an accessible parking permit (Ontario) / disabled parking permit (Quebec)?* 1. Yes

2. No
99. Don't know / Prefer not to answer

[if yes and household size >1:]
WEB: Please indicate each person who has a disability or cognitive or physical condition that affects or limits their ability to travel. Please also indicate whether they use a mobility aid and whether they have an "Accessible Parking Permit" (Ontario) or "disabled parking permit" (Quebec).

PHONE: Which people in your household have a disability or cognitive or physical condition that affects their ability to travel? **Select all that apply:**
INTERVIEWER: For those with such conditions, prompt:
Do they use a mobility aid such as a wheelchair, walker, crutch, cane, or seeing-eye dog? Do they have an accessible parking permit / disabled parking permit?

	Disability or condition that affects travel	Uses a mobility aid such as a wheelchair, walker, crutch, cane, or seeing-eye dog	Has an accessible / disabled parking permit
PERSON1	❍	❍	❍
PERSON2	❍	❍	❍
…etc…	❍	❍	❍

[Programmer: mobility aid and handicapped parking sticker should only be allowed if disability selected]

LANDING *[If asking about respondent and there are other persons in household:]*

WEB: Thank you for providing your demographic information, please select **Return to Household** to complete the demographics section for the other people in your household.

PHONE: I am now going to ask you about the other persons in your household.

TRIPS INTRODUCTION

TRIPS_INTRO *[Begin with primary respondent, section is tailored as appropriate for subsequent respondents]*

PHONE: I am now going to ask you about the trips you made yesterday, that is any trip during the 24-hour period between 4:00 AM [yesterday / TRAVEL DAY if travel day was set at an earlier time] and 4:00 AM [this morning / TRAVEL DAY+1], whether for work, school, shopping or any

Triptelligence	*Question / Content*

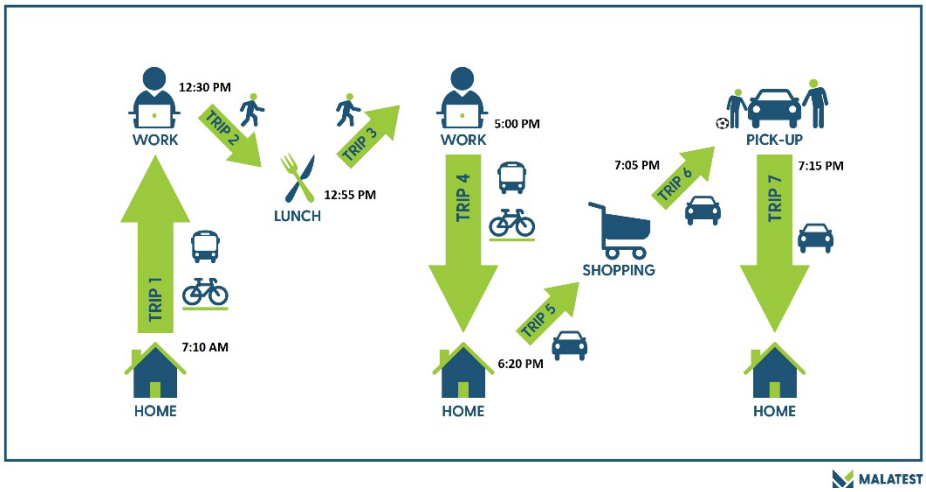
other purpose. It is important to report all trips, even for a short distance, on foot for instance, or stopovers on the way to somewhere else.

WEB:
This section consists of questions about the **trips** taken by the members of your household **during a single weekday** (your Travel Day).

In order to ensure the most accurate recollection of your travel, please use **[yesterday/TRAVELDAY]** as your Travel Day. Please report any trips made during the 24-hour period between 4:00 AM [TRAVELDAY] and 3:59 AM [TRAVEL DAY +1], whether for work, school, shopping or any other purpose.

This section will have a series of questions for each separate trip. *[if any member of the household is under the age of 5, i.e., C2<5 or C2A=1 or C2B=1:]* We will only ask for trip details for children 5 years of age or older.
What is a trip? A trip is a one-way journey from one location to a different location for a single purpose. A trip may include more than one mode of travel, such as car and transit.

- It is important to report **all trips**, even very short trips, on foot for instance.
- If you stopped off on your way to somewhere else, such as to drop off a child at school or pick up a coffee, then that journey would have two trips. The return portion of a journey is also considered a separate trip.
- Report all trips, whether made by walking, car, truck, bicycle, transit or any other mode of travel.
- [if person is employed:] Report your trips for business meetings and work-related purposes.
- Do not report walking the dog with no destination. (However, report the trip if you walk the dog to a specific destination at which you will spend more than 15 minutes, such as a park.)
- Do not report going for a walk/jog in the neighbourhood with no destination. (However, if you walk/jog to work, please report it as a trip to work).
- Do not report moving around between buildings on a work campus or school campus or within the same building complex.



How precise do locations need to be? We will ask you where you travelled to. Please try to describe locations as precisely as possible, to the accuracy of street address. Use the Google Map provided to search for a specific business or place, or double click on the map to set a 'pushpin' marker. You can drag the marker to the exact location. If possible, try to avoid placing markers at intersections – drag them to the actual destination you travelled to.

[if person is employed:]

If [you are/PERSON IS] a commercial driver (bus driver, truck driver, taxi driver, courier, traveling salesman): You do not have to tell us about all the work trips [you/PERSON] made for commercial deliveries, or while driving a taxi or bus. But please report the following:

- Your first trip to where you started your work day (terminal, office) or your first delivery or stopping point if you started your delivery/work schedule directly from home.
- Your final work-related stopping point just before the end of your work day, if it is different from the one above.
- A return trip to your home or other non-work related location at the end of your work day.
- All personal trips by any mode of travel.

PHONE: *INTERVIEWER: If the person was out of town yesterday, we can capture their travel if it started, passed through, or ended up in the National Capital Region.*
[Cycle through trip section for primary respondent]

[Next, cycle through introduction and trip section for each household member >=5 yrs]

[If household size >1, display following question at beginning of trips introduction for each househol member PERSON #2 and above AND if PERSON is 15+]
WEB: Next, are questions about [PERSON]'s travel. If [PERSON] is available right now, you have the option to have them fill out their own trips.

If [PERSON] is filling out their own trips, please tick this box: ☐
Otherwise, click Continue to proceed.

TRIPS – START OF TRAVEL DAY

[Entire trip capture section asked only of persons 5+ years of age]

ANYTRIP *[PERSON's age>=5]*

Did [you/PERSON] make at least one trip - by any mode of travel whether car, bus, cycling, or walking - at any time [yesterday/TRAVELDAY])?

Note: Trips include those made via any mode of travel, including all motorized modes of transportation and any non-motorized modes such as walking, cycling, rollerblading, skateboarding, and so on

[If SchoolType=college or university:] Please report trips to and from school campuses and any trips made off-campus. Do not report trips moving between buildings on the same campus or within the same building complex.

1. Yes
2. No

WHYNOTRIPS *[If No:]*

PHONE: Why did [you/PERSON] not leave home or make any trips [yesterday/TRAVEL DAY]?
WEB: What is the main reason [you/PERSON] did not leave home or make any trips [yesterday/TRAVEL DAY]?

1. Out of town for entire day
2. Sick/ill or caring for another household member who was sick/ill
3. Not scheduled for school classes or activities
4. Not scheduled for work or on extended leave from work (paternity/maternity, short-term disability)
5. Worked from home, and did not leave home for any reason
8. Attended class remotely from home, and did not leave home for any reason
6. No need to leave home
7. Could not leave home, no transportation available
77. Other (specify): _____

100. Actually, [I/PERSON] did leave home to go to work or school or to make at least one other kind of trip *[GO BACK TO PREVIOUS QUESTION. PROGRAMMER: bold this response option]]*

WHYNOWORK1 *[if employed=yes AND (WhyNoTrips "not scheduled for school classes or activities" or "attended class remotely" or "no need to leave home" or "could not leave home" or "other" i.e., 3 or 8 or 6 or 7 or 77), regardless of whether work from home or not]*

You did not report [going to work / that [PERSON] went to work] [yesterday/on TRAVEL DAY]. What was the reason [you/PERSON] didn't make any trips to [your/PERSON's] usual place of employment yesterday?

Triptelligence	*Question / Content*

1. Worked from home (telecommuted)
2. Away on business / working on the road
3. Did not work
4. **Actually [I/PERSON] worked and did take work-related trips or travelled to work**
77. Other, specify: _____

[PROGRAMMER: bold response option 4]

[if actually did take work-related trips]

Please report [your/PERSON's] trips to and from work, or for work-related purposes, whether [you/PERSON] walked or used another mode of travel.

[PROCEED TO TRIP CAPTURE]

WHYNOSCHOOL1 *[if a student AND (E1X="not scheduled for work" or "worked from home" or "no need to leave home" or "could not leave home" or "other" i.e., 4, 5, 6, 7, or 77), regardless of whether home-schooled or not]*

You did not report [going to school / that PERSON went to school]. What was the reason [you/PERSON] didn't make any trips to [your/their] school yesterday?[you/PERSON]

1. Attended classes from home (home schooled, , online/virtual learning, e-learning)
2. Did not have any scheduled classes, stayed home sick, or did not attend school for another reason
3. Away on a field trip or other travel
4. **Actually [I/PERSON] did travel to school**
77. Other, specify: _____

[Programmer: bold response option 4]

[if actually did take school-related trips]
Please report [your/PERSON's] trips to and from school, or for school-related purposes, whether [you/PERSON] walked or used another mode of travel.

[CHANGE ANSWER TO ANYTRIP AND PROCEED TO TRIP CAPTURE]

Triptelligence	*Question / Content*
ORIGINHOME E4	Did [your/PERSON's] first trip start from home on [TRAVELDAY]? 1. Yes, [my/PERSON's] first trip started from home 2. No, [my/PERSON's] first trip started somewhere else The travel day to report on is the 24-hour period between 4:00 AM [TRAVELDAY] and 3:59 AM [TRAVEL DAY +1].
ORIGINNOTHOME REASON E4A	You mentioned that [your/PERSON's] first trip of the day started at a location other than your home. Were [you were/PERSON was]…? 1. Working a night shift? (past 4 am, the start of the travel day) 2. Visiting another household within the Ottawa-Gatineau area? (friend's, relative's, parent's, etc.) 3. Away from home on business, vacation, or other personal travel outside the Ottawa-Gatineau area? 5. Another reason, please specify: _____
E4B	*[if away on business or vacation travel]* You mentioned that [you/PERSON] started the travel day away from home because [you were/PERSON was] away on business or vacation. Did [you/PERSON] travel back to the Ottawa-Gatineau region between 4:00 a.m. [yesterday/TRAVEL DAY] and 3:59 a.m. [today/TRAVELDAY +1]? 1. Yes 2. No *[Programmer: Include pop-up modal window on click Ottawa-Gatineau region, with map of the study area]*
E4X	*[If no, did not travel back to the study area]* You said that [you were/PERSON was] away the entire day on business or vacation. Since [you/PERSON] did not return to the survey area, you do not have to enter trips for this day. If [you/PERSON] did return, please click the Previous button below to change your answer to Yes, and then report on [your/PERSON's] travel for the day. *[PROGRAMMER: if E4B=no, conclude trip capture and log person as "No trips" in (should be reflected in person table in household overview)]*

Triptelligence	*Question / Content*
ORIGIN	*[If E4=another location and (E4B=yes or E4A=1,2,or 5)]* What was the STARTING POINT of your first trip [yesterday/TRAVEL DAY]? **LOCATION CAPTURE [ORIGIN CO-ORDINATES]** *[PROGRAMMER: if first trip and E1=1 Yes started from home, then automatically populate first trip origin with home location and skip this question. For subsequent trips, trip origin is by default the destination of the previous trip.]*

TRIPS – DESTINATION, TIME, PURPOSE, MODE

DESTINATION	*[if trip=1 and started from home:]* Where did [you/PERSON] go first? *[if trip=1 and started from other than home:]* Where did [you/PERSON] go from there? *[if trip>1:]* Where did [you/PERSON] go next? Note: For trips requiring air, train, or intercity bus travel to another region outside Ottawa-Gatineau: please treat the trip to the airport, train station, or bus depot as a separate trip from the trip on the airplane, train, or intercity bus. PHONE: *If needed:* "Could you tell me the name of the place, address or street intersection? *[if workplace is a usual fixed workplace outside the home and previous trip destination was own usual work or own school:]* If [you/PERSON] left work (school) at any time for a meeting, errand, lunch, or coffee break, even if at a nearby location, please report where [you/PERSON] went to, and afterwards report the trip returning back to work (school)] 1: Home Household Work Locations 1001: [your/PERSON's] main work location ([description]) 1021: Person #1's work ([description]) 1022: Person #2's work ([description]) etc. Household School Locations 1003: [your/PERSON's] main school location ([description]) 1031: Person #1's school ([description]) 1032: Person #2's school ([description]) etc. Other Locations 2001: [Other Location #1] 2002: [Other Location #2] etc. 1006: Other Location (use Google Maps on the next page to search and save the location)

[display if trip#2 or greater:] 777. Did not take another trip (stayed there the remainder of the day past 3:59 a.m.)

[Work locations and school locations for all household members are included in list of known locations]

LOCATION CAPTURE [DESTINATION CO-ORDINATES]

DEPART

At what time did [you/PERSON] leave on this trip?

Please enter a time between 4:00 a.m. [TRAVELDAY] and 3:59 a.m. [TRAVELDAY+1]

Please provide your best guess if you do not know the exact time.

Time: *[Dropdown with hours and AM/PM]* Minutes: _____ [0-59]

PHONE: *If respondent declines to give "exact" time: could you tell me the approximate hour [you/PERSON] began this trip (and enter "99" for minutes)*

TRIP PURPOSE

What was the purpose of this trip?

PHONE: *Read list as required; only one response to be recorded.*

10: Going to work (usual place of work)
11: Business meeting or work-related (other than usual place of work)
[mouseover: Trips to attend meetings, or for other work-related purposes.
If job hunting or volunteering, please select 'Other'.]
12: Working on the road / itinerant work place / no fixed work address (taxi driving, plumbing repairs, mail delivery, etc.)
20: Attend post-secondary school (university, college, cegep, private post-secondary) *[display only if school type known and not K-12, or if school type unknown and age>=17]*
[mouseover: Trips made for the purpose of attending post-secondary school or night school.
If driving someone to/from school, select 'Pick someone up' or 'drop someone off'.
If work at the school, select Work.]
30: Attend school (K-12 / kindergarten, elementary, secondary) *[display only if school known to be K-12 or if school type unknown and age<=17]*
[mouseover: Trips made for the purpose of attending school.
If driving someone to/from school, select 'Pick someone up' or 'drop someone off'.
If parent attending parent-teacher meeting, select 'Other'.
If work at the school, select Work.]
40: Picking up a package or online purchase (from a store or pick-up locker)
[mouseover: Picking up a package or groceries ordered online or over the phone from a store (but not doing other shopping there) or picking up a package from Canada Post, a UPS/Fedex outlet, an Amazon Locker, Penguin PickUp, or other pickup location away from home to which

the goods were delivered.
Do not include take out orders from restaurants. Select "Restaurant bar or coffee" if you picked up a takeout order.
Select "Shopping" if you did other in-person shopping on the same visit when picking up the package from the store.]

41: Shopping or household maintenance (groceries, gas station, bank, mechanic, lawyer, vet, etc.)

43: Health or personal care
[mouseover: doctor, dentist, chiropractor, massage therapist, barber, hairdresser, aesthetician, etc. If the traveller's trip is to take someone else to their health and personal care appointment, choose "drop someone off".]

44: Restaurant, bar or coffee shop (including take-out or drive through)
[mouseover: Include picking up take-out orders from restaurants, or coffee shops]

45: Social (visiting friends / family, religious gathering)
[mouseover: Include visiting friends or family at their personal residence or cottage/vacation home, worship, or religious activities. If the visit with friends or family was conducted at a non-residential location, such as a restaurant, café, bar or recreation center, please choose another category as appropriate to the activity.]

46: Recreation, sports, leisure, arts
[mouseover: Going to a gym, movie, park, concert, library, or to attend or participate in a sporting event, or other recreational activities]

51: Pick someone up (e.g., pick up a child at school or daycare, pick spouse up at work, etc.)
[mouseover: Primary purpose of the trip is to pick up a passenger. This might include picking up a child from school or picking someone up at a Kiss & Ride lot.]

52: Drop someone off (e.g., drop off a child at school or daycare, drop spouse off at work, etc.)
[mouseover: Primary purpose of the trip is to drop off a passenger. This might include driving a child to school or dropping someone off at a Kiss & Ride lot.]

80: Returning home ([recall home address])
[Do not display return home response option if (location selected is 'usual work') or if ((origin is home and destination is not home)) or if (origin is work and usual work = home)]

888: Other, please specify: _____
[mouseover: Any trip that does not belong in another category.]

[Include probes to clarify if trip purpose = RETURN HOME but did not select "Home" as destination]
[Include probes to clarify if trip purpose <> RETURN HOME but selected destination="Home"]

How did [you/PERSON] get there?

Start with the first mode, up to a maximum of 5 modes.

First Mode	Mode 1 drop down
Second Mode	Mode 2 drop down
Third Mode	Mode 3 drop down
Fourth Mode	Mode 4 drop down
Fifth Mode	Mode 5 drop down

1. Car – Driver
2. Car – Passenger
3. Transit bus (OC Transpo bus, STO bus, Transcollines bus)
4. O-Train/LRT
5. OC Transpo school route / STO school route, e.g., 600 series, 700 series, etc.
18. Regular school bus (e.g. yellow bus or other school-provided vehicle)
8. Paratransit
7. Walk (entire trip) (also includes skateboard, roller-blade)
9. Assisted mobility device (wheelchair, mobility scooter)
6. Bicycle
14. e-bike (power-assisted bicycle with pedals)
15. e-scooter (electric motorized scooter)
13. Motorcycle or moped
10. Taxi
11. Paid rideshare (e.g. Uber, Lyft or other smart-phone app ride-hailing service)
16. Other bus / minibus
21. Intercity or chartered bus
22. VIA Rail train
23. Airplane
24. Ferry
77. Other (please specify: _____)

Mouseover or popup for e-bike: Picture or illustration of an e-bike.
Mouseover or popup for e-scooter: Picture or illustration of an e-scooter.

TRIPS – TRANSIT, MODE TRANSFERS

TransitAccessModeCheck

[If answer to mode question is urban transit (3-5,18) and no prior mode specified:]

How did [you/PERSON] get to the first transit stop?
19: Transit stop was right in front of the starting point of [my/PERSON's] trip: [previous destination description])
7: Walk
[+ Same list of modes as above excluding public transit modes 3-5, 18, and excluding modes 22, 23, 24 (rail, airplane, ferry)]

If answer to this question is other than walk, complete remaining sub-questions for the specified access mode (e.g., vehicle occupancy), and then repeat for the transit mode.

Triptelligence	*Question / Content*
TransitEgressMode Check	*[If the last of the modes recorded was urban transit (last mode could be any of Mode 3-5,18)]* How did [you/PERSON] get from the last transit stop to the trip destination? Or did the bus or train drop [you/PERSON] off right in front of the destination? 19: Transit stop was right at [my/PERSON's] destination ([recall current destination]) 7: Walk *[+ Same list of modes as above excluding public transit modes 3-5, 18 , and excluding modes 22, 23, 24 (rail, airplane, ferry)]*
ROUTES	*[If answer to mode is urban transit other than regular school bus (i.e., code 3-5):]* *PROGRAMMER: please ensure that route is *not* asked if the only urban transit mode asked about is regular school bus* What route(s) or LRT lines did [you/PERSON] take? (from [ORIGIN] to [DESTINATION]) Please list all routes taken. List each route or rail system in the order that [you/PERSON] took them. 1. Select Your Transit System: [Transit System Dropdown] Route: _____ 2. Select Your Transit System: [Transit System Dropdown] Route: _____ 3. Select Your Transit System: [Transit System Dropdown] Route: _____ 4. Select Your Transit System: [Transit System Dropdown] Route: _____ 5. Select Your Transit System: [Transit System Dropdown] Route: _____ *If O-Train:* Station On: [dropdown] Station Off: [dropdown] *If OC Transpo Bus, STO Bus, Transcollines Bus:* Please enter your route [suggest as you type field] *If other transit:* Please enter your route, or transit operator name [suggest as you type field] *Transit System dropdown:* 1. O Train 2. OC Transpo Bus 3. STO Bus 4. Transcollines Bus 5. Other transit service *Route open-ended field: suggest-as-you-type lists of bus routes for all service providers. Can also enter route number or name if not recognized on list.* PHONE: *Start with first route; make respondent specify each route up to a maximum of 5 routes. After capturing each transit route, prompt: "Did you take another route to get to your destination?"* *If walk distance to first route is greater than 1 kilometre:* "Did you actually walk the distance between your origin and route (*XX*)?" *Make corrections as required.*

Triptelligence	*Question / Content*
MODEXFER	*[For second through fifth mode given (i.e. more than one mode was used for the trip)]* *[Programmer: [previous mode] and [current mode] should take into account transit access mode (or transit egress mode) if given above, and response can be auto-filled and skipped if indicated in access (or egress) mode question that transit stop was right at origin or right at destination]* *[Do not ask when the mode transfer is from walk (1) to an urban transit mode (3-5,18) or from an urban transit mode (3-5,18) to walk (1), or when the transition is between urban transit modes 3-5, but ask for other transfers]* Where did [you/PERSON] switch transportation modes from [*previous mode*] to [*current mode*]? PHONE: *If needed:* "Could you tell me the transfer point, name of the place, address or street intersection?" **[LOCATION CAPTURE USING GOOGLE MAPS AND/OR LOOKUPS]**
BIKEONBOARD	*[If mode sequence is bike + transit AND last mode is not bike]* Did [you/PERSON] park [your/their] bike at the transit stop or take it with [you/them] on the transit vehicle? 1: Parked at station 2: Took bike on transit vehicle 99: Decline to answer / don't know

TRIPS – AUTO TRIP CHARACTERISTICS

DRIVER_NO_LICENCE	*[if (any mode = auto driver OR motorcycle) AND not licensed to drive]* *[if auto driver:]* You reported that [you were/PERSON was] an automobile driver for this trip; however, you previously indicated that [you do/PERSON does] not have a driver's license. Which of the following best applies…? *[if motorcycle:]* You reported that [you/PERSON] travelled by motorcycle on this trip; however, you previously indicated that [you do/PERSON does] not have a driver's license. Which of the following best applies…? 1. [YOU actually have/Person actually has] a driver's license 2. [you were/PERSON was] a [if motorcycle: motorcycle] passenger, not the driver 7. Other, please specify: _____

Triptelligence	*Question / Content*
DRIVER_NO_VEH	*[If (any mode = auto driver) AND no vehicles available to the household AND no one in household has a car-share membership]* You reported that [you were/PERSON was] an automobile driver for this trip; however, you previously indicated that your household has no vehicles available for your use. Which of the following applies…? 1. I drove a work vehicle, rental, or borrowed vehicle 2. I drove a car share vehicle 3. My household actually has vehicles. Please specify how many: _____ 6. [I/PERSON] was actually a passenger, not the driver *If entering the number of vehicles, please include personal and business vehicles, including cars, SUVs, light trucks and vans that are available to the people living in your household, including yourself?* *Include vehicles provided by employers which household members use to go to for work or for personal use.* *Exclude motorcycles/scooters, bicycles, ATVs, and RVs.* *Exclude vehicles that are not insured to be on the road.* *Exclude car share vehicles (e.g., Communauto, Zipcar).*
VEH_CARSHARE	*[mode is car-driver and (PERSON has a car-share membership OR car driver with zero cars in household) AND previous answer was not 'I drove a car share vehicle']* Was the vehicle used for the trip a car-share vehicle? 1: Yes 2: No 3: Don't know
VEH_OCC	*[If any of the modes (including transit access or egress) is car-driver (ask only for trips made by the respondent and don't ask for trips made by other household members):]* How many people, including [yourself/PERSON], were in the car [you were/PERSON was] driving? 1: 1 2: 2 3: 3 4: 4 5: 5 6: 6 7: 7 8: 8 9: 9 10: 10 or more 99: Don't know

Triptelligence	*Question / Content*

DRIVER

[If mode is car-passenger & trip is to work, work-related, or attend post-secondary]

Was the vehicle's driver:

1: A member of your household
2: A work or study colleague
3: Other
99: Decline to answer / don't know

DEST_PARK

[If (trip purpose is "going to work at the usual place of work" (purpose code 1) or destination is PERSON's own usual workplace) and mode is "car-driver" (code 1)]

When [you/PERSON] parked, was it free parking or pay parking?
PHONE: *If free parking, probe "Was this free parking provided by [your/their] employer?"*

1: Free parking provided by employer
2. Free parking not provided by employer (either on street or in some other private / public off-street lot)
3: Pay parking
99: Decline to answer / don't know

TRIPS – OTHER STOPS

OTHERSTOP

[if Age>14 AND {(Origin=Home AND Destination=any householder's work or school) OR (Origin= any householder's work or school and Destination=Home)}. Intent is to capture missed incidental trips during commute trips without forcing respondent to go back and correct previous info. Used to split trips in final data processing]

In [your/PERSON's] trip from [ORIGIN] to [DESTINATION], did [you/PERSON] make any other stops along the way? (e.g. stopped for gas, went through a drive-through, picked someone up, or dropped someone off)

1. Yes
2. No

[If yes]

Where did [you/PERSON] stop?
LOCATION CAPTURE

Why did [you/PERSON] stop there?
[Repeat list of trip purposes]

[if purpose = picked someone up and Mode=Driver]
How many people did [you/PERSON] pick up there? ___

Triptelligence	*Question / Content*

[if purpose = dropped someone off and Mode=Driver]
How many people did [you/PERSON] drop off there? ___

What time did [you/PERSON] arrive at [stop location]?
Please enter a time between [MAIN TRIP START TIME] and 3:59 a.m. [TRAVELDAY+1]
Time: [Dropdown with hours and AM/PM] Minutes: _____ [0-59]

What time did [you/PERSON] leave [stop location] to go to [destination]?
Please enter a time between [MAIN TRIP START TIME] and 3:59 a.m. [TRAVELDAY+1]
Time: [Dropdown with hours and AM/PM] Minutes: _____ [0-59]

[PROGRAMMER: add tests to check that times given are later than the time of the trip departure given earlier in this trip record]

TRIPS – OTHER INFORMATION

TRIPNOTES

PHONE: INTERVIEWER: If there is anything unusual about a trip (e.g., round trip from home to home) or the individual trip chains, or if useful information, please make notes here. Otherwise proceed to next question without delay. Use only when necessary.

WEB: Please note any comments for this trip or issues/errors you may have had while filling in the trip data (e.g., clarification of location, purpose, etc.)]:
_____

For assistance, please contact 1-855-688-1131 or email us at info@ODsurvey.ca.

OTHER_TRIP

Did [you/PERSON] make another trip after that?

[If yes, record next trip]
[If no, the software makes sure that the return home trip has not been omitted "Did you return home yesterday?" *before going to end-of-travel-day questions and then to the next person of the household.]*

RETURN_HOME

[if not make another trip AND ((destination <> home OR trip purpose <> return home)]

From your answers, it appears [you/PERSON] did not return home at the end of the travel day. Just to confirm, [were you/was PERSON] at this final destination, [DESTINATION], until at least past 4 a.m. [today/TRAVEL DAY+1] (the end of the travel day)?

1. Did not return home, was at this final destination until past 4 a.m.
2. Returned home (more trips to record) *[RETURN AND CORRECT ANSWER]*

[Only if user has broken sequential entry of trips and has been inserting trips, display the following option:]

3. Returned home but already entered the return home trip earlier in the survey

WHY_NO_RETURN HOME

[if did not return home]
Why did [you/PERSON] not return home before the end of the day?
Note: for this survey, the end of the Travel Day extends past midnight to 3:59 am the next day
We are only asking as a check to ensure that we captured [your/PERSON's] entire travel

1. Worked a night shift past 4 am
2. Stayed at another household within the Ottawa-Gatineau area (friend's, relative's, parent's etc.)
3. Away from home on business, vacation, or other personal travel outside the Ottawa-Gatineau area
5. Other, please specify: _____

[Programming: When respondent is directed to record an additional trip record for their return home trip (after answering 'returned home' to E13 - response pattern of no to E12 any more trips, then yes to did you return home, E13)Display customized text about recording your return home trip:]

On the next page please record another trip record to note the mode and time of [your/PERSON's] return trip home when asked 'where did [you/PERSON] go next'. When you have finished entering all of [your/PERSON's] trips for the day please select 'no' when asked if [you/PERSON] took another trip.

[Note: the same conditions / warning text above is displayed when student but no trip to school recorded or for worker with no work trip recorded, with slight variation of text for ' trip to work' 'trip to school' and ' return trip home']

TRIPS – END OF TRAVEL DAY

WHY_NO_WORK

[If worker (work status code 1 or 2 work full time or part time) AND usual place of work is not home (workplace not code 1) AND did not travel for work yesterday (not code 1 get to work (usual workplace) for trip purpose)]

You did not report [going to work / that [PERSON] went to work] [yesterday/on TRAVEL DAY]. What was the reason [you/PERSON] didn't make any trips to [your/their] usual place of employment yesterday?

1. Worked from home (telecommuted)
2. Away on business / working on the road / attended a meeting or worked at a location other than my normal office space
3. Did not work (not scheduled to work, or off work for some other reason)
4. Actually, [I/Person] did go to work but did not report these trips yet *[PROVIDE INSTRUCTIONS TO ADD WORK TRIPS]*
77: Other (please specify: _____)

Triptelligence	*Question / Content*
	[if actually did go to work)] Please add [your/PERSON's] trips to and from work, on the Trips Overview page whether [you/PERSON] walked or used another mode of travel. Please also record any other trips that you may have missed. *Link to Trips Overview page.*
WHY_NO_SCHOOL	*[if a full time student AND school location is not Home Schooled AND did not make a school-related trip AND no trip destination of 'school' (person's own school)]* You did not report [going to school / that PERSON went to school]. What was the reason [you/PERSON] didn't make any trips to [your/their] school yesterday? 1. Attended classes from home (home schooled, online/virtual learning, e-learning) 2. Did not have any scheduled classes, stayed home sick, or did not attend school for another reason 3. Away on a field trip or other travel 4. Actually, [I/PERSON] did go to school but did not report these trips yet *[PROVIDE INSTRUCTIONS TO ADD SCHOOL TRIPS]* 77. Other, specify: _____
	[If there are other persons in household 5 or older] *[if went to school E16A=Yes and usual school location other than 'home']* Please add [your/PERSON's] trips to and from school, on the Trips Overview page whether [you/PERSON] walked or used another mode of travel. *Link to Trips Overview Page* Please also record any other trips that you may have missed.
	PHONE: "Now I would like to ask you about the trips that (*initial*) made yesterday."
	WEB: To continue, click 'Enter Trips' for other household members Click "Enter Trips" for other household members to continue.
	[Go to next person's trips, back at the beginning of the trips section]
	[Error message when people try to continue from this page when they haven't finished entering trips for all HH members :] Unfortunately, you may not proceed forward until the trip diary section has been completed. Click the "begin entering trips" or "edit" links in the table below to complete the trip entries for your household.
	Your household trips can be reviewed and edited on this page before exiting the trip section of the survey. You can also add additional trips here that you may have missed.

Triptelligence	*Question / Content*

Can you think of any other trips you or other members of your household made [yesterday/TRAVEL DAY] either during the day or in the evening that we may have missed?

If so, click on Add Trips or use the Edit trip links to edit a trip you've already entered.

If you are done entering trips, click on Go to Household Summary where you can continue through the final questions of the survey once you've finished your trip entries for your household.

FINAL QUESTIONS

PHONE: "We now just have a few concluding questions about your household."

WEB: You have completed the Trips section for all persons in your household. Click Continue to proceed to the final questions.

DELIVERIES

On [TRAVELDAY], which of the following occurred? Select all that apply.

PHONE: *INTERVIEWER: Read list. If necessary prompt "yes or no"*

1. A package [I/we] purchased online or by phone was delivered to [my/our] **home**
2. A personal package [I/we] purchased online or by phone was delivered to **work** [show if anyone in household employed at workplace outside the home]
3. Picked up something that [I/we] purchased online or by phone at an **offsite locker** (e.g., Amazon Locker), Canada Post pick up location, or other offsite pickup location
4. Food was delivered to your home (take-out, or groceries)
5. Other items were delivered to your home (such as an appliance or furniture, or heating oil delivery)
6. Someone came to your home (or unit) to provide a service (e.g., landscaping, plumber, housecleaning)

77. None of the above
99. Decline / don't know

HH_INCOME

Please indicate the range which corresponds to your household's total gross income last year (*from all sources, before income taxes)*.

PHONE: May I ask which of the following ranges corresponds to your household's total income last year? (Consider *all sources* of income*, before income taxes*)? (INTERVIEWER: read answers until confirmation)

1: $0 to $34,999
2: $35,000 to $69,999
3: $70,000 to $99,999
4: $100,000 to $149,999

5: $150,000 and above
99: Decline to answer / don't know

Why do we ask this question? This question will help us understand whether we have surveyed a representative sample of the entire population. It will help us better understand the different transportation needs and travel patterns of all residents of our region, including how easy or difficult it is for households of different income levels to travel around our region. This question, like other questions on the survey, is entirely voluntary. Your answers will remain confidential.

SURVEY_NOTES

WEB: Did you have any difficulty reporting your trip information? Do you have any comments about the information you provided on your survey?

_____

99. No

PHONE: *INTERVIEWER: Do not ask the respondent if they have any final comments to make. Do not record any information here unless it pertains to potential issues in the trip data collected (e.g., you think you made an error in capturing trips, or the system did not perform as expected).*

CONCLUSION

FUTURE_RESEARCH

Over the next few years, the [*If Ottawa:* City of Ottawa*; if Quebec:* Ministère des transports du Québec] is planning to conduct some follow-on surveys on specific topics related to transportation.

Would you be willing to participate in any of these future surveys?

Your contact information will only be used to contact you for future transportation-related surveys conducted by the [*If Ottawa:* City of Ottawa*; if Quebec:* Ministère des transports du Québec]. If you agree, your answers to the survey you just finished may be used to select groups of participants for future surveys (for example, some surveys might target cyclists, transit users, or people living in a particular neighbourhood).

[online:] By clicking yes, you are giving [*If Ottawa:* City of Ottawa*; if Quebec:* Ministère des transports du Québec] your permission to retain your personal contact information, including your phone number or e-mail address, beyond 12 months in order to participate in future transportation surveys.

1: Yes [obtain phone number / e-mail address of participant]
2: No

[If yes]

[Capture or confirm name, phone number and/or email address (display information if already captured at start of survey or in survey sample contact list)]

Your information will never be sold or used for any other purpose other than to invite you to participate in transportation surveys in the National Capital Region in the future. Click here to see our Privacy Statement.

PHONE: "Thank you for participating in our survey. Have a good day / evening."

WEB: Please click on the Submit button to submit your survey answers and conclude the survey.

After you click Submit, you will no longer be able to edit your answers.

That concludes the survey.
Thank you very much for your participation!

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

If you wish to change any of your answers, or if you have any concerns about the survey, please contact info@ODsurvey.ca [English] info@EnqueteOD.ca [French] or 1-855-688-1131

For more information about the survey, please visit: www.ODsurvey.ca [English]
www.EnqueteOD.ca [French]

EMAIL

[Survey email sent when participant elects to send themselves a link to start or continue their survey at a later time, or when the participant requests over the phone that survey staff send them a link to the survey.]

[Origin-Destination Survey logo]

Thank you for your interest in the 2022 Origin-Destination Survey for the National Capital Region. This email gives you some more information about the survey and your next steps to participate.

The 2022 Origin Destination Survey is a confidential and voluntary travel survey that tells us how, why and where residents travel. The data collected helps government agencies at the local, provincial, and federal level make informed decisions on transportation planning and investments.

Completing the Study	Privacy and You
You may complete the survey online. To access your survey and begin entering basic information about your household, please go to www.ODsurvey.ca and enter your secure access code to login. **Your secure access code is: TEST101** **Begin the Survey Now** **You can also complete the survey by phone.** Call **1-855-688-1131** (toll free) to complete the survey with one of our professional interviewers.	*Your survey responses will be anonymous, and all information collected will be kept strictly confidential.* Survey responses will be combined with others' responses before they are analyzed. Your contact information will only be used to contact you for follow up about the survey. privacy statement is available here: http://ODsurvey2022.ca/en/privacy-statement

Your household's involvement in this project is critical to its overall success. Thank you for your assistance in completing this important survey.

This email has been sent to you at your request or the request of someone in your household. Your email address will not be used for any other purpose than contact with you regarding this survey. The protection of your privacy and your personal information is important to us. If you believe you have received this email in error, or if you do not wish to receive any further contact, please let us know at info@ODsurvey.ca.