





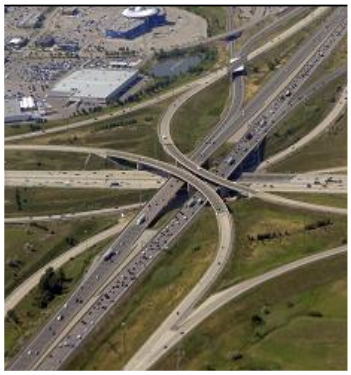

transportationtomorrow SURVEY 2016

DATA EXPANSION AND VALIDATION
FEBRUARY 2018



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Households

Counts of private dwellings occupied by usual residents from the 2016 Canada Census were used as control totals for the purposes of expanding the 2016 TTS data to represent the population of the survey area. Therefore, there is a precise match in private households between the Census and the expanded TTS data at the municipal level, and for expansion zone geographies within each municipality. The data expansion process also included data weighting to very closely match Census controls for households by household size and by dwelling type. The survey data slightly under-represent households with six or more occupants. Previous cycles did not have balanced distributions by household size, and the distributions by dwelling type reported on the survey did not appear to match census distributions (although differences in interpretation of definitions may have played a factor in previous cycles). While the survey data appear to align very closely to the Census by dwelling type, there may be differences in either definition or interpretation of dwelling types. Comparison with Canada Post counts of apartment addresses suggest that apartments may be slightly over-represented in the 2016 TTS data. Of particular concern may be the difference from previous survey cycles, which appear to have under-represented apartments, which may affect comparability. For example, in the 2006, 2011, and 2016 TTS, apartments respectively represent 25%, 25% and 35% of households in the expanded data. A review of responses for household income against Census counts suggested that the TTS data may somewhat under-represent the lowest-income and the highest-income households, although this finding should be interpreted with caution, as fully 20% of TTS respondents declined to provide their household income. The 2016 TTS was the first survey cycle in which income was asked.

Population

The 2016 TTS data under-represent the total population of the study area by 2%, and under-represent the total population living in private households by 0.7%. The reason for under-representation of the total population is that the survey's residential-address sample frame does not include homeless people or collective dwellings (prisons, barracks, group homes, care homes, and some university on-campus residences), who comprise about 1.3% of the total population. The reason for under-representation below this is that the 2016 TTS under-represents larger households with six or more usual residents. In previous cycles, the 2011, 2006, 2001, 1996, 1991, and 1986 TTS datasets differed from total population by 0.0%, -2.8%, -2.9%, -2.8%, -2.5%, and -2.2% respectively, with 2011 cycle the only cycle for which the data were expanded to match total population. The data expansion process included data weighting by age range and sex, and thus the expanded dataset closely matches Census controls for these demographic characteristics. It may be noted that, by design, the 2016 TTS under-represent population 75+ years of age by 20% to reflect that a portion of the population in this age group may live in collective dwellings which are outside the scope of this survey.

Employed Labour Force

For larger municipalities and regions, the expanded TTS data appear to very closely align with estimates of the employed labour force from the 2016 Census. For smaller municipalities with smaller survey sample sizes, the TTS data are more likely to vary from the Census labour force counts.

Post-Secondary Students

The TTS data for full-time students attending post-secondary school were compared against full-time enrolments provided by universities and colleges. The TTS results for a number of universities (OCAD, Ryerson, Guelph, Toronto, and York) are very close to the official enrolment figures. Some university student bodies were under-represented in the TTS data; however, compared to previous cycles, the 2016 TTS figures still show a marked improvement in the representation of university students at almost all universities. This is likely due to the implementation of address-based sampling. The TTS data for college students varies more from the official enrolment statistics, and in many cases does not appear to be an improvement over previous cycles. However, college enrolment comparisons should be interpreted with caution as colleges offer full-time, part-time, continuing education, and apprenticeship courses and it is not always clear how well the college full-time enrolment counts align with reported full-time college students in the TTS data.

Elementary and Secondary Students

The 2016 TTS data on students' school locations were coded to school for householders 11+ years of age, however, the schools code list was not categorized by school level. While it was not possible to aggregate the TTS data by school level, it was possible to make comparison with school district enrolment figures for elementary and secondary students by grouping householders in the TTS data by age group. For public school districts that match well with the TTS geographies, the results suggest that the TTS data closely represent the number of students in the K-12 system. There are some caveats to these comparisons: as noted, assignments to elementary and secondary categories in the TTS data were made on the basis of age rather than the level of the specific school reported; enrolment in private schools and home schooling are not accounted for; and the enrolments in the two major French school districts in the study area could not be apportioned to individual TTS municipalities. The close match to enrolment figures stands to reason as the vast majority of children of school age attend school, and data weighting adjustments were made by age.

Vehicle Registrations

Reference data is available for the number of private vehicle and commercial vehicle registrations for counties in Ontario. The households surveyed in the TTS were asked to identify all registered vehicles available to household members, which may include a small portion of commercial vehicles. Given this, it is hard to make a precise comparison between household vehicles captured by the TTS, as there is no way of knowing what portion of the commercial vehicle registrations in the reference data are associated with private households. However, for TTS geographies that match well with the geographies for which vehicle registrations are available, the TTS household vehicle data appear to lie within the range of total private vehicles and total private and commercial vehicles combined.

Driver's Licences

Overall, the 2016 TTS data appear to slightly under-represent the total population of drivers (by 4%), with drivers under-represented most in the GTHA (by 4%), and slightly over-represented in the portion of the study area outside the GTHA (by 2%). Greater variability was observed by individual municipality.

Travel Data - Traffic Flows

The total amount of auto travel reported in the 2016 survey is consistent with the overall traffic levels observed on the street during the morning peak period of 6:00 a.m. to 8:59 a.m. The goodness of fit of the travel distribution is comparable to previous surveys. Screen line comparison for the 13-hour period from 6:00 a.m. to 6:59 p.m. produced traffic volumes that are lower than the count data across all

screen lines except the GTHA boundary with Dufferin and Simcoe, with the average shortfall being 21%. Based on the findings of previous studies on the survey responses for the primary respondent for the household and for other householders, it may be possible that the shortfall is due in part to the primary respondent under-reporting discretionary trips for other householders.

Travel Data - Transit

Comparisons with transit ridership counts suggest that the extent to which the TTS data represent transit trips varies by transit operator. TTC total daily ridership is under-represented by 6%, but within this, subway ridership appears to be over-represented by 12%, while streetcars and buses are under-represented by 25% and 18% respectively. The expanded survey data closely represent transit boarding counts for GO Rail passengers by rail line, which stands to reason, as an adjustment was made for this in the data weighting to address a high number of survey responses from GO Rail users. However, even after this adjustment, the TTS survey data may not necessarily match GO Train boarding counts by GO Station. GO bus boardings appear to be over-represented by 17%. Amongst other municipalities, the TTS data are close to the daily boarding counts for Durham Region Transit, York Region Transit, and MiWay (serving Mississauga). For all other transit systems for which boarding count data were available, the TTS data appear to under-represent boarding counts.

For almost all transit systems, when comparisons are made by individual route, the TTS data varies more from the boarding counts. This has implications for the use of disaggregated data or analysis by individual route. There are a number of caveats associated with the comparisons, including the accuracy of the boarding counts, the timing of the boarding counts, and the accuracy and completeness of the transit routes reported by TTS respondents. In addition, a small proportion of cases in the expanded TTS data carry relatively high data weights (although generally limited to within plus or minus five times the weight for the expansion zone). High weights may affect the variance of the transit boardings represented by the data. The high weights are typically associated with population with non-response bias in the sample, such as younger people, who are coincidentally more likely to use transit. Users of the disaggregated data should undertake analysis of the transit data with caution and should consider whether treatments of the data or adjustments to model calibration are required to address transit boarding shortfalls or overcounts in the TTS data.

Conclusion

Overall, the survey data very closely align with various household and personal characteristics that are often seen as strong determinants of travel, including: household counts, population counts, household size, dwelling type, age, gender, employment, vehicle registrations, licensed drivers, and elementary and secondary school enrolments. The same is true at the regional and municipal level for larger municipalities, although there is more variance for smaller municipalities. Notwithstanding the fit of the TTS data to these various reference statistics, other comparisons revealed marked differences in the TTS data. For example, the TTS data appear to significantly under-represent enrolments at a number of universities and at most colleges. While the traffic flow comparisons against screenlines suggested a reasonable representation of morning peak traffic, the thirteen hour counts appear to suggest that the TTS data under-report trips during the remainder of the day. Transit comparisons also appeared quite variable by individual route. This suggests that despite the weighting adjustments, there may be hidden biases within the data that may be difficult to identify, and which have not been fully corrected for by the data weighting. The lower levels of response to the survey from younger people and the application of a broader range of weights to some survey cases in order to achieve a better overall representation of the entire population has implications for use-scenarios for the data. For analysis of small sub-samples

such as users of a given transit route, or analysis at the level of traffic zone, consideration should be given to the appropriateness of the sample sizes for the desired analysis as well as to the sampling design effects on sampling error associated with the application of data weights, and whether further treatments of the data may be warranted. It may also be noted that changes to the survey methodology—including the sampling approach, the mix of telephone and online surveys, and the data expansion process—may affect comparisons with previous survey cycles. In particular, different biases within the collected samples for different TTS cycles that are still present after the data expansion, such the change between 2011 and 2016 in the proportion of apartments in the expanded data, may also affect comparisons between cycles.

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City of Barrie
City of Brantford
City of Guelph
City of Hamilton
City of Kawartha Lakes
City of Peterborough
City of Toronto
County of Brant
County of Dufferin
County of Peterborough
County of Simcoe
County of Wellington
Metrolinx
Ministry of Transportation, Ontario
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
Town of Orangeville

This report was prepared for the Transportation Information Steering Committee (TISC) by R.A. Malatest & Associates Ltd., in partnership with Peter Dalton, David Kriger Consultants Inc. and HDR Inc., with guidance from the Data Management Group (DMG) at the Department of Civil Engineering, University of Toronto. The Steering Committee, formerly known as the Toronto Area Transportation Planning Data Collection Steering Committee (TATPDCSC), which also conducted the 1986, 1991, 1996, 2001, 2006 and 2011 TTS, is represented by the Ontario Ministry of Transportation, Cities of Toronto and Hamilton, Regional Municipalities of Durham, Halton, Peel and York, Metrolinx and the Toronto Transit Commission. The contributions of the above supporting agencies to the production of this report and to the ongoing work of the DMG are gratefully acknowledged.

Further Information

The Transportation Tomorrow Survey (TTS) are parts of an ongoing data collection program by the Transportation Information Steering Committee (TISC). The survey data (2016, 2011, 2006, 2001, 1996, 1991 and 1986) are currently under the care of the Data Management Group. 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.

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SECTION 1: Introduction

The 2016 TTS consists of demographic and travel information collected throughout the survey area. The sample frame is mailable residential addresses. The data were expanded to represent the total population of the survey area by developing expansion factors primarily based on dwelling unit counts, with adjustments for distributions of household characteristics and householder demographic characteristics. The expansion factors were applied to all household, person, and trip data associated with each household.

Section 2 of this report provides a discussion of potential sources of error and bias due to the survey methodology and expansion process. Of particular concern is the lower response rate for the address-only portion of the sample frame in providing a representative sample of address-only households (those without listed landlines matched to the address base). Lower response rates are typically associated with greater potential for non-response bias, which may only be partially addressed by weighting adjustments in the data expansion process. The data expansion process corrects for representation by dwelling type, household size, age and sex, and by doing so may also bring other characteristics (vehicle ownership, students, employed labour force) better in line with the real world. However, there are likely to be other factors that cannot be identified or corrected for. Users of this data should be aware of this potential for hidden bias. Furthermore, previous cycles may have been subject to different sources of bias than the 2016 cycle.[1] Due diligence needs to be exercised in assessing the quality and reliability of the TTS data, both on its own and in conjunction with the data from previous surveys, with respect to each specific application. Users of the data who use or report on small subsets of the data should consider the effects of smaller sample sizes on sampling errors, and the tolerance for such error for the specific application of the data.

Section 3 describes the data expansion process and the calculation of expansion factors. The 2016 TTS used a more complex data expansion method with more data weighting controls than in previous cycles. This theoretically should provide a more representative sample than without this approach, but which generates greater variance in the expansion factors themselves, or a greater spread between high and low weights. The 2016 data expansion process results in a single factor applied to each household and all people within each household, as was the case in cycles from 2006 and earlier (while the 2011 approach assigned different weights to each household member).

Section 4 is devoted to the data validation, consisting primarily of comparisons made between the survey results and data obtained from a number of other independent sources. These sources and data items include:

Canada Census

- Dwelling units by dwelling type and household size
- Population by age and gender

[1] Both the 2006 and 2011 cycles were affected by the growing trend in the incidence of cell-phone-only households, which were outside the sampling frame at that time. In the 2011 cycle, demographic adjustments were first introduced as an attempt to partially mitigate this, and the data were expanded to represent total population rather than total households. For a discussion of key methodological differences between the different survey cycles, readers are referred to the TTS Data Guide available under a separate cover.

- Employed Labour Force

Vehicle Licensing Statistics

- Driver's Licences
- Vehicle registrations

Educational Institutions

- University & College Student Enrollments
- School District Student Enrollments

Municipal Cordon Counts

- Traffic volumes

Transit Operators

- Transit ridership

The comparisons identify significant differences between the TTS and other data but the comparisons, of themselves, do not identify either the reason for the difference or which data set is likely to be the most reliable. Subjective evaluations, both as to the quality of the data being compared with and the reason for the differences, are provided where appropriate. It is the responsibility of the user to determine what adjustments, if any, are appropriate for a given application.

Except as noted the comparisons have been made using version 1.0 of the 2016 TTS database.

SECTION 2: Potential sources of error

A primary source of bias in the 2016 survey results is non-response. Comparison with exogenous data, such as the Canada Census, can identify some of the symptoms of bias, but not necessarily the underlying cause. The underlying assumption in the expansion of the TTS data is that travel patterns and behaviours of those who participated in the survey is the same, or similar, to those who were not. Another source for potential error may arise from respondents under-reporting travel. Also, while the data expansion process has resulted in an overall survey sample that appears to be quite representative of the population for the study area, and larger municipalities and planning districts within it, subsets of the data for smaller geographies (e.g., traffic zones, census tract, small towns), may have larger margins of sampling error due to smaller sample sizes and/or distortions due to a small proportion of cases with high weights. These possible sources of error are discussed in more detail below.

2.1 Definition of the Sample Universe

The target sample universe for the TTS is private dwellings occupied by usual residents. The survey is intended to represent residential households and the people living in those households.

The full population of the survey area also includes homeless people and residents of collective dwellings, such as prisons, military barracks, care-homes, and group homes. In 2016, approximately 1.3% of the total population of the study area did not live in private dwellings (with this proportion varying by region within the study area). The survey is not intended to represent the characteristics of this small percentage of the population, nor their travel patterns. [2]

2.2 Sample Frame Coverage

A potential source of error in any survey is inadequate coverage of the sampling universe by the contact list used to recruit survey participants. For the 2016 survey, error due to inadequate coverage was extremely low, as the primary source of contact lists was the Canada Post database of residential mailing addresses.

The gaps in the address base include the following, all of which represent very small fractions of the total population: rural households who receive mail via general delivery; some addresses on First Nations reserves if civic numbers or unit numbers are not used in street addressing; and delivery areas for which the majority of households have opted out of having their address available in the Canada Post database.

All previous TTS cycles used directories of listed residential telephone numbers as the sample frame. The shift to address-based sampling was made for the 2016 TTS to address the significant increase in cell-phone-only households, which was first identified as a major concern in the 2006 cycle, and appeared to have a more significant impact on the representativeness of the data in the 2011 cycle.

2.3 Bias Due to Non-response

Non-response bias occurs when individuals who do not participate in a survey differ in relevant ways from individuals who do participate. For example, younger people are often less inclined to participate in surveys. Larger households are less likely due to the burden of completing a longer survey. Those

[2] Of note, for the 2011 TTS, the survey data were expanded on the basis of total population (rather than expanding the data on the basis of the count of private households). The 2011 TTS is the only cycle that represents total population rather than population living in private households.

living in apartments are also somewhat less likely to participate than those living in single-family dwellings.

The potential for non-response bias is lower for samples with robust response rates and higher for samples with more modest response rates. The contact lists for the 2016 TTS consisted primarily of two types of sample: address-and-phone sample (household addresses matched to a directory-listed telephone number) and address-only sample (addresses not matched to a telephone number). The completed surveys are evenly split between the two types. The response rate for address-and-phone sample was robust (37%), as telephone follow-up increased response significantly beyond what could have been achieved with the survey invitation letter alone. However, the response rate for address-only sample was lower (10%), as this sample received only the survey invitation letter, and required considerably more households to be mailed to achieve an equivalent number of completed surveys. The address-only portion of the sample likely has higher non-response bias. Readers are reminded that inclusion of address-only sample was essential to be able to represent the type of people who live in cell-phone-only households, so relying only on address-and-phone sample was not an available solution to reduce bias.

In the data expansion, non-response bias has been addressed in part through data weighting adjustments by dwelling type, household size, age, and sex. Nevertheless, there is likely bias with respect to other factors that cannot be identified or corrected for, and which may contribute to the variance of the survey data from actual reference data.

2.4 Timing of Sample Selection

The household composition of the survey area changes continuously as people migrate in and out of an area. The Canada Post address base is updated frequently, and so should include recent movers. The initial sample for the survey was drawn in late July 2016, a few weeks prior to the start of survey administration in September, with subsequent draws during survey administration in late September, late October, and mid-November.

The Canada Census was carried out on May 10, 2016 and may therefore represent a slightly different population from that of the survey. The most significant difference is likely to be in the number and distribution of postsecondary school students. These differences, and the effects on the results of the survey, are discussed in Section 4 of this report.

2.5 Under Reporting of Trips

The reliance on one member of each household to report person and trip information for all members of the household is a potential source of error and, more significantly, the under reporting of trip information. Separate studies comparing trip rates for “informants” and “non-informants” have been done for both the 1986 and 1996 TTS. These studies showed a significant difference in reported trip rates for discretionary (non-work or school related) travel by auto drivers and, to a lesser extent for trips made by auto passengers and public transit. There was no significant difference in reported trip rates for travel to and from school or work.

The 2016 survey differed from previous cycles in that over 60% of the surveys were completed online rather than by telephone, compared to 12% in 2011, and none in earlier cycles. At present, it is not clear whether online respondents report the number of trips differently from telephone respondents. Studies of the TTS data have not yet been undertaken to determine whether any apparent differences between trip rates for telephone and online surveys may be attributable to the survey method or simply to the

differences in the characteristics of the telephone and online survey samples (e.g., employment, age, household composition, household life cycle stage, school status, etc.). As best as possible, the design of the online survey was adapted with additional 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.

2.6 Measurement Error

This type of error is associated with the failure of survey instruments to capture correct information, such as through misunderstanding of survey questions. Individual items of information contained in the TTS may be incorrect due to errors in interpretation made by respondents in answering the survey questions, or similar errors by the interviewers in recording the information, or the inability of coding staff to assign the correct coordinates on the basis of the geographic information provided. Inclusion of definitions and help screens on the online survey, field-testing, in-depth training of interviewers, close monitoring, and built-in logic checks in the interview and coding software minimize, but do not eliminate, the potential for measurement error.

2.7 Processing Error

Processing errors include data entry, coding, editing, and imputation errors. This potential source of error was addressed through comprehensive training of survey staff and geocoders, continuous quality management practices, and thorough data validation using a battery of tests to detect potential problems with trip logic.

2.8 Error Related to Data Weighting

The survey sample obtained in the 2016 TTS was not perfectly representative of all household and population characteristics in the area. Also, a uniform sampling rate (3% in Hamilton, 5% everywhere else) was not always achieved in practice, so some geographies were over- or under-sampled.

The advantage of data weighting is that it corrects for these biases or unbalanced distributions in the unweighted sample. The drawback is that data weighting increases the sampling variance, particularly when there is a large spread of weights.[3] To mitigate this, limits were set to the size of individual household weights relative to the base weight for each expansion zone. Even so, the data weighting has the result of increasing the theoretical average sampling error from ±0.2% if the sample had been perfectly representative and did not require data weighting, to an effective sampling error of ±0.3% at a 95% confidence level.

Data weighting errors can also occur if the data weighting controls have errors or if they use different data definitions than data collected in the survey. To address this risk, reference data used for weighting controls was drawn from reliable sources with as complete coverage as possible, from a similar timeframe, and identical or very similar definitions. Thus, the weighting controls were drawn from the Census conducted in May 2016 and from Metrolinx GO Rail ridership counts from Presto counts and ticket sales for the same period as the survey. A crude adjustment was made to weighting control data for Census population counts for those aged 75+, to account for a portion of this population living in

[3] This increase in sampling variance may be quantified by the "sampling design effect", computed as the ratio of the variance of the statistic of interest under the design of interest to the variance of the statistic under simple random sampling of the same size. In simple terms, the design effect allows us to estimate the impact of weighting on reducing the "effective sample size" and increasing the effective margin of error associated with random sampling.

collective dwellings (who are outside the target population universe that the TTS represents.) This adjustment to the control data is discussed in more detail in Section 3.3.

2.9 Sampling Error

Sampling error refers to the variance of the survey result from the true value of the population that occurs by chance because a sample was surveyed rather than the complete population. As best as possible, sampling error was controlled for in the sample design by ensuring a robust sampling rate (5% in most of the study area, except for Hamilton, which had a 3% sampling rate) targeted evenly across all geographies in the study area. This produced a very large overall survey sample, of 162,708 households. If the survey sample were fully representative of the households in the study area (and did not require data weighting) the estimated margin of sampling error for survey results across the entire study area would theoretically be ±0.2% at a 95% confidence level (19 times out of 20). The application of data weights increases the sampling error to ±0.3%.

The margin of sampling error for smaller subsets of the data is greater, and is driven less by the sampling rate than by the actual number of households surveyed. A large municipality with a 5% sampling rate will have a very low margin of sampling error for the municipal-level results, a mid-sized municipality with the same sampling rate will also have relatively low overall margin of sampling error, but a smaller municipality for which the same sampling rate yields numerically small numbers of surveys will have survey results subject to considerably greater sampling errors. The latter concern also applies to small sub-populations analysed individually.

Users of the data who need to stratify the survey results into smaller geographies or population subsets are encouraged to divide the sample into as few strata as possible, in order to maximize individual subsample sizes and minimize the associated sampling variance for individual subsamples.

Estimated sampling errors by region for household-level and trip-level data are presented in Table 2-1 and Table 2-2, following.

Readers are reminded that only sampling error estimates are listed in the table. Non-response bias and measurement error may result in variance above and beyond sampling error. Subsamples within each region will be subject to greater sampling errors.

Table 2-1: Estimate of sampling error by region for household-level data by region

Region of Household	Private Dwellings Occupied by Usual Residents [1]	Sample Size (n) (households surveyed by TTS)	Sampling Rate [2]	Sampling Design Effect (due to over- and under-sampling and weighting) [3]	Effective Margin of Sampling Error for Household Data (95% conf.) [4]
Survey Area	**3,335,990**	**162,708**	**4.9%**	**1.6059**	**±0.3%**
Toronto	1,112,929	54,350	4.9%	1.6363	±0.5%
Durham	227,906	11,700	5.1%	1.6027	±1.1%
York	357,084	18,374	5.1%	1.5134	±0.9%
Peel	430,180	22,105	5.1%	1.6500	±0.8%
Halton	192,977	9,772	5.1%	1.4602	±1.2%
Hamilton	211,596	6,424	3.0%	1.4469	±1.4%
Niagara	183,828	9,098	4.9%	1.6117	±1.3%
Waterloo	203,832	9,790	4.8%	1.4472	±1.2%
Guelph	52,090	2,487	4.8%	1.4633	±2.3%
Wellington	22,121	1,207	5.5%	1.4931	±3.4%
Orangeville	10,565	554	5.2%	1.4487	±4.9%
Dufferin	11,353	637	5.6%	2.0016	±5.3%
Barrie	52,476	2,956	5.6%	1.6761	±2.3%
Simcoe	117,583	5,817	4.9%	1.6358	±1.6%
Orillia	13,477	665	4.9%	1.6856	±4.8%
City of Kawartha Lakes	31,106	1,556	5.0%	1.5851	±3.0%
City of Peterborough	34,710	1,580	4.6%	1.6418	±3.1%
Peterborough County	17,455	931	5.3%	1.6866	±4.1%
Brant	13,507	793	5.9%	1.3731	±4.0%
Brantford	39,215	1,912	4.9%	1.7800	±2.9%

[1] Source: Statistics Canada 2016 Census.
[2] Sampling rate: the percentage of 2016 Census households surveyed.
[3] The design effect is a measure of the extent to which over- and under-sampling and data weighting corrections for this contribute to an increase in the margin of sampling error. A perfectly representative sample would have a design effect of 1.0.
[4] Margin of error associated with random sampling, at a 95% confidence level (19 times out of 20), for survey results for households located within the region, accounting for sampling design effects associated with data weighting. Actual values for the population may be expected to lie within the range of the survey result plus or minus the error. Does not take into account other possible sources of error such as measurement error, or non-response bias not corrected for by the data weighting.

Important Note: Sampling error is not the only possible source of error. Non-response bias and measurement error may result in variance above and beyond sampling error. The variance of the survey results from the true statistics for the population may be greater than listed in the table above due to other sources of error.

Table 2-2: Estimate of sampling error by region for trip-level data by region

Region of Trip Destination	Daily Trip Records Captured by the Survey (destined to zone)	Sample Size (n) (persons surveyed with trips destined to zone)	Estimated Daily Trips Destined to Zone (expanded TTS trips)	Estimated Sample Universe (expanded TTS persons with trips destined to zone) [1]	Sampling Design Effect (due to over- and under-sampling and weighting) [2]	Estimated Effective Margin of Sampling Error for Trip Data (95% conf.) [3]
Survey Area	**798,093**	**274,568**	**17,522,728**	**6,084,588**	**1.5687**	**±0.2%**
Toronto	261,010	116,856	5,527,334	2,503,829	1.5924	±0.4%
Durham	54,191	22,857	1,143,099	487,688	1.5232	±0.8%
York	98,256	48,597	2,068,438	1,035,205	1.4867	±0.5%
Peel	114,668	55,306	2,464,592	1,194,422	1.5468	±0.5%
Halton	49,979	23,351	1,109,878	526,245	1.4988	±0.8%
Hamilton	30,256	13,473	1,048,785	444,827	1.4923	±1.0%
Niagara	40,847	14,472	908,190	325,833	1.6031	±1.0%
Waterloo	50,237	18,510	1,132,722	420,254	1.4392	±0.8%
Guelph	13,833	6,006	307,782	135,530	1.4329	±1.5%
Wellington	4,952	2,866	99,829	58,117	1.4976	±2.2%
Orangeville	3,030	1,634	62,043	32,834	1.5624	±3.0%
Dufferin	1,946	1,323	40,304	26,319	1.9348	±3.7%
Barrie	15,204	6,781	319,372	144,727	1.6402	±1.5%
Simcoe	22,236	10,945	495,554	242,564	1.6218	±1.2%
Orillia	3,746	1,831	80,064	40,441	1.7291	±2.9%
City of Kawartha Lakes	5,693	2,599	122,164	56,448	1.5838	±2.4%
City of Peterborough	8,790	3,649	195,169	82,073	1.6342	±2.0%
Peterborough County	2,965	1,884	61,319	39,181	1.6281	±2.8%
Brant	3,159	1,955	60,551	37,368	1.5241	±2.7%
Brantford	8,972	3,961	188,222	85,971	1.6473	±2.0%
External or unknown	4,123	3,667	87,316	77,956	2.0000	±2.0%

Excludes persons who did not travel on their surveyed travel day. The survey area total for the person sample is less than the sum of the individual entries for each trip destination region, as individuals are counted in each region they had trip origins in, but are only counted once in the total.

[1] The estimated sample universe of persons who made trips to a given region is based on the expanded survey data, so should be considered an approximation of the actual number, and maybe be subject to error. Nevertheless, it provides a useful reference figure to use in the computation of the sampling error.

[2] The design effect is a measure of the extent to which over- and under-sampling and data weighting corrections for this contribute to an increase in the margin of sampling error. A perfectly representative sample would have a design effect of 1.0.

[3] Estimated margin of error associated with random sampling, at a 95% confidence level (19 times out of 20), for survey results for persons with trips destined to the given region, accounting for sampling design effects associated with data weighting. As the estimated universe of people making trips within each given region is an approximation based on the expanded survey sample, and as person samples within each zone are not always independent random samples, the margin of sampling error for trip-level data should be taken as an approximation. Does not take into account other possible sources of error such as measurement error, or non-response bias not corrected for by the data weighting.

Important Note: Sampling error is not the only possible source of error. Non-response bias and measurement error may result in variance above and beyond sampling error. The variance of the survey results from the true statistics for the population may be greater than that listed in the table above due to other sources of error.

SECTION 3: Data Expansion

The 2016 TTS data have been expanded to represent the total households or total population of the survey area using control totals obtained from the 2016 Canada Census.

The 2016 TTS data expansion process is a return to expansion factors calibrated against household counts. Earlier TTS cycles from 1986 through 2006 were also calibrated against household counts, while the 2011 cycle was calibrated against population. The 2016 data expansion process differs from that used in previous TTS cycles in that it expands the weighting controls to include: dwelling type (3 categories), household size (5 categories), and householder age by gender (22 categories). It was necessary to introduce additional weighting controls in 2016 to address non-response bias in the survey sample and provide a weighted data set that is more representative of the population for key characteristics. The 2016 data expansion process also differs from previous cycles in that it uses an iterative proportional fitting (IPF) data weighting method. This method allows the expansion factors to be adjusted for multiple weighting controls at the person and household level, while arriving at expansion factors that are the same for each person in a given household.

3.1 Data Weighting Geography (Expansion Zones)

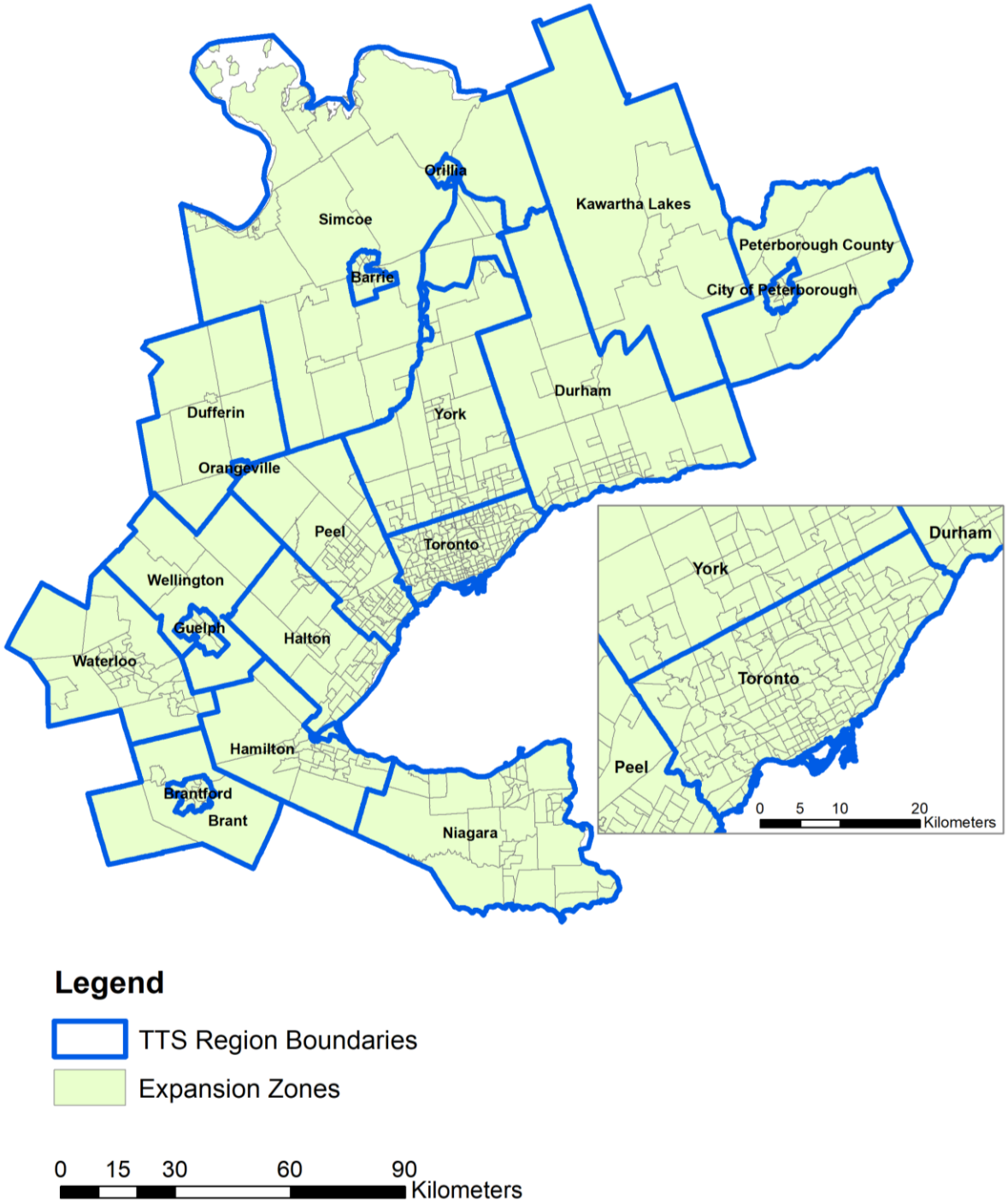
The data expansion factors were calculated using geographical areas called expansion zones. Base expansion factors were calculated for each expansion zone on the basis of the household counts in the Census data. Subsequent data weighting adjustments for household characteristics and demographic characteristics were undertaken for households within each expansion zone, using Census data compiled by expansion zone as the weighting controls.

For the 2016 TTS, a hybrid of Statistics Canada's standard geographies was used as the basis for the expansion zones. The 2016 expansion zones were developed primarily from aggregations of Aggregated Dissemination Areas (ADAs).[4] In order for the expansion zone geographies to align better with municipal and planning district boundaries, a small number of ADAs were split by Census Subdivision (in the few cases where a rural ADA included multiple Census Subdivisions), Census Tract, and/or Dissemination Area.

The data expansion zones vary in area depending on the population density. Aggregations were undertaken with the objective of forming survey samples large enough to reduce the likelihood of empty demographic cells or extreme data weights, but with consideration of geographic barriers that might warrant keeping some areas separate (major highways, railroad tracks, water features). There are 1,022 ADAs within the survey area. These ADAs were aggregated or split to form 568 expansion zones. Over 80% of the expansion zones included more than 200 households surveyed, 18% had between 100 and 200 surveys, and 2% had between 32 and 99 surveys. The latter were mainly small towns that needed to be kept separate from other municipalities for reporting purposes. The expansion zones are illustrated in Figure 3-1 and detailed in Appendix A of this report.

[4] ADAs were created for the 2016 Census, covering the entire country to ensure the availability of Census data across all regions of Canada. They are formed from Census Tracts within Census Metropolitan Areas and tracted Census Agglomerations, Census Subdivisions or Dissemination Areas, and generally contain a population between 5,000 and 15,000. In heavily urbanized areas with large populations, a given municipality may have many ADAs within it, but in rural areas, ADAs may encompass more than one municipality.

Figure 3-1: Data Expansion Zones



3.2 Data Expansion Approach in Previous Cycles

In the 1986, 1991, 1996, 2001, and 2006 surveys, survey expansion factors were simple factors calculated as the ratio of the Census household count to the survey sample size for each geographic expansion zone. In 2001, the expansion zones were based on postal forward sortation areas (FSAs), while in 2006, these were based on aggregated Census Tracts. The number of households (private dwelling units occupied by usual residents) in each expansion zone was obtained from the Canada Census and used as the control total for calculating the expansion factor. The same expansion factor was applied to all the households in an expansion zone and to all household, person, and trip data associated with each household. In 2001, differential expansion rates for apartments and non-apartments were applied to address non-response bias for apartment households, using Canada Post counts of apartments and non-apartments as control data. The 2006 and 2011 TTS attempted to address this by over-sampling listed phone numbers in the survey contact lists.

In 2011, the weighting method was a departure in that it took into account age distribution and in that the final expansion was matched against Canada Census population counts (rather than household counts). In the 2011 survey, after initial application of simple expansion factors, significant variance from the Census demographics was identified, particularly for certain geographies such as downtown Toronto. This was due in part to the growing number of cell-phone-only households (a concern also observed in the 2006 survey to have a potential impact on the representativeness of the sample but not addressed in the data expansion in that cycle). Postal FSAs were used as the geographical basis for expansion zones and base household expansion factors. Next, to adjust for observed bias in the 2011 dataset by age, adjustment factors were applied using Census counts aggregated by age range. This step also had the effect of adjusting the weighted survey counts to match total population. As 1.4% of the population lived in collective dwellings (prisons, student residences, seniors care facilities) or was homeless, and thus was not part of the TTS's target sample frame, the 2011 TTS slightly over-represents the target population of people living in private residences. In the 2011 data, the person-level expansion factors were applied to the person and trip data, while the household expansion factor included in the database is the mean of the person factors applied to each person in a given household. Therefore, household tabulations were only consistent with person and trip tabulations if they were based on complete household data; while the use of the household expansion factors for tabulation of household data based on any subset of household members (such as the number of persons with a driver's licence) is not valid. Such attributes should only be used as filters when performing person or trip tabulations with the 2011 data.

Differences in the weighting approaches may affect the comparability of the TTS data for different cycles.

3.3 Weighting Controls

The weighting controls were chosen as strong determinants of travel behaviour, with survey responses that are complete and reliable, and that have population reference data that accurately describe the population, and that can be stratified for the expansion zones within which the data weighting is undertaken. Outlined below are the data weighting controls and the weighting strata for each control. Within expansion zones with small samples, certain data weighting strata may have been collapsed due to small cell sizes or cells with no observations.

Controls for adjustments made within each expansion zone:

Household Controls (2016 Census)

- **Total households:** private dwellings occupied by usual residents
- **Dwelling type**, stratified into single-detached, apartment, and townhouse
- **Household size**, stratified into 1-person, 2-person, 3-person, 4-person, and 5+ person households

Demographic Controls (2016 Census)

- **Age by sex**, stratified by sex (male, female) and 11 age ranges (as follows)
  - 0 to 4 years
  - 5 to 9 years
  - 10 to 14 years
  - 15 to 19 years
  - 20 to 24 years
  - 25 to 34 years
  - 35 to 44 years
  - 45 to 54 years
  - 55 to 64 years
  - 65 to 74 years
  - 75+ years

Global adjustment across all expansion zones:

GO Train Riders (Metrolinx, from Presto/ticket sale counts)

- **GO Train boardings:** weekday average for each of seven rail lines

An adjustment was made to the weighting control data for Census distributions by age. Census demographic data on age distribution are counts of the total population (including those living in collective dwellings), whereas the survey data should represent only the portion of the population living in private households. To address this, the Census counts for persons aged 75+ years of age were reduced by 20% to account for older residents living in collective dwellings (e.g., care homes). The reduction to apply to this population segment was estimated based on an examination of data for survey cycles earlier than 2001 compared against the Census for the same cycles. In these earlier TTS cycles, almost all residential households had a listed land line and response rates were in excess of 50%, so sample coverage errors and non-response bias would be less than in later cycles, and the proportion of persons 75+ living in private residences from the survey results could be viewed as a reasonable estimate of the proportion in reality. In the comparisons of the survey results with the Census counts later in this report, the comparison is with the overall Census count.

In addition to controls developed from 2016 Census data, GO Train daily boardings data were introduced in order to correct for apparent higher survey response amongst GO Train users compared to non-users. The control data were only available on a system-wide basis, and were not stratified by household expansion zone.

No attempts were made to adjust for distribution of surveys by day of week or to introduce other weighting controls or trip correction factors.

For reference, outlined below are the TTS dwelling type definitions used in the conduct of the survey, followed by the Statistics Canada definitions mapped as best as possible to TTS dwelling type.

House	A dwelling unit with a separate outside entrance. Includes single, semi-detached, and basement apartment in a house.
Townhouse	A dwelling unit with a separate outside entrance but as part of a multi-unit building or complex. Usually has a street and unit # in the address. Includes row-house, free-hold, and condo townhouse.
Apartment	Any unit with a common outside entrance. Usually has a unit/suite # in the address. Includes condominium apartments, duplexes, rooming houses, and other multiple units. *Note: The 'duplex' part of this definition may be somewhat contradictory to the "basement apartment in house" definition for House, depending on interpretation (sometimes duplexes are locally thought to be 'side-by-sides', whereas Statistics Canada defines a duplex as 'above-or-below').*

Statistics Canada Definitions & TTS Equivalent

Single-detached house	A single dwelling not attached to any other dwelling or structure (except its own garage or shed). A single-detached house has open space on all sides, and has no dwellings either above it or below it. A mobile home fixed permanently to a foundation is also classified as a single-detached house.	House
Semi-detached house	One of two dwellings attached side by side (or back to back) to each other, but not attached to any other dwelling or structure (except its own garage or shed). A semi-detached dwelling has no dwellings either above it or below it, and the two units together have open space on all sides.	House
Mobile home	A single dwelling, designed and constructed to be transported on its own chassis and capable of being moved to a new location on short notice. It may be placed temporarily on a foundation pad and may be covered by a skirt.	House
Other movable dwelling	A single dwelling, other than a mobile home, used as a place of residence, but capable of being moved on short notice, such as a tent, recreational vehicle, travel trailer, houseboat, or floating home.	House
Row house	One of three or more dwellings joined side by side (or occasionally side to back), such as a townhouse or garden home, but not having any other dwellings either above or below. Townhouses attached to a high-rise building are also classified as row houses.	Townhouse
Other single-attached house	A single dwelling that is attached to another building and that does not fall into any of the other categories, such as a single dwelling attached to a non-residential structure (e.g., a store or a church) or occasionally to another residential structure (e.g., an apartment building).	Townhouse
Apartment or flat in a duplex	One of two dwellings, located one above the other, may or may not be attached to other dwellings or buildings.	Apartment
Apartment in a building that has five or more storeys	A dwelling unit in a high-rise apartment building which has five or more storeys.	Apartment
Apartment in a building that has fewer than five storeys	A dwelling unit attached to other dwelling units, commercial units, or other non-residential space in a building that has fewer than five storeys.	Apartment

3.4 Multi-Dimensional Iterative Proportional Fitting Methodology

The iterative proportional fitting methodology is a multiplicative weighting approach that cycles through weighting adjustments for different weighting controls in sequence until the resulting weights converge on a solution that satisfies all controls within a reasonable tolerance. The approach is multi-dimensional in that it allows for weighting adjustments for separate controls that apply to different levels of data (both household-level and person-level adjustments), which, in this case, are applied at the household level. All people and trips within the same household carry expansion factors that are identical to the household expansion factor. The core steps in the IPF process are outlined below.

Initial step: develop base weights:

- Compute base expansion factor by expansion zone. All households within the same expansion zone have the same base expansion factor.

$$Base\ Exp\ Factor_{ExpZone} = \frac{Census\ control\ count\ of\ households_{ExpZone}}{n\ Households\ surveyed_{ExpZone}}$$

  Where *ExpZone* is the geographic expansion zone.

- Then populate the expansion factors in the survey data.

$$hhld\_expf_i = Base\ Exp\ Factor_{ExpZone}$$

  where each household i in a given expansion zone is given the same base expansion factor.

IPF steps within each full iteration of the IPF process:

1. Adjust by dwelling type
2. Adjust by household size
3. Evaluate age and gender distributions and apply adjustments at household level
4. Check for convergence on solution (all controls balanced within tolerance), and iterate through the above steps again as required

For each IPF step above:

- In each cell in the weighting stratification, sum the survey weights and compare against the control total for the same cell to calculate a draft weighting adjustment to apply to all cases in the cell:

$$Adjustment\ Factor_{ExpZone.Stratum} = \frac{Control\ count_{ExpZone.Stratum}}{\sum_{i=1}^{n} hhld\_expf_{i\ (within\ ExpZone.Stratum)}}$$

  where

  ExpZone.Stratum is the cell for the household or demographic stratum (e.g., one-person households, or females aged 0-5 years) within the given expansion zone,

  and

  $\sum_{i=1}^{n} hhld\_expf_i$ is the sum of the of the current expansion factors for each survey record, with the n survey records being either households (for weighting adjustments to match household-level controls) or persons (for weighting adjustments to match person-level controls) within the given stratum for the weighting control.

- For household-level controls, the next step is to apply the appropriate adjustment factor to the current expansion factor for each household, as appropriate for the given stratum the household falls within:

$$hhld\_expf_i = hhld\_expf_i \times Adjustment\ Factor_{ExpZone.Stratum}$$

1. If the adjustment is for a person-level control, in each household, the household-level adjustment is the average of the adjustment factors across all people in the household:

$$hhld\_expf_i = hhld\_expf_i \times \frac{\sum_{x=1}^{n_i} AdjustmentFactor_{ExpZone.Stratum}}{n_i}$$

   where the sum in the formula is the sum of the adjustment factors for each stratum associated with each of n_i person records in each household i.

2. The final adjustment within each IPF step is to limit any resulting expansion factors that are extreme relative to the base expansion factor for the expansion zone the household is located within:

$$(0.2 \times Base\ Exp\ Factor_{ExpZone}) \leq hhld\_expf_i \leq (5.0 \times Base\ Exp\ Factor_{ExpZone})$$

After each IPF step:

3. Recalibrate the weighted households to match control total of households for the geography (otherwise the sum of the weights may not line up due to the limits placed on extreme weights):

$$hhld\_expf_i = \frac{Census\ control\ count\ of\ households_{ExpZone}}{\sum_{i=1}^{n} hhld\_expf_{i\ (within\ ExpZone)}}$$

   It may be noted that this final calibration step may have the effect of forcing some weights above the limits applied at the end of the IPF adjustment. This is not corrected for, but allowed to stand as is. By expansion zone, the lowest the weights range is 0.47 of the base weight for a given zone and the highest 5.7 times the base weight for a given zone.

Two variations to the above steps were injected into the data expansion process for the 2016 TTS data. First, as part of the initial calculation of the base household expansion factors, adjustments were made to better balance the counts of households by ADA for expansion zones formed of multiple Statistics Canada geographies. This was done so that sub-geographies within a given expansion zone with very different response rates would not yield travel patterns weighted towards the portion of the expansion zone that had been oversampled. This adjustment was done only once, and could have been unbalanced by subsequent data weighting steps. Additionally, adjustment factors for total GO Train boardings by rail corridor were made once as part of the first IPF iteration, and once again at the fifth-to-last iteration. The adjustment was computed at the household level. First, adjustment factors were calculated for each household with GO Train trips for a given rail corridor such that the adjusted trip counts would match the corridor control total. Households with usage of more than one rail corridor received an average of the adjustments for each corridor used. All households without GO Train trips then received a separate adjustment to rebalance the household counts by expansion zone to fit the household control total. As this adjustment was undertaken on a non-standard weighting control associated with survey data for reported travel behaviour rather than personal characteristics, this adjustment was given low priority, such that it would not unduly unbalance the core weighting controls, thus its injection into the IPF process only for selected iterations.

3.5 Final Expansion Factors

Table 3-1 illustrates the dispersion of the expansion factors applied. It may be noted that the mean expansion factor for Hamilton is higher than the average for other regions as a result of the lower 3% sampling rate in Hamilton. Given the multiple adjustments in the data expansion process, the expansion factors do vary from household to household. Some extreme weights do exist in the sample, with 1% of the weights lower than 3.81 and 1% greater than 86.32.[5] The great majority of the weights applied are within reasonable ranges: 90% are within the range of 5.46 to 50.20, and 50% are within 10.73 and 24.95. The highest weights are associated either with geographies that either had low overall survey response rates or with household types or age groups that were under-represented in the unweighted survey sample. The lowest weights are associated with geographies that had higher-than-expected response rates or with over-represented household types or age groups (often single-detached dwellings, seniors). See Appendix A for a similar table by expansion zone.

Table 3-1: Range of expansion factors

	Households Surveyed	Mean	Std Dev.	Percentiles								
				Min.	01	05	25	Median	75	95	99	Max.
Survey Area	**162,708**	**20.50**	**15.96**	**1.42**	**3.81**	**5.46**	**10.73**	**16.08**	**24.95**	**50.20**	**86.32**	**198.03**
GTHA	**122,725**	**20.64**	**16.17**	**2.12**	**3.77**	**5.34**	**10.63**	**16.29**	**25.23**	**50.47**	**87.35**	**198.03**
Non-GTHA	**39,983**	**20.09**	**15.28**	**1.42**	**3.93**	**6.00**	**11.00**	**15.44**	**24.09**	**49.10**	**83.48**	**156.23**
City of Toronto	54,350	20.48	16.33	2.82	3.80	5.16	10.47	16.14	24.91	50.95	88.85	182.60
Durham Region	11,700	19.48	15.12	3.04	3.83	5.59	9.87	14.96	24.30	48.02	80.42	162.11
York Region	18,374	19.43	13.92	2.68	4.25	5.65	10.84	15.94	23.74	43.83	73.96	139.07
Peel Region	22,105	19.46	15.69	2.12	3.38	4.64	9.37	15.23	24.27	47.44	84.77	170.24
Halton Region	9,772	19.76	13.41	3.01	4.18	6.75	11.58	16.11	23.61	44.33	74.33	121.53
City of Hamilton*	6,424	32.93	22.01	4.73	6.92	11.05	18.68	26.37	40.75	75.59	114.37	198.03
Niagara Region	9,098	20.21	15.81	2.78	3.88	6.09	11.17	15.40	23.53	51.49	87.68	148.27
Waterloo Region	9,790	20.82	13.92	3.13	4.50	7.03	12.23	16.89	25.55	45.90	74.63	146.20
City of Guelph	2,487	20.97	14.28	3.69	4.25	5.42	11.25	17.59	26.39	46.12	79.09	133.21
Wellington County	1,207	18.27	12.84	3.71	3.71	7.22	10.42	14.97	21.27	42.97	68.89	112.81
Town of Orangeville	554	19.07	12.79	5.64	5.83	6.99	10.87	14.57	23.11	44.85	77.94	86.23
Dufferin County	637	17.83	17.86	1.42	2.24	3.48	7.21	11.80	21.03	56.87	82.28	156.23
City of Barrie	2,956	17.75	14.60	2.86	3.55	4.57	7.89	12.98	22.99	45.33	76.22	102.97
Simcoe County	5,817	20.21	16.12	3.28	4.10	6.62	11.22	14.95	23.06	52.55	93.48	135.25
City of Orillia	665	20.26	16.79	3.32	3.60	4.86	9.95	16.10	25.16	50.19	91.23	150.52
City of Kawartha Lakes	1,556	20.01	15.31	3.31	4.31	6.95	11.65	15.09	22.84	50.80	81.02	119.99
City of Peterborough	1,580	21.97	17.60	3.75	4.81	6.17	11.03	15.55	26.98	58.44	93.65	137.28
Peterborough County	931	18.74	15.53	3.35	4.00	5.95	10.44	13.65	20.49	51.30	84.54	112.00
Brant County	793	17.02	10.40	3.58	5.95	7.51	10.42	13.46	20.29	37.82	58.15	85.99
City of Brantford	1,912	20.52	18.12	3.83	4.63	5.67	9.86	13.97	24.12	56.45	97.26	129.12

*3% of households in Hamilton were sampled, whereas 5% of households were sampled elsewhere.

[5] It may be noted that while the expansion factors in each expansion zone were initially limited to between 0.2 and 5.0 times the average weight for each expansion zone, some expansion zones had much higher or much lower sampling rates than the average for the municipality. When expansion zones are aggregated, this can result in greater extremes relative to the average for the municipality. This was allowed to ensure that the geographic distribution of households was appropriate.

Table 3-2 highlights the mean expansion factor and the standard deviation of the expansion factor for historical TTS cycles. The standard deviation is a measure of the dispersion of the expansion factors around the mean and is important to determining the confidence interval of tabulations. The standard deviation of the expansion factors for 2006 and earlier cycles are relatively modest, indicating less dispersion and fewer extremes. The introduction of demographic weighting controls in 2011 and the introduction of new data weighting controls in 2016 have significantly increased the standard deviation of the expansion factors. While the data expansion theoretically results in a better reflection of the overall characteristics of the population, particularly at aggregate levels, caution should be exercised when analyzing data for small sub-samples of the data. It may not be appropriate to use the 2016 and 2011 data for some of the very detailed analyses for which earlier surveys were used.

Table 3-2: Standard deviation and mean of expansion factors for TTS since 1986

TTS Cycle	Mean Expansion Factor	Standard Deviation
1986	23.86	3.14
1996	20.12	2.58
2001	17.73	3.95
2006	19.19	2.58
2011*	20.76	6.29
2016	20.50	15.96

*For 2011, final expansion factors were developed at the person-level (with household factors being the average of person expansion factors for householders within the same household), whereas in other cycles, they were developed at the household level (and each person in a household has the same expansion factor).

3.6 Results of IPF Weighting

Table 3-1 presents key overall statistics from the TTS data for the unweighted survey sample, the TTS data after application of the base expansion factors by geography, and the TTS data after application of the final expansion factors developed via the Iterative Proportional Fitting data weighting. Census data and other reference data (provincial data for vehicle registrations and driver's licences) have been included for comparison, where available. The unweighted data has been split out by sample type and by survey platform to highlight the different biases or patterns in the data for the various sub-samples. The information in the table illustrate the impact of the application of the IPF weighting for various weighting controls on the weighted data in achieving a more representative sample in terms of total population, dwelling type, household size, age, gender, income, and total employment.

Examining the unweighted data reveals biases in the survey sample prior to data weighting. Of particular interest, it reveals that the characteristics of households and people differ quite a bit for two main sample types (address-and-phone and address-only). For example, the address-only sample significantly under-represents apartments, townhouses, people under the age of 44 years of age, and employed people. The address-only sample, which is more representative in certain respects and subject to somewhat different biases in other respects, serves to balance out the biases in the address-only sample for a number of measures prior to the application of data weights. The extent of the bias in the address-and-phone sample provides a strong justification for moving from sampling based solely on listed land-line telephone numbers in previous TTS cycles to address-based sampling in the 2016 TTS that includes cell-phone-only households that otherwise would not be surveyed.

Benchmark reference data are not available for certain travel indicators (such as total number of trips, mode share, etc.). These are listed in the table to show the differences between the sample types, as well as the impact of data weighting on these indicators.

Table 3-3: Biases in sub-samples and high-level results of data weighting adjustments

		Unweighted TTS Sample						With Base	
		Sample Type			Survey Platform				
	Census / Other Reference	Address-and-Phone	Address-Only	Other	Phone	Online*	Total Unweighted Sample	Geographic Expansion Factors	With Final Expansion Factors
Households	**3,335,990**	82,460	79,226	1,022	57,847	104,861	**162,708**	**3,335,990**	**3,335,990**
difference from Census	-							**0.0%**	**0.0%**
Total Population	**9,006,535**								
Population in Private Dwellings	**8,887,935**	203,134	190,085	2,666	133,321	262,564	**395,885**	**8,110,647**	**8,822,802**
difference from total population	**-1.3%**							**-9.9%**	**-2.0%**
Difference from pop. in pvt. dwellings	-							**-8.7%**	**-0.7%**
Vehicles	**4,854,698 - 5,610,482****	128,699	113,657	1,657	82,202	161,811	**244,013**	**4,959,263**	**5,053,441**
Avg. Vehicles per Household		1.56	1.44	1.62	1.42	1.54	**1.50**	**1.49**	**1.52**
Dwelling Type									
House	**55.1%**	67.7%	54.2%	71.9%	63.2%	60.1%	**61.2%**	**61.2%**	**55.1%**
Apartment	**35.4%**	23.8%	35.0%	20.0%	29.3%	29.2%	**29.2%**	**29.2%**	**35.4%**
Townhouse	**9.5%**	8.5%	10.8%	8.1%	7.5%	10.8%	**9.6%**	**9.6%**	**9.5%**
difference from census (in %-pts)									
House	-	12.6%	-0.9%	16.8%	8.1%	5.0%	**6.1%**	**6.1%**	**0.0%**
Apartment	-	-11.6%	-0.4%	-15.4%	-6.0%	-6.2%	**-6.2%**	**-6.1%**	**0.0%**
Townhouse	-	-1.0%	1.3%	-1.4%	-2.0%	1.3%	**0.1%**	**0.0%**	**0.0%**
Household Size									
1	**24.7%**	24.2%	26.6%	21.4%	30.8%	22.3%	**25.3%**	**25.6%**	**24.6%**
2	**30.4%**	38.6%	36.9%	36.9%	36.9%	38.2%	**37.7%**	**37.5%**	**30.4%**
3	**17.0%**	15.3%	16.3%	15.8%	13.2%	17.2%	**15.8%**	**15.8%**	**17.0%**
4	**16.8%**	14.3%	13.4%	16.3%	12.2%	14.8%	**13.9%**	**13.9%**	**16.8%**
5+	**11.1%**	7.7%	6.7%	9.6%	6.8%	7.4%	**7.2%**	**7.2%**	**11.1%**
difference from census (in %-pts)									
1	-	-0.5%	2.0%	-3.2%	6.2%	-2.3%	**0.7%**	**0.9%**	**0.0%**
2	-	8.2%	6.5%	6.5%	6.6%	7.8%	**7.4%**	**7.2%**	**0.0%**
3	-	-1.7%	-0.7%	-1.3%	-3.8%	0.2%	**-1.2%**	**-1.2%**	**0.0%**
4	-	-2.5%	-3.4%	-0.5%	-4.6%	-2.0%	**-2.9%**	**-2.9%**	**0.0%**
5+	-	-3.5%	-4.4%	-1.5%	-4.3%	-3.7%	**-3.9%**	**-3.9%**	**0.0%**
Avg. Household Size	**2.66**	2.46	2.40	2.61	2.30	2.50	**2.43**	**2.43**	**2.64**
Income									
% of total sample declined/unknown		*22.6%*	*15.7%*	*22.0%*	*21.7%*	*17.9%*	***19.2%***	***19.2%***	***17.8%***
% of valid answers									
$0 to $14,999	**5.6%**	4.9%	4.9%	6.9%	7.0%	3.8%	**4.9%**	**5.1%**	**5.8%**
$15,000 to $39,999	**18.2%**	20.4%	15.9%	19.8%	26.6%	13.7%	**18.1%**	**18.6%**	**18.0%**
$40,000 to $59,999	**14.9%**	18.7%	16.5%	20.1%	20.7%	15.9%	**17.6%**	**17.7%**	**17.4%**
$60,000 to $99,999	**24.5%**	23.9%	27.5%	23.7%	21.8%	27.8%	**25.7%**	**25.6%**	**26.1%**
$100,000 to $124,999	**10.9%**	11.0%	13.2%	8.8%	8.5%	14.0%	**12.1%**	**12.0%**	**12.1%**
$125,000 and above	**25.8%**	21.0%	22.1%	20.7%	15.4%	24.8%	**21.5%**	**21.0%**	**20.6%**

	Census / Other Reference	Unweighted TTS Sample						With Base Geographic Expansion Factors	With Final Expansion Factors
		Sample Type			Survey Platform		Total Unweighted Sample		
		Address-and-Phone	Address-Only	Other	Phone	Online*			
difference from Census (in %-pts)									
$0 to $14,999	-	-0.7%	-0.7%	1.3%	1.4%	-1.8%	**-0.7%**	**-0.5%**	**0.2%**
$15,000 to $39,999	-	2.2%	-2.3%	1.6%	8.4%	-4.5%	**-0.1%**	**0.4%**	**-0.2%**
$40,000 to $59,999	-	3.8%	1.5%	5.2%	5.8%	1.0%	**2.7%**	**2.8%**	**2.5%**
$60,000 to $99,999	-	-0.6%	2.9%	-0.8%	-2.8%	3.3%	**1.2%**	**1.1%**	**1.5%**
$100,000 to $124,999	-	0.1%	2.3%	-2.2%	-2.4%	3.1%	**1.2%**	**1.0%**	**1.2%**
$125,000 and above	-	-4.8%	-3.7%	-5.1%	-10.4%	-1.0%	**-4.3%**	**-4.8%**	**-5.2%**
Population in Private Dwellings	**8,887,935**	203,134	190,085	2,666	133,321	262,564	**395,885**	**8,110,647**	**8,822,802**
Sex									
M	**48.6%**	47.4%	48.7%	48.0%	46.4%	48.9%	**48.0%**	**48.0%**	**48.7%**
F	**51.4%**	52.6%	51.3%	52.0%	53.6%	51.1%	**52.0%**	**52.0%**	**51.3%**
difference from Census (in %-pts)									
M	-	-1.3%	0.1%	-0.7%	-2.2%	0.2%	**-0.6%**	**-0.6%**	**0.0%**
F	-	1.3%	-0.1%	0.7%	2.2%	-0.2%	**0.6%**	**0.6%**	**0.0%**
Age Range (weighting categories)									
% of total sample with unknown age		0.3%	0.0%	0.4%	0.4%	0.1%	**0.2%**	**0.2%**	**0.2%**
Distribution of age (known ages)									
00-04	**5.2%**	3.0%	5.8%	4.1%	2.8%	5.1%	**4.3%**	**4.3%**	**5.3%**
05-09	**5.7%**	4.8%	5.3%	5.8%	4.6%	5.3%	**5.1%**	**5.1%**	**5.7%**
10-14	**5.7%**	5.5%	4.7%	6.1%	5.2%	5.1%	**5.1%**	**5.1%**	**5.8%**
15-19	**6.1%**	5.0%	4.3%	6.3%	4.8%	4.6%	**4.7%**	**4.7%**	**6.2%**
20-24	**6.8%**	4.2%	4.7%	5.3%	3.9%	4.8%	**4.5%**	**4.5%**	**6.8%**
25-34	**13.5%**	6.4%	15.8%	7.9%	6.0%	13.4%	**10.9%**	**11.0%**	**13.7%**
35-44	**13.3%**	10.1%	15.4%	12.6%	9.3%	14.4%	**12.7%**	**12.7%**	**13.5%**
45-54	**15.0%**	15.1%	14.8%	15.8%	13.8%	15.6%	**15.0%**	**15.0%**	**15.3%**
55-64	**13.0%**	17.2%	13.8%	15.9%	15.9%	15.4%	**15.6%**	**15.6%**	**13.2%**
65-74	**8.7%**	15.8%	9.8%	12.0%	16.9%	10.9%	**12.9%**	**12.8%**	**8.8%**
75+	**6.9%**	12.8%	5.5%	8.1%	16.7%	5.5%	**9.3%**	**9.2%**	**5.6%**
difference from Census (in %-pts)***									
00-04	-	-2.2%	0.5%	-1.1%	-2.4%	-0.1%	**-0.9%**	**-0.9%**	**0.0%**
05-09	-	-0.8%	-0.4%	0.1%	-1.0%	-0.4%	**-0.6%**	**-0.6%**	**0.0%**
10-14	-	-0.2%	-1.0%	0.4%	-0.5%	-0.6%	**-0.6%**	**-0.6%**	**0.1%**
15-19	-	-1.2%	-1.8%	0.2%	-1.4%	-1.5%	**-1.5%**	**-1.5%**	**0.0%**
20-24	-	-2.6%	-2.1%	-1.5%	-2.9%	-2.1%	**-2.3%**	**-2.3%**	**0.0%**
25-34	-	-7.1%	2.3%	-5.6%	-7.6%	-0.1%	**-2.6%**	**-2.5%**	**0.2%**
35-44	-	-3.2%	2.0%	-0.7%	-4.0%	1.0%	**-0.7%**	**-0.6%**	**0.2%**
45-54	-	0.1%	-0.2%	0.7%	-1.2%	0.5%	**-0.1%**	**-0.1%**	**0.3%**
55-64	-	4.3%	0.9%	3.0%	2.9%	2.5%	**2.6%**	**2.6%**	**0.2%**
65-74	-	7.1%	1.1%	3.3%	8.2%	2.2%	**4.2%**	**4.1%**	**0.2%**
75+	-	6.0%	-1.4%	1.2%	9.8%	-1.3%	**2.4%**	**2.3%**	**-1.3%**
Employed Population	**4,506,450**	91,892	102,204	1,315	55,184	140,227	**195,411**	**4,002,428**	**4,570,299**
difference from census								**-11.2%**	**1.4%**
% of persons 15+ who are employed	**60%**	52%	64%	59%	47%	63%	**58%**	**58%**	**62%**
difference from census	-	-7.8%	3.8%	-1.3%	-12.6%	3.2%	**-2.3%**	**-2.3%**	**2.2%**

	Census / Other Reference	Unweighted TTS Sample						With Base Geographic Expansion Factors	With Final Expansion Factors
		Sample Type			Survey Platform		Total Unweighted Sample		
		Address-and-Phone	Address-Only	Other	Phone	Online*			
Drivers licences	**6,203,333**	144,346	134,194	1,864	93,672	186,732	**280,404**	**5,717,653**	**5,965,241**
difference from licence reg'n info								**-7.8%**	**-3.8%**
% of persons 16+ yrs with licence	**84%**	83%	85%	85%	81%	85%	**84%**	**83%**	**83%**
Difference from licence reg'n info	-	-0.8%	0.9%	1.0%	-2.4%	1.3%	**0.0%**	**-0.4%**	**-1.3%**
Transit pass holders		25,205	36,835	346	14,570	47,816	**62,386**	**1,286,709**	**1,480,831**
% of total persons in pvt dwellings		12.4%	19.4%	13.0%	10.9%	18.2%	**15.8%**	**15.9%**	**16.8%**
Students 6-18 yrs		27,466	23,272	417	17,161	33,994	**51,155**	**1,048,276**	**1,348,748**
% of total persons in pvt dwellings		13.5%	12.2%	15.6%	12.9%	12.9%	**12.9%**	**12.9%**	**15.3%**
Students 19+ yrs									
Full-time		5,710	7,629	96	3,576	9,859	**13,435**	**279,727**	**418,667**
Part-time		2,343	3,595	47	1,494	4,491	**5,985**	**123,673**	**160,615**
Total		8,053	11,224	143	5,070	14,350	**19,420**	**403,399**	**579,282**
% of total persons in pvt dwellings									
Full-time		2.8%	4.0%	3.6%	2.7%	3.8%	**3.4%**	**3.4%**	**4.7%**
Part-time		1.2%	1.9%	1.8%	1.1%	1.7%	**1.5%**	**1.5%**	**1.8%**
Total		4.0%	5.9%	5.4%	3.8%	5.5%	**4.9%**	**5.0%**	**6.6%**
Total Daily Trips		410,167	382,618	5,308	273,607	524,486	**798,093**	**16,317,202**	**17,522,728**
Trip rate (trips per person 11+ yrs)		2.22	2.29	2.24	2.25	2.26	**2.25**	**2.25**	**2.26**
Daily Mode Share									
Auto Driver		67.6%	62.9%	64.9%	67.1%	64.4%	**65.3%**	**65.1%**	**63.7%**
Auto Passenger		15.3%	11.6%	15.1%	16.5%	12.0%	**13.5%**	**13.5%**	**13.2%**
Transit		9.3%	13.8%	10.3%	9.2%	12.6%	**11.5%**	**11.6%**	**12.3%**
Walk		4.5%	7.3%	5.7%	4.0%	6.9%	**5.9%**	**5.9%**	**6.6%**
School Bus		1.8%	1.4%	2.2%	1.7%	1.6%	**1.6%**	**1.6%**	**2.0%**
Bicycle		0.8%	1.9%	1.2%	0.7%	1.6%	**1.3%**	**1.4%**	**1.4%**
Other (motorcycle, taxi, paid rideshare, other)		0.7%	1.0%	0.6%	0.8%	0.9%	**0.8%**	**0.8%**	**0.8%**
Daily Transit boardings		66,172	92,857	939	44,257	115,711	**159,968**	**3,325,902**	**3,837,528**
Transit boardings per transit trip		1.74	1.76	1.72	1.75	1.75	**1.75**	**1.75**	**1.78**
% of total boardings by transit type									
TTC Subway		36%	42%	32%	33%	42%	**39%**	**39%**	**38%**
TTC Streetcar		5%	8%	7%	5%	7%	**7%**	**7%**	**6%**
TTC Bus		29%	27%	27%	33%	26%	**28%**	**29%**	**31%**
Other Municipal		17%	13%	23%	19%	13%	**15%**	**15%**	**17%**
Non-Municipal		1%	1%	0%	1%	1%	**1%**	**1%**	**1%**
GO Train		10%	8%	8%	8%	9%	**9%**	**8%**	**6%**
GO Bus		2%	1%	2%	2%	2%	**2%**	**2%**	**2%**

*Note: a small proportion (1.3%) of surveys completed on the online platform were completed over the telephone.

** The actual number of registered vehicles available to households for private use likely lies between the number of registered private vehicles registration and the number of commercial vehicle registrations.

*** The differences from the Census distributions are expressed as the difference in percentage points (%-pts). For example, for the 75+ age group, the difference in TTS distribution (5.6%) from the Census distribution (6.9%) is -1.3 percentage-points. See Table 4-7 later in this report for the difference between the expanded TTS counts and the Census counts, which shows the difference in terms of number of people represented (also taking into account that the TTS data slightly under-represents total population overall). For example, the 1.3%-pt difference the total population in the 75+ age group is under-represented by the TTS data by 19% (which is by design to account for a portion of this population that may be living in collective dwellings and thus excluded from the sampling frame).

SECTION 4: Data validation

This section provides comparisons between the expanded TTS data and various reference data. When differences between the TTS data and the reference data are presented, they are typically presented as percentage differences (%) between the count in the TTS data and the count in the reference data. For comparisons of distributions for certain characteristics (household size, dwelling type, and income), the differences expressed as percentage-point differences (%-pts), i.e., the difference between the percentage observed in the TTS data and the percentage observed in the reference data.

4.1 Dwelling Units and Population

The Canada Census provides detailed and accurate information on the number of households and the distribution of population throughout the country. It is for this reason that population counts from the Census are used as the base for expansion of the TTS data. Table 4-1 gives the TTS house and person record counts and compares the expanded totals with the Census data by municipality. The table also lists the sampling rates (proportion of total households surveyed; proportion of total population surveyed). The household sampling achieved was 3% in Hamilton and 5% for the rest of the study area.

Since the expansion factors are based on household-level controls, there is a precise match between the count of households from the Census and the TTS household count at the municipal level in most cases. Slight differences in household counts at the municipality/planning district level within each region are attributable to slight discrepancies between the expansion zone geographies based on Statistics Canada geographies and the TTS municipality/planning district boundaries and/or very minor adjustments to geographic coding applied to the data after the data weighting.

The TTS is intended to represent population living in private dwellings, and does not represent those living in collective dwellings (hospitals, nursing homes, prisons, etc.). The total population from the Census is listed in Table 4-1 for reference, along with the Census count of the population living in private dwellings, against which the expanded TTS population is compared. The TTS population counts are usually slightly less than the Census counts for population in private dwellings (-0.7% overall). This may be attributed to the fact that larger households are under-represented in the survey data and/or the upper limits placed on extreme weights. While the data expansion process applies weighting adjustments by household size, households with five or more people are grouped together as one weighting stratum. Within the 'five or more people' group, five-person households are usually over-represented, while those with six, seven, or more persons are under-represented. Also, if the 'five or more people' households were significantly under-sampled in a given geography, extreme weights would need to be applied to those households in order to match the Census controls; however, very extreme weights were limited in the data expansion process, and so not all controls could be perfectly matched. Users of the data should bear in mind that the 2016 TTS results slightly under-represent the target population, and in particular persons who live in households with more than six people.

Comparing the expanded TTS population against the total Census population, the difference is -2.0%. In the TTS cycles from 2006 and earlier similar differences from total population were observed. Differences in the total population of the survey area of -2.8%, -2.9%, -2.8%, -2.5% and -2.2% were recorded in the 2006, 2001, 1996, 1991 and 1986 TTS respectively. The 2011 cycle was an exception: the expanded TTS population precisely matched total population from the 2011 Census for all municipalities, and was higher than the population living in private dwellings. When making comparisons with the 2011 results, users of the data should keep in mind that the 2011 results over-

represent the population living in private dwellings by 1.4%, which may contribute to some distortion of the travel patterns when compared to other survey cycles.

In previous surveys the difference in timing between the TTS and the Census was also identified as a factor affecting the distribution of population. Some over-representation of population was observed in the areas surrounding major universities and post-secondary colleges with a corresponding under-representation in other areas. The TTS was thought to provide a better representation of the distribution of population at the time of the survey than did the Census. The representation of school enrolment is discussed further in Section 4.7.

Table 4-1: Comparison of expanded totals by municipality

	TTS Record Count		Dwelling Units			Population				Sampling Rate	
	House-holds	Person	Census	TTS	Diff.	Census Total	Pop. In Pvt. Dwell*	TTS	Diff.*	House	Pers.*
SURVEY AREA TOTAL	**162,708**	**395,885**	**3,335,990**	**3,335,990**	**0.0%**	**9,006,535**	**8,887,935**	**8,822,802**	**-0.7%**	**4.9%**	**4.5%**
Survey area excluding Hamilton	**156,284**	**381,657**	**3,124,394**	**3,124,478**	**0.0%**	**8,469,618**	**8,360,005**	**8,297,291**	**-0.8%**	**5.0%**	**4.6%**
Hamilton	**6,424**	**14,228**	**211,596**	**211,512**	**0.0%**	**536,917**	**527,930**	**525,511**	**-0.5%**	**3.0%**	**2.7%**
GTHA	**122,725**	**304,863**	**2,532,672**	**2,532,639**	**0.0%**	**6,954,433**	**6,873,665**	**6,813,937**	**-0.9%**	**4.8%**	**4.4%**
Non-GTHA	**39,983**	**91,022**	**803,318**	**803,351**	**0.0%**	**2,052,102**	**2,014,270**	**2,008,865**	**-0.3%**	**5.0%**	**4.5%**
Toronto	**54,350**	**122,807**	**1,112,929**	**1,112,970**	**0.0%**	**2,731,571**	**2,691,665**	**2,671,491**	**-0.7%**	**4.9%**	**4.6%**
PD 1 of Toronto	7,985	13,304	155,651	155,651	0.0%	272,483	263,975	263,029	-0.4%	5.1%	5.0%
PD 2 of Toronto	4,105	8,887	93,317	93,317	0.0%	206,065	201,940	200,607	-0.7%	4.4%	4.4%
PD 3 of Toronto	4,433	10,316	94,433	94,472	0.0%	239,074	235,185	234,531	-0.3%	4.7%	4.4%
PD 4 of Toronto	5,109	10,622	102,756	102,717	0.0%	236,749	233,980	233,122	-0.4%	5.0%	4.5%
PD 5 of Toronto	2,400	5,501	48,608	48,561	-0.1%	124,265	122,985	121,935	-0.9%	4.9%	4.5%
PD 6 of Toronto	4,259	9,918	91,138	91,157	0.0%	214,461	211,785	210,991	-0.4%	4.7%	4.7%
PD 7 of Toronto	1,665	3,423	32,584	32,584	0.0%	67,565	66,690	66,335	-0.5%	5.1%	5.1%
PD 8 of Toronto	4,141	9,474	79,586	79,586	0.0%	200,967	198,210	197,779	-0.2%	5.2%	4.8%
PD 9 of Toronto	1,398	3,865	30,505	30,505	0.0%	96,611	95,645	94,229	-1.5%	4.6%	4.0%
PD 10 of Toronto	2,399	6,414	51,584	51,584	0.0%	149,076	148,530	146,544	-1.3%	4.7%	4.3%
PD 11 of Toronto	4,412	9,908	86,511	86,552	0.0%	210,235	207,695	206,713	-0.5%	5.1%	4.8%
PD 12 of Toronto	1,583	3,927	30,358	30,358	0.0%	81,922	81,645	80,858	-1.0%	5.2%	4.8%
PD 13 of Toronto	3,799	9,526	84,242	83,815	-0.5%	236,730	232,620	229,817	-1.2%	4.5%	4.1%
PD 14 of Toronto	1,310	3,124	25,014	25,023	0.0%	64,867	63,565	63,079	-0.8%	5.2%	4.9%
PD 15 of Toronto	1,440	3,793	28,903	29,349	1.5%	85,530	84,645	83,792	-1.0%	5.0%	4.5%
PD 16 of Toronto	3,912	10,805	77,739	77,739	0.0%	244,971	242,570	238,131	-1.8%	5.0%	4.5%
Durham	**11,700**	**29,603**	**227,906**	**227,906**	**0.0%**	**645,862**	**639,510**	**634,559**	**-0.8%**	**5.1%**	**4.6%**
Brock	236	552	4,543	4,543	0.0%	11,642	11,370	11,311	-0.5%	5.2%	4.9%
Uxbridge	435	1,079	7,663	7,663	0.0%	21,176	20,975	20,849	-0.6%	5.7%	5.1%
Scugog	469	1,121	8,270	8,270	0.0%	21,748	21,380	21,205	-0.8%	5.7%	5.2%
Pickering	1,534	4,099	30,919	30,919	0.0%	91,771	90,995	90,250	-0.8%	5.0%	4.5%
Ajax	1,858	5,274	37,549	37,549	0.0%	119,677	119,175	116,815	-2.0%	4.9%	4.4%
Whitby	2,233	5,823	43,529	43,587	0.1%	128,377	126,790	126,060	-0.6%	5.1%	4.6%
Oshawa	3,270	7,475	62,595	62,537	-0.1%	159,458	157,630	156,884	-0.5%	5.2%	4.7%
Clarington	1,665	4,180	32,838	32,838	0.0%	92,013	91,195	91,185	0.0%	5.1%	4.6%

	TTS Record Count		Dwelling Units			Population				Sampling Rate	
	House-holds	Person	Census	TTS	Diff.	Census Total	Pop. In Pvt. Dwell*	TTS	Diff.*	House	Pers.*
York	**18,374**	**51,623**	**357,084**	**357,043**	**0.0%**	**1,109,909**	**1,100,935**	**1,090,995**	**-0.9%**	**5.1%**	**4.7%**
Georgina	874	2,135	16,939	16,939	0.0%	45,679	45,015	45,464	1.0%	5.2%	4.7%
East Gwillimbury	443	1,163	8,077	8,170	1.2%	23,991	23,440	23,869	1.8%	5.5%	5.0%
Newmarket	1,478	3,737	28,673	28,580	-0.3%	84,224	82,730	81,848	-1.1%	5.2%	4.5%
Aurora	966	2,528	18,851	18,851	0.0%	55,445	54,695	54,783	0.2%	5.1%	4.6%
Richmond Hill	3,301	9,192	64,116	64,125	0.0%	195,022	193,815	192,245	-0.8%	5.1%	4.7%
Whitchurch-Stouffville	695	1,742	15,355	15,355	0.0%	45,837	45,335	45,076	-0.6%	4.5%	3.8%
Markham	5,394	15,501	102,676	102,645	0.0%	328,966	327,410	323,645	-1.2%	5.3%	4.7%
King	377	1,037	8,144	8,144	0.0%	24,512	24,360	24,367	0.0%	4.6%	4.3%
Vaughan	4,846	14,588	94,253	94,234	0.0%	306,233	304,135	299,698	-1.5%	5.1%	4.8%
Peel	**22,105**	**61,885**	**430,180**	**430,110**	**0.0%**	**1,381,739**	**1,372,670**	**1,352,146**	**-1.5%**	**5.1%**	**4.5%**
Caledon	1,175	3,281	21,256	21,186	-0.3%	66,502	66,220	65,624	-0.9%	5.5%	5.0%
Brampton	8,471	26,005	168,011	168,011	0.0%	593,638	590,980	579,326	-2.0%	5.0%	4.4%
Mississauga	12,459	32,599	240,913	240,913	0.0%	721,599	715,470	707,196	-1.2%	5.2%	4.6%
Halton	**9,772**	**24,717**	**192,977**	**193,099**	**0.1%**	**548,435**	**540,955**	**539,235**	**-0.3%**	**5.1%**	**4.6%**
Halton Hills	1,097	2,820	21,078	21,129	0.2%	61,161	60,195	60,000	-0.3%	5.2%	4.7%
Milton	1,783	5,349	34,257	34,276	0.1%	110,128	108,925	108,241	-0.6%	5.2%	4.9%
Oakville	3,343	8,561	66,269	66,197	-0.1%	193,832	191,710	190,971	-0.4%	5.0%	4.5%
Burlington	3,549	7,987	71,373	71,497	0.2%	183,314	180,125	180,022	-0.1%	5.0%	4.4%
Hamilton	**6,424**	**14,228**	**211,596**	**211,512**	**0.0%**	**536,917**	**527,930**	**525,511**	**-0.5%**	**3.0%**	**2.7%**
Flamborough PD	615	1,531	14,995	14,943	-0.3%	42,656	42,090	42,346	0.6%	4.1%	3.6%
Dundas PD	324	672	9,917	9,917	0.0%	24,285	23,400	23,222	-0.8%	3.3%	2.9%
Ancaster PD	410	1,023	13,608	13,574	-0.3%	40,557	39,940	39,930	0.0%	3.0%	2.6%
Glanbrook PD	322	761	10,561	10,500	-0.6%	29,861	29,810	29,114	-2.3%	3.0%	2.6%
Stoney Creek PD	817	2,025	25,028	24,607	-1.7%	69,470	68,700	67,920	-1.1%	3.3%	2.9%
Hamilton PD	3,936	8,216	137,487	137,971	0.4%	330,088	323,990	322,979	-0.3%	2.9%	2.5%
Niagara	**9,098**	**19,628**	**183,828**	**183,861**	**0.0%**	**447,888**	**438,130**	**436,946**	**-0.3%**	**4.9%**	**4.5%**
Grimsby	512	1,258	10,376	10,409	0.3%	27,314	26,815	27,164	1.3%	4.9%	4.7%
Lincoln	440	1,073	8,710	8,728	0.2%	23,787	22,955	22,894	-0.3%	5.1%	4.7%
Pelham	334	753	6,469	6,467	0.0%	17,110	16,670	16,559	-0.7%	5.2%	4.5%
Niagara-on-the-Lake	369	773	7,089	7,089	0.0%	17,511	16,880	16,663	-1.3%	5.2%	4.6%
St. Catharines	2,782	5,776	56,873	56,868	0.0%	133,113	129,835	129,510	-0.3%	4.9%	4.4%
Thorold	405	935	7,466	7,466	0.0%	18,801	18,550	18,378	-0.9%	5.4%	5.0%
Niagara Falls	1,743	3,632	35,773	35,765	0.0%	88,071	85,970	85,418	-0.6%	4.9%	4.2%
Welland	1,101	2,309	22,490	22,481	0.0%	52,293	51,490	51,425	-0.1%	4.9%	4.5%
Port Colborne	421	817	8,018	8,018	0.0%	18,306	17,865	17,830	-0.2%	5.3%	4.6%
Fort Erie	641	1,384	13,184	13,192	0.1%	30,710	30,280	30,478	0.7%	4.9%	4.6%
West Lincoln	240	651	4,967	4,965	0.0%	14,500	14,470	14,422	-0.3%	4.8%	4.5%
Wainfleet	110	267	2,413	2,413	0.0%	6,372	6,350	6,207	-2.3%	4.6%	4.2%

	TTS Record Count		Dwelling Units			Population				Sampling Rate	
	House-holds	Person	Census	TTS	Diff.	Census Total	Pop. In Pvt. Dwell*	TTS	Diff.*	House	Pers.*
Waterloo	**9,790**	**23,109**	**203,832**	**203,832**	**0.0%**	**535,154**	**527,340**	**524,474**	**-0.5%**	**4.8%**	**4.4%**
Waterloo	2,151	5,007	40,381	40,380	0.0%	104,986	103,390	103,039	-0.3%	5.3%	4.8%
Kitchener	4,318	9,790	92,217	92,186	0.0%	233,222	230,000	228,189	-0.8%	4.7%	4.3%
Cambridge	2,234	5,411	48,239	48,201	-0.1%	129,920	127,830	127,122	-0.6%	4.6%	4.2%
North Dumfries	179	479	3,531	3,569	1.1%	10,215	10,125	10,387	2.6%	5.1%	4.7%
Wilmot	331	832	7,516	7,533	0.2%	20,545	20,295	20,450	0.8%	4.4%	4.1%
Wellesley	172	532	3,337	3,337	0.0%	11,260	11,260	11,132	-1.1%	5.2%	4.7%
Woolwich	405	1,058	8,611	8,625	0.2%	25,006	24,440	24,155	-1.2%	4.7%	4.3%
Guelph	**2,487**	**5,676**	**52,090**	**52,157**	**0.1%**	**131,794**	**130,095**	**129,405**	**-0.5%**	**4.8%**	**4.4%**
Wellington	**1,207**	**2,972**	**22,121**	**22,054**	**-0.3%**	**59,820**	**58,985**	**59,275**	**0.5%**	**5.5%**	**5.0%**
Puslinch	134	336	2,705	2,705	0.0%	7,336	7,290	7,352	0.9%	5.0%	4.6%
Guelph/Eramosa	242	615	4,485	4,418	-1.5%	12,854	12,650	12,620	-0.2%	5.4%	4.9%
Centre Wellington	620	1,485	10,823	10,823	0.0%	28,191	27,640	27,844	0.7%	5.7%	5.4%
Erin	211	536	4,108	4,108	0.0%	11,439	11,405	11,459	0.5%	5.1%	4.7%
Orangeville	**554**	**1,355**	**10,565**	**10,565**	**0.0%**	**28,900**	**28,355**	**28,332**	**-0.1%**	**5.2%**	**4.8%**
Dufferin	**637**	**1,594**	**11,353**	**11,361**	**0.1%**	**32,835**	**32,485**	**32,228**	**-0.8%**	**5.6%**	**4.9%**
Mulmur	96	216	1,315	1,333	1.4%	3,478	3,460	3,493	1.0%	7.3%	6.2%
Shelburne	110	257	2,787	2,787	0.0%	8,126	7,875	7,788	-1.1%	3.9%	3.3%
Amaranth	74	196	1,335	1,265	-5.3%	4,079	4,075	3,794	-6.9%	5.5%	4.8%
Melancthon	38	97	1,037	1,037	0.0%	3,008	3,005	2,910	-3.2%	3.7%	3.2%
Mono	164	412	2,919	2,926	0.2%	8,609	8,550	8,355	-2.3%	5.6%	4.8%
Grand Valley	32	84	1,106	1,106	0.0%	2,956	2,950	3,269	10.8%	2.9%	2.8%
East Garafraxa	123	332	854	907	6.2%	2,579	2,570	2,620	1.9%	14.4%	12.9%
Barrie	**2,956**	**6,775**	**52,476**	**52,476**	**0.0%**	**141,434**	**139,050**	**138,029**	**-0.7%**	**5.6%**	**4.9%**
Simcoe	**5,817**	**13,512**	**117,583**	**117,565**	**0.0%**	**307,050**	**302,080**	**301,459**	**-0.2%**	**4.9%**	**4.5%**
Innisfil	655	1,607	13,364	13,376	0.1%	36,566	36,435	36,709	0.8%	4.9%	4.4%
Bradford-West Gwillimbury	537	1,503	11,591	11,591	0.0%	35,325	34,955	34,668	-0.8%	4.6%	4.3%
New Tecumseth	630	1,535	12,906	12,906	0.0%	34,242	33,735	33,425	-0.9%	4.9%	4.6%
Adjala-Tosorontio	184	473	3,834	3,826	-0.2%	10,975	10,880	10,727	-1.4%	4.8%	4.3%
Essa	382	982	7,179	7,184	0.1%	21,083	20,120	20,255	0.7%	5.3%	4.9%
Clearview	259	601	5,335	5,224	-2.1%	14,151	13,900	13,471	-3.1%	4.9%	4.3%
Springwater	276	703	6,694	6,716	0.3%	19,059	18,940	19,170	1.2%	4.1%	3.7%
Collingwood	487	964	9,556	9,650	1.0%	21,793	21,140	21,635	2.3%	5.1%	4.6%
Wasaga Beach	531	1,085	9,005	9,005	0.0%	20,675	20,400	20,293	-0.5%	5.9%	5.3%
Tiny, Christian Island	248	522	5,130	5,130	0.0%	12,443	12,200	12,279	0.6%	4.8%	4.3%
Penetanguishene	209	433	3,679	3,679	0.0%	8,962	8,370	8,381	0.1%	5.7%	5.2%
Midland	358	689	7,374	7,374	0.0%	16,864	16,350	16,395	0.3%	4.9%	4.2%
Tay	207	477	4,127	4,127	0.0%	10,033	9,940	9,936	0.0%	5.0%	4.8%
Oro-Medonte	380	898	7,989	7,967	-0.3%	21,036	21,005	20,860	-0.7%	4.8%	4.3%
Severn	251	567	5,436	5,492	1.0%	13,477	13,385	13,449	0.5%	4.6%	4.2%

	TTS Record Count		Dwelling Units			Population				Sampling Rate	
	House-holds	Person	Census	TTS	Diff.	Census Total	Pop. In Pvt. Dwell*	TTS	Diff.*	House	Pers.*
Ramara	223	473	4,384	4,318	-1.5%	10,366	10,325	9,806	-5.0%	5.1%	4.6%
Orillia	**665**	**1,351**	**13,477**	**13,475**	**0.0%**	**31,166**	**29,965**	**29,991**	**0.1%**	**4.9%**	**4.5%**
Kawartha Lakes	**1,556**	**3,342**	**31,106**	**31,129**	**0.1%**	**75,423**	**73,385**	**73,420**	**0.0%**	**5.0%**	**4.6%**
Peterborough City	**1,580**	**3,258**	**34,710**	**34,710**	**0.0%**	**81,032**	**78,535**	**78,308**	**-0.3%**	**4.6%**	**4.1%**
Peterborough County	**931**	**2,104**	**17,455**	**17,444**	**-0.1%**	**44,798**	**44,225**	**44,064**	**-0.4%**	**5.3%**	**4.8%**
Cavan Monaghan	185	431	3,187	3,150	-1.2%	8,829	8,620	8,488	-1.5%	5.8%	5.0%
Otonabee-South Monaghan	166	391	2,745	2,729	-0.6%	7,032	6,975	6,947	-0.4%	6.0%	5.6%
Asphodel-Norwood	71	150	1,632	1,632	0.0%	4,109	3,980	4,001	0.5%	4.4%	3.8%
Douro-Dummer	148	351	2,577	2,623	1.8%	6,709	6,690	6,802	1.7%	5.7%	5.2%
Selwyn	361	781	7,314	7,310	-0.1%	18,119	17,960	17,827	-0.7%	4.9%	4.3%
Brantford	**1,912**	**4,319**	**39,215**	**39,225**	**0.0%**	**97,496**	**95,780**	**96,659**	**0.9%**	**4.9%**	**4.5%**
Brant	**793**	**2,027**	**13,507**	**13,497**	**-0.1%**	**37,312**	**35,860**	**36,275**	**1.2%**	**5.9%**	**5.7%**

* For the expanded TTS population, differences and sampling rates are calculated relative to the Census counts of population in private dwellings, the target sampling frame of the survey, rather than relative to Census counts of total population.

4.2 Household Characteristics (Size, Dwelling Type, Income)

Prior to data expansion, the overall distribution of households by household size (number of persons living in the household on the survey date) showed modest non-response bias by household size, with the unexpanded data varying somewhat from the Census, with two-person households being over-represented (by 7%-pts), and three-, four-, and five or more person households under-represented (by -1%-pts, -3%-pts, and -4%-pts, respectively). Of note, the over-representation of two-person households was greater than 10% in the following areas: Wellington, Simcoe, Kawartha Lakes, Peterborough, Dufferin and Brant.

After data expansion, the expanded 2016 TTS households almost precisely match the household distributions in the Census for all municipalities. This stands to reason as household size was one of the data weighting controls. Table 4-2 compares the 2016 TTS expanded data by dwelling unit type with the Census. The only municipality with percentage distributions that differ from the Census by more than ±0.2 percentage-points is Dufferin County, for which the difference in the distribution of one- and two-person households is still only ±1.0 percentage-point. As noted earlier, within the five-or-more person category, it appears that the data expansion did not fully correct for under-representation of households with six or more people.

Table 4-2: Household size

	Census					TTS				
	1	2	3	4	5+	1	2	3	4	5+
Total	**25%**	**30%**	**17%**	**17%**	**11%**	**25%**	**30%**	**17%**	**17%**	**11%**
GTHA	**25%**	**29%**	**17%**	**17%**	**12%**	**25%**	**29%**	**17%**	**17%**	**12%**
Non-GTHA	**25%**	**36%**	**16%**	**15%**	**9%**	**25%**	**36%**	**16%**	**15%**	**8%**
City of Toronto	32%	30%	16%	13%	9%	32%	30%	16%	13%	9%
Durham Region	19%	31%	18%	20%	12%	19%	30%	18%	20%	12%
York Region	15%	26%	20%	23%	15%	15%	26%	20%	23%	15%
Peel Region	16%	24%	19%	22%	19%	16%	24%	19%	22%	19%
Halton Region	20%	30%	18%	21%	11%	20%	30%	18%	22%	11%
City of Hamilton	28%	32%	16%	15%	9%	28%	32%	16%	15%	9%
Niagara Region	28%	37%	15%	13%	7%	28%	37%	15%	13%	7%
Waterloo Region	24%	33%	17%	16%	10%	24%	33%	17%	16%	10%
City of Guelph	27%	33%	16%	16%	8%	27%	33%	16%	16%	8%
Wellington County	19%	38%	16%	17%	10%	19%	38%	16%	17%	10%
Town of Orangeville	22%	31%	18%	19%	10%	22%	31%	18%	19%	10%
Dufferin County	16%	35%	17%	18%	14%	15%	36%	17%	18%	13%
City of Barrie	23%	32%	18%	17%	10%	23%	32%	18%	17%	10%
Simcoe County	21%	38%	16%	16%	9%	21%	38%	16%	16%	9%
City of Orillia	33%	36%	15%	10%	6%	33%	36%	15%	10%	6%
City of Kawartha Lakes	25%	43%	14%	12%	7%	25%	43%	14%	12%	6%
City of Peterborough	31%	37%	14%	12%	6%	31%	37%	14%	12%	6%
Peterborough County	19%	43%	15%	14%	8%	19%	43%	15%	14%	8%
Brant County	18%	38%	16%	17%	10%	18%	38%	16%	18%	10%
City of Brantford	28%	34%	16%	13%	8%	28%	34%	16%	13%	8%

Examining the overall results for past survey cycles reveals that the distribution of households by household size differs in 2016 compared to 2011, as illustrated in Table 4-3. There appears to have been some bias in terms of household size in 2011. The 2011 expanded survey data under-represent one-person households (by -5%-pts) and over-represent two- and three-person households (by 3%-pts, 2%-pts, and 1%-pt, respectively). Further examination of the survey data revealed some differences between cycles in terms of trip rates for different sizes of households, which could indicate that the expanded samples may have different biases in different cycles. The differences in distributions by household size noted below may affect the comparability of the various cycles, however, more in-depth research would be required to determine whether this is the case or how much of an impact this might have.

Table 4-3: Household size from 1986 to 2016

	Previous TTS					2016	
Household Size	**1986**	**1996**	**2006**	**2011**	**Diff. from Census**	**2016**	**Diff. from Census**
1 person	19%	21%	21%	19%	-5%	25%	0%
2 people	31%	31%	33%	33%	3%	30%	0%
3 people	19%	18%	18%	19%	2%	17%	0%
4 people	20%	19%	18%	19%	1%	17%	0%
5 or more people	8%	8%	7%	7%	-1%	11%	0%
Avg. Household Size (TTS)*	2.71	2.70	2.68	2.73	n/a	2.64	-1%*

*2016 Census private households average size = 2.66 persons per household (based on population living in private dwellings)

The 2016 contact list samples drawn from the Canada Post database were segmented into apartments and non-apartments, which allowed for some control in targeting an appropriate mix of apartments and non-apartments. However, non-response bias was observed for apartments. Prior to data expansion, the unweighted survey data modestly over-represented houses (by 6%-pts overall) and modestly under-represented apartments (-7%-pts). This was corrected for in the data expansion process. The expanded 2016 TTS households almost precisely match the dwelling type distributions in the Census. This stands to reason as dwelling type was one of the data weighting controls.

Table 4-4 compares the 2016 TTS expanded data by dwelling unit type with both the Census and previous surveys. The proportion of apartment units in 2016 is notably higher than in previous survey cycles, and the proportion of townhouses slightly higher than in previous cycles. The differences in household composition between earlier cycles and 2016 may have implications for the comparability of the datasets.

The samples purchased from 1996 to 2006 did not include apartment numbers, meaning that it was unlikely that residents would receive the advance letter. In 2001, differential expansion rates for apartments and non-apartments based on Canada Post counts were introduced to reduce potential bias. However, there were differences compared to the Census. In 2006 and 2011, apartments were sampled at a higher rate as a corrective measure, but no corrections for apartments vs. non-apartments were made in the data expansion. The expanded 2011 TTS data appeared to under-represent Census counts for apartments in most regions (by -9%-pts across the entire study area, and by -17%-pts in the City of Toronto). Of note, Statistics Canada dwelling type definitions may not always perfectly match to the Canada Post method of classifying apartments or to the TTS dwelling types as interpreted by interviewers and respondents. Differences in definitions or interpretation could affect the precision of the comparisons made to the Census made in previous cycles, and could even affect the precision of the weighting by Census dwelling type in the 2016 data.

Examining 2016 counts from Canada Post's address database for postal geographies within the TTS area reveals that Canada Post classified approximately 31% of all residential addresses in the area as apartments.[6] This compares to the 2016 Census at 36% apartments (with Census dwelling types aggregated into a broad 'apartment' category as detailed at the end of Section 3.3). This indicates that the Canada Post method of classification of apartments is close but does not align perfectly with Census dwelling type definitions.

Examination of the weighted 2016 TTS data reveals a high correlation between the dwelling type response indicated by TTS respondents and the Canada Post classifications: only 3% of households with the apartment flag in the address provided by Canada Post answered that their dwelling type was a house or townhouse, while only 3% of households with non-apartment addresses answered that their dwelling type was an apartment. It may be noted that Canada Post apartment counts were not used as a weighting control in the expansion of the 2016 TTS data as the counts were not available for the same geographies as the expansion zones, which were based on Statistics Canada standard geographies. The use of Census data also allowed for the adjustment of townhouses versus houses, which would not be possible with the Canada Post apartment flag.

[6] The figure of 30.5% apartments is approximate as it is based on aggregation of Canada Post data that includes postal code forward sortation area (FSA) geographies that extend beyond the study area.

In the unweighted 2016 TTS data, 30% of surveyed households had the apartment flag in their original Canada Post address. After the application of data expansion factors, 35% of households had the Canada Post apartment flag, which is 4%-points higher than proportion of apartments per Canada Post counts.

The findings above suggests that even though the weighted data appear to match Census controls, differences in definition or interpretation of survey response categories and Census categories may introduce distortion in the data with respect to dwelling type. With a 4%-point difference from the Canada Post reference data on apartments, the bias in the 2016 data may be modest; nevertheless, the extent to which the weighted 2016 data differ from previous cycles is a potential concern. If the 2011 TTS data modestly under-represent Canada Post apartment counts after application of age weights[7] while the 2016 TTS data modestly over-represent Canada Post apartment counts, the resulting differences in the weighted samples is more significant. For example, in the expanded data for the 2006, 2011, and 2016 cycles of the TTS, houses represent 67%, 67% and 55% of households, respectively, with apartments representing 25%, 25%, and 35%, respectively. The differences in the distributions in these cycles may have an appreciable impact on the comparability of the data by survey cycle.

Table 4-4: Type of dwelling unit

	Apartments							Townhouses						
	Previous TTS				2016			Previous TTS				2016		
	1996	2001	2006	2011	TTS	Census	Diff.	1996	2001	2006	2011	TTS	Census	Diff.
Total			**25%**	**25%**	**35%**	**36%**	**0%**			**7%**	**8%**	**10%**	**9%**	**0%**
GTHA					**41%**	**40%**	**1%**					**10%**	**10%**	**0%**
Non-GTHA					**21%**	**20%**	**0%**					**8%**	**8%**	**0%**
City of Toronto	47%	50%	44%	44%	64%	64%	0%	4%	3%	6%	6%	6%	6%	0%
Durham Region	16%	14%	12%	11%	16%	17%	-1%	6%	6%	8%	8%	11%	11%	0%
York Region	12%	10%	9%	11%	17%	18%	0%	6%	7%	9%	10%	12%	12%	0%
Peel Region	26%	24%	19%	21%	28%	29%	-2%	10%	8%	11%	11%	13%	13%	0%
Halton Region	20%	18%	16%	16%	19%	19%	0%	10%	9%	13%	15%	18%	18%	0%
City of Hamilton	26%	26%	24%	24%	28%	28%	0%	6%	5%	8%	8%	12%	12%	0%
Niagara Region	19%	17%	14%	16%	20%	20%	0%	4%	5%	5%	6%	7%	7%	0%
Waterloo Region	26%		18%	18%	27%	27%	0%	8%		8%	8%	11%	11%	0%
City of Guelph	30%	27%	21%	19%	30%	30%	0%	7%	8%	10%	11%	14%	14%	0%
Wellington County	8%	9%	8%	6%	9%	9%	0%	1%	2%	1%	3%	4%	4%	0%
Town of Orangeville	16%	11%	15%	16%	17%	17%	0%	5%	8%	6%	8%	11%	11%	0%
Dufferin County			5%	6%	4%	6%	-1%				10%	2%	2%	0%
City of Barrie	24%	18%	13%	16%	25%	25%	0%	7%	7%	7%	3%	11%	11%	0%
Simcoe County	6%	8%	7%	4%	9%	9%	0%	2%	2%	2%	1%	5%	5%	0%
City of Orillia		21%	22%	23%	32%	32%	0%		6%	4%	4%	8%	8%	0%
City of Kawartha Lakes	12%	10%	10%	6%	12%	12%	0%	2%	1%	1%	0%	2%	2%	0%
City of Peterborough	27%	24%	24%	21%	32%	32%	0%	4%	4%	4%	7%	8%	8%	0%
Peterborough County	4%	4%	4%	2%	3%	4%	0%	0%	0%	0%	2%	1%	1%	0%
Brant County			8%	5%	5%	6%	-1%				8%	5%	5%	0%
City of Brantford			18%	18%	24%	24%	0%				3%	10%	10%	0%

[7] Comparison of the 2011 TTS proportion of apartments with the Census distributions shows a difference of -9%-pts, which is greater than what might be expected simply due to differences in classification definitions. Further investigation would be required (if data on the Canada Post apartment counts in 2011 is still available) to verify whether the 2011 survey data actually under-represent Canada Post apartment counts after the application of final data weights by age range.

	Houses						
	Previous TTS				2016		
	1996	2001	2006	2011	TTS	Census	Diff.
Total			**67%**	**67%**	**55%**	**55%**	**0%**
GTHA					**50%**	**50%**	**0%**
Non-GTHA					**71%**	**71%**	**0%**
City of Toronto	49%	47%	50%	50%	31%	31%	0%
Durham Region	78%	80%	80%	81%	73%	72%	1%
York Region	82%	83%	82%	79%	70%	70%	0%
Peel Region	64%	68%	70%	68%	59%	58%	1%
Halton Region	70%	73%	71%	69%	64%	64%	0%
City of Hamilton	68%	69%	68%	68%	61%	61%	0%
Niagara Region	77%	78%	81%	78%	73%	73%	0%
Waterloo Region	66%		18%	18%	62%	62%	0%
City of Guelph	63%	27%	21%	19%	55%	55%	0%
Wellington County	91%	9%	8%	6%	87%	87%	0%
Town of Orangeville	79%	11%	15%	16%	72%	72%	0%
Dufferin County			5%	6%	94%	92%	2%
City of Barrie	69%	18%	13%	16%	64%	64%	0%
Simcoe County	92%	8%	7%	4%	86%	86%	0%
City of Orillia		21%	22%	23%	59%	59%	0%
City of Kawartha Lakes	12%	10%	10%	6%	86%	86%	0%
City of Peterborough	27%	24%	24%	21%	60%	60%	0%
Peterborough County	4%	4%	4%	2%	96%	95%	1%
Brant County			18%	18%	66%	66%	0%
City of Brantford			8%	5%	90%	89%	1%

Differences are percentage-point differences between the distribution in the Census and the distribution in the TTS data.

The 2016 TTS was the first survey cycle in which household income was asked of respondents. Four-fifths of survey respondents provided their household income, and one-fifth refused. Household income was not considered as a control to include in the data expansion due to the high level of non-response. Prior to the data expansion, comparison of the distributions of the valid responses in the unweighted data to the Census suggested some over-representation of households with pre-tax incomes of $40,000 to $59,000 (by 3%-pts) and under-representation of households with incomes of $125,000 and above (-4%-pts). Table 4-5 shows the distributions after data expansion. After expansion, there appears to be a good fit with the Census for lower income categories, over-representation of households with income ranges between $40,000 and $125,000 (a difference of 5%-pts across all three categories in this range), and under-representation of high-income households (by -5%-pts).. It should be emphasized that while this comparison suggests there might be some bias in the data, and that the data weighting increased the variance, this is by no means conclusive. Fully 19% of all households declined to provide their income. It is not assured that the income distributions of those who declined to answer this question would be similar to those who provided an answer. It is not known, for example, whether or not higher- income TTS respondents are less inclined to answer this type of question.

Table 4-5: Household income

	Census							TTS - % of valid responses						Difference					
	$0 to $14,999	$15,000 to $39,999	$40,000 to $59,999	$60,000 to $99,999	$100,000 to $124,999	$125,000 and above	***TTS 2016 Declined***	$0 to $14,999	$15,000 to $39,999	$40,000 to $59,999	$60,000 to $99,999	$100,000 to $124,999	$125,000 and above	$0 to $14,999	$15,000 to $39,999	$40,000 to $59,999	$60,000 to $99,999	$100,000 to $124,999	$125,000 and above
Total	**6%**	**18%**	**15%**	**25%**	**11%**	**26%**	***20%***	**6%**	**18%**	**17%**	**26%**	**12%**	**21%**	**0%**	**0%**	**2%**	**2%**	**1%**	**-5%**
GTHA	**6%**	**18%**	**14%**	**24%**	**11%**	**27%**	***20%***	**6%**	**18%**	**17%**	**26%**	**12%**	**22%**	**0%**	**0%**	**2%**	**2%**	**1%**	**-5%**
Non-GTHA	**5%**	**19%**	**16%**	**26%**	**11%**	**22%**	***20%***	**5%**	**20%**	**19%**	**27%**	**12%**	**18%**	**1%**	**0%**	**3%**	**0%**	**0%**	**-4%**
Toronto	8%	22%	16%	23%	9%	22%	*16%*	8%	20%	17%	25%	10%	19%	0%	-2%	2%	2%	1%	-3%
Durham	3%	14%	13%	26%	13%	31%	*18%*	4%	15%	16%	26%	14%	25%	0%	1%	2%	1%	1%	-6%
York	4%	14%	12%	22%	12%	36%	*21%*	4%	14%	15%	26%	15%	28%	0%	0%	3%	3%	3%	-8%
Peel	4%	14%	14%	27%	13%	29%	*19%*	4%	15%	19%	29%	13%	19%	1%	1%	4%	2%	1%	-10%
Halton	3%	12%	11%	23%	12%	40%	*19%*	2%	11%	13%	25%	14%	33%	0%	0%	2%	2%	2%	-6%
Hamilton	6%	21%	16%	25%	10%	21%	*19%*	7%	22%	19%	24%	12%	17%	1%	0%	2%	0%	2%	-5%
Niagara	5%	23%	18%	26%	10%	18%	*18%*	7%	22%	21%	26%	10%	14%	2%	0%	3%	0%	0%	-4%
Waterloo	5%	17%	15%	26%	12%	24%	*16%*	5%	18%	17%	27%	12%	21%	0%	0%	2%	1%	0%	-3%
Guelph	5%	17%	16%	26%	12%	24%	*16%*	6%	16%	18%	28%	12%	20%	1%	-1%	2%	2%	0%	-5%
Wellington	3%	12%	13%	25%	13%	35%	*19%*	2%	14%	15%	24%	16%	30%	0%	2%	2%	-1%	3%	-5%
Orangeville	3%	15%	14%	27%	14%	26%	*20%*	4%	17%	15%	30%	13%	21%	0%	2%	1%	3%	-1%	-5%
Dufferin	3%	13%	12%	26%	13%	33%	*20%*	3%	14%	16%	21%	19%	26%	0%	1%	5%	-5%	6%	-7%
Barrie	4%	17%	15%	27%	12%	24%	*16%*	5%	17%	17%	29%	13%	19%	1%	0%	2%	2%	0%	-5%
Simcoe	4%	17%	16%	27%	12%	24%	*17%*	4%	18%	19%	27%	14%	19%	0%	1%	3%	0%	1%	-5%
Orillia	6%	28%	20%	24%	9%	13%	*17%*	7%	27%	24%	25%	7%	10%	0%	-1%	5%	0%	-1%	-3%
Kawartha Lakes	5%	21%	18%	28%	10%	18%	*22%*	5%	24%	21%	27%	9%	13%	0%	2%	3%	0%	-1%	-4%
Peterborough	7%	26%	18%	25%	9%	15%	*15%*	7%	29%	21%	24%	8%	9%	1%	3%	3%	-1%	0%	-5%
Peterborough	3%	17%	16%	28%	12%	24%	*18%*	2%	18%	18%	31%	11%	21%	-1%	1%	2%	3%	-2%	-3%
Brant	2%	14%	14%	26%	14%	30%	*20%*	1%	14%	15%	32%	16%	21%	-1%	0%	2%	6%	2%	-9%
Brantford	5%	24%	18%	27%	10%	15%	*19%*	6%	24%	21%	26%	10%	13%	0%	-1%	3%	0%	0%	-2%

Differences are percentage-point differences between the distribution in the Census and the distribution in the TTS data

4.3 Vehicle Ownership

The Ministry of Transportation of Ontario provided counts of registered vehicles for counties in Ontario. The figures for private (passenger car and motorcycle) and commercial vehicle registrations are listed in the table below, by region of vehicle registration. Registrations for the following types of vehicle are not listed or included in the total in the table: bus, heavy truck, trailer, snow vehicle, and off-road. The counts include counts for 'fit-active' vehicles and exclude the following vehicle licensing statuses: 'fit-inactive', unfit, wrecked, out-of-province, sold, suspended, and temporary.

When asked to provide the number of household vehicles, TTS respondents were instructed to include the number of cars, station wagons, vans, small pick-up trucks, motorcycles, rental and business vehicles which are normally available for personal use by members of the household; but exclude heavy trucks, motor-homes, school buses, bicycles and vehicles that are not licensed or are inoperable. Within this definition, there would likely have been a number of households reporting vehicles with commercial registrations. The incidence of households owning commercially-registered vehicles is not known. The actual number of registered vehicles available to private households within the study area likely lies somewhere between the number of private vehicles, and the total of private and commercial vehicles.

The survey data appear to fall within a reasonable range of the official statistics. The counts for Wellington, Peterborough should be interpreted with caution as the official statistics are for geographies that are larger than the portions within the TTS study area.

Table 4-6: Vehicle registrations

Registration Data				TTS				
Region of Registration	**Private Vehicles***	**Commercial Vehicles**	**Total Vehicles**	**TTS Region**	**Expanded Survey Data**	**Aggregated**	**Diff. from Total Registered**	**Diff. from Private Vehicles**
Grand Total	**4,854,698**	**755,784**	**5,610,482**	**Study Area**	**5,053,441**	**5,053,441**	**-10%**	**4%**
GTHA	**3,569,147**	**406,263**	**3,975,410**	**GTHA**	**3,641,525**	**3,641,525**	**-8%**	**2%**
Non-GTHA**	**1,285,551**	**349,521**	**1,635,072**	**Non-GTHA****	**1,411,916**	**1,411,916**	**-14%**	**10%**
Toronto	1,122,690	111,857	1,234,547	Toronto	1,131,945	1,131,945	-8%	1%
Durham	394,360	63,880	458,240	Durham	419,267	419,267	-9%	6%
York	673,432	32,622	706,054	York	670,555	670,555	-5%	0%
Peel	740,366	105,650	846,016	Peel	739,712	739,712	-13%	0%
Halton	351,501	43,768	395,269	Halton	356,965	356,965	-10%	2%
Hamilton	286,798	48,486	335,284	Hamilton	323,080	323,080	-4%	13%
Niagara	279,396	59,943	339,339	Niagara	316,175	316,175	-7%	13%
Waterloo	316,880	55,310	372,190	Waterloo	340,854	340,854	-8%	8%
Wellington**	132,676	88,761	221,437	Guelph	80,445	128,441	-42%	-3%
				Wellington	47,996			
Dufferin**	40,547	10,999	51,546	Orangeville	19,138	44,568	-14%	10%
				Dufferin	25,430			
Simcoe	306,257	73,540	379,797	Barrie	90,378	345,601	-9%	13%
				Simcoe	234,936			
				Orillia	20,288			
Victoria	46,926	17,245	64,171	Kawartha Lakes	58,924	58,924	-8%	26%
Peterborough**	82,795	23,197	105,992	City of Peterborough	48,003	84,695	-20%	2%
				Peterborough	36,692			
Brant	80,074	20,526	100,600	Brantford	62,397	92,656	-8%	16%
				Brant	30,259			

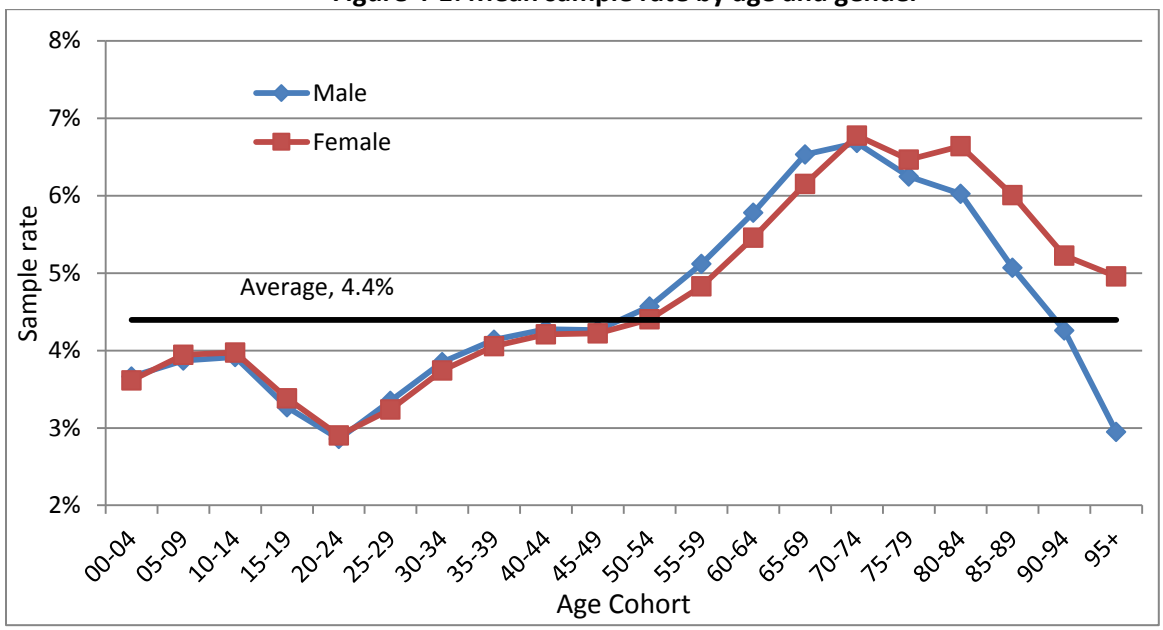
*Passenger vehicles + motorcycles.

**Region of vehicle registration data extends beyond study area geography.

4.4 Age and gender

Prior to the data expansion process, the unweighted survey data showed bias in terms of under-representing younger people, particularly youth ages 15 through 29, and over-representing people over the age of 55. This is illustrated for the whole survey area in Figure 4-1. The chart illustrates the sampling rate by age cohort for each gender, which is the percentage of the total Census population in each cohort surveyed by the 2016 TTS. The unweighted sample was very balanced by gender.

Figure 4-1: Mean sample rate by age and gender



After the data expansion, the expanded TTS figures align well with the Census distribution, which stands to reason, as age range was one of the controls used in the data weighting. Figure 4-2, following, provides a high-level comparison of the Census and expanded TTS data by age range. In the data expansion process, ten-year age brackets were used for weighting controls for age cohorts between the ages of 25 and 74. As illustrated in Figure 4-2, within these ten-year age brackets, the younger five-year cohort is often slightly under-represented while the older five-year cohort is often slightly over-represented. The chart also reveals that the TTS results under-represent population over the age of 75. This is due to the 20% reduction applied to the Census control counts for ages 75+ to compensate for the fact that a portion of this population lives in collective dwellings which are outside the scope of the TTS sample frame. The total population of those 75+ is included in the Census counts in the chart, in order to highlight this difference between the weighted survey data and the total population. The gender balance was still very close to the Census, and so, for brevity, is not presented in detail here.

The differences between the expanded TTS data and the Census for the population counts in each five-year age cohort are further broken out by region in Table 4-7. The shading indicates which age cohorts are under- or over-represented in the TTS data. Readers are reminded that the expanded 2016 TTS data represent 98% of the total population (see Section 4.1), hence the overall -2% difference from the Census total population and the slight negative differences for most age cohorts. Overall, the TTS data are very close to the Census data. The table illustrates the distortions within some of the ten-year cohorts used in the data weighting, as well as the deliberate discounting of population 75+ years of age

to account for seniors living in collective dwellings. It may be noted that some municipalities with smaller survey samples are subject to greater variance from the Census than the overall result.

Figure 4-2: Population distribution by age, expanded data

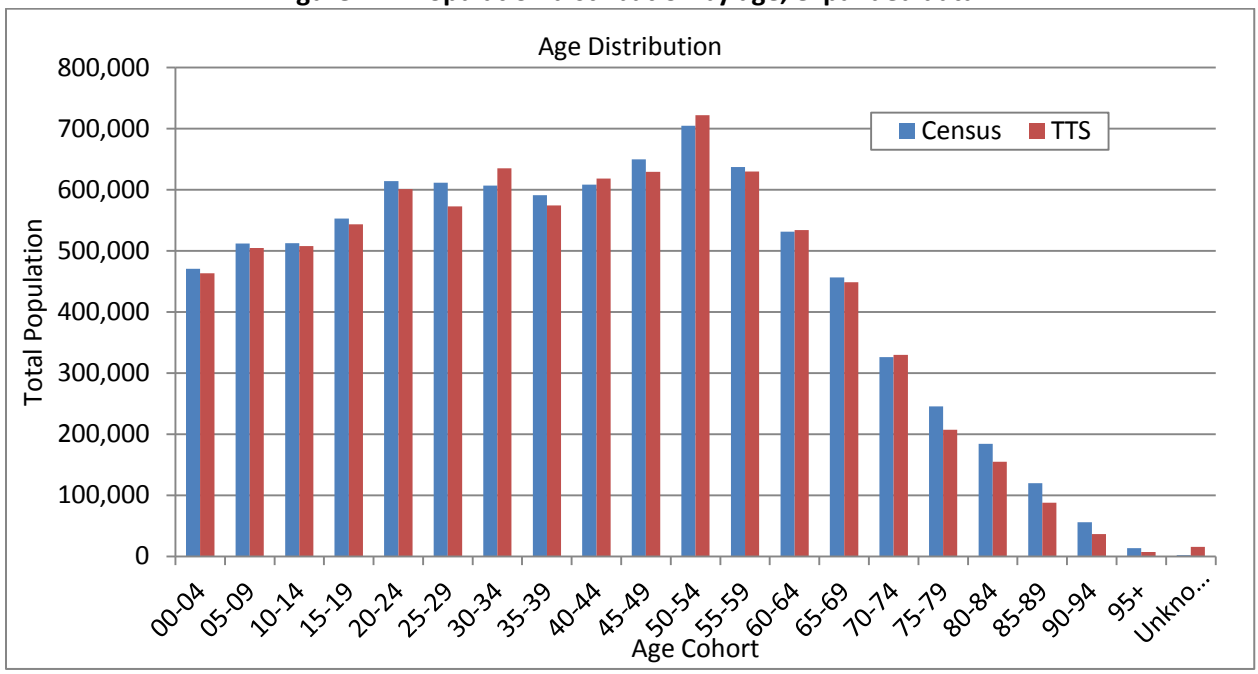


Table 4-7: Difference in 2016 TTS relative to Census population count in each age cohort

Weighting stratum		0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25-34		35-44		45–54		55-64		65-74		75+ *				
5-yr cohort	Total	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55- 59	60 - 64	65 - 69	70 - 74	75 - 79	80 - 84	85 - 89	90 - 94	95+
Survey Area	-2%	**-2%**	**-1%**	**-1%**	**-2%**	**-2%**	**-6%**	**5%**	**-3%**	**2%**	**-3%**	**2%**	**-1%**	**1%**	**-2%**	**1%**	**-16%**	**-16%**	**-27%**	**-34%**	**-52%**
Toronto	-2%	-1%	-1%	-1%	-2%	-2%	-7%	5%	-3%	1%	-4%	3%	-1%	-1%	-1%	0%	-17%	-16%	-23%	-37%	-50%
Durham	-2%	-1%	-2%	-1%	-2%	-1%	-5%	3%	-1%	0%	-3%	2%	-1%	0%	-3%	4%	-16%	-17%	-30%	-29%	-42%
York	-2%	-1%	-1%	-1%	-1%	-1%	-6%	5%	-5%	3%	-2%	1%	-2%	1%	-1%	1%	-22%	-12%	-27%	-21%	-48%
Peel	-2%	-2%	-2%	-2%	-2%	-2%	-6%	3%	-7%	4%	-5%	4%	0%	-2%	-3%	1%	-17%	-17%	-30%	-25%	-62%
Halton	-2%	-2%	-1%	-1%	-1%	-1%	-1%	0%	-6%	4%	-2%	2%	2%	-3%	0%	-1%	-13%	-17%	-28%	-39%	-65%
Hamilton	-2%	-5%	-4%	0%	-1%	-3%	-6%	6%	3%	-2%	0%	0%	-3%	4%	-1%	2%	-13%	-16%	-32%	-30%	-31%
Niagara	-2%	-2%	-2%	-2%	-1%	-5%	-9%	8%	2%	-1%	-3%	3%	-4%	4%	-3%	4%	-10%	-16%	-29%	-40%	-71%
Waterloo	-2%	-1%	-3%	-1%	-3%	-1%	-4%	3%	1%	-2%	-3%	2%	1%	-3%	-1%	1%	-11%	-16%	-33%	-46%	-50%
Guelph	-2%	0%	-1%	-1%	-1%	-1%	-9%	8%	-1%	0%	4%	-6%	-6%	5%	-7%	8%	-16%	-15%	-21%	-48%	-45%
Wellington	-1%	0%	0%	1%	1%	0%	-9%	9%	-9%	8%	1%	3%	2%	0%	-2%	4%	-20%	-6%	-29%	-35%	-41%
Orangeville	-2%	-2%	-2%	-2%	-2%	-2%	-8%	5%	12%	-11%	-11%	10%	1%	-3%	-9%	9%	2%	-29%	-38%	-45%	-36%
Dufferin	-2%	-12%	1%	-1%	-2%	2%	-26%	24%	-13%	-1%	-14%	14%	-7%	12%	-4%	8%	-25%	-2%	-37%	51%	-100%
Barrie	-2%	-4%	-2%	-2%	-2%	-9%	-11%	11%	-5%	5%	-1%	1%	-5%	6%	0%	0%	-13%	-18%	-26%	-40%	-36%
Simcoe	-2%	-1%	-1%	-1%	-1%	-7%	-5%	4%	-1%	2%	-2%	2%	-3%	4%	0%	0%	-16%	-16%	-24%	-45%	-61%
Orillia	-4%	2%	-3%	1%	-30%	-1%	-7%	7%	-25%	23%	8%	-6%	3%	-4%	8%	-11%	-2%	-16%	-20%	-71%	-63%
Kawartha Lakes	-3%	-8%	1%	-1%	1%	-11%	7%	-6%	3%	-3%	1%	0%	-14%	15%	1%	-2%	-20%	-14%	-16%	-35%	-66%
Peterborough City	-3%	-8%	1%	0%	-16%	0%	-5%	6%	-1%	1%	0%	0%	2%	-3%	-4%	5%	-3%	-23%	-25%	-45%	-62%
Peterborough	-2%	4%	0%	2%	-9%	0%	-16%	16%	-2%	-9%	0%	2%	-3%	5%	-1%	5%	-15%	3%	-44%	-65%	-50%
Brant	-1%	0%	0%	0%	0%	0%	-14%	13%	-1%	3%	-4%	5%	-4%	5%	4%	-5%	-23%	-17%	-10%	-23%	-79%
Brantford	-1%	-1%	-1%	0%	-1%	0%	-5%	6%	0%	3%	-3%	5%	0%	1%	1%	0%	-3%	-30%	-30%	-16%	-67%

*Weighting controls for the 75+ age stratum were adjusted to 80% of Census to discount for seniors living in collective dwellings. The table shows the difference between the TTS data and the full Census count to highlight the impact of this adjustment.

4.5 Employed Labour Force

The Canada Census provides information on the employed labour force for population aged 15 years or older as of May 2016 (based on a 25% sample of households selected to complete the long form version of the Census). Table 4-8 compares the TTS employed labour force against the Census data, along with the results of the same comparisons in 2006 and 2011. As indicated, overall, the expanded TTS data slightly over-represent employed workers by 1% overall, and by 2% for the GTHA, with some variability by individual municipality. Smaller municipalities with smaller sample sizes have greater variance from the Census counts. Employed labour force was not selected for use as weighting control (and Census data on this was not yet released at the time the data were weighted).

The differences in the 2016 data may be the result of biases in the data not corrected for by weighting for other controls used in the data expansion. The timing of the Census relative to the survey may have a slight impact on total overall employment: Examination of Statistics Canada Labour Force Survey (LFS) data for Census Metropolitan Areas (CMAs) in the study area revealed an overall 1% increase in employment between the LFS estimates of employed workers reported for May 2016 and the average for September to December 2016, although there was some variability by CMA.[8]

Comparing with previous cycles, the expanded counts from the 2011 TTS appeared to match the 2011 National Household Survey counts overall and for the GTHA as whole, and had similar ranges of variance by individual municipality. The differences for individual municipalities that were observed for the 2006 TTS were greater, and may be the product of biases in the sample that were not corrected for in the data expansion process. It may be noted that the 2006 data did not include data weighting adjustments by age group.

Table 4-8: Comparison of employed labour force by municipality

	2016 Employed Labour Force		Difference		
	Census	TTS	2016	2011	2006
STUDY AREA TOTAL	**4,506,450**	**4,570,299**	**1%**	**0%**	**0%**
GTHA	**3,486,440**	**3,544,521**	**2%**	**0%**	n/a
Non-GTHA	**1,020,010**	**1,025,778**	**1%**	**2%**	n/a
City of Toronto	**1,361,450**	**1,407,077**	**3%**	**1%**	**-7%**
PD 1 of Toronto	169,320	176,193	4%	n/a	n/a
PD 2 of Toronto	118,215	121,906	3%	n/a	n/a
PD 3 of Toronto	117,075	121,921	4%	n/a	n/a
PD 4 of Toronto	121,300	122,195	1%	n/a	n/a
PD 5 of Toronto	56,750	60,941	7%	n/a	n/a
PD 6 of Toronto	112,175	115,507	3%	n/a	n/a
PD 7 of Toronto	37,890	39,533	4%	n/a	n/a
PD 8 of Toronto	99,110	103,084	4%	n/a	n/a
PD 9 of Toronto	42,705	42,967	1%	n/a	n/a
PD 10 of Toronto	65,065	68,599	5%	n/a	n/a
PD 11 of Toronto	102,940	108,201	5%	n/a	n/a

[8] Statistics Canada. Table 282-0130 - Labour Force Survey estimates (LFS), employment by census metropolitan area based on 2011 Census boundaries and North American Industry Classification System (NAICS), three-month moving average, unadjusted for seasonality, monthly (persons), CANSIM (database). (accessed: 2018/02/19)

	2016 Employed Labour Force		Difference		
	Census	TTS	2016	2011	2006
PD 12 of Toronto	37,880	39,445	4%	n/a	n/a
PD 13 of Toronto	104,470	107,442	3%	n/a	n/a
PD 14 of Toronto	29,500	30,338	3%	n/a	n/a
PD 15 of Toronto	39,680	39,175	-1%	n/a	n/a
PD 16 of Toronto	107,375	109,629	2%	n/a	n/a
Durham Region	**324,365**	**330,729**	**2%**	**-1%**	**-7%**
Brock	5,810	6,040	4%	4%	-7%
Uxbridge	11,580	11,688	1%	-3%	-12%
Scugog	11,220	10,862	-3%	-4%	-15%
Pickering	47,685	49,476	4%	0%	-6%
Ajax	61,865	61,900	0%	-3%	-4%
Whitby	65,085	66,309	2%	-3%	-8%
Oshawa	73,470	75,361	3%	3%	-6%
Clarington	47,650	49,094	3%	-1%	-8%
York Region	**565,295**	**567,611**	**0%**	**1%**	**-7%**
Georgina	24,100	24,889	3%	5%	-8%
East Gwillimbury	13,000	13,627	5%	3%	-6%
Newmarket	44,945	45,898	2%	0%	-7%
Aurora	30,015	29,699	-1%	2%	-8%
Richmond Hill	97,645	97,709	0%	-1%	-8%
Whitchurch-Stouffville	23,290	22,950	-1%	2%	-6%
Markham	159,635	157,806	-1%	2%	-8%
King	13,230	13,749	4%	6%	-14%
Vaughan	159,435	161,284	1%	0%	-6%
Peel Region	**691,475**	**689,808**	**0%**	**-1%**	**-7%**
Caledon	36,715	36,312	-1%	2%	-9%
Brampton	293,075	292,775	0%	0%	-6%
Mississauga	361,685	360,721	0%	-2%	-7%
Halton Region	**284,775**	**281,757**	**-1%**	**-3%**	**-9%**
Halton Hills	33,860	34,326	1%	-1%	-9%
Milton	56,485	55,456	-2%	-2%	-8%
Oakville	98,455	95,687	-3%	-2%	-9%
Burlington	95,975	96,287	0%	-3%	-10%
City of Hamilton	**259,080**	**267,538**	**3%**	**0%**	**-10%**
Flamborough PD	23,850	23,250	-3%	n/a	n/a
Dundas PD	11,880	11,606	-2%	n/a	n/a
Ancaster PD	20,555	20,594	0%	n/a	n/a
Glanbrook PD	14,905	15,399	3%	n/a	n/a
Stoney Creek PD	34,745	34,939	1%	n/a	n/a
Hamilton PD	153,145	161,749	6%	n/a	n/a

	2016 Employed Labour Force		Difference		
	Census	TTS	2016	2011	2006
Niagara Region	**209,885**	**214,895**	**2%**	**-3%**	**-9%**
Grimsby	14,035	13,581	-3%	4%	-12%
Lincoln	11,910	11,921	0%	-2%	-10%
Pelham	8,115	7,854	-3%	-3%	-6%
Niagara-on-the-Lake	8,000	7,389	-8%	3%	-26%
St. Catharines	61,570	64,262	4%	-3%	-7%
Thorold	9,300	9,300	0%	4%	-10%
Niagara Falls	41,625	42,630	2%	-2%	-12%
Welland	23,000	24,878	8%	-7%	-3%
Port Colborne	7,825	8,541	9%	-10%	-9%
Fort Erie	13,590	13,907	2%	-6%	-10%
West Lincoln	7,640	7,309	-4%	-1%	-6%
Wainfleet	3,275	3,322	1%	5%	-9%
Waterloo Region	**277,785**	**278,138**	**0%**	**-3%**	**-5%**
Waterloo	53,325	52,601	-1%	0%	-8%
Kitchener	121,190	123,618	2%	-4%	-5%
Cambridge	67,305	67,561	0%	-1%	-3%
North Dumfries	5,680	6,105	7%	-8%	-8%
Wilmot	10,865	10,608	-2%	-2%	-7%
Wellesley	5,915	5,230	-12%	-6%	-7%
Woolwich	13,505	12,415	-8%	-5%	-5%
City of Guelph	**71,075**	**69,004**	**-3%**	**-2%**	**-11%**
Wellington County	**32,645**	**32,007**	**-2%**	**-4%**	**-12%**
Puslinch	4,020	4,018	0%	-6%	-9%
Guelph/Eramosa	7,235	7,131	-1%	0%	-13%
Centre Wellington	14,640	14,189	-3%	-3%	-12%
Erin	6,750	6,668	-1%	-8%	-13%
Town of Orangeville	**15,740**	**15,550**	**-1%**	**0%**	**-6%**
City of Barrie	**73,075**	**73,486**	**1%**	**-2%**	**-7%**
Simcoe County	**152,180**	**150,908**	**-1%**	**1%**	**-6%**
Innisfil	19,200	18,994	-1%	3%	-4%
Bradford-West Gwillimbury	18,810	18,438	-2%	3%	2%
New Tecumseth	17,570	16,993	-3%	2%	-12%
Adjala-Tosorontio	6,015	6,010	0%	0%	-16%
Essa	11,255	11,243	0%	-2%	1%
Clearview	7,380	7,297	-1%	8%	-13%
Springwater	10,330	10,292	0%	0%	-7%
Collingwood	10,055	10,399	3%	9%	-9%
Wasaga Beach	7,940	7,337	-8%	-10%	-11%
Tiny, Christian Island	5,545	5,796	5%	0%	1%
Penetanguishene	3,710	4,098	10%	1%	4%
Midland	7,030	7,539	7%	-1%	-8%

	2016 Employed Labour Force		Difference		
	Census	TTS	2016	2011	2006
Tay	4,815	4,245	-12%	4%	-7%
Oro-Medonte	11,035	10,929	-1%	1%	-6%
Severn	6,760	7,015	4%	-9%	-10%
Ramara	4,730	4,280	-10%	-8%	-7%
City of Kawartha Lakes	**33,370**	**33,647**	**1%**	**5%**	**-12%**
City of Peterborough	**36,025**	**37,579**	**4%**	**0%**	**-7%**
Peterborough County	**21,695**	**21,361**	**-2%**	**-2%**	**-6%**
Cavan Monaghan	4,405	4,287	-3%	0%	-6%
Otonabee-South Monaghan	3,620	3,788	5%	-3%	1%
Asphodel-Norwood	1,920	1,684	-12%	4%	-12%
Douro-Dummer	3,370	3,544	5%	-1%	-31%
Selwyn	8,380	8,058	-4%	-4%	2%
City of Orillia	**13,670**	**14,329**	**5%**	**4%**	**-6%**
Dufferin County	**17,055**	**17,356**	**2%**	**-2%**	**-10%**
Mulmur	1,960	1,833	-6%	-18%	-3%
Shelburne	4,010	3,864	-4%	-1%	-5%
Amaranth	2,355	2,144	-9%	0%	-5%
Melancthon	1,550	1,549	0%	0%	-18%
Mono	4,800	4,366	-9%	5%	-16%
Grand Valley	930	2,047	120%	12%	-4%
East Garafraxa	1,450	1,552	7%	-15%	-15%
City of Brantford	**46,540**	**48,344**	**4%**	**-1%**	**-4%**
Brant County	**19,270**	**19,174**	**0%**	**-1%**	**-12%**

4.6 Licensed drivers

The Ministry of Transportation of Ontario provided counts of registered driver's licenses by six-digit postal code for postal FSAs that are entirely or partially within the study area. These counts by postal code were matched to postal code definitions for the study area, then summed up by TTS planning district and region. It may be noted that there may be some imprecision for postal codes with larger geographical area that straddle survey boundaries or that straddle the boundaries between planning districts. For example, some rural six-digit postal codes include both communities inside the study area and communities outside the study area. In the chart below, planning districts on the rural fringe of the study area may have official statistics that could be somewhat overstated, although given the modest populations in the rural postal codes that straddle the TTS study area boundaries, this should not cause significant over-counts in most TTS regions or the study area as a whole.

Table 4-9 illustrates the variance between expanded 2016 TTS data and the official counts of valid driver's licenses. Overall, the TTS data appear to slightly under-represent the total population of drivers (by -4%), with drivers under-represented most in the GTHA (by -4%) and slightly over-represented (by

-2%) in the non-GTHA portion of the study area. Variance from official counts is greater by individual region, and greatest for those geographies with smaller sample sizes. These comparisons should be interpreted with caution given the caveat that the postal code definitions do not always precisely match with the boundaries of the TTS planning districts.

Table 4-9: Licensed drivers

	MTO (approx)	TTS	Difference
Study Area	**6,203,333**	**5,965,241**	**-4%**
GTHA	**4,702,862**	**4,494,039**	**-4%**
Non-GTHA	**1,500,471**	**1,471,201**	**-2%**
Toronto	**1,693,090**	**1,667,615**	**-2%**
PD 1 of Toronto	164,937	190,395	15%
PD 2 of Toronto	145,158	125,120	-14%
PD 3 of Toronto	135,339	131,085	-3%
PD 4 of Toronto	146,838	151,302	3%
PD 5 of Toronto	73,221	77,309	6%
PD 6 of Toronto	115,281	126,553	10%
PD 7 of Toronto	37,587	46,945	25%
PD 8 of Toronto	144,615	133,542	-8%
PD 9 of Toronto	56,448	52,290	-7%
PD 10 of Toronto	82,767	79,476	-4%
PD 11 of Toronto	146,059	139,091	-5%
PD 12 of Toronto	56,595	51,533	-9%
PD 13 of Toronto	141,208	126,577	-10%
PD 14 of Toronto	28,747	38,333	33%
PD 15 of Toronto	54,529	52,273	-4%
PD 16 of Toronto	163,761	145,791	-11%
Durham	**474,450**	**444,814**	**-6%**
Brock	9,620	8,727	-9%
Uxbridge	16,115	15,893	-1%
Scugog	15,151	16,059	6%
Pickering	70,396	64,800	-8%
Ajax	89,579	78,092	-13%
Whitby	93,881	88,191	-6%
Oshawa	110,250	106,269	-4%
Clarington	69,458	66,783	-4%
York	**826,140**	**754,343**	**-9%**
Georgina	35,622	33,032	-7%
East Gwillimbury	18,906	18,046	-5%
Newmarket	63,920	57,686	-10%
Aurora	40,854	38,961	-5%
Richmond Hill	148,150	132,722	-10%
Whitchurch-Stouffville	30,450	31,805	4%
Markham	247,641	218,201	-12%
King	19,452	18,372	-6%
Vaughan	221,145	205,519	-7%

	MTO (approx)	TTS	Difference
Peel	**950,609**	**881,610**	**-7%**
Caledon	51,843	47,651	-8%
Brampton	385,716	365,058	-5%
Mississauga	513,050	468,901	-9%
Halton	**407,823**	**382,042**	**-6%**
Halton Hills	47,889	44,145	-8%
Milton	76,916	70,148	-9%
Oakville	145,890	134,632	-8%
Burlington	137,128	133,117	-3%
Hamilton	**350,750**	**363,614**	**4%**
Flamborough PD	14,198	32,486	129%
Dundas PD	23,646	17,169	-27%
Ancaster PD	29,894	29,522	-1%
Glanbrook PD	21,031	21,383	2%
Stoney Creek PD	49,434	48,579	-2%
Hamilton PD	212,547	214,475	1%
Niagara	**322,838**	**326,228**	**1%**
Grimsby	20,059	20,018	0%
Lincoln	17,824	17,904	0%
Pelham	5,317	13,168	148%
Niagara-on-the-Lake	15,036	13,454	-11%
St. Catharines	96,150	95,666	-1%
Thorold	13,615	13,496	-1%
Niagara Falls	61,792	61,661	0%
Welland	39,960	37,874	-5%
Port Colborne	14,588	13,613	-7%
Fort Erie	23,943	23,824	0%
West Lincoln	10,087	10,571	5%
Wainfleet	4,467	4,979	11%
Waterloo	**386,019**	**373,405**	**-3%**
Waterloo	83,252	75,596	-9%
Kitchener	162,376	161,720	0%
Cambridge	96,892	88,930	-8%
North Dumfries	6,291	8,088	29%
Wilmot	15,523	15,699	1%
Wellesley	6,028	6,392	6%
Woolwich	15,657	16,981	8%
Guelph City	**99,157**	**92,029**	**-7%**
Wellington	**42,415**	**45,660**	**8%**
Puslinch	5,180	5,963	15%
Guelph/Eramosa	8,937	9,932	11%
Centre Wellington	20,305	20,879	3%
Erin	7,993	8,885	11%
Orangeville	**22,625**	**19,850**	**-12%**

	MTO (approx)	TTS	Difference
Barrie	**105,391**	**96,855**	**-8%**
Simcoe	**216,791**	**229,062**	**6%**
Innisfil	30,916	27,023	-13%
Bradford West Gwillimbury	23,633	24,782	5%
New Tecumseth	28,829	24,920	-14%
Adjala-Tosorontio	6,914	8,250	19%
Essa	13,478	15,251	13%
Clearview	11,089	10,536	-5%
Springwater	6,803	14,557	114%
Collingwood	17,301	16,306	-6%
Wasaga Beach	17,044	16,212	-5%
Tiny / Christian Island	9,105	9,633	6%
Penetanguishene	6,281	6,353	1%
Midland	13,002	11,966	-8%
Tay	7,707	7,778	1%
Oro-Medonte	10,214	16,812	65%
Severn	7,526	10,860	44%
Ramara	6,949	7,824	13%
Kawartha Lakes	**65,537**	**56,756**	**-13%**
Peterborough City	**66,198**	**55,593**	**-16%**
Peterborough County	**31,292**	**34,871**	**11%**
Cavan Monaghan	5,072	6,713	32%
Otonabee-South Monaghan	4,735	5,638	19%
Asphodel-Norwood	2,979	3,136	5%
Douro-Dummer	11,696	5,336	-54%
Selwyn	6,810	14,048	106%
Orillia	**24,506**	**22,052**	**-10%**
Dufferin	**20,930**	**24,388**	**17%**
Mulmur	2,320	2,924	26%
Shelburne	2,670	5,296	98%
Amaranth	2,738	2,915	6%
Melancthon	4,453	2,089	-53%
Mono	6,034	6,600	9%
Grand Valley	1,298	2,543	96%
East Garafraxa	1,417	2,022	43%
Brantford	**71,346**	**66,738**	**-6%**
Brant	**25,426**	**27,716**	**9%**

4.7 School enrollment

Table 4-10 provides a comparison between the expanded number of students reported in the TTS and the actual school enrolment in the fall of 2016 as obtained from each university or researched online. Table 4-11 provides the same information for community colleges. Breakdowns by campus were not available for all universities. Where information was available, the number of students housed in residences is noted for context, as a possible reason for under-representation in the TTS results may be exclusion of students living in collective residences from the Canada Post residential address frame. The TTS numbers were obtained by tabulating the expanded number of students by school name, which was used to identify the location of the school. The comparisons are subject to a number of caveats, as discussed below.

The enrolment records provided by the education institutes might include or exclude non-credit courses. Similarly, persons might be recorded in TTS as students if they went to a half-day course at a university or a college. These differences are larger for community colleges as adult continuing education could include credit and non-credit courses. In addition, information was not provided as to where these courses are given. If they contain a significant off-campus component then the comparison with the TTS data is not valid. Without that additional information no assessment can be made as to how well the data from the TTS reflects part-time education. Therefore, part-time enrolments are excluded from comparisons.

Survey respondents' understanding of their full- or part-time status may differ from definitions used in the generation of official enrolment statistics. Students who live outside the survey area but attend these institutions are not included in the TTS data. The TTS numbers are reported as the usual locations where the students attended school, however, some programs may be jointly offered by two or more institutes, which may also affect comparisons.

Students were recorded at the locations where they resided during the survey. This is different from the Census where their parents' residences were used as the home locations for the students if they lived away from home during the school year. Since the age weighting controls were also based on the municipalities of the home locations of the students, this could contribute to discrepancies between the TTS numbers and the enrolment provided by the educational institutions.

Similar to the 2006 and 2011 TTS, the under-representation of full-time students is highest for the University of Waterloo and Wilfred Laurier University. Approximately three-fifths of University of Waterloo (UW) students are enrolled in co-op programs, and a portion of these were on work terms in the 2016 fall semester. Total UW enrolments including students enrolled in work terms are listed in the table for reference only. The comparison of interest in the table is based on fall 2016 enrolments in academic terms (excluding those in work terms), and reveals that the TTS under-represents full-time UW students by 29% (compared to by 55% in 2011).[9] UW students living in residence represent 20% of the full-time academic enrolments, and as most student residence accommodations are unlikely to be included in the residential address sampling frame, this may contribute the under-representation. It is not immediately clear why Wilfred Laurier would be so significantly under-represented. The number of students housed in residence represent only 18% of full-time Wilfred Laurier enrolments, and would only account for some of the difference, so there must be other factors beyond this that either

[9] Note: While it is expected that the majority of UW students enrolled in work terms would be reported on the survey as employed, some students on work terms may have reported that they are students as well as employed, so there may be some imprecision in the comparison of TTS data to the academic enrolments.

contribute to under-representation or that affect the reliability of the comparisons. Conversely, full-time enrolments at the University of Ontario Institute of Technology appear to be over-represented in the TTS data by approximately 40%. The reasons for this are not clear, but this effect could result if students at this institution were more inclined to respond to the TTS than other residents of the same age living in the same expansion zones as the students.

The 2016 TTS results for a number of universities (OCAD, Ryerson University, University of Guelph, University of Toronto, and York University) are quite close to the official enrolments, with marked improvements compared to the 2011 and 2006 data. Full-time students at universities located in cities where students contribute to a large proportion of the population are generally under-reported. Even so, the 2016 data show some improvement over 2011 and 2006 cycles. This is likely the result of two methodological changes: the 2016 address-based sampling frame includes cell-phone-only households which were not included in 2011 and earlier cycles (cell-phone-only households being common amongst post-secondary students living away from parental homes); and the data expansion process includes adjustments for additional data weighting controls that may better balance the sample by household size and dwelling type (with students more likely to have certain kinds of housing situation, which may depend on local housing conditions). Of note, the 2011 TTS had an expanded total of 224,000 full-time university students, whereas the 2016 TTS has an expanded total of 259,800. Again, it may be noted that, given the apparent differences with previous cycles, comparisons with previous cycles may be affected if the datasets from different cycles are subject to different underlying biases and data weighting corrections.

Table 4-10: Comparison of university enrollments

	University Enrolments				2016 TTS					2011	2006
Campus	Total Enrolment	Full-Time	Part-Time	# of students housed in residences	TTS Total	TTS Full-Time	TTS Part-Time	Diff. Total	Diff. Full-Time	Diff. Full-Time	Diff. Full-Time
Brock University	**18,704**	**16,174**	**2,530**	**2,400**	**14,399**	**12,273**	**2,125**	**-23%**	**-24%**	**-50%**	**-38%**
St. Catharines				2,400	13,550	11,724	1,825				
Hamilton (Faculty of Education)	749				649	437	212				
Sheridan, Oakville					200	112	88				
McMaster University	**31,265**	**27,987**	**3,278**	**3,600**	**27,746**	**23,835**	**3,912**	**-11%**	**-19%**	**-35%**	**-36%**
Main				3,600	23,521	20,676	2,844				
One James North (Centre for Continuing Ed.)					533	95	438				
Degrotte School of Business					1,482	1,125	358				
Innovation Park					96	96					
Waterloo Regional					213	180	33				
Medical Centre School					1,537	1,371	166				
Downtown					364	291	73				
Ontario College of Arts & Design University	**4,611**	**3,500**	**1,100**	n/a	**4,476**	**3,470**	**1,006**	**-3%**	**-1%**	**19%**	**-10%**

Campus	University Enrolments				2016 TTS					2011	2006
	Total Enrolment	Full-Time	Part-Time	# of students housed in residences	TTS Total	TTS Full-Time	TTS Part-Time	Diff. Total	Diff. Full-Time	Diff. Full-Time	Diff. Full-Time
Ryerson University	**41,927**	**28,893**	**13,034**	**850**	**38,032**	**29,358**	**8,674**	**-9%**	**-2%**	**52%**	**23%**
Main					28,299	21,317	6,983				
School of Business Management					9,733	8,041	1,691				
Trent University	**8,900**	**7,400**	**1,500**	unknown	**6,649**	**5,652**	**998**	**-25%**	**-24%**	**-46%**	**-36%**
Symons					4,953	4,112	840				
Durham (Oshawa)					1,595	1,518	77				
Trail College					102	21	81				
University of Guelph	**22,648**	**20,771**	**1,877**	**5,000**	**21,158**	**18,860**	**2,298**	**-7%**	**-9%**	**-58%**	**-48%**
Main	17,383				16,509	14,634	1,876				
Guelph-Humber	4,677	4,174	503		4,649	4,227	422				
Diploma - Guelph	51										
Diploma - Ridgetown	537										
University of Toronto	**88,766**	**78,292**	**10,474**	**8,883**	**93,373**	**77,896**	**15,477**	**5%**	**-1%**	**10%**	**-10%**
St. George	60,595			6,572	59,065	47,163	11,902				
Mississauga	14,741			1,544	14,553	12,826	1,727				
Scarborough	13,430			767	17,630	16,320	1,310				
Aerospace					329	303	26				
Continuing Education - Markham					320	48	271				
Dentistry					682	577	104				
Social Work					179	131	48				
Family Medicine Residency					19	19					
Physical Therapy					595	507	88				
University of Waterloo – excluding students on co-op work terms	**31,626**	**28,986**	**2,640**	**5,724**	**23,643**	**20,577**	**3,065**	**-25%**	**-29%**	**-55%**	**n/a**
University of Waterloo – Total Enrolments	**37,932**	**35,292**	**2,640**	**5,724**	**23,643**	**20,577**	**3,065**	**-38%**	**-42%**	**-62%**	**-61%**
University of Waterloo	36,638	34,184	2,454	5,582	21,738	19,155	2,583				
Renison University College	656	505	151		204	161	44				
St. Jerome's University	612	581	31								
Conrad Grebel University College	26	22	4	142	329	237	92				
Cambridge					834	537	297				
School of Pharmacy					315	266	49				
Stratford					222	222					

Campus	University Enrolments				2016 TTS					2011	2006
	Total Enrolment	Full-Time	Part-Time	# of students housed in residences	TTS Total	TTS Full-Time	TTS Part-Time	Diff. Total	Diff. Full-Time	Diff. Full-Time	Diff. Full-Time
York University	**52,418**	**43,680**	**8,738**	**2,500**	**56,406**	**46,750**	**9,656**	**8%**	**7%**	**32%**	**0%**
Keele Campus					51,438	42,807	8,630				
Glendon Campus	2,357				4,221	3,308	913				
Miles Nadal Centre					188	143	45				
Faculty of Education					559	492	67				
University of Ontario Institute of Technology	**10,154**	**9,182**	**972**	**1,360**	**15,257**	**12,896**	**2,361**	**50%**	**40%**	**n/a**	**n/a**
Main					13,586	11,445	2,141				
Downtown					1,671	1,451	221				
Wilfred Laurier University	**17,019**	**14,865**	**2,154**	**3,381**	**8,832**	**7,000**	**1,832**	**-48%**	**-53%**	**n/a**	**n/a**
Waterloo				2,780	7,831	6,220	1,611				
Kitchener					1,001	781	220				
Brantford				601	2,074	1,915	158				
Toronto											
Lakehead University	**unknown**			n/a	**1,589**	**1,297**	**292**	**n/a**	**n/a**	**n/a**	**n/a**
Orillia	1,430				1,424	1,132	292	0%			
Georgian (university partnership)					165	165					
Total *	**329,468**				**311,561**	**259,864**	**51,698**	**-5%**	**-8%**	**-5%**	**-20%**

* Total includes only University of Waterloo students enrolled in academic terms (excludes University of Waterloo students enrolled in co-op work terms in the fall of 2016).

Like the university enrolment comparisons, the college enrolment comparisons should be viewed with caution. It may also be noted that official enrolment figures do not always detail how many students might be full-time and part-time enrolled in full-semester diploma or certificate programs or in short continuing education programs (which are excluded where possible from enrolment figures used in the comparisons). The same caveats apply as for universities with respect to non-coverage of students residing outside the study area, respondent understanding of whether the students captured by the survey are full-time or part-time, and so on.

Examining full-time enrolment figures, the 2016 data appear to significantly under-represent most college enrolments except for Conestoga College, George Brown College, Humber College, Mohawk College, and Niagara College, which all have expanded full-time students within 17% of the official enrolments. The 2016 data appear to have somewhat greater variance from official enrolment figures compared to previous cycles (-22% overall in 2016, compared with -2% in 2011). Of note, the 2011 TTS had an expanded total of about 154,500 full-time students at these colleges, whereas the 2016 TTS has an expanded total that is slightly less, at 152,600 full-time students.

Table 4-11: Comparison of community college enrollments

Campus	College enrolments			2016 TTS					2011	2006
	Total Enrolment (excluding Continuing Education)	Full-time	Part-time	TTS Total	TTS Full-Time	TTS Part-Time	Diff. Total	Diff. Full-Time	Diff. Full-Time	Diff. Full-Time
Centennial College	**28,708**	**22,028**	**3,746**	**17,042**	**13,097**	**3,945**	**-41%**	**-41%**	**-45%**	**-9%**
Ashtonbee Campus				2,885	1,724	1,161				
Eglinton Learning Site				48	0	48				
Morningside Campus				5,051	4,185	866				
Pickering Learning Site										
Progress Campus				7,382	5,831	1,551				
Story Arts Centre				883	764	118				
GM Training Centre				15	0	15				
Cowdray Court				30	30	0				
Midland				54	54	0				
Warden Woods				213	174	38				
Progress (Community)				471	326	145				
ECE				9	9	0				
Conestoga College	**16,505**	**13,775**	**439**	**15,108**	**11,420**	**3,689**	**-8%**	**-17%**	**5%**	**-28%**
Doon (Kitchener) Campus				10,207	7,975	2,232				
Cambridge Campus				1,891	1,472	419				
Guelph Campus				1,287	761	526				
Waterloo Campus				1,103	815	288				
Brantford				70	55	16				
Cambridge Downtown				523	342	181				
Ingersoll Skills Training Centre										
Stratford				27	0	27				
Durham College	**11,504**	**9,604**	**700**	**6,499**	**5,021**	**1,478**	**-44%**	**-48%**	**50%**	**-10%**
Oshawa				3,731	2,900	831				
Whitby				2,464	1,858	606				
Beaverton				174	174	0				
Ajax & Pickering				62	42	20				
Uxbridge				21	0	21				
Centre for Food (Whitby)				47	47	0				
George Brown College	**32,117**	**28,924**	**3,193**	**38,812**	**28,912**	**9,900**	**21%**	**0%**	**-13%**	**-23%**
St. James Campus				24,405	19,439	4,966				
Casa Loma Campus				7,341	4,933	2,408				
Waterfront Campus				3,543	2,500	1,044				
Administration				946	540	406				
Hospitality & Tourism				1,241	587	654				
Theatre (Young Centre for the Performing Arts)				221	111	110				
Ryerson				1,115	802	313				

Campus	College enrolments			2016 TTS					2011	2006
	Total Enrolment (excluding Continuing Education)	Full-time	Part-time	TTS Total	TTS Full-Time	TTS Part-Time	Diff. Total	Diff. Full-Time	Diff. Full-Time	Diff. Full-Time
Georgian College	**n/a**	**11,000**	**n/a**	**10,611**	**8,461**	**2,150**	**-4%**	**-23%**	**-25%**	**-40%**
Barrie				7,875	6,335	1,540				
Midland				243	87	155				
Muskoka (Bracebridge)										
Orangeville				92	34	58				
Orillia				1,643	1,449	194				
Owen Sound				196	196	0				
South Georgian Bay (Collingwood)				243	112	131				
Barrie Kempenfelt				319	246	73				
Humber College	**54,200**	**29,200**	**23,000**	**33,926**	**27,128**	**6,798**	**-37%**	**-7%**	**12%**	**-11%**
North Campus				22,805	17,457	5,348				
Lakeshore Campus				9,973	8,885	1,088				
Orangeville Campus				319	290	29				
ARTS AND MEDIA STUDIOS				313	313	0				
CENTRE FOR TRADES AND TECH				516	184	333				
Mohawk College	**19,812**	**16,225**	**1,242**	**18,129**	**13,895**	**4,234**	**-8%**	**-14%**	**-4%**	**-4%**
Fennell Campus				13,718	10,763	2,955				
Stoney Creek Campus for Skilled Trades				2,109	1,314	796				
Institute of Applied Health Sciences				678	642	36				
Six Nations Polytechnic - Brantford				106	0	106				
Six Nations Polytechnic - Ohsweken										
Ogwehoweh skills and Trades Training Centre										
Chedoke				322	254	68				
Wentworth				678	527	150				
Laurier Centre				154	104	51				
McMaster Downtown				364	291	73				
Niagara College	**n/a**	**8,965**	**n/a**	**9,413**	**7,513**	**1,900**	**n/a**	**-16%**	**-25%**	**-26%**
Welland				6,541	5,341	1,200				
Niagara-on-the-Lake				2,762	2,082	680				
Niagara Falls				89	89	0				
Sailing School				20	0	20				

Campus	College enrolments			2016 TTS					2011	2006
	Total Enrolment (excluding Continuing Education)	**Full-time**	**Part-time**	**TTS Total**	**TTS Full-Time**	**TTS Part-Time**	**Diff. Total**	**Diff. Full-Time**	**Diff. Full-Time**	**Diff. Full-Time**
Seneca College	**n/a**	**28,000**	**n/a**	**27,514**	**17,470**	**10,045**	**n/a**	**-38%**	**15%**	**-19%**
Jane Campus				702	569	133				
King Campus				3,206	2,872	334				
Markham Campus				3,150	1,765	1,385				
Newnham Campus				16,246	9,407	6,839				
Newmarket Campus				73	28	45				
Peterborough Aviation Campus				70	0	70				
Scarborough Campus				948	598	349				
Seneca @ York Campus				2,679	1,976	704				
Vaughan Campus				57	0	57				
Yorkgate Campus				383	255	128				
Sheridan College	**n/a**	**23,000**	**n/a**	**22,182**	**16,550**	**5,632**	**n/a**	**-28%**	**5%**	**-11%**
Davids Campus				8,882	6,868	2,015				
Hazel McCallion Campus				4,475	2,834	1,641				
Skills Training Centre				1,208	888	320				
Trafalgar Campus				7,617	5,961	1,655				
Sir Sandford Fleming College	**15,900**	**5,900**	**10,000**	**4,193**	**3,177**	**1,016**	**-74%**	**-46%**	**-35%**	**-38%**
Sutherland Campus				3,095	2,251	843				
Frost Campus				937	826	111				
Haliburton Campus										
Cobourg Campus				130	69	62				
McRae				31	31	0				
Total	**n/a**	**196,621**	**n/a**	**203,430**	**152,645**	**50,785**	**n/a**	**-22%**	**-2%**	**-18%**

n/a = data not available

The TTS collects the age and sex of all householders, however those ten years of age and under are not asked further demographic questions and are not asked about their travel. Householders aged six to ten years are assumed to be students; however, unlike older students, they are not asked the location of their school. Estimates of the number of elementary and secondary students represented by the expanded TTS data have been compiled by municipality using the municipality the school is located in for students 11 years of age and older and the municipality the household is located in for younger students. Where school boards cover more than one municipality, municipalities have been combined to allow comparison. Schools reported on the TTS were not matched to their school board, so school-board-level comparisons have not been made. Schools reported by TTS respondents have not been coded to level of education, so identification of elementary and secondary students was undertaken using age alone. Therefore, the TTS totals should be interpreted with modest caution, as they may include some students aged 17 or 18 who have graduated secondary school and are taking post-secondary education, or exclude students older than 18 who are still completing secondary school. As well, the apportionment between elementary and secondary may not be accurate.

As the data expansion used age as a data weighting control, one would expect good alignment in terms of K-12 school enrolments. Table 4-12 below outlines a comparison of these totals by municipality with the combined enrolment statistics by municipality. Reference figures were not available for the number of students attending private schools, or being home-schooled. Enrolments for French-language school boards that cover large geographies have not been apportioned by municipality. Therefore, one might expect TTS enrolments to slightly exceed the known enrolments for the same municipality. This is in fact the case for most municipalities for which the TTS geographies are equivalent with the school board geographies, with TTS figures appearing to be about 2% greater than enrolments when totalled across such geographies, but with some possible over-representation of students in Toronto and Durham, subject to the various caveats discussed above. Some school board jurisdictions have geographies that extend outside of the region. These geographies are marked with asterisks (*) in the table.

Table 4-12: Comparison of elementary and secondary enrolments by municipality

	Element-ary	Second-ary	Total	TTS Elem. Age (ages 6-14)	TTS Sec. Age (ages 15-18)	TTS Total	Diff. Elem.	Diff. Sec.	Diff. Total
Toronto	**232,249**	**107,068**	**339,317**	**236,549**	**127,830**	**364,379**	**2%**	**19%**	**7%**
Toronto CDSB	60,222	30,319	90,541						
Toronto DSB	172,027	76,749	248,776						
Portion of CSDC Centre-Sud, CS Viamonde	Unknown	Unknown	Unknown						
Private schools/independent home schooling	Unknown	Unknown	Unknown						
Durham	**61,997**	**28,839**	**90,836**	**71,360**	**31,701**	**103,061**	**15%**	**10%**	**13%**
Durham CDSB	14,600	7,270	21,870						
Durham DSB	47,397	21,569	68,966						
Portion of CSDC Centre-Sud, CS Viamonde	Unknown	Unknown	Unknown						
Portion of Karwartha Pine Ridge DSB	Unknown	Unknown	Unknown						
Private schools/independent home schooling	Unknown	Unknown	Unknown						
York	**120,565**	**57,078**	**177,643**	**122,785**	**53,943**	**176,727**	**2%**	**-5%**	**-1%**
York CDSB	37,266	18,219	55,485						
York Region DSB	83,299	38,859	122,158						
Portion of CSDC Centre-Sud, CS Viamonde	Unknown	Unknown	Unknown						
Private schools/independent home schooling	Unknown	Unknown	Unknown						

	Element-ary	Second-ary	Total	TTS Elem. Age (ages 6-14)	TTS Sec. Age (ages 15-18)	TTS Total	Diff. Elem.	Diff. Sec.	Diff. Total
Halton	**65,210**	**28,718**	**93,928**	**68,791**	**29,065**	**97,856**	**5%**	**1%**	**4%**
Halton CDSB	21,692	10,247	31,939						
Halton DSB	43,518	18,471	61,989						
Portion of CSDC Centre-Sud, CS Viamonde	Unknown	Unknown	Unknown						
Private schools/independent home schooling	Unknown	Unknown	Unknown						
Hamilton	**53,041**	**26,474**	**79,515**	**52,412**	**27,227**	**79,639**	**-1%**	**3%**	**0%**
Hamilton-Wentworth CDSB	18,676	10,858	29,534						
Hamilton-Wentworth DSB	34,365	15,616	49,981						
Portion of CSDC Centre-Sud, CS Viamonde	Unknown	Unknown	Unknown						
Private schools/independent home schooling	Unknown	Unknown	Unknown						
Niagara	**39,197**	**19,737**	**58,934**	**41,543**	**19,873**	**61,417**	**6%**	**1%**	**4%**
DSB Niagara	24,344	12,377	36,721						
Niagara CDSB	14,853	7,360	22,213						
Portion of CSDC Centre-Sud, CS Viamonde	Unknown	Unknown	Unknown						
Private schools/independent home schooling	Unknown	Unknown	Unknown						
Waterloo	**56,896**	**26,672**	**83,568**	**56,939**	**26,874**	**83,813**	**0%**	**1%**	**0%**
Waterloo CDSB	14,484	6,604	21,088						
Waterloo Region DSB	42,412	20,068	62,480						
Portion of CSDC Centre-Sud, CS Viamonde	Unknown	Unknown	Unknown						
Private schools/independent home schooling	Unknown	Unknown	Unknown						
Peel, Dufferin, Wellington, Orangeville and Guelph*	**189,643**	**89,839**	**279,482**	**183,517**	**81,310**	**264,828**	**-3%***	**-9%***	**-5%***
Peel				157,050	68,714	225,763			
Guelph				13,733	8,321	22,055			
Wellington (part)				5,834	1,603	7,437			
Orangeville				3,471	1,901	5,372			
Dufferin				3,430	771	4,201			
Dufferin-Peel CDSB	49,876	32,633	82,509						
Peel DSB	112,134	43,050	155,184						
Upper Grand DSB	22,172	11,596	33,768						
Wellington CDSB*	5,461	2,560	8,021						
Portion of CSDC Centre-Sud, CS Viamonde	Unknown	Unknown	Unknown						
Private schools/independent home schooling	Unknown	Unknown	Unknown						
Simcoe County, Orillia & Barrie*	**48,918**	**23,243**	**72,161**	**48,620**	**21,844**	**70,465**	**-1%***	**-6%***	**-2%***
Barrie				16,656	9,542	26,198			
Simcoe				28,919	9,565	38,483			
Orillia				3,046	2,738	5,783			
Penetanguishene PSSB	219	0	219						
Simcoe County DSB	35,240	16,377	51,617						
Simcoe Muskoka CDSB*	13,459	6,866	20,325						
Portion of CSDC Centre-Sud, CS Viamonde	Unknown	Unknown	Unknown						
Private schools/independent home schooling	Unknown	Unknown	Unknown						

	Element-ary	Second-ary	Total	TTS Elem. Age (ages 6-14)	TTS Sec. Age (ages 15-18)	TTS Total	Diff. Elem.	Diff. Sec.	Diff. Total
City of Kawartha Lakes*	**10,702**	**6,321**	**17,023**	**6,080**	**2,677**	**8,756**	**-43%***	**-58%***	**-49%***
City of Kawartha Lakes				6,080	2,677	8,756			
Trillium Lakelands DSB*	10,702	6,321	17,023						
Private schools/independent home schooling	Unknown	Unknown	Unknown						
Peterborough (City and County)*	**31,570**	**15,333**	**46,903**	**10,810**	**4,847**	**15,657**	**-66%***	**-68%***	**-67%***
City of Peterborough				7,368	4,350	11,718			
Peterborough County (part)				3,442	497	3,939			
Kawartha Pine Ridge DSB	21,689	10,774	32,463						
Peterborough Victoria Northumberland and Clarington CDSB*	9,881	4,559	14,440						
Portion of CSDC Centre-Sud	Unknown	Unknown	Unknown						
Private schools/independent home schooling	Unknown	Unknown	Unknown						
Brant & Brantford*	**23,878**	**12,867**	**36,745**	**13,991**	**5,977**	**19,968**	**-41%***	**-54%***	**-46%***
Brant				10,496	5,347	15,843			
Brantford				3,495	630	4,124			
Brant Haldimand Norfolk CDSB*	6,333	3,431	9,764						
Grand Erie DSB*	17,545	9,436	26,981						
Portion of CSDC Centre-Sud	Unknown	Unknown	Unknown						
Private schools/independent home schooling	Unknown	Unknown	Unknown						
French-Language school boards covering large portion of study area									
CSDC Centre-Sud	12,433	2,902	15,335						
CS Viamonde	8,926	1,719	10,645						
External to study area									
TTS counts for students with schools outside the study area	**n/a**	**n/a**	**n/a**	**383**	**1,800**	**2,183**	**n/a**	**n/a**	**n/a**
Subtotals									
School boards with good matches to TTS regions	**867,716**	**407,668**	**1,275,384**	**882,517**	**419,667**	**1,302,184**	**2%**	**3%**	**2%**
School boards that cover many regions across the study area	**21,359**	**4,621**	**25,980**						
School boards that extend outside the TTS regions*	**66,150**	**34,521**	**100,671**						
TTS counts for regions that match to school boards that extend outside the TTS boundaries				**30,881**	**13,500**	**44,381**			
TTS counts for students with schools outside the study area				**383**	**1,800**	**2,183**			
TTS Total students of elementary and secondary school age*	**955,225**	**446,810**	**1,402,035**	**913,781**	**434,967**	**1,348,748**	**-4%***	**-3%***	**-4%***

* Official enrolment counts for geographies marked with an asterisk extend outside of the study area. Comparisons will not be accurate for these geographies.

4.8 Traffic Volumes

Validation of the TTS auto driver trip data was performed using link volumes calculated from trip matrices extracted from the expanded TTS database compared against Cordon Count traffic counts undertaken in May-June 2016.[10] The TTS trip matrices were assigned to the 2011 GTHA network, with the TTS area external to the GTHA aggregated to 26 super zones connected by a skeleton network representing major highways.[11] The assignment of trips to the network was done using the "static equilibrium" assignment technique in the EMME software modelling package to obtain link volumes.

Any comparisons between the cordon counts and the network assignment of TTS data need to take into account the following considerations.

1. The cordon counts are taken at a different time of year (typically May, June 2016) from the TTS (the fall of 2016).
2. The TTS represents average weekday conditions over a three-month period. The count at each station is for a single day. There can be considerable day to day variation in traffic flows depending on traffic conditions.
3. The counts rely on visually distinguishing between private and commercial vehicles. The TTS data is classified by trip purpose, and respondents who drove for a living (e.g., taxi drivers) were asked to exclude commercial trips they made as part of their work. Commercial vehicles are excluded from the comparison.
4. The TTS assigned volumes are influenced by the accuracy of the network representation in terms of road capacity, speeds, level of zone detail and the location of centroid connectors.
5. The TTS data are aggregated on the basis of reported trip start times. Most respondents report trip times to the nearest 10 or 15 minutes. Significant peaks occur right on each hour and half hour with smaller peaks on the quarter hour. The total hourly volume can change significantly depending on which minute the hour is taken to begin and end on. The cordon counts are continuous with precise aggregation to 15 minute time periods for reporting purposes.
6. The assignment algorithm may not accurately reflect the actual travel routings used by people in the survey. However, this should not affect the total volume across a screen line unless there is potential for diversion to another screen line. The close proximity of Highway 407 parallel to the North Toronto boundary has the potential to cause some distortion, in this regard, at both the Peel East and Durham West boundaries.
7. Comparison between assigned volumes and the count data for individual count stations are not reliable.
8. The 2016 Cordon Count data for some stations on Highway 401 for traffic from the Peel region into Toronto were low compared to 2011 and 2014 counts at the same stations. These counts may have been affected by a major collision on the highway that may have affected the reliability of these counts as a reflection of typical daily volumes.

[10] The Cordon Count data collection program has been conducted by the Regional Municipalities and the City of Toronto in the GTA every 2 or 3 years since the 1970s. The number of participating municipalities has varied by year but has included the entire GTA since the 1991 TTS. The City of Hamilton joined the program for the first time in 2016. The Data Management Group serves as a central custodian of the Cordon Count data supplied by the participating municipalities. The counts are classified by vehicle type and occupancy. The totals in each category are recorded by 15 minute intervals during daylight hours.

[11] The network used for the trip assignment is the 2011 network from the City of Brampton EMME model. This network was chosen primarily as a matter of expediency due to its availability with the screen line coding already in place and tested. The network is a modified version of the integrated GTA network developed by the DMG and covers the entire GTHA in considerable detail. Extra zone and road detail has been added to the network within and adjacent to the City of Brampton. The extra level of detail within the City of Brampton should not have any measurable effect on screen lines external to the City.

Table 4-13, Figure 4-3, and Figure 4-4 show the comparison for the a.m. peak three-hour period, defined as trips having a recorded start time in the TTS from 6:00 to 8:59 a.m. inclusive, compared with Cordon Count data offset 15 minutes into the future, or 6:15 to 9:15 a.m., to account for travel from trip origins to the screenline locations.[12] The a.m. peak period is chosen because it consists primarily of trips related to work and school that, based on past survey experience, are most likely to be accurately recorded in the survey thus providing the best fit with observed count data particularly in the peak flow direction.

The columns in Table 4-13 present the following types of information:

- The cordon counts and survey results, with the percent difference.
- The ratio of the assigned volumes to counts provides an overall measure of the total under or over representation of trips in the TTS database relative to the cordon counts.
- The GEH statistic is a formula used to compare two sets of traffic volumes such as the baseline calibration of a travel demand forecasting model against actual traffic counts. The formula takes into account the absolute magnitude of the numbers as well as the difference. A value of 5.0 or less is considered to be a good fit for a well calibrated model.

With respect to the GEH statistic, one would not expect the same level of accuracy when comparing the survey results with the cordon count data due to the factors noted previously and the absence of any correction factors that would normally be built into a model calibration. The GEH statistic is included as a means of comparing the goodness of fit of the current survey data with that of previous surveys.[13] The mean GEH statistic shown in the table is weighted by the total station counts for each screen line.

Table 4-13 is also divided into three sections.

- A.M. peak period in the peak direction across the inter-regional boundaries within the GTHA. These flows are likely to contain the highest proportion of trips to work and school which are the most likely to be accurately reported.
- The same screen lines as above but in the reverse direction.
- Segments of the outer boundary of the GTHA. There is limited scope for meaningful representation of the outer boundary due to size of the zone aggregations used to represent the areas external to the GTHA and the skeleton nature of the road network in those areas. The City of Hamilton did not participate in the Cordon Count program prior to 2016 hence the absence of data across the outer Hamilton boundary for prior years.

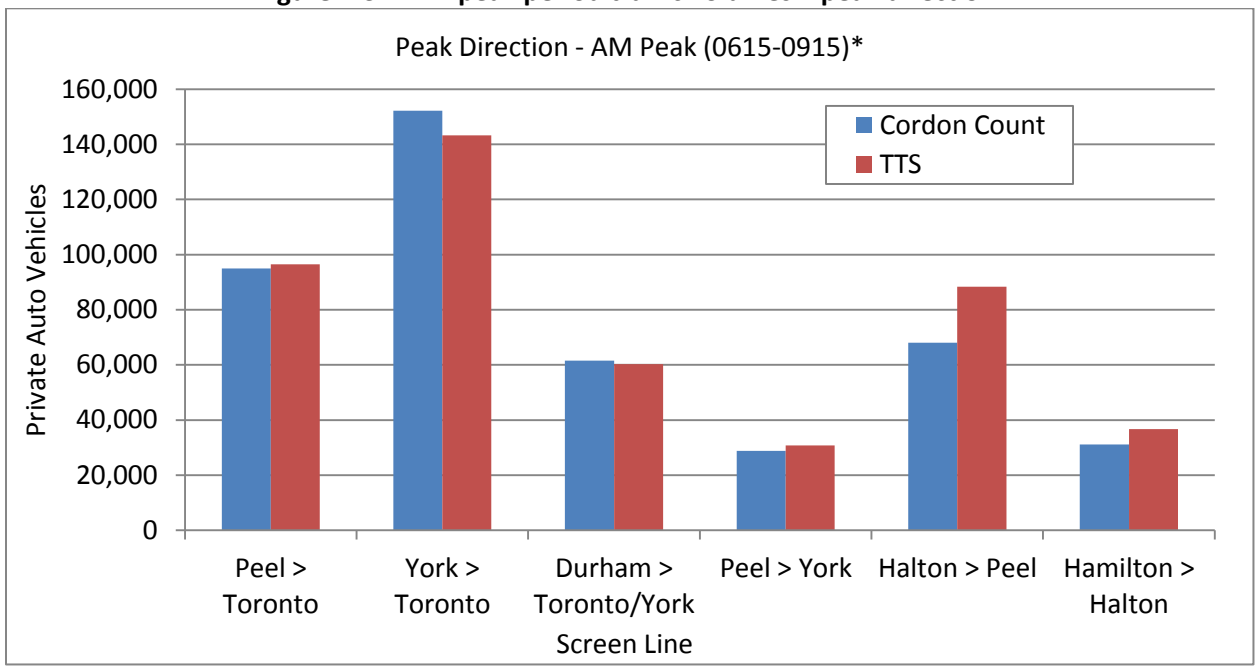
[12] Although the survey has provision to record trip start times to the nearest minute most respondents to the survey generally round the time to the nearest 5, 10 or 15 minutes resulting in large spikes in the recorded data for trips starting on the hour, quarter hour or half hour. To include trips starting at both 6 a.m. and 9 a.m. would therefore lead to a measurable over statement of the total number of trips starting in the 3 hour period. In previous surveys, the number of trips starting at 9 a.m. has been slightly larger than at 6 a.m., but sensitivity analysis showed that because the trips starting at 6 a.m. were generally longer than those starting at 9 a.m. the inclusion of the 6 a.m. spike resulted in higher traffic volumes. The difference is not significant. A 15 minute offset for the count data is to allow for the difference between the time at which trips start and the time at which the street counts occur which could be at any point in the trip. The inclusion, and size, of the time offset generally has little impact on the count total.

[13] The TTS data from previous years (2001, 2006 and 2011) has been assigned to the same network as the 2016 data using the same zone system and assignment parameters in order to obtain a consistent comparison. The results may not be exactly the same as shown in the previous validation reports.

Peak Period Summary

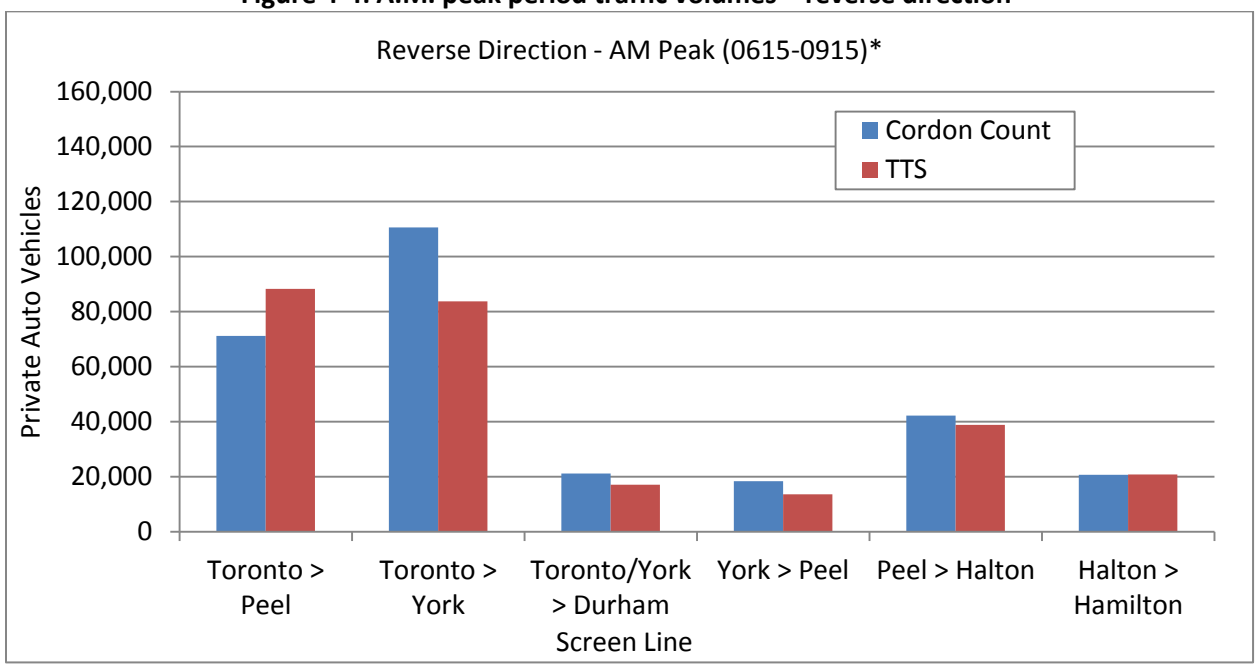
The total amount of auto travel reported in the 2016 survey is consistent with overall traffic levels observed on the street during the a.m. peak period. The goodness of fit of the travel distribution is comparable to previous surveys. Following the charts and table is a more detailed discussion of results.

Figure 4-3: A.M. peak period traffic volumes – peak direction



* TTS trips with start times of 0600-0859 vs. Cordon Counts for 0615-0915, to compensate for travel from origin to screenline.

Figure 4-4: A.M. peak period traffic volumes – reverse direction



* TTS trips with start times of 0600-0859 vs. Cordon Counts for 0615-0915, to compensate for travel from origin to screenline.

Table 4-13: A.M. peak period traffic volumes

3 hours (6:00-8:59)	Count	Network	2016 Volumes			Ratio (TTS vs. Counts)				GEH Statistic			
Screenline	Stations	Links	Count	TTS	Diff	2016	2011	2006	2001	2016	2011	2006	2001
GTHA inter-regional Peak Direction													
Peel > Toronto	19	18	94,957	96,478	2%	1.02	0.88	0.95	0.95	4.9	41.3	16.7	14.5
York > Toronto	38	74	152,246	143,212	-6%	0.94	0.91	0.92	1.00	23.5	33.7	31.8	0.9
Durham > Toronto	5	6	49,948	45,396	-9%	0.91	0.81	0.89	0.96	20.9	43.2	22.5	8.7
Halton > Peel	15	30	68,044	88,331	30%	1.30	1.16	1.15	1.01	72.6	41.4	35.2	2.7
Peel > York	8	17	28,848	30,782	7%	1.07	1.04	0.98	0.89	11.2	5.7	3.0	15.0
Hamilton > Halton	5	5	31,146	36,722	18%	1.18	1.16	0.84	0.91	30.3	25.9	31.1	15.2
Durham > York	18	21	11,604	14,916	29%	1.29	1.32	1.27	2.69	28.8	28.9	23.4	40.5
Sub-total (& mean GEH)	**108**	**171**	**436,793**	**455,837**	**4%**	**1.04**	**0.96**	**0.95**	**0.98**	**26.6**	**35.7**	**25.9**	**7.9**
GTHA inter-regional Reverse Direction													
Toronto > Peel	19	18	71,218	88,251	24%	1.24	0.97	0.87	1.26	60.3	8.5	39.0	59.3
Toronto > York	38	74	110,595	83,805	-24%	0.76	0.74	0.79	0.84	85.9	87.4	69.4	47.9
Toronto > Durham	5	6	17,992	13,126	-27%	0.73	0.79	0.88	0.87	39.0	27.5	14.3	14.7
Peel > Halton	15	30	42,273	38,873	-8%	0.92	0.80	0.86	0.98	16.9	43.1	27.5	2.6
York > Peel	8	17	18,404	13,695	-26%	0.74	0.76	0.61	0.59	37.2	34.8	56.1	53.6
Halton > Hamilton	5	5	20,743	20,831	0%	1.00	0.94	0.80	0.89	0.6	8.9	28.1	14.6
York > Durham	18	21	3,173	4,004	26%	1.26	1.31	0.92	1.40	13.9	15.8	4.4	14.0
Sub-total (& mean GEH)	**108**	**171**	**284,398**	**262,586**	**-8%**	**0.92**	**0.84**	**0.82**	**0.97**	**56.1**	**44.6**	**46.8**	**41.8**
GTHA Boundary													
From Dufferin/Simcoe	7	10	23,581	31,806	35%	1.35	1.13	1.13	1.28	49.4	19.7	18.3	36.5
Niagara > Hamilton	17	4	14,640	16,558	13%	1.13				15.4			
Brant > Hamilton	13	4	6,707	6,518	-3%	0.97				2.3			
To Dufferin/Simcoe	7	10	8,337	9,881	19%	1.19	0.97	0.85	0.86	16.2	3.2	14.5	12.1
Hamilton > Niagara	14	4	8,750	7,597	-13%	0.87				12.8			
Hamilton > Brant	13	4	4,994	5,172	4%	1.04				2.5			
Sub-total (& mean GEH)	**71**	**36**	**67,009**	**77,531**	**16%**	**1.16**	**1.09**	**1.05**	**1.17**	**19.4**	**15.4**	**17.3**	**30.1**
Total - all screenlines	**287**	**246**	**788,200**	**795,954**	**1%**	**1.01**	**0.92**	**0.91**	**0.98**	**36.6**	**38.2**	**33.5**	**21.0**

The following discussion is with respect to the individual screen lines.

Peel>Toronto

There is an exact match between the cordon counts and the network in terms of the number and location of count stations and links. The core and collector lanes on Highway 401 are separate count stations but represented by a single link in the network. In the peak direction the 2016 survey provides an excellent match with the counts, much better than in previous years. The improved match, however, is largely due to the 2016 count data being significantly lower than in the previous years, particularly on Highway 401 and on the QEW. A major collision on the 401 on the count day may have affected stations on this screenline.

York>Toronto
The comparisons are complicated by the fact that the boundary is on the North side of Steeles Avenue whereas the railway sub-division further to the North provides more of a physical barrier between the two Regions. As a result there is a row of zones in York Region which generally have better access to Steeles Avenue in Toronto than they do to the rest of York Region. There are 25 local streets that are represented in the network but for which count data were not available plus ten centroid connectors that cross the screen line. Those 35 links account for approximately 10% of the total assigned volume crossing the screen line. It is not obvious what proportion of that volume should be included in the count comparison. 50% has been included for the current comparisons. The results are comparable to previous surveys.

Durham>Toronto
One minor link (Third Concession Road) is included in the network but excluded from the comparison due to absence of count data. The assigned volume is low (0.89) compared to the count but closer than in 2011 (0.81) and comparable to 2006.

Halton>Peel
There are five local streets represented in the network for which count data were not available and ten centroid connectors that cross the screen line. The assigned volumes on those links are excluded from the comparison. Including them would add 9% to the assigned volume. The assigned volume is considerably higher than the count, by 30%. The assignment of the data from previous surveys is also high but not to the same extent. A contributing factor could be the high level of congestion on the major highways with queuing delays that produce artificially low counts. The count data for all four major highways (QEW, 403, 407 and 401) are all well below theoretical capacity.

Peel>York
There is 1 local street (Coleraine Drive) in the network for which count data were not available and 8 centroid connectors crossing the boundary. The assigned volumes on those links are excluded from the comparison. Including those volumes would add 14% to the assigned total. The assigned volume is a good fit with the count data as has been the case in previous years.

Hamilton>Halton
The comparison excludes Kern's Road and the section of the boundary with the City of Burlington north of Dundas Street. The remaining five crossings are included in both the count data and the network representation. The assigned volumes are high (18%) relative to the counts by about the same amount as in 2011. As with the Halton>Peel boundary high levels of congestion on the QEW and Highway 403 could have contributed to count data well below theoretical capacity in both cases.

Durham>York
This is a mostly rural screen line with count data available for all but three of the roads included in the network. Those three links, accounting for 9% of the assigned volume, are excluded from the comparison. Together Highways 407 and 7 account for 77% of the total observed volume. The 2016 TTS assignment results are closer to the observed value than were the 2011 TTS and comparable to the 2006 results.

Reverse flow

The a.m. peak period reverse flow assignments across the inter-regional screen lines are low in total (-8%) but not by as much as in the 2011 and 2006 surveys. There is, however, somewhat less consistency in the level of under representation between the different screen lines as reflected by the GEH statistics. The same notes apply as for the peak direction with respect to the number of stations and links included in the comparison.

GTHA Boundary

West of Highway 400 the GTA boundary with Simcoe and Dufferin counties is on the north side of Highway 9 while the cordon count data is collected on the south side. No count data were available for three of the links in the network. The assigned volumes on those links are excluded from the comparison. Including them would add 7% to the assigned volume in the southbound direction and 5% northbound. Highway 400 accounts for more than half of the count across the screen line. The assigned volumes are high in both directions. The difference from the counts is somewhat higher than in previous surveys.

Hamilton<>Niagara

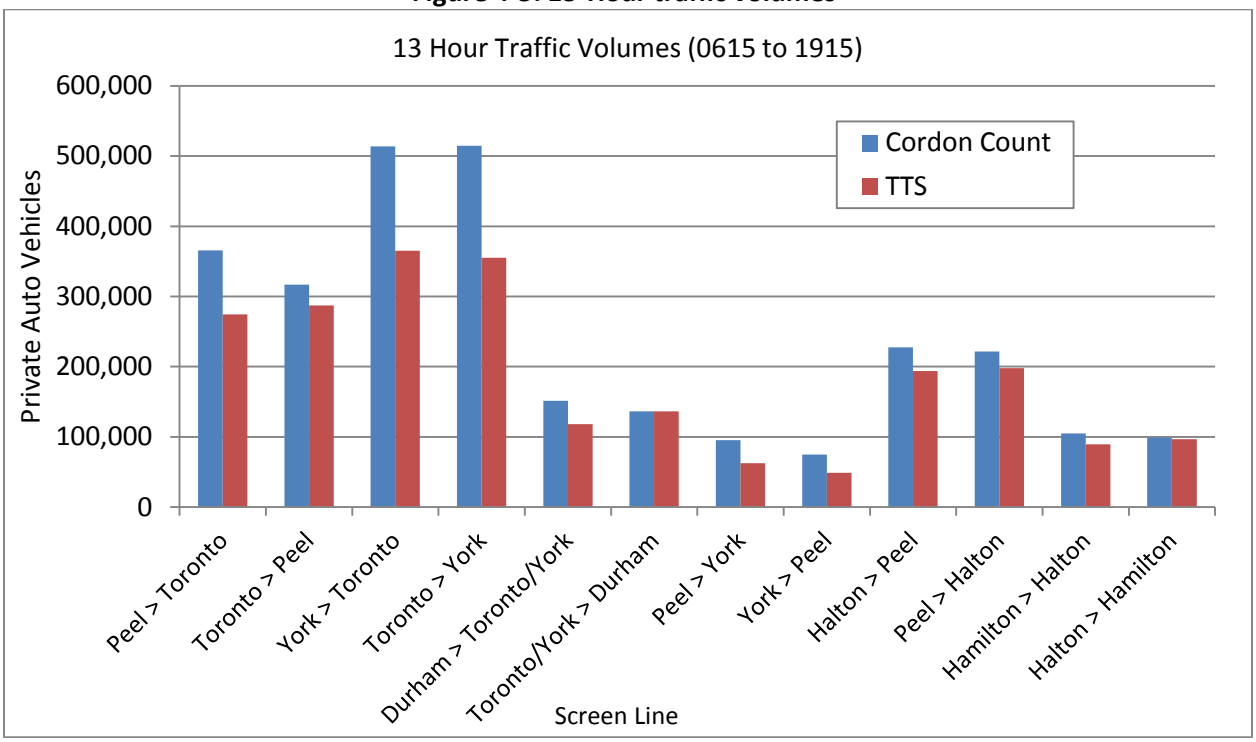
The Hamilton<>Niagara boundary is represented by only four links in the network. Count data were collected at 17 stations most of which are minor concession roads with very low volumes. The QEW accounts for 80% of the total count. The assignment is moderately high (13%) in the peak direction and low (-13%) in the reverse direction. There are no count data available for previous years.

The Brant County boundary is similar to the Niagara boundary in that there are only four links in the network and 13 count stations. Highway 403 accounts for 67% of the total count. The assigned traffic volumes provide a good match with the count data. There are no count data available for previous years

Daily (13 hour) comparisons

Figure 4-5 and Table 4-13 show the same screen line comparisons for a 13 hour time period for TTS trips with reported start times from 6:00 to 18:59. A 15 minute offset is used for count data (6:15 to 19:15) to compensate for time elapsed between the reported trip start times in the TTS data and the crossing of screenlines at which counts took place. Count data from the Region of Halton is for the time period 6:00 to 19:00, the time at which daily data collection ceased. The links and count stations included and excluded from the comparison are the same as for the a.m. peak period. The 2016 TTS assignment produces traffic volumes that are lower than the count data across all screen lines with the exception of the GTHA boundary with Dufferin and Simcoe. The average shortfall is -21%, comparable to the shortfalls observed in previous surveys. Post survey analysis after the 1996 TTS identified that the use of a single respondent to report the trips for all members of the household was likely a contributing factor to the under reporting of trips, particularly with respect to discretionary (non-work or school related) auto driver trips. The reported trip rates for “respondents” were found to be significantly higher than for “non-respondents” even after taking into account other socio-demographic differences. The GEH statistics are extremely large due to the cross the board level of under reporting and therefore probably have little meaning.

Figure 4-5: 13-Hour traffic volumes



* TTS trips with start times of 0600-1859 vs. Cordon Counts for 0615-1915, to compensate for travel from origin to screenline location.

Table 4-14: 13-hour traffic volumes

13 hours (6:00-18:59)	Count	Network	2016 Volumes			Ratio (TTS vs. Counts)				GEH Statistic			
Screenline	Stations	Links	Count	TTS	Diff	2016	2011	2006	2001	2016	2011	2006	2001
GTHA inter-regional Peak Direction													
Peel > Toronto	19	18	365,530	274,464	-25%	0.75	0.73	0.72	0.76	161.0	175.4	183.2	147.0
York > Toronto	38	74	513,645	365,022	-29%	0.71	0.68	0.68	0.75	224.2	245.3	240.2	173.4
Durham > Toronto	5	6	126,798	93,360	-26%	0.74	0.72	0.76	0.84	100.8	102.2	83.2	52.3
Halton > Peel	15	30	227,474	193,768	-15%	0.85	0.84	0.85	0.82	73.4	75.5	67.3	70.0
Peel > York	8	17	95,531	62,591	-34%	0.66	0.74	0.60	0.59	117.2	76.8	118.5	104.2
Hamilton > Halton	5	5	104,988	89,508	-15%	0.85	0.86	0.63	0.70	49.6	44.5	134.6	104.4
Durham > York	18	21	24,522	24,740	1%	1.01	1.03	0.92	2.89	1.4	4.0	11.4	81.7
Sub-total (& mean GEH)	**108**	**171**	**1,458,488**	**1,103,452**	**-24%**	**0.76**	**0.74**	**0.71**	**0.76**	**150.8**	**162.5**	**169.9**	**133.7**
GTHA inter-regional Reverse Direction													
Toronto > Peel	19	18	316,665	287,471	-9%	0.91	0.74	0.70	0.99	53.1	170.8	201.1	7.4
Toronto > York	38	74	514,739	355,051	-31%	0.69	0.69	0.69	0.75	242.1	233.1	227.8	166.3
Toronto > Durham	5	6	110,647	90,150	-19%	0.81	0.81	0.83	0.84	64.7	64.8	55.0	51.8
Peel > Halton	15	30	221,617	197,903	-11%	0.89	0.92	0.86	0.85	51.8	36.4	64.2	58.5
York > Peel	8	17	74,834	48,916	-35%	0.65	0.47	0.44	0.37	104.2	179.0	171.9	177.8
Halton > Hamilton	5	5	98,906	96,959	-2%	0.98	0.86	0.74	0.80	6.2	47.6	89.3	64.5
York > Durham	18	21	25,960	24,055	-7%	0.93	0.99	0.86	7.56	12.0	1.3	19.9	120.1
Sub-total (& mean GEH)	**108**	**171**	**1,363,368**	**1,100,505**	**-19%**	**0.81**	**0.75**	**0.72**	**0.82**	**123.8**	**154.5**	**167.6**	**93.4**

13 hours (6:00-18:59)	Count	Network	2016 Volumes			Ratio (TTS vs. Counts)				GEH Statistic			
Screenline	Stations	Links	Count	TTS	Diff	2016	2011	2006	2001	2016	2011	2006	2001
GTHA Boundary													
From Dufferin/Simcoe	7	10	66,984	68,439	2%	1.02	0.92	0.85	1.01	5.6	19.2	39.5	2.7
Niagara > Hamilton	17	4	50,933	42,268	-17%	0.83				40.1			
Brant > Hamilton	13	4	24,036	16,905	-30%	0.70				49.8			
To Dufferin/Simcoe	7	10	63,036	71,949	14%	1.14	0.96	0.92	0.94	34.3	10.8	20.4	14.7
Hamilton > Niagara	14	4	60,812	43,838	-28%	0.72				74.2			
Hamilton > Brant	13	4	24,523	18,564	-24%	0.76				40.6			
Sub-total (& mean GEH)	**71**	**36**	**290,324**	**261,964**	**-10%**	**0.90**	**0.94**	**0.88**	**0.97**	**38.9**	**15.0**	**30.0**	**8.9**
Total	**287**	**246**	**3,112,180**	**2,465,920**	**-21%**	**0.79**	**0.75**	**0.72**	**0.80**	**128.5**	**152.3**	**162.6**	**109.9**

4.9 Municipal transit ridership

The tables in this section present comparisons of the expanded TTS data against the total daily and, where available, morning peak transit boarding counts from municipal transit authorities. For the morning peak boarding counts, transit agencies were instructed to provide counts from 6:00 a.m. to 9:00 a.m. The equivalent period used in the TTS data was 6:00 a.m. to 8:59 a.m. The exception is for the TTC subway comparisons: boarding counts were from start of service to 9:00 .am., while the TTS data were queried for trips starting between 4:00 a.m. to 9:00 a.m. and, as an alternative comparison, trips starting between 4:00 a.m. and 8:30 a.m., as discussed in more detail later in this section.

Table 4-15 through Table 4-17 present data for the TTC, broken out by subway, streetcar, and bus ridership. Table 4-18 through Table 4-22 present the data for other municipal transit operators in the GTHA, while Table 4-24 through Table 4-27 present the available data for municipal transit operators outside the GTHA, and Table 4-28 and Table 4-29 present GO Transit comparisons. The data are presented for all routes for which counts were available. Comparisons based on small boarding counts should be interpreted with caution.

Boarding counts were not provided by the transit agencies for most 'school specials' or special paratransit services for the elderly and disabled. The expanded TTS data for boardings reported for these services are listed for reference in the following tables but are excluded from total and from any comparisons.

Discrepancies in reported ridership by transit authorities could be the result of the following:

- The method of data collection of boarding counts (whether smart card/electronic ticket registrations, manual counts, automated passenger counters, or estimates based on other data such as ticket sales) may determine the accuracy of the boarding counts;
- The number of days sampled in the boarding counts. The TTS data provide an average across the fall of 2016. Boarding counts are sometimes conducted on a single day, may be an average of multiple days, or, in the case of electronic systems, may cover months);
- The time of year when boarding counts were conducted. Transit usage may vary by season, and not all boarding counts were conducted at the same time of year as the TTS data cover.
- For the morning peak period, comparisons may be affected by the imprecision of the boarding start time in the TTS data. There may be differences between when transit passengers start their trips (e.g., leave home in the morning) and when they board transit, whether for walk-access

transit or for Park-and-Ride or Kiss-and-Ride trips. In addition, for transit trips using multiple transit routes, the time of the transfer to the second, third, or fourth route is often considerably offset from the trip start time. The start time of the trip is used to filter to just boardings in the a.m. peak period, regardless of the transit access mode or whether the route is the first used or a subsequent route. Thus, the TTS data for the a.m. peak period may sometimes not align very well with the actual period used for the transit agency's boarding counts for that period, particularly for transit routes which are often the second transit mode accessed (e.g., TTC subway)

- The impact of data weighting in the TTS data expansion process may create high weights for some people surveyed if their demographic category is subject to high levels of non-response bias. As younger people are less likely to respond to surveys (and thus may receive higher weights), but can be more likely to use transit, this may result in a cruder representation of transit boardings, particularly when the data are disaggregated to the level of individual transit route. Users of disaggregate data may wish to consider whether to make their adjustments when undertaking route-level analysis.

Exhibit 15 gives comparisons between the TTS data and passenger boarding counts collected by the TTC. The TTC boarding information is based on one-day counts taken on a rotating basis throughout the TTC system. The time period used by the TTC for the conduct of the counts is nominally from the start of service to 9 a.m. but varies slightly from route to route depending on the transition point from peak to off-peak scheduling. The TTS data is based on trip start time, not actual boarding time. The numbers given for the TTS are obtained from the detailed routing information as reported by each respondent to the survey. Errors can result from routes being incorrectly identified, by the respondent or the interviewer, or incomplete information on the number of different route segments that make up a trip. The actual date of each count is shown in the last column. A number of the TTC boarding counts are for different times of year and/or different years, including for subway and streetcar boarding counts. There can be significant seasonal variation in the transit ridership on an individual route in addition to normal day-to-day variations. These variations, as well as the accuracy and timing of the TTC counts, need to be taken into consideration when drawing conclusions from the comparisons with the TTS data at the individual route level. Counts for the same time of year which were less than two years out of date relative to the time of the TTS are marked in the tables with an asterisk.

The TTC counts for subway ridership are based on platform usage counts during the month of January 2015. The TTC counts for the a.m. peak are from start of service to 9:00 a.m. The number of TTS subway trips during the a.m. peak period is calculating two ways: the first includes trips with start times from 4:00 a.m. and 8:59 a.m., while the second includes trips with start times from 4:00 a.m. and 8:29 a.m. to compensate for trips for which the subway is boarded later after travel starting via another mode or form of transit (e.g. bus or GO Train). The numbers for the Yonge and University subway lines from the TTS are combined for comparison as they are considered as one line from the TTC counts. Transfers between the two lines are excluded from the numbers. Subway lines used in the TTS were determined by the on and off stations reported by the respondents and rules set by the TTC. The TTS data appears to slightly over represent total daily subway ridership but not significantly given the constraints of the comparison. Since the TTS numbers are based on trip start time and not actual boarding time, the morning peak comparisons may not be reliable, particularly given that many subway passengers will take another form of transit before accessing the subway. The adjustment of the TTS comparison period to 8:29 a.m. improves the comparison. However, it should be emphasized that this measure to address the challenge of a.m. peak comparisons has unknown precision.

In contrast, total streetcar ridership was under represented for the 24-hour but over represented for the a.m. peak period. A likely explanation is that the streetcar routes predominantly serve the downtown area and that a high proportion of their use is for short discretionary trips in off-peak periods. There is strong evidence that TTS tends to under report this type of travel with the exception of the Lake Shore route. Both Lake Shore and King streetcars ran on King Street between St. Andrew subway station and Roncesvalles Avenue and respondents might not distinguish between them. Most of the streetcar boarding counts are at least two years out of date relative to the time of the 2016 survey, and a few are even older.

There is considerable variation in the accuracy with which the TTS data matches the TTC counts on individual bus routes. A large majority of the routes are under-reported with a few exceptions. Given that a large number of the boarding counts were conducted at different times of year than the TTS, seasonal variation should be considered. It is also possible that there is some under reporting of the number of bus boardings in the TTS due to incomplete routing information.

During the conduct of the survey staff from the TTC did a visual review of the information recorded for every transit trip. That review ensured that every route segment belonged to a valid transit route and call-backs and corrections were made to obvious inconsistencies. The review process, however, could not ensure that every route segment was actually reported nor necessarily identify the correct route where several feasible alternatives actually exist. Detailed validation work using computer simulations could provide better insight into route-by-route variations and the reliability of the TTS data for analysis at the individual route level. As noted earlier, some respondents, particularly younger respondents, received high weights in the data expansion process, which may result in greater variability in the disaggregated route data. While the data weighting for household characteristics and age demographics theoretically allows for a more representative survey sample and more accurate reporting of overall characteristics and overall travel patterns, users of disaggregated route data may consider whether other treatments of the data are necessary to address the impact of cases with high weights on transit boardings.

Table 4-15: TTC subway boardings

TTC Subway		Daily Boardings			A.M. Peak TTC: start of service to 9:00 a.m. TTS: 4:00 to 8:59 a.m.			A.M. Peak TTC: start of service to 9:00 a.m. TTS: 4:00 to 8:29 a.m.			Count
Code	Name	Count	TTS	Diff.	Count	TTS	Diff.	Count	TTS	Diff.	Date
T593, T594	Yonge-University Subway 1	703,869	827,902	18%	167,701	260,721	55%	167,701	223,579	33%	2015
T596	Bloor-Danforth Subway 2	498,313	537,365	8%	110,303	160,843	46%	110,303	139,521	26%	2015
T597	Scarborough RT 3	38,354	35,505	-7%	8,727	10,556	21%	8,727	9,347	7%	2015
T598	Sheppard Subway 4	47,840	46,132	-4%	10,864	14,212	31%	10,864	12,608	16%	2015
	Total	**1,288,376**	**1,446,904**	**12%**	**297,595**	**446,332**	**50%**	**297,595**	385,055	29%	
	2011 TTS			**3%**			**41%**			**23%**	
	2006 TTS			-2%			25%			10%	

Table 4-16: TTC streetcar boardings

TTC Streetcar		Daily Boardings			A.M. Peak			
Code	Name	Count	TTS	Diff.	Count	TTS	Diff.	Count Date
T501	Queen 501	52,171	40,595	-22%	10,546	9,804	-7%	2013-01-01
T502	Downtowner 502	4,454	2,277	-49%	1,350	760	-44%	2014-11-10*
T503	Kingston Rd 503	1,399	1,823	30%	707	703	-1%	2014-11-10*
T504	King 504	64,579	63,136	-2%	11,994	17,922	49%	2014-02-14
T505	Dundas 505	32,410	24,610	-24%	4,603	5,434	18%	2014-01-15
T506	Carlton 506	39,601	27,292	-31%	6,734	5,813	-14%	2012-05-14
T508	Lake Shore 508	2,095	37	-98%	545	12	-98%	2014-04-22
T509	Harbourfront 509	9,903	10,045	1%	1,897	3,306	74%	2014-12-04*
T510	Spadina 510	43,804	27,363	-38%	4,348	5,672	30%	2010-03-31
T511	Bathurst 511	21,433	14,595	-32%	3,904	3,113	-20%	2014-05-16
T512	St. Clair 512	38,113	26,214	-31%	7,601	7,259	-5%	2013-11-26
T514	Cherry 514	10,971	3,346	-69%	2,266	873	-61%	2016-10-28*
	Total	**320,933**	**241,332**	**-25%**	**56,495**	**60,671**	**7%**	
	2011 TTS			-21%			21%	
	2006 TTS							

* count conducted during an equivalent time of year and less than two years out of date relative to the time of the 2016 TTS.

Table 4-17: TTC bus boardings

TTC Bus		Daily Boardings			A.M. Peak (6:00 a.m. to 8:59 a.m.)			
Code	Name	Count	TTS	Diff.	Count	TTS	Diff.	Count Date
T005	Avenue Rd 5	1,954	2,573	32%	620	767	24%	2016-10-09*
T006	Bay 6	10,393	8,972	-14%	2,938	2,753	-6%	2015-12-20
T007	Bathurst 7	26,251	18,457	-30%	5,156	4,670	-9%	2015-02-24
T008	Broadview 8	842	1,800	114%	175	556	218%	2016-10-09*
T009	Bellamy 9	5,305	3,483	-34%	1,330	949	-29%	2016-09-06*
T010	Van Horne 10	934	1,088	16%	379	438	16%	2016-10-09*
T011	Bayview 11	11,987	9,983	-17%	2,544	2,828	11%	2016-04-07
T012	Kingston Rd 12	9,695	9,187	-5%	2,504	2,809	12%	2016-10-09*
T014	Glencairn 14	3,182	3,601	13%	983	1,190	21%	2016-02-14
T015	Evans 15	2,850	2,462	-14%	778	592	-24%	2016-10-09*
T016	McCowan 16	10,728	8,558	-20%	2,248	2,245	0%	2016-10-09*
T017	Birchmount 17 TTC & York Transit boarding counts combined	11,863	9,087	-23%	3,113	3,144	1%	
	Birchmount 17	11,741			3,020			2016-09-06*
	Birchmount TTC 17A*	122			93			2016-Oct**
T020	Cliffside 20	6,345	5,091	-20%	1,533	1,586	3%	2015-12-20
T021	Brimley 21	8,410	6,492	-23%	1,988	1,845	-7%	2016-10-09*
T022	Coxwell 22	5,744	4,786	-17%	1,003	1,141	14%	2016-02-14
T023	Dawes 23	6,616	5,298	-20%	1,394	1,107	-21%	2015-12-20
T024	Victoria Park 24	28,524	22,760	-20%	6,138	5,994	-2%	2016-10-11*
T025	Don Mills 25	25,889	28,949	12%	4,617	8,218	78%	2016-09-07*
T026	Dupont 26	4,216	3,187	-24%	1,072	1,127	5%	2016-02-14
T128	Bayview South 28		1,097			260	n/a	-
T029	Dufferin 29	42,542	27,814	-35%	8,308	6,730	-19%	2016-03-23
T030	Lambton 30	2,754	2,239	-19%	687	776	13%	2016-10-09*

TTC Bus		Daily Boardings			A.M. Peak (6:00 a.m. to 8:59 a.m.)			
Code	Name	Count	TTS	Diff.	Count	TTS	Diff.	Count Date
T031	Greenwood 31	3,081	3,307	7%	601	769	28%	2016-03-27
T032	Eglinton West 32	40,974	34,796	-15%	10,643	10,269	-4%	2016-09-04
T033	Forest Hill 33	1,165	829	-29%	310	265	-15%	2016-11-23*
T034	Eglinton East 34	17,424	30,069	73%	5,740	8,617	50%	2015-12-20
T035	Jane 35 TTC & York Transit boarding counts combined	33,405	24,379	-27%	7,856	6,607	-16%	
	Jane 35	32,479			7,231			2015-10-20*
	Jane TTC 35D*	926			625			2016-Oct**
T036	Finch West 36	43,138	27,158	-37%	9,023	7,936	-12%	2016-11-21*
T037	Islington 37	16,087	11,066	-31%	3,709	3,267	-12%	2016-10-09*
T038	Highland Creek 38	11,081	10,076	-9%	1,320	1,804	37%	2016-11-21*
T039	Finch East 39	22,243	21,117	-5%	5,496	6,068	10%	2015-03-29
T040	Junction 40	4,521	2,794	-38%	899	603	-33%	2016-03-27
T041	Keele 41	24,095	16,811	-30%	6,446	4,775	-26%	2013-10-13*
T042	Cummer 42	8,057	7,708	-4%	2,167	2,249	4%	2015-12-20
T043	Kennedy 43	15,237	14,330	-6%	2,971	3,812	28%	2015-03-29
T044	Kipling South 44	10,046	7,710	-23%	2,338	2,324	-1%	2016-09-06
T045	Kipling 45	19,599	18,621	-5%	5,307	6,048	14%	2016-10-09*
T046	Martin Grove 46	8,341	6,069	-27%	2,534	1,706	-33%	2016-10-09*
T047	Lansdowne 47	14,208	13,189	-7%	4,163	3,959	-5%	2015-12-20
T048	Rathburn 48	2,441	2,700	11%	737	732	-1%	2016-10-09*
T049	Bloor West 49	3,360	2,705	-19%	1,047	839	-20%	2016-10-09*
T050	Burnhamthorpe 50	3,039	3,049	0%	815	1,153	42%	2016-09-06*
T051	Leslie 51	3,645	3,732	2%	845	1,058	25%	2016-10-09*
T052	Lawrence West 52	40,164	31,011	-23%	9,823	8,655	-12%	2015-12-20
T053	Steeles East 53	28,278	24,562	-13%	5,584	6,889	23%	2014-04-08
T054	Lawrence East 54	32,392	27,066	-16%	8,246	7,829	-5%	2015-03-29
T055	Warren Park 55	1,637	1,295	-21%	410	239	-42%	2016-09-10*
T056	Leaside 56	4,140	3,473	-16%	1,123	1,132	1%	2016-11-21*
T057	Midland 57	11,479	10,764	-6%	3,026	3,442	14%	2016-10-09*
T059	Maple Leaf 59	3,789	3,805	0%	1,241	1,451	17%	2016-10-09*
T060	Steeles West 60	32,172	23,575	-27%	7,620	6,240	-18%	2016-11-21*
T061	Avenue Rd North 61	3,918	2,528	-35%	1,063	874	-18%	2016-09-06*
T062	Mortimer 62	2,686	2,043	-24%	745	588	-21%	2016-10-09*
T063	Ossington 63	20,624	19,071	-8%	4,476	4,965	11%	2015-12-20
T064	Main 64	4,984	4,742	-5%	1,052	948	-10%	2016-11-23*
T065	Parliament 65	6,095	3,679	-40%	995	674	-32%	2016-09-30*
T066	Prince Edward 66	5,812	7,153	23%	1,374	1,969	43%	2016-10-11*
T067	Pharmacy 67	5,140	4,228	-18%	1,257	1,312	4%	2015-03-29
T068	Warden 68 TTC & York Transit boarding counts combined	16,359	15,980	-2%	4,069	5,033	24%	
	Warden 68	15,434			3,800			2016-09-06*
	Warden North TTC 68B*	925			269			2016-Oct**
T069	Warden South 69	5,107	3,988	-22%	1,085	1,040	-4%	2016-01-03
T070	O'Connor 70	7,745	6,193	-20%	1,609	1,582	-2%	2015-05-08
T071	Runnymede 71	4,119	3,604	-13%	948	1,134	20%	2015-12-20
T072	Pape 72	8,855	7,589	-14%	1,951	2,017	3%	2016-10-09*
T073	Royal York 73	9,728	8,854	-9%	2,440	2,649	9%	2016-10-09*

TTC Bus		Daily Boardings			A.M. Peak (6:00 a.m. to 8:59 a.m.)			
Code	Name	Count	TTS	Diff.	Count	TTS	Diff.	Count Date
T074	Mt Pleasant 74	2,592	1,903	-27%	707	716	1%	2016-10-25*
T075	Sherbourne 75	9,878	6,973	-29%	2,387	2,142	-10%	2016-11-20*
T076	Royal York South 76	10,686	9,262	-13%	2,621	3,132	19%	2016-11-21*
T077	Swansea 77	3,075	2,635	-14%	725	533	-27%	2015-05-15
T078	St Andrews 78	1,624	1,162	-28%	471	274	-42%	2016-10-09*
T079	Scarlett Rd 79	7,760	6,033	-22%	2,145	1,675	-22%	2015-12-20
T080	Queensway 80	2,133	2,379	12%	472	502	6%	2016-10-09*
T081	Thorncliffe Park 81	6,536	5,197	-20%	1,768	1,482	-16%	2016-10-09*
T082	Rosedale 82	1,358	730	-46%	329	114	-65%	2016-10-09*
T083	Jones 83	3,049	1,734	-43%	647	491	-24%	2016-11-25*
T084	Sheppard West 84	22,045	19,223	-13%	6,007	5,821	-3%	2015-12-20
T085	Sheppard East 85	26,618	24,755	-7%	6,398	6,733	5%	2014-05-11
T086	Scarborough 86	14,393	13,292	-8%	3,839	3,283	-14%	2016-01-03
T087	Cosburn 87	11,794	11,355	-4%	2,589	3,421	32%	2016-09-06*
T088	South Leaside 88	4,525	4,244	-6%	1,297	1,409	9%	2016-10-09*
T089	Weston 89	17,011	11,077	-35%	4,343	3,424	-21%	2016-04-20
T090	Vaughan 90	5,918	4,272	-28%	1,443	1,152	-20%	2016-10-09*
T091	Woodbine 91	4,334	5,283	22%	1,332	1,830	37%	2016-09-10*
T092	Woodbine South 92	3,431	2,291	-33%	688	577	-16%	2016-09-08*
T093	Parkview Hills 93	1,014	38	-96%	195	12	-94%	2016-11-30*
T094	Wellesley 94	8,525	7,452	-13%	1,649	1,397	-15%	2016-09-08*
T095	York Mills 95	31,859	35,457	11%	8,735	9,893	13%	2016-10-09*
T096	Wilson 96	19,325	21,939	14%	3,762	5,583	48%	2016-10-11*
T097	Yonge 97	4,323	3,303	-24%	1,070	1,157	8%	2016-10-09*
T098	Willowdale-Senlac 98	2,368	2,308	-3%	631	640	1%	2016-10-09*
T099	Arrow Rd 99	461	127	-73%	118	no data	-100%	2015-05-21
T100	Flemingdon Park 100	10,870	9,878	-9%	2,421	3,017	25%	2016-10-09*
T101	Downsview Park 101	386	89	-77%	52	4	-93%	2016-10-09*
T102	Markham Rd 102 TTC & York Transit boarding counts combined	27,643	18,466	-33%	5,056	5,275	4%	
	Markham Rd 102	26,435			4,780			2016-10-09*
	Markham Rd TTC 102D*	1,208			276			2016-Oct**
T103	Mt Pleasant North 103	1,456	85	-94%	408	38	-91%	2015-12-20
T104	Faywood 104	3,532	1,800	-49%	852	429	-50%	2016-10-09*
T105	Dufferin North 105 TTC & York Transit boarding counts combined	6,715	6,003	-11%	1,619	1,989	23%	
	Dufferin North 105	4,596			1,068			2016-01-22
	Dufferin North TTC 105A/B/D*	2,119			551			2016-Oct**
T106	York University 106	7,388	5,777	-22%	1,854	1,385	-25%	2016-10-09*
T107	Keele North 107 TTC & York Transit boarding counts combined	6,559	3,088	-53%	2,358	971	-59%	
	Keele North 107	3,961			1,556			2015-12-20
	Keele North TTC 107B/C/D*	2,598			802			2016-Oct**
T108	Downsview 108	8,873	7,500	-15%	1,930	2,346	22%	2016-11-01*
T109	Ranee 109	4,584	3,100	-32%	877	433	-51%	2015-12-20
T110	Islington South 110	8,866	8,302	-6%	2,578	2,617	2%	2016-02-14
T111	East Mall 111	6,429	4,758	-26%	1,434	1,402	-2%	2016-10-09*
T112	West Mall 112	8,034	7,256	-10%	2,369	2,043	-14%	2016-10-09*

TTC Bus		Daily Boardings			A.M. Peak (6:00 a.m. to 8:59 a.m.)			
Code	Name	Count	TTS	Diff.	Count	TTS	Diff.	Count Date
T113	Danforth 113	4,757	4,914	3%	1,189	1,215	2%	2016-03-27
T115	Silver Hills 115	1,149	1,413	23%	271	385	42%	2016-04-27
T116	Morningside 116	19,528	18,236	-7%	4,814	5,121	6%	2016-01-03
T117	Alness 117	2,352	725	-69%	940	319	-66%	2016-02-19
T118	Thistle Down 118	3,230	569	-82%	796	83	-90%	2016-10-25*
T119	Torbarrie 119	1,563	549	-65%	712	277	-61%	2016-09-04*
T120	Calvington 120	1,805	1,472	-18%	401	604	51%	2016-10-11*
T121	Fort York-Esplanade 121	1,443	1,632	13%	425	566	33%	2016-10-09*
T122	Graydon Hall 122	4,799	4,192	-13%	1,381	1,408	2%	2016-04-27
T123	Shorncliffe 123	6,125	6,137	0%	1,333	1,714	29%	2016-02-14
T124	Sunnybrook 124	4,153	5,132	24%	962	1,163	21%	2015-12-20
T125	Drewry 125	3,817	4,754	25%	1,196	1,436	20%	2016-10-09*
T126	Christie 126	2,303	1,776	-23%	526	431	-18%	2016-04-07
T127	Davenport 127	1,785	1,984	11%	516	332	-36%	2016-01-03
T129	McCowan North 129 TTC & York Transit boarding counts combined	14,500	10,659	-26%	3,129	2,515	-20%	
	McCowan North 129	11,866			2,491			2016-01-03
	McCowan North TTC 129A*	2,634			638			2016-Oct**
T130	Middlefield 130	2,291	1,665	-27%	518	634	22%	2016-03-27
T131	Nugget 131	6,674	5,939	-11%	2,029	1,860	-8%	2016-10-09*
T132	Milner 132	3,515	3,151	-10%	902	1,024	13%	2016-10-09*
T133	Neilson 133	9,408	8,697	-8%	1,699	2,273	34%	2016-10-09*
T134	Progress 134	9,369	7,771	-17%	1,618	2,371	47%	2016-10-09*
T135	Gerrard 135	2,755	2,211	-20%	657	601	-9%	2016-03-27
T141	Downtown/Mt Pleasant Express 141	124	136	9%	93	112	20%	2015-01-04
T142	Downtown/Avenue Rd Express 142	234	333	42%	138	248	79%	2016-03-27
T143	Downtown/Beach Express 143	425	975	129%	247	482	95%	2016-02-14
T144	Downtown/Don Valley Express 144	527	766	45%	267	467	75%	2016-01-03
T145	Downtown/Humber Bay Express 145	243	762	214%	149	318	113%	2016-03-27
T160	Bathurst North 160 TTC & York Transit boarding counts combined	4,207	1,771	-58%	886	486	-45%	
	Bathurst North 160	3,537			708			2016-01-22
	Bathurst North TTC 160*	670			178			2016-Oct**
T161	Rogers Rd 161	5,449	3,029	-44%	1,228	990	-19%	2015-12-20
T162	Lawrence-Donway 162	753	1,418	88%	194	471	143%	2016-09-08*
T165	Weston Rd North 165 TTC & York Transit boarding counts combined	27,783	10,875	-61%	6,747	3,522	-48%	
	Weston Rd North 165	26,071			6,284			2016-09-06*
	Weston Road North TTC 165C/D/F*	1,712			463			2016-Oct**
T167	Pharmacy North 167	1,627	1,399	-14%	399	410	3%	2016-09-07*
T168	Symington 168	7,515	5,527	-26%	1,931	1,603	-17%	2016-10-09*
T169	Huntingwood 169	1,684	1,004	-40%	463	325	-30%	2016-10-12*
T171	Mt Dennis 171	481	243	-50%	83	58	-30%	2015-03-29
T185	Don Mills Rocket 185	15,837	10,016	-37%	4,157	3,014	-28%	2016-09-30*
T186	Wilson Rocket 186	10,571	4,056	-62%	2,795	1,637	-41%	2016-10-09*
T188	Kipling South Rocket 188	3,431	2,811	-18%	787	1,031	31%	2016-11-20*
T190	Scarborough Centre Rocket 190	9,334	7,504	-20%	1,586	1,947	23%	2016-10-09*

TTC Bus		Daily Boardings			A.M. Peak (6:00 a.m. to 8:59 a.m.)			
Code	Name	Count	TTS	Diff.	Count	TTS	Diff.	Count Date
T191	Highway 27 Rocket 191	14,954	12,226	-18%	3,315	3,779	14%	2016-10-09*
T192	Airport Rocket 192	4,488	2,952	-34%	827	568	-31%	2016-11-18*
T193	Exhbition Rocket 193	N/A			N/A			N/A
T195	Jane Rocket 195	14,814	7,295	-51%	3,278	2,068	-37%	2016-10-09
T196	York University Rocket 196	18,332	18,525	1%	3,056	4,418	45%	2016-01-03
T198	U of T Scarborough Rocket 198	6,991	8,399	20%	986	1,803	83%	2016-01-03
T199	Finch Rocket 199	32,969	24,330	-26%	7,915	6,666	-16%	2016-09-04*
T224	Victoria Park North / Woodbine Avenue 224		154			62	n/a	-
T300	Bloor-Danforth 300	2,443	1,256	-49%	N/A			2013-05-12
T301	Queen 301	720	220	-69%	N/A			2015-05-27
T302	Danforth Rd-McCowan 302	186	77	-58%	N/A			2016-03-27
T304	King 304	N/A	48	-100%	N/A			N/A
T306	Carlton 306	610	86	-86%	N/A			2015-05-27
T310	Bathurst 310	403	105	-74%	N/A			2016-03-27
T312	St Clair-Junction 312	124	58	-53%	N/A			2016-03-27
T315	Evans-Brown's Line 315	76	19	-75%	N/A			2016-03-27
T317	Spadina 317	66	21	-68%	N/A			2016-06-20
T320	Yonge 320	2,380	1,155	-51%	N/A			2013-05-12
T322	Coxwell 322	77	88	14%	N/A			2016-03-27
T324	Victoria Park 324	169	40	-76%	N/A			2016-03-27
T325	Don Mills 325	253	51	-80%	N/A			2014-01-05
T329	Dufferin 329	432	35	-92%	N/A			2015-11-22*
T332	Eglinton West 332	248	308	24%	N/A			2014-01-05
T334	Eglinton East 334	324	270	-17%	N/A			2014-01-05
T335	Jane 335	335	59	-82%	N/A			2016-03-27
T336	Finch West 336	549	172	-69%	N/A			2013-10-13
T337	Islington 337	306	134	-56%	N/A			2013-05-12
T339	Finch East 339	195	42	-79%	N/A			2013-10-13
T341	Keele 341	86	43	-50%	N/A			2016-03-27
T343	Kennedy 343	91	151	66%	N/A			2017-02-14
T352	Lawrence West 352	151	80	-47%	N/A			2016-03-27
T353	Steeles East 353	127	15	-88%	N/A			2016-03-27
T354	Lawrence East 354	191	114	-40%	N/A			2016-03-27
T363	Ossington 363	241	101	-58%	N/A			2013-02-17
T365	Parliament 365	19			N/A			2016-03-27
T384	Sheppard West 384	191	54	-72%	N/A			2015-11-22*
T385	Sheppard East 385	175	61	-65%	N/A			2015-11-22*
T395	York Mills 395	421	176	-58%	N/A			2013-05-12
T396	Wilson 396	200	49	-76%	N/A			2014-01-05
T400	Lawrence Manor Community Bus 400	50	39	-23%	N/A			2012-12-18
T402	Parkdale Community Bus 402	30			N/A			2012-09-21
T403	South Don Mills Community Bus 403	78	19	-75%	N/A			2012-09-20
T404	East York Community Bus 404	54	120	123%	N/A			2012-11-14
T405	Etobicoke Community Bus 405	51			N/A			2012-09-18
T407	Toronto Rehab Centre Comm Link 407	N/A			N/A			N/A

TTC Bus		Daily Boardings			A.M. Peak (6:00 a.m. to 8:59 a.m.)			
Code	Name	Count	TTS	Diff.	Count	TTS	Diff.	Count Date
T498	WheelTrans 498	N/A	11,822	-100%	N/A			N/A
	Total Excluding Wheel Trans in TTS data	**1,417,550**	**1,170,257**	**-17%**	**332,329**	**329,404**	**-1%**	
	Total Matched Routes	**1,417,450**	**1,168,958**	**-18%**	**332,329**	**329,082**	**-1%**	
	2011 TTS			-14%			9%	
	2006 TTS			-16%			-2%	

* count conducted during an equivalent time of year and less than two years out of date relative to the time of the 2016 TTS.
**For routes shared by TTC and York Transit, York Transit boarding counts in the York Region have been added to TTC boarding counts in Toronto.

Durham Region Transit

Table 4-18 contains the comparison between Durham Region Transit and the TTS counts. The TTS data were collected in the fall of 2016 whereas the average daily boarding counts were converted from the monthly boarding counts for November 2016. While there is considerable variability by route, overall, the expanded TTS data for matched routes are within 2% of the daily boarding counts, and within 7% for the a.m. peak.

Table 4-18: Durham Region Transit boardings

		Daily Boardings			A.M. Peak (6:00 a.m. to 8:59 a.m.)			
Code	Name	Count	TTS	Diff.	Count	TTS	Diff.	Count Date
D101	Industrial 101	293	285	-3%	144	90	-38%	2016-Nov.
D130	Glenanna Strouds 103	342	331	-3%	122	86	-29%	2016-Nov.
D107	Rosebank 107	89	23	-74%	36	12	-68%	2016-Nov.
D133	Finch West 110	545	481	-12%	128	197	54%	2016-Nov.
D132	East Pickering 111	528	818	55%	151	388	157%	2016-Nov.
D112	Brock Road 112	755	1,084	44%	178	285	60%	2016-Nov.
D120	Whites 120	702	586	-17%	208	149	-28%	2016-Nov.
D192	Community Route 193	51	85	66%		14		2016-Nov.
D196	Claremont 199	10	112	1015%	67			2016-Nov.
D234	Salem North 215	143	443	210%	342	218	-36%	2016-Nov.
D216	Harwood North 216	1,396	861	-38%	83	148	78%	2016-Nov.
D217	Monarch 217	294	348	18%	35	88	151%	2016-Nov.
D233	Pickering Beach 218	67	191	186%	156	80	-49%	2016-Nov.
D219	Ravenscroft 219	607	681	12%	382	294	-23%	2016-Nov.
D223	Bayly 223	1,328	1,004	-24%	250	214	-14%	2016-Nov.
D237	Harwood / Salem South 224	963	1,082	12%	214	298	39%	2016-Nov.
D225	Audley North Rush 225	763	681	-11%	66	214	224%	2016-Nov.
D235	Westney South 226	296	654	121%	17	154	805%	2016-Nov.
D236	Church 232	325	405	25%	81	119	47%	2016-Nov.
D292	Ajax Community Bus 291, 292	289	72	-75%	21	31	45%	2016-Nov.
D301	Otter Creek/West Lynde 301	394	617	57%	113	250	121%	2016-Nov.
D302	Brock St/Whitby Shores 302	1,259	919	-27%	279	186	-33%	2016-Nov.
D303	Garden 303	348	248	-29%	108	53	-51%	2016-Nov.
D304	Anderson 304	478	513	7%	152	191	26%	2016-Nov.
D305	Thickson/Garrard 305	783	1,079	38%	245	167	-32%	2016-Nov.
D308	Whitby Shores 308	317	677	114%	75	106	41%	2016-Nov.
D310	Winchester 310	63	105	66%		22		2016-Nov.
D312	Whitby Community Bus 312	312	479	54%	25	52	108%	2016-Nov.
D318	Otter Creek/Garden/Whitby 318	31			70			2016-Nov.
-	380	12						2016-Nov.
D401	Simcoe 401	6,913	6,488	-6%	1,245	1,993	60%	2016-Nov.
D402	King 402	1,185	1,449	22%	206	36	-83%	2016-Nov.
D403	Park 403	1,228	513	-58%	288	136	-53%	2016-Nov.
D450	Wilson 405	1,193	1,343	13%	211	241	14%	2016-Nov.
D407	Ritson 407	1,421	712	-50%	285	90	-68%	2016-Nov.
D409	Thornton 409	405	559	38%	67	24	-65%	2016-Nov.
D410	Olive/Harmony 410	1,111	1,380	24%	223	533	139%	2016-Nov.
D411	Grandview/South Courtice 411	879	1,156	31%	188	295	57%	2016-Nov.
D412	Adelaide 412	773	1,131	46%	163	310	90%	2016-Nov.

Code	Name	Daily Boardings			A.M. Peak (6:00 a.m. to 8:59 a.m.)			Count Date
		Count	TTS	Diff.	Count	TTS	Diff.	
D414	Community Bus 414	29						2016-Nov.
D416	Kedron 416	1,324	1,512	14%	172	412	140%	2016-Nov.
D417	Conlin 417	145	180	24%	28	18	-35%	2016-Nov.
D420	Durham College / UOIT 420		527			208		
D501	Aspen Springs 501	102	85	-16%	21	45	113%	2016-Nov.
D502	Liberty 502	141	148	5%	38	25	-33%	2016-Nov.
D506	Wilmot Creek / Orono Newcastle 506	15						2016-Nov.
D601	Brock-Uxbridge 601	17	106	522%	2	35	1656%	2016-Nov.
D900	Pulse Rapid Transit 900	10,334	7,921	-23%	2,232	1,498	-33%	2016-Nov.
D910	Campus Connect 910	2,761	2,976	8%	533	455	-15%	2016-Nov.
D915	Taunton East/West 915	5,287	4,978	-6%	1,190	1,328	12%	2016-Nov.
D916	Rossland East/West 916	2,156	2,458	14%	623	651	4%	2016-Nov.
D922	Bloor/Victoria East/West 922	350	505	44%	168	184	10%	2016-Nov.
D950	Reach Simcoe North 950	285	195	-31%	77	32	-59%	2016-Nov.
D960	Newmarket-Uxbridge 960	4	21	424%	1			2016-Nov.
D190	Pickering Dial-a-Bus		19					-
D296	Wheel Trans - Ajax		107			9		-
D98	Wheel trans - Durham		309			68		-
D996	Wheel trans - Whitby		13			6		-
D496	Oshawa school special		173			87		-
DI97	Pickering school special		53			19		-
	Total Excluding School Specials, Wheel Trans, and Dial-a-Bus in TTS data	**51,841**	**51,207**	**-1%**	**11,709**	**12,654**	**8%**	
	Total Matched Routes	**51,754**	**50,680**	**-2%**	**11,639**	**12,446**	**7%**	
	2011 TTS			-24%			n/a	
	2006 TTS			20%			n/a	

York Region Transit

Table 4-19 presents comparison of York Region Transit (YRT) and TTS boarding data. Overall, the TTS data for boardings on the system are within 2% of the boarding counts, although there is considerable variability by route. For the morning peak, the TTS data appear to under-represent total boardings by 35%.

Table 4-19: York Region Transit boardings

York Region Transit		Daily Boardings			A.M. Peak (6:00 a.m. to 8:59 a.m.)			
Code	Name	Count	TTS	Diff.	Count	TTS	Diff.	Count Date
Y001	Highway 7 1	1,694	1,171	-31%	360	350	-3%	2016 Oct.
Y002	Milliken 2	2,141	2,957	38%	651	1,061	63%	2016 Oct.
Y003	Thornhill 3	1,458	2,134	46%	1,066	513	-52%	2016 Oct.
Y004	Major Mackenzie 4/4A	3,823	3,633	-5%	1,572	891	-43%	2016 Oct.
Y005	Clark 5	1,516	1,080	-29%	1,255	401	-68%	2016 Oct.
Y007	Martin Grove 7	978	1,060	8%	703	342	-51%	2016 Oct.
Y008	Kennedy 8	1,668	1,200	-28%	379	199	-47%	2016 Oct.
Y009	Ninth Line 9	305	243	-20%	84	135	61%	2016 Oct.
Y010	Woodbridge 10	381	673	77%	273	150	-45%	2016 Oct.
Y012	Pine Valley 12	476	332	-30%	376	94	-75%	2016 Oct.
Y013	Islington 13	480	685	43%	381	158	-59%	2016 Oct.
Y014	14th Avenue 14	507	489	-4%	142	85	-40%	2016 Oct.
Y015	Stouffville 15	28			14			2016 Oct.
Y016	16th Ave 16	1,598	1,862	17%	356	531	49%	2016 Oct.
Y018	Bur Oak 18	785	1,283	63%	248	464	87%	2016 Oct.
Y020	Jane 20/20A	4,198	2,735	-35%	3,029	851	-72%	2016 Oct.
Y021	Vellore Local 21	278	449	61%	209	184	-12%	2016 Oct.
Y022	King City 22/22A	2,372	1,659	-30%	1,666	401	-76%	2016 Oct.
Y023	Thornhill Woods 23	721	859	19%	550	276	-50%	2016 Oct.
Y024	Woodbine 24	1,274	2,032	59%	434	663	53%	2016 Oct.
Y025	Major Mackenzie 25	791	717	-9%	205	285	39%	2016 Oct.
Y026	Maple Local 26	543	341	-37%	423	92	-78%	2016 Oct.
Y128	Huntington 28	55			34			2016 Oct.
Y031	Aurora North 31	108	52	-52%	84			2016 Oct.
Y032	Aurora South 32	548	802	46%	393	263	-33%	2016 Oct.
Y033	Wellington 33/33A	493	656	33%	329	168	-49%	2016 Oct.
Y040	Unionville Local 40	437	561	28%	116	120	4%	2016 Oct.
Y041	Markham Local 41	222	130	-41%	57	33	-42%	2016 Oct.
Y042	Berczy 42	110	368	234%	41	28	-31%	2016 Oct.
Y044	Bristol 44	120	189	58%	84			2016 Oct.
Y045	Mingay 45	95	48	-50%	37			2016 Oct.
Y050	Queensway 50/50A	1,207	965	-20%	1,069	255	-76%	2016 Oct.
Y051	Keswick Local 51	108	524	385%	86	18	-79%	2016 Oct.
Y052	Holland Landing 52	225	46	-80%	170			2016 Oct.
Y054	Bayview 54	348	456	31%	264	170	-36%	2016 Oct.
Y055	Davis Drive 55/55B	270	460	70%	214	116	-46%	2016 Oct.
Y056	Gorham-Eagle 56	374	584	56%	293	252	-14%	2016 Oct.
Y057	Mulock 57/57A	783	927	18%	580	250	-57%	2016 Oct.
Y158	Mount Albert 58	85	18	-79%	59			2016 Oct.
Y061	King Local 61	9			4			2016 Oct.

York Region Transit		Daily Boardings			A.M. Peak (6:00 a.m. to 8:59 a.m.)			
Code	Name	Count	TTS	Diff.	Count	TTS	Diff.	Count Date
Y077	Highway 7 77/77A	5,058	4,991	-1%	3,884	1,695	-56%	2016 Oct.
Y080	Elgin Mills 80	584	965	65%	131	322	146%	2016 Oct.
Y081	Inspiration 81	183	304	66%	78	137	75%	2016 Oct.
Y082	Valleymede 82	291	340	17%	137	52	-62%	2016 Oct.
Y083	Trench 83/83A	1,075	1,193	11%	330	351	6%	2016 Oct.
Y084	Oak Ridges 84	131	123	-6%	88	68	-23%	2016 Oct.
Y085	Rutherford 85/85C	3,526	2,652	-25%	2,729	704	-74%	2016 Oct.
Y086	Newkirk-Red Maple 86	941	1,153	23%	313	351	12%	2016 Oct.
Y187	Autumn Hill 87	532	402	-24%	384	116	-70%	2016 Oct.
Y088	Bathurst 88/88A	4,988	4,708	-6%	3,896	1,315	-66%	2016 Oct.
Y090	Leslie 90/90B	3,537	3,478	-2%	1,066	942	-12%	2016 Oct.
Y091	Bayview/Express 91/91A/91B/91E	4,056	4,737	17%	1,094	1,359	24%	2016 Oct.
Y098	Yonge 98	711	889	25%	603	269	-55%	2016 Oct.
Y099	Yonge/Express 99 (incl. 98E, 98/99)	1,820	1,245	-32%	374	319	-15%	2016 Oct.
Y201	Markham GO Shuttle 201	79	125	58%	25	46	85%	2016 Oct.
Y202	Unionville GO Shuttle 202	113	100	-12%	37	9	-76%	2016 Oct.
Y203	Milliken GO Shuttle 203	55	39	-29%	26	20	-25%	2016 Oct.
Y204	Berczy GO Shuttle 204	33	32	-2%				2016 Oct.
Y222	Aurora-Newmarket GO Shuttle 222	60	158	164%	34	50	47%	2016 Oct.
Y223	Newmarket GO Shuttle 223/223A	35	86	145%	22	43	94%	2016 Oct.
Y240	Mill Pond GO Shuttle 240	104	189	82%	40	95	136%	2016 Oct.
Y241	Beverly Acres GO Shuttle 241	60	73	21%	17			2016 Oct.
Y242	North Richvale GO Shuttle 242	31			13			2016 Oct.
Y243	Redstone GO Shuttle 243	143	157	10%	38	30	-22%	2016 Oct.
Y244	Beaver Creek Shuttle 244	59			27			2016 Oct.
Y244	Newmarket-Beaver Creek Express 320	21			19			2016 Oct.
Y300	Business Express 300	368	506	38%	163	136	-17%	2016 Oct.
Y301	Markham Express 301	191	158	-17%	113	79	-30%	2016 Oct.
Y302	Unionville Express 302	200	527	163%	117	275	135%	2016 Oct.
Y303	Bur Oak Express 303	670	1,168	74%	352	570	62%	2016 Oct.
Y304	Mount Joy Express 304	355	442	25%	232	236	2%	2016 Oct.
Y036	Vaughan Express 360	267	283	6%	186	97	-48%	2016 Oct.
Y400	Brother Andre School Special via Raymerville 400	3						2016 Oct.
Y401	Brother Andre School Special via Box Grove 401	74	10	-87%	25			2016 Oct.
Y402	Bur Oak/Pierre Elliott Trudeau School Special 402	332	162	-51%	99	27	-73%	2016 Oct.
Y145	St. Augustine Catholic High School Special 405	32			8			2016 Oct.
Y406	Markham District High School 406	44	55	26%	16			2016 Oct.
Y410	Markham District High School via Hollingham 410	49	38	-23%	18			2016 Oct.
Y411	Markham District via Box Grove 411	181	68	-62%	53	41	-23%	2016 Oct.
Y412	Thornlea Secondary School Special 412	41	11	-74%		5		2016 Oct.
Y413	St. Robert/Thornlea School Special 413	88	52	-41%	34	32	-5%	2016 Oct.
Y415	Stouffville High School Special 415	46			19			2016 Oct.
Y418	Pierre Elliott Trudeau School Special 418	135	74	-45%	45			2016 Oct.
Y420	Newmarket High School Special via Savage 420	77	28	-64%	49			2016 Oct.
Y423	Newmarket High School Special via Bristol 423	94	109	16%	66	55	-17%	2016 Oct.
Y424	Keswick High School Special via Church 424	77	128	66%	73	64	-12%	2016 Oct.
Y425	Huron Heights School via Holland Landing 425	36	30	-17%	31			2016 Oct.

York Region Transit		Daily Boardings			A.M. Peak (6:00 a.m. to 8:59 a.m.)			
Code	Name	Count	TTS	Diff.	Count	TTS	Diff.	Count Date
Y426	Dr. G. W. Williams School Special via Hollidge 426	98	90	-9%	73	50	-31%	2016 Oct.
Y427	Sacred Heart School Special via Newmarket High 427	71	9	-87%	52			2016 Oct.
Y428	Dr. G. W. Williams School Special via Henderson 428	18			9			2016 Oct.
Y429	Cardinal Carter/Aurora High School Special 429	62	137	121%	52	68	32%	2016 Oct.
Y430	Sacred Heart School Special via Main 430	38			30			2016 Oct.
Y440	St. Theresa School Special via Mill 440	50	53	5%	14			2016 Oct.
Y441	Richmond Hill High School Special via Subrisco 441	19	56	196%	6	28	369%	2016 Oct.
Y442	Richmond Hill High School Special via Gamble 442	40						2016 Oct.
Y143	Langstaff High School Special via Shaftsbury 443	143	192	34%	38	60	57%	2016 Oct.
Y444	Langstaff High School Special via Valleymede 444	107			33			2016 Oct.
Y445	St. Robert via Valleymede/Spadina 445	85	89	5%				2016 Oct.
Y446	St. Theresa School Special via McCallum 446	95	7	-93%	60	7	-88%	2016 Oct.
Y447	St. Theresa School Special via Jefferson Forest 447	70	190	172%	10	67	573%	2016 Oct.
Y448	Richmond Hill High School Special via Valleymede 448	57	60	5%	30			2016 Oct.
Y449	Richmond Green High School Special via Hillmount 449	49	43	-12%	21	43	106%	2016 Oct.
Y450	St. Theresa School Special via Tower Hill 450	82	49	-41%	20	6	-68%	2016 Oct.
Y451	Langstaff High School Special via Hwy 7 451	10	15	55%		15		2016 Oct.
Y452	Richmond Green High School Special via Hazelton 452	48	53	11%	21	27	27%	2016 Oct.
Y460	Holy Cross Academy School Special 460	12			9			2016 Oct.
Y461	Emily Carr Secondary School Special 461	61			51			2016 Oct.
Y462	Maple High School Special 462	58			62			2016 Oct.
Y463	Vellore School Special 463	21	24	12%	9			2016 Oct.
Y464	St. Joan of Arc School Special 464	51			24			2016 Oct.
Y465	St. Joan of Arc School Special 465	33	22	-33%	23	22	-3%	2016 Oct.
Y466	Tommy Douglas Secondary School Special 466	39			29			2016 Oct.
Y520, Y521	Newmarket Community Bus 520/521	83	34	-59%	63			2016 Oct.
Y522	Markham Community Bus 522	101	155	54%	7			2016 Oct.
Y560	Maple Community Bus 560	8			1			2016 Oct.
Y561	Woodbridge Community Bus 561	6			2			2016 Oct.
Y589, Y590	Richmond Hill Community Bus 589/590	158	352	123%	89			2016 Oct.
Y760	Vaughan Mills / Wonderland 760		184			46		-
Y900	Yonge Street Corridor - blue/blue 'A'	18,913	17,740	-6%	4,400	5,231	19%	2016 Oct.
Y902	Markham North-South Link - green	645	900	39%	228	272	19%	2016 Oct.
Y904	Vaughan North-South Link - orange (incl. Züm)	2,294	1,387	-40%	688	283	-59%	2016 Oct.
Y903	Finch - Unionville - pink	2,535	2,173	-14%	1,021	830	-19%	2016 Oct.
Y901	Highway 7 Corridor - purple	9,133	8,913	-2%	1,821	2,082	14%	2016 Oct.
Y905	Davis Drive Corridor - yellow	1,502	427	-72%	450	97	-79%	2016 Oct.
Y600	Mobility Bus - YRT		936			88		
	Total Excluding YRT Mobility Bus in TTS Data	**101,993**	**99,719**	**-2%**	**44,840**	28,944	**-35%**	
	Total Matched Routes	**101,271**	**99,535**	**-2%**	**44,452**	**28,898**	**-35%**	
	2011 TTS			-9%			15%	
	2006 TTS			-15%			n/a	

The following York Region Transit boarding counts are for routes shared with TTC routes and are presented below for reference only. These routes are excluded from the York Region Transit comparisons above. See Table 4-17 for combined TTC and York Region Transit boarding counts for these routes compared to the TTS survey data.

		Daily Boardings	A.M. Peak (6:00 a.m. to 8:59 a.m.)	
Code	Name	Count	Count	Count Date
T017	Birchmount TTC 17A*	122	93	2016 Oct.
T035	Jane TTC 35D*	926	625	2016 Oct.
T068	Warden North TTC 68B*	925	269	2016 Oct.
T102	Markham Rd TTC 102D*	1,208	276	2016 Oct.
T105	Dufferin North TTC 105A/B/D*	2,119	551	2016 Oct.
T107	Keele North TTC 107B/C/D*	2,598	802	2016 Oct.
T129	McCowan North TTC 129A*	2,634	638	2016 Oct.
T160	Bathurst North TTC 160*	670	178	2016 Oct.
T165	Weston Road North TTC 165C/D/F*	1,712	463	2016 Oct.
	Total	12,914	3,895	

MiWay (Mississauga)

Table 4-20 compares the transit routes operated by MiWay, the transit agency for the City of Mississauga, and TTS data. Most MiWay boarding counts are for 2016, while a few are from 2015. For matched routes, total daily boardings as reported by the TTS are within 4% of the counts provided by MiWay, while morning peak period boardings appear to be over-represented by the TTS data by 22%, however the a.m. peak comparisons are subject to cautions mentioned at the start of this report section. There is considerable variability in the difference between the counts and the TTS by route.

Table 4-20: MiWay (Mississauga) boardings

MiWay (Mississauga transit)		Daily Boardings			A.M. Peak (6:00 a.m. to 8:59 a.m.)			
Code	Name	Count	TTS	Diff.	Count	TTS	Diff.	Count Date
MS01	Dundas 1	585	9,415	1509%	220	2,156	880%	2016
MS03	Bloor 3	649	7,080	991%	246	2,109	757%	2016
MS04	Sherway Gardens 4	2	907	45249%		204		2016
MS05	Dixie 5	7,063	5,011	-29%	1,670	1,411	-15%	2016
MS06	Credit Woodlands 6	2,619	2,007	-23%	523	496	-5%	2016
MS07	Airport 7	3,279	3,272	0%	608	505	-17%	2015
MS08	Cawthra 8	88	2,511	2754%	66	713	980%	2016
MS09	Rathburn-Millers Grove	1,957	1,808	-8%	357	439	23%	2015
MS10	Bristol-Britannia 10	246	3,050	1140%	116	764	559%	2016
MS11	Westwood 11	2,836	3,479	23%	648	1,173	81%	2016
MS12	Rexdale 12	357	529	48%	139	71	-49%	2015
MS13	Glen Erin 13	3,843	3,653	-5%	875	944	8%	2016
MS14	Lorne Park 14	25	917	3567%	12	223	1762%	2016
MS15	Drew 15	757	498	-34%	253	238	-6%	2015
MS16	Malton 16	878	638	-27%	228	226	-1%	2015
MS19	Hurontario 19	15,561	13,359	-14%	2,945	3,152	7%	2016
MS20	Rathburn 20	3,899	4,535	16%	951	1,159	22%	2016
MS21	Explorer 21	691	386	-44%	271	170	-37%	2016
MS22	Finch 22	2,074	1,063	-49%	366	224	-39%	2015
MS23	Lakeshore 23	3,923	2,691	-31%	829	884	7%	2015
MS24	Northwest 24	342	270	-21%	129	95	-27%	2015
MS25	Traders Loop 25	144	148	3%	68	55	-19%	2016
MS26	Burnhamthorpe 26	5,896	6,824	16%	1,250	1,909	53%	2016
MS28	Confederation 28	2,899	2,208	-24%	597	746	25%	2016
MS29	Park Royal 29	2,335	2,428	4%	467	825	77%	2016
MS30	Woodbine 30	252	124	-51%				2015
MS32	Lisgar GO 32	3	271	8935%	3	173	5659%	2016
MS34	Credit Valley 34	2,041	1,686	-17%	292	300	3%	2015
MS35	Eglinton 35	7,570	7,782	3%	2,059	1,871	-9%	2016
MS36	Colonial Loop 36	1,747	1,732	-1%	355	489	38%	2015
-	Creditview-Erindale GO 37	284			116			2015
MS38	Creditview 38	2,798	2,408	-14%	676	646	-4%	2016
MS39	Britannia 39	2,555	2,216	-13%	609	661	8%	2016
MS41	Thomas 41		434			129		-
MS42	Derry 42	7,014	5,031	-28%	1,588	1,056	-33%	2015
MS43	Matheson-Argentia 43	659	539	-18%	270	243	-10%	2016
MS44	Mississauga Road 44	2,776	3,338	20%	641	937	46%	2016
MS45	Winston Churchill 45	2,338	2,664	14%	744	807	8%	2016
MS46	Tenth Line-Lisgar GO 46	84	895	965%		123		2016

MiWay (Mississauga transit)		Daily Boardings			A.M. Peak (6:00 a.m. to 8:59 a.m.)			
Code	Name	Count	TTS	Diff.	Count	TTS	Diff.	Count Date
MS47	Ridgeway Loop 47	131	200	53%	27	45	69%	2016
MS48	Erin Mills 48	1,479	2,025	37%	225	358	59%	2015
MS49	McDowell 49	645	1,187	84%	178	389	119%	2016
MS51	Tomken 51	3,469	2,327	-33%	1,320	871	-34%	2015
MS53	Kennedy 53	1,409	1,533	9%	488	576	18%	2016
MS57	Courtneypark 57	1,158	1,341	16%	457	453	-1%	2015
MS59	Airport Infield 59	10			10			2015
MS61	Mavis 61	4,813	4,704	-2%	886	921	4%	2015
MS64	Meadowvale GO 64	88	50	-44%	40	20	-50%	2015
MS66	McLaughlin 66	5,136	4,477	-13%	1,111	1,382	24%	2015
MS67	Streetsville GO 67	77	208	170%	40	183	359%	2016
MS68	Windsor Hill Loop 68	517	569	10%	133	145	9%	2016
MS70	Keaton 70	681	1,266	86%	343	709	107%	2016
MS71	Sheridan-Subway 71	74	104	40%	39	35	-11%	2016
MS73	Kamato 73	167			46			2016
MS76	City Centre-Subway 76	2,820	1,828	-35%	656	552	-16%	2016
MS87	Meadowvale-Skymark 87	563	316	-44%	245	169	-31%	2016
MS990	Terragar-Copenhagen Loop 90	621	424	-32%	126	82	-35%	2015
MS91	Hillcrest-Cooksville GO 91	660	810	23%	186	214	15%	2016
MS101	Dundas Express 101	7,687	4,976	-35%	1,976	1,382	-30%	2016
MS103	Hurontario Express 103	9,307	5,400	-42%	2,293	2,097	-9%	2016
MS107	Malton Express 107	5,712	5,302	-7%	1,340	1,745	30%	2016
MS108	Meadowvale Business Express 108	598	762	27%	279	280	0%	2016
MS109	Meadowvale Express 109	7,451	6,975	-6%	1,805	2,248	25%	2016
MS110	University Express 110	7,404	6,693	-10%	1,268	1,700	34%	2016
-	Dixie Express 185	784			307			2016
MS302	Philip Pocock-Bloor West 302	13	22	73%				2016
MS304	Father Goetz-Mississauga Valley 304	28	117	317%		54		2016
MS305	Streetsville-Falconer 305	37	22	-41%	6			2016
-	Streetsville Secondary-Terry Fox 306	18			8			2016
MS137	Philip Pocock-Bloor East 307	24						2016
MS308	St. Joseph-Eglinton 308	32	38	20%	15	19	28%	2016
MS139	St. Joseph-Rathburn 309	15						2016
MS310	Clarkson-Winston Churchill 310	43	35	-18%				2016
MS312	Gordon Graydon-City Centre 312	89	122	37%		15		2016
MS314	Rick Hansen-Donway 314	21	84	300%		42		2016
MS315	Rick Hansen-City Centre 315	43			11			2016
MS321	Stephen Lewis-St.Joan of Arc 321	177	278	57%	48	125	161%	2016
MS334	St. Joseph-City Centre 334	39						2016
MS335	Allan A. Martin 335	31						2016
MS347	Loyola-South Common 347	90	9	-90%	24			2016
MS97	Mississauga School Special		73					
MS98	Trans Help - Mississauga		1,167			137		
	Total Excluding School Special and Trans Help in TTS data	**157,230**	**162,011**	**3%**	**37,123**	**45,274**	**22%**	
	Total Matched Routes	**155,815**	**161,577**	**4%**	**36,625**	**45,137**	**22%**	
	2011 TTS			-16%			-5%	
	2006 TTS			-19%			-11%	

Brampton Transit

Comparison between Brampton Transit boardings and TTS counts are displayed in Table 4-21. Total daily and morning peak period boardings as reported by the TTS are within 29% and 14% respectively of the counts provided by the transit operator.

Table 4-21: Brampton Transit boardings

		Daily Boardings			A.M. Peak (6:00 a.m. to 8:59 a.m.)			
Code	Name	Count	TTS	Diff.	Count	TTS	Diff.	Count Date
BR01	Queen 01	6,477	4,515	-30%	1,465	1,289	14%	2016 Fall
BR02	Main 02	3,124	3,038	-3%	662	542	6%	2016 Fall
BR03	Mclaughlin 03	3,555	2,633	-26%	893	770	3%	2016 Fall
BR04	Chinguacousy 04	7,445	5,320	-29%	1,770	2,001	28%	2016 Fall
BR05	Bovaird 05	6,902	4,040	-41%	1,820	1,027	-29%	2016 Fall
BR06	James Potter 06	414	361	-13%	126	9	-92%	2016 Fall
BR07	Kennedy 07	7,655	4,753	-38%	1,981	1,331	-19%	2016 Fall
BR08	Centre 08	1,775	1,402	-21%	395	334	-8%	2016 Fall
BR09	Vodden/Williams 09	2,226	2,100	-6%	595	591	16%	2016 Fall
BR10	South Industrial 10	466	326	-30%	203	157	-14%	2016 Fall
BR11	Steeles 11	5,800	3,077	-47%	1,770	648	-52%	2016 Fall
BR12	Grenoble 12	998	1,234	24%	203	141	-27%	2016 Fall
BR13	Avondale 13	451	391	-13%	118	102	0%	2016 Fall
BR14	Torbram 14	5,227	3,411	-35%	1,547	1,027	-19%	2016 Fall
BR15	Bramalea 15	5,418	5,117	-6%	1,416	1,284	1%	2016 Fall
BR16	Southgate 16	720	516	-28%	157	167	17%	2016 Fall
BR17	Howden 17	953	985	3%	191	133	-28%	2016 Fall
BR18	Dixie 18	6,649	5,098	-23%	1,957	1,324	-15%	2016 Fall
BR19	Fernforest 19	1,188	911	-23%	281	160	-35%	2016 Fall
BR20	East Industrial 20	476	230	-52%	185	20	-88%	2016 Fall
BR21	Heart Lake 21	88	119	36%	29	47	65%	2016 Fall
BR23	Sandalwood 23	5,204	4,372	-16%	1,308	1,400	26%	2016 Fall
BR24	Van Kirk Industrial 24	847	841	-1%	243	278	49%	2016 Fall
BR25	Edenbrook 25	365	547	50%	139	160	16%	2016 Fall
BR260	Mount Pleasant 26	168	459	173%	57	221	302%	2016 Fall
BR29	Williams 29	3,647	2,941	-19%	1,237	1,115	1%	2016 Fall
BR30	Airport Rd 30	5,766	3,382	-41%	1,699	738	-49%	2016 Fall
BR31	Mcvean 31	364	381	5%	111	44	-57%	2016 Fall
BR32	Father Tobin 32	567	410	-28%	84	17	-79%	2016 Fall
BR33	Peter Robinson 33	464	359	-23%	136	92	-32%	2016 Fall
BR35	Clarkway 35	1,006	492	-51%	208	114	-39%	2016 Fall
-	Gardenbrook 36	110			29			2016 Fall
BR40	Central Industrial 40	150	44	-70%	50			2016 Fall
BR50	Gore Road 50	3,393	2,774	-18%	779	685	-1%	2016 Fall
BR510	Hereford 51	1,741	582	-67%	517	187	-58%	2016 Fall
BR52	McMurchy 52	2,452	1,377	-44%	578	213	-57%	2016 Fall
BR53	Oaklea 53	1,254	334	-73%	246	83	-59%	2016 Fall
-	Elbern Markell 55	132			29			2016 Fall
BR56	Springbrook 56		161			80		-
BR57	Charolais 57	1,402	696	-50%	349	100	-63%	2016 Fall

Code	Name	Daily Boardings			A.M. Peak (6:00 a.m. to 8:59 a.m.)			Count Date
		Count	TTS	Diff.	Count	TTS	Diff.	
BR58	Financial 58	54	88	63%	10			2016 Fall
BR60	Mississauga Rd 60	400	533	33%	117	118	7%	2016 Fall
BR92	Bramalea GO Shuttle 92	86	99	16%	54	83	54%	2016 Fall
BR115	Airport Express 115	1,667	1,964	18%	435	538	43%	2016 Fall
BR185	Dixie Express 185	688	720	5%	310	315	21%	2016 Fall
BR199	UTM Express 199	260	69	-74%	142	21	-85%	2016 Fall
BR501	ZUM (HWY7/ QUEEN ST E) 501	16,295	12,775	-22%	3,918	3,371	-5%	2016 Fall
BR502	ZUM (MAIN ST) 502	12,046	7,154	-41%	2,767	1,939	-22%	2016 Fall
BR505	ZUM Bovaird 505	2,753	1,313	-52%	526	303	-42%	2016 Fall
BR511	ZUM (Steeles) 511	11,633	7,376	-37%	2,996	1,931	-30%	2016 Fall
BR561	ZUM Queen West 561	665	359	-46%	140	127	-9%	2016 Fall
BR97	SCHOOLS	937	958	2%	320	412	29%	2016 Fall
BR99	Brampton Transit unknown route		9					-
	Total	**144,523**	**103,146**	**-29%**	**37,298**	**27,789**	**-14%**	
	Total Matched Routes	**144,281**	**102,977**	**-29%**	**37,240**	**27,710**	**-14%**	
	2011 TTS			-25%			-12%	
	2006 TTS			-16%			-13%	

HSR (Hamilton)

Comparison between HSR boarding counts and TTS data is shown in Table 4-22. It may be noted that the latest counts provided by the transit operator were collected in the fall of 2015 whereas the TTS data were collected in the fall of 2016. Boarding counts were not available for a number of routes that appear in the TTS data. Looking at just the routes that matched, the TTS data appear to under-represent daily boardings by -12% and just slightly over-represent morning peak boardings by 2%, with greater variability by route.

Table 4-22: HSR (Hamilton) boardings

HSR (Hamilton)		Daily Boardings			A.M. Peak (6:00 a.m. to 8:59 a.m.)			
Code	Name	Count	TTS	Diff.	Count	TTS	Diff.	Count Date
HA01	King 1	14,512	10,374	-29%	2,305	1,992	-14%	2015 Fall
HA02	Barton 2	10,055	6,849	-32%	2,121	1,417	-33%	2015 Fall
HA03	Cannon 3		1,884			458		
HA04	Bayfront 4		3,104			814		
HA05	Delaware 5	12,491	11,444	-8%	2,772	3,171	14%	2015 Fall
HA06	Aberdeen 6	739	1,046	42%	188	143	-24%	2015 Fall
HA07	Locke 7	514	341	-34%	87	85	-3%	2015 Fall
HA08	York 8	416	501	20%	58	83	43%	2015 Fall
HA10	B-Line Express 10	5,595	6,941	24%	1,384	2,035	47%	2015 Fall
HA11	Parkdale 11		1,435			386		
HA12	Wentworth 12	70	96	37%	35			2015 Fall
HA16	Ancaster 16		381					
HA18	Waterdown 18	151	282	87%	41	133	225%	2015 Fall
HA20	A Line Express 20	713	572	-20%	240	306	27%	2015 Fall
HA21	Upper Kenilworth 21	4,368	3,287	-25%	828	632	-24%	2015 Fall
HA22	Upper Ottawa 22		1,094			284		
HA23	Upper Gage 23		3,456			841		
HA24	Upper Sherman 24		1,595			456		
HA25	Upper Wentworth 25		2,327			352		
HA26	Upper Wellington 26		3,023			673		
HA27	Upper James 27	2,886	3,136	9%	434	385	-11%	2015 Fall
HA33	Sanatorium 33		2,983			999		
HA34	Upper Paradise 34		2,457			784		
HA35	College 35	3,671	4,417	20%	759	952	25%	2015 Fall
HA41	Mohawk 41		5,388			1,790		
HA43	Stone church 43		1,679			531		
HA44	Rymal 44	1,651	1,264	-23%	465	316	-32%	2015 Fall
HA51	University 51	6,513	6,723	3%	661	1,281	94%	2015 Fall
HA52	Dundas Local 52	34	428	1159%	16	94	487%	2015 Fall
HA55	Stoney Creek Central 55	2,168	977	-55%	570	327	-43%	2015 Fall
HA560	Centennial 56	139	29	-79%				2015 Fall
HA58	Stoney Creek Local 58	310	51	-84%	75			2015 Fall
HA90	Hamilton School Extra		64					
HA91	Stoney Creek Trans-Cab		112			56		
HA92	Glanbrook Trans-Cab		53					
HA98	DARTS (Disabled and Aged Transit)		1,707			205		
	Total Excluding School Special, Trans-Cab, and DARTS in TTS Data*		**89,565**			**21,979**		
	Total Matched Routes	**66,996**	**58,758**	**-12%**	**13,039**	**13,350**	**2%**	
	2011 TTS			8%			n/a	

*Note: a number of routes in the TTS data did not match to routes in the Hamilton Transit boarding count data. The difference between the boarding data and the TTS has only been computed for total of the routes that match.

Niagara Falls Transit

Table 4-23 presents comparisons for Niagara Falls Transit boarding counts compared to the TTS expanded data. The Niagara Falls boarding counts included a route 500 which may be a special service (e.g. school service) and does not exist in the TTS routes. Looking that the total excluding route 500, it appears that the total of TTS boardings under-represents daily use of this transit system by 46%. For routes that match, the transit system appears to under-represent use of those routes overall by 30%. For the morning peak period, the TTS data are a somewhat closer match, with the TTS data under-representing by about 21% for the system as a whole and 17% across just the routes that match. It may be noted that a number of routes were not reported at all in the TTS data.

Table 4-23: Niagara Falls Transit boardings

Niagara Falls Transit		Daily Boardings			A.M. Peak (6:00 a.m. to 8:59 a.m.)			
Code	Name	Count	TTS	Diff.	Count	TTS	Diff.	Count Date
NI101	Dunn Street 101	287	186	-35%	50	30	-40%	2016 Fall
NI102	Hospital 102	181	50	-73%	52			2016 Fall
NI103	Drummond Road 103	271	318	17%	47	197	318%	2016 Fall
NI104	Victoria Avenue 104	594	569	-4%	163	130	-20%	2016 Fall
NI105	Kalar Road 105	171	23	-87%	41	13	-68%	2016 Fall
NI106	Ailanthus Avenue 106	169	71	-58%	39			2016 Fall
NI107	Town & Country Plaza 107	235	161	-32%	44	30	-33%	2016 Fall
NI108	Thorold Stone Road 108	137	140	3%	27			2016 Fall
NI109	Thorold Stone Road 109	56	18	-68%	13			2016 Fall
NI110	Drummond Road 110	545			79			2016 Fall
NI111	Dorchester 111	278	125	-55%	68	63	-8%	2016 Fall
NI112	Mcleod Road 112	104			20			2016 Fall
NI113	Montrose Road 113	63	27	-56%	10			2016 Fall
NI114	Town & Country Plaza 114	90			15			2016 Fall
NI203	Drummond Road 203	106						2016 Fall
NI204	Victoria Avenue 204	95						2016 Fall
NI205	Kalar Road 205	19	36	87%				2016 Fall
NI206	Ailanthus Avenue 206	30						2016 Fall
NI209	Thorold Stone Road 209	15						2016 Fall
NI210	Hospital 210	118						2016 Fall
NI213	Montrose Road 213	21						2016 Fall
NI214	Town and Country Plaza 214	25						2016 Fall
-	500	1280			132			2016 Fall
NI215	WEGO Red line		98			12		
NI30	Brock Rapid		112			56		
	Total Excluding Route 500	**3,610**	**1,935**	**-46%**	**668**	**530**	**-21%**	
	Total Matched Routes	**2,461**	**1,724**	**-30%**	**554**	**462**	**-17%**	

St. Catharines Transit

Table 4-24 presents comparisons for St. Catharines Transit Commission boarding counts and the TTS data. For the system as a whole, the TTS data appear to under-represent total daily and morning peak boardings by 55% and 32% respectively. Looking at just the routes that match, the level of under-representation is similar, at 50% and 27%, respectively.

Table 4-24: St. Catharines Transit boardings

St. Catharines Transit		Daily Boardings			A.M. Peak (6:00 a.m. to 8:59 a.m.)			
Code	Name	Count	TTS	Diff.	Count	TTS	Diff.	Count Date
SC50	Hospital-Port Dalhousie 1	620	85	-86%	144	9	-94%	2016 Nov 1
SC02	Ontario Lakeshore 2	502	497	-1%	115	119	3%	2016 Nov 1
SC03	Pelham Road 3	409	381	-7%	74	189	156%	2016 Nov 1
SC04	Oakdale Pen Brock 4	536	275	-49%	94			2016 Nov 1
SC05	Haig Linwell 5	610	493	-19%	133	104	-22%	2016 Nov 1
SC06	Lake Street 6	611	374	-39%	114	34	-70%	2016 Nov 1
SC07	Niagara Street 7	377	539	43%	94	141	50%	2016 Nov 1
SC08	Grantham Lakeshore 8	388	374	-4%	94	70	-26%	2016 Nov 1
SC09	Geneva Street 9	560	554	-1%	102	87	-15%	2016 Nov 1
SC10	Glenridge Pen Centre 10	715	405	-43%	86	82	-5%	2016 Nov 1
SC11	Hartzel Road 11	474	307	-35%	107	97	-9%	2016 Nov 1
SC12	Vine street 12	610	530	-13%	104	54	-48%	2016 Nov 1
SC14	Scott Street 14	201	188	-7%	65			2016 Nov 1
SC15	West St Catherines 15	580	357	-38%	107	100	-7%	2016 Nov 1
SC16	Brock Glenridge 16	4,811	1,816	-62%	741	325	-56%	2016 Nov 1
SC17	Bunting Linwell 17	762	441	-42%	179	93	-48%	2016 Nov 1
SC18	Secord Woods 18	608	484	-20%	138	56	-59%	2016 Nov 1
SC20	Thorold Pen Centre 20	355	295	-17%	71	33	-53%	2016 Nov 1
SC21	Confederation Brock 21	745	228	-69%	138	19	-86%	2016 Nov 1
SC22	Thorold South 22		28					
SC23	West-Brock-Commuter 23	1,552	700	-55%	278	156	-44%	2016 Nov 1
SC25	Niagara College 25	61	730	1096%		354		2016 Nov 1
-	Niagara College Glendale Campus 26	844			130			2016 Nov 1
-	Niagara College Welland Campus 27	221			125			2016 Nov 1
SC28	Brock-Towpath Shuttle 28	687	241	-65%	105	135	28%	2016 Nov 1
SC29	Brock-Keefer Shuttle 29	565	28	-95%	112			2016 Nov 1
SC30	Brock-Sullivan Shuttle 30	671	357	-47%	115	190	66%	2016 Nov 1
SC31	Brock-winterberry Shuttle 31	1,002	169	-83%	183	66	-64%	2016 Nov 1
SC35	Brock-Pen Centre 35	961	231	-76%	111	57	-48%	2016 Nov 1
SC36	Brock-Glendale-Pen Centre 36	2,195	103	-95%	179			2016 Nov 1
-	88	10			5			2016 Nov 1
SC101	Hospital-Port Dalhousie 101	113	79	-30%		27		2016 Nov 1
SC52	Ontario Street 102	106						2016 Nov 1
SC54	Oakdale Pen Centre 104	143	62	-57%				2016 Nov 1
SC56	Lake Street 106	88	31	-65%				2016 Nov 1
SC58	Grantham Port Weller 108	39	25	-37%		25		2016 Nov 1
SC59	Geneva Street 109	103	34	-67%				2016 Nov 1
SC60	Glenridge Pen Centre 110		17					
SC62	Vine Street 112	130	10	-92%				2016 Nov 1
SC65	West St Catherines 115	193	136	-29%				2016 Nov 1

St. Catharines Transit		Daily Boardings			A.M. Peak (6:00 a.m. to 8:59 a.m.)			
Code	Name	Count	TTS	Diff.	Count	TTS	Diff.	Count Date
SC66	Brock Glenridge 116	682	234	-66%		79		2016 Nov 1
SC67	Bunting Lakeshore 117	113	47	-58%				2016 Nov 1
SC68	Secord Woods 118	167	153	-8%				2016 Nov 1
-	Eve-Thorold-Pen Centre 120	71						2016 Nov 1
SC122	Brock-Pen Centre-Shuttle 122		95			31		
SC72	Brock Pen Centre 122		56					
SC124	Glendale Brock 124		56					
SC128	Brock-Towpath-Rockwood-Shuttle 128	124	55	-56%		55		2016 Nov 1
-	Brock-Keefer 129	270						2016 Nov 1
-	Brock-Sullivan 130	251						2016 Nov 1
-	Brock-Winterberry 131	269						2016 Nov 1
-	Brock-Pen 135	392						2016 Nov 1
-	Brock-Glendale-Pen Centre 136	439						2016 Nov 1
-	Brock-Glenridge via Walker	435			48			2016 Nov 1
SC46	Brock Bullet 406		25					
SC99	St Catharines Transit unknown route		89					
SC98	Paratransit Community bus		140					
	Total Excluding Paratransit in TTS data	**27,371**	**12,415**	**-55%**	**4,091**	**2,788**	**-32%**	
	Total Matched Routes	**24,063**	**12,050**	**-50%**	**3,783**	**2,757**	**-27%**	

Grand River Transit (Region of Waterloo)

Table 4-25 provides comparisons for Grand River Transit system with the TTS data. Overall, the TTS data appear to under-represent the boarding counts by one-third, with considerable variation by route.

Table 4-25: Grand River Transit (Region of Waterloo) boardings

Grand River Transit		Daily Boardings			
Code	Name	Count	TTS	Diff.	Count Date
WA01	Queen-River 1	2,824	1,987	-30%	2016 Fall
WA02	Forest Heights 2	499	659	32%	2016 Fall
WA03	Ottawa South 3	1,234	994	-19%	2016 Fall
WA04	Glasgow 4	707	723	2%	2016 Fall
WA05	Erb 5	758	654	-14%	2016 Fall
WA06	Bridge 6	1,099	716	-35%	2016 Fall
WA07	Mainline 7	12,838	7,204	-44%	2016 Fall
WA08	University/Fairview 8	6,599	4,153	-37%	2016 Fall
WA09	Lakeshore 9	4,736	1,817	-62%	2016 Fall
WA10	College/Fairview 10	2,070	2,292	11%	2016 Fall
WA11	Country Hills 11	1,118	948	-15%	2016 Fall
WA12	Westmount 12	6,256	4,347	-31%	2016 Fall
WA13	Laurelwood 13	2,538	1,574	-38%	2016 Fall
WA14	Waterloo Industrial 14	139	163	18%	2016 Fall
WA16	Strasburg 16	1,326	1,150	-13%	2016 Fall
WA20	Victoria Frederick 20	1,762	1,275	-28%	2016 Fall
WA21	Elmira 21	360	317	-12%	2016 Fall
WA22	Laurentian West 22	1,405	1,165	-17%	2016 Fall
WA23	Idlewood 23	753	353	-53%	2016 Fall
WA27	Chicopee 27	258	158	-39%	2016 Fall
WA29	Keats Way 29	1,593	797	-50%	2016 Fall
WA310	Columbia 31	1,332	404	-70%	2016 Fall
WA33	Huron 33	282	189	-33%	2016 Fall
WA34	Bingemans 34	138	143	4%	2016 Fall
WA51	Hespeler 51	2,897	2,325	-20%	2016 Fall
WA52	Coronation 52	2,420	1,463	-40%	2016 Fall
WA53	Franklin Blvd 53	556	211	-62%	2016 Fall
WA54	Lisbon Pines 54	386	197	-49%	2016 Fall
WA55	St Andrews 55	632	635	0%	2016 Fall
WA56	Dunbar 56	574	549	-4%	2016 Fall
WA57	Blair 57	137	54	-61%	2016 Fall
WA58	Elmwood 58	343	267	-22%	2016 Fall
WA59	Christopher 59	537	921	72%	2016 Fall
WA60	Northview Acres 60	507	256	-50%	2016 Fall
WA61	Fountain 61	606	260	-57%	2016 Fall
WA62	Woodside 62	292	195	-33%	2016 Fall
WA63	Champlain 63	548	187	-66%	2016 Fall
WA64	Langs 64	411	338	-18%	2016 Fall
WA67	Lovell Industrial 67	191	63	-67%	2016 Fall
WA72	BusPLUS Cherry Blossom 72		68		-
WA73	BusPLUS Northlake 73		113		-
WA75	Saginaw 75	347	498	44%	2016 Fall

Grand River Transit		Daily Boardings			
Code	Name	Count	TTS	Diff.	Count Date
WA76	BusPLUS Doon South 76		89		-
WA77	BusPLUS Wilmot 77		109		-
-	91 Late Night Loop 91	68			2016 Fall
WA91	Conestoga Doon Campus 110, 111, 116	1,612	1,254	-22%	2016 Fall
WA90	iXpress/Ion Bus Rapid Transit 200	9,749	6,305	-35%	2016 Fall
WA201	Forest Glen Terminal iXpress 201	4,666	3,384	-27%	2016 Fall
WA202	The Broadwalk / Congestoga Mall iXpress 202	4,322	2,884	-33%	2016 Fall
WA203	Sportsworld / Cambridge Centre iXpress 203	717	631	-12%	2016 Fall
WA204	Broadwalk-Ottawa / Lackner iXpress 204	2,386	1,671	-30%	2016 Fall
WA192	University Loop	808	356	-56%	2016 Fall
WA98	Waterloo School Special	27	191	607%	2016 Fall
WA99	Waterloo Route Unknown	37	53	44%	2016 Fall
WA94	Northfield Industrial Special		16		
WA97	Waterloo Mobility Plus		587		
	Total Excluding Mobility Bus in TTS data	**88,400**	**59,723**	**-32%**	
	Total Matched Routes	**88,332**	**59,328**	**-33%**	
	2011 TTS			-23%	
	2006 TTS			n/a	

Guelph Transit

Table 4-26 provides a comparison between Guelph Transit boarding counts and the expanded TTS data, for both daily boardings and a.m. boardings to 9:00 a.m. As indicated, the TTS data appear to under-represent total boardings by 37% for routes that match in both data sources. Morning peak trips are under-represented by 22%.

Table 4-26: Guelph Transit boardings

Guelph Transit		Daily Boardings			A.M. Peak (6:00 a.m. to 8:59 a.m.)			
Code	Name	Count	TTS	Diff.	Count	TTS	Diff.	Count Date
GU31	College Edinburgh 1	3,922	866	-78%	481	167	-65%	2016 Fall
GU32	West Loop 2	3,018	2,407	-20%	453	254	-44%	2016 Fall
GU33	East Loop 3	1,980	1,566	-21%	401	472	18%	2016 Fall
GU34	York 4	495	326	-34%	101	80	-21%	2016 Fall
GU35	Gordon 5	2,205	2,150	-2%	354	342	-3%	2016 Fall
GU36	Harvard Ironwood 6	1,045	355	-66%	144	80	-44%	2016 Fall
GU37	Kortright Downey 7	1,010	578	-43%	163	121	-26%	2016 Fall
GU38	Stone Road Mall 8	1,400	980	-30%	163	45	-73%	2016 Fall
GU39	Waterloo 9	551	718	30%	107	207	94%	2016 Fall
GU40	Imperial 10	917	1,019	11%	229	280	22%	2016 Fall
GU41	Willow West 11	689	642	-7%	146	34	-76%	2016 Fall
GU42	General Hospital 12	815	696	-15%	126	211	67%	2016 Fall
GU43	Victoria Road Recreation Centre 13	943	514	-45%	171	119	-30%	2016 Fall
GU44	Grange 14	769	641	-17%	138	76	-45%	2016 Fall
GU45	University College 15	1,094	483	-56%	149	44	-70%	2016 Fall
GU76	Southgate 16	2,199	1,491	-32%	395	452	14%	2016 Fall
GU70	Northwest Industrial 20	1,290	658	-49%	233	157	-33%	2016 Fall
GU72	Stone Road Express 50	1,079	540	-50%	93	54	-42%	2016 Fall
GU73	Victoria Express 56	738	406	-45%	83	116	40%	2016 Fall
GU57	Ironwood Express 57	1,109	485	-56%	82	26	-68%	2016 Fall
GU58	Edinburgh Express 58	1,045	109	-90%	90	10	-89%	2016 Fall
-	ARC Special	9			9			2016 Fall
-	Gordon Corridor	367			125			2016 Fall
-	Metro	15			0			2016 Fall
-	Downtown Shuttle	261			0			2016 Fall
-	GorEdi	37			0			2016 Fall
-	VicClr	37			0			2016 Fall
-	WHanKor	46			0			2016 Fall
GU77, GU78	Community Bus - North, South	39	234	500%	4	24	490%	2016 Fall
GU99	Guelph Transit unknown route		1,040			252		-
GU97	Guelph Mobility Service		225			41		-
	Total Excluding Mobility Service in TTS Data	**29,124**	**18,903**	**-35%**	**4,440**	**3,624**	**-18%**	
	Total Matched Routes	**28,352**	**17,863**	**-37%**	**4,306**	**3,372**	**-22%**	

Barrie Transit

Table 4-27 presents comparisons between the Barrie Transit system boarding counts and the TTS data. Overall, total daily boardings reported by TTS are within 30% of the counts, although there is considerable variability by individual route.

Table 4-27: Barrie Transit boardings

		Daily Boardings			
Code	**Name**	**Count**	**TTS**	**Diff.**	**Count Date**
BA101, BA102	Georgian Mall,Wellham 1	1,012	502	-50%	2016 Fall
BA103, BA104	Dunlop, Parkplace 2	337	336	0%	2016 Fall
BA105, BA106	Georgian Drive, Painswick 3	1,024	315	-69%	2016 Fall
BA107, BA108	East Bayfield, South Goal 4	732	619	-15%	2016 Fall
BA109, BA110	Blake, Edgehill 5	463	779	68%	2016 Fall
BA111, BA112	Letitia, College 6	1,411	583	-59%	2016 Fall
BA113, BA114	Bell Farm, Beark Creek 7	735	902	23%	2016 Fall
BA115, BA116	RHV/Yonge, Crosstown/Essa 8	3,108	2,068	-33%	2016 Fall
BA119	Lockhart 11	12			2016 Fall
BA117	Angus Borden 90		18		-
BA99	Barrie Transit unknown route		29		-
BA98	BACTS (Barrie Accessible Transit)		146		-
	Total Excluding BACTS	**8,834**	**6,151**	**-30%**	
	Total Matched Routes	**8,822**	**6,105**	**-31%**	

Comparisons of daily ridership data from other municipal transit operators are not shown either due to inconsistency of the data with the TTS or the information is not available.

4.10 GO transit ridership

Table 4-28 compares GO Rail ridership provided by GO Transit and the TTS data. The GO Rail boardings by corridor are from combined Presto counts and ticket sales for the period of October to mid-December 2016. The expanded TTS boardings for the UP Express are noted in the table, but are not included in the comparison. Overall and for total travel for each rail corridor, the TTS data match very closely, which stands to reason as total ridership by corridor was included as a data weighting control in the data expansion process. Users of the data should interpret this with caution however, as the TTS data may not necessarily represent accurate boarding and alighting counts by GO station. Boarding counts by GO Station were not provided for comparison with the TTS data.

Table 4-29 contain comparisons between the TTS data and GO bus ridership supplied by Metrolinx. GO bus services are grouped by corridor for comparison as respondents might not have distinguished the differences of the lines. Overall, the total daily ridership is over-represented by the TTS data by 17%. By corridor, the TTS data are very close to the GO bus boardings for Hamilton, Milton, and Kitchener corridors (within 2%, 6% and 1%, respectively), over-represent the Georgetown, Oshawa, and Highway 407 corridors (by 16%, 22%, and 47%, respectively) and under-represent the Newmarket and Stouffville corridors (by 22% and 44%, respectively).

It may be noted that GO bus and GO rail systems serve often long-distance routes across a large geography, and so may sometimes be used by visitors to the area who would not be included in the TTS data.

Table 4-28: GO Rail daily boardings

GO Rail Lines		Daily Boardings			
Code	Name	Count	TTS	Diff.	Count Date
GT01	Lakeshore West	61,882	63,279	2%	2016 Fall
GT02	Milton	29,028	29,833	3%	2016 Fall
GT03	Kitchener	22,353	23,109	3%	2016 Fall
GT05	Barrie	19,101	19,635	3%	2016 Fall
GT06	Richmond Hill	10,688	10,944	2%	2016 Fall
GT07	Stouffville	16,010	16,475	3%	2016 Fall
GT09	Lakeshore East	49,542	50,964	3%	2016 Fall
	Total	**208,602**	**214,239**	**3%**	
	2011 TTS			17%	
	2006 TTS			0%	
GT10	Union Pearson Express*		2,309		

*Expanded TTS boardings for Union-Pearson Express (UP Express) are listed for reference, but are not compared against boarding count data for this rail service. The UP Express services Pearson Airport, and thus may be used by many visitors to the TTS area. The TTS boardings represent only the portion of the use of the UP Express represented by local residents captured in the TTS.

Table 4-29: GO Bus daily ridership

GO Bus Routes		Daily Boardings			
Code	Name	Count	TTS	Diff.	Count Date
	Hamilton Corridor	**7,220**	**7,350**	**2%**	
GB12	Niagara-on-the Lake Train-Meet 11	0			2016 Fall
GB12	Niagara Falls Train-Meet 12	1,156	794	-31%	2016 Fall
GB15	Brantford / Burlington 15	746	1,200	61%	2016 Fall
GB16	Hamilton / Toronto Express 16	2,742	2,940	7%	2016 Fall
GB18	Hamilton Train-Meet 18	863	581	-33%	2016 Fall
GB19	Mississauga / North York 19	1,713	1,835	7%	2016 Fall
	Milton Corridor	**9,752**	**10,351**	**6%**	
GB20	Milton / Oakville 20	274	614	124%	2016 Fall
GB21	Milton Train-Bus 21	5,511	5,447	-1%	2016 Fall
GB24	Cambridge / Milton 24	41	36	-11%	2016 Fall
GB25	Waterloo / Mississauga 25	1,709	1,324	-23%	2016 Fall
GB27	Milton / North York 27	1,511	2,205	46%	2016 Fall
GB29	Guelph / Mississauga 29	706	725	3%	2016 Fall
	Kitchener Corridor	**212**	**209**	**-1%**	
GB30	Kitchener Express Train-Meet 30	212	209	-1%	2016 Fall
	Georgetown Corridor	**6,849**	**7,915**	**16%**	
GB31	Kitchener Train-Bus 31	2,015	1,018	-49%	2016 Fall
GB32	Brampton Trinity Common / North York 32	970	536	-45%	2016 Fall
GB33	Guelph / York Mills 33	1,341	1,658	24%	2016 Fall
GB34	Pearson Airport / North York 34	458	3,116	580%	2016 Fall
GB36	Brampton / North York 36	1,669	406	-76%	2016 Fall
GB37	Orangeville / Brampton 37	193	479	148%	2016 Fall
GB38	Bolton / North York & Bolton / Malton 38	203	702	246%	2016 Fall
	Hwy 407 Corridor	**18,221**	**26,804**	**47%**	
GB40	Richmond Hill / Pearson Airport Express 40	2,108	2,666	26%	2016 Fall
GB46	GO Bus - 407 West (45, 46, 47, 48 combined)	10,814	17,171	59%	
	Streetsville / York U (407 West Service) 45	2,433			2016 Fall
	Oakville / York U (407 West Service) 46	2,066			2016 Fall
	Hamilton / York U (407 West Service) 47	4,621			2016 Fall
	Guelph / York U (407 West Service) 48	1,694			2016 Fall
GB52	GO Bus - 407 east (51, 52, 54 combined)	5,299	6,967	31%	
	Pickering / York U (407 East Service) 51	2,622			2016 Fall
	Oshawa / York U (407 East Service) 52	1,408			2016 Fall
	Mount Joy / York U (407 East Service) 54	1,269			2016 Fall
	Newmarket Corridor	**5,042**	**3,935**	**-22%**	
GB61	Richmond Hill Train-Bus 61	532	145	-73%	2016 Fall
GB65	GO Bus - Barrie (63, 65, 68 combined)	3,544	2,283	-36%	
	King City Train-Bus 63	637			2016 Fall
	Newmarket Train-Bus 65	2,175			2016 Fall
	Barrie / Newmarket 68	732			2016 Fall
GB66	Newmarket / North York Express 66	785	935	19%	2016 Fall
GB67	Keswick / North York Express 67	181	572	216%	2016 Fall

GO Bus Routes		Daily Boardings			
Code	Name	Count	TTS	Diff.	Count Date
	Stouffville Corridor	**2,511**	**1,399**	**-44%**	
GB70	Stouffville / Unionville Train-Meet 70	239			2016 Fall
GB71	Stouffville Train Bus 71	2,272	1,399	-38%	2016 Fall
	Oshawa Corridor	**7,275**	**8,858**	**22%**	
GB81	Beaverton & Port Perry / Whitby 81	231	825	257%	2016 Fall
GB88	Peterborough / Oshawa 88	455	281	-38%	2016 Fall
GB90	GO Bus - Lakeshore East (90, 91 combined)	2,081	1,933	-7%	
	Newcastle Train-Meet 90	1,944			2016 Fall
	Newcastle / Bowmanville Express - Train-Meet 91	137			2016 Fall
GB92	Oshawa / Yorkdale 92	2,631	2,851	8%	2016 Fall
GB93	Durham College & UOIT / Scarborough Express 93	452	458	1%	2016 Fall
GB96	Oshawa / Finch Express 96	1,425	2,510	76%	2016 Fall
	Total	**57,082**	**66,825**	**17%**	
	2011 TTS			22%	
	2006 TTS			-14%	

4.11 Summary of boarding/ridership comparisons

A summary of ridership comparisons between the TTS data and each transit system is provided in Table 4-30. Unless otherwise specified, the totals listed are for matched routes (that is, routes for which a count was present in both the transit operator data and the TTS data). For systems with a significant number of boardings associated with unmatched routes (whether present in the boarding counts but not in the TTS data, or present in the TTS data but not matched to a route in the operator boarding counts), the system total across all routes, both matched and unmatched, is also provided for reference. Readers are reminded to be aware of the caveats associated with these comparisons discussed on page 66 at the start of Section 4.9 of this report, particularly with respect to the imprecision of the comparisons for the morning peak period (the counts for the TTS data being associated with the trip start time rather than actual boarding time for the specific route(s) taken). Readers are also reminded that there is considerably more variability in the comparisons by individual transit route than suggested by the totals. For systems with TTS data that are very close to the total daily boardings, the overall number of transit passengers represented by the data may be close, and the TTS data may provide very good information on the broad characteristics of transit users and their travel patterns. However, the TTS data by route may be considerably less reliable, and users of the data who are interested in making use of disaggregated data for specific routes may wish to consider whether to undertake data weighting adjustments, model calibrations, or other data treatments.

Table 4-30: Summary of boarding/ridership comparisons

	Daily boardings/ridership					A.M. peak boardings/ridership				
Transit System	Count	TTS	Diff.	2011	2006	Count	TTS	Diff.	2011	2006
GO Total	**265,684**	**281,064**	**6%**	19%	-3%	n/a	n/a	n/a	24%	n/a
Rail	208,602	214,239	3%	17%	0%	n/a	n/a	n/a	17%	n/a
Bus	57,082	66,825	17%	22%	-14%	n/a	n/a	n/a	72%	n/a
TTC Total	**3,026,759**	**2,857,194**	**-6%**	-7%	-10%	**686,419**	**774,808**	**13%**	17%	-2%
Subway	1,288,376	1,446,904	12%	3%	-2%	297,595	385,055	29%	23%	10%
Streetcar	320,933	241,332	-25%	-21%	-21%	56,495	60,671	7%	21%	3%
Bus	1,417,450	1,168,958	-18%	-14%	-16%	332,329	329,082	-1%	9%	-2%
Durham Region Transit	51,754	50,680	-2%	-24%	20%	11,639	12,446	7%	n/a	n/a
York Region Transit	101,271	99,535	-2%	-9%	-15%	44,452	28,898	-35%	15%	n/a
MiWay	155,815	161,577	4%	-16%	-19%	36,625	45,137	22%	-5%	-11%
Brampton	144,281	102,977	-29%	-25%	-16%	37,240	27,710	-14%	-12%	-13%
HSR – system total	n/a	89,565	n/a			n/a	21,979	n/a		
HSR – matched routes	66,996	58,758	-12%	8%	n/a	13,039	13,350	2%	n/a	n/a
Niagara Falls – system total	3,610	1,935	-46%	n/a	n/a	668	530	-21%	n/a	n/a
Niagara Falls – matched routes	2,461	1,724	-30%	n/a	n/a	554	462	-17%	n/a	n/a
St. Catharines Transit – system total	27,371	12,415	-55%	n/a	n/a	4,091	2,788	-32%	n/a	n/a
St. Catharines Transit – matched routes	24,063	12,050	-50%	n/a	n/a	3,783	2,757	-27%	n/a	n/a
Grand River Transit	88,332	59,328	-33%	-23%	n/a	88,332	59,328	-33%	15%	n/a
Guelph Transit – system total	29,124	18,903	-35%	n/a	n/a	4,440	3,624	-18%	n/a	n/a
Guelph Transit – matched routes	28,352	17,863	-37%	n/a	n/a	4,306	3,372	-22%	n/a	n/a
Barrie Transit	8,822	6,105	-31%	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Appendix A: Expansion Zones and Expansion Factors

The table below details the definitions of the expansion zones used in the expansion of the survey data to represent the population. The Statistics Canada geographies used in developing the expansion zones include: Dissemination Areas (DA), Census Tracts (CT), Aggregated Dissemination Areas (ADA), and Census Subdivision (CSD). Census counts for total population, population living in private dwellings, and private dwellings occupied by usual residents are listed for reference. The base expansion factor was computed for each expansion zone as the ratio of the Census counts of private dwellings to the number of valid TTS survey interviews. For TTS regions other than Hamilton, which had a target 5% sampling rate, a base expansion factor less than 20.00 indicates that the expansion zone was over-sampled, while a base expansion factor more than 20.00 indicates that the expansion zone was under-sampled. For Hamilton, which had a target 3% sampling rate, the expansion factor associated with meeting this target would be 33.33. The four left-most columns in the table highlight the ranges of the final expansion factors after application of the IPF data weighting to adjust the base expansion factor for each household so that survey distributions by dwelling type, householder size, and householder age/sex better matched Census control counts for these attributes.

Appendix A – Expansion factors by expansion zone

				2016 Census					Range of Final Expansion Factors			
Municipality / Planning District	Expansion Zone	Geo Type(s)	Geo UID(s)	Pop. Total	Pop. in Pvt. dwell-ings	Pvt. dwell-ings	TTS Surveys	Base Exp. Factor	Min.	5th Ptile.	95th Ptile.	Max.
Toronto												
PD 1 of Toronto	1001	CT	5350013.01	6290	6265	4059	232	17.50	5.56	9.51	32.73	44.45
PD 1 of Toronto	1002	ADA	35200238	11669	10990	6442	396	16.27	3.22	3.25	31.31	86.36
PD 1 of Toronto	1003	ADA	35200249	9435	9410	6348	294	21.59	4.43	7.74	37.35	51.75
PD 1 of Toronto	1004	ADA	35200265	8810	8525	5281	342	15.44	7.31	8.90	25.81	59.96
PD 1 of Toronto	1005	ADA	35200267	10101	9720	6180	425	14.54	2.82	6.38	24.14	60.73
PD 1 of Toronto	1006	ADA	35200269	11118	11030	6398	306	20.91	4.16	7.44	40.49	98.19
PD 1 of Toronto	1007	ADA	35200273	9981	9760	5388	278	19.38	3.87	3.88	53.87	93.06
PD 1 of Toronto	1008	ADA	35200287	17549	17420	11891	604	19.69	4.27	9.33	28.62	61.87
PD 1 of Toronto	1009	ADA	35200293	13498	13155	8267	462	17.89	3.49	3.57	33.05	96.08
PD 1 of Toronto	1010	ADA	35200296	7740	7400	4447	267	16.66	3.21	3.33	31.79	86.26
PD 1 of Toronto	1011	ADA	35200302	11658	11630	6881	351	19.60	3.96	3.96	41.98	92.69
PD 1 of Toronto	1012	ADA	35200303	9942	9885	6060	322	18.82	3.76	3.77	28.21	81.87
PD 1 of Toronto	1013	ADA	35202000	13095	12380	8051	473	17.02	3.40	9.59	36.77	76.33
PD 1 of Toronto	1014	ADA CT	35200232 5350088.00	11289	10695	6513	285	22.85	4.55	10.54	41.79	121.43
PD 1 of Toronto	1015	ADA CT	35200241 5350092.00	16834	15720	8951	374	23.93	4.49	4.80	50.86	123.36
PD 1 of Toronto	1016	ADA ADA	35200246 35200247	18615	18355	9558	377	25.35	5.06	5.82	51.21	125.16
PD 1 of Toronto	1017	ADA CT	35200254 5350061.00	15764	15335	9151	450	20.34	4.01	5.47	36.75	110.35
PD 1 of Toronto	1018	ADA ADA	35200257 35200262	21208	19410	10334	409	25.27	5.04	5.06	57.62	127.84
PD 1 of Toronto	1019	ADA CT CT	35200271 5350001.00 5350020.00	10891	10855	5924	407	14.56	3.73	7.37	23.98	58.33
PD 1 of Toronto	1020	ADA	35200278	14486	13605	6265	191	32.80	6.23	6.31	131.88	171.23

Municipality / Planning District	Expansion Zone	Geo Type(s)	Geo UID(s)	2016 Census Pop. Total	2016 Census Pop. in Pvt. dwell-ings	2016 Census Pvt. dwell-ings	TTS Surveys	Base Exp. Factor	Range of Final Expansion Factors Min.	5th Ptile.	95th Ptile.	Max.
		CT	5350059.00									
		CT	5350060.00									
PD 1 of Toronto	1021	CT	5350002.00	8746	8695	4995	258	19.36	3.89	6.86	33.11	81.37
		CT	5350013.02									
PD 1 of Toronto	1022	CT	5350012.03	13764	13735	8267	482	17.15	3.43	9.33	31.12	84.87
		CT	5350012.04									
PD 2 of Toronto	2001	ADA	35200297	13754	13750	6548	382	17.14	4.48	5.84	36.06	80.99
PD 2 of Toronto	2002	ADA	35200253	27523	27100	11992	427	28.08	5.60	5.60	108.60	153.89
		ADA	35200270									
		CT	5350093.00									
PD 2 of Toronto	2003	ADA	35200272	18055	18050	6939	332	20.90	5.37	6.84	60.56	114.15
		ADA	35200295									
PD 2 of Toronto	2004	ADA	35200274	23084	22780	9750	412	23.67	4.70	4.72	88.26	129.16
		CT	5350096.01									
		CT	5350096.02									
		CT	5350097.01									
		CT	5350097.03									
		CT	5350097.04									
PD 2 of Toronto	2005	ADA	35200282	16556	16230	6910	281	24.59	4.80	4.80	128.46	131.90
		ADA	35200285									
PD 2 of Toronto	2006	ADA	35200284	27344	26765	12863	543	23.69	4.68	4.72	51.74	128.71
		ADA	35200298									
PD 2 of Toronto	2007	ADA	35200286	14084	13935	7108	387	18.37	3.87	5.99	37.98	99.85
		CT	5350100.00									
PD 2 of Toronto	2008	ADA	35200288	18671	18200	8601	458	18.78	3.68	4.95	41.53	93.12
		CT	5350101.00									
		CT	5350105.00									
PD 2 of Toronto	2009	ADA	35200299	28486	27250	14517	509	28.52	5.66	5.71	60.13	150.75
		ADA	35200306									
		ADA	35200307									
		ADA	35200310									
PD 2 of Toronto	2010	ADA	35200301	18508	17880	8089	374	21.63	4.28	4.33	50.78	116.05
		CT	5350049.00									
		CT	5350050.03									
		CT	5350051.00									
PD 3 of Toronto	3001	ADA	35200183	14257	14205	5737	339	16.92	3.42	6.07	36.78	64.59
PD 3 of Toronto	3002	ADA	35200237	13593	13260	5177	211	24.54	4.88	4.91	71.83	134.33
PD 3 of Toronto	3003	ADA	35200242	17103	15930	7005	383	18.29	3.50	4.23	45.47	94.09
PD 3 of Toronto	3004	ADA	35200258	10619	10610	4503	283	15.91	3.23	5.98	44.13	75.64
PD 3 of Toronto	3005	ADA	35200158	14804	14020	5344	268	19.94	3.97	7.09	52.00	90.65
		ADA	35200192									
PD 3 of Toronto	3006	ADA	35200180	20052	19610	7206	347	20.77	4.25	9.16	46.82	114.96
		ADA	35200203									
PD 3 of Toronto	3007	ADA	35200201	24334	24075	9132	381	23.97	4.83	7.48	59.26	109.17
		ADA	35200209									
		ADA	35200219									
PD 3 of Toronto	3008	ADA	35200208	21210	20960	8687	392	22.16	4.85	6.46	53.80	95.28
		ADA	35200222									
PD 3 of Toronto	3009	ADA	35200212	16244	16095	7878	477	16.52	5.26	7.51	30.18	61.12
		CT	5350167.01									
PD 3 of Toronto	3010	ADA	35200221	33900	33805	12550	464	27.05	5.38	5.41	102.64	148.07
		ADA	35200236									
		ADA	35200243									
		ADA	35200250									

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PD 3 of Toronto	3011	ADA ADA CT	35200216 35200223 5350282.00	22472	22160	9207	463	19.89	3.97	6.29	45.11	108.56
PD 3 of Toronto	3012	ADA CT	35200260 5350106.00	15400	15380	5895	177	33.31	6.64	6.64	119.42	182.60
PD 3 of Toronto	3013	ADA CT CT	35200263 5350109.00 5350110.00	15086	15075	6112	247	24.74	4.97	4.97	106.63	136.42
PD 4 of Toronto	4001	ADA	35200128	12282	12165	4989	269	18.55	3.73	3.73	52.31	102.57
PD 4 of Toronto	4002	ADA	35200174	11817	11800	5676	259	21.92	4.40	6.28	42.29	97.75
PD 4 of Toronto	4003	ADA	35200184	12806	12675	5446	327	16.65	3.62	7.50	39.07	91.81
PD 4 of Toronto	4004	ADA	35200207	9858	9765	4821	234	20.60	4.13	5.77	39.42	75.04
PD 4 of Toronto	4005	ADA	35200220	15008	14685	7508	345	21.76	4.35	6.62	47.59	91.74
PD 4 of Toronto	4006	ADA ADA	35200135 35200153	21877	21825	8423	447	18.84	3.79	8.76	41.13	104.24
PD 4 of Toronto	4007	ADA ADA	35200141 35200160	22372	21885	8247	425	19.40	3.89	7.12	46.04	105.03
PD 4 of Toronto	4008	ADA ADA	35200145 35200164	18863	18795	6362	328	19.40	3.88	4.76	51.99	102.04
PD 4 of Toronto	4009	ADA CT	35200149 5350265.00	11216	11005	4121	231	17.84	3.55	6.86	38.47	65.24
PD 4 of Toronto	4010	ADA ADA	35200155 35200166	21108	20835	7123	304	23.43	4.66	4.68	61.80	121.55
PD 4 of Toronto	4011	ADA ADA	35200162 35200171	18188	18155	10486	541	19.38	3.93	7.48	35.42	89.09
PD 4 of Toronto	4012	ADA CT CT	35200172 5350195.02 5350196.02	17650	17600	7073	345	20.50	7.72	10.11	40.63	85.82
PD 4 of Toronto	4013	ADA ADA	35200182 35202001	18547	17825	10520	487	21.60	4.19	4.33	42.52	114.95
PD 4 of Toronto	4014	ADA CT CT CT	35200191 5350122.00 5350130.00 5350131.00	17341	17220	8549	420	20.35	4.58	8.45	39.34	93.42
PD 4 of Toronto	4015	CT CT	5350086.00 5350087.00	7816	7745	3412	148	23.05	5.26	9.39	57.26	128.58
PD 5 of Toronto	5001	ADA	35200086	10692	10635	4105	168	24.43	4.90	4.90	67.51	134.80
PD 5 of Toronto	5002	ADA	35200120	14908	14300	7225	472	15.31	3.38	8.08	29.63	72.83
PD 5 of Toronto	5003	ADA	35202004	7625	7615	3004	129	23.29	4.75	5.18	58.42	115.41
PD 5 of Toronto	5004	ADA ADA	35200085 35200089	20961	20740	7607	403	18.88	5.46	8.95	40.78	74.32
PD 5 of Toronto	5005	ADA ADA	35200091 35200096	16488	16465	6206	347	17.88	4.61	6.23	42.43	66.71
PD 5 of Toronto	5006	ADA CT CT	35200099 5350264.00 5350266.00	14148	14135	5219	273	19.12	6.23	8.26	44.96	75.15
PD 5 of Toronto	5007	ADA ADA	35200109 35200129	17510	17180	7412	309	23.99	6.10	8.25	61.47	129.32
PD 5 of Toronto	5008	ADA ADA	35200133 35200151	21933	21915	7830	301	26.01	5.27	8.16	65.40	141.28
PD 6 of Toronto	6001	ADA	35200210	12541	12430	5454	291	18.74	3.74	5.52	53.46	88.41

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PD 6 of Toronto	6002	ADA	35200234	11916	11675	5008	273	18.34	3.63	3.66	49.85	99.68
PD 6 of Toronto	6003	ADA ADA ADA	35200142 35200165 35200168	27802	27625	10975	432	25.41	7.02	9.97	53.11	80.69
PD 6 of Toronto	6004	ADA ADA	35200176 35200190	16944	16900	7104	317	22.41	5.11	10.79	42.50	75.54
PD 6 of Toronto	6005	ADA ADA	35200177 35200181	14421	14210	6214	258	24.09	4.80	6.57	75.01	108.01
PD 6 of Toronto	6006	ADA ADA	35200188 35200200	19135	18990	7633	411	18.57	3.72	3.76	70.55	102.37
PD 6 of Toronto	6007	ADA ADA	35200189 35200195	21381	21010	9180	427	21.50	4.28	8.24	52.77	116.63
PD 6 of Toronto	6008	ADA ADA	35200204 35200211	15658	15590	6483	297	21.83	4.50	4.50	106.60	121.05
PD 6 of Toronto	6009	ADA ADA CT	35200205 35200217 5350186.00	21719	21390	10152	459	22.12	8.17	9.94	42.11	75.47
PD 6 of Toronto	6010	ADA ADA CT	35200206 35200215 5350021.00	19177	19050	8414	417	20.18	4.10	5.23	50.73	110.51
PD 6 of Toronto	6011	ADA ADA	35200229 35200230	19679	19325	8262	361	22.89	4.58	6.38	58.02	121.78
PD 6 of Toronto	6012	CT CT CT CT	5350018.00 5350019.00 5350028.01 5350029.00	14088	13590	6259	316	19.81	3.96	3.97	56.74	105.56
PD 7 of Toronto	7001	ADA	35200321	11159	11060	5487	298	18.41	3.68	5.98	39.84	63.01
PD 7 of Toronto	7002	ADA	35200322	17004	16975	10071	517	19.48	3.91	6.74	35.51	105.52
PD 7 of Toronto	7003	ADA	35200323	11463	11285	5372	250	21.49	4.31	4.31	70.81	118.63
PD 7 of Toronto	7004	ADA	35200326	10084	10065	4815	259	18.59	3.72	5.10	47.48	64.62
PD 7 of Toronto	7005	ADA ADA ADA	35200318 35200324 35200325	17855	17305	6839	341	20.06	4.98	7.78	46.92	93.03
PD 8 of Toronto	8001	ADA	35200275	11051	11045	3861	237	16.29	6.51	8.14	32.74	63.81
PD 8 of Toronto	8002	ADA	35200289	8787	8740	3253	191	17.03	4.35	7.12	38.08	65.31
PD 8 of Toronto	8003	ADA	35200290	9801	9785	3610	193	18.70	3.82	7.53	38.78	67.15
PD 8 of Toronto	8004	ADA	35200300	9271	9165	3584	165	21.72	4.32	7.15	50.19	118.82
PD 8 of Toronto	8005	ADA	35200308	11224	11130	4919	230	21.39	4.27	7.14	49.38	102.78
PD 8 of Toronto	8006	ADA	35200311	13827	13765	5458	292	18.69	6.41	7.91	37.61	62.00
PD 8 of Toronto	8007	ADA	35200314	11848	11470	4583	195	23.50	4.66	4.68	56.71	127.77
PD 8 of Toronto	8008	ADA	35200320	10554	10450	4309	291	14.81	5.73	7.08	27.23	45.81
PD 8 of Toronto	8009	ADA	35202003	11114	10910	5523	299	18.47	4.14	7.14	37.03	100.47
PD 8 of Toronto	8010	ADA ADA	35200214 35200224	22000	21985	7782	326	23.87	4.88	5.48	79.84	132.50
PD 8 of Toronto	8011	ADA ADA	35200228 35200245	17664	16825	6630	374	17.73	3.51	7.91	34.08	46.69
PD 8 of Toronto	8012	ADA ADA	35200256 35200261	15440	15430	6015	322	18.68	3.91	6.51	48.18	94.97
PD 8 of Toronto	8013	ADA ADA	35200259 35200268	15535	15195	6254	372	16.81	5.44	8.38	31.98	66.08

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PD 8 of Toronto	8014	ADA ADA	35200304 35200316	16028	15775	5859	251	23.34	4.65	7.93	49.22	90.39
PD 8 of Toronto	8015	ADA ADA	35200309 35200313	16823	16540	7946	403	19.72	3.95	9.02	35.48	95.30
PD 9 of Toronto	9001	ADA	35200196	8727	8630	2748	123	22.34	4.28	4.29	100.49	117.98
PD 9 of Toronto	9002	ADA ADA ADA ADA	35200132 35200137 35200146 35200163	32979	32920	9683	375	25.82	5.15	5.69	57.55	106.15
PD 9 of Toronto	9003	ADA ADA	35200159 35200178	19816	19575	6499	319	20.37	4.07	4.82	56.83	98.37
PD 9 of Toronto	9004	ADA ADA	35200169 35200173	17393	16995	5344	228	23.44	4.61	4.67	69.82	126.65
PD 9 of Toronto	9005	ADA ADA	35200187 35200197	17696	17525	6231	353	17.65	3.51	5.83	46.24	96.64
PD 10 of Toronto	10001	ADA	35200083	12567	12555	4919	281	17.51	3.46	3.46	46.88	95.15
PD 10 of Toronto	10002	ADA	35200123	7896	7870	3115	128	24.34	5.09	5.09	67.53	130.19
PD 10 of Toronto	10003	ADA	35200126	12183	11920	3882	168	23.11	4.61	5.55	65.94	108.70
PD 10 of Toronto	10004	ADA	35200157	6721	6705	2247	99	22.70	4.60	4.60	92.04	118.75
PD 10 of Toronto	10005	ADA ADA	35200106 35200116	21737	21560	7324	290	25.26	5.05	6.94	74.42	94.85
PD 10 of Toronto	10006	ADA ADA	35200110 35200138	22407	22395	7141	319	22.39	4.98	5.72	59.57	91.84
PD 10 of Toronto	10007	ADA ADA	35200117 35200127	15026	15015	5251	233	22.54	4.49	6.49	56.16	89.55
PD 10 of Toronto	10008	ADA ADA	35200122 35200136	18308	18295	6035	298	20.25	4.08	6.24	58.74	111.49
PD 10 of Toronto	10009	ADA CT	35200134 5350293.00	11796	11790	3911	220	17.78	3.52	3.54	60.70	96.32
PD 10 of Toronto	10010	ADA ADA	35200148 35200154	20435	20425	7759	363	21.37	4.26	7.42	55.08	117.24
PD 11 of Toronto	11001	ADA	35200078	9005	8880	4192	223	18.80	3.71	3.76	49.71	102.08
PD 11 of Toronto	11002	ADA	35200081	11479	11270	5576	299	18.65	3.73	7.41	30.83	94.50
PD 11 of Toronto	11003	ADA	35200084	9133	8905	4822	249	19.37	3.87	5.20	48.39	80.81
PD 11 of Toronto	11004	ADA	35200090	12074	12060	5598	331	16.91	4.47	8.30	34.42	92.83
PD 11 of Toronto	11005	ADA	35200092	11840	11650	4281	176	24.32	4.86	6.89	63.02	100.55
PD 11 of Toronto	11006	ADA	35200094	13667	13665	6956	371	18.75	3.69	5.07	37.93	83.51
PD 11 of Toronto	11007	ADA	35200098	16164	16065	6588	394	16.72	3.34	5.78	34.79	57.01
PD 11 of Toronto	11008	ADA ADA	35200051 35200066	16097	15535	6114	324	18.87	4.88	7.64	37.78	51.64
PD 11 of Toronto	11009	ADA ADA	35200061 35200074	23831	23625	8960	413	21.69	4.82	7.77	55.87	101.25
PD 11 of Toronto	11010	ADA ADA	35200071 35200077	15688	15655	5558	282	19.71	3.91	6.13	47.24	93.26
PD 11 of Toronto	11011	ADA ADA	35200072 35200082	19891	19875	7926	380	20.86	4.24	6.57	52.29	96.71
PD 11 of Toronto	11012	ADA ADA	35200080 35200108	15873	15580	6089	243	25.06	5.06	6.99	62.60	122.50
PD 11 of Toronto	11013	ADA ADA	35200118 35200124	16472	16425	6554	264	24.83	7.08	9.64	46.95	74.70

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PD 11 of Toronto	11014	CT CT	5350305.01 5350305.03	9365	9330	3742	217	17.24	3.46	5.39	38.14	95.15
PD 11 of Toronto	11015	CT CT	5350323.01 5350323.02	9656	9175	3555	244	14.57	3.11	5.38	37.59	80.26
PD 12 of Toronto	12001	ADA	35200025	7423	7415	2883	180	16.02	3.28	3.76	42.88	75.52
PD 12 of Toronto	12002	ADA	35200052	8202	8180	2915	145	20.10	4.05	4.05	72.30	111.46
PD 12 of Toronto	12003	ADA	35200063	13042	12845	4846	259	18.71	5.70	6.82	48.86	88.73
PD 12 of Toronto	12004	ADA	35200070	15723	15715	6362	250	25.45	5.07	6.00	55.74	76.52
PD 12 of Toronto	12005	ADA CT	35200042 5350324.01	13009	12985	4658	262	17.78	3.58	3.58	51.97	98.37
PD 12 of Toronto	12006	ADA ADA	35200045 35200058	15818	15810	5519	278	19.85	5.72	7.87	49.83	100.42
PD 12 of Toronto	12007	ADA CT	35200056 5350304.03	8705	8695	3175	209	15.19	4.18	5.38	34.53	84.46
PD 13 of Toronto	13001	ADA	35200047	12645	12530	5251	262	20.04	5.35	7.80	46.90	93.07
PD 13 of Toronto	13002	ADA	35200064	12063	12055	4097	169	24.24	5.03	5.03	92.20	138.44
PD 13 of Toronto	13003	ADA	35200101	11139	11065	4295	183	23.47	5.21	6.91	58.08	92.16
PD 13 of Toronto	13004	ADA	35200105	8551	8545	3709	150	24.73	4.94	4.94	86.99	135.88
PD 13 of Toronto	13005	ADA	35200121	15205	14715	5353	285	18.78	3.75	4.74	41.16	59.81
PD 13 of Toronto	13006	ADA ADA	35200037 35200050	15546	15125	4876	235	20.75	4.10	4.84	56.48	112.87
PD 13 of Toronto	13007	ADA ADA	35200054 35200059	19227	19005	6185	292	21.18	4.22	5.34	65.62	114.68
PD 13 of Toronto	13008	ADA ADA	35200057 35200065	19252	18600	7422	377	19.69	7.78	8.56	38.48	91.86
PD 13 of Toronto	13009	ADA ADA	35200060 35200069	19694	19200	6885	305	22.57	4.51	8.52	54.77	105.91
PD 13 of Toronto	13010	ADA ADA	35200068 35200075	16778	16485	5811	257	22.61	4.65	8.55	56.86	106.53
PD 13 of Toronto	13011	ADA ADA	35200073 35200095	12127	11785	4254	188	22.63	4.71	6.29	60.70	111.90
PD 13 of Toronto	13012	ADA ADA	35200087 35200102	21357	20975	7002	301	23.26	6.07	7.13	59.17	106.09
PD 13 of Toronto	13013	ADA ADA	35200093 35200100	13562	13400	5031	214	23.51	4.60	4.65	91.30	126.25
PD 13 of Toronto	13014	ADA ADA	35200111 35200115	13960	13945	4896	189	25.90	5.22	5.22	75.83	118.49
PD 13 of Toronto	13015	ADA ADA	35200139 35200144	25624	25190	9175	405	22.65	4.50	6.21	49.63	121.93
PD 14 of Toronto	14001	ADA	35200067	9917	9650	3991	258	15.47	4.75	7.31	31.36	53.56
PD 14 of Toronto	14002	ADA	35200179	6687	6680	3000	204	14.71	3.59	6.44	31.81	78.70
PD 14 of Toronto	14003	ADA ADA	35200079 35200088	16724	16435	5923	230	25.75	5.14	5.61	72.27	137.85
PD 14 of Toronto	14004	ADA ADA	35200103 35200125	15233	14975	5693	272	20.93	4.19	5.27	57.43	114.97
PD 14 of Toronto	14005	ADA ADA	35200097 35200156	16306	15825	6407	345	18.57	3.77	8.13	40.24	100.06
PD 15 of Toronto	15001	ADA	35200005	9504	9340	3093	199	15.54	3.76	6.81	36.18	83.75
PD 15 of Toronto	15002	ADA	35200007	11319	11085	3839	236	16.27	3.21	3.65	50.90	83.16
PD 15 of Toronto	15003	ADA	35200016	19469	19335	6377	342	18.65	6.44	7.87	40.27	81.33

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		ADA	35200026									
		ADA	35200038									
PD 15 of Toronto	15004	ADA	35200019	23953	23915	7606	357	21.31	4.46	8.10	43.51	84.94
		ADA	35200022									
		ADA	35200027									
PD 15 of Toronto	15005	ADA	35200040	21285	20970	7988	292	27.36	5.47	6.23	71.26	146.04
		ADA	35200053									
PD 16 of Toronto	16001	ADA	35200003	10020	10005	3280	172	19.07	3.81	3.81	51.52	91.95
PD 16 of Toronto	16002	ADA	35200018	12372	12110	4100	203	20.20	4.01	5.13	46.68	84.57
PD 16 of Toronto	16003	ADA	35200028	10356	10100	3155	178	17.72	3.95	4.41	38.81	68.51
PD 16 of Toronto	16004	ADA	35200030	11333	11315	3737	185	20.20	6.00	8.18	49.88	75.37
PD 16 of Toronto	16005	ADA	35200034	13401	13380	4981	299	16.66	3.32	5.49	39.82	66.04
PD 16 of Toronto	16006	ADA	35200035	10394	10375	3217	178	18.07	3.58	3.58	60.57	98.39
PD 16 of Toronto	16007	ADA	35200046	13532	13075	5182	302	17.16	3.41	4.86	43.88	75.16
PD 16 of Toronto	16008	ADA	35200055	12247	12240	4364	182	23.98	4.88	5.35	65.61	133.87
PD 16 of Toronto	16009	ADA	35200001	18498	18485	4532	174	26.05	5.52	6.05	63.61	106.07
		ADA	35200002									
PD 16 of Toronto	16010	ADA	35200004	25702	25675	7780	290	26.83	5.33	6.55	70.85	145.04
		ADA	35200009									
		ADA	35200014									
PD 16 of Toronto	16011	ADA	35200006	16552	16060	4401	195	22.57	4.32	4.73	63.09	100.63
		ADA	35200011									
PD 16 of Toronto	16012	ADA	35200008	25267	25250	7571	282	26.85	5.37	7.74	62.29	146.11
		ADA	35200015									
		ADA	35200024									
PD 16 of Toronto	16013	ADA	35200012	14525	14510	4413	273	16.16	3.19	4.44	45.64	86.02
		ADA	35200020									
PD 16 of Toronto	16014	ADA	35200017	16741	16715	5020	303	16.57	3.55	5.27	39.72	87.29
		ADA	35200021									
PD 16 of Toronto	16015	ADA	35200029	18832	18485	6307	381	16.55	3.27	5.99	36.77	89.96
		ADA	35200036									
PD 16 of Toronto	16016	ADA	35200044	15199	14790	5699	315	18.09	4.94	7.94	36.69	94.55
		ADA	35200049									
Durham												
Brock	17001	ADA	35180001	11642	11370	4543	236	19.25	4.80	8.14	36.49	100.04
Uxbridge	18001	ADA	35180003	8646	8635	3005	197	15.25	3.67	5.92	34.22	83.65
Uxbridge	18002	ADA	35180008	12530	12340	4658	238	19.57	5.55	8.32	48.75	99.22
		ADA	35180009									
Scugog	19001	ADA	35180004	5247	5230	1834	119	15.41	3.12	3.60	43.71	57.70
Scugog	19002	ADA	35182000	8849	8505	3501	193	18.14	4.21	8.05	49.55	94.78
Scugog	19003	ADA	35180002	7652	7645	2935	157	18.69	3.71	5.17	47.49	69.36
		ADA	35180005									
Pickering	20001	ADA	35180013	3962	3920	1394	93	14.99	3.08	3.08	54.68	83.33
Pickering	20002	ADA	35180057	15369	15325	4509	237	19.03	3.99	7.37	38.78	103.26
Pickering	20003	ADA	35180072	7641	7515	3172	145	21.88	4.33	4.33	60.88	119.21
Pickering	20004	ADA	35180077	9394	9340	3377	150	22.51	5.09	8.35	49.84	123.42
Pickering	20005	ADA	35180068	14033	14025	4447	232	19.17	4.75	8.51	44.09	70.06
		ADA	35180073									

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Pickering	20006	ADA ADA	35180069 35180071	17679	17195	6751	305	22.13	5.32	6.87	54.22	99.05
Pickering	20007	ADA ADA ADA ADA	35180074 35180075 35180076 35180078	23693	23675	7269	372	19.54	5.14	8.14	39.72	106.79
Ajax	21001	ADA	35180066	11134	11130	3896	197	19.78	3.93	6.06	54.51	107.34
Ajax	21002	ADA ADA	35180042 35180052	19816	19805	5493	246	22.33	4.39	6.74	41.39	82.31
Ajax	21003	ADA ADA ADA	35180053 35180056 35182004	21660	21510	5643	310	18.20	4.30	6.91	35.23	89.73
Ajax	21004	ADA ADA ADA	35180058 35180060 35180061	20005	19885	6097	254	24.00	4.78	4.91	60.45	82.67
Ajax	21005	ADA ADA	35180062 35182003	12883	12880	3753	215	17.46	3.42	3.56	46.65	82.70
Ajax	21006	ADA ADA	35180063 35180067	21346	21325	7569	387	19.56	3.91	6.46	41.28	83.87
Ajax	21007	ADA ADA	35180070 35182006	12833	12640	5098	249	20.47	5.46	8.27	44.93	80.46
Whitby	22001	ADA	35180040	12784	12750	4590	246	18.66	6.31	9.40	43.78	93.66
Whitby	22002	ADA	35180044	14263	13845	4138	265	15.62	3.09	5.08	33.39	69.39
Whitby	22003	ADA	35180048	5505	5375	2388	156	15.31	3.04	3.04	46.31	79.91
Whitby	22004	ADA	35180049	11459	11230	4329	186	23.27	4.58	5.95	70.36	90.82
Whitby	22005	ADA	35180054	6584	6215	2476	133	18.62	3.73	4.59	37.72	97.56
Whitby	22006	ADA ADA	35180011 35180019	12462	12455	3927	250	15.71	3.15	6.19	35.31	66.75
Whitby	22007	ADA ADA	35180016 35182010	18891	18870	5756	211	27.28	5.41	5.41	55.81	111.57
Whitby	22008	ADA ADA ADA	35180033 35180036 35180039	27758	27620	8827	464	19.02	3.83	4.70	49.51	80.47
Whitby	22009	ADA ADA	35180041 35180055	18671	18430	7098	319	22.25	4.97	7.02	57.00	121.84
Oshawa	23001	ADA	35180018	18805	18620	5478	293	18.70	6.63	8.73	33.36	100.52
Oshawa	23002	ADA	35180028	8658	8620	3063	189	16.21	4.10	5.70	32.75	88.94
Oshawa	23003	ADA	35180034	10748	10600	4120	263	15.67	3.13	4.20	41.19	86.15
Oshawa	23004	ADA	35182002	6487	6480	2759	95	29.04	6.19	6.19	108.27	151.03
Oshawa	23005	ADA	35182005	7897	7315	3363	200	16.82	4.07	7.63	44.89	88.19
Oshawa	23006	ADA ADA	35180010 35180020	13716	13660	4704	326	14.43	5.20	5.50	33.20	78.45
Oshawa	23007	ADA ADA ADA	35180021 35180024 35180025	19331	19325	7374	445	16.57	4.41	5.40	38.80	92.76
Oshawa	23008	ADA ADA	35180027 35180029	15604	15570	6726	327	20.57	5.69	7.24	50.84	113.44
Oshawa	23009	ADA ADA	35180030 35180035	13757	13660	5788	305	18.98	3.83	7.62	49.17	98.81
Oshawa	23010	ADA ADA	35180032 35180037	15704	15205	7910	388	20.39	4.08	5.78	55.65	109.50

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Oshawa	23011	ADA ADA	35180038 35180043	10634	10465	3962	193	20.53	4.07	4.08	61.88	112.01
Oshawa	23012	ADA ADA	35180045 35180050	18117	18110	7348	249	29.51	5.89	5.89	95.26	162.11
Clarington	24001	ADA	35180006	5999	5980	2231	147	15.18	3.12	4.74	46.01	79.02
Clarington	24002	ADA	35180007	12376	12335	4295	213	20.16	4.04	4.06	53.64	109.13
Clarington	24003	ADA	35180012	11195	11110	4365	248	17.60	6.88	8.91	33.19	96.54
Clarington	24004	ADA ADA	35180014 35180017	22135	21770	7609	326	23.34	5.20	7.33	50.40	116.95
Clarington	24005	ADA ADA ADA	35180015 35180031 35182001	25106	24960	8552	357	23.96	4.79	7.52	50.04	131.68
Clarington	24006	ADA ADA	35180022 35180026	15202	15040	5786	374	15.47	3.09	3.47	41.13	84.82
York												
Georgina	25001	ADA	35190001	8230	8120	3198	184	17.38	5.44	6.64	38.84	69.25
Georgina	25002	ADA ADA ADA	35190002 35190003 35190004	12604	12325	4956	288	17.21	3.69	4.74	41.75	94.51
Georgina	25003	ADA ADA ADA	35190007 35190008 35190177	24845	24570	8785	402	21.85	4.44	7.13	49.93	120.30
East Gwillimbury	26001	ADA	35190006	8254	8030	2788	203	13.73	3.47	5.55	31.23	74.12
East Gwillimbury	26002	ADA ADA	35190009 35190012	15737	15410	5289	235	22.51	4.50	6.83	52.34	95.52
Newmarket	27001	ADA	35190018	9515	9370	3722	229	16.25	3.50	4.52	48.84	90.27
Newmarket	27002	ADA	35190019	13754	13745	4258	271	15.71	3.17	4.74	34.66	79.93
Newmarket	27003	ADA ADA	35190014 35190016	17258	16195	6222	334	18.63	4.54	7.73	44.82	84.21
Newmarket	27004	ADA ADA ADA	35190015 35190017 35190176	22887	22770	7515	337	22.30	4.41	4.41	58.02	121.20
Newmarket	27005	ADA ADA	35190020 35190021	20810	20650	6956	312	22.29	5.11	7.74	51.16	75.53
Aurora	28001	ADA ADA	35190022 35190023	17934	17795	5757	358	16.08	3.21	5.37	33.56	57.63
Aurora	28002	ADA ADA ADA	35190027 35190029 35190032	24794	24390	8924	375	23.80	5.77	8.07	52.30	110.18
Aurora	28003	ADA ADA	35190028 35190034	12717	12510	4170	233	17.90	3.62	4.36	47.11	99.01
Richmond Hill	29001	ADA	35190166	9365	9275	2815	154	18.28	4.70	6.52	45.73	57.80
Richmond Hill	29002	ADA ADA	35190035 35190036	18172	18160	5587	229	24.40	6.55	10.65	45.98	90.45
Richmond Hill	29003	ADA ADA ADA	35190037 35190041 35190049	31775	31750	9106	438	20.79	4.14	8.02	44.40	67.87
Richmond Hill	29004	ADA ADA ADA	35190054 35190057 35190061	25100	24640	7440	410	18.15	3.71	6.67	35.87	60.91
Richmond Hill	29005	ADA ADA	35190065 35190066	20963	20960	5829	287	20.31	4.11	8.09	35.37	49.10

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		ADA	35190075									
Richmond Hill	29006	ADA	35190072	24482	24275	8950	398	22.49	4.56	7.77	45.65	92.17
		ADA	35190167									
		ADA	35190168									
Richmond Hill	29007	ADA	35190081	15210	15185	5163	313	16.50	3.28	5.66	32.62	82.55
		ADA	35190175									
Richmond Hill	29008	ADA	35190093	15003	14870	5517	373	14.79	4.87	6.46	31.57	52.24
		ADA	35190169									
Richmond Hill	29009	ADA	35190164	15415	15335	6388	326	19.60	3.96	8.15	42.06	99.39
		ADA	35190170									
Richmond Hill	29010	ADA	35190096	19537	19365	7321	372	19.68	3.95	7.18	39.44	66.37
		ADA	35190099									
		ADA	35190165									
Whitchurch-Stouffville	30001	ADA	35190025	12675	12470	4073	161	25.30	4.94	4.94	76.00	134.66
Whitchurch-Stouffville	30002	ADA	35190011	12812	12655	4678	212	22.07	4.87	7.82	53.11	122.31
		ADA	35190013									
Whitchurch-Stouffville	30003	ADA	35190026	20350	20210	6604	322	20.51	4.08	5.44	42.59	92.50
		ADA	35190030									
Markham	31001	ADA	35190031	8242	8235	2615	151	17.32	3.46	3.46	54.05	95.07
Markham	31002	ADA	35190038	11854	11850	3662	217	16.88	3.34	3.44	34.37	91.98
Markham	31003	ADA	35190040	10981	10965	3371	201	16.77	3.37	7.47	31.62	54.40
Markham	31004	ADA	35190055	11634	11620	4270	268	15.93	4.92	6.40	34.76	81.37
Markham	31005	ADA	35190062	8236	8235	2541	190	13.37	2.68	4.99	33.40	58.43
Markham	31006	ADA	35190157	14502	14485	7147	387	18.47	7.05	8.66	36.55	54.77
Markham	31007	ADA	35190039	15824	15730	4807	269	17.87	5.70	8.08	35.73	51.37
		ADA	35190043									
Markham	31008	ADA	35190042	20737	20640	5762	312	18.47	3.76	6.78	39.45	54.56
		ADA	35190047									
Markham	31009	ADA	35190044	25298	24750	8062	418	19.29	5.40	9.33	37.94	104.68
		ADA	35190046									
		ADA	35190050									
Markham	31010	ADA	35190045	23567	23570	5908	262	22.55	4.61	4.70	55.70	89.26
		ADA	35190060									
		ADA	35190067									
Markham	31011	ADA	35190048	22622	22610	6559	308	21.30	4.24	5.62	45.63	112.46
		ADA	35190052									
		ADA	35190053									
Markham	31012	ADA	35190058	23272	22760	7271	438	16.60	3.46	7.15	36.54	90.79
		ADA	35190063									
		ADA	35190148									
Markham	31013	ADA	35190059	25042	25020	7601	383	19.85	4.07	7.77	41.82	108.81
		ADA	35190064									
		ADA	35190071									
Markham	31014	ADA	35190073	26239	26235	6623	256	25.87	5.03	5.10	126.32	138.22
		ADA	35190074									
		ADA	35190083									
		ADA	35190086									
Markham	31015	ADA	35190085	36178	36165	9851	428	23.02	4.56	4.56	93.31	125.52
		ADA	35190087									
		ADA	35190150									
		ADA	35190151									
Markham	31016	ADA	35190102	11831	11835	4377	265	16.52	3.35	4.63	37.32	69.30
		ADA	35190158									

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Markham	31017	ADA	35190106	12491	12480	4241	255	16.63	3.33	3.33	44.66	88.09
		ADA	35190152									
Markham	31018	ADA	35190159	20416	20225	8008	388	20.64	4.20	7.36	60.50	115.13
		ADA	35190160									
King	32001	ADA	35190010	10791	10685	3603	190	18.96	4.17	6.82	43.11	103.82
King	32002	ADA	35190024	13721	13675	4541	187	24.28	4.88	4.88	90.68	134.09
Vaughan	33001	ADA	35190051	13853	13635	3914	235	16.66	4.39	5.44	34.83	74.24
		ADA	35190077									
Vaughan	33002	ADA	35190088	30243	30140	8275	309	26.78	5.33	7.90	49.90	139.07
		ADA	35190090									
		ADA	35190171									
		ADA	35190172									
Vaughan	33003	ADA	35190089	19789	19660	5568	406	13.71	2.72	5.21	24.99	74.70
		ADA	35190095									
Vaughan	33004	ADA	35190100	22413	22160	6253	410	15.25	3.68	5.95	29.45	61.43
		ADA	35190174									
Vaughan	33005	ADA	35190101	24832	24780	8228	355	23.18	7.84	9.72	48.60	65.67
		ADA	35190104									
		ADA	35190109									
Vaughan	33006	ADA	35190103	24255	24240	6956	360	19.32	3.81	7.80	34.96	57.09
		ADA	35190108									
		ADA	35190111									
Vaughan	33007	ADA	35190107	19773	19665	7346	395	18.60	3.91	8.30	45.60	70.48
		ADA	35190115									
		ADA	35190119									
Vaughan	33008	ADA	35190112	28957	28955	7851	370	21.22	4.22	8.20	42.31	89.82
		ADA	35190114									
		ADA	35190118									
		ADA	35190120									
Vaughan	33009	ADA	35190117	24460	24030	8529	415	20.55	5.78	9.87	44.41	112.07
		ADA	35190122									
		ADA	35190124									
Vaughan	33010	ADA	35190121	15685	15670	4868	283	17.20	3.68	6.90	32.74	94.76
		ADA	35190130									
Vaughan	33011	ADA	35190123	21397	21270	6787	353	19.23	3.77	5.95	46.78	72.02
		ADA	35190126									
		ADA	35190127									
Vaughan	33012	ADA	35190125	13573	13445	4153	211	19.68	3.90	4.57	46.91	92.06
		ADA	35190129									
Vaughan	33013	ADA	35190128	15320	15310	4405	199	22.14	6.13	7.62	40.53	74.56
		ADA	35190173									
Vaughan	33014	ADA	35190131	14281	14105	4842	263	18.41	3.68	8.66	41.52	101.24
		ADA	35190132									
Vaughan	33015	ADA	35190133	17402	17070	6278	283	22.18	4.41	8.92	45.68	98.47
		ADA	35190134									
Peel												
Caledon	34001	ADA	35210009	15456	15430	4599	272	16.91	3.36	5.75	44.90	91.91
Caledon	34002	ADA	35210001	17020	17005	5379	302	17.81	3.63	5.82	41.09	99.27
		ADA	35210002									
Caledon	34003	ADA	35210003	11491	11405	3968	197	20.14	4.00	4.00	54.64	102.15
		ADA	35210007									
Caledon	34004	ADA	35210004	22535	22380	7310	405	18.05	6.16	7.58	39.62	55.24
		ADA	35210005									
		ADA	35210006									

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Brampton	35001	ADA	35210010	25862	25855	5837	376	15.52	3.07	5.13	27.17	63.42
Brampton	35002	ADA	35210024	12449	12345	3546	324	10.94	2.50	2.94	27.72	58.43
Brampton	35003	ADA	35210035	8689	8670	3249	229	14.19	2.82	2.82	50.07	77.52
Brampton	35004	ADA	35210051	12167	11915	4503	279	16.14	3.22	4.01	56.91	88.51
Brampton	35005	ADA	35210052	10896	10845	3924	212	18.51	3.72	4.01	57.38	98.38
Brampton	35006	ADA	35210054	51865	51730	13189	810	16.28	3.23	4.75	30.33	87.04
Brampton	35007	ADA	35210060	10474	10310	4928	326	15.12	3.41	5.96	36.61	82.55
Brampton	35008	ADA ADA	35210008 35210012	25261	25255	5765	231	24.96	5.22	5.67	55.57	112.05
Brampton	35009	ADA ADA ADA ADA	35210011 35210013 35210015 35210016	37296	37125	8626	334	25.83	5.10	5.57	65.59	126.25
Brampton	35010	ADA ADA ADA	35210014 35210018 35210020	22099	22085	4952	184	26.91	5.81	7.88	58.69	93.73
Brampton	35011	ADA ADA ADA	35210017 35210019 35210025	26425	26265	6097	264	23.09	4.43	4.64	43.34	117.38
Brampton	35012	ADA ADA ADA ADA	35210021 35210022 35210027 35210029	28309	28135	6863	302	22.73	4.85	7.51	50.29	120.87
Brampton	35013	ADA ADA	35210023 35210031	16868	16860	5393	300	17.98	4.38	6.37	41.08	99.57
Brampton	35014	ADA ADA	35210028 35210034	12771	12760	4134	229	18.05	3.57	3.57	52.30	98.20
Brampton	35015	ADA ADA	35210037 35210043	17979	17940	6219	328	18.96	3.79	5.58	47.67	103.87
Brampton	35016	ADA ADA ADA	35210038 35210040 35210046	26288	26080	8024	479	16.75	3.60	4.47	41.20	91.80
Brampton	35017	ADA ADA	35210039 35210042	14142	14140	4309	233	18.49	3.72	3.93	51.68	102.31
Brampton	35018	ADA ADA	35210041 35210048	13835	13660	5248	241	21.78	4.33	5.20	47.83	119.11
Brampton	35019	ADA ADA	35210044 35210050	16339	16345	4727	204	23.17	5.86	5.91	65.61	127.36
Brampton	35020	ADA ADA ADA	35210045 35210047 35210049	27311	27290	7767	349	22.26	4.55	4.62	54.18	120.47
Brampton	35021	ADA ADA	35210053 35210055	12824	12825	4220	204	20.69	4.08	4.10	64.14	93.52
Brampton	35022	ADA ADA	35210057 35210059	22021	22015	5632	204	27.61	5.58	6.58	61.21	132.70
Brampton	35023	ADA ADA	35210058 35210064	12259	12020	4248	183	23.21	4.47	5.08	58.53	122.43
Brampton	35024	ADA ADA ADA	35210062 35210065 35210066	35075	35050	9050	414	21.86	4.34	6.27	47.24	117.09
Brampton	35025	ADA ADA ADA	35210063 35210067 35210070	19923	19915	5608	214	26.21	5.19	5.32	93.37	140.82

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Brampton	35026	ADA	35210068	34323	34165	10939	532	20.56	4.08	4.11	72.99	112.23
		ADA	35210071									
		ADA	35210072									
		ADA	35210075									
Brampton	35027	ADA	35210069	16806	16545	4901	291	16.84	3.34	3.34	74.38	91.77
		ADA	35210074									
Brampton	35028	ADA	35210076	23082	22835	6113	195	31.35	7.26	7.67	112.94	170.24
		ADA	35210081									
		ADA	35210085									
Mississauga	36001	ADA	35210101	10836	10790	4603	253	18.19	3.65	6.74	39.81	82.18
Mississauga	36002	ADA	35210107	9583	9275	3405	244	13.95	2.77	4.07	35.74	61.36
Mississauga	36003	ADA	35210148	5945	5705	2548	234	10.89	2.12	2.17	33.11	58.41
Mississauga	36004	ADA	35210026	36691	36680	10955	413	26.53	5.25	5.26	100.29	144.37
		ADA	35210030									
		ADA	35210032									
		ADA	35210036									
Mississauga	36005	ADA	35210033	33839	33530	8857	380	23.31	5.69	10.80	44.29	107.16
		ADA	35210078									
		ADA	35210087									
		ADA	35210091									
Mississauga	36006	ADA	35210061	26026	25515	8708	452	19.27	5.35	8.91	38.67	64.80
		ADA	35210073									
		ADA	35210077									
		ADA	35210083									
Mississauga	36007	ADA	35210079	13652	13460	4939	251	19.68	3.95	6.85	48.49	78.69
		ADA	35210080									
Mississauga	36008	ADA	35210082	14524	14190	4954	247	20.06	3.95	7.83	40.95	108.61
		ADA	35210088									
Mississauga	36009	ADA	35210084	19341	19065	6107	313	19.51	3.91	5.12	43.60	66.00
		ADA	35210092									
		ADA	35210095									
Mississauga	36010	ADA	35210086	14486	14415	5738	333	17.23	3.58	5.71	45.53	95.05
		ADA	35210090									
Mississauga	36011	ADA	35210089	17424	17420	4999	215	23.25	4.64	4.64	76.78	126.28
		ADA	35210098									
		ADA	35210109									
Mississauga	36012	ADA	35210093	16095	15885	5698	294	19.38	5.97	9.37	40.70	105.86
		ADA	35210097									
Mississauga	36013	ADA	35210094	17777	17770	6521	374	17.44	3.95	8.29	33.74	63.49
		ADA	35210116									
Mississauga	36014	ADA	35210096	16200	16000	4158	190	21.88	4.71	6.32	46.64	63.27
		ADA	35210100									
Mississauga	36015	ADA	35210099	19342	19090	8227	389	21.15	4.23	7.33	46.97	99.21
		ADA	35210105									
Mississauga	36016	ADA	35210102	13854	13655	6617	324	20.42	4.21	7.79	42.76	110.90
		ADA	35210133									
Mississauga	36017	ADA	35210103	20455	20440	8060	372	21.67	4.43	6.63	48.08	119.07
		ADA	35210111									
		ADA	35210112									
Mississauga	36018	ADA	35210104	22180	22165	6391	365	17.51	3.50	4.21	43.23	96.33
		ADA	35210118									
		ADA	35210166									
Mississauga	36019	ADA	35210106	16892	16610	6534	309	21.15	5.60	8.79	46.75	102.08
		ADA	35210123									

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Mississauga	36020	ADA	35210108	22703	22550	6156	353	17.44	3.44	3.44	44.05	94.40
		ADA	35210110									
		ADA	35210114									
Mississauga	36021	ADA	35210113	23890	23865	9659	531	18.19	3.65	6.36	39.06	71.18
		ADA	35210115									
		ADA	35210120									
Mississauga	36022	ADA	35210117	15139	15135	5553	250	22.21	4.42	5.60	53.67	106.44
		ADA	35210124									
Mississauga	36023	ADA	35210119	13695	13560	3712	201	18.47	4.12	4.72	45.28	73.37
		ADA	35210125									
Mississauga	36024	ADA	35210121	22651	22635	6542	340	19.24	3.88	5.40	41.90	104.06
		ADA	35210131									
		ADA	35210137									
Mississauga	36025	ADA	35210122	13621	13170	4845	260	18.63	3.67	3.73	61.29	98.71
		ADA	35210128									
Mississauga	36026	ADA	35210126	16199	16140	5469	331	16.52	3.32	3.38	43.02	91.37
		ADA	35210134									
Mississauga	36027	ADA	35210127	18121	18110	6926	420	16.49	3.31	3.96	40.46	62.89
		ADA	35210129									
		ADA	35210136									
Mississauga	36028	ADA	35210130	28089	28070	9271	423	21.92	4.37	7.60	48.58	90.64
		ADA	35210132									
		ADA	35210135									
Mississauga	36029	ADA	35210138	19325	19140	5891	399	14.76	2.92	3.81	39.18	79.73
		ADA	35210144									
Mississauga	36030	ADA	35210139	25886	25875	7672	435	17.64	3.48	4.64	39.88	95.20
		ADA	35210140									
		ADA	35210145									
		ADA	35210146									
Mississauga	36031	ADA	35210141	11845	11655	4975	277	17.96	6.69	8.36	33.70	55.41
		ADA	35210151									
Mississauga	36032	ADA	35210142	13842	13825	4441	233	19.06	3.80	4.42	42.74	104.37
		ADA	35210165									
Mississauga	36033	ADA	35210143	20029	19470	6687	397	16.84	3.35	6.15	42.99	90.97
		ADA	35210156									
Mississauga	36034	ADA	35210149	12616	12485	4095	227	18.04	3.53	3.58	47.21	97.15
		ADA	35210158									
Mississauga	36035	ADA	35210150	42744	42740	11612	497	23.36	4.66	6.56	51.25	79.92
		ADA	35210153									
		ADA	35210154									
		ADA	35210159									
		ADA	35210167									
Mississauga	36036	ADA	35210152	13109	13015	4719	251	18.80	3.74	4.63	44.36	89.65
		ADA	35210155									
Mississauga	36037	ADA	35210157	15179	14840	5431	286	18.99	3.80	6.60	45.97	85.86
		ADA	35210161									
Mississauga	36038	ADA	35210160	14783	14695	4468	213	20.98	4.13	4.64	57.16	111.11
		ADA	35210162									
Mississauga	36039	ADA	35210163	12991	12835	4770	183	26.07	5.17	5.21	60.16	141.96
		ADA	35210164									
Halton												
Halton Hills	37001	ADA	35240001	10319	9675	3359	214	15.70	3.01	4.13	56.07	80.83
Halton Hills	37002	ADA	35240002	11047	10800	4152	207	20.06	4.01	4.90	58.85	110.36
Halton Hills	37003	ADA	35240005	15170	15160	4400	214	20.56	4.77	7.05	35.36	61.58

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Halton Hills	37004	ADA	35240006	10462	10420	3824	169	22.63	4.57	6.30	66.11	107.74
Halton Hills	37005	ADA ADA	35240003 35240004	14163	14140	5343	294	18.17	3.65	4.08	53.71	100.34
Milton	38001	ADA	35240007	8210	8155	2851	147	19.39	3.96	7.98	44.37	106.76
Milton	38002	ADA	35240008	23640	23485	6699	366	18.30	3.58	4.71	37.12	63.20
Milton	38003	ADA ADA	35240009 35240012	18959	18335	6835	328	20.84	4.80	9.01	39.82	79.27
Milton	38004	ADA ADA	35240013 35240019	18787	18560	5904	309	19.11	3.86	7.34	38.88	60.93
Milton	38005	ADA ADA	35240014 35240017	16838	16820	4685	271	17.29	3.42	3.47	43.16	75.25
Milton	38006	ADA ADA	35240020 35242000	23694	23570	7283	360	20.23	6.52	8.87	37.30	52.59
Oakville	39001	ADA	35240011	14876	14870	4561	281	16.23	4.37	5.99	31.01	46.12
Oakville	39002	ADA	35240028	9874	9535	4688	240	19.53	3.95	4.49	51.66	108.54
Oakville	39003	ADA	35240030	13546	13420	4971	242	20.54	6.54	8.00	54.06	83.28
Oakville	39004	ADA	35240037	12171	12035	3904	213	18.33	5.47	7.43	51.57	81.69
Oakville	39005	ADA ADA ADA	35240010 35240018 35240022	22382	22125	7178	333	21.56	4.31	7.81	54.06	118.47
Oakville	39006	ADA ADA	35240015 35240016	17397	17390	5376	259	20.76	4.18	5.77	54.34	114.94
Oakville	39007	ADA ADA ADA ADA	35240021 35240024 35240025 35240027	27682	27085	8977	482	18.62	3.71	7.74	40.31	100.57
Oakville	39008	ADA ADA	35240023 35240026	15819	15650	6138	299	20.53	4.11	5.50	52.25	104.73
Oakville	39009	ADA ADA ADA	35240029 35240034 35240036	20192	20085	6880	310	22.19	5.07	9.17	48.49	83.56
Oakville	39010	ADA ADA ADA	35240032 35240033 35240035	23240	23065	6760	312	21.67	4.32	9.78	42.91	63.04
Oakville	39011	ADA ADA	35240039 35240042	16653	16450	6836	375	18.23	6.21	8.45	39.19	95.06
Burlington	40001	ADA	35240031	9940	9810	3333	194	17.18	3.81	5.07	39.67	93.57
Burlington	40002	ADA ADA ADA	35240038 35240040 35240043	32661	32645	10454	526	19.87	3.98	7.79	40.67	109.33
Burlington	40003	ADA ADA ADA	35240041 35240049 35240053	22839	21970	9091	409	22.23	6.29	10.20	48.41	107.72
Burlington	40004	ADA ADA	35240044 35240046	18106	17515	7062	403	17.52	3.49	6.23	50.61	96.05
Burlington	40005	ADA ADA	35240045 35240048	16006	15980	5670	258	21.98	4.42	7.29	62.56	121.53
Burlington	40006	ADA ADA ADA	35240047 35240050 35240051	24477	23955	9558	445	21.48	6.92	12.53	42.42	101.17
Burlington	40007	ADA ADA	35240052 35240054	19237	18920	7329	395	18.55	5.74	7.80	40.32	76.19

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		ADA	35240056									
Burlington	40008	ADA	35240055	26080	25590	12774	606	21.08	7.60	10.54	42.95	116.09
		ADA	35240057									
		ADA	35240058									
Burlington	40009	ADA	35240059	13968	13740	6102	309	19.75	5.28	9.94	42.41	82.75
		ADA	35240060									
Hamilton												
Flamborough PD	41001	ADA	35250001	26926	26530	9231	368	25.08	7.61	9.19	66.62	137.54
		ADA	35250003									
		ADA	35250004									
Flamborough PD	41002	ADA	35250002	15730	15560	5764	248	23.24	4.73	12.06	51.66	101.70
		CT	5370142.01									
Dundas PD	42001	ADA	35250014	24285	23400	9917	324	30.61	9.49	13.34	74.73	139.63
		CT	5370130.02									
		CT	5370130.03									
		CT	5370131.00									
		CT	5370133.01									
Ancaster PD	43001	ADA	35250049	32755	32325	10984	330	33.28	8.37	13.05	75.22	145.27
		ADA	35250051									
		ADA	35250053									
		ADA	35250063									
Ancaster PD	43002	CT	5370120.02	7802	7615	2624	96	27.33	5.49	5.70	85.17	107.84
		CT	5370121.00									
		CT	5370124.00									
Glanbrook PD	44001	ADA	35250062	29861	29810	10561	323	32.70	6.54	6.81	82.40	136.53
		ADA	35250065									
		ADA	35250066									
		CT	5370101.02									
Stoney Creek PD	45001	ADA	35250018	18031	17860	6181	231	26.76	7.89	12.20	56.25	115.25
		ADA	35250020									
Stoney Creek PD	45002	ADA	35250034	19226	19070	7214	260	27.75	7.91	10.80	65.29	134.64
		ADA	35250039									
		CT	5370084.01									
		CT	5370084.04									
		CT	5370084.05									
Stoney Creek PD	45003	ADA	35250038	13487	13475	5697	168	33.91	7.02	10.41	76.52	164.66
		CT	5370082.00									
Stoney Creek PD	45004	ADA	35250059	18726	18295	5936	170	34.92	6.81	7.70	92.67	163.44
		ADA	35250064									
		CT	5370080.03									
Hamilton PD	46001	ADA	35250005	16747	16705	7119	206	34.56	7.19	12.84	76.77	167.30
		ADA	35250006									
		CT	5370070.00									
Hamilton PD	46002	ADA	35250008	16204	15110	8243	197	41.84	7.93	8.35	94.60	179.44
		ADA	35250012									
Hamilton PD	46003	ADA	35250011	20190	19555	9316	284	32.80	9.26	14.74	57.82	88.91
		ADA	35250022									
		CT	5370044.00									
		CT	5370045.00									
Hamilton PD	46004	ADA	35250013	30327	29530	13202	326	40.50	8.39	12.55	98.02	163.01
		ADA	35250015									
		ADA	35250016									
		ADA	35250017									
Hamilton PD	46005	ADA	35250019	23822	23685	10445	289	36.14	7.56	16.85	86.61	169.86
		ADA	35250023									
		ADA	35250032									

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Hamilton PD	46006	ADA	35250021	18451	18030	10812	350	30.89	7.22	12.80	71.68	121.47
		ADA	35250026									
Hamilton PD	46007	ADA	35250025	19265	19105	8345	225	37.09	8.68	15.71	91.75	166.32
		ADA	35250028									
		CT	5370072.01									
		CT	5370072.04									
Hamilton PD	46008	ADA	35250027	14904	14485	6356	174	36.53	7.21	7.79	97.64	198.03
		ADA	35250031									
Hamilton PD	46009	ADA	35250033	29206	28190	11016	397	27.75	5.46	11.53	58.15	149.34
		ADA	35250040									
		ADA	35250047									
Hamilton PD	46010	ADA	35250035	30283	30230	12760	340	37.53	13.49	16.04	88.52	193.47
		ADA	35250036									
		ADA	35250042									
		ADA	35250048									
Hamilton PD	46011	ADA	35250037	31575	31080	13330	382	34.90	13.86	17.77	64.33	109.04
		ADA	35250045									
		ADA	35250046									
		ADA	35250050									
Hamilton PD	46012	ADA	35250041	15943	15930	6231	171	36.44	7.49	7.49	81.69	154.00
		ADA	35250043									
		CT	5370026.03									
		CT	5370026.04									
Hamilton PD	46013	ADA	35250052	29333	28825	9572	265	36.12	14.82	17.42	71.32	123.20
		ADA	35250054									
		ADA	35250057									
Hamilton PD	46014	ADA	35250055	33838	33530	10740	302	35.56	7.12	10.12	66.61	145.52
		ADA	35250058									
		ADA	35250060									
		ADA	35250061									
		CT	5370001.01									
		CT	5370001.07									
Niagara												
Grimsby	51001	ADA	35260011	9700	9650	3581	190	18.85	3.89	3.91	55.99	98.54
Grimsby	51002	ADA	35260020	17614	17165	6795	321	21.17	9.44	10.37	42.35	71.51
		ADA	35260021									
Lincoln	52001	ADA	35260016	10506	9995	3957	227	17.43	3.43	5.98	42.39	83.46
Lincoln	52002	ADA	35260019	13281	12960	4753	211	22.53	4.49	5.54	57.77	115.38
Pelham	53001	ADA	35260036	17110	16670	6469	335	19.31	7.19	10.97	42.78	88.08
		ADA	35260037									
Niagara-on-the-Lake	54001	ADA	35260001	17511	16880	7089	369	19.21	4.60	12.19	48.18	103.17
St. Catharines	55001	ADA	35260005	13422	12585	5465	261	20.94	7.15	8.91	50.12	79.59
St. Catharines	55002	ADA	35260006	13081	12890	4811	185	26.01	5.21	5.21	76.13	143.33
St. Catharines	55003	ADA	35260013	10816	10760	5062	209	24.22	5.08	5.08	59.27	133.47
St. Catharines	55004	ADA	35260017	10155	9815	3806	269	14.15	2.78	3.38	41.74	76.01
St. Catharines	55005	ADA	35260018	14601	14455	5964	266	22.42	5.99	8.96	56.29	117.68
St. Catharines	55006	ADA	35260051	10127	9735	4009	281	14.27	2.80	5.04	33.11	59.13
St. Catharines	55007	ADA	35260053	12676	12145	6526	301	21.68	4.40	5.65	59.31	117.58
St. Catharines	55008	ADA	35260054	8264	8080	3567	216	16.51	5.51	7.71	39.48	92.73
St. Catharines	55009	ADA	35260003	21475	21450	9508	414	22.97	10.49	11.45	45.11	126.59
		ADA	35260052									

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St. Catharines	55010	ADA ADA	35260004 35260010	18496	17920	8155	381	21.40	6.47	11.57	41.95	87.68
Thorold	56001	ADA	35260023	4786	4685	1832	94	19.49	3.88	3.88	62.30	102.41
Thorold	56002	ADA	35260027	14015	13865	5634	311	18.12	6.20	8.94	35.66	67.73
Niagara Falls	57001	ADA	35260012	8777	8515	2830	138	20.51	4.00	4.14	57.16	91.77
Niagara Falls	57002	ADA	35260022	13696	13535	5754	278	20.70	5.15	8.17	53.69	114.13
Niagara Falls	57003	ADA	35260024	5803	5805	2531	145	17.46	3.62	5.78	45.58	98.42
Niagara Falls	57004	ADA	35260028	9369	9355	3511	222	15.82	3.19	3.57	44.07	64.76
Niagara Falls	57005	ADA	35260031	8815	8145	3059	127	24.09	4.72	4.83	72.20	129.78
Niagara Falls	57006	ADA	35260035	9392	9110	3596	176	20.43	4.08	5.63	71.22	112.07
Niagara Falls	57007	ADA	35260055	9257	9020	4344	162	26.81	5.39	5.39	79.61	148.27
Niagara Falls	57008	ADA ADA	35260030 35260033	22962	22485	10148	496	20.46	8.76	9.95	52.47	109.45
Welland	58001	ADA	35260040	13636	13605	5266	276	19.08	6.35	8.81	42.88	89.40
Welland	58002	ADA	35260042	12387	12190	5263	302	17.43	3.50	4.47	35.85	94.73
Welland	58003	ADA	35260056	8272	8240	3470	188	18.46	3.67	3.90	65.90	101.03
Welland	58004	ADA ADA	35260044 35260057	17998	17455	8491	335	25.35	8.87	9.25	64.91	112.69
Port Colborne	59001	ADA	35260048	6795	6790	2960	136	21.76	4.43	7.14	63.22	120.24
Port Colborne	59002	ADA	35260058	11511	11075	5058	285	17.75	3.55	8.46	41.00	97.67
Fort Erie	60001	ADA	35260043	10168	10135	4552	192	23.71	4.84	8.53	61.95	133.15
Fort Erie	60002	ADA	35260047	12885	12500	5364	251	21.37	4.56	10.05	48.91	116.71
Fort Erie	60003	ADA	35260059	7657	7645	3268	197	16.59	3.45	5.34	50.34	94.92
West Lincoln	61001	ADA	35260034	14500	14470	4967	240	20.70	7.76	8.41	49.58	83.76
Wainfleet	62001	ADA	35260046	6372	6350	2413	110	21.94	4.67	6.58	54.91	118.56
Waterloo												
Waterloo	63001	ADA	35300013	14521	14090	6141	369	16.64	4.00	7.57	31.21	90.21
Waterloo	63002	ADA	35300014	11339	11320	5405	362	14.93	5.71	8.13	30.76	82.42
Waterloo	63003	ADA	35300019	19040	18605	5783	247	23.41	4.62	6.45	49.13	69.32
Waterloo	63004	ADA	35300027	22758	22370	8954	528	16.96	3.38	8.90	31.64	89.82
Waterloo	63005	ADA ADA	35300004 35300007	25851	25540	9571	431	22.21	6.45	10.40	42.16	84.86
Waterloo	63006	ADA ADA	35300008 35300011	11477	11465	4527	216	20.96	4.20	7.72	48.06	88.70
Kitchener	64001	ADA	35300005	6120	6090	2286	146	15.66	3.13	3.13	45.04	81.66
Kitchener	64002	ADA	35300016	7873	7825	3842	154	24.95	5.34	8.43	58.46	101.18
Kitchener	64003	ADA	35300044	11506	11400	4792	233	20.57	4.09	7.59	55.74	112.35
Kitchener	64004	ADA ADA	35300010 35300017	12349	12280	5446	265	20.55	5.97	8.03	45.17	113.51
Kitchener	64005	ADA ADA ADA	35300018 35300023 35300031	18558	18535	6564	331	19.83	4.68	6.47	41.13	98.61
Kitchener	64006	ADA ADA	35300021 35300029	15353	14935	6216	228	27.26	6.72	9.51	60.75	146.20
Kitchener	64007	ADA	35300022	13577	13245	6942	359	19.34	3.86	5.73	36.30	98.39

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		ADA	35300028									
Kitchener	64008	ADA ADA	35300026 35300034	15136	15060	6678	279	23.94	4.92	6.78	64.71	131.58
Kitchener	64009	ADA ADA ADA	35300030 35300033 35300036	18683	18285	9110	426	21.38	4.26	7.97	44.68	71.80
Kitchener	64010	ADA ADA	35300037 35300043	21204	20695	8772	384	22.84	6.41	8.22	55.94	115.01
Kitchener	64011	ADA ADA ADA ADA	35300039 35300045 35300048 35300052	26465	25865	8803	422	20.86	4.17	9.33	41.00	111.28
Kitchener	64012	ADA ADA	35300040 35300057	31735	31660	10907	550	19.83	4.64	6.84	38.82	84.73
Kitchener	64013	ADA ADA	35300046 35300053	15374	15100	5881	306	19.22	8.22	9.54	39.10	104.99
Kitchener	64014	ADA ADA	35300050 35300055	19289	19025	5978	235	25.44	5.15	12.17	45.02	86.77
Cambridge	65001	ADA	35300009	8423	8335	2826	174	16.24	3.23	4.33	46.95	86.31
Cambridge	65002	ADA	35300056	9792	9600	4375	181	24.17	4.81	4.81	64.59	132.41
Cambridge	65003	ADA ADA	35300015 35300025	17968	17725	6203	310	20.01	5.82	8.87	43.15	85.62
Cambridge	65004	ADA ADA	35300032 35300049	18010	17875	5602	260	21.55	4.24	5.82	47.98	76.99
Cambridge	65005	ADA ADA	35300041 35300047	20008	19430	8324	381	21.85	10.23	11.36	41.10	70.24
Cambridge	65006	ADA ADA	35300051 35300054	15773	15440	5979	237	25.23	4.98	6.17	71.73	136.73
Cambridge	65007	ADA ADA	35300058 35300063	18539	18260	7114	382	18.62	7.26	8.68	38.83	78.16
Cambridge	65008	ADA ADA ADA	35300060 35300061 35300062	21407	21165	7816	310	25.21	6.10	7.63	67.84	116.45
North Dumfries	66001	ADA	35300042	10215	10125	3531	178	19.84	4.03	6.29	53.64	110.78
Wilmot	67001	ADA	35302001	6140	6105	2186	107	20.43	4.18	4.18	72.81	114.89
Wilmot	67002	ADA ADA	35300024 35300059	14405	14190	5330	223	23.90	4.81	5.07	65.02	132.26
Wellesley	68001	ADA	35300002	11260	11260	3337	172	19.40	3.86	7.75	34.52	41.11
Woolwich	69001	ADA	35300001	8384	8270	2655	141	18.83	3.71	5.92	44.32	102.14
Woolwich	69002	ADA ADA	35300003 35302000	16622	16170	5956	263	22.65	6.89	10.81	46.51	86.32
Guelph												
Guelph	70001	ADA	35230030	9184	9090	4763	221	21.55	4.31	5.30	53.64	118.55
Guelph	70002	ADA	35230035	7480	7220	3182	172	18.50	3.69	4.60	48.18	100.25
Guelph	70003	ADA	35230037	16787	16525	5959	419	14.22	3.70	4.25	32.77	66.92
Guelph	70004	ADA ADA ADA	35230024 35230025 35230036	20998	20745	7492	371	20.19	7.98	9.72	40.46	79.09
Guelph	70005	ADA ADA	35230026 35230027	16818	16570	7818	323	24.20	4.84	5.16	69.45	133.21
Guelph	70006	ADA	35230028	20024	19970	6852	306	22.39	4.89	9.34	46.12	99.25

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		ADA	35230029									
Guelph	70007	ADA ADA	35230031 35230032	19333	18825	7990	362	22.07	7.29	9.45	43.62	81.10
Guelph	70008	ADA ADA	35230033 35230034	21170	21150	8034	309	26.00	7.96	11.35	47.96	85.48
Wellington												
Puslinch	71001	ADA	35230013	7336	7290	2705	134	20.19	4.37	7.29	52.90	112.81
Guelph/Eramosa	72001	ADA	35230008	12854	12650	4485	246	18.23	3.71	3.71	45.84	101.29
Centre Wellington	73001	ADA ADA	35230004 35230007	12231	12075	4742	254	18.67	8.67	9.63	37.31	59.98
Centre Wellington	73002	ADA ADA	35230006 35230009	15960	15565	6081	366	16.61	4.49	7.57	34.05	91.56
Erin	79001	ADA	35230003	11439	11405	4108	211	19.47	3.94	6.99	50.25	82.11
Orangeville												
Orangeville	80001	ADA ADA	35220005 35220006	13466	13160	4896	266	18.41	5.65	6.85	45.48	86.23
Orangeville	80002	ADA ADA	35220007 35220008	15434	15195	5669	288	19.68	5.64	9.78	40.90	85.26
Dufferin												
Mulmur	140001	CSD	3522016	3478	3460	1315	94	13.99	2.95	4.92	33.23	57.69
Shelburne	141001	ADA	35220003	8126	7875	2787	110	25.34	7.49	8.64	63.59	106.42
Amaranth	142001	CSD	3522008	4079	4075	1335	76	17.57	3.39	3.51	57.73	82.28
Melancthon	143001	CSD	3522019	3008	3005	1037	38	27.29	6.07	6.07	75.73	137.72
Mono	144001	ADA	35220002	8609	8550	2919	164	17.80	3.49	6.72	55.90	81.17
Grand Valley	145001	CSD	3522010	2956	2950	1106	32	34.56	8.25	8.25	107.96	156.23
East Garafraxa	146001	CSD	3522001	2579	2570	854	122	7.00	1.42	2.24	15.89	28.59
Barrie												
Barrie	81001	ADA	35430028	14421	14170	5592	328	17.05	4.19	5.26	41.15	92.08
Barrie	81002	ADA	35430030	9895	9610	3842	219	17.54	3.61	6.54	45.30	89.06
Barrie	81003	ADA	35430031	6576	6390	3179	220	14.45	2.86	2.96	46.48	78.78
Barrie	81004	ADA	35430041	11442	11405	4145	218	19.01	3.74	5.09	54.04	73.84
Barrie	81005	ADA ADA	35430027 35430029	14291	14195	5270	297	17.74	3.54	3.55	53.73	97.31
Barrie	81006	ADA ADA	35430033 35430037	13916	13315	6646	391	17.00	3.72	4.93	41.32	75.85
Barrie	81007	ADA ADA	35430034 35430035	16094	15740	5799	303	19.14	3.74	4.44	64.15	102.97
Barrie	81008	ADA ADA	35430036 35430039	13910	13595	4880	281	17.37	3.52	5.36	43.11	81.36
Barrie	81009	ADA ADA ADA	35430038 35430040 35430042	20005	20000	6278	322	19.50	3.90	3.90	39.30	78.87
Barrie	81010	ADA ADA ADA	35430044 35430046 35432001	20884	20630	6845	377	18.16	3.67	5.52	41.30	98.26
Simcoe												
Innisfil	82001	ADA	35430047	11718	11705	4291	226	18.99	3.93	4.22	45.48	67.51

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Innisfil	82002	ADA ADA	35430032 35430045	24848	24730	9073	428	21.20	4.26	9.88	48.86	116.46
Bradford West Gwillimbury	83001	ADA	35430050	7426	7415	2430	113	21.50	4.36	5.91	56.78	69.60
Bradford West Gwillimbury	83002	ADA ADA ADA	35430053 35430054 35430056	27899	27540	9161	424	21.61	4.31	5.52	51.98	116.27
New Tecumseth	84001	ADA ADA ADA	35430051 35430057 35430060	14975	14795	5409	260	20.80	4.15	7.11	49.22	106.53
New Tecumseth	84002	ADA ADA ADA	35430061 35430062 35432000	19267	18940	7497	370	20.26	5.59	7.06	55.65	110.51
Adjala-Tosorontio/Essa	85001	ADA	35430049	10975	10880	3834	185	20.72	5.44	6.07	57.61	112.95
Essa	86001	ADA	35430043	10688	9735	3413	199	17.15	3.28	3.37	57.71	87.40
Essa	86002	ADA	35430048	10395	10385	3766	183	20.58	4.10	4.10	55.55	112.72
Clearview	87001	ADA	35430026	14151	13900	5335	263	20.29	7.75	10.37	43.53	67.05
Springwater	88001	ADA ADA ADA	35430017 35430021 35430022	19059	18940	6694	275	24.34	4.92	5.67	74.48	135.25
Collingwood	127001	ADA ADA	35430018 35430025	21793	21140	9556	484	19.74	5.18	9.07	44.20	108.56
Wasaga Beach	128001	ADA ADA	35430020 35430023	20675	20400	9005	531	16.96	7.63	8.74	38.34	93.48
Tiny, Christian Island	129001	ADA ADA ADA	35430002 35430004 35430009	12443	12200	5130	248	20.69	4.15	8.40	67.67	114.01
Penetanguishene	130001	ADA	35430005	8962	8370	3679	209	17.60	3.53	4.34	47.57	97.04
Midland	131001	ADA ADA	35430058 35430059	16864	16350	7374	358	20.60	7.79	9.36	59.41	112.26
Tay	132001	ADA	35430006	10033	9940	4127	207	19.94	4.00	4.00	60.51	110.05
Oro-Medonte	133001	ADA ADA ADA	35430011 35430016 35430019	21036	21005	7989	381	20.97	7.29	8.28	47.88	115.89
Severn	134001	ADA	35430001	13477	13385	5436	250	21.74	4.53	9.73	55.71	110.01
Ramara	135001	ADA ADA	35430003 35430007	10366	10325	4384	225	19.48	3.93	5.07	54.08	104.84
Orillia												
Orillia	136001	ADA	35430012	6924	6590	3170	172	18.43	3.60	4.48	46.43	98.94
Orillia	136002	ADA	35430013	6327	6050	2797	171	16.36	3.32	4.81	46.59	91.23
Orillia	136003	ADA	35430014	9177	8820	3637	193	18.84	5.33	6.31	47.47	74.93
Orillia	136004	ADA	35430015	8738	8505	3873	129	30.02	6.10	8.34	70.49	150.52
Kawartha Lakes												
Kawartha Lakes	89001	ADA	35160002	12674	12240	5706	295	19.34	6.42	9.27	41.64	107.31
Kawartha Lakes	89002	ADA	35160004	11574	10995	4807	291	16.52	3.31	4.66	38.70	89.88
Kawartha Lakes	89003	ADA	35160005	9067	8920	3513	185	18.99	4.31	4.41	45.93	105.20
Kawartha Lakes	89004	ADA	35160008	8084	7510	3591	178	20.17	3.90	5.57	58.75	107.36
Kawartha Lakes	89005	ADA ADA	35160001 35160003	16126	16065	6607	299	22.10	9.88	10.89	56.51	119.99

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Kawartha Lakes	89006	ADA ADA	35160006 35160007	17898	17655	6882	305	22.56	8.65	12.04	44.86	112.84
Peterborough City												
Peterborough City	103001	ADA	35150010	9519	9490	4181	211	19.82	4.03	5.11	60.79	110.92
Peterborough City	103002	ADA ADA	35150008 35150011	14011	13475	5993	315	19.03	3.75	7.24	46.82	93.65
Peterborough City	103003	ADA ADA	35150012 35150015	14345	14295	6088	257	23.69	4.81	4.81	66.33	131.16
Peterborough City	103004	ADA ADA	35150013 35150014	15322	14430	7261	283	25.66	5.02	8.38	62.23	137.28
Peterborough City	103005	ADA CT DA	35150016 5290009.02 35150327	13167	12600	5079	253	20.08	7.59	8.52	41.84	105.93
Peterborough City	103006	ADA ADA	35150017 35150019	14668	14245	6108	261	23.40	5.70	6.28	58.90	104.41
Peterborough												
Cavan Monaghan	104001	ADA	35150018	8829	8620	3187	187	17.04	3.39	5.49	51.30	93.12
Otonabee-South Monaghan	106001	ADA ADA	35150007 35150020	7032	6975	2745	166	16.54	3.35	4.87	43.60	70.36
Asphodel-Norwood	108001	CSD	3515003	4109	3980	1632	71	22.99	4.86	4.86	80.36	100.24
Douro-Dummer	109001	ADA	35150003	6709	6690	2577	147	17.53	4.34	6.12	40.70	69.81
Selwyn	111001	ADA ADA	35150004 35150005	8847	8805	3518	175	20.10	6.16	7.72	52.62	97.67
Selwyn	111002	ADA DA DA DA DA	35150006 35150247 35150249 35150330 35150331	9272	9155	3796	187	20.30	4.20	4.29	74.69	112.00
Brantford												
Brantford	147001	ADA	35290006	7643	7520	2847	158	18.02	3.83	4.83	56.45	99.66
Brantford	147002	ADA	35290017	8339	8175	3811	163	23.38	4.63	4.63	89.49	127.35
Brantford	147003	ADA ADA	35290004 35290008	15014	14850	5588	293	19.07	4.84	8.76	46.94	105.70
Brantford	147004	ADA ADA	35290007 35290009	17295	17025	6785	409	16.59	4.45	7.86	39.03	72.63
Brantford	147005	ADA ADA	35290010 35290011	15641	15425	7122	304	23.43	4.70	5.78	65.98	129.12
Brantford	147006	ADA ADA	35290012 35290016	16216	15805	7043	303	23.24	4.79	4.79	73.29	128.51
Brantford	147007	ADA ADA	35290014 35290018	17348	16980	6019	281	21.42	5.19	8.18	48.78	84.26
Brant												
Brant	124001	ADA	35290001	8148	8135	2904	194	14.97	5.95	7.32	36.83	54.27
Brant	124002	ADA	35290013	7504	7305	2689	118	22.79	7.96	7.96	47.67	85.99
Brant	124003	ADA ADA ADA	35290002 35290015 35290019	9777	9030	3353	229	14.64	3.58	6.89	33.46	59.94
Brant	124004	ADA ADA	35290003 35290005	11883	11390	4561	253	18.03	4.76	7.65	37.81	76.34