transportationtomorrow
SURVEY 2022

Exploration of TTS Trip Generation Rates

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MALATEST | DAVID KRIGER TRANSPORTATION POLICY AND RESEARCH | Ontario

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Further Information

The Transportation Tomorrow Survey (TTS) is part of an ongoing data collection program by the Transportation Information Steering Committee (TISC). The survey data (2022, 2016, 2011, 2006, 2001, 1996, 1991 and 1986) are currently under the care of the Data Management Group (DMG). This group is responsible for maintaining the TTS databases and making available appropriate travel information for any urban transportation study in the area. Requests for information from the TTS, or enquiries related to the contents of this report, should be directed to the address below.

Data Management Group
Department of Civil and Mineral Engineering
University of Toronto
35 St. George Street Toronto, Ontario M5S 1A4
Tel: (416) 978-3913
Email: info@dmg.utoronto.ca
Web: www.dmg.utoronto.ca

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- County of Northumberland
- County of Peterborough
- County of Simcoe
- County of Wellington
- Metrolinx
- Ontario Ministry of Transportation
- Regional Municipality of Durham
- Regional Municipality of Halton
- Regional Municipality of Niagara
- Regional Municipality of Peel
- Regional Municipality of Waterloo
- Regional Municipality of York
- Toronto Transit Commission (TTC)
- Town of Orangeville
- Town of the Blue Mountains

Transportation Information Steering Committee (TISC) participated in planning and directing the 2022 TTS. The committee also has conducted the previous TTS studies since 1986. The agencies with representatives on the TISC steering committee were:

- City of Hamilton
- City of Toronto
- Metrolinx
- Ontario Ministry of Transportation
- Regional Municipality of Durham

- Regional Municipality of Halton
- Regional Municipality of Peel
- Regional Municipality of York
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1. INTRODUCTION

1.1 Overview

Trip rates are a key measure of people's proclivity to travel. However, as observed in household travel surveys like the TTS, trip rates have been declining in Canadian urban areas for some time.

The report profiles observed behavioural trends in trip generation rates[1] as a function of various household / person attributes and geographies.

1.2 Approach

The analysis of trip rates uses descriptive statistics to profile how rates vary by various geographical attributes. From this, bivariate and multivariate models are used to provide an analytical exploration of the relationships between key attributes and the rates.

The comparison of trip rates draws from these analyses, and – given the multitude of factors involved – is descriptive.

Several underlying methodological points are noted:

- All descriptive analyses use expanded (weighted) data.
- The regression models in the multivariate analysis use unweighted data. The model included most of the variables used as weighting controls (with the exception of specific sub-planning-district-level expansion zone geographies), so weighting the data was not strictly necessary to determine whether the model variables have an impact on trip rates.
- For most analyses of the 2022 TTS data that does not draw on longitudinal comparisons, the 2022 trip definitions have been used – notably including people aged 5+ years of age and counting all walk trips regardless of trip purpose.
- For longitudinal comparisons with survey data from 2016 and earlier, trip definitions are filtered to match the 2016 TTS structure – notably, including only people aged 11+ and counting only work/school walk trips (excluding other walk trips).
- Previous TTS surveys are the basis for comparison, with additional sources referenced where appropriate to explain changes between surveys, such as the pandemic.

[1] The terms "trip rates" and "trip generation rates" are used interchangeably in this report. The latter definition is commonly used in references to travel demand forecasting models.

- Where relevant, comparisons are made as far back as 1986, with certain years excluded as determined for other reports. To enable consistent comparison with previous TTS, comparisons are made using data related to populations 11+, excluding walking trips. (See chapter3.)
- Reasons for the changes are noted by reference to other sources, although to avoid speculation the reasons are qualified or caveated as appropriate. In particular, the impact of the pandemic and of the ensuing economic changes (inflation, labour shortages and so on) might introduce uncertainties in otherwise discernible trends and are noted. Where appropriate, the report points to the need for additional research.

1.3 Report Organization

This report has five chapters. In addition to this introductory chapter, the report is organized as follows:

- Daily trip rates – a descriptive discussion of trip generation rates according to a variety of geographical, household, demographic and travel characteristics (chapter 2).
- Comparison of trip generation rates over time (chapter 3).
- Multivariate analysis of trip rates – a statistical analysis of trip rates, building on the descriptive review of trip rates using bivariate and multivariate modelling (chapter 4).
- Conclusions (chapter 5).

The report is accompanied by three appendices, all supporting the multivariate analysis (chapter 4). Appendix A lists the variables assessed in the models. Appendix B lists the model coefficients. Appendix C presents the odds ratios.

1.4 Data Sources

The 2022 TTS database is the primary source of data. Census of Canada geographical definitions are used to support the analysis of trip rates by geography (see section2.3). Where relevant and available, previous TTS databases are used for the comparative exploration of how trip generation rates have evolved over time. Reports and tabulations from other household travel surveys are used for the multi-city comparison of TTS trip generation rates. Finally, other references as appropriate are noted in the footnotes.

1.5 Limitations and Caveats

All external (non-TTS) data sources are used as provided.

The trip definition used for surveys in the TTS 2016 and earlier had the following key parameters: a trip is a journey from one location to another for a single purpose and may use multiple modes of travel (with only the primary mode being captured, except for transit trips, for which access and egress modes are captured); trips were captured for all household members 11+ years of age; walking trips were only captured if they were to or from school or work or essential links in a chain of trips (excluding walking subtours such as walking from work to get a coffee and back); origin-equals-destination recreation trips were not captured (e.g., walking the dog; walking for exercise; going for a bike ride without stopping that returns to the origin); stops of less than 15 minutes (e.g., stopping for gas or at a drive through on the way to work) were not to be reported as separate destinations/trips unless they were to pick someone up or drop someone off. The 2022 TTS introduced trip capture for household members 5+ years of age and capture of walking trips for all destination purposes (although still excluding origin-equals-destination round trips for recreation purposes).

The TTS trip rates may differ from those in other jurisdictions, depending on trip definition and survey methodology. Some surveys may count every segment of a multi-mode journey as a different trip (e.g., walk to transit station separate from transit journey), and/or may count origin-equals-destination recreation/leisure trips, and/or may count short stops for separate purposes as marking separate trips (e.g., stopping for gas or at a drive-through on the way to work). Some other surveys may have other methods for capturing trips that may have different levels of under-reporting (e.g., short non-home-based discretionary trips made by persons other than the primary respondent are more likely to be under-reported than non-discretionary trips). Some other surveys may employ imputation and data weighting methods that are applied at the trip level to boost certain kinds of trips to more closely match other surveys or other data sources that are not used in the TTS data. Therefore comparisons with trip rates with other jurisdictions should be undertaken with caution and with an understanding of the definitions and methodologies used.

2. DAILY TRIP RATES

2.1 Introduction

This chapter presents daily household and person trip rates according to a number of attributes. The aim is to profile the factors that influence trip-making and how these influences present themselves.

As a point of reference, Table 1 summarizes household and person trip rates across the survey area. Overall, the survey yields daily values of 5.30 trips per household and 2.14 trips per person 5+ years of age. The rates are lower among GTHA residents (5.27 trips per household and 2.10 trips per person), who represent 75% of the survey area population. Outside the GTHA, the rates are 5.37 trips per household and 2.28 trips per person.

Table 1. Daily household trip rates and person trip rates - summary

Geography	Sample size (n surveys)	House-holds	Pop'n	% of pop'n	Avg. hhld. size	Avg. daily trips per hhld.	Avg. daily trips per person 5+
Survey Total	**158,662**	**3,673,900**	**9,550,500**	**100%**	**2.60**	**5.30**	**2.14**
GTHA	117,641	2,708,700	7,154,600	74.9%	2.64	5.27	2.10
Non-GTHA	41,021	965,200	2,395,900	25.1%	2.48	5.37	2.28

2.2 Daily Trip Rates by Major Geography

This section looks at daily household and person trip rates for geographies within the survey area, including upper-tier municipalities and lower-tier geographies within them. Within Toronto and Hamilton, planning districts have been grouped based on dominant density distributions. Within the rest of the Survey Area, Niagara, and Waterloo, municipalities within the regions are grouped by type of population centre (urban core, secondary urban core, urban fringe, population centre outside CMA/CA, rural fringe) and/or density. Smaller non-GTHA regions have been grouped based on type of population centre. Municipalities within non-GTHA regions are not listed if they have small populations. For brevity, smaller regions and municipalities that are listed in tables are not presented in charts.

This dual categorization allows key characteristics and trip rates to be presented in two ways: according to designated municipal or sub-municipal jurisdictions, and according to urban form. The former corresponds (or allows an aggregation) to jurisdictional boundaries. The latter corresponds to how and where urban development has occurred, which can vary within a municipality. This allows a more precise representation of how urban form affects travel behaviour – measured specifically by the type of population centre (i.e., core, urban, rural) and by density of population. These two factors enable a depiction of urban form according to commonly available Statistics

Canada Census definitions. The approach is predicated by the assumption that, generally, urban density and type of population centres have relationships to household/population demographics, proximity to work, type of work, convenience of transit, and travel behaviour. This is only one approach to grouping the diverse geographies within the vast study area. Other approaches to geographic analysis could yield different findings; however, these metrics are meaningful indicators of urban form and the underlying transportation network influence travel behaviour, using readily available demographic data.

To provide perspective, Figure 1 illustrates the proportion of population represented by upper-tier municipalities and lower-tier municipalities (some aggregated), as well as sub-municipal geographies provided for Toronto and Hamilton. Outside the GTHA, smaller municipalities are aggregated together.

The variability of the survey area's urban form becomes evident, more so than it does from a strict reliance on defined jurisdictional boundaries: for example, all of Toronto and the high-density adjacent parts of Peel Region and York Region together represent more than two-thirds (69%) of the GTHA's population and just over half (52%) of the survey area's population.[2] Low-density areas (rural or local municipalities at the urban-rural fringe) represent 14% of the population.[3] At the other extreme, Planning District 1 (PD1) in Toronto has 3% of the survey area's population, of whom 97% lives in very-high-density (74% of the PD's population) or high-density (24%) areas, with at least 15,000 residents per square kilometre, and with most dissemination areas in this PD having upwards of 50,000 people per square kilometre. More than two-thirds (68%) of the population in PD1 are workers, compared to the survey average of 53%.

Figure 2 shows how the average daily per-person trip rates vary across the survey area. Figure 3 shows the proportion of workers in each region who made a trip to work or work-related trip on their travel day. Table 2 presents daily household and person trip rates and further details for the geographies examined in the charts, as well as some additional sub-regional geographies and groupings.

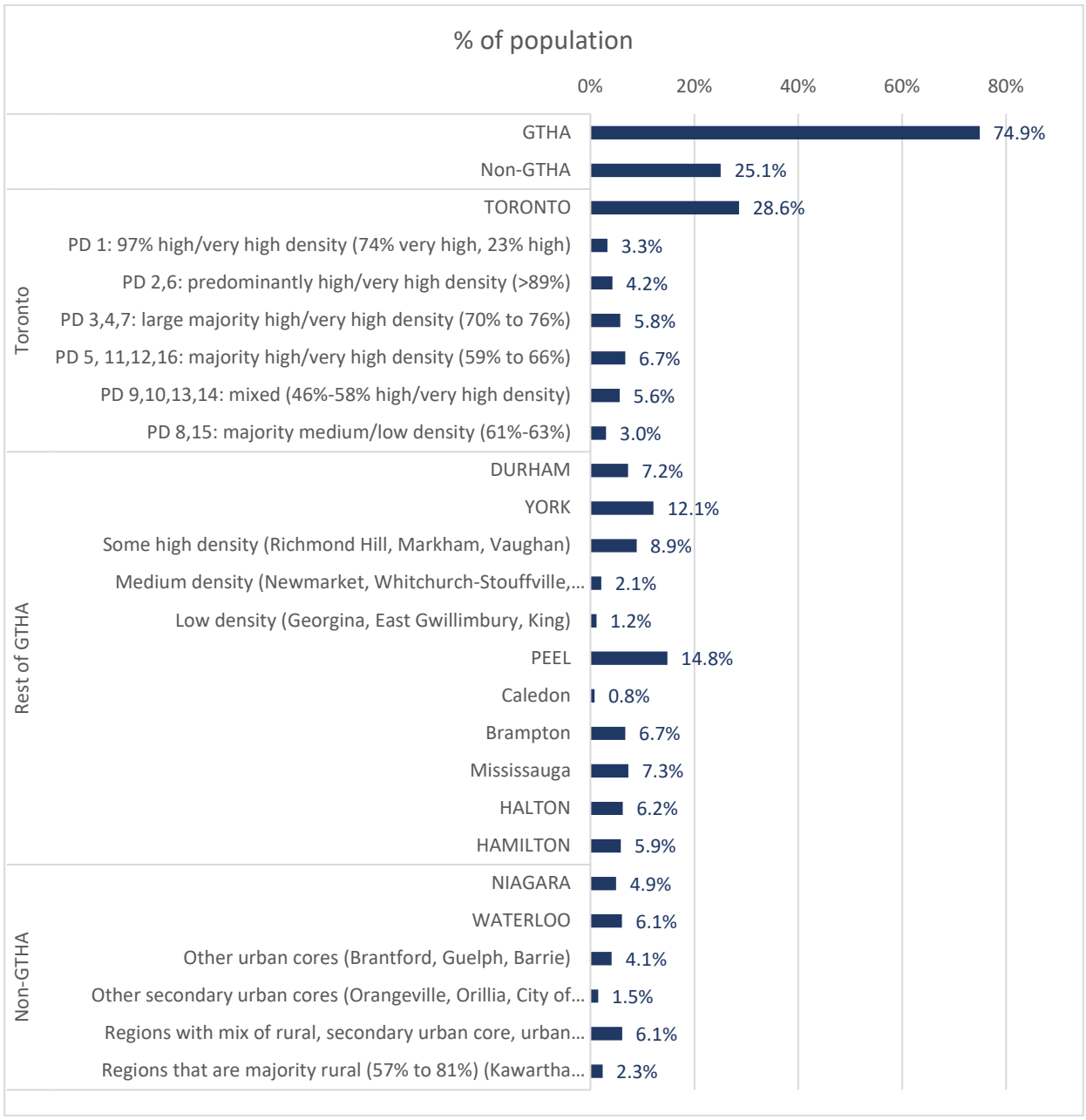
The different perspectives offered by jurisdiction and urban form are apparent in various ways:

[2] Sum of City of Toronto (28.6%), Richmond Hill, Markham and Vaughan (8.9%), Brampton (6.7%) and Mississauga (7.3%), rounded to the nearest unit.

[3] Sum of municipalities or areas that are entirely or largely low density, rural or at the urban-rural fringe. Georgina, East Gwillimbury and King in York Region (1.2%); Caledon in Peel Region (0.8%) Halton Hills in Halton Region (0.7%); Grimsby, Pelham, Port Colborne, Lincoln and Fort Erie in Niagara Region (1.3%); Niagara-on-the-Lake, West Lincoln and Wainfleet in Niagara Region (0.4%); Dumfries, Wilmot, Wellesley and Woolwich in Waterloo Region (0.7%); Wellington, Simcoe, Brant, Northumberland and Grey counties (6.1%); and Kawartha Lakes, Peterborough County, Dufferin and The Blue Mountains (2.3%). See also Table 2.

- Looking at jurisdictional boundaries alone, as noted the GTHA's daily person-trip rate is lower than that of non-GTHA residents. Looking at urban form, it can be seen that the main reason for this difference is that Toronto and the high-density parts of Peel and York Regions, with their high proportion of the population, draw down the GTHA's daily trip rate. Otherwise, the GTHA's rates are largely comparable with those of the non-GTHA areas (noting also that there is some variation within Toronto).
- On average, just over half of all household members work (53%) – a proportion that applies within and outside the GTHA. However, the numbers of workers per household is slightly higher in the GTHA than outside (1.40 and 1.31 workers, respectively). Just over half of all workers take a work trip (55%), although the proportion is higher outside the GTHA (60%) than inside (53%).
- Trip rates do not always correspond to household size, nor do household or person trip rates necessarily track together. The highs and lows vary:
    - PD1, with the highest population density in the survey area, has the lowest average household trip rate, at 3.65 trips per household. This is commensurate with PD1's lowest average household size (1.67 persons per household), though the district's rate of 2.26 trips per person 5+ is among the highest in Toronto. PD1 also has among the lowest numbers of workers per household (1.13 workers), although this corresponds to the highest proportion of household members who work (68%).
    - Rural or predominantly low-density areas have the highest average trip rates, reaching 6.23 trips per household in Halton Hills and 6.28 trips per household in Waterloo Region's low-density municipalities (North Dumfries, Wilmot, Wellesley and Woolwich).
    - Brampton, an urban core with a medium/high density population, exhibits extremes. The city has the highest average household size, at 3.43 persons per household, yielding an average of 6.0 person-trips per household – but, at 1.85 trips per person 5+, Brampton has the second-lowest average person-trip rate (marginally greater than the 1.81 person-trip rate exhibited by Planning Districts 9, 10, 13 and 14 in Toronto). Brampton also has the highest average number of workers, at 1.82 workers per household.
    - The Blue Mountains and Kawartha Lakes have the lowest average numbers of workers per household, at 0.94 and 1.11 respectively. Less than half the workers in The Blue Mountains (47%) and Kawartha Lakes (48%) make a work trip. (These proportions are similar to those of PD1.)

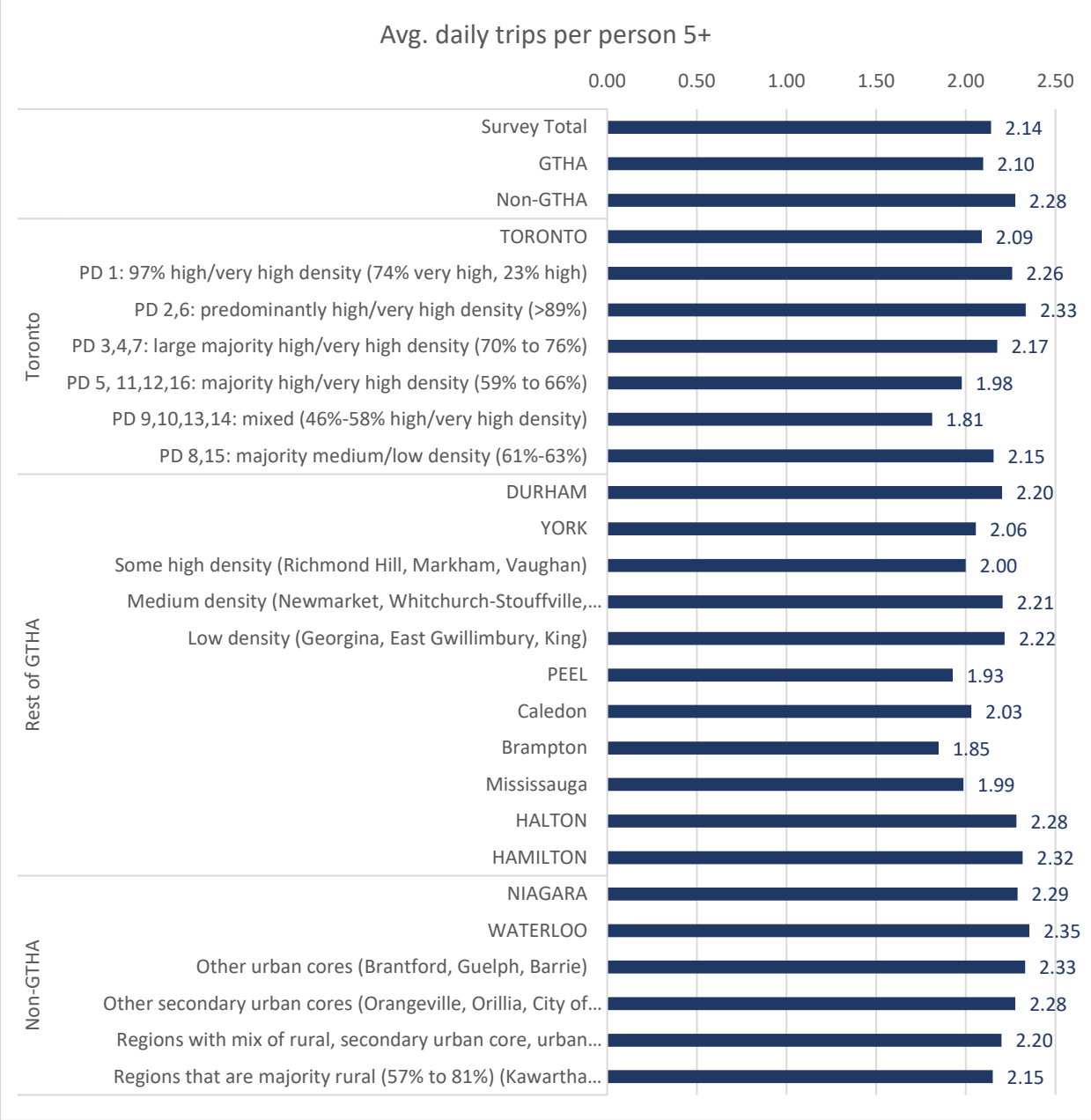
Figure 1: Proportion of TTS study area population in major geographies



Truncated category labels:

Medium density (Newmarket, Whitchurch-Stouffville, Aurora)
Other secondary urban cores (Orangeville, Orillia, City of Peterborough)
Regions with mix of rural, secondary urban core, urban fringe, population centre outside CMA/CA
Regions that are majority rural (57% to 81%) (Kawartha Lakes, Peterborough County, Dufferin, The Blue Mountains)

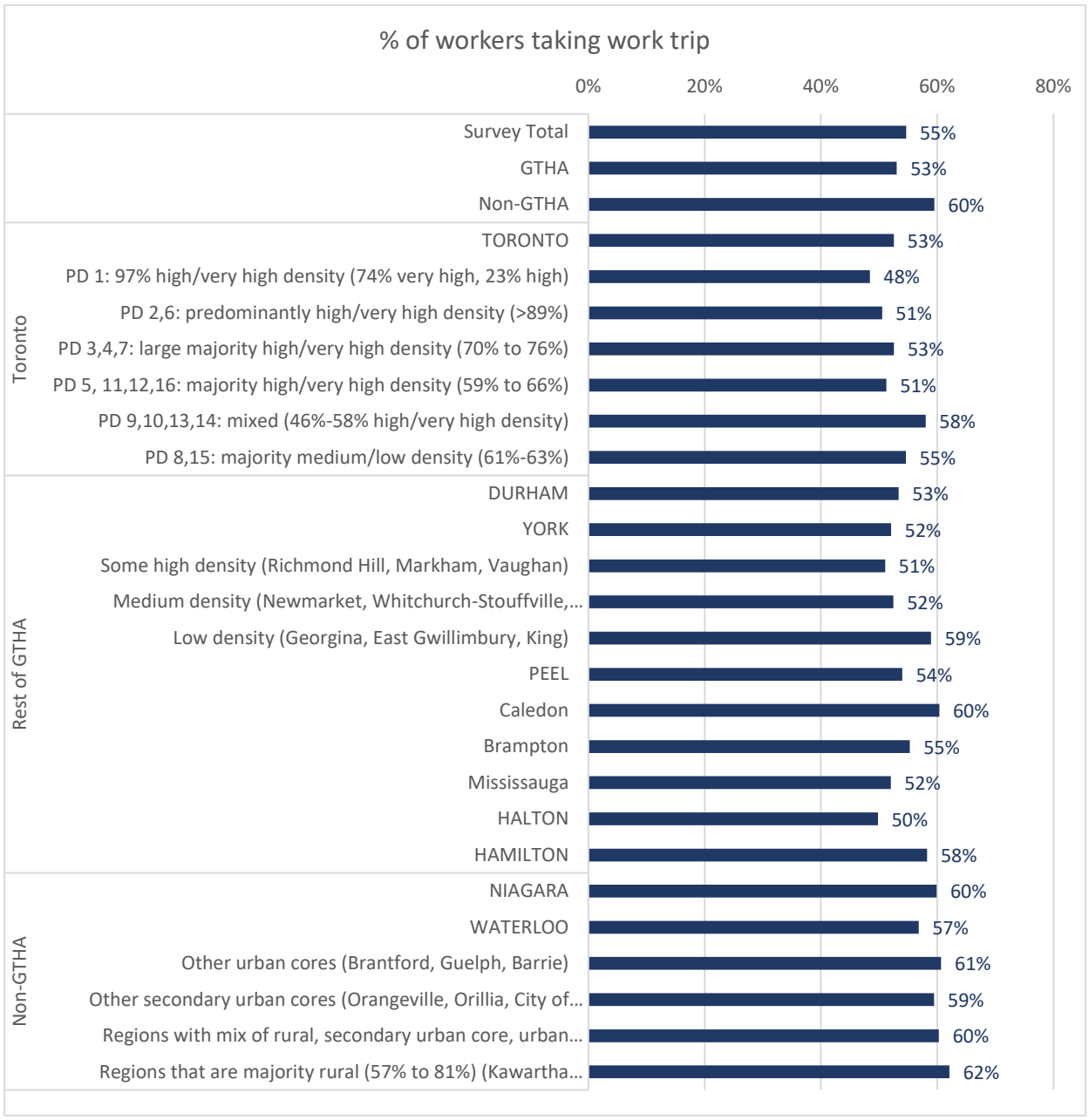
Figure 2: Daily trips per person, for residents of major geographies



Truncated category labels:

Medium density (Newmarket, Whitchurch-Stouffville, Aurora)
Other secondary urban cores (Orangeville, Orillia, City of Peterborough)
Regions with mix of rural, secondary urban core, urban fringe, population centre outside CMA/CA
Regions that are majority rural (57% to 81%) (Kawartha Lakes, Peterborough County, Dufferin, The Blue Mountains)

Figure 3: Proportion of workers taking at least one work trip, for residents of major geographies



Truncated category labels:

Medium density (Newmarket, Whitchurch-Stouffville, Aurora)
Other secondary urban cores (Orangeville, Orillia, City of Peterborough)
Regions with mix of rural, secondary urban core, urban fringe, population centre outside CMA/CA
Regions that are majority rural (57% to 81%) (Kawartha Lakes, Peterborough County, Dufferin, The Blue Mountains)

Table 2. Daily household trip rates, person trip rates, and proportion of workers who took work trips, by grouped geography of residence

Geography	Sample size (n surveys)	House-holds	Pop'n	% of pop'n	Avg. hhld. size	Avg. daily trips per hhld.	Avg. daily trips per person 5+	% of persons who work	Avg. workers per hhld.	% of workers taking work trip
Survey Total	**158,662**	**3,673,900**	**9,550,500**	**100%**	**2.60**	**5.30**	**2.14**	**53%**	**1.38**	**55%**
GTHA	**117,641**	**2,708,700**	**7,154,600**	**74.9%**	**2.64**	**5.27**	**2.10**	**53%**	**1.40**	**53%**
Non-GTHA	**41,021**	**965,200**	**2,395,900**	**25.1%**	**2.48**	**5.37**	**2.28**	**53%**	**1.31**	**60%**
Toronto	**51,436**	**1,171,000**	**2,732,700**	**28.6%**	**2.33**	**4.66**	**2.09**	**54%**	**1.26**	**53%**
PD 1: very high/high density (97%: 74% very high, 23% high)	8,399	187,600	312,900	3.3%	1.67	3.65	2.26	68%	1.13	48%
PD 2,6: predominantly high/very high density (>89%)	8,792	183,700	405,800	4.2%	2.21	4.91	2.33	58%	1.28	51%
PD 3,4,7: large majority high/very high density (70% to 76%)	10,955	242,600	550,500	5.8%	2.27	4.70	2.17	55%	1.24	53%
PD 5, 11,12,16: majority high/very high density (59% to 66%)	10,799	249,600	639,600	6.7%	2.56	4.86	1.98	51%	1.30	51%
PD 9,10,13,14: mixed (46%-58% high/very high density)	7,526	195,900	536,800	5.6%	2.74	4.72	1.81	49%	1.34	58%
PD 8,15: majority medium/low density (61%-63%)	4,965	111,700	287,000	3.0%	2.57	5.29	2.15	51%	1.30	55%
Durham	**10,740**	**247,100**	**691,900**	**7.2%**	**2.80**	**5.83**	**2.20**	**52%**	**1.47**	**53%**
Durham: Ajax, >40% high density	1,696	40,000	124,700	1.3%	3.12	6.10	2.07	53%	1.65	49%
Durham: majority medium density (Pickering, Whitby, Oshawa)	6,429	149,200	410,400	4.3%	2.75	5.73	2.20	52%	1.43	53%
Durham: mix of medium, low density (Brock, Uxbridge, Scugog, Clarington)	2,615	57,900	156,800	1.6%	2.71	5.90	2.30	53%	1.43	57%
York	**17,388**	**396,600**	**1,159,900**	**12.1%**	**2.92**	**5.74**	**2.06**	**52%**	**1.52**	**52%**
York: 22%-24% high density (Richmond Hill, Markham, Vaughan)	12,733	287,100	849,700	8.9%	2.96	5.67	2.00	52%	1.53	51%
York: medium density (Newmarket, Whitchurch-Stouffville, Aurora)	2,995	69,700	198,800	2.1%	2.85	5.98	2.21	52%	1.49	52%
York: low density (Georgina, East Gwillimbury, King)	1,660	39,800	111,400	1.2%	2.80	5.86	2.22	54%	1.52	59%

Geography	Sample size (n surveys)	House-holds	Pop'n	% of pop'n	Avg. hhld. size	Avg. daily trips per hhld.	Avg. daily trips per person 5+	% of persons who work	Avg. workers per hhld.	% of workers taking work trip
Peel	**19,080**	**455,800**	**1,415,300**	**14.8%**	**3.11**	**5.69**	**1.93**	**52%**	**1.62**	**54%**
Caledon (urban fringe, rural, some urban core; low/medium density)	1,079	24,400	76,900	0.8%	3.15	6.09	2.03	54%	1.71	60%
Brampton (urban core, medium/high density)	6,926	186,600	640,300	6.7%	3.43	6.00	1.85	53%	1.82	55%
Mississauga (urban core, medium/high density)	11,075	244,800	698,100	7.3%	2.85	5.42	1.99	51%	1.46	52%
Halton	**9,272**	**212,500**	**594,800**	**6.2%**	**2.80**	**6.07**	**2.28**	**52%**	**1.45**	**50%**
Halton: medium/high density (Milton, Oakville, Burlington)	8,327	190,600	532,700	5.6%	2.79	6.05	2.28	51%	1.43	49%
Halton: mix of secondary urban core, urban fringe, rural (Halton Hills)	945	21,900	62,100	0.7%	2.84	6.23	2.30	56%	1.60	55%
Hamilton	**9,725**	**225,700**	**560,000**	**5.9%**	**2.48**	**5.46**	**2.32**	**53%**	**1.31**	**58%**
Hamilton Area, 44% high density	6,084	144,000	335,300	3.5%	2.33	5.13	2.32	53%	1.22	59%
Other Hamilton Areas, <12% high density (Flamborough, Dundas, Ancaster, Glanbrook, Stoney Creek)	3,641	81,700	224,800	2.4%	2.75	6.03	2.31	53%	1.45	57%
Niagara	**8,324**	**198,700**	**471,600**	**4.9%**	**2.37**	**5.18**	**2.29**	**50%**	**1.19**	**60%**
Niagara: >55% medium or high density (St. Catherines, Niagara Falls, Thorold, Welland)	5,452	131,300	307,000	3.2%	2.34	5.15	2.31	51%	1.19	61%
Niagara: >48% low density, mostly secondary urban core (Grimsby, Pelham, Port Colborne, Lincoln, Fort Erie)	2,192	51,400	124,000	1.3%	2.41	5.20	2.25	49%	1.19	58%
Niagara: majority rural and urban fringe (Niagara-on-the-Lake, West Lincoln, Wainfleet)	680	16,000	40,600	0.4%	2.54	5.40	2.23	48%	1.22	53%
Waterloo	**10,017**	**227,000**	**581,500**	**6.1%**	**2.56**	**5.71**	**2.35**	**55%**	**1.41**	**57%**
Waterloo: Urban core, >62% medium density (Waterloo, Kitchener Cambridge)	8,876	202,400	512,700	**5.4%**	2.53	5.64	2.35	55%	1.39	56%
Waterloo	2,191	48,600	120,600	1.3%	2.48	5.67	2.38	52%	1.30	51%
Kitchener	4,457	101,800	255,400	2.7%	2.51	5.61	2.37	56%	1.41	56%
Cambridge	2,228	52,000	136,800	1.4%	2.63	5.68	2.29	55%	1.45	59%
Waterloo: Outside main urban core, >67% low density (North Dumfries, Wilmot, Wellesley, Woolwich)	1,141	24,600	68,800	**0.7%**	2.80	6.28	2.38	55%	1.52	63%

Geography	Sample size (n surveys)	House-holds	Pop'n	% of pop'n	Avg. hhld. size	Avg. daily trips per hhld.	Avg. daily trips per person 5+	% of persons who work	Avg. workers per hhld.	% of workers taking work trip
Non-GTHA other urban cores (Brantford, Guelph, Barrie)	**7,086**	**155,500**	**391,400**	**4.1%**	**2.52**	**5.56**	**2.33**	**56%**	**1.42**	**61%**
Guelph	2,686	57,500	142,900	1.5%	2.49	5.68	2.41	56%	1.39	60%
Barrie	2,600	55,800	145,200	1.5%	2.60	5.58	2.26	58%	1.50	58%
Brantford	1,800	42,200	103,300	1.1%	2.45	5.39	2.32	55%	1.36	66%
Non-GTHA other secondary urban cores (Orangeville, Orillia, City of Peterborough)	**2,754**	**62,000**	**144,100**	**1.5%**	**2.32**	**5.03**	**2.28**	**51%**	**1.18**	**59%**
Orangeville	502	11,200	29,700	0.3%	2.65	5.57	2.23	54%	1.43	60%
Peterborough City	1,655	36,300	81,900	0.9%	2.26	4.97	2.30	51%	1.14	59%
Orillia	597	14,600	32,500	0.3%	2.23	4.78	2.25	48%	1.08	60%
Regions with mix of rural, secondary urban core, urban fringe, population centre outside CMA/CA	**9,350**	**227,100**	**583,200**	**6.1%**	**2.57**	**5.36**	**2.20**	**52%**	**1.35**	**60%**
Wellington*	1,124	24,400	64,800	0.7%	2.66	5.97	2.36	56%	1.48	62%
Simcoe	5,516	137,000	353,700	3.7%	2.58	5.36	2.19	52%	1.34	60%
Brant	611	14,800	39,700	0.4%	2.68	5.77	2.26	57%	1.52	63%
Northumberland	1,601	37,700	87,100	0.9%	2.31	4.72	2.12	48%	1.10	60%
Grey	1,539	38,400	89,300	0.9%	2.33	4.77	2.16	49%	1.15	61%
Majority rural (57% to 81%) (Kawartha Lakes, Peterborough County, Dufferin, The Blue Mountains)	**3,490**	**95,000**	**224,100**	**2.3%**	**2.36**	**4.87**	**2.15**	**48%**	**1.13**	**62%**
Kawartha Lakes	893	33,100	77,500	0.8%	2.34	4.77	2.12	48%	1.11	66%
Peterborough County*	838	19,600	49,700	0.5%	2.54	5.48	2.27	50%	1.28	62%
Dufferin	560	12,500	35,800	0.4%	2.86	5.60	2.06	55%	1.56	55%
The Blue Mountains	158	4,600	9,800	0.1%	2.13	4.26	2.05	44%	0.94	47%

Shading highlights cells values that are higher (blue) or lower (pink) compared to others in the same column. The intensity of the shading increases as the value approaches the highest or lowest value.

2.3 Daily Trip Rates Type of Geography

Even with aggregations of the geographies presented above, there are quite a few geographies reported on, and even within some of the more disaggregated geographies, there can be a diverse mix of low-density and high-density housing and of types of population centre.

This section explores trip rates for different types of geography across the entire study area:

- type of **population centre** for the Statistics Canada Dissemination Area the household is located within,
- **size of the population centre** for the Dissemination Area,
- **population centre group**, and
- **population density** for the Dissemination Block the household is located in.

The first two are standard Statistics Canada definitions.[4] For reference Figure 4 maps the population centres in the TTS study area by type of population centre.

The latter two definitions incorporate the standard definitions, but have been tailored to this analysis: The population centre group is an aggregation developed for this analysis that considers both the type of population centre and its size to arrive at five categories. In the population centre groups, “urban core” includes both CMA/CA cores and secondary urban cores. The five population density groups also were developed for this analysis after a review of the data.

[4] **Population centres** have a population of at least 1,000 and a population density of 400 or more persons per square kilometre. These can be designated as **core**, **secondary core** or **fringe** parts of a Census Metropolitan Area (CMA) or Census Agglomeration (CA). A CMA **core** must have a population of at least 50,000 (with the entire CMA having a population of at least 100,000 people) while a CA **core** must have a population of at least 10,000 (with the entire CA having a population of between 10,000 and 99,999 people). There can be multiple cores within a CMA or CA: in addition to the **core** it can contain one or more **secondary cores**, which are population centres with at least 10,000 people that are in municipalities in the CMA or CA other than the municipality that has the CMA or CA core. **Urban fringe** refers to a population centre within a municipality that already has a core or secondary core defined (even if the population of the fringe is greater than 10,000 people) or a population centre with fewer than 10,000 people that is not adjacent to the core or secondary core. **Rural** areas are those that do not meet the definition of a population centre, either due to fewer than 1,000 people and/or lower density than 400 persons per square kilometre. Rural areas can exist within a CMA or CA (being all portions not designated as a core of fringe) or can be entirely outside of CMAs or CAs.

Population centre size classifications include: large (population of 100,000 or more), medium (30,000 to 99,999), small (1,000 to 29,999) and rural (all areas that do not meet the definition of a population centre).

For details, see *Dictionary, Census of Population, 2021*, Statistics Canada, November 15, 2023.

Figure 4: Map of population centres and CMAs/CAs in the TTS study area

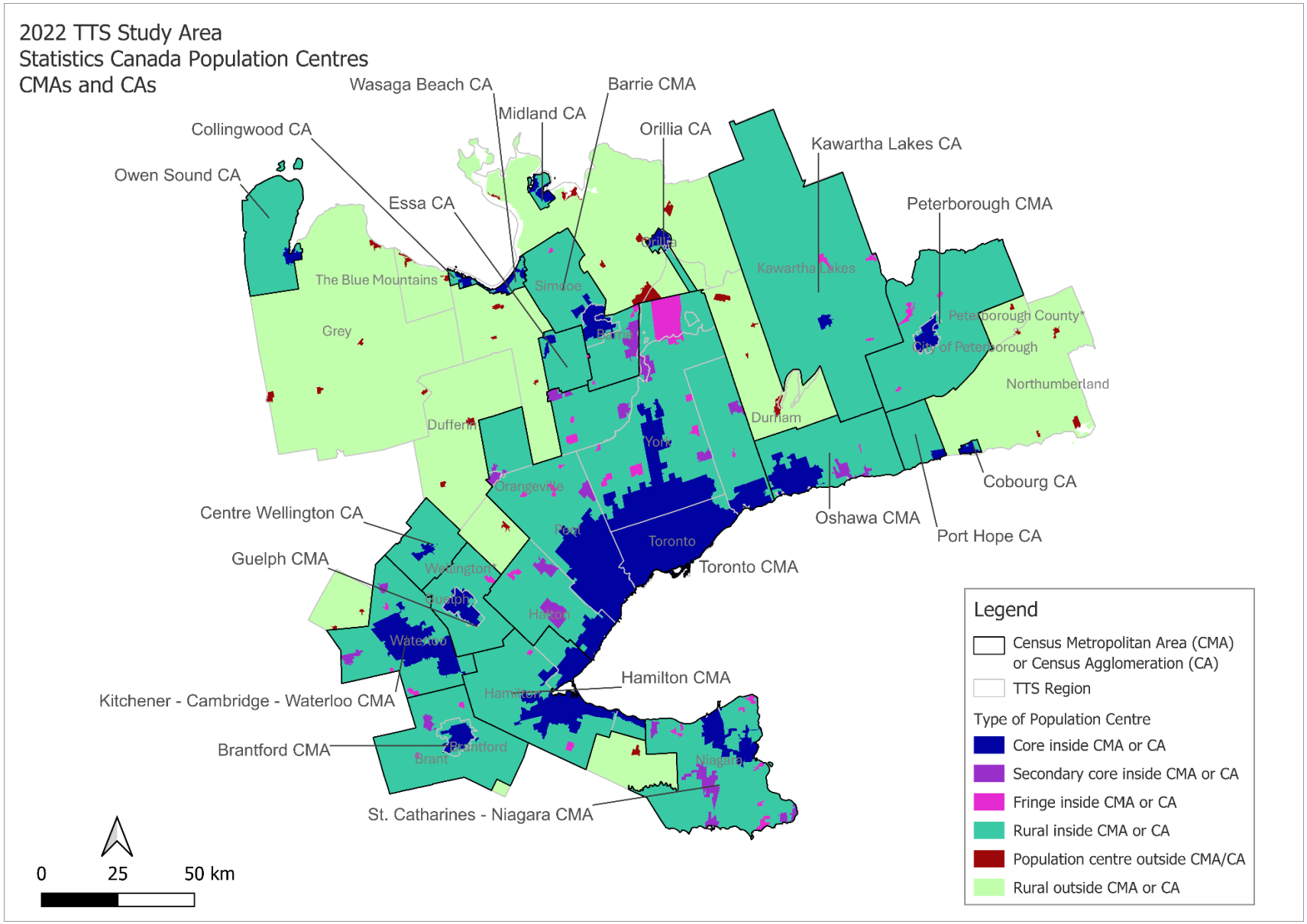


Table 3 explores trip rates for different types of geography across the entire study area. Several observations can be noted:

- More than four-fifths of the population (82%) resides in 'large urban core' communities. A similar proportion of the population (79%) lives in medium or higher density communities (1,500 or more people per square kilometre). These observations are characteristic of the large built-up municipalities that are at the heart of the study area.
- Average household sizes are highest in secondary cores within a Census Metropolitan Area (CMA) or Census Agglomeration (CA), at 2.77 persons per household, with rural areas in a CMA or CA close behind at 2.74 persons per household. A similar household size applies to households in medium-density areas (1,500 to < 5,000 persons per square kilometre), 2.76 persons per household. These observations are consistent with larger dwelling units that characterize municipalities outside the primary municipality that contains the core of the CMA, as well as those in lower-density suburban and rural communities.
- These groupings have the highest numbers of workers per household, at 1.45, 1.46 and 1.44 workers, respectively. They also have the highest average trips per household, at 5.89, 5.84 and 5.73 respectively, though the highest average daily trips per person are in urban fringe areas inside a CMA or CA (2.30 trips per person) and in low-to-medium density areas (400 to < 1,500 persons per square kilometre), at 2.24 trips per person. These observations are consistent with the large household sizes that characterize lower-density suburban and rural communities and nearby communities.

Table 3. Daily household trip rates, person trip rates, and proportion of workers who took work trips, by grouped geography of residence

Category	Sample size (n surveys)	House-holds	Pop'n	% of pop'n	Avg. hhld. size	Avg. daily trips per hhld.	Avg. daily trips per person 5+	% of persons who work	Avg. workers per hhld.	% of workers taking work trip
Survey Total	**158,662**	**3,673,900**	**9,550,500**	**100%**	**2.60**	**5.30**	**2.14**	**53%**	**1.38**	**55%**
Population centre type										
Urban core inside CMA/CA	134,990	3,112,200	8,038,000	84%	2.58	5.23	2.12	53%	1.37	54%
Secondary core in CMA/CA	8,960	217,900	603,300	6%	2.77	5.89	2.27	52%	1.45	58%
Urban fringe inside CMA/CA	2,302	56,700	148,700	2%	2.62	5.71	2.30	51%	1.33	62%
Rural inside CMA/CA	7,107	160,600	440,600	5%	2.74	5.84	2.23	53%	1.46	58%
Pop. centre outside CMA/CA	1,628	39,500	95,100	1%	2.41	5.12	2.22	49%	1.18	60%
Rural outside CMA/CA	3,675	86,900	224,900	2%	2.59	5.13	2.08	52%	1.34	58%

Category	Sample size (n surveys)	House-holds	Pop'n	% of pop'n	Avg. hhld. size	Avg. daily trips per hhld.	Avg. daily trips per person 5+	% of persons who work	Avg. workers per hhld.	% of workers taking work trip
Population centre size										
Large	131,017	3,016,800	7,863,200	82%	2.61	5.26	2.12	53%	1.39	54%
Medium	6,563	154,000	393,900	4%	2.56	5.55	2.30	51%	1.31	59%
Small	10,300	255,500	628,000	7%	2.46	5.28	2.26	51%	1.24	62%
Rural	10,782	247,500	665,400	7%	2.69	5.59	2.18	53%	1.42	58%
Population centre group										
Urban core, large	131,017	3,016,800	7,863,200	82%	2.61	5.26	2.12	53%	1.39	54%
Urban core, small or medium	12,933	313,300	778,000	8%	2.48	5.36	2.28	51%	1.27	61%
Urban fringe or population centre outside CMA/CA	3,930	96,200	243,800	3%	2.53	5.47	2.27	50%	1.27	61%
Rural within CMA or CA	7,107	160,600	440,600	5%	2.74	5.84	2.23	53%	1.46	58%
Rural outside CMA or CA	3,675	86,900	224,900	2%	2.59	5.13	2.08	52%	1.34	58%
Population density group										
<400 residents / sq km	16,244	372,100	988,400	10%	2.66	5.50	2.17	52%	1.39	58%
400 to <1,500 / sq km	17,501	390,500	1,039,800	11%	2.66	5.67	2.24	52%	1.38	56%
1,500 to <5,000 / sq km	69,032	1,500,600	4,142,900	43%	2.76	5.73	2.18	52%	1.44	55%
5,000 to < 150,000 / sq km	39,478	945,000	2,461,200	26%	2.60	5.16	2.08	53%	1.39	54%
15,000 or more / sq km	16,407	465,700	918,300	10%	1.97	3.73	1.97	57%	1.13	51%

These findings can be expressed in other ways. Figure 5 and Figure 6 illustrate daily trip rates and incidence of work trips by population centre type. For both characteristics, there is relatively little variation among the six population centre types. Overall, rural population centres outside the CMA/CA have the lowest average daily trips per person 5+, at 2.08 daily trips; however, this rate is only slightly lower than that of urban cores inside each CMA/CA, at 2.12 daily trips. However, the latter has the lowest incidence of workers who take a work trip, at 54%. For both characteristics, the highest values are in the urban fringe population centres within CMAs/CAs, at 2.30 daily trips per person 5+ and a 62% incidence of work trips.

Figure 5: Average daily trips by population centre type

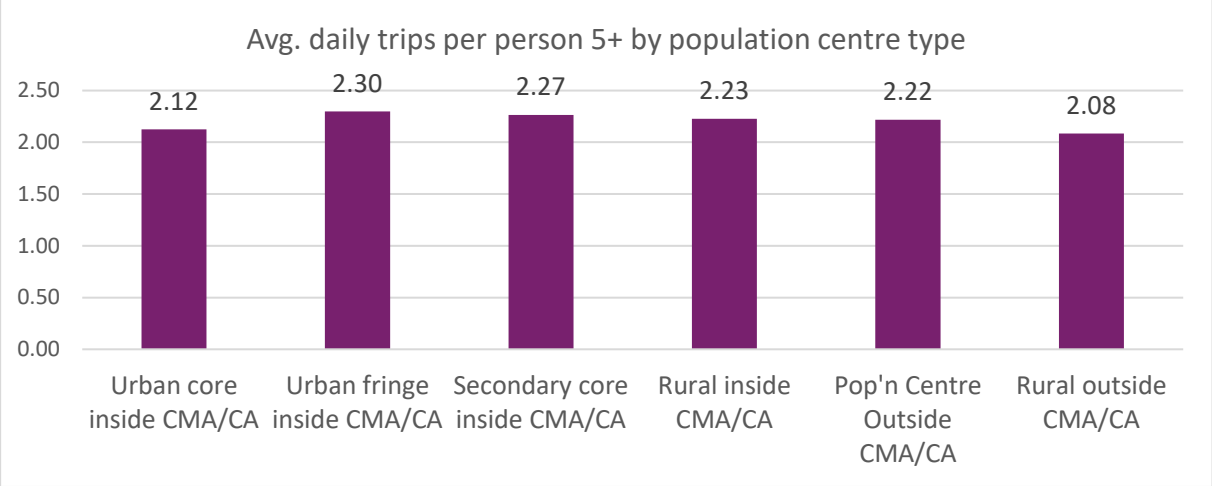


Figure 6: Proportion of workers taking at least one work trip by population centre type

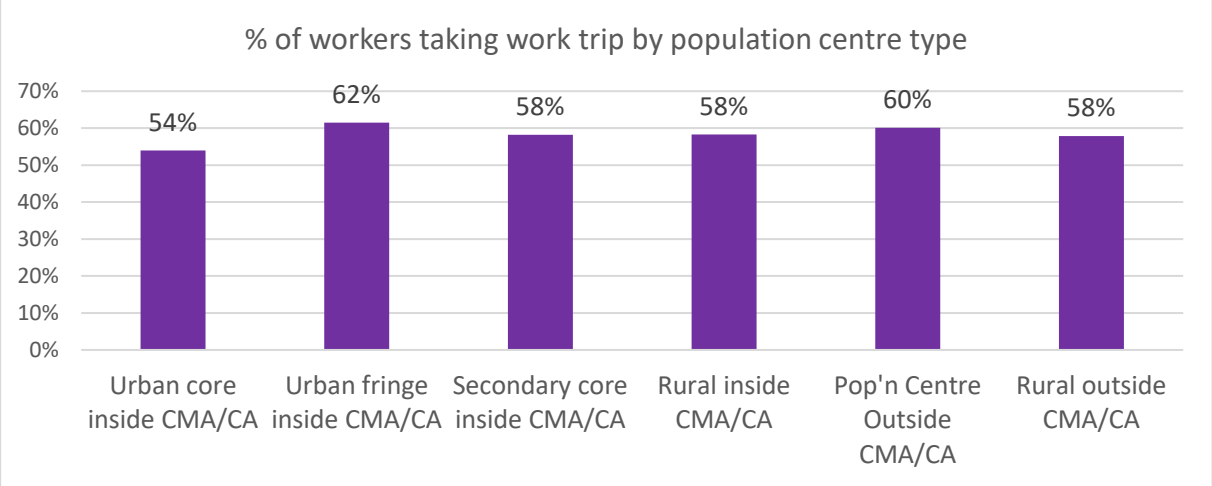


Figure 7 and Figure 8 illustrate daily trip rates and incidence of work trips by the population density of the dissemination area of residence. For both characteristics, the rates generally increase as the population densities decrease – with the one exception of daily person trip rates in the lowest-density (rural) area, which is moderately lower than that of the low-density (urbanized / fringe) area. Daily trip rates per person 5+ range from 1.97 daily trips in very-high-density areas to 2.24 daily trips in low-density areas. The incidence of workers making trips ranges from 51% in very-high-density areas to 58% in rural areas.

Figure 7: Average daily trip rate by population density

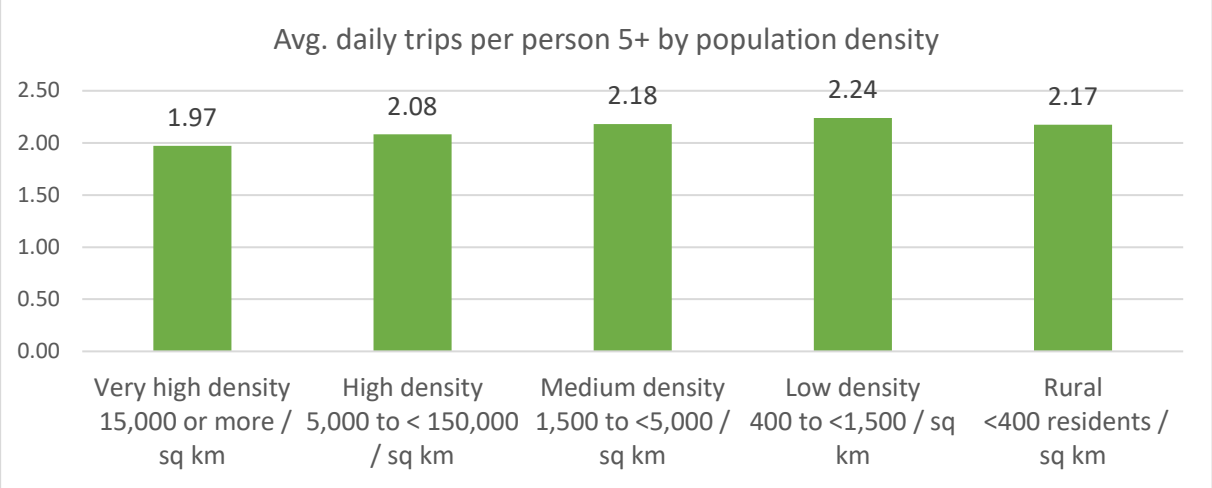
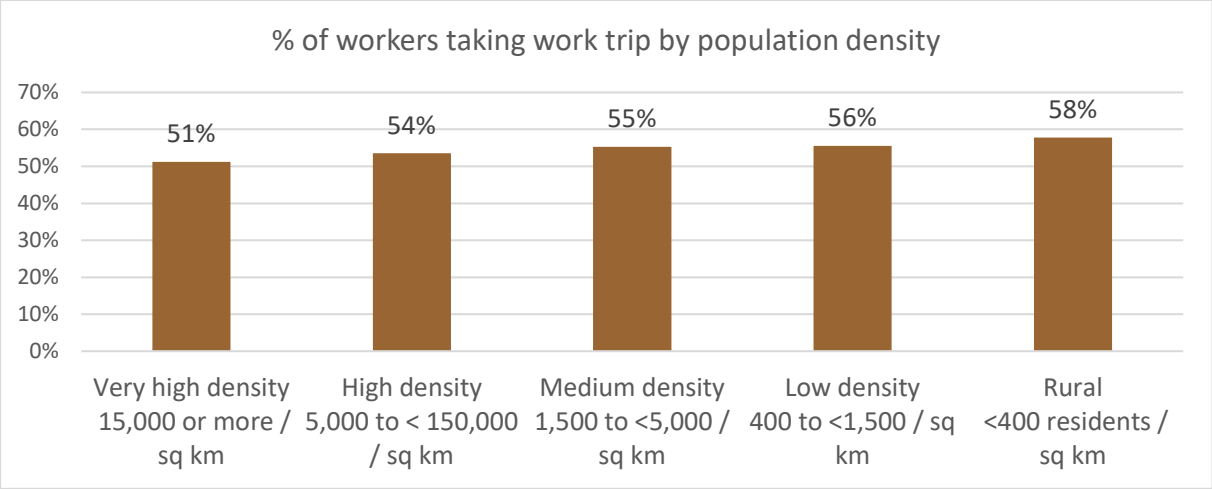


Figure 8: Proportion of workers taking at least one work trip by population density



Finally, for ease of comparison, Figure 9 and Figure 10 provide a visual distribution of daily person trip rates visually for grouped areas outside Toronto and within and near Toronto, respectively. For this analysis, the TTS geographies have been aggregated by predominant population centre group and/or predominant population density group, although there may be a range of population centre groups and a range of densities within each area depicted. Figure 11 and Figure 12 provide a similar visual comparison of the percent of workers who made a work trip, by grouped area of residence.

When taking into consideration the combination of population centre group (combination of type of population centre and size classification), the population density, and the regional geographies, we see more variation in both trip rates and work commuting than the two analyses by type of population centre and by density presented above. I.e., type of population centre and density only tell part of the story: local conditions and population characteristics also matter.

Figure 9. Daily person trip rates for residents of geographic groupings – 2022 TTS Study Area outside Toronto

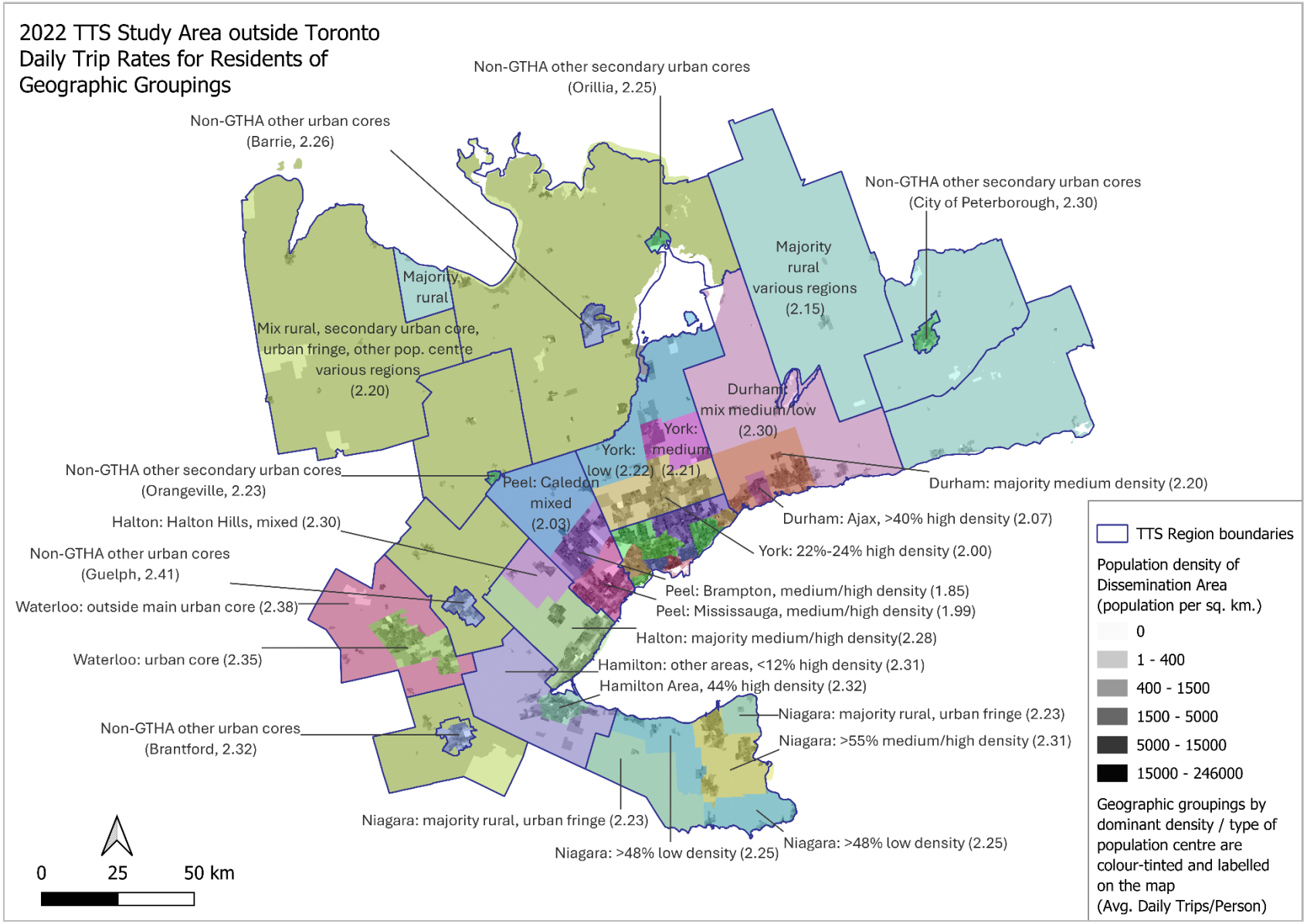


Figure 10. Daily person trip rates for residents of geographic groupings – 2022 TTS Study Area, in and near Toronto

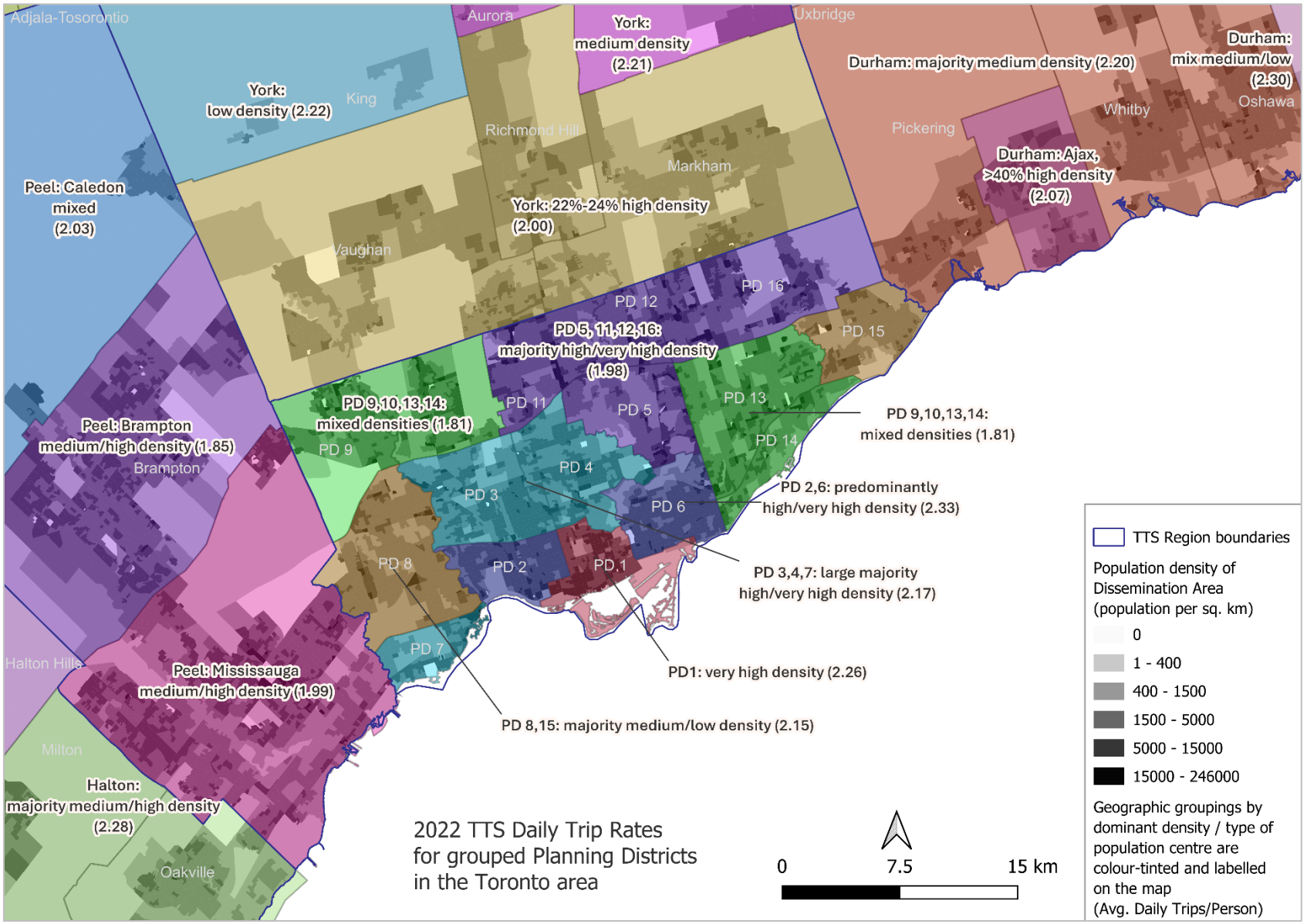


Figure 11. Daily % of workers who made a work trip, by residential geographic groupings – 2022 TTS Study Area outside Toronto

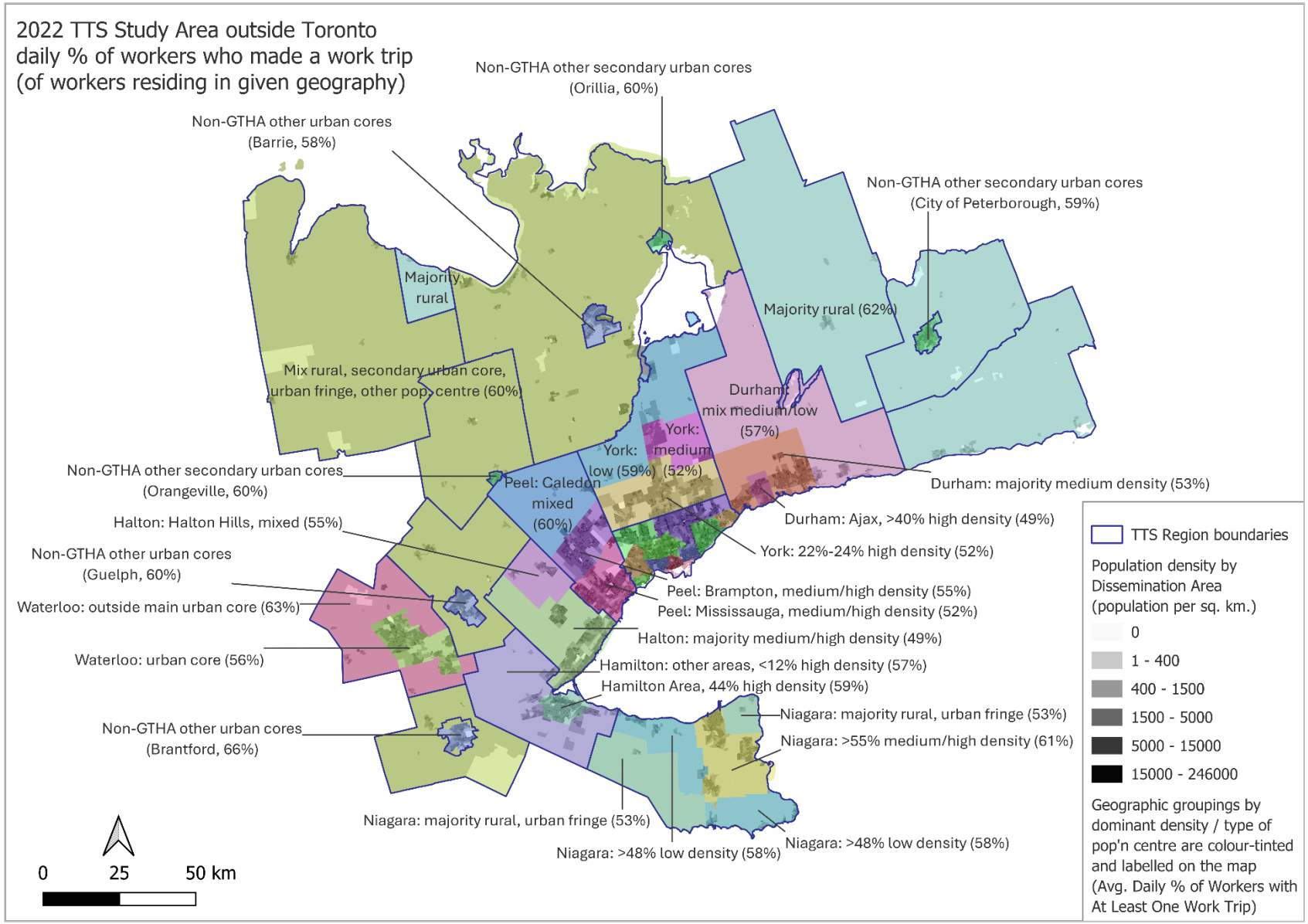


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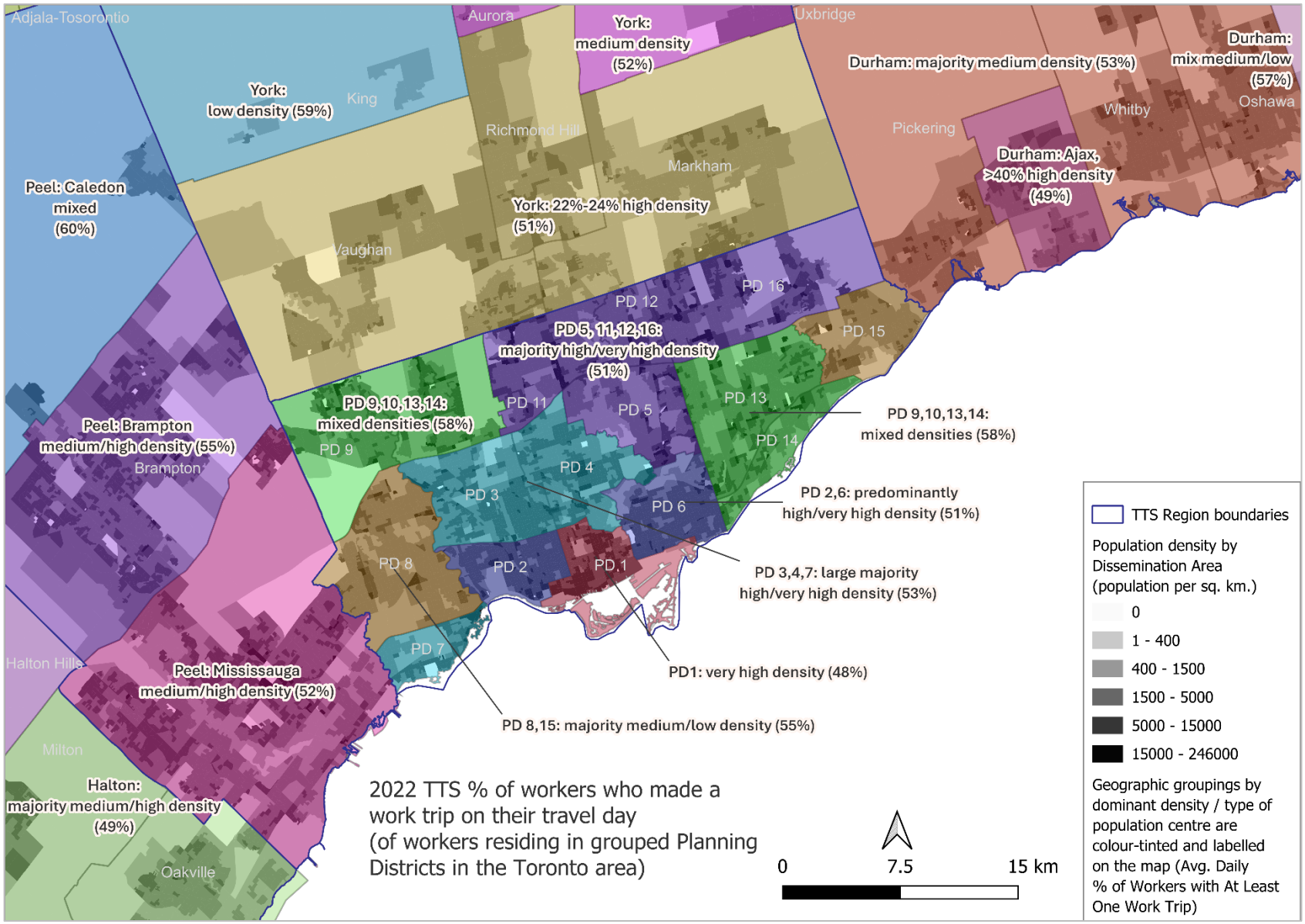
Figure 12. Daily % of workers who made a work trip, by residential geographic groupings – 2022 TTS Study Area, in and near Toronto



2.4 Daily Trip Rates by Sample Type and Survey Method

Table 4 examines trip rates by type of sample (address-and-phone, address-only, or volunteer) and survey method (phone, or online via PC or mobile device).

2.4.1 Sample Type

Address-and-phone samples represented one-third (34%) of households, while address-only samples made up the remaining two-thirds (66%). Address-only samples had slightly smaller average household sizes compared to address-and-phone samples (3.4% less, at 2.57 persons per households) and marginally lower household trip rates (0.4% lower at 5.29 trips per household), but moderately higher person trip rates (6.8% higher, at 2.19 trips per person 5+).

Of note, volunteer survey respondents, who did not receive a survey invitation letter but contacted the survey contractor after hearing about the survey, tended to have higher-than-average trip rates. It is unclear whether this is due to their interest in transportation surveys or other factors. However, the volunteer respondents had much higher trip rates for sustainable travel modes than other respondents (see section 2.7.5, Table 10). Volunteers tended to have smaller households on average (2.32 persons per household) and more workers (64%) compared to the survey averages (2.60 persons per household, 53% workers). This points to there being differences in their characteristics that factor into the observed differences in their trip rates. Nonetheless, even if there were some bias amongst these volunteers that was not addressed by the data weighting, it would have negligible impact as they represent only 0.4% of the survey sample.

2.4.2 Survey Method

The large majority of respondents completed the survey online (91%). Only 5% completed the survey by phone, with another 3% responding by phone and online.

While there may be differences in trip rate by survey method, with lower daily person trip rates for phone surveys (1.83) compared to the average (2.14), it is fairly clear that those who answered by phone have very different characteristics compared to those who finished online. Phone respondents have an average household size of 1.82, and only 30% of household members who are employed, compared to the survey average of 2.60 persons per household and 53% who work. The latter rates are similar to, and are driven by, the 72% of people who responded online by personal computer (2.60 persons per household and 54% workers).

Another 19% of people used a mobile device for their online response: these represented moderately larger households than the average (2.90 persons per households), and marginally higher proportions of workers (55%), but marginally lower person-trip rates (2.14 trips per person). Slightly higher proportions of workers in these households take a work trip (57% of workers versus 55% on average).

The very low average number of workers per household for phone respondents (0.55 workers per household, compared with a survey average of 1.38 workers), coupled with the lower overall trip rates and household sizes (relative to online respondents), suggests that unemployed people, retirees and seniors made up important numbers of households that responded by phone.

Online personal computer respondents have a household trip rate of 5.39 trips per household – moderately lower than that for those who used online mobile devices, at 5.69 trips per household, but much greater than that of phone respondents, at 3.30 daily trips per household.

Among the 3% of respondents who used both online and phone for their responses, the trip rates and household characteristics are closer to those of online respondents than phone respondents.

Table 4. Daily household trip rates, person trip rates, and proportion of workers who took work trips, by sample type and survey method

Category	Sample size (n surveys)	House-holds	Pop'n	% of pop'n	Avg. hhld. size	Avg. daily trips per hhld.	Avg. daily trips per person 5+	% of persons who work	Avg. workers per hhld.	% of workers taking work trip
Survey Total	**158,662**	**3,673,900**	**9,550,500**	**100%**	**2.60**	**5.30**	**2.14**	**53%**	**1.38**	**55%**
Sample type										
Address-and-phone	61,338	1,209,400	3,217,700	34%	2.66	5.31	2.05	49%	1.31	56%
Address-only	96,719	2,448,600	6,296,100	66%	2.57	5.29	2.19	55%	1.41	54%
Volunteer or other	605	15,800	36,600	0%	2.32	5.81	2.58	64%	1.49	63%
Survey method										
Phone	13,191	261,400	475,900	5%	1.82	3.30	1.83	30%	0.55	54%
Online personal computer	117,390	2,653,700	6,899,600	72%	2.60	5.39	2.16	54%	1.41	54%
Online mobile device	22,041	635,800	1,841,200	19%	2.90	5.69	2.14	55%	1.59	57%
Mixed mode (online/phone)	6,040	122,900	333,900	3%	2.72	5.69	2.17	47%	1.27	55%

Shading highlights cells values that are higher (blue) or lower (pink) compared to others in the same column. The intensity of the shading increases as the value approaches the highest or lowest value.

2.5 Daily Trip Rates by Key Household-Level Attributes

Table 5 lists daily trip rates and incidence rates of worker trips according to several household-level attributes. Key points to note:

- By household size: Average daily trips per household increase with household size, which is consistent with expectations. However, average daily trips per person 5+ fluctuate with household size. From the one-person household daily trip rate of 2.22 trips per person 5+, the rate drops but then increases to four-person households' daily rate of 2.29 trips (the highest rate overall), after

which it drops. Note that the number of workers per household also increases with household size, as does the proportion of workers taking a work trip (though the rate rises only slightly).

- By dwelling type: Average household size, daily household trip rate, daily trip rate per person 5+, and workers per household increase with dwelling size, with houses at the highest rates, then townhouses and finally apartments. However, though the daily apartment trip rate is only just over half (56%) that of houses (broadly consistent with the capacity of each dwelling type) the daily person trip rates are much closer to each other, with apartment rates at 92% those of houses. In other words, the daily person trip rate is less dependent on dwelling type (more likely, it is tied to household size and household type).
- By household type: For any given number of adults, households with 1 or more children have upwards of 50% more daily trips per household than do households without children. This is consistent with the correspondingly greater average household sizes. However, trips per person 5+ are also greater for households with children, by 23% for 1 adult households, 29% for 2 adult households and 15% for 3+ adult households. In other words, there is a correspondingly greater rate of personal trip-making in households with children.
- By household income: Average household size, daily household trip rates, daily trip rates per person 5+ and workers per household all increase with income, which is consistent with expectations. Rates for the third highest income band ($80,000 to < $125,000) is closest to overall survey values, even though this band represents only 22% of study area households and population. Workers in households in the second and third income bands ($40,000 to < $125,000) had slightly higher rates of taking work trips (59% and 57%) compared with the other two income bands: this may reflect employment status (full or part time) and differences in occupation types that allow working from home (or not) – further research is required.
- Vehicle availability: Average household size, daily household trip rates, workers per household and workers' incidence of taking work trips all increase with household size. This suggests that vehicle availability (i.e., mobility access) increases the propensity to make trips. However, daily trip rates per person 5+ increase for as vehicle availability grows to 2 vehicles, but then drops for members of 3+ vehicle households: at the same time, 3+ vehicle households have the highest proportions and numbers of workers, and these workers have the highest incidence of taking a work trip (suggesting that more household members are of working age than other households, and they either require a vehicle for work or can now afford their own mobility). The lower rates associated with no-vehicle households may reflect status (e.g., retired or unemployed people, or students), income or the lack of accessibility – see also the next attribute.
- Worker group: The number of workers increases with household size, as does the daily household trip rate – consistent with expectations. However, the daily rate of trips per person 5+ increases through 2-worker households, but drops moderately for households with three or more workers (even though their incidence of taking a work trip is slightly higher than for 1- and 2-worker households). This suggests that employment status (full versus part time) and differences in occupation types may be factors – further research is needed.
- Trip day: Tuesdays, Wednesdays and Thursdays have the highest daily household and person 5+ trip rates. (Wednesday is highest.) The lower Monday and Friday trip rates are consistent with the days

most likely for workers to work from home or to take a flex or vacation day, as shown by other TTS reports.

- Survey month: Daily household and person 5+ trip rates are highest for warm-weather months, although these patterns are not consistent between household and person trip rates. (July is an exception, although this may also be a function of the summer vacation season when school is not in session.) Note also that January, February and March 2023 have low incidences of workers taking a work trip, along with July 2023. These months also feature relatively low numbers of surveys (i.e., survey respondents), which might also have influenced the trip rates: note also that the surveys completed between January and March 2023 were recruited from earlier mailings, given that the fall phase was over in December 2022. Even so, overall, the monthly household sizes, number of workers per household, and household and person trip rates are all within reasonable ranges.

Table 5. Daily household trip rates, person trip rates, and proportion of workers who took work trips, by household characteristic

	Sample size (n surveys)	House-holds	Pop'n	% of pop'n	Avg. hhld. size	Avg. daily trips per hhld.	Avg. daily trips per person 5+	% of persons who work	Avg. workers per hhld.	% of workers taking work trip
Survey Total	**158,662**	**3,673,900**	**9,550,500**	**100%**	**2.60**	**5.30**	**2.14**	**53%**	**1.38**	**55%**
Household size										
1 person	40,766	929,000	929,000	10%	1.00	2.22	2.22	52%	0.52	54%
2 people	66,826	1,134,900	2,269,800	24%	2.00	4.10	2.05	55%	1.09	53%
3 people	24,243	621,700	1,865,200	20%	3.00	5.85	2.09	59%	1.76	54%
4 people	18,570	611,700	2,447,000	26%	4.00	8.46	2.29	54%	2.15	56%
5 people	5,807	266,200	1,330,900	14%	5.00	10.14	2.17	47%	2.36	56%
6 people	1,767	78,700	472,000	5%	6.00	10.82	1.94	42%	2.51	57%
7 or more people	683	31,700	236,700	2%	7.47	12.59	1.86	40%	2.96	58%
Dwelling type										
House	102,509	2,018,400	6,205,400	65%	3.07	6.40	2.19	53%	1.62	55%
Apartment	40,427	1,299,100	2,390,200	25%	1.84	3.57	2.02	53%	0.98	53%
Townhouse	15,726	356,400	954,900	10%	2.68	5.34	2.13	53%	1.43	53%
Household type										
Single person	40,766	929,000	929,000	10%	1.00	2.22	2.22	52%	0.52	54%
2 adults, no children	65,656	1,092,600	2,185,300	23%	2.00	4.05	2.02	55%	1.10	53%
3+ adults, no children	21,817	588,800	2,117,200	22%	3.60	6.28	1.75	66%	2.37	58%
Single parent, 1+ children	1,923	72,700	184,700	2%	2.54	6.48	2.72	34%	0.85	52%
2 adults, 1+ children	21,381	705,200	2,689,000	28%	3.81	8.61	2.61	45%	1.72	53%
3+ adults, 1+ children	7,119	285,400	1,445,300	15%	5.06	9.62	2.01	48%	2.43	56%

	Sample size (n surveys)	House-holds	Pop'n	% of pop'n	Avg. hhld. size	Avg. daily trips per hhld.	Avg. daily trips per person 5+	% of persons who work	Avg. workers per hhld.	% of workers taking work trip
Household income										
less than $40k	16,803	450,500	797,200	8%	1.77	3.13	1.82	28%	0.49	53%
$40k to less than $80k	32,579	735,600	1,597,600	17%	2.17	4.24	2.02	45%	0.99	59%
$80k to less than $125k	33,708	793,400	2,095,700	22%	2.64	5.47	2.18	56%	1.47	57%
$125k+	49,596	1,155,000	3,668,500	38%	3.18	7.03	2.36	62%	1.97	53%
Unknown	25,976	539,300	1,391,500	15%	2.58	4.61	1.84	48%	1.24	54%
Vehicle availability										
No vehicles	16,592	479,500	782,300	8%	1.63	2.78	1.75	50%	0.81	48%
1 vehicle	69,108	1,512,500	3,215,400	34%	2.13	4.26	2.11	47%	1.00	49%
2 vehicles	55,179	1,211,800	3,802,400	40%	3.14	6.69	2.27	53%	1.66	56%
3 or more vehicles	17,783	470,100	1,750,400	18%	3.72	7.63	2.11	65%	2.41	61%
Worker group										
No workers	52,547	880,500	1,411,500	15%	1.60	3.00	1.89	n/a	n/a	n/a
1 worker	46,827	1,138,800	2,442,400	26%	2.14	4.29	2.15	47%	1.00	54%
2 workers	46,666	1,219,900	3,846,900	40%	3.15	6.76	2.29	63%	2.00	54%
3 or more workers	12,622	434,600	1,849,700	19%	4.26	8.50	2.03	80%	3.39	57%
Trip day										
Monday	22,513	514,400	1,319,000	14%	2.56	5.04	2.06	52%	1.34	52%
Tuesday	27,754	630,700	1,631,300	17%	2.59	5.33	2.17	51%	1.32	56%
Wednesday	27,429	633,500	1,654,400	17%	2.61	5.47	2.21	52%	1.35	57%
Thursday	42,001	974,700	2,553,400	27%	2.62	5.40	2.16	53%	1.39	57%
Friday	38,965	920,600	2,392,400	25%	2.60	5.20	2.09	55%	1.43	51%
Survey month										
September	13,806	333,200	857,400	9%	2.57	5.16	2.12	52%	1.35	54%
October	34,563	785,900	1,993,200	21%	2.54	5.31	2.20	53%	1.35	53%
November	49,998	1,173,000	3,050,000	32%	2.60	5.19	2.09	53%	1.38	55%
December	12,535	314,100	837,700	9%	2.67	5.32	2.11	54%	1.44	53%
January	2,291	56,400	148,400	2%	2.63	4.72	1.91	54%	1.43	45%
February	934	23,400	66,400	1%	2.84	5.21	1.97	53%	1.49	49%
March	630	16,400	43,700	0%	2.66	4.98	2.00	57%	1.51	48%
April	14,843	312,000	807,100	8%	2.59	5.29	2.14	51%	1.31	57%
May	21,825	490,000	1,305,100	14%	2.66	5.65	2.21	53%	1.40	57%
June	6,532	152,900	403,900	4%	2.64	5.61	2.22	54%	1.42	58%
July	705	16,600	37,600	0%	2.27	4.42	2.03	65%	1.47	46%

Shading highlights cells values that are higher (blue) or lower (pink) compared to others in the same column. The intensity of the shading increases as the value approaches the highest or lowest value.

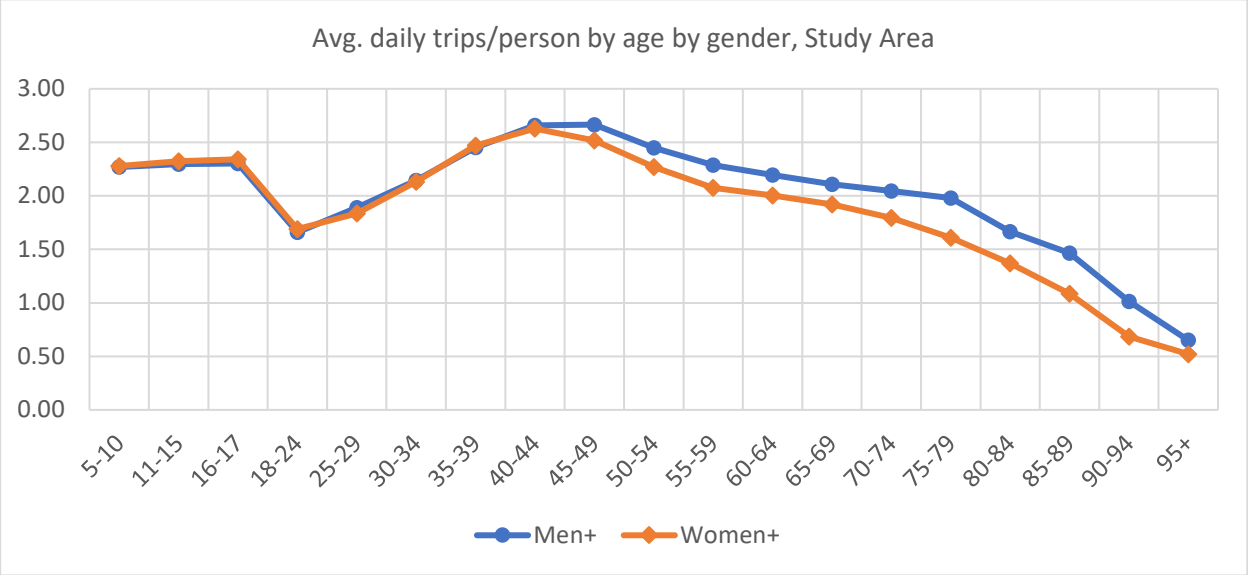
2.6 Daily Person Trip Rates by Key Demographic Attributes

2.6.1 Average Daily Trip Rates by Age and Gender

Figure 13 shows how daily rates per person vary by age and gender. It can be seen that the rates for both men+ and women+ track closely together through the 40-44 age cohort. The daily trip rate for women+ peaks at 40-44, while that for men+ peaks at 45-49 – i.e., at ages that are typically consistent with peak mid-career and family activities. Daily trip rates for both men+ and women+ drop, more so for the latter, though they gradually come close to coalescing in the 95+ cohort. The greatest gap lies within the 75-79 cohort.

Note that in this analysis, the term "men+" refers to an aggregate category for men and/or boys and a portion of persons who identify as non-binary, prefer to self-describe, or who declined to identify their gender, while "women+" refers to women and/or girls and a portion of persons who identify as non-binary, prefer to self-describe, or who declined to identify their gender. This follows Statistics Canada's approach to reporting two-category gender aggregations to preserve the confidentiality of responses, given the small size of the non-binary population.[5]

Figure 13: Daily trips per person by age by gender, TTS Study Area



[5] More information can be found here: *2021 Census gender note* (https://www12.statcan.gc.ca/census-recensement/2021/ref/gender-genre-eng.cfm) and *Filling the gaps: Information on gender in the 2021 Census* (https://www12.statcan.gc.ca/census-recensement/2021/ref/98-20-0001/982000012021001-eng.cfm).

Men+ = men and/or boys and a portion of persons who identifies as non-binary, prefer to self-describe, or who declined to say. Women+ = women and/or girls and a portion of persons who identifies as non-binary, prefer to self-describe, or who declined to say.

2.6.2 Average Daily Trip Rates by Demographics

Table 6 summarizes daily trip by a variety of demographic attributes. Key points to note:

- By gender: Men+ have a slightly higher daily trip rate than women+ (2.19 trips versus 2.09 trips). Gender-diverse respondents have a slightly higher overall trip rate, at 2.29 daily person trips.
- By age group: School-aged children (5-17 years old) have the highest percentage of people who made trips, at approximately 90%, of whom 87-88% make a trip to school. The highest daily trip rates are in the 35-54 year-old cohorts, consistent with mid-career and family activities: the rate peaks at 2.64 trips per person in the 40-44 year-old cohort.
- By student status: K-12 students have the highest trip rate, at 2.34 daily trips. This is consistent with their 89% rate of taking a trip to school. The rate for home-schooled K-12 students is much lower, at 0.92 daily trips. The rate for part-time PSE (post-secondary) students is 2.14 daily trips- almost a quarter (24%) higher than the full-time PSE students' rate of 1.73 daily trips, which is consistent with the fact that many part-time PSE students also hold a job.
- By work status: Among people who are employed, full-time workers have the highest daily trip rate, at 2.45 person trips per, followed part-time workers, at 2.33 person trips per day. People working from home have lower trip rates (1.78 trips for full-time workers and 2.12 trips for part-time workers), as do people who are not employed (1.80 trips).
- By workplace location: Workers who have a usual workplace outside the home (the majority of workers) have the highest trip rate, at 2.45 daily trips. Workers with no fixed workplace have a moderately lower trip rate (2.28 daily trips), with those working exclusively at home having a rate of 1.83 daily trips.
- By detailed status: People working full-time have the highest trip rates, with that for full-time workers who are also part-time students having the highest daily rate, at 2.39 trips. This rate is slightly higher than those for full-time workers (2.35 daily trips) and part-time workers (2.33 daily trips).
- By occupation type: The highest trip rates are observed for those in health, education, law, social services and complementary occupations, at 2.54 daily trips, followed by those who are in management, at 2.49 daily trips. The lowest trip rates are for workers in personal

service and customer information (2.17 trips), technical and paraprofessional workers (2.21 trips).[6]

- By immigration status: People who were born in Canada or were Canadian citizens at birth have the highest trip rate, at 2.30 daily trips. Those who are neither permanent residents nor citizens have the lowest rate, at 1.66 daily trips. Trip rates for immigrants are lowest for new arrivals, at 1.70 daily trips; however, the rates quickly rise and stay about at 1.93 – 1.96 trips per day, moderately lower than that of those who were born in Canada or were Canadian citizens at birth.
- By ethnicity: While the daily trip rates varied by ethnicity, the highest rates are observed for people who have multiple ethnicities – specifically, Canadian + American + European, at 2.63 daily trips.
- By respondent type: Trip rates for adult primary respondents (those who fill out the survey), at 2.50 daily trips per person, are higher than adults who are proxy respondents (those whose information is furnished by a primary survey respondent), at 1.77. With just descriptive bivariate analysis, it would be difficult to know how much of this difference may be due to proxy respondents having different characteristics and travel patterns compared to the primary survey respondent.

Table 6. Daily person trip rates, proportion of students who took school trips, and proportion of workers who took work trips, by selected demographic characteristics

Category	Sample size (n person records)	Expanded pop.	% of total pop.	Avg. age	Pop. 5+ yrs	% who took trip	Avg. daily trips per person	% of total pop. in school	% of students with trip to school	% of total pop. who work	% of workers with work trip
Survey Total	**366,172**	**9,550,500**	**100.0%**	**40.6**	**9,093,800**	**76%**	**2.14**	**23%**	**69%**	**53%**	**55%**
Gender grouped											
Men+	179,244	4,677,000	49.0%	39.7	4,442,000	79%	2.19	22%	71%	57%	57%
Women+	186,928	4,873,500	51.0%	41.5	4,651,800	74%	2.09	21%	67%	49%	52%
Gender detail											
Male	176,427	4,601,400	48.2%	39.8	4,372,700	79%	2.20	22%	71%	57%	57%
Female	183,933	4,789,400	50.1%	41.7	4,574,500	74%	2.09	21%	67%	49%	52%
Gender diverse	1,104	35,400	0.4%	26.2	34,800	79%	2.29	45%	65%	52%	47%
Prefer to self-describe	464	13,400	0.1%	35.3	13,000	71%	1.88	24%	57%	50%	46%
Decline	4,244	110,900	1.2%	31.3	98,800	70%	1.88	30%	68%	46%	47%

[6] A small number of respondents recorded “other” occupations, with a trip rate of 2.13 daily trips. Respondents whose occupation type is “unknown” have a rate of 1.69 daily trips.

Category	Sample size (n person records)	Expanded pop.	% of total pop.	Avg. age	Pop. 5+ yrs	% who took trip	Avg. daily trips per person	% of total pop. in school	% of students with trip to school	% of total pop. who work	% of workers with work trip
Age group											
0 to 4	11,720	456,800	4.8%	2.1	0	na	na	0%	na	0%	na
5 to 10	15,563	607,800	6.4%	7.5	607,800	91%	2.27	99%	87%	0%	na
11 to 15	15,566	544,700	5.7%	13.0	544,700	91%	2.31	100%	88%	4%	21%
16 to 17	6,641	216,300	2.3%	16.5	216,300	89%	2.32	98%	86%	30%	28%
18 to 24	18,943	827,400	8.7%	21.1	827,400	68%	1.67	57%	41%	59%	50%
25 to 29	17,752	679,500	7.1%	27.1	679,500	72%	1.86	14%	29%	83%	53%
30 to 34	21,836	695,800	7.3%	32.0	695,800	76%	2.14	7%	24%	85%	52%
35 to 39	21,916	652,100	6.8%	37.0	652,100	80%	2.46	5%	21%	85%	53%
40 to 44	20,922	651,800	6.8%	41.9	651,800	82%	2.64	4%	19%	86%	56%
45 to 49	21,584	603,300	6.3%	47.0	603,300	83%	2.59	2%	16%	87%	59%
50 to 54	25,209	687,100	7.2%	52.0	687,100	80%	2.36	2%	16%	85%	59%
55 to 59	29,043	665,900	7.0%	57.0	665,900	78%	2.18	1%	20%	76%	60%
60 to 64	33,738	650,300	6.8%	61.9	650,300	75%	2.10	1%	24%	56%	59%
65 to 69	33,507	517,000	5.4%	66.9	517,000	70%	2.01	0%	20%	27%	52%
70 to 74	28,988	427,900	4.5%	71.9	427,900	67%	1.91	0%	35%	13%	48%
75 to 79	21,591	306,900	3.2%	76.7	306,900	62%	1.78	0%	25%	7%	47%
80 to 84	12,331	184,400	1.9%	81.7	184,400	55%	1.50	0%	6%	3%	38%
85 to 89	6,299	117,900	1.2%	86.7	117,900	47%	1.24	0%	0%	1%	34%
90 to 94	2,506	48,100	0.5%	91.5	48,100	33%	0.82	0%	36%	1%	14%
95+	517	9,700	0.1%	96.1	9,700	23%	0.56	0%	na	0%	0%
Transit pass											
No	323,840	8,183,800	85.7%	43.3	8,183,800	77%	2.17	21%	70%	56%	55%
Yes	26,600	759,100	7.9%	39.0	759,100	74%	1.88	36%	57%	56%	52%
Not asked (0-5 yrs)	14,161	555,800	5.8%	2.7	99,000	89%	2.18	17%	86%	0%	na
Unknown	1,571	51,800	0.5%	36.5	51,800	52%	1.22	26%	50%	57%	45%
Driver's licence											
No	39,290	1,149,900	12.0%	46.5	1,149,900	55%	1.34	23%	59%	35%	50%
Yes	284,033	6,791,400	71.1%	47.4	6,791,400	78%	2.25	10%	42%	68%	55%
Not applicable (<16 yrs)	42,849	1,609,200	16.8%	7.9	1,152,500	91%	2.29	71%	87%	1%	21%
Student status											
Not applicable (0-4 yrs)	11,720	456,800	4.8%	2.1	0	na	na	0%	na	0%	na
Not a student	298,764	7,020,700	73.5%	50.3	7,020,700	74%	2.14	0%	na	66%	56%
K-12 school	37,416	1,357,100	14.2%	11.3	1,357,100	92%	2.34	100%	89%	7%	27%
K-12 home-schooled	701	29,500	0.3%	11.4	29,500	36%	0.92	100%	0%	7%	25%
PSE full time	12,712	520,500	5.4%	23.4	520,500	69%	1.73	100%	40%	43%	37%
PSE part time	4,859	165,900	1.7%	33.0	165,900	76%	2.14	100%	12%	77%	51%

Category	Sample size (n person records)	Expanded pop.	% of total pop.	Avg. age	Pop. 5+ yrs	% who took trip	Avg. daily trips per person	% of total pop. in school	% of students with trip to school	% of total pop. who work	% of workers with work trip
Work status											
Employed full-time	127,560	3,533,700	37.0%	42.8	3,533,700	87%	2.45	3%	10%	100%	67%
Employed part-time	24,477	739,300	7.7%	36.5	739,300	81%	2.33	40%	51%	100%	44%
Work fr. home full-time	24,177	645,700	6.8%	42.4	645,700	60%	1.78	3%	9%	100%	7%
Work fr. home part-time	5,854	133,000	1.4%	48.6	133,000	68%	2.12	16%	38%	100%	6%
Not employed	151,020	3,225,200	33.8%	51.9	3,225,200	64%	1.80	25%	68%	0%	na
Too young (<13 yrs)	33,084	1,273,700	13.3%	6.3	816,900	91%	2.29	64%	87%	0%	na
Workplace location											
Not applicable (not work)	184,104	4,498,900	47.1%	39.0	4,042,100	70%	1.90	36%	77%	0%	na
Work exclusively fr. home	30,031	778,700	8.2%	43.4	778,700	62%	1.83	5%	25%	100%	7%
No fixed workplace	20,125	577,800	6.0%	42.5	577,800	77%	2.28	8%	38%	100%	49%
Usual workplace	131,912	3,695,200	38.7%	41.6	3,695,200	87%	2.45	10%	40%	100%	66%
Detailed status											
Work full-time	148,038	4,052,800	42.4%	43.1	4,052,800	83%	2.35	0%	na	100%	58%
Work part-time	22,120	553,900	5.8%	47.8	553,900	77%	2.33	0%	na	100%	42%
Student full-time	42,537	1,585,200	16.6%	13.2	1,585,200	85%	2.13	100%	79%	0%	na
Student FT + work FT	1,028	38,000	0.4%	27.8	38,000	80%	2.18	100%	14%	100%	55%
Student FT + work PT	7,064	275,800	2.9%	20.8	275,800	82%	2.28	100%	55%	100%	31%
Student part-time	1,241	42,900	0.4%	33.1	42,900	60%	1.71	100%	21%	0%	na
Student PT + work FT	2,671	88,500	0.9%	33.3	88,500	84%	2.39	100%	8%	100%	57%
Student PT + work PT	1,147	42,600	0.4%	29.0	42,600	73%	2.00	100%	21%	100%	37%
Not employed, not student	126,709	2,366,600	24.8%	63.4	2,366,600	60%	1.76	0%	na	0%	na
Not employed, student status unknown	1,752	41,200	0.4%	50.8	41,200	46%	1.30	0%	na	0%	na
Young school age child but not a student	145	6,200	0.1%	6.6	6,200	29%	0.64	0%	na	0%	na
Not applicable 0-4 years	11,720	456,800	4.8%	2.1	0	na	na	0%	na	0%	na
Occupation Type											
Business, finance, natural and applied sciences	45,436	1,173,900	12.3%	41.6	1,173,900	77%	2.26	4%	16%	100%	40%
Health care, education, law, community or social services, art, culture, recreation, sports	43,738	1,187,400	12.4%	42.3	1,187,400	86%	2.54	9%	32%	100%	61%
Management	15,849	399,600	4.2%	46.7	399,600	84%	2.49	2%	11%	100%	58%
Technical, paraprofessional	12,910	352,800	3.7%	42.0	352,800	77%	2.21	6%	30%	100%	45%
Admin, admin support	13,936	374,400	3.9%	44.2	374,400	81%	2.29	7%	30%	100%	54%
Sales	12,442	365,900	3.8%	38.5	365,900	82%	2.29	23%	53%	100%	53%

Category	Sample size (n person records)	Expanded pop.	% of total pop.	Avg. age	Pop. 5+ yrs	% who took trip	Avg. daily trips per person	% of total pop. in school	% of students with trip to school	% of total pop. who work	% of workers with work trip
Personal service, customer information service	11,594	371,800	3.9%	37.2	371,800	81%	2.17	25%	54%	100%	53%
Industrial, construction, equip. operation trade	8,828	274,600	2.9%	42.0	274,600	88%	2.36	4%	28%	100%	78%
Worker or labourer in transport and construction	6,709	212,900	2.2%	43.5	212,900	85%	2.27	7%	36%	100%	70%
Natural resources, agriculture, related production occupations	1,590	50,000	0.5%	41.4	50,000	82%	2.38	10%	40%	100%	58%
Occupations in manufacturing, utilities	6,001	188,600	2.0%	45.0	188,600	90%	2.27	4%	26%	100%	80%
Other	507	17,300	0.2%	26.0	17,300	76%	2.13	88%	46%	100%	32%
Unknown	2,528	82,500	0.9%	40.3	82,500	66%	1.69	13%	41%	100%	44%
Immigration status											
Born in Canada / citizen at birth	232,905	6,059,800	63.4%	37.0	5,637,800	80%	2.30	26%	72%	50%	56%
Immigrated in last 2 yrs	4,198	164,700	1.7%	30.8	156,500	69%	1.70	30%	63%	51%	42%
Immigrated 3-5 yrs ago	6,866	262,200	2.7%	31.9	259,100	74%	1.93	29%	68%	61%	47%
Immigrated 5-10 yrs ago	9,603	349,000	3.7%	34.8	348,800	75%	1.96	27%	68%	61%	51%
Immigrated 10-15 yrs ago	11,276	364,900	3.8%	41.0	364,900	73%	1.96	19%	59%	68%	54%
Immigrated >15 yrs ago	83,250	1,797,800	18.8%	56.8	1,797,600	70%	1.94	4%	32%	57%	55%
Not a permanent resident or citizen	3,037	117,900	1.2%	33.4	115,000	67%	1.66	40%	57%	40%	49%
Unknown	15,037	434,200	4.5%	39.2	414,000	65%	1.59	23%	61%	52%	51%
Ethnicity											
African	3,179	128,300	1.3%	34.6	120,400	74%	1.86	33%	67%	51%	52%
East Asian	34,983	899,500	9.4%	40.1	862,400	71%	1.91	21%	68%	52%	49%
Southeast Asian	16,132	527,800	5.5%	39.0	505,900	72%	1.82	22%	65%	58%	56%
South Asian	23,153	817,200	8.6%	35.8	774,300	70%	1.80	25%	65%	55%	49%
Caribbean	6,063	169,800	1.8%	46.4	165,600	72%	1.98	15%	61%	56%	55%
Indigenous	1,192	33,100	0.3%	39.9	32,300	81%	2.25	25%	76%	50%	63%
Latin, Central, S. American	6,501	199,600	2.1%	39.7	195,100	77%	2.08	22%	62%	64%	55%
Middle Eastern/N. African	6,995	229,800	2.4%	35.9	218,600	77%	2.09	30%	70%	52%	54%
European	72,898	1,654,900	17.3%	45.4	1,594,000	79%	2.34	16%	72%	54%	55%
Canadian	142,829	3,408,800	35.7%	42.2	3,245,600	78%	2.24	21%	70%	51%	58%
American	684	14,100	0.1%	48.2	13,300	76%	2.29	11%	70%	49%	45%
Jewish	407	9,200	0.1%	38.4	8,800	82%	2.46	28%	69%	56%	49%
Multiple: Canadian or American + European + no other selected	12,709	324,300	3.4%	40.7	311,000	82%	2.63	18%	68%	60%	55%

Category	Sample size (n person records)	Expanded pop.	% of total pop.	Avg. age	Pop. 5+ yrs	% who took trip	Avg. daily trips per person	% of total pop. in school	% of students with trip to school	% of total pop. who work	% of workers with work trip
Multiple: Indigenous + other ethnic or cultural origins	1,315	43,600	0.5%	30.2	39,700	82%	2.48	30%	72%	52%	53%
Multiple: multiple selected other than preceding 'multiple' categories	16,279	524,800	5.5%	29.8	472,000	79%	2.24	34%	72%	49%	50%
Other, not classified	711	21,800	0.2%	20.5	17,700	86%	2.35	50%	75%	33%	52%
Unknown	20,142	544,100	5.7%	39.2	516,900	71%	1.85	23%	68%	53%	54%
Survey respondent											
Primary respondent, adult	158,467	3,666,800	38.4%	51.8	3,666,800	82%	2.50	5%	31%	66%	54%
Primary respondent, 16-17	158	5,800	0.1%	16.5	5,800	93%	2.45	97%	85%	26%	21%
Proxy respondent, adult	158,215	4,058,100	42.5%	44.7	4,058,100	67%	1.77	13%	36%	63%	56%
Proxy respondent, child	49,332	1,819,800	19.1%	8.9	1,363,000	91%	2.30	74%	87%	5%	27%

na = not applicable or no data

Shading highlights cells values that are higher (blue) or lower (pink) compared to others in the same column. The intensity of the shading increases as the value approaches the highest or lowest value.

When analysing ethnicity, the single-category version of the ethnicity variable was used for ease of analysis.

Men+ = men and/or boys and a portion of persons who identifies as non-binary, prefer to self-describe, or who declined to say. Women+ = women and/or girls and a portion of persons who identifies as non-binary, prefer to self-describe, or who declined to say.

K-12 = students enrolled in elementary or secondary schools. PSE = students enrolled in post-secondary schools.

2.7 Daily Person Trip Rates by Mode

This section discusses trip generation rates by mode. Given that some patterns observed in the survey results presented here may the result of multiple factors beyond just the characteristic examined, readers are referred to the multivariate analysis in Section 4, which isolates the impacts of different characteristics on overall trip rates when controlling for key household and demographic characteristics. More research would be required to perform the same kind of multivariate analysis on mode choice or modal trip rates.

2.7.1 Trip Rates by Mode for Household Characteristics

Table 7 lists daily trips per person 5+ by mode according to several household characteristics. Key patterns by mode are summarized as follows:

- Auto driver is the dominant mode, with the highest daily trip rates observed for smaller households, larger dwelling units (houses), smaller all-adult households, households with more workers, higher incomes, higher vehicle availability rates, and the spring season. While some characteristics might be related to other factors (for example, the higher spring auto driver rates may be tied to the ongoing evolution of hybrid work arrangements, possible differences in sample composition, and/or possible seasonal differences), other relationships can be intuited among these characteristics – e.g., income, vehicle availability, and the number of workers.
- Auto passenger has the second-highest rates. Some activity echoes that of auto driver characteristics – e.g., dwelling type, household income, vehicle availability, number of workers, and season have the highest rates for specific characteristics. Others complement auto driver activity: where smaller households and smaller all-adult households have the highest auto driver rates, larger households and households with children have the highest auto passenger rates.
- Sustainable mode rates are highest for single person households, smaller dwelling units (apartments), households with no vehicles, low-income households, and warm weather months. Relationships among some characteristics may be intuited – for example, higher active mode rates among households with children or in warm-weather months; and low income and zero-vehicle availability as a determinant of sustainable mode choice (in contrast to auto driver choice).

Though some relationships are intuitive, it is important to note that the strength of the relationships may not always be clear cut. In other cases, some differences are slight, so relationships with specific characteristics may be tenuous - for example, mode choice varies only marginally by day of week. More research may be warranted.

Looking at individual household characteristics, several observations can be made:

- By household size: The auto driver mode dominates, as it does for almost all other household characteristics. However, as household size increases, the auto driver trip generation rate drops. At the same time, the auto passenger trip generation rate generally rises. This, in combination with the use of other modes (including school bus), is consistent with the mode choices that are available to children who are below driving age or who, as students, may not have access to the family vehicle. Interestingly, transit, bike + micromobility and walk trip generation rates (sustainable mode rates) are highest in 1-person households. These households also have the highest sustainable mode shares, at 32%, and the highest active transportation trip rates. These characteristics are consistent with the travel habits of people who live in high-density areas with good access to these modes (which, in contrast, might not be as available to residents of lower density or rural areas). They might also reflect employment status or income of 1-person households (student, unemployed, retired).
- By dwelling type: Higher auto driver and auto passenger and lower sustainable mode trip generation rates are associated with houses and townhouses – consistent with household size characteristics described above. The reverse is true for apartments, which is consistent with the 1-person household characteristics. Apartments have the highest sustainable mode share and active mode trip generation rates.
- By household type: Similar patterns appear by household type, whereby single-person households have high auto driver and sustainable mode trip rates. Households with children have lower auto driver rates and higher auto passenger, walk and other (e.g., school bus) rates than counterpart households without children. Households with one adult member, with or without children, have the highest sustainable mode shares and active mode trip rates.
- By household income: Auto trip rates rise with income, consistent with vehicle availability. Correspondingly, sustainable mode rates and shares mostly drop as income rises. The other trip rates (e.g., school bus) are greatest in the highest income band ($125,000 +).
- By vehicle availability: Auto driver trip rates and (mostly) auto passenger trip rates rise with vehicle availability. No-vehicle households correspondingly have the highest transit, bike + micromobility and walk rates, as well as the highest sustainable mode shares (87%), among all attributes and their categories.
- By worker group: Auto driver trip rates and (mostly) auto passenger trip rates rise with the number of workers in a household. One-worker households have the highest sustainable mode trip rates and mode share, with 2-worker households at the same or lower trip rates; among 3-worker households, the transit trip rate increases marginally while bike +

micromobility and walk rates drop. Two-worker households have the highest other trip rates, which might in part reflect children's use of school buses to get to school.

- By surveyed trip day: Modal trip rates and the sustainable share are largely consistent across the work week, although the auto driver and sustainable mode trip rates are highest on Tuesdays, Wednesdays and Thursdays.
- By survey month: Auto driver trip rates are highest in warmer weather months, especially April through July 2023. Auto passenger trip rates generally are consistent across the survey months (except for a drop in July 2023), with marginal increases in the spring 2023 months. Transit trip rates are also generally consistent over the survey duration, with a slight increase in July 2023. Bike + micromobility trip rates are highest in the warm weather months, as are walk trips (although the latter do not have as sharp a drop-off in the winter as bike + micromobility trips). Correspondingly, the sustainable mode share drops from a peak of 24% in September and October 2022 to 19% in December 2022 and 18% in January 2023, ultimately achieving a 23% share in July 2023.

Table 7. Daily person trip rates by mode, by household characteristic

	Avg. per person 5+	Driver	Passen-ger	Transit *	Bike + Micro-mobil-ity	Walk	Other **	Sustain-able modes ***	Sustain-able mode % share ***	Active modes ***	Active mode % share ***
Survey Total	2.14	1.25	0.35	0.16	0.04	0.26	0.08	0.46	21%	0.29	14%
Household size											
1 person	2.22	1.39	0.09	0.28	0.07	0.35	0.03	0.71	32%	0.42	19%
2 people	2.05	1.32	0.29	0.16	0.04	0.21	0.03	0.41	20%	0.24	12%
3 people	2.09	1.30	0.32	0.16	0.03	0.22	0.06	0.41	20%	0.25	12%
4 people	2.29	1.26	0.45	0.14	0.03	0.29	0.12	0.46	20%	0.32	14%
5 people	2.17	1.09	0.48	0.14	0.03	0.29	0.15	0.46	21%	0.31	14%
6 people	1.94	0.93	0.43	0.13	0.02	0.27	0.17	0.42	21%	0.29	15%
7+ people	1.86	0.85	0.45	0.14	0.02	0.23	0.17	0.39	21%	0.25	14%
Dwelling type											
House	2.19	1.38	0.40	0.09	0.03	0.20	0.09	0.32	15%	0.23	11%
Apartment	2.02	0.90	0.23	0.35	0.06	0.41	0.06	0.82	41%	0.47	23%
Townhouse	2.13	1.25	0.37	0.15	0.03	0.23	0.09	0.41	19%	0.26	12%

	Avg. per person 5+	Driver	Passen-ger	Transit *	Bike + Micro-mobil-ity	Walk	Other **	Sustain-able modes ***	Sustain-able mode % share ***	Active modes ***	Active mode % share ***
Household type											
Single person	2.22	1.39	0.09	0.28	0.07	0.35	0.03	0.71	32%	0.42	19%
2 adults, no children	2.02	1.32	0.28	0.16	0.04	0.20	0.02	0.40	20%	0.24	12%
3+ adults, no children	1.75	1.20	0.24	0.17	0.02	0.10	0.02	0.29	17%	0.12	7%
Single parent, 1+ children	2.72	1.12	0.65	0.25	0.05	0.42	0.23	0.72	26%	0.47	17%
2 adults, 1+ children	2.61	1.29	0.56	0.12	0.04	0.42	0.18	0.58	22%	0.46	18%
3+ adults, 1+ children	2.01	1.05	0.42	0.16	0.02	0.24	0.12	0.42	21%	0.26	13%
Household income											
less than $40k	1.82	0.83	0.28	0.28	0.04	0.32	0.08	0.64	35%	0.36	20%
$40k to less than $80k	2.02	1.16	0.31	0.20	0.03	0.25	0.07	0.49	24%	0.29	14%
$80k to less than $125k	2.18	1.28	0.35	0.17	0.04	0.26	0.08	0.46	21%	0.30	14%
$125k+	2.36	1.40	0.41	0.13	0.04	0.28	0.10	0.45	19%	0.32	14%
Unknown	1.84	1.13	0.30	0.14	0.02	0.18	0.06	0.34	19%	0.20	11%
Vehicle availability											
No vehicles	1.75	0.04	0.11	0.69	0.13	0.70	0.09	1.52	87%	0.83	47%
1 vehicle	2.11	1.14	0.35	0.19	0.04	0.32	0.07	0.55	26%	0.36	17%
2 vehicles	2.27	1.44	0.43	0.08	0.02	0.19	0.10	0.30	13%	0.21	9%
3 or more vehicles	2.11	1.57	0.31	0.05	0.01	0.09	0.07	0.15	7%	0.11	5%
Worker group											
No workers	1.89	1.17	0.33	0.13	0.03	0.21	0.04	0.37	19%	0.24	13%
1 worker	2.15	1.20	0.32	0.19	0.04	0.32	0.08	0.55	26%	0.36	17%
2 workers	2.29	1.28	0.40	0.16	0.04	0.30	0.11	0.50	22%	0.34	15%
3 or more workers	2.03	1.29	0.33	0.17	0.02	0.14	0.07	0.34	17%	0.17	8%
Surveyed trip day											
Monday	2.06	1.21	0.33	0.15	0.03	0.26	0.07	0.44	21%	0.29	14%
Tuesday	2.17	1.26	0.34	0.17	0.04	0.28	0.08	0.49	22%	0.32	15%
Wednesday	2.21	1.28	0.36	0.17	0.04	0.28	0.08	0.49	22%	0.32	14%
Thursday	2.16	1.25	0.35	0.17	0.04	0.26	0.09	0.47	22%	0.30	14%
Friday	2.09	1.23	0.37	0.16	0.03	0.23	0.08	0.41	20%	0.26	12%

	Avg. per person 5+	Driver	Passen-ger	Transit *	Bike + Micro-mobil-ity	Walk	Other **	Sustain-able modes ***	Sustain-able mode % share ***	Active modes ***	Active mode % share ***
Survey month											
September	2.12	1.19	0.34	0.17	0.05	0.30	0.09	0.51	24%	0.34	16%
October	2.20	1.23	0.35	0.18	0.05	0.30	0.08	0.54	24%	0.35	16%
November	2.09	1.24	0.34	0.16	0.03	0.25	0.08	0.44	21%	0.27	13%
December	2.11	1.25	0.37	0.16	0.02	0.22	0.09	0.40	19%	0.24	11%
January	1.91	1.13	0.37	0.16	0.01	0.18	0.06	0.35	18%	0.19	10%
February	1.97	1.09	0.36	0.17	0.02	0.23	0.10	0.42	21%	0.25	13%
March	2.00	1.15	0.35	0.18	0.01	0.21	0.10	0.40	20%	0.22	11%
April	2.14	1.25	0.36	0.17	0.04	0.24	0.08	0.45	21%	0.28	13%
May	2.21	1.32	0.38	0.15	0.05	0.24	0.08	0.43	19%	0.28	13%
June	2.22	1.29	0.39	0.15	0.05	0.25	0.10	0.44	20%	0.29	13%
July	2.03	1.25	0.29	0.20	0.06	0.20	0.02	0.46	23%	0.26	13%

* Transit includes all municipal and regional transit services as well as GO Bus and GO Rail.

** Other = school bus, taxi, paid ride-hail, etc.

*** Sustainable modes = subtotal for Transit + Bicycle & Micromobility + Walk. For the purpose of this report, the sustainable mode subtotal does not include school bus, which is part of the Other modes group, although school bus is technically a sustainable mode by many definitions. Active modes = subtotal for Bicycle & Micromobility + Walk.

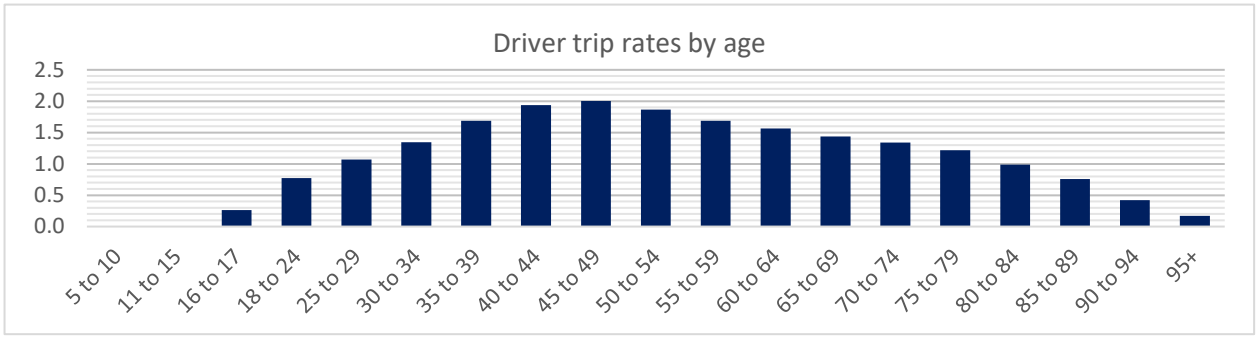
Note that few surveys were collected in the months of January to March. These surveys represent only 2% of the total valid sample. Surveys in July also represent only a very small portion of total surveys (0.4%) and did not include any households with school-aged children. Differences in mode shares in these months would only have a very weak effect on the overall survey average.

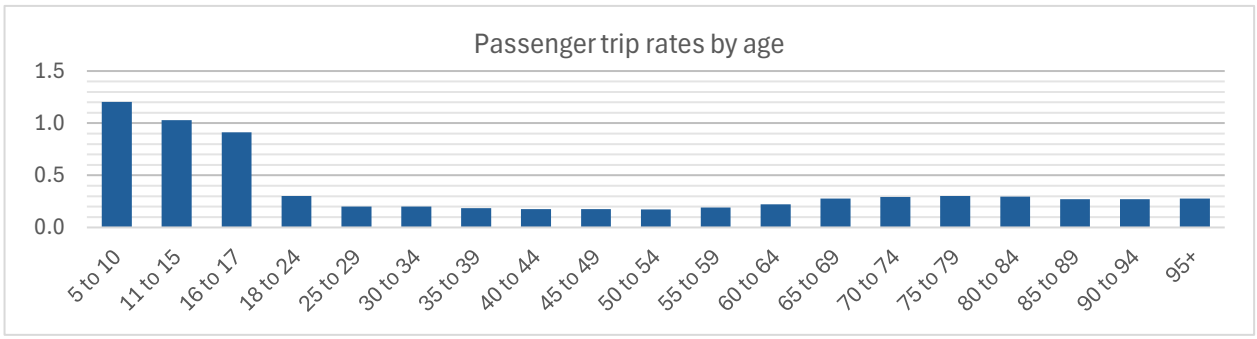
Shading highlights cells values that are higher (blue) or lower (pink) compared to others in the same column. The intensity of the shading increases as the value approaches the highest or lowest value.

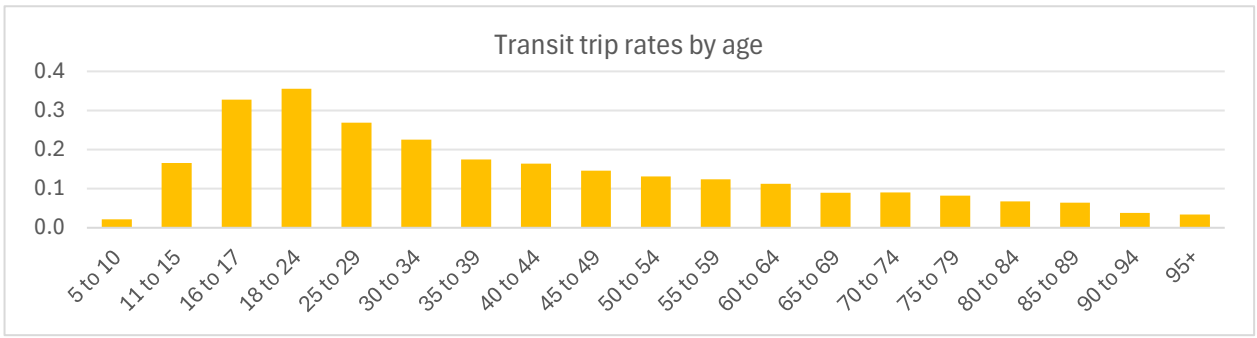
2.7.2 Trip Rates by Mode by Age Group

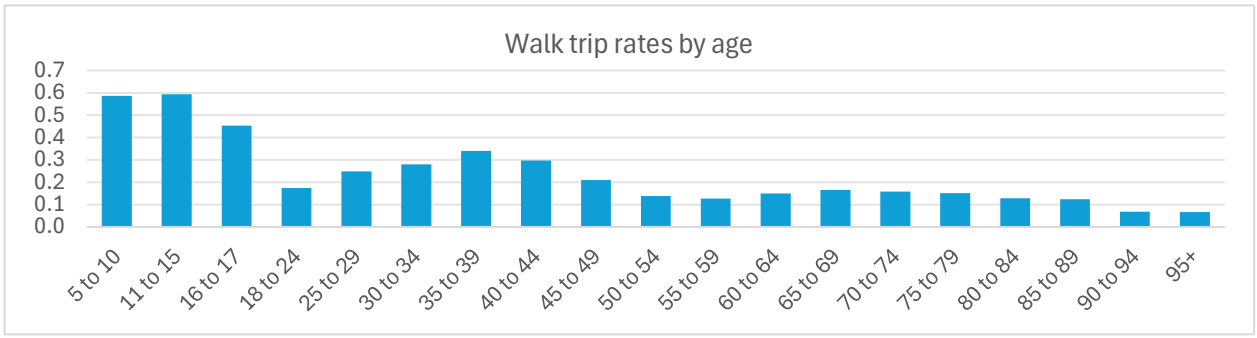
Figure 14 shows how mode use varies by age group. The auto driver trip rate peaks in the 45-49 age cohort, consistent with mid-career and family activities. The auto passenger trip rate is highest among school-age children, especially 5-10 year-olds. Transit use is highest among the post-secondary-aged cohort (18-24 year-olds). Bicycle and micromobility trip rates are highest among 11-17 year olds, and also among 30-44 year-olds. Walking trip rates are highest among 5-15 year old school-aged children. Even with these peaks, it can be noted that drop-off rates vary by mode, with auto driver trips well distributed among age cohorts, while auto passenger and other trips (e.g., school bus) dropping off strongly from age 18 on. Transit, bicycle and micromobility and walk trip rates drop off more gradually from their peaks.

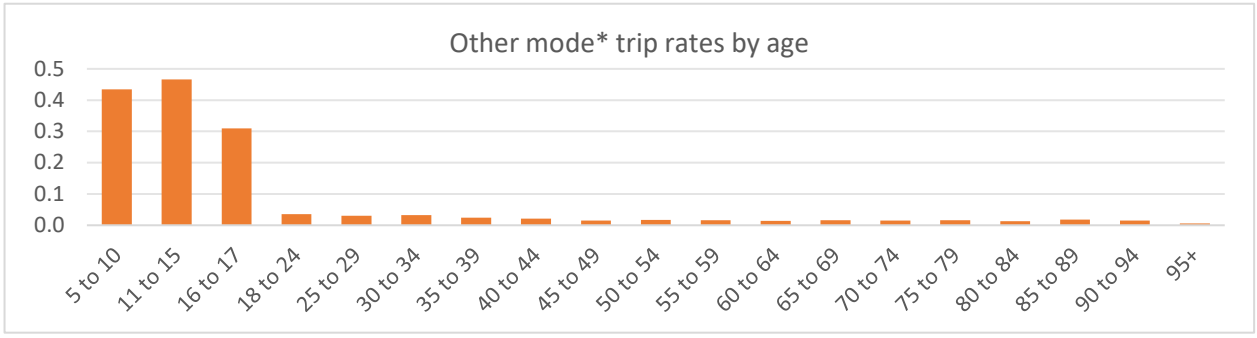
Figure 14: Daily trip rates by mode by age











*Other modes include school bus, taxi, paid ride-hail, mini-bus, intercity modes, and other modes

The following charts show how sustainable mode (transit, bicycle and micromobility, and walk, Figure 15) and active transportation mode trip rates (Figure 16) vary with age. Trip rates for both sets of modes are highest for school-aged children (5-17 year-olds), though rates are also notable for the three sustainable modes through the 35-39 year-old cohort.

Figure 15: Daily sustainable mode trip rates by age

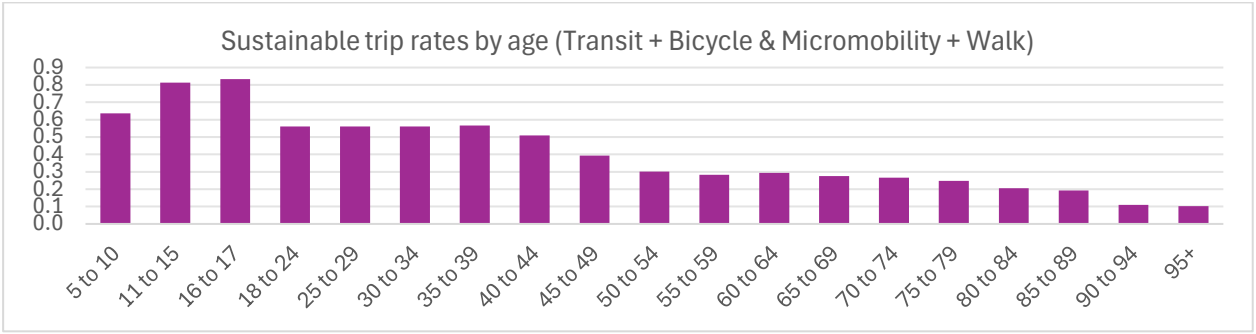
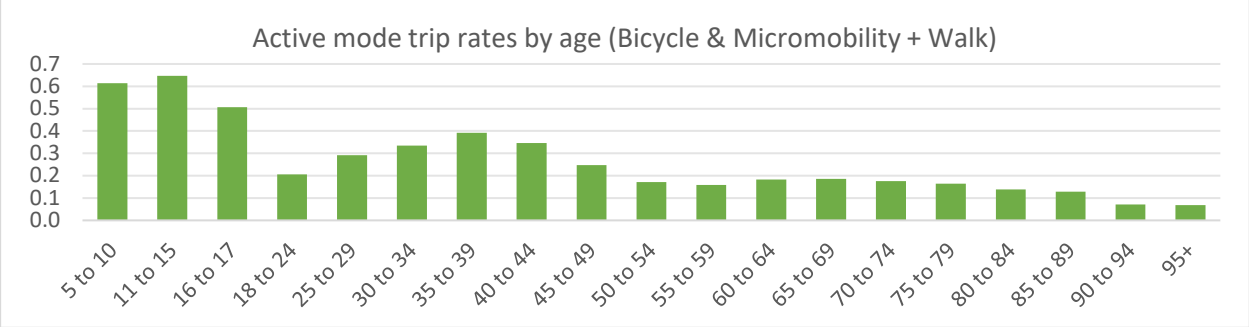


Figure 16: Daily active mode trip rates by age



Sustainable modes = subtotal for Transit + Bicycle & Micromobility + Walk. For the purpose of this report, the sustainable mode subtotal does not include school bus, which is part of the Other modes group, although school bus is technically a sustainable mode by many definitions. Active modes = subtotal for Bicycle & Micromobility + Walk.

2.7.3 Trip Rates by Mode for Key Demographics

Table 8 summarizes trip rates by mode according to various key demographics. Key patterns by mode are summarized as follows:

- Auto driver trip rates per person 5+ are highest for men+, working-age adults (35-59 years old, i.e., people in their mid- and late-careers), licensed drivers, people employed full-time (and, to a lesser extent, part-time workers), people who work outside the home (no fixed workplace but also those with a usual workplace), workers in primary and secondary industries as well as in management and health care, education and similar jobs. Rates are also high among long-time residents of Canada (or people born in Canada), people reporting multiple Canada, American and European ethnicities, and primary adult respondents to the survey. As with the household characteristics (Table 7), some relationships may be intuited – for example, adults 35-59 years old who work full-time outside the home.
- Auto passenger trip rates are largely, though not exclusively, complementary to auto driver trip rates – for example, women+, children too young to drive, K-12 students, full-time students, people born in Canada, people reporting Indigenous and 'other' multiple ethnicities, primary survey respondents who are 16 or 17 years old, and child proxy respondents. The relationship among children and students is intuitive; however, higher rates for people born in Canada compared to new Canadians potentially might reflect a greater proportion of young children in the former group. More research is needed.
- Sustainable mode use is highest among gender-diverse people, very young and school-aged children, working-age adults through the 40-49 cohort, transit pass holders, unlicensed individuals, students (varying between K-12 and PSE students), full- and part-time students,

people not employed or working from home (walking trips), people in business, health care, personal service, associated and other occupations, people who emigrated to Canada, people reporting multiple ethnicities, and younger primary and proxy survey respondents. These results reflect a diverse set of characteristics, many of which do not appear related – on the other hand, there may be intuitive relationships among unlicensed people and transit pass holders, and in turn with young people and children, working age adults, not-employed or work-from-home adults, students, newcomers to Canada or occupation type (i.e., income). More research is needed.

Several observations can be made according to individual demographic characteristics:

- By gender: Men+ have a 25% greater auto driver daily trip rate than women+, while women+ have a 59% greater auto passenger trip rate and a slightly higher sustainable mode trip rate. Gender diverse persons have the lowest auto driver rates and the highest sustainable mode trip rates overall.
- By age: Individuals 35-59 have the highest auto driver trip rates and the lowest auto passenger trip rates. The auto driver rate diminishes steadily with age, while the auto passenger rate grows moderately through the 65-69 cohort and remains stable thereafter. The highest auto passenger rate belongs to children below the driving age (up to age 17), who also have the highest walk and other (including school bus) trip rates. Secondary and post-secondary school-aged people (16-24year-olds) have the highest transit trip rates, which then steadily drop off with age. Bike and micromobility trip rates remain stable for most cohorts between 11 and 44, then diminish steadily with marginal rates observed beyond the 70-74 cohort.
- By transit pass and driver's licence holders: The transit trip rate is highest among pass holders, consistent with expectations (at 0.67 daily trips, this is the highest transit trip among all characteristics) – i.e., having invested in a pass means that purchasers intend to use it. The auto driver rate is similarly high among licensed drivers, again consistent with expectations although auto driver shares are highest when measured against work characteristics and the working-age population – i.e., having a driver's license does not necessarily translate directly into auto use.
- By student status and employment status: Auto driver trip rates are highest among employed individuals, especially those are employed full-time. Auto driver trip rates are also high among those who identify as part-time students and full-time workers, and among part-time workers. Auto passenger rates are highest among young children (< 13 years) and K-12 students – two overlapping groups. Transit trip rates are highest among full-time PSE students, followed by part-time PSE students (with and without a job). Young children (< 13 years) and K-12 students have the highest walk and other (i.e., school bus) trip rates – as

before, two overlapping groups. Bike and micromobility trip rates are generally steady, with slightly higher rates among home-schooled K-12 students and people who are part- or full-time students and full-time employees.

- By workplace location: Auto driver rates are highest for workers with no fixed workplace, which is consistent with the varying nature of the location that is most easily served by driving; however, the rate for those who have a usual workplace location – i.e., a habitual location, of the type that is conducive to transit use - is only slightly (7%) lower. While auto driver rates are high among people who work exclusively from home (suggesting that they use the vehicle for non-work purposes), their walk trip rate is highest among employed people.
- By occupation type: As noted, the highest auto driver rates are associated with people who work in industrial, construction or equipment operation trades (2.07 auto driver trips per day), followed by management occupations (2.01), with higher auto driver rates also observed for those working in other areas of primary and secondary industry, including natural resources/agriculture, workers/labourers in transport and construction, and occupations in manufacturing/utilities, as well as for those working in the health care and similar occupations group. Personal service and customer information service workers have the highest auto passenger and transit trip rates, while workers in business and similar occupations and health care and similar occupations have the highest walk trip rates. These three occupational groups have the highest sustainable mode trip rates. Note that while the "Other" occupation category has the highest sustainable rates, it is not that meaningful given that this category represents only 0.3% of employed persons and includes diverse occupation descriptions provided by respondents that did not include enough information for them to be recoded to the standard occupation categories.
- By immigration status: Auto driver trip rates increase with length of tenure in Canada, with people who immigrated more than 15 years ago having a slightly higher auto driver rate than those who were born in Canada or who were Canadian citizens at birth. However, the latter group has the highest auto passenger use. In contrast, transit trip rates are highest among people who are neither permanent residents nor citizens; recent immigrants also have a high transit trip rate, which diminishes with length of tenure in Canada. The same pattern holds true for walk trip rates. Overall, auto driver and transit trip rates of long-time immigrants (> 15 years in Canada) approximate those of people who were born in Canada or were Canadian citizens at birth.
- By ethnicity: As noted, auto driver trip rates are highest among people with Canadian or American and European ethnicities. People with other multiple ethnicities, especially

Indigenous, have the highest auto passenger and other mode trip rates. Transit, bike and micromobility and walk trip rates vary.[7]

- By survey respondent: Modal trip rates vary by primary and proxy respondent and age group, which are distinguished by adults and 16-17 year-olds (who could serve as primary respondents) and children. Primary adult respondents have significantly higher (+63%) auto driver trip rates and slightly or moderately higher sustainable mode rates than adult proxies – their auto passenger trip rate is half that of proxies. Primary 16-17 year-old respondents have significantly higher transit rates but lower auto passenger, walk and other trip rates than those of proxy children. Some of these rates are intuitive – e.g., the high auto driver rates among primary adult respondents may reflect those individuals' status as workers, and the high auto passenger, walk, and other trip rates among proxy children are similarly consistent with their ineligibility to drive. However, while lower overall trip rates (all modes combined) for proxies relative to primary respondents for each age category are consistent with auto drive (which dominate), transit and bike and micromobility trips, the reverse is true for auto passenger, walk and other trips.

Table 8. Daily person trip rates by mode, by demographic characteristic

Category	Avg. per person 5+	Driver	Passen-ger	Transit *	Bike + Micro-mobil-ity	Walk	Other **	Sustain-able modes ***	Sustain-able mode % share ***	Active modes ***	Active mode % share ***
Survey Total	**2.14**	**1.25**	**0.35**	**0.16**	**0.04**	**0.26**	**0.08**	**0.46**	**21%**	**0.29**	**14%**
Gender grouped											
Men+	2.19	1.39	0.27	0.15	0.05	0.25	0.09	0.45	20%	0.30	14%
Women+	2.09	1.11	0.43	0.18	0.02	0.27	0.08	0.47	22%	0.29	14%
Gender detail											
Male	2.20	1.40	0.27	0.15	0.05	0.24	0.09	0.44	20%	0.29	13%
Female	2.09	1.12	0.43	0.17	0.02	0.27	0.08	0.46	22%	0.29	14%
Gender diverse	2.29	0.59	0.33	0.47	0.15	0.62	0.14	1.23	54%	0.76	33%
Prefer to self-describe	1.88	0.76	0.20	0.35	0.07	0.42	0.08	0.83	44%	0.48	26%
Decline	1.88	0.83	0.42	0.20	0.05	0.27	0.11	0.52	28%	0.32	17%

[7] Other ethnicities have the highest auto passenger, transit, and walk trip rates. However, because this category represents a diverse range of ethnicities and cannot be easily categorized, it is not included in this analysis.

Category	Avg. per person 5+	Driver	Passen-ger	Transit *	Bike + Micro-mobil-ity	Walk	Other **	Sustain-able modes ***	Sustain-able mode % share ***	Active modes ***	Active mode % share ***
Age group											
5 to 10	2.27	na	1.20	0.02	0.03	0.59	0.43	0.64	28%	0.61	27%
11 to 15	2.31	na	1.03	0.17	0.05	0.59	0.47	0.81	35%	0.65	28%
16 to 17	2.32	0.26	0.91	0.33	0.05	0.45	0.31	0.83	36%	0.51	22%
18 to 24	1.67	0.77	0.30	0.36	0.03	0.17	0.04	0.56	34%	0.21	12%
25 to 29	1.86	1.07	0.20	0.27	0.04	0.25	0.03	0.56	30%	0.29	16%
30 to 34	2.14	1.34	0.20	0.23	0.05	0.28	0.03	0.56	26%	0.33	16%
35 to 39	2.46	1.69	0.18	0.17	0.05	0.34	0.02	0.57	23%	0.39	16%
40 to 44	2.64	1.94	0.18	0.16	0.05	0.30	0.02	0.51	19%	0.35	13%
45 to 49	2.59	2.00	0.18	0.15	0.04	0.21	0.01	0.39	15%	0.25	10%
50 to 54	2.36	1.86	0.17	0.13	0.03	0.14	0.02	0.30	13%	0.17	7%
55 to 59	2.18	1.69	0.19	0.12	0.03	0.13	0.02	0.28	13%	0.16	7%
60 to 64	2.10	1.57	0.22	0.11	0.03	0.15	0.01	0.29	14%	0.18	9%
65 to 69	2.01	1.44	0.28	0.09	0.02	0.16	0.02	0.28	14%	0.19	9%
70 to 74	1.91	1.34	0.29	0.09	0.02	0.16	0.01	0.27	14%	0.18	9%
75 to 79	1.78	1.22	0.30	0.08	0.01	0.15	0.02	0.25	14%	0.16	9%
80 to 84	1.50	0.99	0.29	0.07	0.01	0.13	0.01	0.21	14%	0.14	9%
85 to 89	1.24	0.76	0.27	0.06	0.00	0.12	0.02	0.19	15%	0.13	10%
90 to 94	0.82	0.42	0.27	0.04	0.00	0.07	0.01	0.11	14%	0.07	9%
95+	0.56	0.17	0.28	0.03	0.00	0.07	0.01	0.10	18%	0.07	12%
Transit pass											
No	2.17	1.33	0.35	0.12	0.04	0.26	0.08	0.41	19%	0.29	13%
Yes	1.88	0.58	0.29	0.67	0.04	0.24	0.06	0.95	51%	0.28	15%
Not asked (5 yrs of age)	2.18	0.00	1.25	0.02	0.02	0.53	0.35	0.58	26%	0.56	26%
Unknown	1.22	0.59	0.19	0.22	0.02	0.14	0.06	0.38	31%	0.16	13%
Driver's licence											
No	1.34	0.00	0.43	0.43	0.04	0.36	0.08	0.83	62%	0.40	30%
Yes	2.25	1.67	0.21	0.13	0.03	0.18	0.02	0.35	16%	0.22	10%
Not applicable (<16 yrs)	2.29	0.00	1.12	0.09	0.04	0.59	0.45	0.72	31%	0.63	28%
Student status											
Not a student	2.14	1.52	0.22	0.14	0.03	0.20	0.02	0.38	18%	0.24	11%
K12 school	2.34	0.05	1.10	0.13	0.04	0.58	0.44	0.75	32%	0.62	27%
K12 home-schooled	0.92	0.05	0.65	0.05	0.06	0.10	0.01	0.21	23%	0.16	17%
PSE full time	1.73	0.69	0.27	0.48	0.04	0.21	0.03	0.74	43%	0.25	15%
PSE part time	2.14	1.31	0.22	0.30	0.05	0.22	0.03	0.58	27%	0.27	13%

Category	Avg. per person 5+	Driver	Passen-ger	Transit *	Bike + Micro-mobil-ity	Walk	Other **	Sustain-able modes ***	Sustain-able mode % share ***	Active modes ***	Active mode % share ***
Work status											
Employed full-time	2.45	1.84	0.17	0.20	0.04	0.18	0.02	0.42	17%	0.22	9%
Employed part-time	2.33	1.28	0.39	0.29	0.05	0.25	0.08	0.59	25%	0.30	13%
Work fr. home full-time	1.78	1.22	0.16	0.07	0.04	0.27	0.02	0.38	21%	0.31	17%
Work fr. home part-time	2.12	1.36	0.23	0.13	0.04	0.34	0.02	0.51	24%	0.38	18%
Not employed	1.80	0.91	0.39	0.15	0.03	0.25	0.07	0.43	24%	0.28	15%
Too young (<13 yrs)	2.29	0.00	1.16	0.03	0.03	0.61	0.45	0.67	29%	0.64	28%
Workplace location											
Not applicable (not work)	1.90	0.72	0.54	0.13	0.03	0.32	0.15	0.48	25%	0.35	18%
Work exclusively fr. home	1.83	1.24	0.17	0.08	0.04	0.28	0.02	0.40	22%	0.32	17%
No fixed workplace	2.28	1.84	0.15	0.12	0.03	0.12	0.03	0.27	12%	0.15	7%
Usual workplace	2.45	1.72	0.22	0.23	0.05	0.20	0.03	0.48	20%	0.25	10%
Detailed status											
Work full-time	2.35	1.75	0.16	0.17	0.04	0.19	0.02	0.41	17%	0.23	10%
Work part-time	2.33	1.56	0.26	0.18	0.05	0.25	0.03	0.48	20%	0.30	13%
Student full-time	2.13	0.11	0.93	0.19	0.04	0.51	0.36	0.74	35%	0.55	26%
Student FT + work FT	2.18	1.20	0.20	0.36	0.07	0.31	0.03	0.75	34%	0.39	18%
Student FT + work PT	2.28	0.79	0.59	0.42	0.05	0.30	0.14	0.76	33%	0.35	15%
Student part-time	1.71	0.83	0.31	0.27	0.02	0.23	0.05	0.52	30%	0.25	15%
Student PT + work FT	2.39	1.59	0.21	0.27	0.07	0.22	0.03	0.56	23%	0.29	12%
Student PT + work PT	2.00	1.02	0.28	0.40	0.05	0.21	0.05	0.65	33%	0.25	13%
Not employed, not student	1.76	1.14	0.30	0.09	0.02	0.20	0.02	0.31	17%	0.22	13%
Not employed, student status unknown	1.30	0.68	0.25	0.11	0.02	0.22	0.02	0.35	27%	0.25	19%
Young school age child but not a student	0.64	0.00	0.50	0.00	0.06	0.08	0.00	0.14	22%	0.14	21%
Occupation Type											
Business, finance, natural and applied sciences	2.26	1.56	0.16	0.21	0.05	0.27	0.02	0.52	23%	0.32	14%
Health care, education, law, community or social services, art, culture, recreation, sports	2.54	1.77	0.20	0.22	0.07	0.26	0.02	0.55	22%	0.33	13%
Management	2.49	2.01	0.14	0.12	0.04	0.16	0.02	0.32	13%	0.20	8%
Technical, paraprofessional	2.21	1.66	0.14	0.17	0.04	0.18	0.02	0.39	18%	0.23	10%
Admin, admin support	2.29	1.58	0.25	0.23	0.02	0.19	0.02	0.45	20%	0.22	10%
Sales	2.29	1.50	0.30	0.22	0.03	0.19	0.05	0.44	19%	0.22	9%
Personal service, customer information service	2.17	1.22	0.35	0.28	0.04	0.22	0.07	0.54	25%	0.26	12%

Category	Avg. per person 5+	Driver	Passen-ger	Transit *	Bike + Micro-mobil-ity	Walk	Other **	Sustain-able modes ***	Sustain-able mode % share ***	Active modes ***	Active mode % share ***
Industrial, construction, equip. operation trade	2.36	2.07	0.15	0.07	0.01	0.04	0.01	0.13	5%	0.06	2%
Worker or labourer in transport and construction	2.27	1.85	0.16	0.10	0.03	0.08	0.05	0.20	9%	0.10	5%
Natural resources, agriculture, related production occupations	2.38	1.91	0.23	0.06	0.02	0.12	0.03	0.20	8%	0.14	6%
Occupations in manufacturing, utilities	2.27	1.79	0.22	0.15	0.02	0.06	0.02	0.23	10%	0.08	4%
Other	2.13	0.80	0.33	0.37	0.13	0.44	0.06	0.93	44%	0.56	26%
Unknown	1.69	1.12	0.21	0.17	0.03	0.12	0.04	0.32	19%	0.15	9%
Immigration status											
Born in Canada / citizen at birth	2.30	1.32	0.41	0.14	0.04	0.29	0.10	0.47	20%	0.33	14%
Immigrated in last 2 yrs	1.70	0.49	0.34	0.35	0.03	0.39	0.10	0.76	45%	0.41	24%
Immigrated 3-5 yrs ago	1.93	0.84	0.34	0.28	0.04	0.32	0.12	0.64	33%	0.36	19%
Immigrated 5-10 yrs ago	1.96	0.97	0.34	0.24	0.03	0.29	0.10	0.56	28%	0.32	16%
Immigrated 10-15 yrs ago	1.96	1.13	0.29	0.25	0.03	0.21	0.05	0.49	25%	0.24	12%
Immigrated >15 yrs ago	1.94	1.37	0.23	0.15	0.02	0.16	0.02	0.33	17%	0.18	9%
Not a permanent resident or citizen	1.66	0.42	0.26	0.41	0.05	0.44	0.08	0.90	54%	0.49	30%
Unknown	1.59	0.88	0.26	0.18	0.02	0.18	0.06	0.39	24%	0.20	13%
Ethnicity											
African	1.86	0.92	0.26	0.30	0.03	0.19	0.16	0.52	28%	0.22	12%
East Asian	1.91	1.01	0.34	0.18	0.03	0.29	0.06	0.50	26%	0.32	17%
Southeast Asian	1.82	0.93	0.34	0.28	0.02	0.19	0.07	0.49	27%	0.21	11%
South Asian	1.80	0.96	0.34	0.19	0.01	0.21	0.09	0.41	23%	0.22	12%
Caribbean	1.98	1.21	0.26	0.25	0.01	0.18	0.06	0.45	23%	0.20	10%
Indigenous	2.25	1.20	0.46	0.13	0.08	0.28	0.11	0.48	21%	0.36	16%
Latin, Central, S. American	2.08	1.08	0.29	0.33	0.04	0.25	0.08	0.62	30%	0.29	14%
Middle Eastern/N. African	2.09	1.15	0.36	0.21	0.03	0.23	0.11	0.47	22%	0.26	12%
European	2.34	1.40	0.32	0.16	0.06	0.33	0.07	0.55	24%	0.39	17%
Canadian	2.24	1.42	0.37	0.10	0.03	0.22	0.09	0.36	16%	0.26	11%
American	2.29	1.28	0.32	0.14	0.04	0.42	0.09	0.60	26%	0.46	20%
Jewish	2.46	1.25	0.39	0.24	0.16	0.32	0.11	0.71	29%	0.47	19%
Multiple: Canadian or American + European + no other selected	2.63	1.56	0.36	0.19	0.06	0.40	0.07	0.65	25%	0.46	18%
Multiple: Indigenous + other ethnic or cultural origins	2.48	1.23	0.48	0.19	0.03	0.36	0.19	0.58	23%	0.39	16%

Category	Avg. per person 5+	Driver	Passen-ger	Transit *	Bike + Micro-mobil-ity	Walk	Other **	Sustain-able modes ***	Sustain-able mode % share ***	Active modes ***	Active mode % share ***
Multiple: multiple selected other than preceding 'multiple' categories	2.24	0.99	0.49	0.24	0.05	0.35	0.12	0.64	29%	0.40	18%
Other, not classified	2.35	0.75	0.77	0.25	0.04	0.37	0.17	0.66	28%	0.41	17%
Unknown	1.85	1.07	0.29	0.16	0.03	0.21	0.08	0.41	22%	0.24	13%
Survey respondent											
Primary respondent, adult	2.50	1.83	0.14	0.19	0.05	0.26	0.02	0.50	20%	0.31	12%
Primary respondent, 16-17	2.45	0.32	0.70	0.64	0.04	0.51	0.24	1.19	49%	0.55	23%
Proxy respondent, adult	1.77	1.12	0.30	0.15	0.02	0.16	0.02	0.33	19%	0.18	10%
Proxy respondent, child	2.30	0.04	1.09	0.12	0.04	0.57	0.43	0.74	32%	0.61	27%

na = not applicable or no data

* Transit includes all municipal and regional transit services as well as GO Bus and GO Rail.

** Other = school bus, taxi, paid ride-hail, etc.

*** Sustainable modes = subtotal for Transit + Bicycle & Micromobility + Walk. For the purpose of this report, the sustainable mode subtotal does not include school bus, which is part of the Other modes group, although school bus is technically a sustainable mode by many definitions. Active modes = subtotal for Bicycle & Micromobility + Walk.

Men+ = men and/or boys and a portion of persons who identifies as non-binary, prefer to self-describe, or who declined to say. Women+ = women and/or girls and a portion of persons who identifies as non-binary, prefer to self-describe, or who declined to say.

When analysing ethnicity, the single-category version of the ethnicity variable was used for ease of analysis.

Shading highlights cells values that are higher (blue) or lower (pink) compared to others in the same column. The intensity of the shading increases as the value approaches the highest or lowest value.

2.7.4 Trip Rates by Mode by Geography Type

Table 9 looks at how modal person trip rates vary by geography type. The table uses the population centre group and population density attributes that were defined in Section2.3.[8] It can be seen that:

- Although auto driver dominates trip generation rates in all geographies and population densities, the rate is lowest in large urban cores and in high-density areas. In these areas, the use and share of sustainable modes is higher and dominates trip generation in the

[8] Because these two specially designed attributes subsume Statistics Canada's population centre type and population centre size attributes, the latter are not used in this discussion. See Table 3.

highest-density areas (15,000 or more people per square kilometre). However, in large urban cores and in high-density areas, the high sustainable mode trip rates are not enough to offset the low auto driver trip rates, thereby yielding low daily person trip rates.

- Auto passenger trip rates increase with distance from large urban cores, though they drop in rural areas. Auto passenger trip rates vary by density, although they drop significantly in high-density areas – consistent with the greater use of sustainable modes.
- The use of other modes is highest as distance from large urban core increases and as population density decreases. One factor might be a greater use of school buses, to serve large suburban and rural households.

Table 9. Daily person trip rates by mode, by geography type

	Avg. per person 5+	Driver	Passen-ger	Transit *	Bike + Micro-mobil-ity	Walk	Other **	Sustain-able modes ***	Sustain-able mode % share ***	Active modes ***	Active mode % share ***
Survey Total	**2.14**	**1.25**	**0.35**	**0.16**	**0.04**	**0.26**	**0.08**	**0.46**	**21%**	**0.29**	**14%**
Population centre group											
Urban core, large	2.12	1.18	0.35	0.19	0.04	0.29	0.07	0.52	25%	0.33	15%
Urban core, small/medium	2.28	1.54	0.38	0.04	0.03	0.20	0.10	0.26	12%	0.23	10%
Urban fringe or population centre outside CMA/CA	2.27	1.56	0.39	0.01	0.02	0.17	0.12	0.20	9%	0.19	8%
Rural within CMA or CA	2.23	1.65	0.36	0.01	0.01	0.03	0.16	0.05	2%	0.04	2%
Rural outside CMA or CA	2.08	1.53	0.34	0.01	0.00	0.03	0.17	0.04	2%	0.04	2%
Population density											
<400 residents / sq km	2.17	1.55	0.36	0.03	0.01	0.06	0.16	0.10	5%	0.07	3%
400 to <1,500 / sq km	2.24	1.47	0.40	0.08	0.02	0.16	0.10	0.26	12%	0.19	8%
1,500 to <5,000 / sq km	2.18	1.36	0.39	0.11	0.03	0.22	0.07	0.36	16%	0.24	11%
5,000 to < 150,000 / sq km	2.08	1.06	0.33	0.24	0.05	0.33	0.07	0.63	30%	0.39	19%
15,000 or more / sq km	1.97	0.65	0.20	0.43	0.07	0.55	0.06	1.05	53%	0.62	32%

* Transit includes all municipal and regional transit services as well as GO Bus and GO Rail.

** Other = school bus, taxi, paid ride-hail, etc.

*** Sustainable modes = subtotal for Transit + Bicycle & Micromobility + Walk. For the purpose of this report, the sustainable mode subtotal does not include school bus, which is part of the Other modes group, although school bus is technically a sustainable mode by many definitions. Active modes = subtotal for Bicycle & Micromobility + Walk.

Shading highlights cells values that are higher (blue) or lower (pink) compared to others in the same column. The intensity of the shading increases as the value approaches the highest or lowest value.

2.7.5 Trip Rates by Mode by Sample Type and Survey Method

Table 10 examines how modal person trip rates vary by sample type and survey method. The results are consistent with the discussion in section 2.4, in two ways: First, the lowest modal trip rates for all modes are associated with phone surveys, which is consistent with many of those respondents being retirees, seniors or others who do not travel extensively. Second, volunteer respondents had significantly higher rates for each sustainable mode and correspondingly lower auto trip rates, compared with other samples: this suggests either that volunteers' participation in the survey could be motivated by their interests in sustainable transportation or that volunteers have differences in characteristics from the survey average, which is borne out by the fact that the average age of the volunteer sample is 39.8 years, compared to 44.5 for the address-only sample and 54.0 for the address-and-phone sample. Note that the volunteer sample comprises only 3.8% of the sample, so even if there were differences in mode choice amongst the volunteer sample that could not fully be explained by the differences in characteristics, they would likely have a negligible impact on the survey averages.

Table 10. Daily person trip rates by mode, by sample type and survey method

	Avg. per person 5+	Driver	Passen-ger	Transit *	Bike + Micro-mobil-ity	Walk	Other **	Sustain-able modes ***	Sustain-able mode % share ***	Active modes ***	Active mode % share ***
Survey Total	2.14	1.25	0.35	0.16	0.04	0.26	0.08	0.46	21%	0.29	14%
Survey method											
Phone	1.83	1.11	0.31	0.16	0.02	0.18	0.06	0.36	20%	0.20	11%
Online personal computer (PC)	2.16	1.26	0.35	0.17	0.04	0.26	0.08	0.47	21%	0.30	14%
Online mobile device	2.14	1.21	0.36	0.16	0.03	0.28	0.10	0.47	22%	0.31	15%
Mixed mode (online/phone)	2.17	1.29	0.40	0.17	0.03	0.22	0.07	0.41	19%	0.24	11%
Sample type											
Address-and-phone	2.05	1.27	0.35	0.13	0.02	0.20	0.07	0.35	17%	0.22	11%
Address-only	2.19	1.23	0.35	0.18	0.04	0.29	0.09	0.51	23%	0.33	15%
Other (e.g., volunteer)	2.58	0.92	0.27	0.57	0.17	0.56	0.08	1.31	51%	0.73	28%

* Transit includes all municipal and regional transit services as well as GO Bus and GO Rail.

** Other = school bus, taxi, paid ride-hail, etc.

*** Sustainable modes = subtotal for Transit + Bicycle & Micromobility + Walk. For the purpose of this report, the sustainable mode subtotal does not include school bus, which is part of the Other modes group, although school bus is technically a sustainable mode by many definitions. Active modes = subtotal for Bicycle & Micromobility + Walk.

Shading highlights cells values that are higher (blue) or lower (pink) compared to others in the same column. The intensity of the shading increases as the value approaches the highest or lowest value.

2.7.6 Trip Rates by Mode by Major Geography

Finally, Table 11 details modal trip rates by major geography and sub-areas. The dominant tendencies described in the previous sub-sections – dominance of auto use outside high-density, core areas and dominance of sustainable modes in these areas, especially Toronto, Waterloo Region and Hamilton – are detailed. Sample sizes and maximum margins of sampling error are listed for context. Results with higher sampling errors should be interpreted with caution and will have broader confidence intervals.

For ease of comparison of sustainable mode use, Figure 17 and Figure 18 provide a visual distribution of daily transit person trip rates for grouped areas outside Toronto, and within and near Toronto, respectively. Figure 19 and Figure 20 provide a similar visual comparison for daily active transportation person trip rates.

Table 11. Daily person trip rates by mode, by major geography

	Sample size (n persons 5+ surveyed)	Sampling error (±%) ‡	Avg. per person 5+	Driver	Passen-ger	Transit *	Bike + Micro-mobil-ity	Walk	Other **	Sustain-able modes ***	Sustain-able mode % share ***	Active modes ***	Active mode % share ***
Survey Total	**354,452**	**0.2%**	**2.14**	**1.25**	**0.35**	**0.16**	**0.04**	**0.26**	**0.08**	**0.46**	**21%**	**0.29**	**14%**
GTHA	**267,158**	**0.3%**	**2.1**	**1.15**	**0.35**	**0.20**	**0.04**	**0.28**	**0.08**	**0.53**	**25%**	**0.32**	**15%**
Non-GTHA	**87,294**	**0.5%**	**2.28**	**1.54**	**0.37**	**0.05**	**0.03**	**0.18**	**0.11**	**0.26**	**11%**	**0.21**	**9%**
Toronto	**106,066**	**0.4%**	**2.09**	**0.87**	**0.27**	**0.38**	**0.07**	**0.44**	**0.06**	**0.89**	**43%**	**0.51**	**24%**
PD 1: very high/high density (97%: 74% very high, 23% high)	13,278	1.1%	2.26	0.41	0.12	0.45	0.17	1.04	0.07	1.66	74%	1.21	53%
PD 2,6: predominantly high/very high density (>89%)	18,472	1.1%	2.33	0.67	0.20	0.49	0.19	0.73	0.06	1.40	60%	0.92	39%
PD 3,4,7: large majority high/very high density (70% to 76%)	21,964	0.9%	2.17	0.92	0.27	0.43	0.06	0.43	0.06	0.93	43%	0.49	23%
PD 5, 11,12,16: majority high/very high density (59% to 66%)	24,001	0.9%	1.98	1.01	0.36	0.3	0.01	0.25	0.04	0.57	29%	0.27	13%
PD 9,10,13,14: mixed (46%-58% high/very high density)	17,406	1.1%	1.81	0.88	0.28	0.35	0.02	0.22	0.06	0.59	33%	0.24	13%
PD 8,15: majority medium/low density (61%-63%)	10,945	1.3%	2.15	1.2	0.37	0.28	0.02	0.21	0.06	0.52	24%	0.24	11%
Durham	**25,207**	**0.8%**	**2.2**	**1.42**	**0.41**	**0.08**	**0.02**	**0.18**	**0.09**	**0.28**	**13%**	**0.2**	**9%**
Durham: Ajax, >40% high density	4,334	2.0%	2.07	1.27	0.4	0.1	0.01	0.22	0.07	0.33	16%	0.23	11%
Durham: majority medium density (Pickering, Whitby, Oshawa)	14,967	1.1%	2.2	1.41	0.41	0.09	0.02	0.19	0.10	0.29	13%	0.20	9%
Durham: mix of medium, low density (Brock, Uxbridge, Scugog, Clarington)	5,906	1.7%	2.3	1.59	0.42	0.03	0.02	0.15	0.10	0.20	9%	0.17	7%

	Sample size (n persons 5+ surveyed)	Sampling error (±%) ‡	Avg. per person 5+	Driver	Passen-ger	Transit *	Bike + Micro-mobil-ity	Walk	Other **	Sustain-able modes ***	Sustain-able mode % share ***	Active modes ***	Active mode % share ***
York	**44,933**	**0.6%**	**2.06**	**1.31**	**0.40**	**0.09**	**0.02**	**0.17**	**0.08**	**0.27**	**13%**	**0.18**	**9%**
York: 22%-24% high density (Richmond Hill, Markham, Vaughan)	33,699	0.7%	2.00	1.24	0.39	0.10	0.01	0.18	0.07	0.29	15%	0.19	10%
York: medium density (Newmarket, Whitchurch-Stouffville, Aurora)	7,259	1.5%	2.21	1.45	0.42	0.06	0.02	0.17	0.09	0.25	11%	0.19	9%
York: low density (Georgina, East Gwillimbury, King)	3,975	2.0%	2.22	1.57	0.39	0.03	0.01	0.09	0.12	0.13	6%	0.11	5%
Peel	**48,554**	**0.6%**	**1.93**	**1.18**	**0.36**	**0.11**	**0.01**	**0.17**	**0.09**	**0.30**	**15%**	**0.18**	**9%**
Caledon (urban fringe, rural, some urban core; low/medium density)	2,774	2.5%	2.03	1.45	0.32	0.02	0.01	0.08	0.15	0.11	5%	0.09	4%
Brampton (urban core, medium/high density)	19,038	1.0%	1.85	1.12	0.37	0.10	0.01	0.15	0.10	0.26	14%	0.16	9%
Mississauga (urban core, medium/high density)	26,742	0.8%	1.99	1.20	0.37	0.14	0.02	0.19	0.07	0.35	18%	0.21	11%
Halton	**21,724**	**0.9%**	**2.28**	**1.47**	**0.43**	**0.06**	**0.02**	**0.2**	**0.09**	**0.28**	**12%**	**0.23**	**10%**
Halton: medium/high density (Milton, Oakville, Burlington)	19,437	0.9%	2.28	1.46	0.44	0.06	0.02	0.21	0.09	0.29	13%	0.23	10%
Halton: mix of secondary urban core, urban fringe, rural (Halton Hills)	2,287	2.8%	2.30	1.60	0.39	0.03	0.03	0.15	0.11	0.20	9%	0.18	8%
Hamilton	**20,674**	**0.9%**	**2.32**	**1.43**	**0.38**	**0.12**	**0.04**	**0.26**	**0.09**	**0.42**	**18%**	**0.30**	**13%**
Hamilton Area, 44% high density	12,251	1.2%	2.32	1.34	0.37	0.17	0.06	0.33	0.06	0.55	24%	0.38	16%
Other Hamilton Areas, <12% high density (Flamborough, Dundas, Ancaster, Glanbrook, Stoney Creek)	8,423	1.4%	2.31	1.58	0.38	0.04	0.02	0.16	0.13	0.22	10%	0.18	8%

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	Sample size (n persons 5+ surveyed)	Sampling error (±%) ‡	Avg. per person 5+	Driver	Passen-ger	Transit *	Bike + Micro-mobil-ity	Walk	Other **	Sustain-able modes ***	Sustain-able mode % share ***	Active modes ***	Active mode % share ***
Niagara	**16,950**	**1.1%**	**2.29**	**1.60**	**0.38**	**0.04**	**0.02**	**0.13**	**0.11**	**0.20**	**9%**	**0.16**	**7%**
Niagara: >55% medium or high density (St. Catherines, Niagara Falls, Thorold, Welland)	10,848	1.4%	2.31	1.59	0.38	0.05	0.03	0.16	0.10	0.24	10%	0.19	8%
Niagara: >48% low density, mostly secondary urban core (Grimsby, Pelham, Port Colborne, Lincoln, Fort Erie)	4,621	2.0%	2.25	1.61	0.38	0.01	0.02	0.10	0.14	0.13	6%	0.11	5%
Niagara: majority rural and urban fringe (Niagara-on-the-Lake, West Lincoln, Wainfleet)	1,481	3.4%	2.23	1.61	0.37	0.01	0.02	0.06	0.16	0.09	4%	0.08	4%
Waterloo	**21,979**	**0.9%**	**2.35**	**1.47**	**0.39**	**0.09**	**0.04**	**0.27**	**0.09**	**0.40**	**17%**	**0.32**	**13%**
Waterloo	4,835	1.8%	2.38	1.34	0.37	0.13	0.06	0.41	0.08	0.59	25%	0.47	20%
Kitchener	9,512	1.3%	2.37	1.47	0.40	0.11	0.05	0.26	0.08	0.42	18%	0.31	13%
Cambridge	4,933	1.8%	2.29	1.52	0.39	0.06	0.02	0.21	0.08	0.29	13%	0.23	10%
Waterloo: Urban core, >62% medium density (Waterloo, Kitchener Cambridge)	**19,280**	**0.9%**	**2.35**	**1.45**	**0.39**	**0.10**	**0.04**	**0.28**	**0.08**	**0.43**	**18%**	**0.33**	**14%**
Waterloo: Outside main urban core, >67% low density (North Dumfries, Wilmot, Wellesley, Woolwich)	**2,699**	**2.4%**	**2.38**	**1.66**	**0.35**	**0.01**	**0.03**	**0.20**	**0.14**	**0.23**	**10%**	**0.23**	**10%**
Non-GTHA other urban cores (Brantford, Guelph, Barrie)	**15,175**	**1.1%**	**2.33**	**1.55**	**0.39**	**0.05**	**0.03**	**0.23**	**0.08**	**0.31**	**13%**	**0.26**	**11%**
Guelph	5,701	1.7%	2.41	1.53	0.40	0.07	0.05	0.27	0.08	0.40	16%	0.32	13%
Barrie	5,656	1.8%	2.26	1.54	0.38	0.03	0.02	0.22	0.07	0.27	12%	0.24	11%
Brantford	3,818	2.2%	2.32	1.60	0.41	0.04	0.02	0.18	0.07	0.24	10%	0.20	8%

	Sample size (n persons 5+ surveyed)	Sampling error (±%) ‡	Avg. per person 5+	Driver	Passen-ger	Transit *	Bike + Micro-mobil-ity	Walk	Other **	Sustain-able modes ***	Sustain-able mode % share ***	Active modes ***	Active mode % share ***
Non-GTHA other secondary urban cores (Orangeville, Orillia, City of Peterborough)	**5,576**	**1.9%**	**2.28**	**1.46**	**0.35**	**0.06**	**0.07**	**0.24**	**0.10**	**0.37**	**16%**	**0.31**	**14%**
Orangeville	1,093	4.0%	2.23	1.45	0.35	0.02	0.03	0.27	0.11	0.32	14%	0.30	13%
Peterborough City	3,320	2.4%	2.30	1.44	0.35	0.07	0.10	0.25	0.09	0.42	18%	0.35	15%
Orillia	1,163	4.3%	2.25	1.53	0.32	0.05	0.02	0.20	0.13	0.27	12%	0.22	10%
Regions with mix of rural, secondary urban core, urban fringe, population centre outside CMA/CA	**20,400**	**0.9%**	**2.20**	**1.56**	**0.36**	**0.01**	**0.02**	**0.12**	**0.13**	**0.15**	**7%**	**0.14**	**6%**
Wellington†	2,545	2.5%	2.36	1.70	0.38	0.01	0.02	0.11	0.15	0.13	6%	0.13	5%
Simcoe	12,114	1.2%	2.19	1.55	0.35	0.02	0.02	0.13	0.12	0.17	8%	0.15	7%
Brant	1,371	3.6%	2.26	1.65	0.41	0.01	0.01	0.10	0.09	0.11	5%	0.11	5%
Northumberland	3,192	2.5%	2.12	1.48	0.36	0.03	0.02	0.13	0.10	0.19	9%	0.15	7%
Grey	3,023	2.5%	2.16	1.51	0.36	0.01	0.01	0.11	0.16	0.13	6%	0.12	5%
Majority rural (57% to 81%) (Kawartha Lakes, Peterborough County, Dufferin, The Blue Mountains)	**7,214**	**1.7%**	**2.15**	**1.55**	**0.35**	**0.02**	**0.02**	**0.09**	**0.13**	**0.12**	**6%**	**0.10**	**5%**
Kawartha Lakes	1,835	3.2%	2.12	1.55	0.34	0.01	0.00	0.09	0.14	0.10	5%	0.09	4%
Peterborough County†	1,859	3.2%	2.27	1.70	0.36	0.00	0.02	0.02	0.16	0.05	2%	0.05	2%
Dufferin	1,347	4.0%	2.06	1.44	0.36	0.01	0.00	0.10	0.15	0.11	5%	0.10	5%
The Blue Mountains	328	6.9%	2.05	1.50	0.38	0.01	0.03	0.07	0.07	0.11	5%	0.10	5%

‡ Maximum margin of sampling error at a 95% confidence level taking into account the effects of data weighting on effective sample size (19 times out of 20, a survey result with a response proportion of 50% will be within ± the sampling error). The persons 5+ sample size and sample error have been provided for context and to flag geographies with more and less reliable results. Yellow/orange shading highlights margins of sampling error that are higher. The intensity of the shading increases as value approaches the highest level of sampling error.

* Transit includes all municipal and regional transit services as well as GO Bus and GO Rail.

** Other = school bus, taxi, paid ride-hail, etc.

*** Sustainable modes = subtotal for Transit + Bicycle & Micromobility + Walk. For the purpose of this report, the sustainable mode subtotal does not include school bus, which is part of the Other modes group, although school bus is technically a sustainable mode by many definitions. Active modes = subtotal for Bicycle & Micromobility + Walk.

Shading highlights cells values that are higher (blue) or lower (pink) compared to others in the same column. The intensity of the shading increases as the value approaches the highest or lowest value.

† The TTS surveys only a portion of Wellington and Peterborough counties.

Figure 17. Daily transit person trip rates for residents of geographic groupings – 2022 TTS Study Area outside Toronto

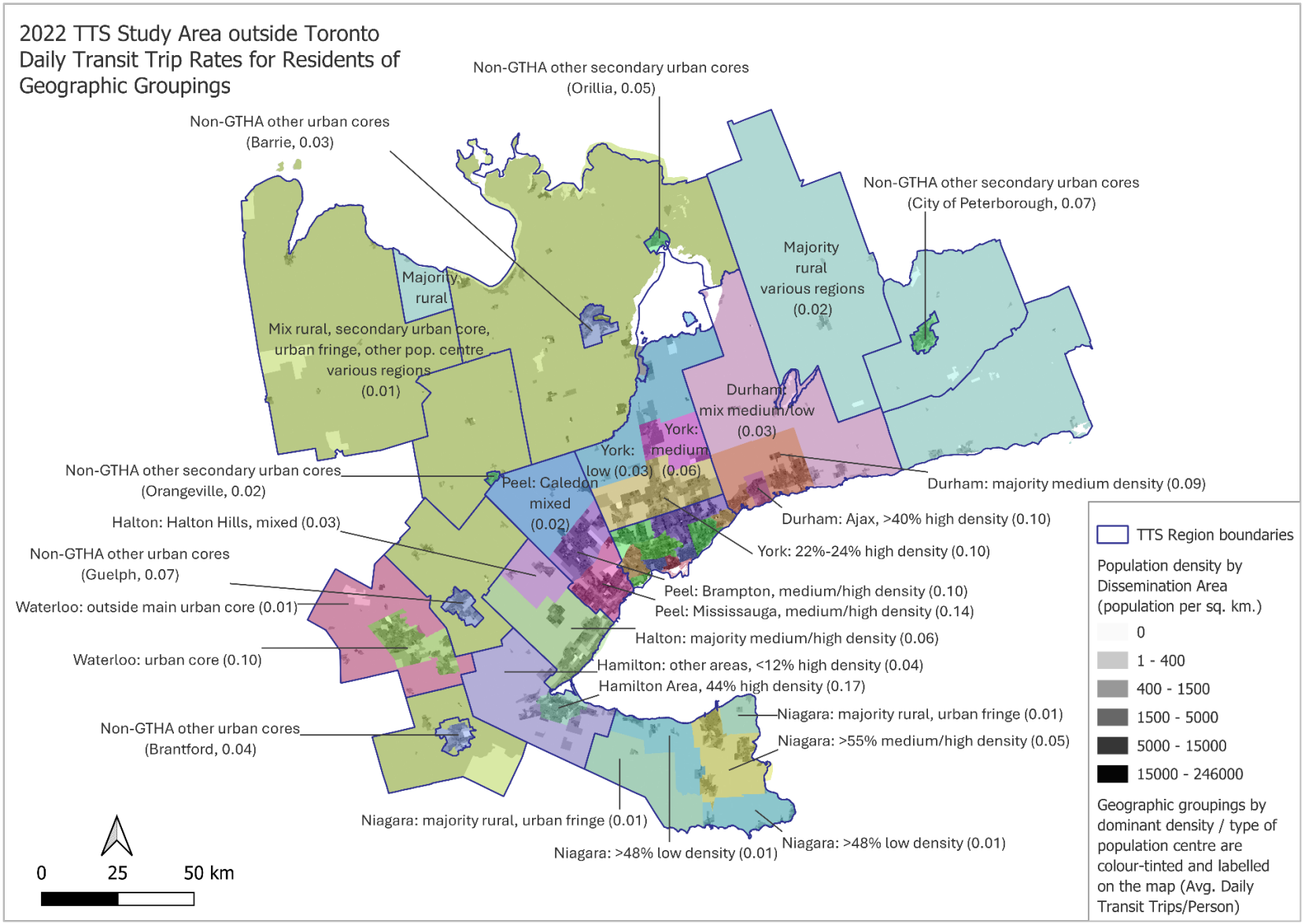


Figure 18. Daily transit person trip rates for residents of geographic groupings – 2022 TTS Study Area, in and near Toronto

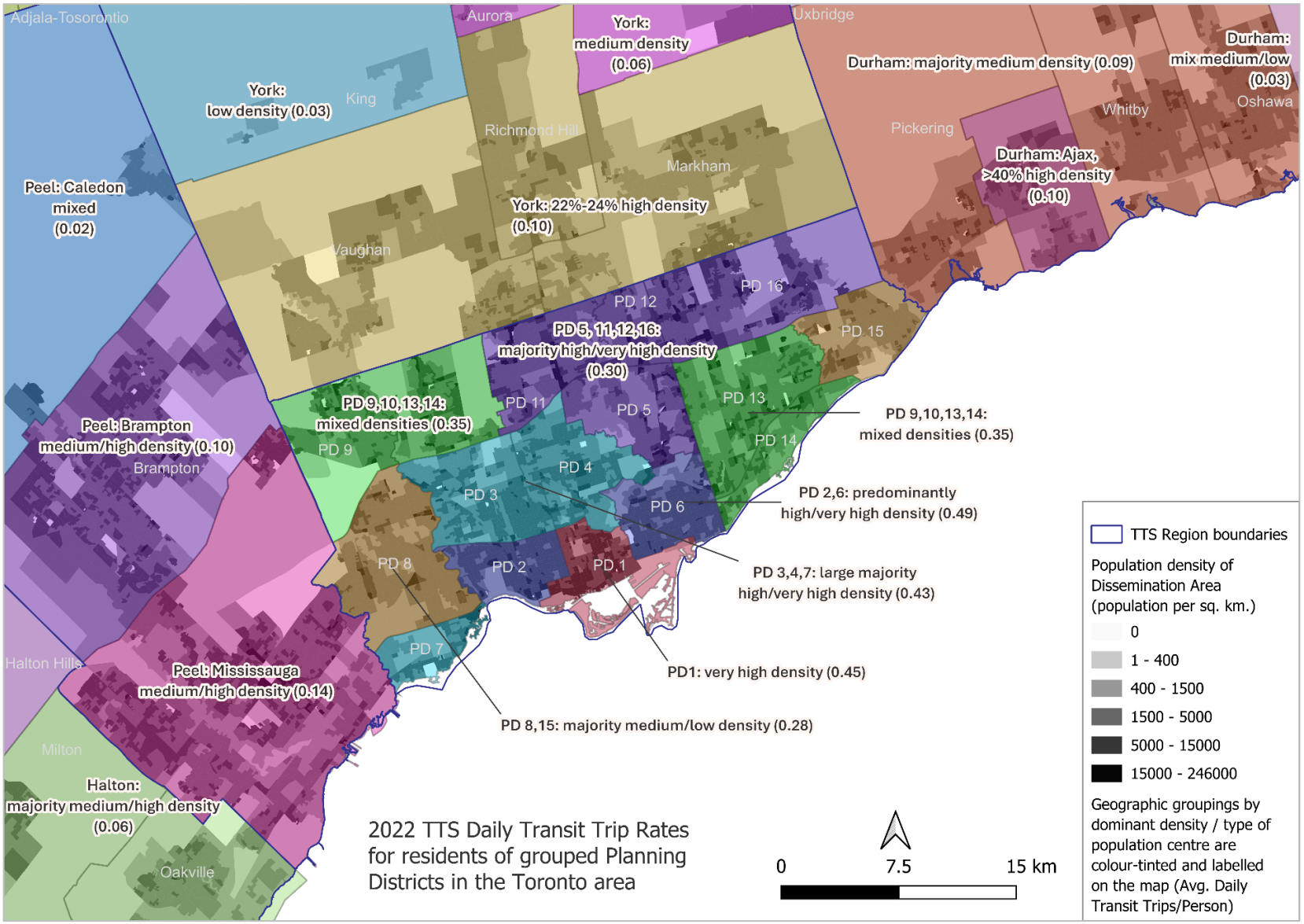


Figure 19. Daily active transportation person trip rates for residents of geographic groupings – 2022 TTS Study Area outside Toronto

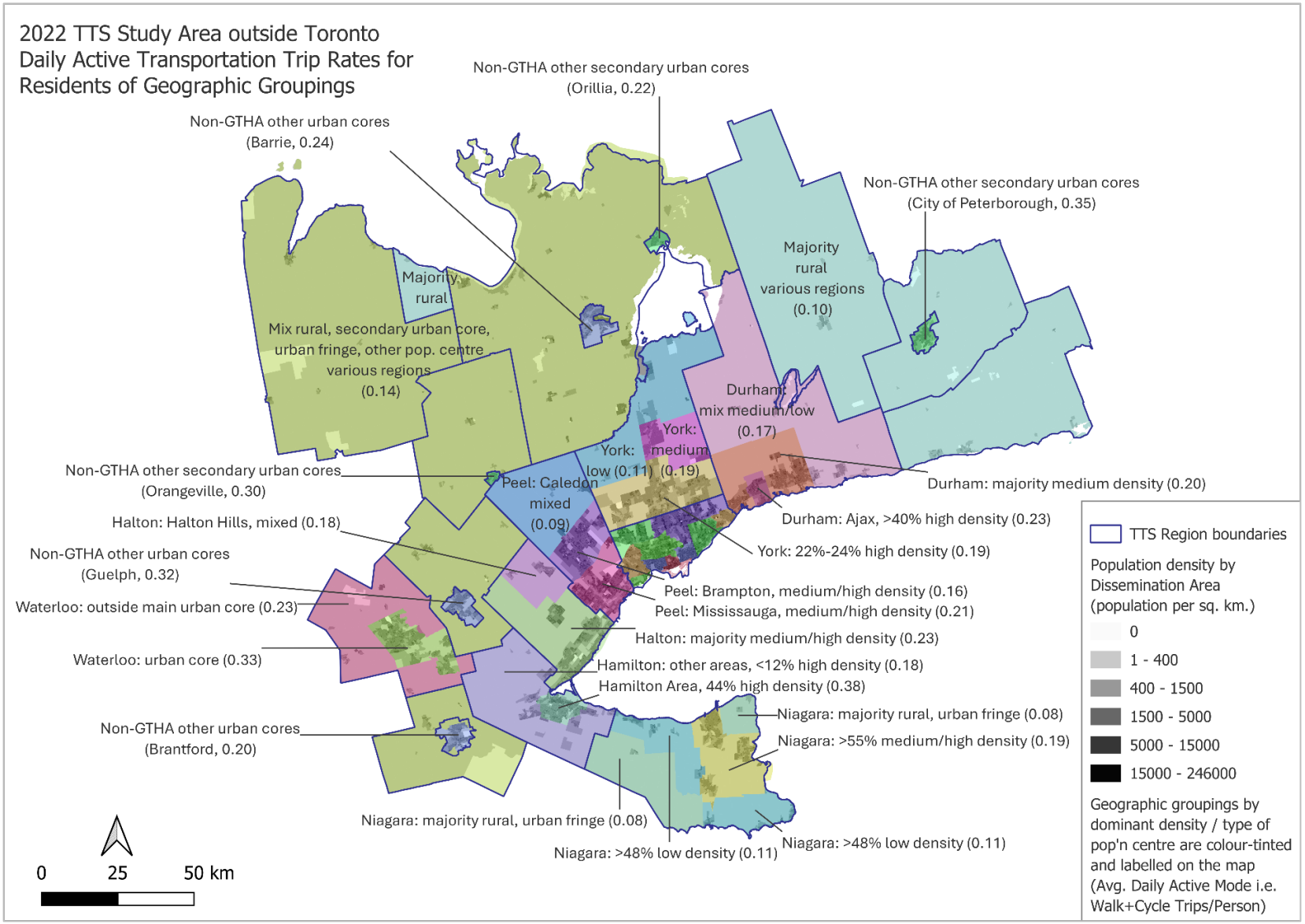
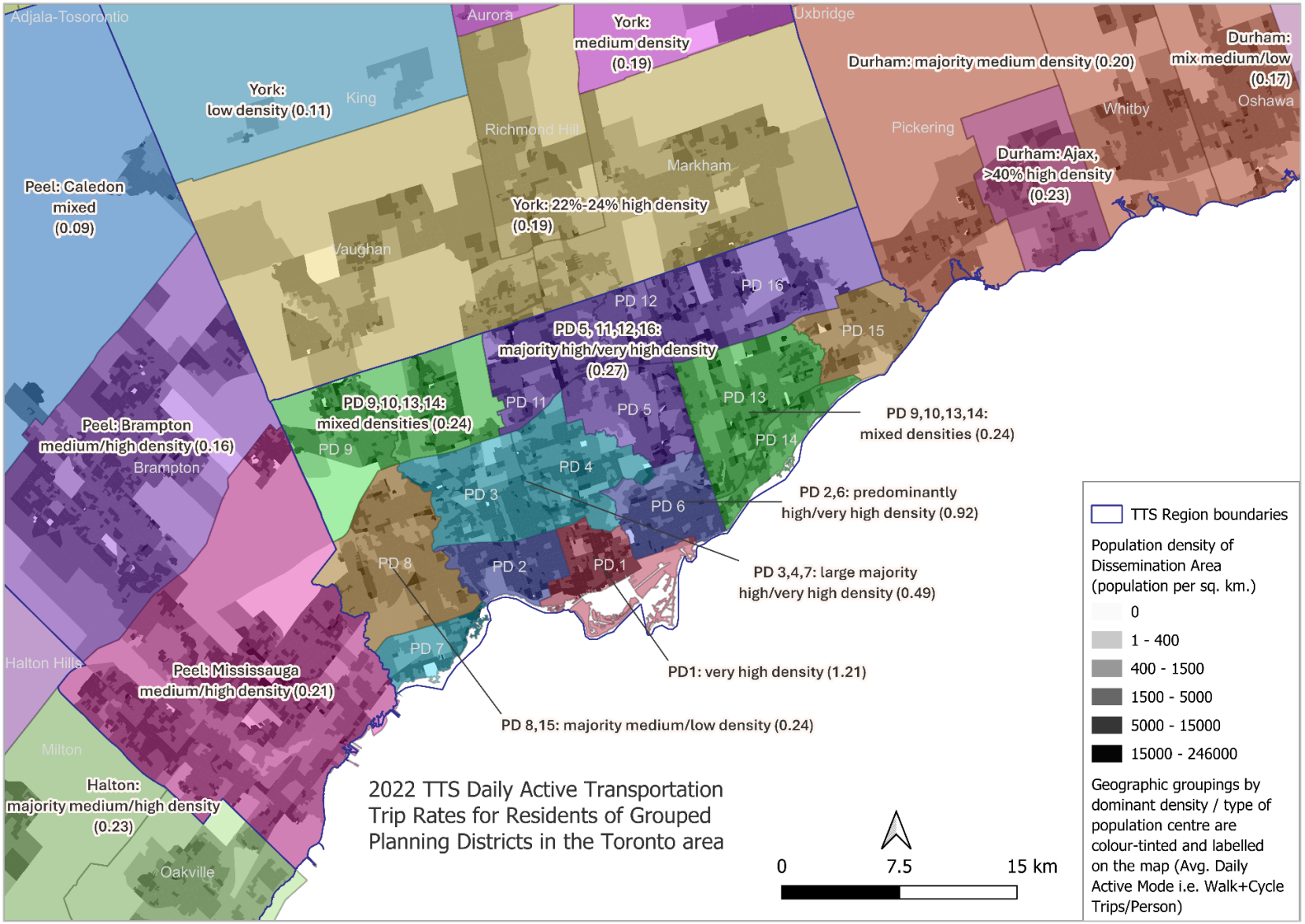


Figure 20. Daily active transportation person trip rates for residents of geographic groupings – 2022 TTS Study Area, in and near Toronto



2.8 Daily Person Trip Rates by Trip Purpose

This section profiles daily trip rates per person 5+ by trip purpose. The rates are presented according to home- and non-home-based purposes, specifically HB-W (home-based work), HB-S (home-based school), HB-D (home-based discretionary) and N-HB (non-home-based) trips.

As with the analysis in the preceding section, readers should keep in mind that the results presented here may be the result of multiple covariate factors beyond the individual characteristics examined. Section 4 provide multivariate analysis to isolates the impacts of different characteristics on overall, non-discretionary, and discretionary trip rates, when controlling for key household and demographic characteristics.

2.8.1 Trip Rates by Purpose for Household Characteristics

Table 12 summarizes daily person trip rates per person 5+ by purpose according to the household characteristics examined in the mode choice discussion. Key patterns by trip purpose can be summarized as follows:

- For HB-W trips, the highest home-based work trip rates are associated with mid-sized households, larger dwelling types (houses and townhouses), households with 3 or more adults, 3 or more workers, and 3 or more vehicles, and higher-income households. As with the mode choice characteristics, some joint relationships may be intuitive, such as greater vehicle availability and larger house size associated with the number of workers and higher household incomes. HB-W trip rates are slightly higher in the three midweek days (consistent with Mondays and Fridays more likely to be telecommuting or vacation days) and in late spring (though that may be a function of the sample).
- For HB-S trips, the highest home-based school trips are associated with larger household sizes (i.e., more student-aged household members), larger dwelling types, households with children, higher incomes, and households with 2 vehicles or 2 workers (though not more). Joint relationships may be intuitive with HB-S trips as well, linking the number of students in a household with the number of workers and, in turn, with the availability of vehicles. The survey month, tied to the school session, also showed differences as did, to a slight extent, the day of week.
- For HB-D trips, home-based discretionary trips are tied to smaller households (1- or 2- adults), households with no workers, high income households and households with 1 vehicle – suggesting some overlap with retirees in smaller households who are not tied to non-discretionary work or schooling activities.
- For N-HB trips, non-home-based trips are associated most evidently to smaller households (1- or 2- adults). While N-HB trips are also associated with most of the other HB-D

characteristics listed above, the linkages are not as strong (e.g., N-HB trip rates are relatively stable among the four household income categories).

Looking at each household characteristic, several observations can be made:

- By household size: Smaller households have the highest HB-D and N-HB trip rates, while mid-sized (3-person) households have the highest HB-W trip rates. Larger households (4+ persons) have the highest HB-S trip rates – consistent with the more typical inclusion of school-aged children in these households; in contrast, 1- and 2-person households have order-of-magnitude lower HB-S rates, which is consistent with the greater tendency of these smaller households to be adult-only.
- By dwelling type: With one exception, the rates for each purpose fit within a narrow range among the three dwelling types. The exception is for HB-S trips, for which the apartment rate is significantly lower than those for larger dwellings, at 0.20 daily trips versus 0.31 – 0.33 daily trips respectively – consistent with the more typical inclusion of school-aged children in family-sized dwellings.
- By household type: HB-W trip rates are highest for adult-only households, while HB-S trip rates are highest in households that have children – all consistent with expectations. HB-D and N-HB trip rates are highest for 1- and 2-adult households, though significantly lower for 3+ adult households. NH-B trip rates are virtually the same for these households with and without children, as are HB-D trip rates for 2- and 3+ adult households (though not for 1-person households).
- By household income: HB-W trip rates increase with income, as do total trip rates, while HB-S trip rates are highest for households in the highest income bracket ($125k+). HB-D and N-HB trip rates are largely consistent across all income groups, although the HB-D rate is moderately higher for the $125k+ bracket – in other words, households with higher incomes have more financial capacity to partake in discretionary activities and may also have more school-aged children.
- By vehicle availability: HB-W rates are similar for 0- and 1-vehicle households, and increase with 2 and 3+ vehicles (i.e., vehicle ownership is consistent with income which is consistent with employment). HB-S rates are highest for 2-vehicle households. HB-D and N-HB rates are highest for 1- and 2-vehicle households.
- By worker group: The profile of trip rates by the number of workers in a household largely follows that for vehicle availability for all four trip purposes (although the rates differ). In other words, the more workers, the more vehicles are available; and 2-vehicle households allow at least one of the working members to take children to and from school. An exception occurs for 0-worker households, whose HB-D trip rate is significantly higher than those of the other households – consistent with retirees and others who have more

available time to take up discretionary activities. N-HB trips are also highest for 0-worker households, and drop progressively as the number of workers drops.

- By surveyed trip day: HB-W and HB-S trip rates are highest for Tuesdays, Wednesdays and Thursdays although the Monday and Friday drop-off, associated with work-from-home and days off, is only slight. HB-D and N-HB rates are similar across all five days, although both rates are slightly higher on Wednesdays.
- By survey month: Rates for all four trip purposes are mainly lower in the cold-weather months, especially January, February and March for most purposes (February has the highest HB-S rate among all months).

Table 12. Daily person trip rates by purpose, by household characteristic

	Avg. per person 5+	HB-W	HB-S	HB-D	N-HB
Survey Total	**2.14**	**0.54**	**0.30**	**1.00**	**0.30**
Household size					
1 person	2.22	0.49	0.03	1.23	0.47
2 people	2.05	0.52	0.05	1.14	0.34
3 people	2.09	0.62	0.22	0.97	0.28
4 people	2.29	0.57	0.49	0.95	0.28
5 people	2.17	0.51	0.57	0.86	0.24
6 people	1.94	0.47	0.56	0.73	0.18
7+ people	1.86	0.47	0.54	0.69	0.17
Dwelling type					
House	2.19	0.55	0.33	1.01	0.29
Apartment	2.02	0.52	0.20	0.98	0.31
Townhouse	2.13	0.54	0.31	0.99	0.29
Household type					
Single person	2.22	0.49	0.03	1.23	0.47
2 adults, no children	2.02	0.53	0.03	1.14	0.33
3+ adults, no children	1.75	0.71	0.10	0.74	0.20
Single parent, 1+ children	2.72	0.26	0.88	1.09	0.48
2 adults, 1+ children	2.61	0.46	0.67	1.15	0.34
3+ adults, 1+ children	2.01	0.52	0.51	0.78	0.20
Household income					
less than $40k	1.82	0.28	0.28	0.99	0.28
$40k to less than $80k	2.02	0.50	0.25	0.97	0.30
$80k to less than $125k	2.18	0.60	0.29	0.98	0.31
$125k+	2.36	0.62	0.35	1.08	0.32
Unknown	1.84	0.49	0.24	0.87	0.23
Vehicle availability					

	Avg. per person 5+	HB-W	HB-S	HB-D	N-HB
No vehicles	1.75	0.44	0.20	0.88	0.24
1 vehicle	2.11	0.43	0.26	1.09	0.32
2 vehicles	2.27	0.56	0.37	1.03	0.31
3 or more vehicles	2.11	0.75	0.25	0.83	0.27
Worker group					
No workers	1.89	0.00	0.10	1.45	0.35
1 worker	2.15	0.48	0.28	1.06	0.32
2 workers	2.29	0.64	0.39	0.95	0.30
3 or more workers	2.03	0.85	0.28	0.68	0.22
Surveyed trip day					
Monday	2.06	0.52	0.28	0.99	0.27
Tuesday	2.17	0.54	0.31	1.02	0.30
Wednesday	2.21	0.56	0.31	1.04	0.31
Thursday	2.16	0.57	0.32	0.98	0.30
Friday	2.09	0.53	0.27	0.99	0.30
Survey month					
September	2.12	0.54	0.33	0.99	0.27
October	2.20	0.53	0.31	1.06	0.31
November	2.09	0.55	0.30	0.95	0.29
December	2.11	0.53	0.30	0.96	0.32
January	1.91	0.47	0.19	0.97	0.28
February	1.97	0.50	0.36	0.84	0.27
March	2.00	0.50	0.29	0.90	0.31
April	2.14	0.55	0.28	1.02	0.29
May	2.21	0.57	0.28	1.06	0.30
June	2.22	0.59	0.27	1.04	0.32
July	2.03	0.57	0.06	1.02	0.37

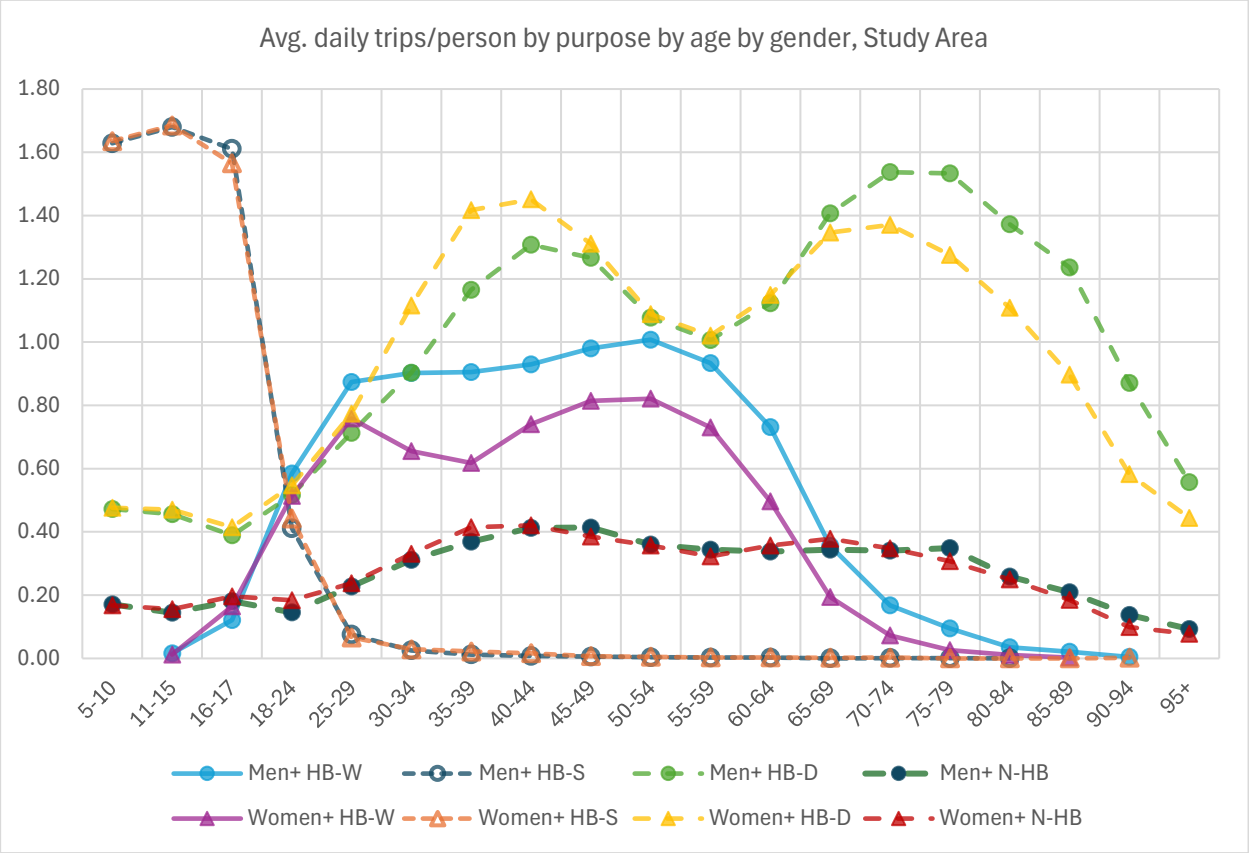
HB-D = home-based discretionary HB-W = home-based work HB-S = home-based school
N-HB = non-home-based (both origin and destination are other than home)

Shading highlights cells values that are higher (blue) or lower (pink) compared to others in the same column. The intensity of the shading increases as the value approaches the highest or lowest value.

2.8.2 Trip Rates by Purpose by Age and Gender

Figure 21 shows that men+ and women+ have the same rates of school trips and non-home-based trips for all ages, but have different age profiles for the generation of home-based work trips and home-based discretionary trips.

Figure 21: Daily trip rates by purpose by age by gender



HB-D = home-based discretionary HB-W = home-based work HB-S = home-based school
N-HB = non-home-based (both origin and destination are other than home)

2.8.3 Trip Rates by Purpose for Key Demographics

Table 13 summarizes daily person trip rates by purpose, for key demographic characteristics. Key patterns by trip purpose are summarized as follows:

- HB-W trip rates are highest for men+, working-age cohorts (25-59), full-time employees, workers with a usual workplace, and people who work in primary and secondary industries (where primary industries include natural resources extraction, agriculture and related production; and secondary industries include construction, industrial production, manufacturing, and utilities). As before, some overlap can be intuited among these characteristics.
- HB-S trip rates are highest among school-aged children, K-12 school attendees and full-time student status – all of which are different perspectives on the same characteristic. Note that the HB-S rate is slightly higher for proxy children than for primary 16-17 year-old respondents.
- HB-D trip rates are higher among women+, working-age adults (35-49) and seniors (65-84), people who do not hold transit passes, licensed drivers, people who work from home, people who are neither employed nor are students, people in business and similar occupations, people who have long-standing tenure in Canada (by birth, citizenship or immigration status), people with Canadian, American and/or European ethnicity, and primary adult respondents. These rates may reflect some overlap, such as time that is available for discretionary trips among people who work from home, or people who are not employed or are seniors, or people who are licensed drivers and people who do hold transit passes (i.e., are not regular transit users).
- N-HB trip rates are highest among gender-diverse individuals, adults 30-79, people who do not hold transit passes, licensed drivers, full- and part-time employees, part-time PSE students, part-time students and full-time workers, workers with no fixed workplace, various occupation types, people born in Canada or are citizens at birth, people with Canadian or American and European ethnicities, and primary adult respondents. Some overlap may be intuitive, such as part-time PSE students and part-time students and full-time workers.

Several observations can be made according to individual demographic characteristics:

- By gender (grouped): Men+ have a 29% higher HB-W rate than women+ and a moderately higher HB-S rate. Women+ have a moderately higher HB-D rate than men+ and a marginally higher N-HB rate.
- By age group: HB-W rates are highest among the 25-64 year-old age groups, peaking in the 45-54 age groups. HB-S rates are highest among 5-17 year-olds. These non-discretionary trip profiles are consistent with the working age and school age populations, respectively.

HB-D trip rates are high for 35-49 year-olds, consistent with family-related needs (like taking children to post-school activities), and for 65-79 year-olds, which is consistent with non-working retirees who have the time and mobility to take up discretionary activities. N-HB rates are consistent across the 30-79 age cohorts, peaking among 35-49 year-olds.

- By transit pass holders and licensed drivers: HB-W rates are highest among licensed drivers, as are HB-D and N-HB rates. HB-S rates are highest among transit pass holders.
- By worker and student status: HB-W rates are highest among full time employees, while HB-S rates are highest among K-12 attendees. People who work from home have the highest HB-D rates, while full-time employees and part-time home workers have the highest N-HB rates.
- By workplace location: Workers with a usual workplace have the highest HB-W rates, while people who work exclusively from home have the highest HB-D rates. Workers with no fixed workplace have the highest N-HB rates.
- By occupation type: Workers in secondary industries (manufacturing, construction, etc.) have the highest HB-W rates. Workers in business and similar occupations have the highest HB-D rates, while workers in health care and similar occupations and management have the highest N-HB rates.
- By immigration status: People who emigrated to Canada 10-15 years ago have the highest HB-W rates, while people who were born in Canada, had Canadian citizenship at birth, or emigrated to Canada within the past 10 years have the highest HB-S rates. The highest HB-D rates are associated with people who were born in Canada, were Canadian citizens at birth or emigrated to Canada more than 15 years ago. People born in Canada or who were Canadian citizens at birth have the highest N-HB rates.
- By ethnicity: People with Latin, Central or South American ethnicity have the highest HB-W rate. People with Canadian or American and European ethnicities have the highest HB-D and N-HB rates, while people with multiple ethnicities have the highest HB-S rates.
- By survey respondent: The HB-W rate is slightly higher for proxy adults than for primary adult respondents. Similarly, the HB-S rate is moderately higher for proxy children than for 16-17 year-old primary respondents. However, HB-D and N-HB rates are higher for respondents than for proxies. Given these differences, as with the mode choice responses (see Table 8) it is difficult to discern overall patterns in respondent versus proxy trip rates.

Table 13. Daily person trip rates by purpose, by key demographic characteristics

Category	Avg. per person 5+	HB-W	HB-S	HB-D	N-HB
Survey Total	**2.14**	**0.54**	**0.30**	**1.00**	**0.30**
Gender grouped					
Men+	2.19	0.62	0.31	0.97	0.29
Women+	2.09	0.48	0.28	1.03	0.30
Gender detail					
Male	2.20	0.62	0.31	0.98	0.29
Female	2.09	0.48	0.28	1.03	0.31
Gender diverse	2.29	0.43	0.55	0.94	0.38
Prefer to self-describe	1.88	0.44	0.26	0.90	0.28
Decline	1.88	0.43	0.43	0.78	0.23
Age group					
5 to 10	2.27	0.00	1.63	0.47	0.17
11 to 15	2.31	0.01	1.68	0.46	0.15
16 to 17	2.32	0.14	1.59	0.40	0.19
18 to 24	1.67	0.55	0.43	0.53	0.16
25 to 29	1.86	0.82	0.07	0.74	0.23
30 to 34	2.14	0.78	0.03	1.01	0.32
35 to 39	2.46	0.76	0.02	1.30	0.39
40 to 44	2.64	0.83	0.01	1.38	0.42
45 to 49	2.59	0.89	0.01	1.29	0.40
50 to 54	2.36	0.91	0.00	1.08	0.36
55 to 59	2.18	0.83	0.00	1.01	0.33
60 to 64	2.10	0.61	0.00	1.14	0.35
65 to 69	2.01	0.27	0.00	1.37	0.36
70 to 74	1.91	0.12	0.00	1.45	0.34
75 to 79	1.78	0.06	0.00	1.39	0.33
80 to 84	1.50	0.02	0.00	1.23	0.25
85 to 89	1.24	0.01	0.00	1.04	0.19
90 to 94	0.82	0.00	0.00	0.70	0.11
95+	0.56	0.00	0.00	0.48	0.08
Transit pass					
No	2.17	0.55	0.27	1.03	0.31
Yes	1.88	0.53	0.38	0.75	0.22
Not asked (5 yrs)	2.18	0.00	1.56	0.45	0.17
Unknown	1.22	0.49	0.24	0.39	0.10

Category	Avg. per person 5+	HB-W	HB-S	HB-D	N-HB
Driver's licence					
No	1.34	0.33	0.25	0.62	0.13
Yes	2.25	0.67	0.07	1.16	0.35
Not applicable (<16 yrs)	2.29	0.01	1.66	0.47	0.16
Student status					
Not a student	2.14	0.66	0.00	1.14	0.33
K12 school	2.34	0.03	1.69	0.45	0.17
K12 home-schooled	0.92	0.04	0.00	0.75	0.13
PSE full time	1.73	0.27	0.72	0.55	0.19
PSE part time	2.14	0.68	0.20	0.92	0.34
Work status					
Employed full-time	2.45	1.21	0.00	0.86	0.37
Employed part-time	2.33	0.80	0.37	0.84	0.32
Work fr. home full-time	1.78	0.12	0.00	1.44	0.21
Work fr. home part-time	2.12	0.10	0.11	1.56	0.35
Not employed	1.80	0.00	0.33	1.21	0.26
Too young (<13 yrs)	2.29	0.00	1.64	0.48	0.16
Workplace location					
Not applicable (not work)	1.90	0.00	0.59	1.06	0.24
Work exclusively fr. home	1.83	0.12	0.02	1.46	0.23
No fixed workplace	2.28	0.90	0.06	0.89	0.43
Usual workplace	2.45	1.17	0.07	0.85	0.35
Detailed status					
Work full-time	2.35	1.04	0.00	0.96	0.35
Work part-time	2.33	0.78	0.00	1.18	0.37
Student full-time	2.13	0.00	1.50	0.47	0.16
Student FT + work FT	2.18	0.95	0.21	0.70	0.32
Student FT + work PT	2.28	0.52	0.99	0.53	0.25
Student part-time	1.71	0.00	0.37	1.11	0.23
Student PT + work FT	2.39	0.97	0.12	0.89	0.41
Student PT + work PT	2.00	0.69	0.35	0.70	0.26
Not employed, not student	1.76	0.00	0.00	1.46	0.30
Not employed, student status unknown	1.30	0.00	0.00	1.10	0.20
Young school age child but not a student	0.64	0.00	0.00	0.63	0.01

Category	Avg. per person 5+	HB-W	HB-S	HB-D	N-HB
Occupation Type					
Business, finance, natural and applied sciences	2.26	0.69	0.01	1.23	0.34
Health care, education, law, community or social services, art, culture, recreation, sports	2.54	1.08	0.05	1.01	0.41
Management	2.49	1.04	0.00	1.04	0.41
Technical, paraprofessional	2.21	0.80	0.03	1.07	0.32
Admin, admin support	2.29	0.95	0.04	0.94	0.36
Sales	2.29	0.96	0.22	0.78	0.33
Personal service, customer information service	2.17	0.97	0.24	0.70	0.26
Industrial, construction, equip. operation trade	2.36	1.45	0.02	0.56	0.33
Worker or labourer in transport and construction	2.27	1.34	0.04	0.58	0.30
Natural resources, agriculture, related production occupations	2.38	1.13	0.07	0.81	0.37
Occupations in manufacturing, utilities	2.27	1.47	0.02	0.56	0.22
Other	2.13	0.51	0.73	0.64	0.25
Unknown	1.69	0.80	0.09	0.61	0.19
Immigration status					
Born in Canada / citizen at birth	2.30	0.54	0.38	1.04	0.34
Immigrated in last 2 yrs	1.70	0.41	0.37	0.77	0.14
Immigrated 3-5 yrs ago	1.93	0.52	0.38	0.84	0.20
Immigrated 5-10 yrs ago	1.96	0.55	0.36	0.85	0.20
Immigrated 10-15 yrs ago	1.96	0.65	0.21	0.88	0.22
Immigrated >15 yrs ago	1.94	0.57	0.02	1.08	0.28
Not a permanent resident or citizen	1.66	0.35	0.44	0.71	0.16
Unknown	1.59	0.50	0.28	0.65	0.16
Ethnicity					
African	1.86	0.51	0.45	0.71	0.19
East Asian	1.91	0.48	0.28	0.91	0.24
Southeast Asian	1.82	0.61	0.29	0.74	0.19
South Asian	1.80	0.52	0.33	0.78	0.17
Caribbean	1.98	0.56	0.18	0.94	0.30
Indigenous	2.25	0.57	0.35	1.01	0.32
Latin, Central, S. American	2.08	0.66	0.26	0.91	0.25
Middle Eastern/N. African	2.09	0.52	0.41	0.92	0.25
European	2.34	0.55	0.23	1.20	0.36
Canadian	2.24	0.56	0.29	1.06	0.33

Category	Avg. per person 5+	HB-W	HB-S	HB-D	N-HB
American	2.29	0.44	0.14	1.34	0.36
Jewish	2.46	0.48	0.37	1.21	0.40
Multiple: Canadian or American + European + no other selected	2.63	0.60	0.24	1.31	0.48
Multiple: Indigenous + other ethnic or cultural origins	2.48	0.52	0.45	1.08	0.43
Multiple: multiple selected other than preceding 'multiple' categories	2.24	0.47	0.51	0.96	0.31
Other, not classified	2.35	0.38	0.85	0.75	0.37
Unknown	1.85	0.55	0.30	0.78	0.22
Survey respondent					
Primary respondent, adult	2.50	0.62	0.03	1.39	0.46
Primary respondent, 16-17	2.45	0.09	1.53	0.60	0.22
Proxy respondent, adult	1.77	0.65	0.09	0.83	0.20
Proxy respondent, child	2.30	0.03	1.65	0.46	0.16

HB-D = home-based discretionary HB-W = home-based work HB-S = home-based school
N-HB = non-home-based (both origin and destination are other than home)
Men+ = men and/or boys and a portion of persons who identifies as non-binary, prefer to self-describe, or who declined to say. Women+ = women and/or girls and a portion of persons who identifies as non-binary, prefer to self-describe, or who declined to say.

2.8.4 Mode Shares for Work Tours for Key Demographics

Table 14 focuses on the first half of the work tour – that is, the set of trips made by workers, starting at the home enroute to the workplace, including stops in between. Looking at the tour enables an understanding of how mode choice can be determined not just by the trip to work but also by trips to intermediate stops – e.g., a worker who usually takes transit to work might have a personal appointment during the day that requires they take the household vehicle instead. By comparison, the HB-W trip refers to the home-to-work and work-to-home trips, without considering intermediate stops (i.e., excluding work tours that had intermediate stops).

The table lists the mode shares according to the “dominant” mode that is used for the first tour to work. The dominant mode was determined by scanning the primary modes reported for all trips on the first tour that arrived at work or a work-related destination and selecting the mode that would most likely have been for the longest duration of travel (with transit at the top of the hierarchy, followed by auto driver, auto passenger, other modes, cycling/micromobility, and finally walking). The transit share breaks out GO Rail shares, alone or in combination with other transit (e.g., accessing the local GO Rail station via local transit or taking the TTC from Union Station to the workplace).

For manageability, note that the table considers the first half of the work tour – the journey to the first work destination. The return-home journey is not considered, nor are subsequent tours that arise through, for example, split shifts or multiple jobs. Note also that only the dominant mode is considered, and that the tour can include other modes (e.g., a work tour that included first driving to a park-and-ride location, then walking to a nearby restaurant to eat a sit-down breakfast, followed by a trip to work via GO Train that incidentally also involved walking to and from GO stations would the categorized as a having transit as the dominant mode for that work tour). Finally, note that the table considers only trips made by workers, so the demographic characteristics relate only to workers who made a trip on the survey day. This means, for example, that K-12 students who also are employed and who made a trip to or from work on their travel day are included.[9]

Key points to note are summarized below:

- The mode shares are *broadly* consistent with the trip rates by mode described in section 2.7.3. For example, the dominant 79% auto driver share associated with men+ is *broadly* consistent with their 1.40 daily trip rate (comprising a dominant 64% of their 2.20 total daily trips) in Table 8. However, the difference in perspective between the tour and the trip purpose is highlighted by the breakdown in trip rates by purpose described in section 2.8.3: In Table 13, it can been seen that the men+ HB-W rate is only 28% of their total daily trips (0.62 and 2.19 trips, respectively), while their HB-D rate is 44% (0.97 trips) and their N-HB rate is 13% (0.29 trips). While Table 8 and Table 13 consider all men+ regardless of employment status, the comparison illustrates the importance of the work trip in overall daily travel behaviour and in going beyond the trip purpose alone to characterize that daily behaviour.
- On the other hand, the 11% transit share for working men+ is more important than the Table 8 trip rate (0.16 daily trips) would suggest for all men+, and their 4% walk share is less important than their 0.26 daily trips would suggest. These findings are consistent with transit's focus on the two commuter peaks, which in turn are strongly influenced by the work commute, with the walk trip more broadly distributed across the day. This further highlights the importance of looking at all these multiple perspectives to better understand the less-dominant travel choices.

[9] In most cases, the workplace is the ultimate destination of the work tour. In this case, the school might be the ultimate destination. However, because the workplace is included as part of the tour, for this analysis the tour is included (e.g., the tour of a student with an after-school job would be described as home – school – work – home, and the dominant mode of the first tour to work would have assessed all of the primary modes in the series of trips in the home – school – work trip sequence).

- Table 14 highlights the importance of GO Rail to workers' trips, with GO Rail comprising 12% of all transit trips (4% jointly with local transit).[10] GO Rail trips represent 2.3% of trips made by 35-39 year old workers, 4.7% of trips made by transit pass holders, 1.6% of trips made by licensed drivers, 2.7% of trips made by full-time students who are also full-time workers, 4.6% of workers who are employed in business, finance, and natural and applied sciences, up to 2.9% of workers who immigrated to Canada within the last 15 years, 2.4% of people reporting an East Asian ethnicity and 2.0% of primary adult respondents to the survey.
- Holding a transit pass does not necessarily mean that the pass is used: the transit share among workers who made a trip is 54%, with their auto driver share at 28%. Among holders of a driver's licence, 80% drive with 10% using transit. To provide a context, note that 8% of workers with a trip to work on the survey day hold a transit pass, while 92% of these workers have a driver's licence. (The degree of overlap is not tabulated.)
- Workers in primary and secondar industries[11] largely drive, which may be a function of the location of their workplace (e.g., in a suburban or rural area), the transit service level, and hours of work. However, workers in all other occupations (except 'other') also largely drive, which may be a function of the above factors as well as the availability of a vehicle. Transit use is more evident among people who work in business and similar occupations, and in personal service and customer information service: this may reflect income (which may preclude the availability of a vehicle).
- The transit share is highest among newcomers to Canada and people who are neither permanent residents nor citizens. Long-established immigrants' mode shares approximate those of people who were born in Canada or are citizens at birth.
- Considering survey respondents, the mode shares of primary and proxy adults are broadly similar, with proxy adults have a 9% auto passenger share compared with a 3% share noted by primary adult respondents. There is more variation among primary and proxy children, which may reflect the age ranges (primary respondents must be 16 or 17 years old). Proxy children have a 44% auto passenger share compared with a 31% share among primary respondents. The situation is reversed for transit, with a 40% share among primary respondents and a 13% share among proxy children – again consistent with the differences in ages, whereby younger children are less likely to travel independently (hence the higher

[10] Calculated as proportions of the 1.0% mode share for GO Rail, 0.5% share for GO Rail and local transit jointly, and the 11.3% share of all local transit.

[11] Primary industries include natural resources extraction, agriculture and related production; secondary industries include construction, industrial production, manufacturing, and utilities.

auto passenger shares and lower transit shares). Walking and bike and micromobility are higher for the latter as well.

Table 14. Mode share for first work tour, by demographic characteristics

Worker Category	Number of workers with trip to work†	Primary mode of first tour to work						Transit breakdown		
		Driver	Passen-ger	Transit *	Bike + Micro-mobil-ity	Walk	Other **	Local transit	Joint GO Train + local transit	GO Train only
Survey Total (workers with a trip to work)	**2,761,700**	**74%**	**6%**	**13%**	**2%**	**4%**	**1%**	**11.3%**	**0.5%**	**1.0%**
Gender grouped										
Men+	1,509,000	79%	4%	11%	3%	3%	1%	9.4%	0.5%	1.1%
Women+	1,252,700	69%	9%	15%	1%	5%	1%	13.6%	0.5%	1.0%
Gender detail										
Male	1,491,400	79%	4%	11%	2%	3%	1%	9.3%	0.5%	1.1%
Female	1,234,500	69%	9%	15%	1%	5%	1%	13.5%	0.5%	1.0%
Gender diverse	8,600	36%	5%	31%	10%	13%	4%	29.2%	1.4%	0.7%
Prefer to self-describe	3,100	66%	2%	18%	4%	9%	1%	17.3%	0.3%	0.0%
Decline	24,000	65%	6%	19%	4%	4%	2%	16.6%	0.7%	2.0%
Age group										
11 to 15	4,600	0%	65%	7%	3%	13%	12%	6.8%	0.0%	0.0%
16 to 17	18,600	27%	39%	15%	2%	12%	6%	14.5%	0.0%	0.1%
18 to 24	246,100	59%	13%	18%	2%	6%	1%	16.9%	0.7%	0.8%
25 to 29	302,000	65%	6%	19%	2%	7%	1%	17.3%	0.7%	1.0%
30 to 34	305,500	68%	5%	18%	3%	5%	1%	15.7%	0.6%	1.4%
35 to 39	292,600	74%	4%	13%	3%	4%	1%	11.2%	0.7%	1.6%
40 to 44	312,800	78%	4%	12%	2%	3%	1%	9.9%	0.6%	1.3%
45 to 49	306,800	79%	5%	10%	2%	3%	0%	8.8%	0.4%	1.2%
50 to 54	344,800	80%	5%	9%	2%	3%	1%	7.9%	0.3%	1.1%
55 to 59	300,300	81%	5%	9%	2%	3%	1%	7.9%	0.3%	0.7%
60 to 64	214,000	81%	5%	8%	2%	3%	1%	7.7%	0.2%	0.5%
65 to 69	74,100	82%	5%	9%	1%	3%	1%	8.6%	0.3%	0.4%
70 to 74	27,100	82%	5%	9%	1%	3%	0%	8.3%	0.1%	0.2%
75 to 79	9,600	87%	3%	6%	1%	3%	0%	5.6%	0.2%	0.1%
80 to 84	2,200	74%	10%	10%	0%	5%	1%	8.9%	0.8%	0.0%
85 to 89	600	91%	3%	6%	0%	0%	0%	5.9%	0.0%	0.0%
Transit pass										
No	2,525,100	78%	6%	9%	2%	4%	1%	7.9%	0.4%	0.9%
Yes	223,400	28%	9%	54%	3%	5%	2%	49.3%	1.5%	3.2%
Unknown	13,200	57%	9%	24%	1%	7%	2%	22.1%	1.1%	0.8%

Worker Category	Number of workers with trip to work†	Primary mode of first tour to work						Transit breakdown		
		Driver	Passen-ger	Transit *	Bike + Micro-mobil-ity	Walk	Other **	Local transit	Joint GO Train + local transit	GO Train only
Driver's licence										
No	203,700	na	25%	52%	4%	15%	4%	50.1%	1.0%	0.5%
Yes	2,553,400	80%	4%	10%	2%	3%	1%	8.2%	0.5%	1.1%
Not applicable (<16 yrs)	4,600	na	65%	7%	3%	13%	12%	6.8%	0.0%	0.0%
Student status										
Not a student	2,590,100	75%	6%	12%	2%	4%	1%	10.8%	0.5%	1.1%
K12 school	25,200	26%	42%	12%	3%	11%	7%	11.5%	0.0%	0.0%
K12 home-schooled	500	54%	14%	3%	0%	29%	0%	1.2%	0.0%	1.7%
PSE full time	81,100	53%	10%	24%	2%	9%	1%	22.3%	0.9%	0.5%
PSE part time	64,700	64%	7%	19%	4%	5%	1%	17.1%	0.8%	0.8%
Work status										
Employed full-time	2,384,500	76%	5%	12%	2%	4%	1%	10.7%	0.5%	1.2%
Employed part-time	325,100	59%	12%	16%	2%	8%	2%	15.9%	0.3%	0.2%
Work fr. home full-time	44,200	73%	6%	12%	2%	4%	2%	10.5%	0.5%	1.3%
Work fr. home part-time	7,800	77%	6%	8%	2%	7%	0%	7.0%	0.6%	0.2%
Workplace location										
Work exclusively fr. home	52,000	74%	6%	12%	2%	5%	2%	10.0%	0.5%	1.2%
No fixed workplace	284,700	85%	5%	6%	1%	1%	1%	5.8%	0.3%	0.2%
Usual workplace	2,424,900	73%	6%	14%	2%	4%	1%	12.0%	0.5%	1.1%
Detailed status										
Work full-time	2,357,500	76%	5%	12%	2%	3%	1%	10.6%	0.5%	1.2%
Work part-time	232,600	66%	10%	14%	2%	8%	2%	13.3%	0.2%	0.2%
Student FT + work FT	21,000	59%	8%	21%	2%	8%	2%	18.3%	1.4%	1.3%
Student FT + work PT	84,400	44%	20%	21%	2%	10%	3%	20.1%	0.6%	0.2%
Student PT + work FT	50,300	69%	6%	15%	4%	4%	1%	13.7%	0.8%	0.9%
Student PT + work PT	15,800	46%	13%	29%	3%	8%	2%	27.4%	0.8%	0.3%
Occupation Type										
Business, finance, natural and applied sciences	468,700	68%	4%	20%	2%	5%	1%	15.2%	1.0%	3.6%
Health care, education, law, community or social services, art, culture, recreation, sports	722,700	74%	5%	12%	3%	5%	1%	11.4%	0.5%	0.5%
Management	233,000	83%	4%	8%	2%	3%	1%	6.8%	0.5%	1.2%
Technical, paraprofessional	158,300	78%	4%	13%	2%	2%	1%	10.8%	0.9%	1.3%
Admin, admin support	203,200	71%	7%	16%	1%	3%	1%	14.8%	0.6%	1.0%
Sales	195,700	67%	10%	14%	1%	6%	1%	13.3%	0.2%	0.2%
Personal service, customer information service	195,900	58%	12%	18%	2%	8%	2%	17.8%	0.2%	0.2%

Worker Category	Number of workers with trip to work†	Primary mode of first tour to work						Transit breakdown		
		Driver	Passen-ger	Transit *	Bike + Micro-mobil-ity	Walk	Other **	Local transit	Joint GO Train + local transit	GO Train only
Industrial, construction, equip. operation trade	213,600	89%	5%	4%	1%	1%	0%	3.6%	0.1%	0.1%
Worker or labourer in transport and construction	149,900	84%	6%	5%	1%	2%	2%	4.9%	0.2%	0.1%
Natural resources, agriculture, related production occupations	28,800	86%	6%	4%	1%	2%	1%	3.6%	0.0%	0.2%
Occupations in manufacturing, utilities	149,900	78%	10%	9%	1%	2%	1%	8.4%	0.3%	0.1%
Other	5,600	46%	9%	16%	6%	20%	3%	13.1%	1.0%	1.4%
Unknown	36,300	67%	9%	15%	2%	5%	2%	15.1%	0.1%	0.2%
Immigration status										
Born in Canada / citizen at birth	1,713,400	77%	5%	10%	2%	4%	1%	8.7%	0.4%	0.9%
Immigrated in last 2 yrs	35,500	36%	13%	37%	2%	10%	2%	35.4%	0.9%	1.1%
Immigrated 3-5 yrs ago	74,500	54%	9%	29%	3%	4%	2%	25.6%	0.8%	2.1%
Immigrated 5-10 yrs ago	109,000	63%	9%	20%	2%	4%	1%	17.9%	0.7%	1.6%
Immigrated 10-15 yrs ago	132,200	66%	8%	19%	2%	4%	1%	16.6%	0.9%	1.3%
Immigrated >15 yrs ago	560,700	76%	6%	13%	1%	3%	1%	11.4%	0.5%	1.2%
Not a permanent resident or citizen	22,600	36%	8%	37%	3%	14%	2%	35.3%	1.5%	0.4%
Unknown	113,600	71%	6%	18%	1%	3%	1%	15.5%	0.9%	1.1%
Ethnicity										
African	33,900	67%	6%	22%	1%	2%	2%	20.1%	0.6%	0.8%
East Asian	231,600	68%	7%	17%	2%	5%	1%	14.8%	0.7%	1.7%
Southeast Asian	170,400	60%	11%	24%	1%	3%	1%	22.3%	0.6%	0.9%
South Asian	218,600	70%	8%	17%	0%	3%	1%	14.0%	0.9%	2.0%
Caribbean	52,900	71%	5%	19%	1%	3%	1%	17.4%	0.4%	1.3%
Indigenous	10,400	74%	8%	9%	3%	4%	2%	7.8%	0.1%	0.7%
Latin, Central, S. American	71,000	60%	7%	24%	2%	4%	2%	22.4%	0.7%	1.2%
Middle Eastern/N. African	64,000	76%	5%	13%	1%	4%	1%	11.8%	0.5%	1.0%
European	495,000	74%	4%	12%	4%	5%	1%	10.5%	0.3%	1.0%
Canadian	999,300	81%	5%	7%	2%	4%	1%	6.2%	0.3%	0.7%
American	3,100	67%	12%	14%	3%	4%	0%	12.4%	0.8%	0.8%
Jewish	2,500	60%	5%	16%	14%	2%	4%	16.0%	0.0%	0.0%
Multiple: Canadian or American + European + no other selected	108,400	74%	5%	12%	3%	6%	1%	10.5%	0.7%	0.8%

Worker Category	Number of workers with trip to work†	Primary mode of first tour to work						Transit breakdown		
		Driver	Passen-ger	Transit *	Bike + Micro-mobil-ity	Walk	Other **	Local transit	Joint GO Train + local transit	GO Train only
Multiple: Indigenous + other ethnic or cultural origins	12,100	64%	8%	14%	4%	6%	4%	13.1%	0.4%	0.8%
Multiple: multiple selected other than preceding 'multiple' categories	128,100	64%	8%	19%	3%	5%	2%	16.7%	1.1%	1.2%
Other, not classified	3,800	66%	11%	14%	2%	6%	1%	12.5%	0.2%	1.7%
Unknown	156,400	74%	5%	14%	2%	3%	1%	12.2%	0.7%	1.1%
Survey respondent										
Primary respondent, adult	1,318,800	76%	3%	14%	3%	4%	1%	12.1%	0.6%	1.4%
Primary respondent, 16-17	300	20%	31%	40%	0%	9%	0%	40.1%	0.0%	0.0%
Proxy respondent, adult	1,419,800	74%	9%	12%	1%	4%	1%	10.6%	0.4%	0.8%
Proxy respondent, child	22,800	22%	44%	13%	2%	12%	7%	12.6%	0.0%	0.0%

na = not applicable or no data

Shading highlights cells values that are higher (blue) or lower (pink) compared to others in the same column. The intensity of the shading increases as the value approaches the highest or lowest value.

When analysing ethnicity, the single-category version of the ethnicity variable was used for ease of analysis.

Men+ = men and/or boys and a portion of persons who identifies as non-binary, prefer to self-describe, or who declined to say. Women+ = women and/or girls and a portion of persons who identifies as non-binary, prefer to self-describe, or who declined to say.

† Trips to work or for work-related purposes. While workers with no fixed workplace and those who indicated that they "work exclusively from home" may not have a usual workplace, they may still have reported trips to worksites or for work related purposes (business meetings, picking up supplies, dropping off finished work products, etc.). In the instances, the first work tour includes any trips made between home and first destination with a work-related or work-on-the-road destination purpose.

Mode share for first tour to work was undertaken by parsing trip chains for tours between home and work. In instances where the chain of trips to work included different modes, the dominant mode for the work tour was selected as one most likely to have been used for the longest distance (with transit at the top of the hierarchy, followed by automobile, the passenger, other, bicycle, and finally walk). Includes some trip chains that ended at work that did not originate from home.

* Transit includes all municipal and regional transit services as well as GO Bus and GO Rail.

** Other = school bus, taxi, paid ride-hail, etc.

*** Sustainable modes = subtotal for Transit + Bicycle & Micromobility + Walk. For the purpose of this report, the sustainable mode subtotal does not include school bus, which is part of the Other modes group, although school bus is technically a sustainable mode by many definitions. Active modes = subtotal for Bicycle & Micromobility + Walk.

2.8.5 Trip Rates by Purpose by Geography Type

Table 15 summarizes person-trip rates by purpose, by geography type. When measured by population centre group, trip rates are mostly relatively stable for each purpose, especially for the HB-W and N-HB purposes. There is a drop-off for HB-S and HB-D purposes in rural areas, and for HB-W and N-HB in large urban cores – however, these differences are relatively small.

A greater variation is observed when trip rates are measured by population density. HB-S and HB-D trip rates are lowest at the lowest- and highest-density areas. N-HB trip rates taper off as density increases. Overall, however, the trip rates are relatively stable.

Table 15. Daily person trip rates by purpose, by geography type

	Avg. per person 5+	HB-W	HB-S	HB-D	N-HB
Survey Total	**2.14**	**0.54**	**0.30**	**1.00**	**0.30**
Population centre group					
Urban core, large	2.12	0.54	0.30	1.00	0.29
Urban core, small/medium	2.28	0.59	0.28	1.06	0.34
Urban fringe or population centre outside CMA/CA	2.27	0.58	0.29	1.05	0.35
Rural within CMA or CA	2.23	0.59	0.26	1.01	0.37
Rural outside CMA or CA	2.08	0.57	0.23	0.91	0.38
Population density					
<400 residents / sq km	2.17	0.57	0.26	0.98	0.36
400 to <1,500 / sq km	2.24	0.54	0.31	1.07	0.32
1,500 to <5,000 / sq km	2.18	0.54	0.32	1.03	0.29
5,000 to < 150,000 / sq km	2.08	0.54	0.30	0.96	0.28
15,000 or more / sq km	1.97	0.54	0.22	0.93	0.28

HB-D = home-based discretionary HB-W = home-based work HB-S = home-based school
N-HB = non-home-based (both origin and destination are other than home)

Shading highlights cells values that are higher (blue) or lower (pink) compared to others in the same column. The intensity of the shading increases as the value approaches the highest or lowest value.

2.8.6 Trip Rates by Purpose by Sample Type and Survey Method

Table 16 summarizes trip rates by purpose according to sample type and survey method. Non-discretionary (HB-W and HB-S) trip rates are highest when online mobile devices are used as the survey method, and slightly lower when surveys are completed by personal computer. However, they are significantly lower for phone surveys and, less so, for mixed mode surveys. HB-D surveys exhibit the opposite traits. These differences are consistent with the greater use of telephone surveys by older respondents, many of whom are retired, and correspondingly by the greater use of online devices by younger and working-age respondents. N-HB rates are relatively stable across all methods.

Measured by sample type, address-only trip rates are slightly/moderately higher than address-and-phone surveys for all four purposes. However, surveys contributed by other (volunteer) respondents have significantly higher HB-W, HB-D and N-HB trip rates than the other two methods, although comparable or moderately lower HB-S trip rates. These differences may reflect the interest of volunteer participants in transportation topics, in turn providing an incentive to ensure that their travel activity is detailed as much as possible.

Table 16. Daily person trip rates by purpose, by sample type and survey method

	Avg. per person 5+	HB-W	HB-S	HB-D	N-HB
Survey Total	**2.14**	**0.54**	**0.30**	**1.00**	**0.30**
Survey method					
Phone	1.83	0.31	0.14	1.07	0.31
Online personal computer (PC)	2.16	0.55	0.30	1.02	0.30
Online mobile device	2.14	0.61	0.34	0.90	0.28
Mixed mode (online/phone)	2.17	0.48	0.28	1.11	0.30
Sample type					
Address-and-phone	2.05	0.51	0.27	0.99	0.27
Address-only	2.19	0.56	0.31	1.00	0.31
Other (e.g., volunteer)	2.58	0.72	0.25	1.20	0.41

HB-D = home-based discretionary HB-W = home-based work HB-S = home-based school
N-HB = non-home-based (both origin and destination are other than home)

Shading highlights cells values that are higher (blue) or lower (pink) compared to others in the same column. The intensity of the shading increases as the value approaches the highest or lowest value.

2.8.7 Trip Rates by Purpose by Major Geography

Table 17 summarizes trip rates by purpose, by major geography. Sample sizes and maximum margins of sampling error are listed for context. Results with higher sampling errors should be interpreted with caution and will have broader confidence intervals.

Observations can be made by trip purpose:

- HB-W daily trip rates are lower in the GTHA than outside (0.53 trips and 0.59 trips respectively). Within the GTHA, HB-W trips generally define a relatively small range, although the rates vary between and within municipalities, with rural areas having higher rates than urbanized areas. Halton Region as a whole has a lower rate than the other upper-tier municipalities, at 0.49 trips. Outside the GTHA, rates also vary between and within municipalities, though less so between rural and urbanized areas, with HB-W trip rates slightly higher in communities outside Niagara and Waterloo regions.
- HB-S daily trip rates are slightly higher in the GTHA than outside (0.30 trips and 0.28 trips respectively). Within the GTHA, rates in the City of Toronto and parts of Hamilton are lower than those in Durham, York, Peel and Halton. HB-S rates in Waterloo, Guelph and Orangeville are comparable to those of these four regions, while Niagara and the remaining areas outside the GTHA are closer to Toronto's rates.
- HB-D daily trip rates are slightly lower in the GTHA than outside (0.99 trips and 1.05 trips respectively). Rates are highest in PD1 and PD2 in Toronto and Halton Region, but then vary within and outside the GTHA.
- N-HB daily trip rates are moderately lower in the GTHA than outside (0.28 trips and 0.35 trips respectively). Rates are higher in PD1 and PD2, Hamilton, Niagara, Waterloo, small and medium sized communities outside the GTHA, and several rural / low density areas within and outside the GTHA.

To sum, the variability between and within municipalities and between rural and urbanized areas of different densities precludes the identification of overarching patterns.

Table 17. Daily person trip rates by purpose, by major geography

	Sample size (n persons 5+ surveyed)	Sampling error (±%) ‡	Avg. per person 5+	HB-W	HB-S	HB-D	N-HB
Survey Total	**354,452**	**0.2%**	**2.14**	**0.54**	**0.30**	**1.00**	**0.30**
GTHA	**267,158**	**0.3%**	**2.10**	**0.53**	**0.30**	**0.99**	**0.28**
Non-GTHA	**87,294**	**0.5%**	**2.28**	**0.59**	**0.28**	**1.05**	**0.35**

	Sample size (n persons 5+ surveyed)	Sampling error (±%) ‡	Avg. per person 5+	HB-W	HB-S	HB-D	N-HB
Toronto	**106,066**	**0.4%**	**2.09**	**0.53**	**0.27**	**1.00**	**0.29**
PD 1: very high/high density (97%: 74% very high, 23% high)	13,278	1.1%	2.26	0.59	0.17	1.13	0.36
PD 2,6: predominantly high/very high density (>89%)	18,472	1.1%	2.33	0.54	0.28	1.18	0.34
PD 3,4,7: large majority high/very high density (70% to 76%)	21,964	0.9%	2.17	0.53	0.28	1.04	0.31
PD 5, 11,12,16: majority high/very high density (59% to 66%)	24,001	0.9%	1.98	0.49	0.28	0.95	0.26
PD 9,10,13,14: mixed (46%-58% high/very high density)	17,406	1.1%	1.81	0.54	0.31	0.76	0.21
PD 8,15: majority medium/low density (61%-63%)	10,945	1.3%	2.15	0.52	0.29	1.04	0.30
Durham	**25,207**	**0.8%**	**2.20**	**0.53**	**0.33**	**1.03**	**0.31**
Durham: Ajax, >40% high density	4,334	2.0%	2.07	0.49	0.35	0.96	0.26
Durham: majority medium density (Pickering, Whitby, Oshawa)	14,967	1.1%	2.20	0.52	0.34	1.04	0.30
Durham: mix of medium, low density (Brock, Uxbridge, Scugog, Clarington)	5,906	1.7%	2.30	0.57	0.28	1.08	0.38
York	**44,933**	**0.6%**	**2.06**	**0.51**	**0.32**	**0.96**	**0.26**
York: 22%-24% high density (Richmond Hill, Markham, Vaughan)	33,699	0.7%	2.00	0.49	0.32	0.94	0.24
York: medium density (Newmarket, Whitchurch-Stouffville, Aurora)	7,259	1.5%	2.21	0.52	0.34	1.05	0.30
York: low density (Georgina, East Gwillimbury, King)	3,975	2.0%	2.22	0.60	0.29	0.97	0.36
Peel	**48,554**	**0.6%**	**1.93**	**0.54**	**0.32**	**0.85**	**0.22**
Caledon (urban fringe, rural, some urban core; low/medium density)	2,774	2.5%	2.03	0.62	0.33	0.81	0.27
Brampton (urban core, medium/high density)	19,038	1.0%	1.85	0.57	0.33	0.75	0.20
Mississauga (urban core, medium/high density)	26,742	0.8%	1.99	0.50	0.30	0.95	0.24
Halton	**21,724**	**0.9%**	**2.28**	**0.49**	**0.35**	**1.14**	**0.30**
Halton: medium/high density (Milton, Oakville, Burlington)	19,437	0.9%	2.28	0.48	0.36	1.14	0.30
Halton: mix of secondary urban core, urban fringe, rural (Halton Hills)	2,287	2.8%	2.30	0.59	0.29	1.11	0.30
Hamilton	**20,674**	**0.9%**	**2.32**	**0.57**	**0.29**	**1.10**	**0.35**
Hamilton Area, 44% high density	12,251	1.2%	2.32	0.58	0.27	1.10	0.37
Other Hamilton Areas, <12% high density (Flamborough, Dundas, Ancaster, Glanbrook, Stoney Creek)	8,423	1.4%	2.31	0.56	0.33	1.10	0.32
Niagara	**16,950**	**1.1%**	**2.29**	**0.57**	**0.26**	**1.09**	**0.37**
Niagara: >55% medium or high density (St. Catherines, Niagara Falls, Thorold, Welland)	10,848	1.4%	2.31	0.58	0.27	1.08	0.38
Niagara: >48% low density, mostly secondary urban core (Grimsby, Pelham, Port Colborne, Lincoln, Fort Erie)	4,621	2.0%	2.25	0.56	0.25	1.11	0.34
Niagara: majority rural and urban fringe (Niagara-on-the-Lake, West Lincoln, Wainfleet)	1,481	3.4%	2.23	0.48	0.22	1.17	0.35

	Sample size (n persons 5+ surveyed)	Sampling error (±%) ‡	Avg. per person 5+	HB-W	HB-S	HB-D	N-HB
Waterloo	**21,979**	**0.9%**	**2.35**	**0.58**	**0.34**	**1.09**	**0.35**
Waterloo	4,835	1.8%	2.38	0.49	0.40	1.15	0.34
Kitchener	9,512	1.3%	2.37	0.59	0.32	1.11	0.36
Cambridge	4,933	1.8%	2.29	0.63	0.31	1.02	0.32
Waterloo: Urban core, >62% medium density (Waterloo, Kitchener Cambridge)	**19,280**	**0.9%**	**2.35**	**0.57**	**0.34**	**1.09**	**0.35**
Waterloo: Outside main urban core, >67% low density (North Dumfries, Wilmot, Wellesley, Woolwich)	**2,699**	**2.4%**	**2.38**	**0.64**	**0.34**	**1.02**	**0.38**
Non-GTHA other urban cores (Brantford, Guelph, Barrie)	**15,175**	**1.1%**	**2.33**	**0.65**	**0.29**	**1.04**	**0.35**
Guelph	5,701	1.7%	2.41	0.64	0.33	1.11	0.33
Barrie	5,656	1.8%	2.26	0.64	0.29	1.00	0.33
Brantford	3,818	2.2%	2.32	0.70	0.25	0.99	0.39
Non-GTHA other secondary urban cores (Orangeville, Orillia, City of Peterborough)	**5,576**	**1.9%**	**2.28**	**0.57**	**0.28**	**1.09**	**0.33**
Orangeville	1,093	4.0%	2.23	0.64	0.32	1.02	0.24
Peterborough City	3,320	2.4%	2.30	0.56	0.29	1.09	0.36
Orillia	1,163	4.3%	2.25	0.54	0.23	1.13	0.35
Regions with mix of rural, secondary urban core, urban fringe, population centre outside CMA/CA	**20,400**	**0.9%**	**2.20**	**0.60**	**0.26**	**0.98**	**0.36**
Wellington†	2,545	2.5%	2.36	0.66	0.30	1.02	0.37
Simcoe	12,114	1.2%	2.19	0.59	0.26	0.99	0.35
Brant	1,371	3.6%	2.26	0.66	0.28	0.99	0.34
Northumberland	3,192	2.5%	2.12	0.55	0.20	1.04	0.34
Grey	3,023	2.5%	2.16	0.57	0.24	0.95	0.40
Majority rural (57% to 81%) (Kawartha Lakes, Peterborough County, Dufferin, The Blue Mountains)	**7,214**	**1.7%**	**2.15**	**0.57**	**0.21**	**1.01**	**0.37**
Kawartha Lakes	1,835	3.2%	2.12	0.59	0.20	0.94	0.38
Peterborough County†	1,859	3.2%	2.27	0.61	0.24	1.02	0.39
Dufferin	1,347	4.0%	2.06	0.58	0.29	0.83	0.36
The Blue Mountains	328	6.9%	2.05	0.39	0.15	1.13	0.38

HB-D = home-based discretionary HB-W = home-based work HB-S = home-based school
N-HB = non-home-based (both origin and destination are other than home)

‡ Maximum margin of sampling error at a 95% confidence level taking into account the effects of data weighting on effective sample size (19 times out of 20, a survey result with a response proportion of 50% will be within ± the sampling error). The persons 5+ sample size and sample error have been provided for context and to flag geographies with more and less reliable results. Yellow/orange shading highlights margins of sampling error that are higher. The intensity of the shading increases as value approaches the highest level of sampling error.

Shading highlights cells values that are higher (blue) or lower (pink) compared to others in the same column. The intensity of the shading increases as the value approaches the highest or lowest value.

† The TTS surveys only a portion of Wellington and Peterborough counties.

2.9 Discussion of Attributes in Trip Generation

This chapter has examined daily trip rates according to a variety of attributes. Several themes emerge:

- Urban form and population density provide meaningful ways to differentiate trip rates. These geographical categorizations complement and provide more detail to jurisdictional geographies. The inner core (PD1), highest-density parts of the survey area have the lowest overall daily household- and person-trip rates, along with smaller household sizes. Daily household- and person-trip rates are highest in rural or predominantly low-density areas, with higher household sizes. Note that these apparent relationships vary – for example, Brampton has the highest average household size with a relatively high household trip rate; however, Brampton also has the second-lowest average person-trip rate.
- The GTHA's daily person-trip rate is lower than that of non-GTHA residents. Looking at urban form, the main reason for this is that Toronto and the high-density parts of Peel and York Regions, with their high proportion of the population, draw down the GTHA's daily trip rate.
- Survey (sample) type has little influence on trip rates, although a small proportion of volunteer participants (0.4%) record significantly higher sustainable mode person trip rates than the average, and correspondingly significantly lower auto trip rates - suggesting that these participants are motivated to participate by their interests in sustainable transportation.
- The vast majority of participants completed the survey online. Only 5% completed the survey by phone: their lower daily person trip rates suggest that other characteristics, like status (retirees or seniors), were the determining factor as opposed to survey method.
- More than half (53%) of household members are workers and more than half of these (55%) take a work trip outside the home.
- Household size, dwelling type, household type (number of adults and children), household income, worker group (number of workers), vehicle availability and trip day (day of week) influence daily household- and person-trip rates. Survey month also influences trip rates, although to a lesser degree. Many of these characteristics are co-related.
- Modal trip rates vary by urban form and population density, as well as by household size, number of workers, vehicle availability and household income.
- Auto driver trip rates per person are highest for men+, working-age adults (35-59 years old) and workers, among other characteristics. Auto passenger trip rates are largely, though not

exclusively, complementary to auto driver trip rates – for example, children too young to drive. The use of sustainable modes (transit, bike and micromobility and walk) is highest among very young children, students and people who are not employed or who work from home, among other characteristics.

- Although auto driver dominates trip generation rates in all geographies and population densities, the rate is lowest in large urban cores and in high-density areas. In these areas, the use and share of sustainable modes is higher and dominates trip generation in the highest-density areas (15,000 or more people per square kilometre). However, in large urban cores and in high-density areas, the high sustainable mode trip rates are not enough to offset the low auto driver trip rates, thereby yielding low daily person trip rates.
- Auto passenger trip rates increase with distance from large urban cores, though they drop in rural areas. Auto passenger trip rates vary by density, although they drop significantly in high-density areas – consistent with the greater use of sustainable modes.
- The use of other modes is highest as distance from large urban core increases and as population density decreases. One factor might be a greater use of school buses, to serve large suburban and rural households.
- When measured by trip purpose, for home-based work (HB-W), person trip rates are highest for households that have more workers and more adults, as well as higher incomes, among other characteristics. For home-based school (HB-S) trips, the highest trip rates are associated with larger household sizes (i.e., more student-aged household members), larger dwelling types, and higher-income households, among other characteristics.
- While the factors that underlie these two non-discretionary purposes may seem intuitive, the highest trips rates for home-based discretionary (HB -D) trips are tied to smaller households, households with no workers, high income households and households with 1 vehicle – suggesting some overlap with retirees in smaller households. The highest non-home based (N-HB) trip rates are associated most evidently to smaller households: ties to other characteristics are similar to those of HB-D trips, though the linkages are not as strong.
- Primary survey respondents have higher overall daily trip rates than the proxies for whom they are reporting. This is true for adults and for children (for the latter, noting that only 16- or 17-year-olds could serve as primary respondents). However, varying trip rates can be observed by mode and by trip purpose, even accounting for intuitive considerations like high auto driver rates among primary adult respondents possibly reflecting those individuals' status as workers, and the high auto passenger, walk, and other mode trip rates among proxy children consistent with their ineligibility to drive.

- Men+ and women+ have the same rates of HB-S and N-HB trips for all ages, but have different age profiles for the H-BW and H-BD trip rates.
- HB-W trip rates are highest for men+ and workers, among other characteristics. HB-S trip rates are highest among K-12 students, among other characteristics. While these characteristics may be intuitive for non-discretionary purposes, HB-D trip rates are highest among women+, people who work from home, and people who are neither employed nor are students, among other characteristics. N-HB trip rates are highest among gender-diverse individuals, adults 30-79, workers, and part time post-secondary students, among other characteristics.
- Activity for work tours can be compared to those of HB-W. Whereas HB-W concerns only the trip from home to work or from work to home, a work tour is the set of trips made by workers, starting at the home enroute to the workplace then back to home again, and including stops in between. Looking at the work tour enables an understanding of how workers' choice of a commuting mode depends on the intervening activity. Though measured in different ways (mode shares for work tours, trip rates for HB-W), the modal choices are broadly consistent between the two measures, though their proportions may differ.
- GO Rail is important to workers' trips, with GO Rail comprising 12% of all transit trips (4% jointly with local transit).
- Holding a transit pass does not necessarily mean that the pass is used: the transit share among workers who make a trip is 54%, with their auto driver share at 28%. Among holders of a driver's licence, 80% drive and 10% use transit. Note that 8% of workers with a trip to work on the survey day hold a transit pass, while 92% of these workers have a driver's licence.[12]
- Trip rates by day of week tend to be slightly higher for Tuesdays, Wednesdays and Thursdays, coincident with personal vacation days and work from home days being more closely associated with the weekend (Mondays or Fridays).
- Trip rates by month show some variance, although these tend to be linked to warm or cold weather activity, whether school is in session and so on.
- Trip rates vary by immigration status, although the trip rates for long-standing immigrants (people who have been in Canada for more than 15 years) tend to be similar to people who were born in Canada or who were Canadian citizens at birth.

[12] The degree of overlap between pass holders and licensees is not tabulated.

- Trip rates vary by ethnicity, with the highest rates associated with people who identify as Canadian, American and/or European. In some cases, individuals who identify as Indigenous also have high trip rates.
- There is little variance in trip rates by sample type (address-and-phone and address-only). However, a small number of respondents participated voluntarily. Their daily trip rate is significantly greater than the other sample types, with high sustainable mode trip rates and low auto trip rates. This suggests that volunteers' participation in the survey was likely motivated by their interest in sustainable transportation.
- Trip rates are lowest among individuals who submitted their surveys by phone, compared with those who respondents online. This is consistent with the preference of older participants to respond by telephone. Their lower trip rates for all modes, coupled with the low incidence of workers in their households, suggest that many of those respondents are retirees, seniors, unemployed people, or others who do not travel extensively. In contrast, younger or working-age respondents tend to prefer online devices for their responses.

3. TRIP GENERATION RATES OVER TIME

3.1 Comparisons of Key Trends/Attributes

This section discusses trends in key household and demographic indicators that can affect trip generation, as well as changes in trip generation rates by various attributes.

3.1.1 Changes in TTS Coverage over Time

It is important to note that the TTS coverage area has changed over time. Table 18 lists the participating jurisdictions in each TTS cycle. The initial TTS cycles in 1986 and 1991 were initiated by government agencies in the Greater Toronto and Hamilton Area (GTHA) and the area of coverage reflected that initiative. However, because of the growing urban transportation interaction between the GTHA and the surrounding areas, other surrounding communities were invited to participate in later surveys.

Table 18. Participating jurisdictions, 1986 – 2022

Cycle	1986 TTS	1991 TTS	1996 TTS	2001 TTS	2006 TTS	2011 TTS	2016 TTS	2022 TTS
GTHA								
City of Hamilton	•	•	•	•	•	•	•	•
City of Toronto	•	•	•	•	•	•	•	•
Regional Municipality of Durham	•	•	•	•	•	•	•	•
Regional Municipality of Halton	•	•	•	•	•	•	•	•
Regional Municipality of Peel	•	•	•	•	•	•	•	•
Regional Municipality of York	•	•	•	•	•	•	•	•
Non-GTHA								
City of Kawartha Lakes			•	•	•	•	•	•
City of Barrie			•	•	•	•	•	•
City of Brantford					•	•	•	•
City of Guelph			•	•	•	•	•	•
City of Orillia				•	•	•	•	•
City of Peterborough			•	•	•	•	•	•
County of Brant						•	•	•
County of Dufferin					•	•	•	•
County of Peterborough			p	p	p	p	p	p
County of Simcoe			p	•	•	•	•	•
County of Wellington			p	p	p	p	p	p
Regional Municipality of Niagara			•	•	•	•	•	•
Regional Municipality of Waterloo			•		•	•	•	•
Town of Orangeville			•	•	•	•	•	•
Northumberland County								•
Grey County								•
The Town of The Blue Mountains								•

• = full geographic coverage, p = part of jurisdiction covered

While the study area geography has increased considerable in terms of square kilometres covered, the population scope has been relatively stable for the survey years presented in this discussion – meaning that meaningful comparisons can be made. The very modest changes in total population covered may contribute to differences from cycle to cycle, however the overall results should still be generally comparable, and many specific trends should still be apparent despite this noise in the compared results.

- The 2006 TTS included areas with 2.4% more population than if the 1996 geographies had been used (with the addition of the cities of Brantford and Orillia and the county of Dufferin).
- The 2011 TTS included areas with 0.4% more population than if the 2006 geographies had been used (with the addition of the County of Brant).
- The 2016 TTS had the same definition as 2011.
- The 2022 TTS included areas with 2.0% more population than if only the 2016 geographies had been used (with the addition of the counties of Grey and Northumberland and the town of The Blue Mountains).

Accordingly, it is reasonable to make study-area wide comparisons. However, where appropriate, findings are presented on a per-capita or per-household basis where appropriate. For certain characteristics where the new population additions have significantly different profiles (e.g., if there were more retired persons and fewer working persons or families), the changes to the geography could contribute to year-over-year differences in per-capita or per-household averages.

3.1.2 Trends in Key Household and Demographic Indicators

This discussion examines changes in key household and demographic indicators, beginning in 1996.

Figure 22 and Figure 23 show key household-level and demographic indicators, respectively. It can be seen that the average household size has dropped since 1996 (with a slight increase in 2011). In the meantime, the average number of workers, which rose through 2016, has now dropped to 1996 levels. Measured per capita, the average number of workers has dropped back to 2011 levels after rising slightly in 2016.

The vehicle availability rate has remained stable since 2011. However, the average number of drivers has risen, after a slight drop in 2016. The average number of licensed drivers per eligible population (persons 16+) has increased slightly, after remaining stable through 2016. In other words, even though average household sizes and numbers of workers have dropped, more household members are drivers. Overall, vehicle availability per licensed driver has dropped slightly in 2022, to 0.82 vehicles per driver. However, vehicle availability per worker has risen slightly in 2022, to 1.10 vehicles per worker (i.e., on average there continues to be more than one

vehicle available per worker). Finally, the average number of transit pass holders has reverted to 2006 levels (approximately), following increases in 2011 and 2016: note that this reduction might reflect changes in transit use but also people who have switched from monthly transit passes to pay-as-you-go payment systems, like PRESTO.

Figure 22. Key household indicators, TTS Study Area, 1996-2022

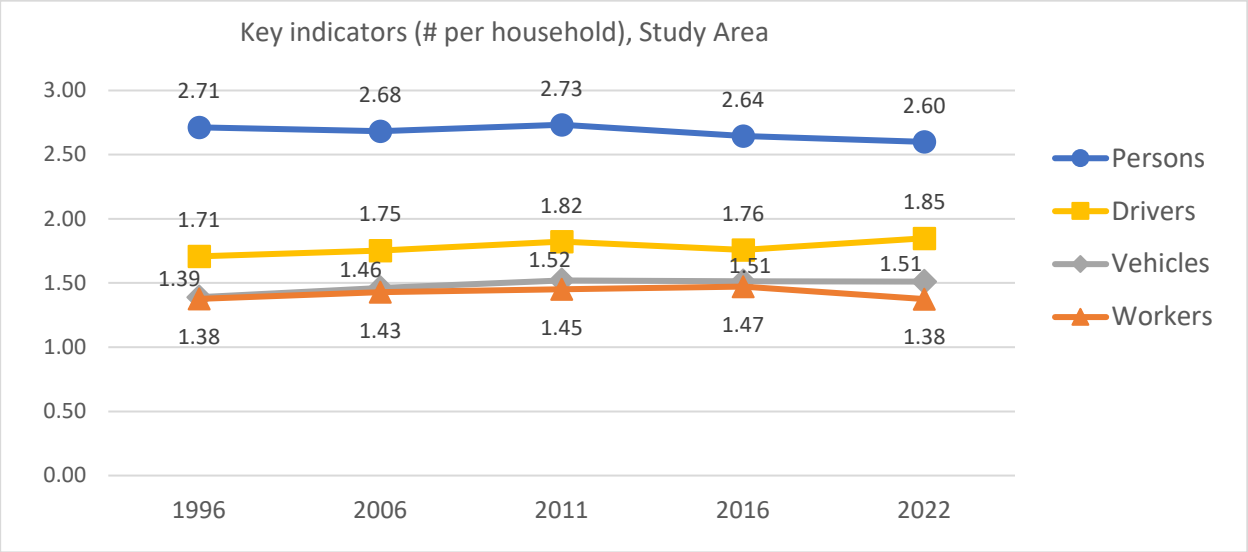


Figure 23. Key per capita indicators, TTS Study Area, 1996-2022

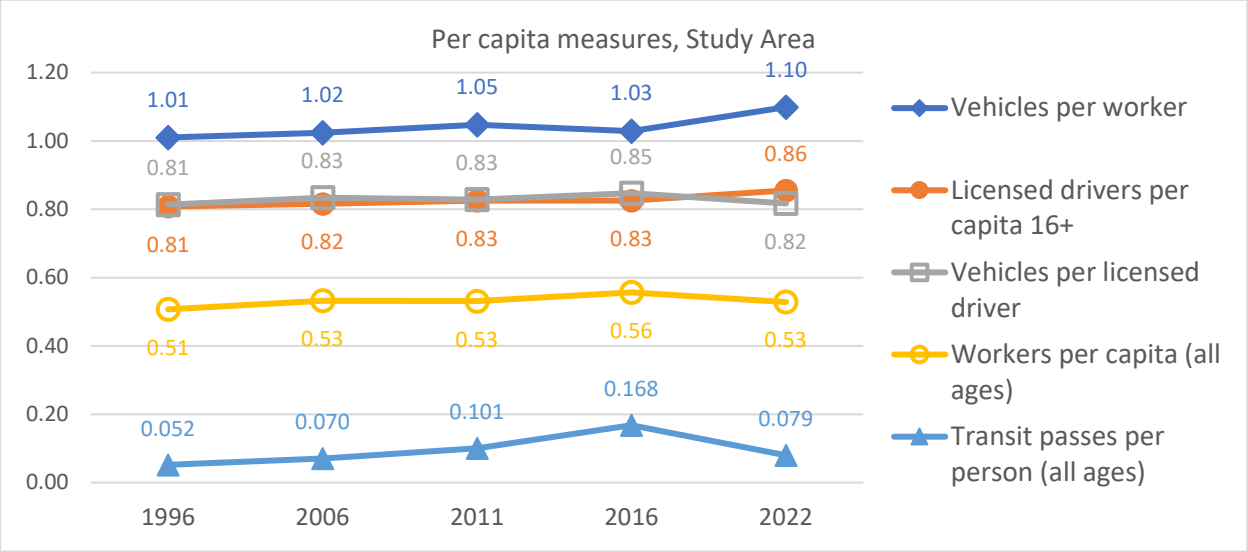
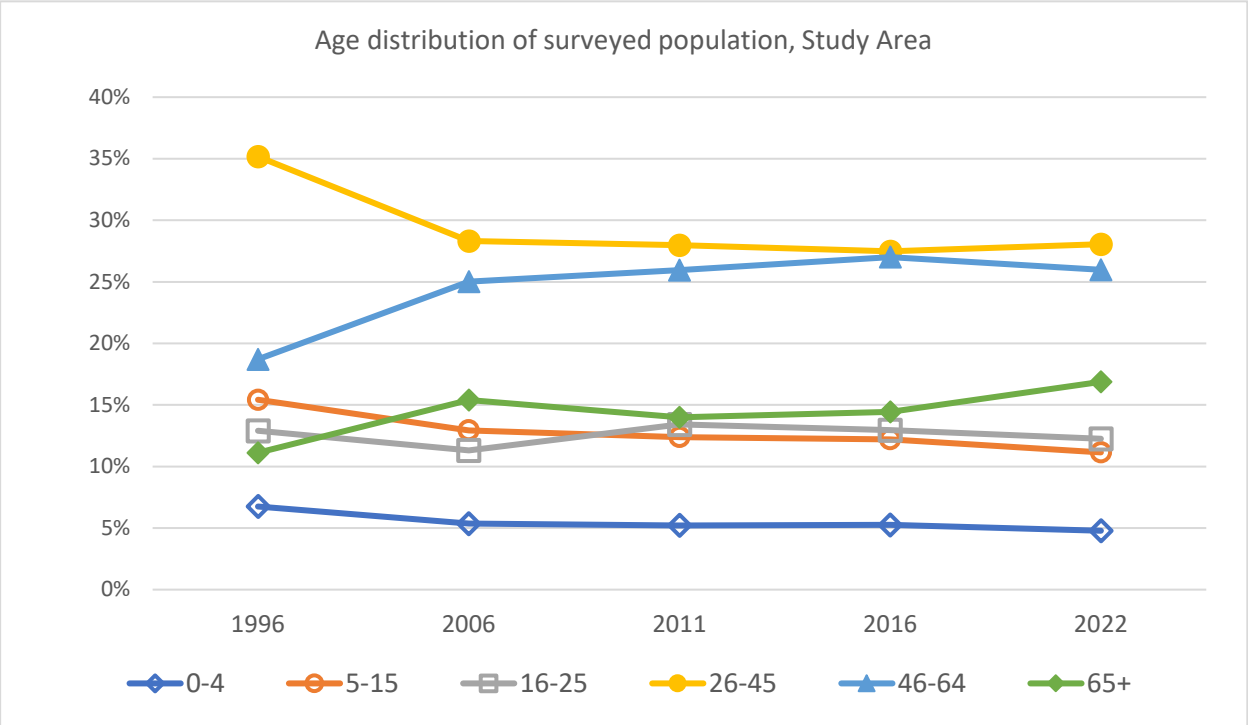


Figure 24 (age distribution) shows that, although the population has grown, the proportion of children and young adults has dropped slightly, as has the older working age cohort (46-64 years) after moderate growth to 2016. However, the proportion of the younger working age cohort (26-45 years) has grown slightly since 2016. Only the 65+ cohort has grown, slightly to 2016 and moderately faster to 2022. Potential impacts include reduced work and school trips and increases in other, discretionary purposes.

Figure 24. Age distribution of surveyed population, 1996-2022



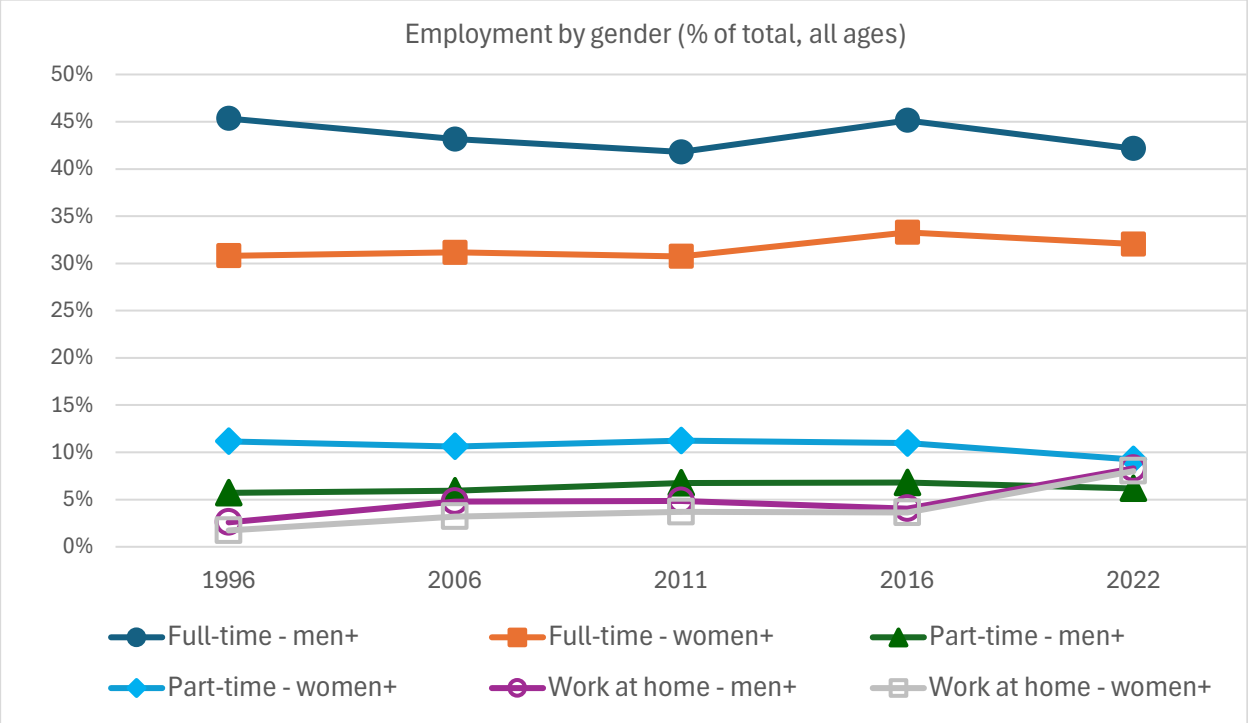
Weighted survey results for all survey cycles. Note that data weighting by age group was undertaken in the 2011, 2016, and 2022 surveys, but not for the 1996 and 2006 surveys (when responses rates were much higher, cell-phone-only households were much fewer, and the samples could be relied on to be more representative of the population as a whole before the application of data weighting.)

Figure 25 profiles employment by gender, as a percent of total employment. While the proportion of full-time work remains the largest single employment category for both men+ and women+, the proportions have dropped slightly for both genders following an increase to 2016. Proportions of part-time work have similarly dropped for both genders: a slight drop for females+ since 2016 but a continued slight drop for males+ since 2011.

The proportional losses in full- and part-time employment can be attributed to gains in people who work at home. For both genders, the rate has more than doubled since 2016.

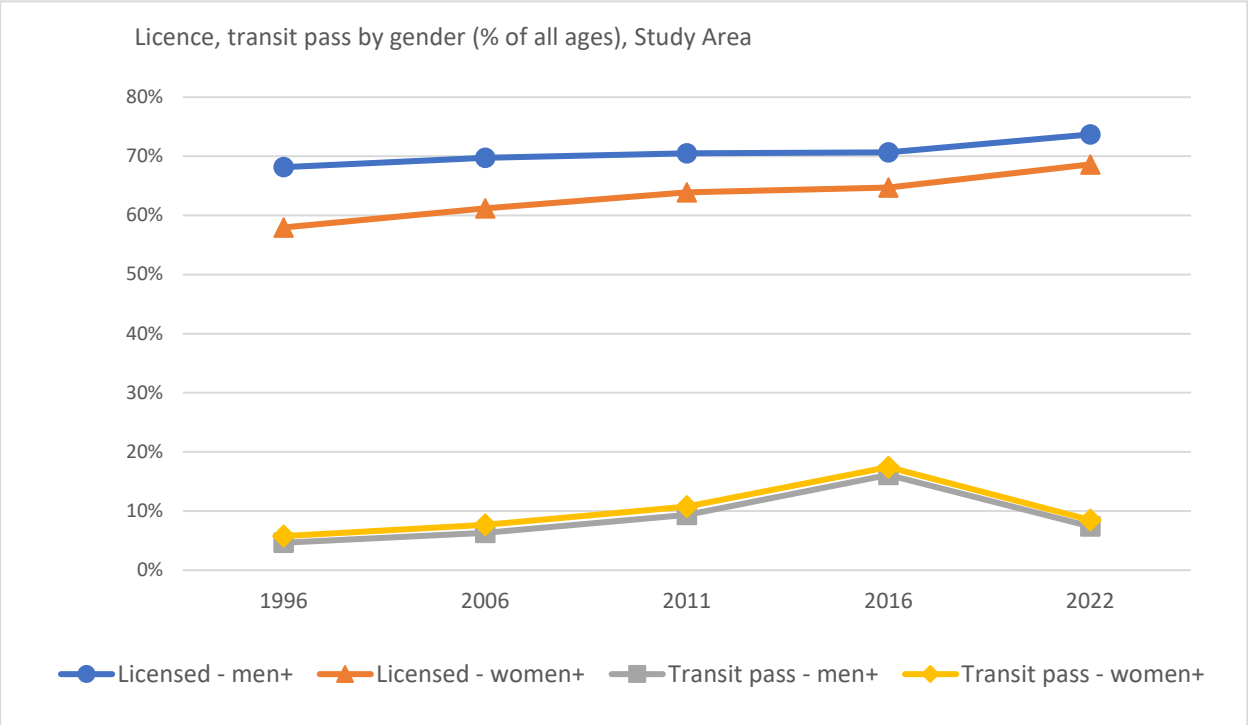
In all cases, male+ proportions continue to exceed those of female+ workers, though only marginally for people who work at home.

Figure 25. Employment by gender (% of Total), TTS Study Area, 1996-2022



Finally, Figure 26 profiles driver's licence and transit pass rates by gender, as a percent of all ages. Licensing rates continue to increase for all genders. The male+ rate continues to exceed that of females+, although the gap has been closing steadily. The transit pass rate for all genders continues to track closely, with the female+ rate marginally greater than that of males+: both rates show a significant drop since 2016, commensurate with Figure 23.

Figure 26. Driver's licence and transit pass rates by gender (% of all ages), TTS Study Area, 1996-2022



3.1.3 Trends in Travel

This section explores how trip rates vary by mode and by time of day. Figure 27 shows that daily trip rates have declined steadily since 1996, whether measured by household, person or worker (the latter referring to work trips per worker). The declines have been most pronounced since 2011 for households and since 2016 for persons and workers.

Notes that Figure 27 shows 2022 trip rates in two ways:

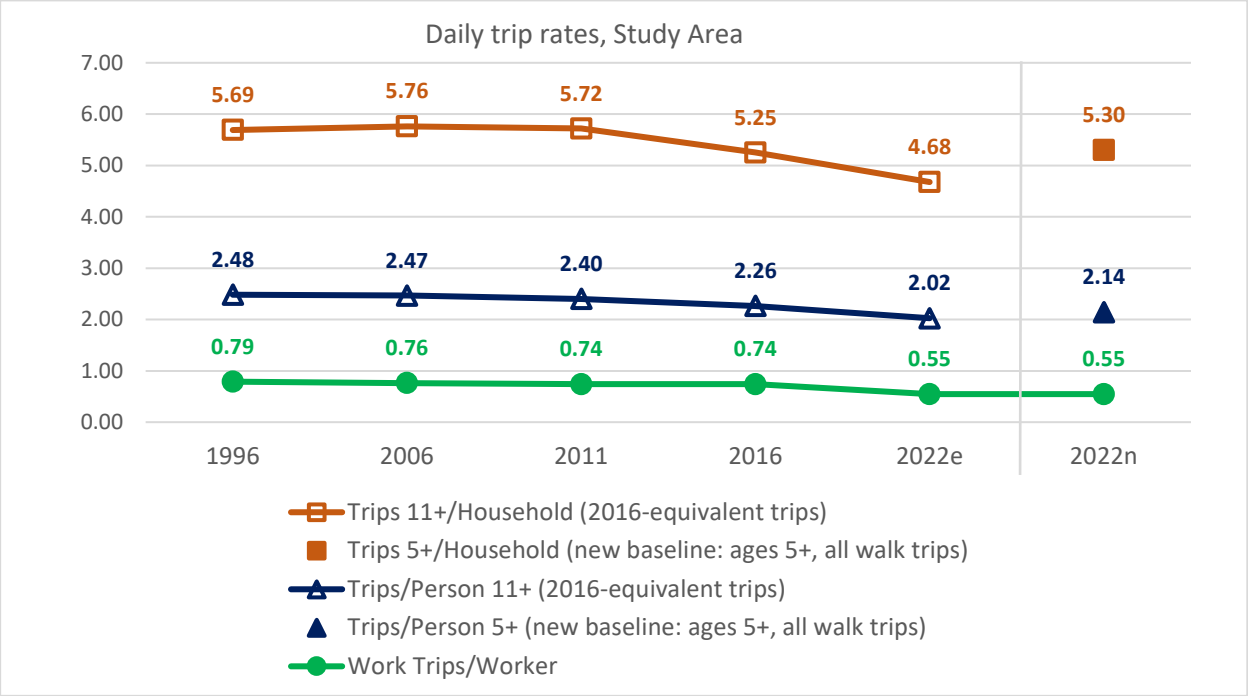
- 2022e (2022 equivalent): measures that filter 2022 data to the trip definition used for 2016 and earlier – specifically, including trips for persons 11+ years, and including walking trips

only if they are made for commutes to school or work or are essential links for trips made by other modes.

- 2022n (2022 new baseline): measures drawn from the total 2022 trip dataset, with no filters applied – specifically, including all trips for persons 5+ years and all walking trips. This application results in household and person trip rates that are greater than those for 2022e, which reflects the inclusion of trips made by the 5-10 age cohort. The work trips per worker rates are not affected by this inclusion.

This distinction is made only for Figure 27. The ensuing discussion and figures report only comparable trips (2022e) and do not report the new 2022 baseline.

Figure 27. Daily trip rates, TTS Study Area, 1996-2022



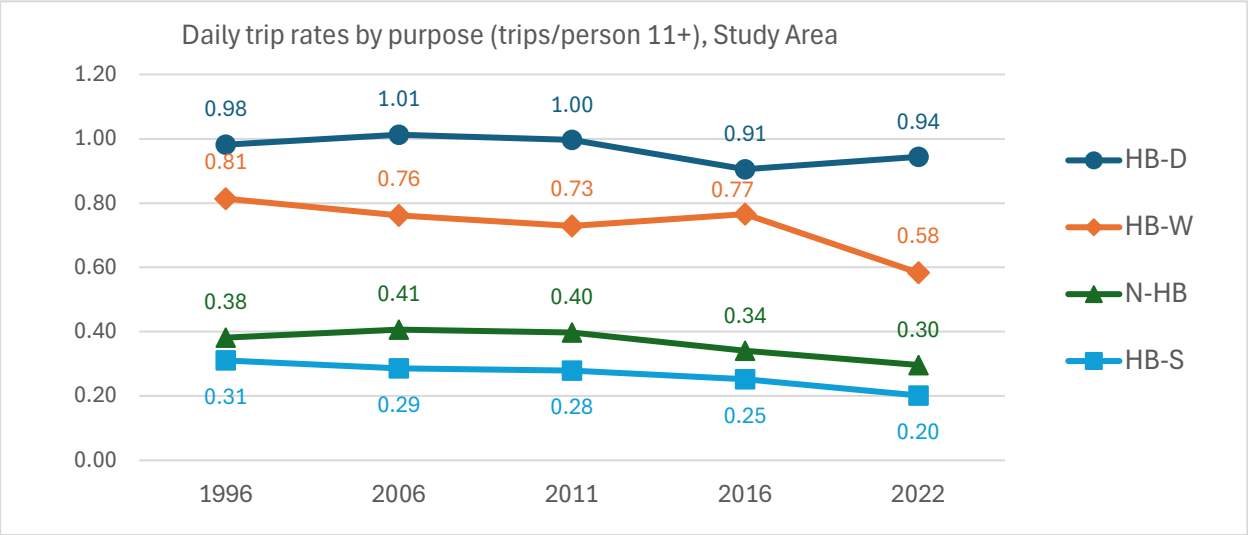
2022e = 2022 equivalent = measures with 2022 data filtered to the trip definition for 2016 and earlier TTS (trips for those 11+ years, includes walking trips only if they are for commutes to school or work or are essential links for trips via other modes).

2022n = 2022 new baseline = measures drawn from the total 2022 trip dataset, with no filtering (all trips for those 5+ years, all walking trips).

All other graphs from here on in only report comparable trips and do not report the 2022 new baseline

Figure 28 profiles how daily trip rates per person 11+ have changed by trip purpose.[13] It can be seen that trips rates for HB-W, HB-S and N-HB trips have generally declined over time, with HB-W trip rates showing a profound drop in 2022 (25%) after a slight increase in 2016. HB-D discretionary trip rates, which otherwise also had been declining over time, experienced a slight increase in 2022. The HB-W and HB-D changes are consistent with pandemic-induced shifts in trip purposes, with more people working at home and available, accordingly, to make more discretionary trips.

Figure 28. Daily trip rates by purpose (trips/person 11+), TTS Study Area, 1996-2022



HB-D = home-based discretionary HB-W = home-based work HB-S = home-based school
N-HB = non-home-based (both origin and destination are other than home)

[13] The four trip purposes are HB-W (home-based work), HB-S (home-based school), HB-D (home-based discretionary) and N-HB (non-home-based trips).

Figure 29 and Figure 30 show the evolution of daily person trips for auto drivers and for non-auto driver modes (auto passenger, transit, walk and cycle and other), respectively. The modes are presented in two separate figures for clarity, given the dominance of auto driver trip rates.

Notwithstanding this dominance, the auto driver trip rate has dropped steadily since 2006, with a 7% drop since 2016. This reduction is echoed by that in auto passengers, although the reduction largely levels out since 2016. Sustainable modal trip rates also drop following rises in 2016: while the walk and cycle trip rate drops only slightly to 2022, transit experiences a deeper decline of 39%, consistent with shifts to working from home and, seemingly, labour disruptions at some school boards.

Figure 29. Daily auto driver trip rate (trips/person 11+), TTS Study Area, 1996-2022

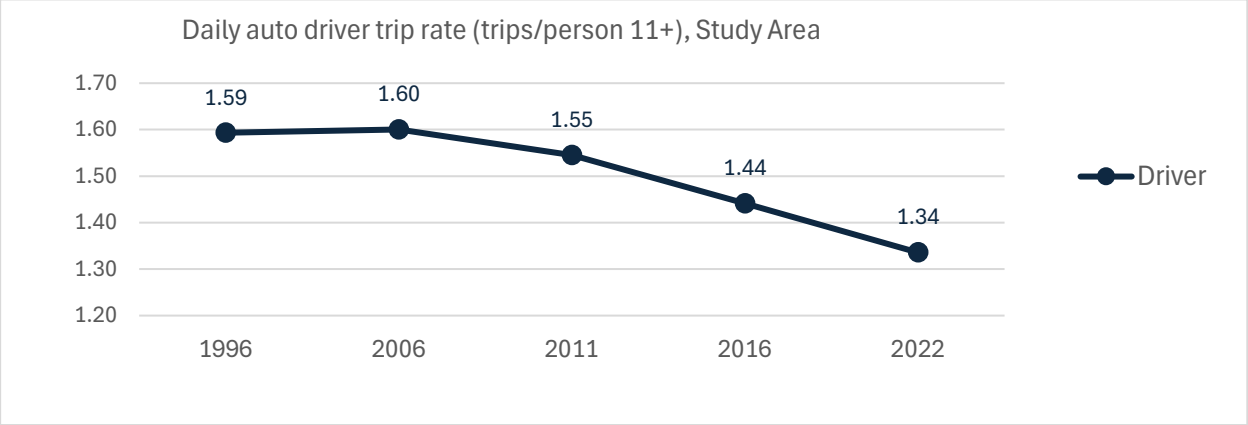


Figure 30. Daily trip rates by non-driver mode (trips/person 11+), TTS Study Area, 1996-2022

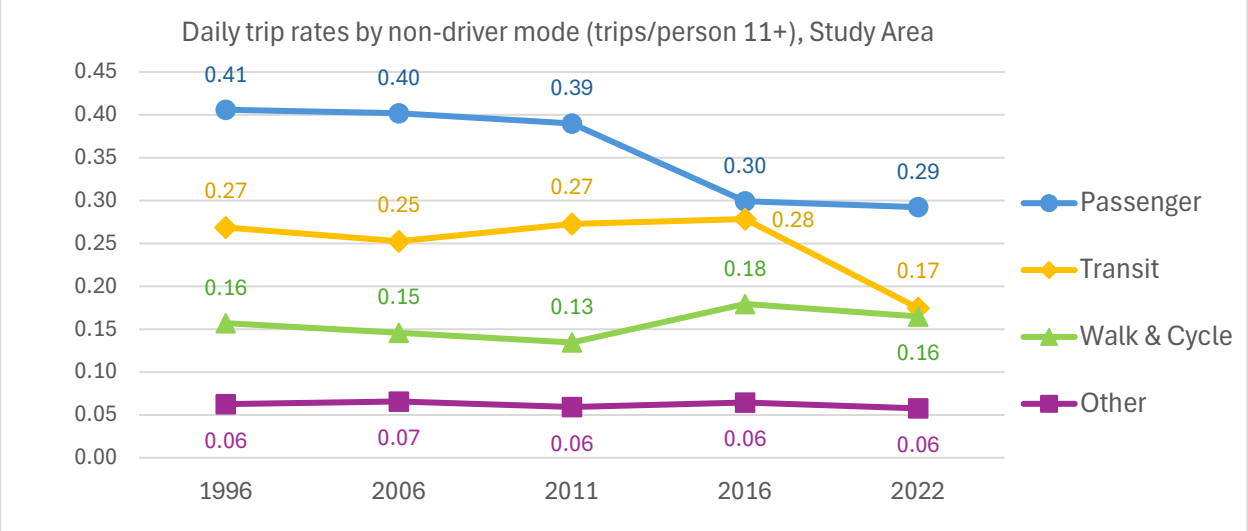
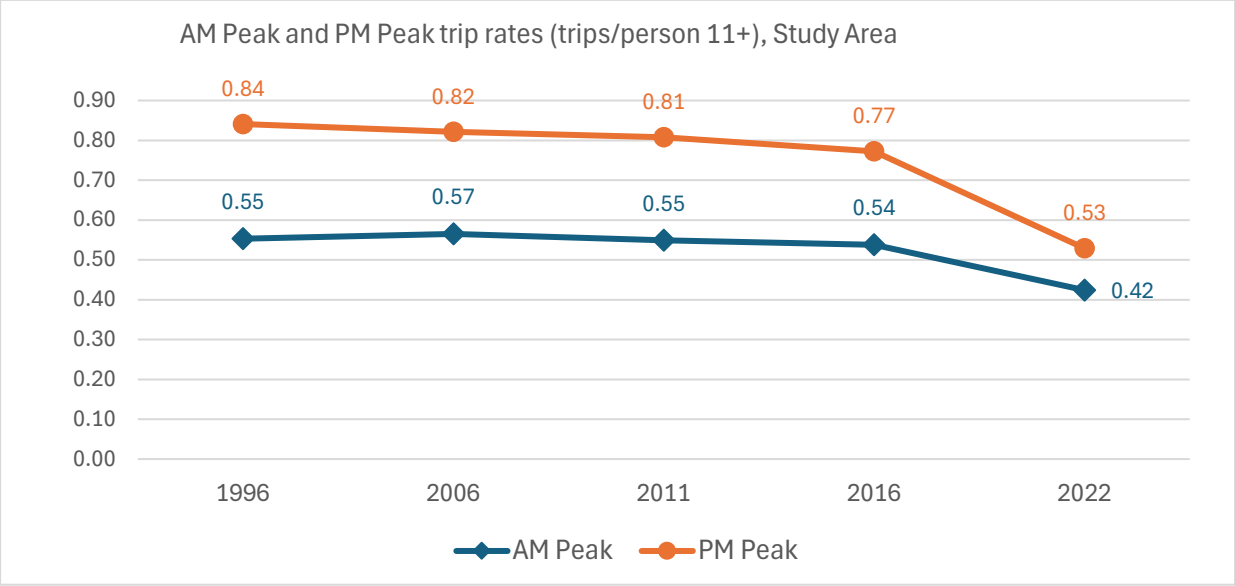


Figure 31 shows how trip rates per person 11+ have evolved for the AM and PM peak periods. The morning peak travel period is from 6:00 to 8:59 a.m. (3 hours) and the afternoon peak travel period is from 3:00 p.m. to 6:59 p.m. (4 hours). Rates for both periods have declined over time, moderately for the AM but only marginally for the PM. However, after 2016 the reductions are steep, with the AM trip rate experiencing a 33% reduction and the PM trip rate experiencing a 22% reduction. Though the AM trip rate has traditionally been higher than that of the PM (53% higher in 1996), its 2022 value (0.53 trips per person 11+) is now only 26% greater than that of the PM (0.42 trips per person 11+).

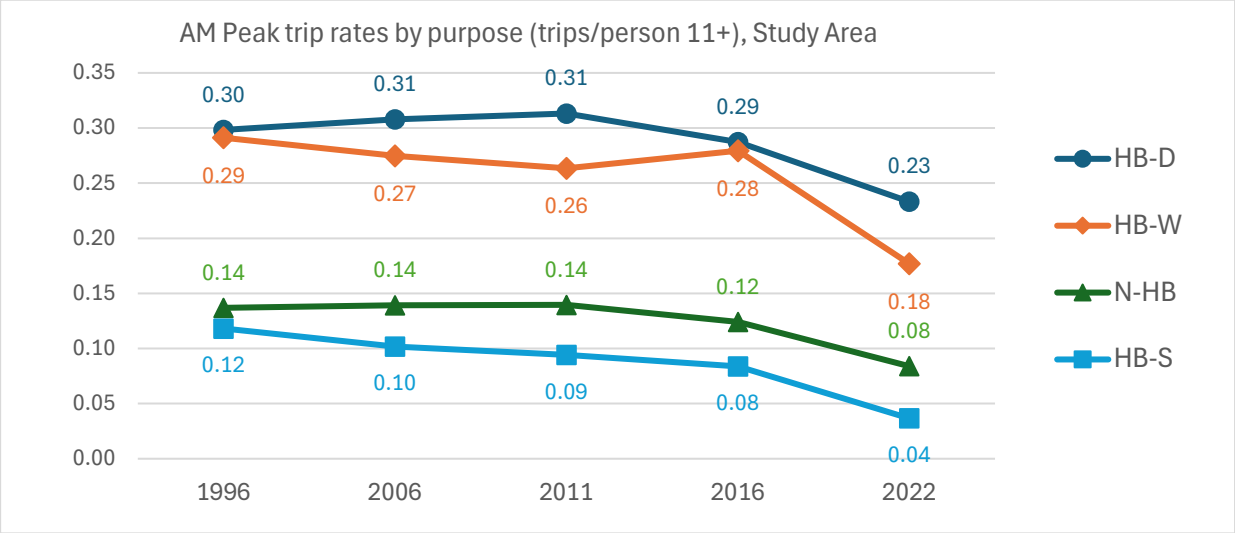
Figure 31. AM and PM peak period trip rates (trips/person 11+), TTS Study Area, 1996-2022



AM Peak = 6:00 to 8:59 a.m. (3 hours), PM Peak = 3:00 p.m. to 6:59 p.m. (4 hours)

The next three figures provide a deeper look into AM peak period rates. Figure 32 shows the evolution of trip rates per person 11+ for the four trip purposes. Through 2016, the AM peak period profiles largely echo those of the daily trip rates (Figure 28). However, after 2016, all four purposes show reductions, with HB-W dropping by 36%, HB-S by 50%, N-HB by 33% and HB-D by 21%. In other words, the non-discretionary trip rates (HB-W, HB-S and, largely, N-HB) drop more precipitously than the discretionary (HB-D) rate – again, consistent with the shift to working from home.

Figure 32. AM peak period trip rates by purpose (trips/person 11+), TTS Study Area, 1996-2022

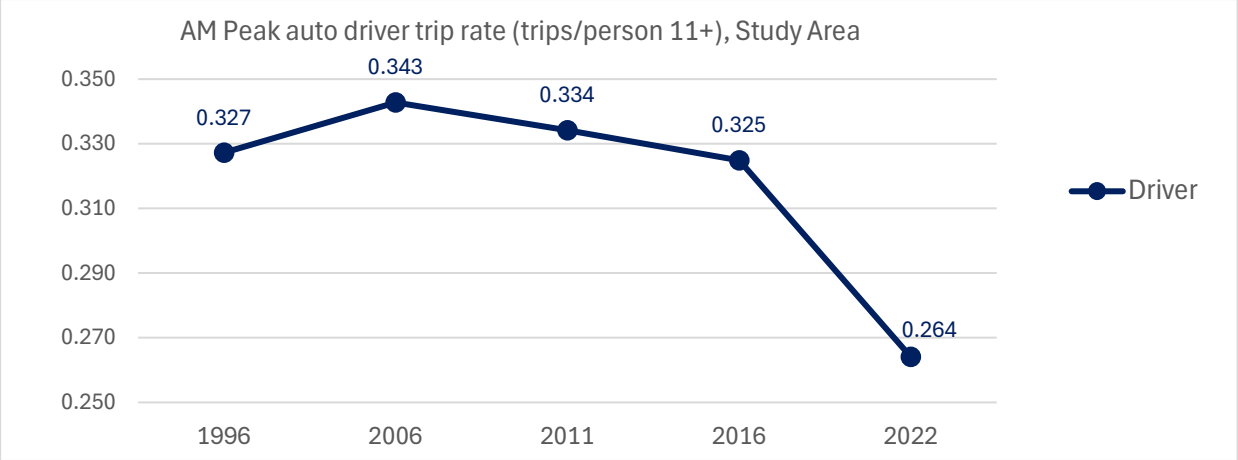


AM Peak = 6:00 to 8:59 a.m. (3 hours)

HB-D = home-based discretionary HB-W = home-based work HB-S = home-based school
N-HB = non-home-based (both origin and destination are other than home)

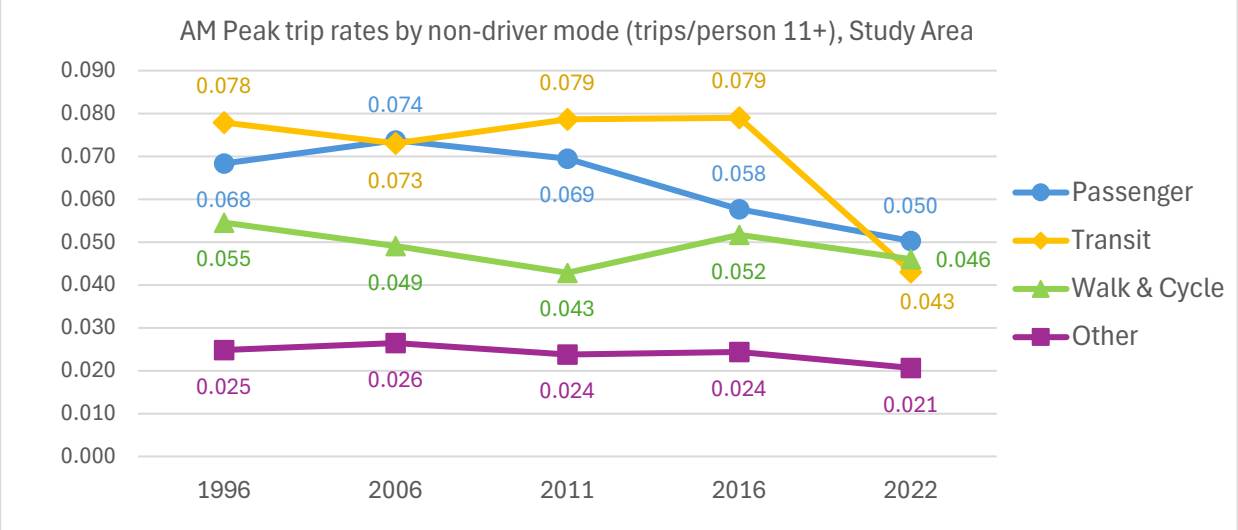
Figure 33 and Figure 34 show the evolution of AM peak period trip rates by auto driver and non-auto driver modes, respectively. The reductions echo those of the daily trip rates (Figure 29 and Figure 30); however, they are more pronounced. The auto driver rate drops by 19% (compared with 7% daily) and the transit rate by 46% (compared with 39% daily). The lesser drop in the transit rate reflects the concentration of transit use in the peak periods, while auto use is spread throughout the day.

Figure 33. AM peak period auto driver trip rate (trips/person 11+), TTS Study Area, 1996-2022



AM Peak = 6:00 to 8:59 a.m. (3 hours)

Figure 34. AM peak period trip rates by non-driver mode (trips/person 11+), TTS Study Area, 1996-2022



AM Peak = 6:00 to 8:59 a.m. (3 hours)

Finally, Figure 35 and Figure 36 profile the decline in transit pass holders. While the proportion of transit trips taken by transit pass holders declines by 7% after 2011, a 37% drop is observed after 2016. In the meantime, the number of transit trips by riders with no transit pass increases by 18% after 2011 and drops by only 3% after 2016. The drop in trips by transit pass holders is consistent with the shift to working from home - reflecting that regular, non-discretionary travel is more conducive to the use of transit passes than occasional travel, although the switch to pay-as-you-go payment systems might also be a factor, as noted above. In 2022, transit trips by non-pass holders are almost double (91%) those taken by pass holders – virtually reversing the situation in 2011 and 2016.

Figure 35. Percent of transit trips taken by transit pass holders, TTS Study Area, 1996-2022

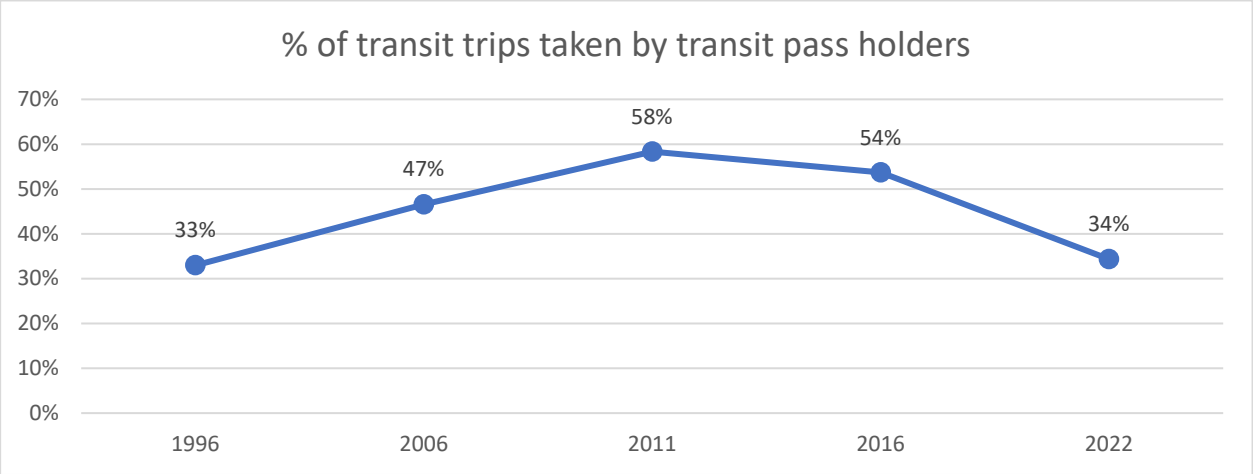
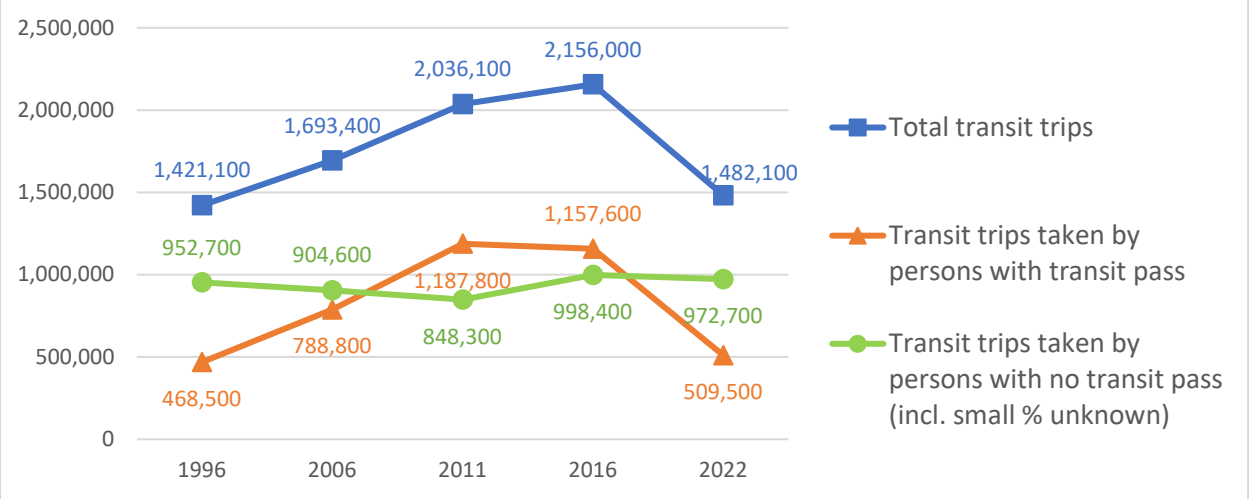


Figure 36. Daily number of transit trips by payment method, TTS Study Area, 1996-2022



3.2 Trip Generation Rates in Other Jurisdictions

Table 19 summarizes comparisons of TTS daily trip rates over time, with those from surveys in other Canadian and U.S. jurisdictions. Most of the cited surveys include surveys conducted after the pandemic lockdowns had been rescinded. It can be seen that the reductions in both person trip rates and household trip rates observed over time in the TTS are broadly consistent with experience in other jurisdictions, including both before and after the pandemic. However, the City of Vancouver's annual survey might offer some indication of how daily trip rates could evolve: while trip rates had been dropping gradually prior to the pandemic, the sharp pandemic-era drop has seen a continued rebound, although the most recent (2024) rate is still well below that of 2019.

Table 19. Comparison of TTS trip rates with other jurisdictions

City	Year of Survey	Daily Person Trip Rate	Daily Household Trip Rate	Population *
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
	1996	2.42	5.58	4,926,400
	1986	2.36	5.57	4,062,900
Québec-Lévis Region	2017	2.57	--	841,404
	2011	2.40	--	827,929
	2006	2.73	--	743,392
Greater Montréal Region **	2023	2.01	4.46	4,674,080
	2018	2.22	4.97	4,474,180
	2013	2.30	5.13	4,287,630
	2008	2.16	--	3,939,760
NCR (Ottawa-Gatineau)	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 of Kingston	2024	2.69	5.66	157,600
	2019	2.98	6.43	139,600

City	Year of Survey	Daily Person Trip Rate	Daily Household Trip Rate	Population *
Regina CMA	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	--	--
City of Burnaby	2024	2.28	5.26	555,200
Vancouver North Shore Municipalities ‡ (individuals 15+ years)	2023	3.12	--	200,400
	2021	3.13	--	196,360
	2019	3.66	--	189,390
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
	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	--	--

City	Year of Survey	Daily Person Trip Rate	Daily Household Trip Rate	Population *
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 sown were provided published 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. Population listed is total population of all ages.

‡ Small sample (panel survey) of persons 15+ years of age in City of North Vancouver, District of North Vancouver, and District of West Vancouver, Source: 2023 North Shore Transportation Survey. Population listed is total population of all ages.

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.
- City of Red Deer, City of Regina, and City of Kingston, as-yet unpublished data from household travel surveys, used with permission of the client.
- RA Malatest, *2024 City of Burnaby Household Travel Survey Summary Report*, City of Burnaby, 2025.
- City of Coquitlam 2022 Coquitlam Household Travel Survey Arc GIS Online results portal (https://experience.arcgis.com/experience/64d3b70b2707497199281c76ec34da0a)
- 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.

4. MULTIVARIATE ANALYSIS OF PERSON TRIP RATES

This report presents a multivariate analysis that was used to explore the extent to which trip generation rates may be influenced by the mode of survey completion (online vs. phone) and by whether the person for whom travel was reported was the primary survey respondent or someone else in the household that the primary respondent reported on ("proxy respondents").

The concern has been raised in the past that online respondents may not fill out the survey as thoroughly as those who are interviewed by an interviewer with experience filling out the survey and training in prompting for possible missed trips. To mitigate this, in 2016, the design of the online survey was adapted with instructions and clarification tests to steer online respondents to respond to the survey the same way as if they were guided through it by a telephone interviewer, with further refinements made to the online survey process in 2022.

The concern with whether a household member reported their own trips or had their trips reported for them is that those who report their own trips (primary respondent) may be more complete than those whose trips are reported for them by another household member (secondary respondent).

This multivariate analysis with the very large TTS dataset also provides a unique opportunity to explore the extent to which trip rates are influenced of various household characteristics and demographic factors, and/or other factors associated with survey methodology, such as sample type and month of survey completion.

4.1 Approach

Malatest took steps to model the person trip rates to identify factors that are significantly affecting the number of trips a person reported in the survey. In addition to the number of reported person trips, the reported number of discretionary and non-discretionary trips were also explored. The main task was to determine the extent to which the following variables were influenced by mode of survey completion and whether the trip maker reported their own trips, while controlling for other factors.

- total number of reported trips per person
- number of reported nondiscretionary trips per person
- number of reported discretionary trips per person

Non-discretionary trips are trips to work or to school or returning from work or school where this could be identified – HB-W (home-based work), HB-S (home-based school), and NH-B (non-home-based trips with a work or school destination).

Discretionary trips comprise all other trip purposes (HB-O). It may be noted that the discretionary trips include escort-passenger trips, which may include serving passengers with non-discretionary trip purposes (i.e., dropping children off or picking them up from school or daycare).

The analysis was undertaken using unweighted data. The model included most of the variables used as weighting controls (with the exception of specific sub-planning-district-level expansion zone geographies), so weighting the data was not strictly necessary to determine whether the model variables have an impact on trip rates.

4.2 Variables to Assess or Control For

Given the complexity of the collected survey data, a good number of measures can be used to assess their impact on reported trips per person. These variables could be person-level, like age, gender, etc. or household-level, like number of vehicles, household size, etc. The variables could also be of categorical or numeric type. Variables like completion method, dwelling type, etc. are categorical while household size, number of employed persons in a household, etc. are numeric variables.

It is worth noting that in a statistical model, the effect of a categorical variable is assessed differently compared to numeric variables. It is common to compare the categories in a categorical variable using ratios. For example, those completing the survey on a PC are 1.06 times more likely to report more trips compared to those completing on a mobile phone.

Table 20 below summarizes the variables that are included in the model for assessment. The variables without any significant effect or difference with the baseline will not appear in the model output.

Note that it would have been difficult to control for differences in geographical distribution by sampling zone or planning district, given the enormity of the study area and the number of distinct municipalities and sub-municipal areas within the study area. Therefore, three variables were developed to attempt to better control for geographic differences: a simple variable identifying whether the household was within or outside the Greater Toronto and Hamilton Area (GTHA), a composite variable combining the Statistics Canada population centre type and population centre size classification at the Dissemination Block level, and an urban density classification based on population per square kilometre at the Dissemination Area level. This is predicated on the assumption that work locations, workplace arrangements, school locations, commuting patterns, and patterns of travel are likely to be similar for people living in areas with similar urban or rural characteristics. For example, people living in a high-density portion of an urban core of a medium-sized city may have similar access to transportation options, proximity to services and amenities, proximity to work, work arrangements, and even lifestyle, whether they are in the Kitchener downtown core, Oshawa downtown core, or the downtown core of another similarly-sized

municipality, whereas those in more suburban areas may be more closely aligned with other suburban areas elsewhere in the study area.

As it was of particular interest to test whether the primary survey respondent was more likely to report trips for themselves than for other household members, and it was uncommon for the primary respondent to be under the age of 18 (age 16 or 17 was allowed, however there were few such respondents), children under the age of 18 were excluded from the analysis. Note that the variables identifying K-12 students are based on the school of attendance reported and, with the age filtering, only include adults attending K-12 schools (whether in high school, taking equivalency diploma or possibly taking adult education or continuing education courses at a K-12 school).

Appendix A provides a full listing of variables assessed, including the individual binary baseline/indicator variables developed from the model from the categorical variables listed below.

Table 20: Summary of variables assessed in the model

Variable Name *	Description
trip_period	Survey Phase – Fall or Spring
surveymethod	Telephone vs. Online via PC device vs. Online vs. Smartphone device
sampletype	Address-and-phone or address-only
surveymonth	Month during which the survey was completed
region_gtha	Inside or outside of the GTHA
popctrgrp	Statistics Canada population centre type (core, secondary core, population centre outside the CMA, fringe of CMA/CA, rural inside CMA/CA, rural outside CMA/CA) combined with the population centre classification (large, medium, small) of the Dissemination Block of the household combined.
densitysqkmgp	Based on the density of the Statistics Canada Dissemination Area, grouped into rural (<400 population per sq. km.), low (400 to 1,500), medium (1,500 to 5,000), high (5,000 to 15,000), and very high (>15,000)
dwell_type	Dwelling type
incomegrp	Household income range
novehicles	Indicates whether the household has no vehicles or at least one vehicle
hhhaschildren	Indicates whether the household has children or no children
hh0workers	Indicates whether the household has no workers or has workers
primaryrespondent	Indicates whether the person and trip records for the given household member were filled out by the primary survey respondent or were filled out on behalf of the household member by the primary respondent.
agegrp	Age range
gender	Gender, men+ or women+ (randomly assigning a portion of non-binary, other, and refused responses to men+ or women+ categories)
licence	Has a driver's licence or not

Variable Name *	Description
transitpass	Has a transit pass or not
immigrant	Born in Canada, or if not, year range of immigration
ethnicity	Ethnic origin or cultural background
workerb	Worker or non-worker
workfromhome	Works exclusively from home (as opposed to a usual workplace or no fixed workplace)
occtypegrp	Occupation type. Three groups aggregating individual categories on the survey into, generally: management, business, administration, professional, and technical occupations; sales and service occupations; and trades, transportation, manufacturing, agricultural, and natural resource occupations.
studentK12school	Student in the K12 system
studentK12homeschool	Home schooled student
studentPSEft	Full-time post-secondary student
studentPSEpt	Part-time post-secondary student
trip_day	Trip day of the week (Monday through Friday)

4.3 Statistical Model

For statistical modeling, a few models were evaluated for suitability. A linear regression model was not chosen because the normality assumption failed. A Poisson regression model was not chosen because of overdispersion, i.e., conditional means were not equal to conditional variances. This is why a negative binomial model with a logarithm link was chosen.

The mathematical form of the model is:

$$\ln(NpersTrips) = Intercept + b_i I(variable_i)$$

where i=1 to 70 from the above table and $I(variable_i)$ is the indicator function portraying the ith variable, b is the model coefficient associated with the given variable, and $ln(NpersTrips)$ is the natural logarithm of the number of person trips. Thus the formula to compute the number of person trips based on the factors identified as having a statistically significant influence on the trip rate is:

$$NpersTrips = e^{Intercept + b_i I(variable_i)}$$

where e is the mathematical constant representing the base of the natural logarithm function.

The model intercept and coefficients (I and b in the formulas above), along with their 95% confidence intervals are provided in Appendix B for the variables that tested as statistically

significant for each of the individual models for total trips, discretionary trips and nondiscretionary trips (Table 23, Table 24 and Table 25, respectively). In each model, a number of the variables listed in Table 20 for assessment were dropped as statistically insignificant and are not listed. Different variables were kept or dropped from each model. E.g., a given variable may have been found to have a statistical impact on trip rates in the discretionary trips model but was dropped from the non-discretionary trips model due to having no impact or a statistically insignificant impact.

The incidence rate ratio or the exponentiated model coefficients along with their 95% confidence intervals are provided in Appendix C for each of the individual models for total trips, discretionary trips, and nondiscretionary trips (Table 26, Table 27 and Table 28, respectively). The incidence rate ratio (IRR), also referred to as an odds ratio, is a metric used to interpret the effect of a predictor variable on a count-based outcome. It is the ratio of two incidence rates, or the odds of the result for one group being greater than the intercept baseline group. In this case, as the regression model has a logarithm link, the incidence ratios are log odds and should not be used as if they have a directly proportional impact on the number of trips.

The detailed results listed in the appendices are summarized and discussed in the next section of this report.

4.4 Analysis Results

After performing regression analysis, the results reveal that survey mode and whether the person fills out their own trip information (primary respondents) both have statistically significant effects on the number of reported trips. However, while statistically significant, the differences between the completion modes are negligible. We are able to achieve significant results for quite a few of the input variables even when the effects are small due to the huge number of person records in the dataset (n=356,580), which reduces variability.

4.4.1 Survey Mode

The main modes of survey completion considered were completing online using a PC (baseline scenario; 74% of valid surveys collected), completing online using a mobile device (14%), and completing by phone with a survey interviewer (8%), with a further small portion of the total surveys having been completed via mixed mode (e.g., started online but completed over the phone; 4%).

Those completing the survey on a PC are slightly more likely to report a trip compared to those completing on a mobile or phone. Examining the modes used for entire surveys (excluding for a moment mixed-mode surveys):

- Effect of survey mode on total trips:

  - The odds of reporting more total trips for those completing the survey on a PC is 1.03 times those completing over the phone.[14]
  - The odds of reporting more total trips for those completing the survey on a PC is 1.06 times those completing on a mobile device.
- Effect of survey mode on discretionary trips:
  - The odds of reporting more discretionary trips for those completing the survey on a PC is 1.04 times those completing over the phone.
  - The odds of reporting more discretionary trips for those completing the survey on a PC is 1.07 times those completing on a mobile device.
- Effect of survey mode on non-discretionary trips:
  - The odds of reporting more non-discretionary trips for those completing the survey on a PC is no different than those on a phone or those on a mobile device. I.e., there was no statistically significant difference in the number of non-discretionary trips reported by mode of survey completion.

Note that the differences in odds ratios are relatively minor for total trips and discretionary trips, and there is no difference when it comes to non-discretionary trips. This suggests that mode of survey completion does not have much impact on trip reporting rates. This runs counter to the theory that respondents who complete the survey over the phone may report more trips because trained interviewers will be better able to prompt respondents to report missed trips. To mitigate this possibility, in the 2016 TTS, the design of the online survey was adapted with instructions and clarification tests to steer online respondents to respond to the survey the same way as if they were guided through it by a telephone interviewer, with further refinements made to the online survey process in 2022. It is also possible that those who are more inclined to complete the survey online may also be more inclined to be diligent in their responses.

It is difficult to draw conclusions about the fact that those who completed the survey on a PC are slightly more likely to report discretionary trips and total trips overall than those who completed on a mobile device. The impact is relatively low both in the multivariate analysis and in the descriptive statistics (2.14 trips per person on average for surveys completed on mobile device versus 2.16 for those who completed on a PC; Table 4 in Section 2.4 earlier in this report). It may be noted that the survey was optimized to be completed on both PCs and mobile devices (with layouts that adapt to mobile format). More investigation might be required to determine whether the slightly lower odds of reported discretionary trips could be entirely due to the survey method

[14] Note that completing on PC was one of the baseline characteristics in the mode. Therefore, for this, and other comparisons between modes of survey completion, the odds of reporting trips on PC is the inverse of the odds ratios for other modes of survey completion listed later in this report in Table 21 and Appendix C.

or collinearity with other characteristics that is not entirely accounted for in the regression model (e.g., younger people are more likely to complete surveys on mobile device). Of total surveys collected in the 2022 TTS, 14% were completed via mobile device.

Of note, mixed-mode surveys, which usually involve partial completion online followed by completion over the phone, have higher trip rates overall and higher discretionary trips (with log odds of higher trip rates at 1.10 in both of these models). This is not surprising. This mix of survey methods was most often employed when the survey respondent ran into difficulty or ran out of patience while trying to fill out the survey online by themselves and was followed up with by a telephone interviewer who completed the survey with them over the phone. Respondents who made few or no trips or who reported simple commutes had simpler surveys and were more likely to complete the survey on their own. Respondents who made trips or had complex travel chains had more information to enter and thus were more likely to abandon the survey. Therefore, one would expect higher trip rates amongst those who ran into difficulty completing the survey on their own and were later assisted in completion. Of total valid surveys completed, only 4% were completed via mixed mode.

4.4.2 Whether the Person Reporting Trips is the Primary Respondent

Primary respondents are more likely to report a discretionary trip compared to proxy respondents (those for whom the primary respondent reports trips):

- The odds of reporting total trips for the primary respondent are 1.56 times those of the proxy respondents.
- The odds of reporting discretionary trips for the primary respondent are 1.54 times those of the proxy respondents.
- The odds of reporting non-discretionary (work or school) trips for the primary respondent are less than those of the proxy respondents. The primary respondent is 0.95 times as likely to report nondiscretionary trips compared to the secondary respondent. In other words, the proxy respondents are 1.05 times more likely to have non-discretionary trips reported for them. These modest differences in odds. In other words, nondiscretionary trips are captured quite similarly for both primary and proxy respondents.

In sum, primary respondents are notably more likely to report more trips, and the trips they report more of are discretionary trips. Primary and proxy respondents have similar rates of non-discretionary trips to work or school. In other words, the primary respondent may not always know about all of the discretionary trips made by other household members, but will almost always report non-discretionary trips (school and work commutes). Non-discretionary trips are typically longer on average than discretionary trips and more likely to use motorized modes such as auto and transit. So even though the survey respondent tends to under-report discretionary trips for

other household members, those trips may be more likely to be shorter trips, such as leaving the office to grab lunch nearby, which have less impact on the transportation network than discretionary trips.

4.4.3 Factors Associated with Differences in Trip Reporting Rates

It is important to note that many variables show up as statistically significant in the model due to the huge number of person records (n=318,162 household members 18+ years), which reduces variability, even if their impact may be slight or modest. Quite a few variables show up as having a notable impact on the number of reported trips. Variables with significant effects in at least one of the models (total trips, discretionary trips, non-discretionary trips) are listed below with their odds ratios (Table 21). The variables are grouped into those of particular interest (primary vs. proxy respondent; mode of survey completion), those with a statistically significant effect and notably higher odds of there being more total trips on average, those with little or no impact on total trips, and those with a statistically significant effect and notably lower odds of there being more total trips. Variables are listed in the table if they had a statistically significant impact on trip rates in at least one of the three models. Readers are reminded that, as children are rarely primary respondents (and only then if over the age of 16), these models filtered out children, and represent the impacts of various variables on adults' trips (ages 18+ years).

Note that the odds ratio is a convenient way of expressing the impact of different variables in the model on the observed characteristic. It is important to understand that since this is a logarithmic model, the odds ratio cannot be applied directly, in a linear fashion, to the trip rate. I.e., the odds ratio is not a multiplication factor that can be applied directly to the average trip rate.

Note also that the model only examined trip making overall, and for discretionary and non-discretionary purposes. It did not investigate the impact different factors have on mode choice, which may bear further investigation.

The baseline variables associated with the model intercept are listed in full in Appendix A of this report.

The results by respondent type (primary or proxy) and survey mode, the initial objectives of this analysis, have been discussed in the preceding section. While not the primary focus of this analysis, the multivariate analysis also tells us something about the characteristics associated with higher and lower trip rates, while controlling for a diverse range of variables. Looking at variables with more consequential odds ratios, e.g., more than 1.10 or less than 0.90 yields the following observations about adult residents' trip rates:

- Factors associated with *higher overall trip rates* include having a driver's licence; having children; working exclusively from home (despite very few work-related trips); falling in one of the age ranges between 35 and 79; not having workers in the household; having an

Indigenous, European, Oceanian, American, or Jewish ethnic origin or cultural background; and living in a very high-density area.

- Factors associated with *lower overall trip rates* include being a worker; being an adult student in K-12 studies (who are a very small proportion of the population); having an occupation in trades, transport, manufacturing, natural resources, or agriculture; household income of less than $40,000 per year; having a transit pass; being surveyed in Phase 1 rather than Phase 2; living in a rural area outside a CMA or CA; being surveyed between January and March (for the small sample collected during this portion of the year); immigrating to Canada three or more years ago; and having a south Asian, southeast Asian, East Asian or African ethnic origin or cultural background.
- Factors associated with *higher discretionary trip rates* are generally the same as those associated with higher overall trip rates, although the strength of the influence differs somewhat (e.g., the odds ratios for discretionary trips for age ranges between 35 and 79 are higher than those for total trips overall). Additionally, ages 25 to 34 and ages 80 or more have higher odds of discretionary trips, despite this not having a significant influence on total trips above and beyond the influence of other factors.
- Factors associated with *lower discretionary trip* rates are again generally the same as those associated with lower overall trip rates, with little difference in odds ratios. Additionally, being a full-time post-secondary student is associated with lower odds of discretionary trips.
- Factors associated with massively *higher odds of non-discretionary trips (commute and work-related)* include, quite obviously, being a worker or being a full-time post-secondary student or an adult student in K-12 studies. Other consequential factors include having an occupation in trades, transport, manufacturing, natural resources, or agriculture (all of which are less likely to have the option of working from home or hybrid work arrangements); being a part-time post-secondary student; or having a Tuesday, Wednesday, or Thursday travel day.
- Factors associated with *lower odds of non-discretionary trips* include, as one might expect, working exclusively from home; not having any workers in the household; being in age ranges of 65 and above; and being an adult in K-12 studies who is taking courses from home (a very small proportion of the population).

Table 21: Selected odds ratios (for statistically significant variables in the model)

Factor	Total Trips	Discretionary Trips	Non-Discretionary Trips
Odds ratio for model intercept	0.70	0.63	0.11
Variables of particular interest			
Is the primary survey respondent	1.56	1.54	0.95
Completed online on mobile device	0.94	0.93	not significant
Completed by phone	0.97	0.96	not significant
Mixed mode (online and phone)	1.10	1.10	not significant
Higher odds for total trips (and log odds>=1.05):			
Has driver's licence	1.70	1.70	not significant
Has children	1.45	1.45	0.97
Works exclusively from home	1.39	1.38	0.13
Age 65 to 79	1.31	1.49	0.81
Age 35 to 54	1.29	1.51	not significant
Age 55 to 64	1.26	1.45	not significant
No workers in household	1.20	1.18	0.17
Indigenous, European, Oceanian, American, or Jewish ethnic origin or cultural background	1.13 to 1.45	1.13 to 1.44	not significant
Lives in very high-density area (>15K pop/sq km)	1.12	1.10	not significant
High-density area (5k-15K/sq km)	1.07	1.07	not significant
October travel date	1.07	1.07	not significant
December travel date	1.07	1.07	not significant
Low density area (400-1.5K/sq km)	1.06	1.06	not significant
November travel date	1.06	1.06	not significant
Higher or lower odds for discretionary or non-discretionary trips but either non-significant or minimal effect on total trips:			
Age 25 to 34	not significant	1.30	0.96
Age 80 or more	not significant	1.14	0.37
Women+	1.03	1.03	0.93
Thursday travel day	0.98	0.98	1.12
Lives in GTHA	0.96	0.96	0.95
Full-time post-secondary student	not significant	0.71	1.99
Part-time post-secondary student	not significant	not significant	1.18
Tuesday travel day	not significant	not significant	1.13
Wednesday travel day	not significant	not significant	1.14
Household income $80K-$125K/yr	not significant	not significant	1.05
Caribbean ethnic origin or cultural background	not significant	not significant	0.95
No household vehicles	not significant	not significant	0.93
Home-schooled K-12 student (adult)	not significant	not significant	0.89

Factor	Total Trips	Discretionary Trips	Non-Discretionary Trips
Lower odds for total trips (and log odds<=0.95)			
Small or medium urban core / secondary core	0.95	0.95	not significant
April travel day	0.95	0.95	1.02
Household income $40K to $80K/yr	0.94	0.95	1.06
Address-and-phone sample	0.94	0.94	not significant
Urban fringe or population centre outside CMA/CA	0.93	0.93	not significant
South Asian, Southeast Asian, East Asian, or African ethnic origin or cultural background	0.87 to 0.93	0.87 to 0.93	not significant, exc. East Asian, 0.96, South Asian, 0.95
Immigrated 3+ years ago (3-5 years, 5-10 years, 10-15 years, 15+ years)	0.86 to 0.90	0.85 to 0.89	not significant exc. 3-5 years ago, 0.94
January, February, or March travel day	0.90	0.90	0.86
Rural area outside CMA or CA	0.89	0.89	0.97
Phase 1 survey	0.88	0.87	not significant
Has transit pass	0.86	0.90	not significant
Household income <$40K/yr	0.84	0.85	1.05
Occupation in trades, transport, manufacturing, natural resources, or agriculture	0.76	0.76	1.24
Student in K-12 school (adult)	0.71	0.77	3.26
Worker	0.67	0.64	10.79

Note: only variables with odds ratio of <0.95 or >1.05 are displayed in the table. The intercepts for each model have odds ratios of 0.70 for total trips, 0.63 for discretionary, and 0.11 for nondiscretionary. See Appendix A for the list of baseline variables.

Shading has been used to indicate higher and lower odds ratios. Pink shading is used for lower odds and blue for higher odds. The intensity of the shading increases as the value approaches the highest or lowest value in the table.

5. CONCLUSIONS

Analysis of trip rates was undertaken using two different approaches. The first approach (presented in Chapter 2) explored patterns in trip rates for different geographies as well as for household, and demographic characteristics. Descriptive bivariate analyses were used in this analysis. The proportion of the population who work and the proportion of workers who work from home were also examined to provide some context to the trip rate patterns. This analysis also examined modal trip rates (daily trips per person for given modes of travel) and trip rates by purpose (daily trips for different purposes per person). In addition, trip rates and other key indicators were examined across survey cycles.

The second approach undertook multivariate analysis to explore the influence of different characteristics on trip rates while controlling for other factors. The regression model determined to be most appropriate for this analysis was a negative binomial model with a logarithmic link and controlled for the influence of a wide range of variables for household. Three models were built to identify factors associated with higher and lower overall, non-discretionary, and discretionary trip rates.

Some observations from these analyses:

- Trip rates vary considerably across the TTS study area (Section 2.2), which encompasses a wide variety of environments, from dense urban cores to secondary urban cores, urban fringe population centres, and large rural areas.
- When geographies are grouped according to characteristics, some interesting patterns emerge (Section 2.3). For example, trip rates in urban core areas (which house 82% of the population of the study area) are lower (at 2.12 daily trips per person 5+ years of age) than those in other types of population centre (2.22 to 2.30) with the exception of rural areas outside of CMAs/CAs (2.08). Similarly, in urban areas, there appears to be a strong relationship of decreasing trip rates as urban density increases (e.g., 2.24 daily trips/person 5+ in areas with between 400 to 1500 population per square kilometre compared to 1.97 in areas with 15,000 or more population per square kilometre). These differences in trip rates may be influenced by the type of individual attracted to and living in these areas (e.g., areas with high-rise condominium developments often located in close proximity to high job-density zones and attracting younger workers without children) but also enhanced by the nature of the built environment (e.g., higher density allowing for more restaurant and grocery delivery options and often also limiting vehicle ownership and access to parking). While it was difficult to control for individual geographies in the multivariate regression analysis detailed in Section 4, this analysis did identify some interesting trends, such as higher discretionary trip rates for people living in high and very high-density areas, even

when controlling for differences in demographics such as the higher proportion of younger adults in high-density areas.

- Exploration of trip rates by key household and demographic attributes (Sections 2.5 and 2.6) revealed patterns in household- and person-level trip rates and in the incidence of workers taking work trips on their travel day. For example, higher income households, households with vehicles, households with workers all have higher person-trip rates, with higher-than-average trip rates observed for men+, persons 35 to 54 years of age, full-time workers, students who work, workers in certain kinds of jobs, and non-immigrants. The multivariate analysis in Section 4 provides a more precise identification of the factors that drive higher or lower trip rates, with the most notable demographic factors being: having a driver's licence, having children in the household, working exclusively from home (with higher trip rates overall due to higher discretionary trip rates, despite rarely having any work-related trips), being aged between 35 and 79, and not having workers in the household.
- Exploration of trip rates for different modes (Section 2.7) and different purposes (Section 2.8) revealed some interesting patterns. For example, sustainable-mode (transit, bicycle/micromobility/walk) trip rates are highest amongst school-age children, fairly level from ages 18 to 39, and then decline after age 40. Home-based work trip rates are highest amongst men+ and (as stands to reason) workers. Home-based discretionary trips are highest amongst women+, people who work exclusively from home, and people who are neither employed nor students. Trip rates by day of week tend to be slightly higher for Tuesdays, Wednesdays, and Thursdays, coincident with vacation days and work-from-home days being more closely associated with the weekend (Mondays or Fridays). Readers are referred to the summary in Section 2.9 for a summary of other findings of interest in the bivariate analysis. Note that while the multivariate analysis did examine differences in discretionary and non-discretionary trip rates (Section 4.4.3), it was not within scope to built regression models of trip rates for individual modes of travel. This may be a topic worth undertaking future research on.
- Longitudinal analysis of key indicators and trip rates with past survey cycles revealed changes in trip rates over time (Section 3.1). Key trends of interest include the average number of workers per capita dropping back to 2011 levels after rising slightly since 2016, an increase in the number of vehicles per worker, and a notable decrease in the number of monthly transit passes per person.[15] At the same time, the proportion of the population

[15] Note that this reduction might reflect changes in transit use but also people who have switched from monthly transit passes to pay-as-you-go payment systems, like PRESTO

who are children and young adults has dropped slightly; the younger working-age cohort of 26-45 has increased slightly while the older working-age cohort of 46-64 has decreased; with the 65+ cohort having grown appreciably since 2016. Meanwhile, daily person-trip rates for the study area have dropped since 2006, when there were 2.47 daily trips per person, with the largest cycle-to-cycle drop being from 2.26 in 2016 to 2.02 in 2022. These changes are reflective of shifts to working from home and hybrid work arrangements (with the pandemic having accelerated these shifts), and other trends that may affect travel, such as increases in online shopping, restaurant and grocery delivery services, and online media streaming, and the decline in movie theatre attendance. Comparison with the trip rates for other jurisdictions shows similar declines in trip making in most jurisdictions across Canada, with similar trends in pre- and post-pandemic trip rates.

- Exploration of the trip rates by sample type and survey method (Section 2.4) revealed only marginally different trip rates by sample type but did reveal differences in trip rates by survey method, with lower daily person-trip rates for phone surveys, at 1.83, compared to the average of 2.14 daily trips per person. However, the multivariate analysis in Section 4 revealed only slightly higher odds of reporting trips for those who completed the survey online via PC, suggesting that much of the observed difference has to do with differences in the demographics of those who completed the survey via phone and who were in the address-and-phone sample compared to those who completed it online and who were in the address-only sample. The multivariate analysis revealed that when controlling for a comprehensive range of factors, other factors had more impact. This supports continued offering of multiple modes of survey completion, which enhances response rates.
- The most notable methodology-related factor associated with differences in trip rates was the higher trip rate for the primary survey respondent as compared to proxy respondents (other household members reported on by the primary survey respondent), as detailed in Section 4.4.2. The multivariate analysis determined that, when controlling for other variables that could affect trip rates, the log odds of reporting a higher number of total trips for the primary respondent is 1.56 times that of proxy respondents, with a similar higher odds ratio for discretionary trips, at 1.54 times that of proxy respondents. There were only slight differences in the odds of reporting non-discretionary trips, with proxy respondents having log odds 1.05 times greater than those of primary respondents. The results are consistent with primary respondents accurately accounting for the discretionary work and school commutes of all household members but not always being aware of all non-discretionary trips (particularly those that are non-home-based, such as leaving work for lunch then returning to work) that are made by other household members. It may be noted that the types of trips that the primary respondent may not have reported for other household members are likely to be of shorter length (and/or possibly more likely to be

walking trips) as compared to non-discretionary commutes, which tend to be longer (and/or more likely to be via motorized forms of transport such as auto or transit). In sum, while the all-important commuting trips which have the greatest impact on the transportation network may be well represented for all persons surveyed, discretionary trips (particularly non-home-based discretionary trips) may be under-represented for some persons surveyed (other household members reported on by the primary respondent). This should be considered a caveat to the TTS datasets. Future survey cycles may consider whether to adjust for this in data weighting for survey reporting (or to not do so, so as to preserve comparability across cycles and better trend tracking) and/or whether to make trip-level adjustments only in the modelling. Note that adjustments at the trip level should be undertaken with considerable caution: they may have unintended consequences depending on the accuracy of any computed correction factors and the appropriateness of the assumptions used to make the adjustments and the appropriateness of the stratification of the persons/trip selected to receive adjustments.

Overall, the analyses undertaken have provided both descriptive statistics and inferential statistics that look more closely at the characteristics and factors associated with higher and lower trip rates. The results reported here are intended to increase the understanding of the travel patterns described by the TTS data and how the data may be used and interpreted.

Appendices

Appendix A: Variables Assessed in the Model

Table 22: Detailed list of variables

Variable Name	Categories	Baseline	Indicator variable name used in the model	Level
trip_period	1. Phase1 Fall 2. Phase2 Spring	Phase2	Phase1	Household
region_gtha	1. gtha 2. nongtha	nongtha	gtha	Household
popctrgrp	1. Urban core or secondary core large 2. Urban core or secondary core small medium 3. Fringe or other population centre outside the core 4. Rural within CMA or CA 5. Rural outside CMA or CA	urbancorelarge	urbancoresmallmed fringeorotherpopctr ruralinCMA ruraloutCMA	Household
surveymethod	1. PC 2. Mobile 3. Phone 4. mixed	PC	mobile phone mixedmode	Household
sampletype	1. Addrphsample 2. OtherSampleTypes	OtherSampleTypes	Addrphsample	Household
surveymonth	1. month2209 2. month2210 3. month2211 4. month2212 5. month2301to03 6. month2304 7. month2305 8. month2306to07	Month202306to07	month2209 month2210 month2211 month2212 month2301to03 month2304 month2305	Household
densitysqkmgp	1. densityvhi15kplus 2. densityhi5kto15k 3. densitymed1500to5k 4. densitylo400to1500 5. densityrural400less	densityrural400less	densityvhi15kplus densityhi5kto15k densitymed1500to5k densitylo400to1500	Household
dwell_type	1. house 2. apt 3. townhouse	house	apt townhouse	Household

Variable Name	Categories	Baseline	Indicator variable name used in the model	Level
incomegrp	1. income125plus 2. income0040 3. income4080 4. income80125 5. incomedk	income125plus	income0040 income4080 income80125 incomedk	Household
novehicles	1- Novehicle 0- havevehicle	havevehicle	novehicle	Household
hhhaschildren	1- Havechildren 0- nochildren	nochildren	hhhaschildren	Household
hh0workers	1- 0 workers 0- 1 or more workers	oneplusworkers	Hh0workers	Household
primaryrespondent	1- Primaryrespondent 2- Secondary respondent	secondary-respondent	primaryrespondent	Household
agegrp	1- age5to10 (excluded) 2- age11to17 (excluded) 3- age18to24 4- age25to34 5- age35to54 6- age55to64 7- age65to79 8- age80plus	age18to24	age25to34 age35to54 age55to64 age65to79 age80plus	Person
gender	1- Female 2- male	male	female	Person
licence	1- has licence 2- no licence	nolicence	haslicence	Person
transitpass	1- hastransitpass 2- notransitpass	notransitpass	hastransitpass	Person
immigrant	1- immigrant0to2 2- immigrant3to5 3- immigrant5to10 4- immigrant10to15 5- immigrant15plus 6- immigrantnonres	Immigrant0to2	immigrant3to5 immigrant5to10 immigrant10to15 immigrant15plus immigrantnonres	Person

Variable Name	Categories	Baseline	Indicator variable name used in the model	Level
ethnicity	1- eth_africa 2- eth_easia 3- eth_seasia 4- eth_sasia 5- eth_canada 6- eth_caribb 7- eth_europe 8- eth_indigen 9- eth_latin 10- eth_mideast 11- eth_ocean 12- eth_america 13- eth_jewish	eth_canada	eth_africa eth_easia eth_seasia eth_sasia eth_caribb eth_europe eth_indigen eth_latin eth_mideast eth_ocean eth_america eth_jewish	Person
workerb	1- Worker 2- notworker	notworker	workerb	Person
workfromhome	1- workfromhome 2- usualworkplace/ nousualworkplace	usualnousualworkplace	workfromhome	Person
occtypegrp	1- occtype1to5 2- occtype8to11 3- occtype6to7	occtype1to5	occtype8to11 occtype6to7	Person
studentK12school	1- studentK12school 2- notstudentK12school	notstudentK12school	studentK12school	Person
studentK12homeschool	1. studentK12homeschool 2. notStudentK12homeschool	notStudentK12homeschool	studentK12homeschool	Person
studentPSEft	1. studentPSEft 2. notstudentPSEft	notstudentPSEft	studentPSEft	Person
studentPSEpt	1. studentPSEpt 2. notstudentPSEpt	notstudentPSEpt	studentPSEpt	Person
trip_day	1. monday 2. tuesday 3. wednesday 4. thursday 5. friday	monday	tuesday wednesday thursday friday	Trip

Appendix B: Model Coefficients

Table 23: Coefficients for total person trips

y = n trips	Estimate	Lower Bound (2.50%)	Upper Bound (97.50%)
(Intercept)	-0.35616	-0.38541	-0.3269
mobile	-0.05956	-0.07284	-0.04627
phone	-0.034	-0.05266	-0.01533
mixedmode	0.098681	0.075722	0.121669
addrphsample	-0.06675	-0.07653	-0.05697
phase1	-0.13166	-0.15059	-0.11273
month2210	0.067658	0.049528	0.085782
month2211	0.055664	0.037888	0.073434
month2212	0.066953	0.044437	0.089471
month2301to03	-0.10804	-0.13929	-0.07676
month2304	-0.04959	-0.06742	-0.03175
gtha	-0.04512	-0.05743	-0.03282
urbancoresmallmed	-0.04848	-0.06636	-0.03059
fringeorotherpopctr	-0.07451	-0.10429	-0.04469
ruraloutCMA	-0.11821	-0.15156	-0.08483
densityvhi15kplus	0.109131	0.085408	0.132855
densityhi5kto15k	0.068972	0.049783	0.088154
densitymed1500to5k	0.04349	0.0261	0.06087
densitylo400to1500	0.060266	0.039851	0.080678
income0040	-0.17481	-0.19286	-0.15675
income4080	-0.06081	-0.073	-0.04861
hh0workers	0.178601	0.163705	0.193495
primaryrespondent	0.443574	0.434112	0.453038
age35to54	0.256636	0.242448	0.270824
age55to64	0.231124	0.216753	0.245496
age65to79	0.270241	0.25625	0.284232
female	0.031188	0.021995	0.040381
haslicence	0.53194	0.514942	0.548946
hastransitpass	-0.14679	-0.16487	-0.1287
immigrant3to5	-0.10186	-0.13879	-0.06491
immigrant5to10	-0.15338	-0.18465	-0.12211
immigrant10to15	-0.15557	-0.18345	-0.12768
immigrant15plus	-0.10876	-0.12071	-0.09682
eth_africa	-0.07458	-0.11801	-0.03112
eth_easia	-0.08473	-0.1019	-0.06756

y = n trips	Estimate	Lower Bound (2.50%)	Upper Bound (97.50%)
eth_seasia	-0.11827	-0.14179	-0.09474
eth_sasia	-0.14324	-0.16451	-0.12197
eth_europe	0.149278	0.137661	0.160897
eth_indigen	0.119069	0.063785	0.174519
eth_latin	0.03691	0.004493	0.069351
eth_mideast	-0.03907	-0.07253	-0.00558
eth_ocean	0.184993	0.06778	0.303088
eth_america	0.260775	0.180019	0.342061
eth_jewish	0.371152	0.274768	0.468472
workerb	-0.40771	-0.42184	-0.39359
workfromhome	0.326675	0.310916	0.342445
occtype8to11	-0.26923	-0.28974	-0.24873
studentK12school	-0.33637	-0.42907	-0.24424
thursday	-0.02146	-0.03162	-0.01131
hhhaschildren	0.373289	0.360368	0.386214

Table 24. Coefficients for discretionary trips

y = n discretionary trips	Estimate	Lower Bound (2.50%)	Upper Bound (97.50%)
(Intercept)	-0.46186	-0.5004	-0.42334
mobile	-0.06798	-0.08127	-0.0547
phone	-0.0361	-0.05488	-0.01731
mixedmode	0.096741	0.073818	0.119693
addrphsample	-0.06015	-0.06995	-0.05035
phase1	-0.13622	-0.15509	-0.11735
month2210	0.069133	0.051053	0.087208
month2211	0.057262	0.039547	0.074971
month2212	0.067474	0.045024	0.089925
month2301to03	-0.11037	-0.14155	-0.07917
month2304	-0.05024	-0.06804	-0.03243
gtha	-0.04359	-0.05586	-0.03133
urbancoresmallmed	-0.04945	-0.06728	-0.0316
fringeorotherpopctr	-0.07517	-0.10487	-0.04543
ruraloutCMA	-0.11671	-0.14997	-0.08342
densityvhi15kplus	0.095994	0.072294	0.119695
densityhi5kto15k	0.065332	0.046183	0.084474
densitymed1500to5k	0.042497	0.025153	0.059833
densitylo400to1500	0.059823	0.039462	0.080183
income0040	-0.16263	-0.18064	-0.14461
income4080	-0.05639	-0.06856	-0.04422
hh0workers	0.161842	0.14661	0.177071
primaryrespondent	0.431096	0.421583	0.440609
age25to34	0.26548	0.235793	0.295195
age35to54	0.409332	0.380428	0.438268
age55to64	0.371761	0.342297	0.401257
age65to79	0.400089	0.369863	0.430344
age80plus	0.129021	0.094328	0.163739
female	0.026335	0.017153	0.035517
haslicence	0.532054	0.515024	0.549092
hastransitpass	-0.10807	-0.12632	-0.08982
immigrant3to5	-0.13286	-0.16958	-0.09613
immigrant5to10	-0.16947	-0.20044	-0.13849
immigrant10to15	-0.16223	-0.18989	-0.13457
immigrant15plus	-0.11725	-0.12919	-0.1053
eth_africa	-0.06726	-0.1106	-0.02388
eth_easia	-0.08057	-0.09754	-0.06359

y = n discretionary trips	Estimate	Lower Bound (2.50%)	Upper Bound (97.50%)
eth_seasia	-0.11038	-0.13374	-0.08702
eth_sasia	-0.13666	-0.15773	-0.11559
eth_europe	0.150278	0.138809	0.161749
eth_indigen	0.119486	0.064289	0.174845
eth_latin	0.043871	0.0116	0.076164
eth_ocean	0.189128	0.072289	0.30682
eth_america	0.263756	0.183342	0.344687
eth_jewish	0.368011	0.271906	0.465031
workerb	-0.44485	-0.4594	-0.43032
workfromhome	0.321388	0.305678	0.337107
occtype8to11	-0.27018	-0.29065	-0.24972
studentK12school	-0.2576	-0.35234	-0.1634
studentPSEft	-0.33967	-0.37349	-0.30588
thursday	-0.02103	-0.03115	-0.0109
hhhaschildren	0.373248	0.360331	0.386168

Table 25. Coefficients for nondiscretionary trips

y = n non-discretionary trips	Estimate	Lower Bound (2.50%)	Upper Bound (97.50%)
(Intercept)	-2.18793	-2.21805	-2.15797
month2301to03	-0.15512	-0.18501	-0.12552
month2304	0.023022	0.007472	0.038508
gtha	-0.05154	-0.06257	-0.04049
ruraloutCMA	-0.03302	-0.0658	-0.00055
income0040	0.049048	0.024694	0.07325
income4080	0.06198	0.048337	0.075589
income80125	0.044913	0.033949	0.055861
novehicles	-0.07424	-0.09348	-0.05509
hh0workers	-1.76971	-1.83203	-1.70817
primaryrespondent	-0.04721	-0.05658	-0.03784
age25to34	-0.04027	-0.05216	-0.02841
age65to79	-0.21423	-0.2324	-0.19612
age80plus	-1.00719	-1.10189	-0.91517
female	-0.07248	-0.08179	-0.06317
immigrant3to5	-0.06015	-0.09164	-0.02896
eth_easia	-0.04432	-0.0588	-0.02989
eth_sasia	-0.04716	-0.06432	-0.03007
eth_caribb	-0.048	-0.07644	-0.01982
eth_mideast	0.035743	0.007301	0.063941
workerb	2.37881	2.351861	2.405956
workfromhome	-2.01969	-2.04909	-1.99056
occtype8to11	0.211751	0.198867	0.224611
occtype6to7	-0.01476	-0.0288	-0.00076
studentK12school	1.180227	1.132128	1.227618
studentK12homeschool	-0.11526	-0.16518	-0.06613
studentPSEft	0.688586	0.669714	0.707372
studentPSEpt	0.165497	0.13308	0.197585
tuesday	0.125068	0.112211	0.137904
wednesday	0.132211	0.119397	0.145006
thursday	0.111936	0.100866	0.123001
hhhaschildren	-0.03003	-0.04006	-0.02002

Appendix C: Odds Ratios

In the odds ratio tables that follow, shading has been used to higher and lower odds ratios. Pink shading is used for lower odds and blue for higher odds. The intensity of the shading increases as the value approaches the highest or lowest value in the table.

Table 26. Incident rate ratio for total person trips

y=n trips	Estimate	Lower Bound (2.50%)	Upper Bound (97.50%)
(Intercept)	0.70	0.68	0.72
mobile	0.94	0.93	0.95
phone	0.97	0.95	0.98
mixedmode	1.10	1.08	1.13
addrphsample	0.94	0.93	0.94
phase1	0.88	0.86	0.89
month2210	1.07	1.05	1.09
month2211	1.06	1.04	1.08
month2212	1.07	1.05	1.09
month2301to03	0.90	0.87	0.93
month2304	0.95	0.93	0.97
gtha	0.96	0.94	0.97
urbancoresmallmed	0.95	0.94	0.97
fringeorotherpopctr	0.93	0.90	0.96
ruraloutCMA	0.89	0.86	0.92
densityvhi15kplus	1.12	1.09	1.14
densityhi5kto15k	1.07	1.05	1.09
densitymed1500to5k	1.04	1.03	1.06
densitylo400to1500	1.06	1.04	1.08
income0040	0.84	0.82	0.85
income4080	0.94	0.93	0.95
hh0workers	1.20	1.18	1.21
primaryrespondent	1.56	1.54	1.57
age35to54	1.29	1.27	1.31
age55to64	1.26	1.24	1.28
age65to79	1.31	1.29	1.33
female	1.03	1.02	1.04
haslicence	1.70	1.67	1.73
hastransitpass	0.86	0.85	0.88
immigrant3to5	0.90	0.87	0.94
immigrant5to10	0.86	0.83	0.89

y=n trips	Estimate	Lower Bound (2.50%)	Upper Bound (97.50%)
immigrant10to15	0.86	0.83	0.88
immigrant15plus	0.90	0.89	0.91
eth_africa	0.93	0.89	0.97
eth_easia	0.92	0.90	0.93
eth_seasia	0.89	0.87	0.91
eth_sasia	0.87	0.85	0.89
eth_europe	1.16	1.15	1.17
eth_indigen	1.13	1.07	1.19
eth_latin	1.04	1.00	1.07
eth_mideast	0.96	0.93	0.99
eth_ocean	1.20	1.07	1.35
eth_america	1.30	1.20	1.41
eth_jewish	1.45	1.32	1.60
workerb	0.67	0.66	0.67
workfromhome	1.39	1.36	1.41
occtype8to11	0.76	0.75	0.78
studentK12school	0.71	0.65	0.78
thursday	0.98	0.97	0.99
hhhaschildren	1.45	1.43	1.47

Table 27. Incident rate ratio for discretionary trips

y=n discretionary trips	Estimate	Lower Bound (2.50%)	Upper Bound (97.50%)
(Intercept)	0.63	0.61	0.65
mobile	0.93	0.92	0.95
phone	0.96	0.95	0.98
mixedmode	1.10	1.08	1.13
addrphsample	0.94	0.93	0.95
phase1	0.87	0.86	0.89
month2210	1.07	1.05	1.09
month2211	1.06	1.04	1.08
month2212	1.07	1.05	1.09
month2301to03	0.90	0.87	0.92
month2304	0.95	0.93	0.97
gtha	0.96	0.95	0.97
urbancoresmallmed	0.95	0.93	0.97
fringeorotherpopctr	0.93	0.90	0.96
ruraloutCMA	0.89	0.86	0.92
densityvhi15kplus	1.10	1.07	1.13
densityhi5kto15k	1.07	1.05	1.09
densitymed1500to5k	1.04	1.03	1.06
densitylo400to1500	1.06	1.04	1.08
income0040	0.85	0.83	0.87
income4080	0.95	0.93	0.96
hh0workers	1.18	1.16	1.19
primaryrespondent	1.54	1.52	1.55
age25to34	1.30	1.27	1.34
age35to54	1.51	1.46	1.55
age55to64	1.45	1.41	1.49
age65to79	1.49	1.45	1.54
age80plus	1.14	1.10	1.18
female	1.03	1.02	1.04
haslicence	1.70	1.67	1.73
hastransitpass	0.90	0.88	0.91
immigrant3to5	0.88	0.84	0.91
immigrant5to10	0.84	0.82	0.87
immigrant10to15	0.85	0.83	0.87
immigrant15plus	0.89	0.88	0.90
eth_africa	0.93	0.90	0.98
eth_easia	0.92	0.91	0.94

y=n discretionary trips	Estimate	Lower Bound (2.50%)	Upper Bound (97.50%)
eth_seasia	0.90	0.87	0.92
eth_sasia	0.87	0.85	0.89
eth_europe	1.16	1.15	1.18
eth_indigen	1.13	1.07	1.19
eth_latin	1.04	1.01	1.08
eth_ocean	1.21	1.07	1.36
eth_america	1.30	1.20	1.41
eth_jewish	1.44	1.31	1.59
workerb	0.64	0.63	0.65
workfromhome	1.38	1.36	1.40
occtype8to11	0.76	0.75	0.78
studentK12school	0.77	0.70	0.85
studentPSEft	0.71	0.69	0.74
thursday	0.98	0.97	0.99
hhhaschildren	1.45	1.43	1.47

Table 28. Incident rate ratio for non-discretionary trips

y=n non-discretionary trips	Estimate	Lower Bound (2.50%)	Upper Bound (97.50%)
(Intercept)	0.11	0.11	0.12
month2301to03	0.86	0.83	0.88
month2304	1.02	1.01	1.04
gtha	0.95	0.94	0.96
ruraloutCMA	0.97	0.94	1.00
income0040	1.05	1.03	1.08
income4080	1.06	1.05	1.08
income80125	1.05	1.03	1.06
novehicles	0.93	0.91	0.95
hh0workers	0.17	0.16	0.18
primaryrespondent	0.95	0.94	0.96
age25to34	0.96	0.95	0.97
age65to79	0.81	0.79	0.82
age80plus	0.37	0.33	0.40
female	0.93	0.92	0.94
immigrant3to5	0.94	0.91	0.97
eth_easia	0.96	0.94	0.97
eth_sasia	0.95	0.94	0.97
eth_caribb	0.95	0.93	0.98
eth_mideast	1.04	1.01	1.07
workerb	10.79	10.51	11.09
workfromhome	0.13	0.13	0.14
occtype8to11	1.24	1.22	1.25
occtype6to7	0.99	0.97	1.00
studentK12school	3.26	3.10	3.41
studentK12homeschool	0.89	0.85	0.94
studentPSEft	1.99	1.95	2.03
studentPSEpt	1.18	1.14	1.22
tuesday	1.13	1.12	1.15
wednesday	1.14	1.13	1.16
thursday	1.12	1.11	1.13
hhhaschildren	0.97	0.96	0.98