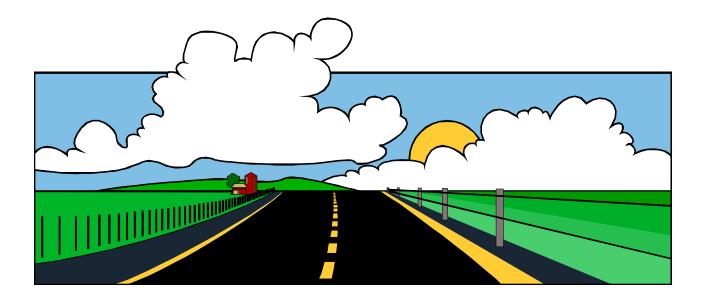


Canadian Vehicle Survey

Annual, 2000



Transport Canada

Canadian Council of Motor Transport Administrators





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Canadian Vehicle Survey

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- r revised figures.
- x confidential to meet secrecy requirements of the Statistics Act.

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HIGHLIGHTS

- On average, almost 17.3 million vehicles were in-scope for the Canadian Vehicle Survey during the year.
- Between January 1 and December 31, 2000, these vehicles travelled an estimated 310.5 billion kilometres.
- Vehicles with gross weight less than 4 500 kilograms were driven an average of 17 thousand kilometres while the largest of the trucks (trucks with gross weight 15 000 kilograms or more) were driven an average of 81 thousand kilometres.

1. INTRODUCTION

Canadian transport activity statistics were inadequate due to the lack of any routine measurement of road vehicle activity. While road vehicles dominate passenger travel and freight traffic, no measures of total vehicle-kilometres or passenger-kilometres were available.

The Canadian Vehicle Survey (CVS) was developed at the request of Transport Canada to fill this data gap. The survey provides annual and quarterly estimates of the amount of road travel, broken down by types of vehicles and characteristics, such as age and sex of driver, time of day and season. The results will be the prime source of road vehicle use information for researchers and interested members of the public.

Transport Canada plans to combine survey data with other data to use to improve road safety, monitor fuel consumption and deal with the impact of vehicle usage on the environment.

This document describes concepts, employed methods and discusses data quality. The reference period for all the information presented in this document is the year 2000.

2. SURVEY OVERVIEW

The CVS is a voluntary vehicle-based survey that provides annual and quarterly estimates of road vehicle activity (vehicle-kilometres and passenger-kilometres) of vehicles registered in Canada. Quarterly samples of vehicles are drawn from vehicle registration lists provided by the provincial and territorial governments.

The provincial component of the survey consists of two stages. The first stage is a computer assisted telephone interview (CATI) with the registered owners of the sampled vehicles. This interview is used to collect some general information on the usage of the vehicle as well as to ask the respondent to complete a seven-day trip log. The trip log is then mailed out. If respondents cannot be contacted by phone, the trip log is mailed out with a short questionnaire to collect some of the information normally collected during the CATI.

The territorial component of the survey consists of two postcards. One is mailed to the respondents at the beginning of the quarter and the other is mailed at the end of the quarter. The first postcard asks respondents to record the odometer reading at the beginning of the first day of the quarter. All those returning the first postcards are mailed second postcards asking them to record the odometer reading at the beginning of the first day of the next quarter. These two odometer readings allow the calculation of the distance the vehicle was driven during the quarter.

Survey collection began on February 1, 1999. Only eight provincial / territorial vehicle registration lists were received in time to be included in the sample at that time, but over the remainder of 1999, the other lists were received. Starting October 1, 1999, vehicles from all provinces and territories were included in the survey.

The CVS provides annual and quarterly estimates of road activity for vehicles registered in Canada. The estimates are provided by type of vehicle and other variables, such as driver and vehicle characteristics, time of day and season.

Users who require additional information from Statistics Canada can obtain it from the Transportation Division upon request by phoning 613-951-2486, e-mailing laroque@statcan.ca, or faxing: 613-951-0579.

3. CONCEPTS AND DEFINITIONS

3.1 THE POPULATION OF INTEREST

The *in-scope vehicles* for the CVS include all motor vehicles except motorcycles, off road vehicles (e.g., snowmobiles, dune buggies, amphibious vehicles) and special equipment (e.g., cranes, street cleaners, snowplows and backhoes) registered in Canada anytime during the survey reference period that have not been scrapped or salvaged.

The *population of interest* consists of vehicle-days composed from the in-scope vehicles and the days within the survey reference period.

3.2 DEFINITIONS OF VARIABLES IN TABLES

Vehicle-kilometres is the distance traveled by vehicles on roads.

<u>Passenger-kilometres</u> is the sum of the distances traveled by individual passengers. Trucks with gross vehicle weight of 4.5 tonnes or more (see the *Vehicle type* definition below) and urban buses were not required to report passengers. Therefore, these passengers are not included in the estimates of passenger-kilometres. Also the number of passengers is calculated as the average of the number of passengers at the beginning of each trip and the number of passengers at the end of each trip (see the *Trip* definition below) plus the driver.

<u>Fuel purchased</u> is the amount of fuel purchased to operate vehicles. This includes purchases for the off-road operation of the vehicle. However, these purchases are considered negligible.

<u>The number of vehicles on the registration lists</u> is the average number of the registered vehicles in the registration lists at the beginning and at the end of the reference period.

<u>The number of vehicles in scope</u> is an estimate of the average number of vehicles registered during the reference period based on the lists from jurisdictions and the survey responses. This number slightly differs from the previous one because we incorporate into it all our findings from the survey. Note that this number includes vehicles used and not used on the roads during the reference period.

3.3 DEFINITIONS OF VEHICLE CHARACTERISTICS

<u>Vehicle type</u> is the classification created for CVS based on the information available on the vehicle registration lists. There are four vehicle types. <u>Buses</u> are identified first. The remaining vehicles are then divided into three weight types: <u>light vehicles</u> with gross vehicle weights below 4.5 tonnes, <u>trucks</u> with gross vehicle weights of <u>4.5 tonnes or more and less than 15 tonnes</u>, and <u>trucks</u> with gross vehicle weights of <u>15 tonnes or more</u>.

The respondent determines <u>vehicle body type</u>. The respondent is asked to choose among: car, station wagon, van, sport utility vehicle, pick-up, straight truck, truck-tractor, bus and other. Missing or unusual responses are verified against registration lists, if possible.

<u>Fuel type</u> is derived based on the information available on the registration lists. All vehicles are divided into three classes: vehicles powered by gasoline, vehicles powered by diesel fuel and vehicles powered by other energy source.

<u>Vehicle model year</u> is derived based on the information available on the registration lists.

3.4 DEFINITIONS OF VEHICLE USAGE CHARACTERISTICS

The CVS definition of a <u>Trip</u> determines the trip characteristics. The definition of what delimits a trip depends on the <u>vehicle type</u>:

For *buses*, if any of the following events happened:

- a stop of more than 30 minutes
- a change of driver
- a change in the type of bus service
- all the passengers have been dropped off and another passenger trip begins (does not apply to scheduled urban buses)

For *light vehicle*, if any of the following events happened:

- a stop of more than 30 minutes
- a change of driver
- a change in the main trip purpose

For *yehicles (trucks) weighing 4.5 tonnes or more* if any of the following events happened:

- a stop of more than 30 minutes
- a change of driver
- a change of purpose or use
- a change in the truck configuration
- a change in the status of the load from loaded to unloaded or the reverse

For each trip the respondent provides the following information:

- Beginning and end times and dates of the trip that are used to determine the <u>time of day</u> and <u>day of week</u> the trip takes place.
- Driver age group and driver sex.
- *The <u>trip purpose</u> determined by the respondent. If there were several purposes for the trip, the respondent is asked to indicate the main purpose of the trip. Multiple trip purposes are not allowed. The choice of purpose is specific to the vehicle type.
- If <u>dangerous goods</u> are carried (as defined by the Transportation of Dangerous Goods Act). Does not apply to buses.
- <u>Number of kilometres traveled on roads with posted speed limit of 80 km/h or more</u> (does not apply to trucks).
- <u>Age group (0 4, 5 14 and 15 years and over) of passengers and the number of passengers within each group</u> to calculate passenger-km (Applies to light vehicles and buses only with an exception of urban buses. Only light vehicles collect passenger age information. See 3.2).
- Truck configuration for vehicles (trucks) weighing 4.5 tonnes or more.
- Cost (for light vehicles and buses) or quantity (for trucks and buses) of *Fuel purchased*.

4. METHODS

CVS has been designed as a quarterly survey. The survey design also allows the calculation of annual estimates based on the data collected during the four quarters.

4.1 SURVEY DESIGN

4.1.1 Survey Population

The survey population was derived from the 13 jurisdiction vehicle registration lists (ten Provincial and three Territorial Governments) created three months before each quarter. The sample for each quarter of 2000 was drawn from lists of motor vehicles with valid registrations in any province or territory available three months before the beginning of each quarter. Motorcycles, off road vehicles (e.g., snowmobiles, dune buggies, amphibious vehicles) and special equipment (e.g., cranes, street cleaners, snowplows and backhoes) are excluded from the survey. This population differs from the population of interest; e.g., vehicles that were registered less than three month before the quarter begins (or during the quarter) are not included in this quarter's sample.

The incoming lists underwent thorough preparation procedure:

- First, out-of-scope vehicles are removed (trailers, motorcycles, construction equipment, parade vehicles, etc.).
- Second, vehicles with expired registration are removed.
- Then, records with duplicate Vehicle Identification Numbers (VIN) within each list are removed leaving the one updated most recently.
- Next, records with duplicate Vehicle Identification Numbers (VIN) among all lists are removed leaving the one with the most recent update.
- Last, records with irregular data are verified.

These sets of prepared vehicle lists for each quarter of 2000 and the set of days within the each quarter of 2000 constitute the survey population.

4.1.2 Sample design

All vehicles from the survey population were stratified (grouped) into 104 strata. First, the vehicles were stratified into four vehicle types (buses, light vehicles, and two groups of trucks, see 3.3) and 13 jurisdictions (ten provinces and three territories). Then, for efficiency of estimates, they were further divided into two vehicle-age strata of newer and older vehicles.

Next, a sample of vehicles (first stage sample) was selected from the survey population. A sample from each stratum was selected. To minimize respondent burden, no vehicle is selected more than once during any consecutive four quarters for provinces (two consecutive quarters for territories) and the three characters of the postal code were used to spread the sample over all regions.

Subsequently, seven consecutive days starting within the quarter were randomly assigned (second stage) to each vehicle selected at the first stage. Within each stratum, the first reporting day was evenly spread over the quarter to ensure a uniform number of responses over time and for each day of the week. This step was not applied to the vehicles registered in the three territories since only odometer readings are collected (see 2.).

Since the sample was selected in two stages, the sampling weight (see 6. for definition) was also calculated in two steps. The first-stage sampling weight was calculated for each vehicle in the first-stage sample. Then the second-stage sampling weight was calculated for each vehicle-day selected from all days within the reference period. Finally, these two weights were multiplied together to obtain the final weight for a vehicle-day. The weighted values

are obtained by multiplying the final weights and the collected values. They were aggregated to produce the estimates.

4.1.3 Sample size

A total of 21 662 vehicles out of 17,742,186 from the survey population were drawn for the ten provinces. Another 9 742 vehicles out of 47,278 were included in the sample for the three territories.

4.2 DATA COLLECTION AND PROCESSING

4.2.1 Data Collection

The data collection for the vehicles sampled in the ten provinces is different from the one for the vehicles sampled in the territories.

Provincial collection

The registered owners of the sampled vehicles were telephoned and interviewed (Computer Assisted Telephone Interview, or CATI). During the CATI interview the following information is collected about each sampled vehicle: vehicle type, fuel type used, distance driven last week, some information about anticipated vehicle usage during the following six weeks, current odometer reading, and passenger capacity for buses. Then the respondent was asked to complete a seven-day trip log. If the respondent agreed to complete a trip log, personal information such as name and address were obtained in order to mail out a trip log for the vehicle.

The log type depended on the type of vehicle. There were three types of logs: a bus log, a light vehicle log and a log for the two remaining vehicle types (trucks). In all cases, the respondents were requested to record information about all the trips made in the selected vehicle over the assigned seven-day period. The collected data included information about each trip: time and date of the beginning and the end, length, purpose, number and age group of passengers, sex and age group of the driver, fuel purchases, if dangerous goods were carried, number of kilometres traveled on roads with posted speed limit of 80 km/h or more, and for trucks, their configuration.

If the respondent could not be contacted by phone, a trip log with a short additional questionnaire (to collect some of the information normally collected during the CATI) was mailed out.

To increase the number of responses, respondents were contacted a second time, either by phone or by mail. On the first or second day of the log, an attempt was made to phone each vehicle owner, who agreed during the CATI to fill out the log, to answer any questions the respondent might have. Later, an attempt was made to contact by phone or mail everyone who did not return logs. Some of the large fleets of vehicles with several vehicles in the sample had special arrangements to lower their response burden.

Territorial collection

The registered owners of the selected vehicles were mailed postcards and asked to provide two odometer readings, one at the beginning of the quarter and another at the beginning of the next quarter and information about the vehicle status (owned, sold, scrapped).

4.2.2 Edit and Imputation

Once all necessary information for the survey was collected, a series of verifications took place to ensure that the records were consistent and that collection and capture of the data did not introduce errors. Reported data were examined for completeness and consistency using automated edits coupled with manual review. Outliers, i.e., respondents reporting extremely large values, were processed manually.

Missing values and data found in error were imputed by another automated system. The system imputed the data using different imputation rules depending on the vehicle, available information and the type of data to be imputed. For example, the data can be imputed based on other responses for the same vehicle or by using data from a similar vehicle. The imputed data were then again examined for completeness and consistency. At the end of this process, every vehicle had seven days of trips.

A complete description of the procedures applied to the survey data is available upon request from the Transportation Division of Statistics Canada.

4.2.3 Estimation

Since the survey population differs from the population of interest to assure that the estimates correspond (as closely as possible) to the population of interest several corrections were done. The sampling weights derived from the sample design were adjusted and improved using updated registration lists. This was possible because, during the passage of time since the sample was selected, a set of prepared vehicle lists was obtained for the beginning and for the end of the reference quarter. To improve the estimates for the vehicles registered in the ten provinces: all the days were further stratified into working days and holidays (or non-working days, including weekends). Second stage sampling weights were adjusted so that every day of vehicle activity within the same stratum contributed with equal weight to the total estimate. The final set of weights reflected as closely as possible the characteristics of the vehicle population during the reference period.

The following estimates of totals are available:

- vehicle counts by province and territory;
- vehicle-kilometres by province and territory;
- passenger-kilometres by province;
- fuel purchased, Canada level only;
- cross tabulations of vehicle-counts, vehicle-kilometers and passenger-kilometers by a number of variables (described in Concepts and Definitions), such as body type, truck configuration, driver characteristics, time of day, day of week, etc. by province.

5. DATA QUALITY

This section describes factors that affect the data quality and why they should be considered when using the CVS estimates.

5.1 SOURCES OF ERRORS

While considerable effort was made to ensure a high standard throughout all survey operations, the resulting estimates are inevitably subject to a certain degree of error. The total survey error is defined as the difference between the survey estimate and the true population value for which the survey estimate aims at. The total survey error consists of two types of errors: sampling and non-sampling errors.

5.2 SAMPLING ERROR

When a sample is selected from a population, estimates based on the sample data may not be exactly the same as what would be obtained from a census of that population. The two results will likely differ since only data for sampled units are used. In the case of a census, there is no sampling error.

The difference between the estimates from a sample survey and a census conducted under the same conditions is referred to as the sampling error of a survey estimate. Factors such as the sample size, the sample design, the variability of the population characteristic under study and the estimation method affect the sampling error. If the population is very heterogeneous like the population of registered motor vehicles, a large sample size is needed to obtain reliable estimates.

The sampling error is measured by a statistical quantity called the standard error. This quantity reflects the expected variability of the survey estimate of a particular population characteristic if repeated sampling is carried out. The true value of the standard error is, of course, not known but can be estimated from the sample. The estimated standard error is used, in this publication, in terms of a relative measure called the coefficient of variation (or CV). This measure is simply the estimated standard error expressed as a percentage of the value of the survey estimate. Therefore, a smaller CV indicates better reliability of the estimate.

5.3 Non-sampling errors

The sampling error is only one component of the total survey error. All other errors arising from all phases of a survey are called non-sampling errors. As the sample size becomes closer to the population size, the sampling error component of the total survey error is expected to decrease. However, this is not necessarily true for the non-sampling error component. For example, this type of error can arise when a respondent provides incorrect information or does not answer certain questions, when a unit in the population of interest is omitted or covered more than once, when a unit that is out-of-scope for the survey is included by mistake or when errors occur in data processing, such as coding and capture errors.

Some non-sampling errors will cancel over a large number of observations, but systematically occurring errors (i.e. those that do not tend to cancel) will contribute to a bias in the estimates. For example, in the case of CVS, if individuals that use their vehicles more than an average person consistently tend not to respond to the survey, then the resulting estimate of the total vehicle-kilometres will be below the true population total. Any such biases are not reflected in the estimates of standard error.

The non-sampling error as a whole is only one part of the total survey error but its contribution may be important. To minimize the effect of this type of error, a quality assurance program is carried out for each survey. For instance,

follow-ups of nonrespondents are conducted to obtain information from the total nonrespondents or to complete partially unanswered questionnaires for questions that are deemed essential. Various quality assurance procedures are exercised at the data capture step. The data editing procedures identify some inconsistencies in the data structure and the imputation procedures correct the identified inconsistencies.

In general, non-sampling errors are difficult to quantify. Special studies must be conducted to estimate them. However, certain measures such as response and imputation rates are easily obtained and can be used as indicators of the non-sampling errors. Different types of non-sampling errors are discussed below.

5.3.1 Coverage errors

Coverage errors arise when the survey population does not adequately cover the population of interest. As a result, certain units belonging to the population of interest are either excluded (undercoverage), or counted more than once (overcoverage). In addition, out of scope units may be present in the survey population (overcoverage).

The following sources of coverage errors for CVS were observed:

- Errors in the classification variables on the survey may result in either under- or overcoverage of the registered vehicles;
- The sample is drawn from the list created three months prior to the beginning of the quarter. Thus the vehicles registered after the list was created and before the end of the quarter cannot be drawn into the sample:
- A vehicle list from any jurisdiction that was not created on time or did not arrive at all results in even larger undercoverage since an older list has to be used for sampling;
- A vehicle list created early causes overcoverage;
- A vehicle that has been scrapped or salvaged and remained on the list causes overcoverage;
- A vehicle that was registered and subsequently unregistered between two consecutive registration lists causes undercoverage.

During the year 2000 the following vehicle registration lists were not available according to the schedule:

- Nova Scotia: the second list was created ahead of schedule;
- New Brunswick: the fourth quarter list was created ahead of schedule;
- Ontario: the fourth quarter list was created ahead of schedule;
- Saskatchewan: the first quarter list was not available and the fourth list was created ahead of schedule;
- British Columbia: the fourth quarter list was created ahead of schedule;
- Yukon Territory: the first quarter list was not available and the fourth quarter list was created ahead of schedule;
- Northwest Territories: the third quarter list was not available and the fourth quarter list was created ahead of schedule:
- Nunavut: the third quarter list was not available and the fourth quarter list was created ahead of schedule.

Thus CVS is subject to some degree of under and over coverage. The estimation procedure is designed to compensate for the part of the under- and over coverage that has been determined. The rates of out-of-scope vehicles among all units sampled for the reference period is in the table in section 5.4.1.

Since we assume that respondent is right (unless we have hard evidence that is not) the corrections at the estimation stage are mostly based on the respondent statements.

5.3.2 Response errors

Response errors occur when a respondent provides incorrect information due to a misinterpretation of the survey questions or lack of correct information, gives wrong information by mistake, or is reluctant to disclose the correct information. Large response errors are likely to be caught during editing. However, others may simply go through undetected.

Few response errors were discovered during editing of the data.

5.3.3 Nonresponse errors

Nonresponse errors can occur when a respondent does not respond at all (total nonresponse) or responds only to some questions (partial nonresponse). These errors can have a serious effect if the nonrespondents are systematically different in survey characteristics from the respondents and/or the nonresponse rate is high. See the response rate table in section 5.4.1.

5.3.4 Processing errors

Apart from coverage, response and nonresponse errors described above, errors that occur during the processing of the data constitute another component of the non-sampling error. Processing errors can arise in data capture, coding, transcription, editing, imputation, outlier detection and treatment, and other types of data handling.

A coding error occurs when a field is coded erroneously because of a misinterpretation of the coding procedures or a bad judgment (e.g. errors in commodity coding). A data capture error occurs when the data are misinterpreted or keyed incorrectly.

Once data are coded and captured, they are subject to editing and imputation of missing or erroneous values. The quality of the data used in the estimation depends on the amount of imputation and the difference between the imputed and the true, but unknown, values. The imputation system could result in bias of the estimates. This can happen due to wrong assumptions or due to inability to impute. For example in the CVS it is impossible to detect missing or entered in error fuel purchases for vehicles that travel only a small distance during the reported week.

5.4 MEASURING QUALITY

This section presents some indicators of the data quality of the CVS estimates.

5.4.1 Response rates

The response rate is a function of the number of vehicles that responded to the survey. Several response rates are provided in the table below. This rate is defined as the number of vehicle-days for which respondents gave complete or partial (vehicle-kilometers only) answers to the survey divided by the total number of in-sample and in-scope vehicle-days.

PROVINCES		-kilometres eteristics re	-		ele-kilometr	Vehicles out of	Contact made but	
	All	0 km	Non 0 km	All	0 km	Non 0 km	scope	no data
Light vehicles	38%	38% 14% 24%		32%	4%	28%	4%	4%
Trucks 4.5t – 15t	35%	25%	10%	15%	4%	11%	7%	9%
Trucks 15t or more	38%	24%	13%	21%	5%	16%	7%	12%
Buses	42%	25%	16%	2%	0%	2%	5%	34%

TERRITORIES		-kilometres eteristics re		Vehicle-	-kilometres	Vehicles out of	Contact made but	
	All	0 km	Non 0 km	All	0 km	Non 0 km	scope	no data
Light vehicles	N/A N/A N/A		N/A	15%	1%	15%	8%	8%
Trucks 4.5t – 15t	N/A	N/A	N/A	13%	2%	11%	15%	7%
Trucks 15t or more	N/A	N/A	N/A	15%	2%	13%	11%	5%
Buses	N/A	N/A	N/A	13%	1%	12%	14%	6%

The low level of response may lead to biased results if the characteristics of interest of the nonrespondents are different than those of the respondents.

5.4.2 Relative imputation rates and percentage of vehicle days imputed

The relative imputation rate is defined as the proportion of the corresponding published estimate that is accounted for by imputed data. For example, if the total published estimate is 25 million, composed of 20 million from non-imputed data and 5 million from imputed data, then the relative imputation rate is 0.2 (5 million divided by 25 million) or 20%. The lower the relative imputation rates are, the more reliable the published estimates are.

With the data collected during the CATI interview (past vehicle usage), the relative imputation rate of the data coming out of the imputation process was lower for vehicle-km, and much higher for other vehicle usage characteristics.

The relative imputation rates were calculated for each of the estimates and used to establish a quality indicator for each estimate. The relative imputation rates for estimates could be obtained from the Transportation Division of Statistics Canada upon request.

The relative imputation rate is usually directly linked to the response rates and the quality of estimates. A high imputation rate usually leads to the underestimation of sampling error and may also cause a bias.

The percentage of vehicle-days imputed (reported) is defined as the proportion of vehicle-days that are imputed (reported) to total number of vehicle days:

PROVINCES	Vehi	cle days rep	orted	Vehicle days imputed					
FROVINCES	All	icle days rep 0 km 20% 49% 42% 58%	Non 0 km	All	0 km	Non 0 km			
Light vehicles	55%	20%	35%	45%	6%	40%			
Trucks 4.5t – 15t	69%	49%	20%	31%	8%	22%			
Trucks 15t or more	64%	42%	23%	36%	9%	27%			
Buses	96%	58%	38%	4%	0%	4%			

TERRITORIES	Veh	icle km rep	orted	Vehicle km imputed					
TERRITORIES	All	0 km	Non 0 km	All	0 km	Non 0 km			
Light vehicles	100%	5%	95%	N/A	N/A	N/A			
Trucks 4.5t – 15t	100%	18%	82%	N/A	N/A	N/A			
Trucks 15t or more	100%	13%	87%	N/A	N/A	N/A			
Buses	100%	10%	90%	N/A	N/A	N/A			

5.4.3 Coefficient of variation

As a measure of the sampling error of the estimates, the estimated coefficients of variation (CV) were calculated. CV's for estimates may be obtained from the Transportation Division of Statistics Canada upon request. Note that the calculated CV estimates compensate partially for the fact that some of the data were imputed.

5.4.4 Quality indicator

The CV and the relative imputation rate should be considered simultaneously to make an assessment of the reliability of an estimate. To assist the user in evaluating the potential effect of nonresponse, imputation and sampling error, an all-embracing quality indicator accompanies every estimate. The quality indicator takes into account simultaneously the CV and the relative imputation rate.

Quality Indicator	C.V. equivalent	Explanation of estimate quality
A	Less than 5 %	Excellent
В	5 % to 10 %	Very good
C	10 % to 15 %	Good
D	15 % to 20 %	Acceptable
E	20 % to 35 %	Use with caution
•••	35 % or more	Figures not appropriate or not applicable
	N / A	Amount to small to be expressed
N	N / A	Administrative data

5.5 NOTES FOR HISTORICAL COMPARISON

The year 2000 is the first year for which all four quarters of data were available. This allowed publishing of annual estimates for the first times.

The following change was made in the third quarter of 2000 and may affect comparability with future results:

 Owners of buses and trucks registered in the territories are now sent two postcards to record odometer readings at the start and end of the quarter. This process was always used for light vehicles in the territories and replaces the previous method of sending only one postcard at the end of the quarter and requesting that bus and truck owners rely on maintenance records to provide odometer readings for the start of the quarter.

6. GLOSSARY

Population of interest: the collection of all units (e.g., vehicle-days) for which the information is required.

Survey Population: the collection of all units (e.g., vehicle-days) for which the information can be realistically provided to the survey. The survey population may differ from the population of interest due to the operational difficulty of identifying all the units that belong to the population of interest. A list of all units in the survey population with their classification information (e.g., geographical, vehicle characteristics, date) is used for sample design, selection and estimation.

Stratification: a non-overlapping partition of the survey population into relatively homogeneous groups with respect to certain characteristics such as geographical classification, size, etc. These groups are called strata and are used for sample allocation and selection.

Sampling weight: a raising factor is attached to each sampled unit (vehicle-day) to obtain estimates for the population from a sample. The basic concept of the sampling weight can be explained by using the representation rate. For example, if 2 units are selected out of 10 population units at random, then each selected unit represents 5 units in the population including itself, and is given the sampling weight of 5. A survey with a complex sample design like CVS requires a more complicated way of calculating the sampling weight. However, the sampling weight is still equal to the number of units in the registration lists the sampled unit represents.

Editing: the application of checks that identify missing, invalid or inconsistent entries or that point to data records that are potentially in error. Some of these checks involve logical relationships that follow directly from the concepts and definitions. Others are more empirical in nature or are obtained as a result of the application of statistical tests or procedures.

Imputation: the process used to resolve problems of missing, invalid or inconsistent responses identified during editing. This is done by changing some of the responses or missing values on the record being edited to ensure that a plausible, internally coherent record is created. Some problems are eliminated earlier through contact with the respondent or through manual study of the questionnaire. It is generally impossible to resolve all problems at these early stages due to concerns of response burden, cost and timeliness. Imputation is then used to handle remaining edit failures, since it is desirable to produce a complete and consistent file containing imputed data. Although, imputation can improve the quality of the final data by correcting for missing, invalid or inconsistent responses, some methods of imputation do not preserve the relationships between variables or can actually distort underlying distributions.

Number of vehicles on the registration lists by vehicle type and jurisdiction

					Vehicle type					
	Vehicles up to 4.	Vehicles up to 4.5t		t	Trucks 15t or more		Buses		Total	
Jurisdiction:										
Newfoundland	242,707	N	4,069	N	2,860	N	1,319	N	250,955	N
Prince Edward Island	72,605	N	2,061	N	2,577	N	61	N	77,303	N
Nova Scotia	513,031	N	9,985	N	7,397	N	1,855	N	532,268	N
New Brunswick	431,285	N	10,145	N	4,403	N	2,611	N	448,443	N
Quebec	3,835,380	N	51,492	N	32,437	N	16,219	N	3,935,528	N
Ontario	6,344,240	N	80,228	N	103,495	N	27,029	N	6,554,991	N
Manitoba	583,721	N	9,878	N	10,976	N	3,548	N	608,123	N
Saskatchewan	619,932	N	50,684	N	25,108	N	3,893	N	699,617	N
Alberta	1,926,497	N	110,186	N	65,057	N	11,905	N	2,113,646	N
British Columbia	2,221,457	N	60,524	N	14,039	N	8,593	N	2,304,613	N
Yukon Territory	21,149	N	1,218	N	892	N	231	N	23,490	N
Northwest Territories	17,857	N	571	N	794	N	68	N	19,289	N
Nunavut	2,326	N	251	N	121	N	16	N	2,714	N
Canada total	16,832,187	N	391,291	N	270,155	N	77,346	N	17,570,978	N

⁻ THE LETTER BESIDE EACH ESTIMATE CLASSIFIES ITS QUALITY AS FOLLOWS: N - ADMINISTRATIVE DATA, -- - AMOUNT TOO SMALL TO BE EXPRESSED, A - EXCELLENT, B - VERY GOOD, C - GOOD, D - ACCEPTABLE, E - USE WITH CAUTION, ... - FIGURES NOT APPROPRIATE OR NOT APPLICABLE. - DUE TO ROUNDING THE NUMBERS MAY NOT ADD UP AND DIFFER SLIGHTLY AMONG THE TABLES.

Number of vehicles in scope by vehicle type and jurisdiction

					Vehicle type					
	Vehicles up to 4.	5t	Trucks 4.5t - 15	t	Trucks 15t or mor	Trucks 15t or more			Total	
Jurisdiction:										
Newfoundland	240,493	А	3,545	А	2,636	А	1,290	А	247,965	А
Prince Edward Island	71,708	А	1,821	А	2,391	Α	57	В	75,977	А
Nova Scotia	501,431	А	7,933	А	6,932	Α	1,801	А	518,097	А
New Brunswick	422,872	А	7,544	А	4,189	А	1,893	В	436,498	А
Quebec	3,781,450	А	43,690	А	31,680	А	15,909	А	3,872,728	А
Ontario	6,268,616	А	69,345	А	97,317	Α	26,131	А	6,461,409	А
Manitoba	581,789	А	8,994	А	10,732	Α	3,446	А	604,962	А
Saskatchewan	615,839	А	44,884	А	21,505	Α	3,785	А	686,013	А
Alberta	1,909,776	А	81,773	А	61,373	А	11,389	А	2,064,311	А
British Columbia	2,206,479	А	47,986	А	14,642	А	8,128	А	2,277,235	А
Yukon Territory	21,298	А	1,181	А	931	Α	231	Α	23,641	А
Northwest Territories	17,907	А	586	А	1,025	Α			19,565	А
Nunavut	2,483	А	218	В	150	Α			2,855	А
Canada total	16,642,140	А	319,500	А	255,503	Α	74,111	А	17,291,255	А

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Passenger-km ('000 000) by vehicle type and jurisdiction

					Vehicle type					
	Vehicles up to 4.5t		Trucks 4.5t - 15t	Trucks 4.5t - 15t Trucks 15t or more		Buses		Total		
Jurisdiction:										
Newfoundland	8 412.7	В					311.7	С	8 724.4	В
Prince Edward Island	2 005.8	С							2 016.9	С
Nova Scotia	14 849.5	В					969.2	Е	15 818.7	В
New Brunswick	13 868.1	В					534.1	С	14 402.2	В
Quebec	105 881.7	В					7 786.6	С	113 668.3	А
Ontario	179 568.2	А					12 541.2	D	192 109.3	А
Manitoba	15 479.3	В					950.8	С	16 430.1	В
Saskatchewan	19 690.4	С					900.6	С	20 591.0	В
Alberta	61 133.5	С					3 616.5	С	64 750.0	В
British Columbia	54 184.7	В					2 178.5	Е	56 363.2	В
All provinces	475 073.9	А					29 800.3	В	504 874.1	А

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⁻ FOR THE REFERENCE YEAR 2000 ALL TRUCKS ARE EXCLUDED FROM PASSENGER-KM ESTIMATES.

Vehicle-km ('000 000) by vehicle type and jurisdiction

					Vehicle type					
	Vehicles up to 4.	5t	Trucks 4.5t - 15	t	Trucks 15t or more		Buses		Total	
Jurisdiction:										
Newfoundland	4 801.5	В	57.8	С	124.0	С	16.1	С	4 999.4	А
Prince Edward Island	1 181.4	В	18.9	Е	65.5	D			1 266.1	В
Nova Scotia	8 526.7	А	178.8	С	507.7	В	40.1	С	9 253.3	А
New Brunswick	8 161.8	А	147.4	С	153.7	С	34.1	D	8 497.1	А
Quebec	62 896.0	А	1 302.7	В	3 518.4	В	457.3	В	68 174.3	А
Ontario	106 542.3	А	1 670.3	В	8 900.6	В	720.3	В	117 833.5	А
Manitoba	9 334.2	А	183.7	С	1 021.0	В	60.9	В	10 599.8	А
Saskatchewan	10 532.9	В	318.8	D	984.9	С	87.9	С	11 924.5	А
Alberta	36 171.7	А	1 146.8	В	4 487.3	В	303.3	В	42 109.1	А
British Columbia	33 267.3	А	882.1	В	809.5	В	162.4	В	35 121.3	А
Yukon Territory	320.4	А	17.1	D	69.6	С	8.4	D	415.6	А
Northwest Territories	223.9	В	5.1	D	70.9	D			300.6	В
Nunavut	25.1	С							28.4	С
Canada total	281 985.1	А	5 930.2	А	20 715.9	А	1 891.8	А	310 523.0	А

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Number of vehicles on the registration lists by vehicle type and fuel type

					Vehicle type						
	Vehicles up to 4.	5t	Trucks 4.5t - 15	t	Trucks 15t or more	9	Buses		Total		
Fuel type											
Gasoline	16,438,870	N	211,894	N	40,215	N	20,600	N	16,711,580	N	
Diesel	323,663	N	167,981	N	228,943	N	52,146	N	772,733	N	
Other	56,383	N	10,633	N	741	N	4,489	N	72,246	N	
Unknown	13,286	N	799	N	268	N	125	N	14,478	N	
Total	16,832,203	N	391,306	N	270,168	N	77,359	N	17,571,036	N	

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Passenger-km ('000 000) by vehicle type and vehicle model year

				Vehicle type					
	Vehicles up to 4.	5t	Trucks 4.5t - 15t	Trucks 15t or more	rucks 15t or more			Total	
Vehicle model year									
1998 and later	122 006.4	В				8 747.3	Е	130 753.8	В
1995 - 1997	111 056.0	В				8 037.1	D	119 093.1	В
1991 - 1994	118 112.4	А				6 987.8	С	125 100.2	А
1987 - 1990	84 541.8	С				4 552.3	С	89 094.1	С
1986 and earlier								40 833.0	С
Total	475 073.9	А				29 800.3	В	504 874.1	А

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⁻ FOR THE REFERENCE YEAR 2000 ALL TRUCKS ARE EXCLUDED FROM PASSENGER-KM ESTIMATES.

Vehicle-km ('000 000) by vehicle type and vehicle model year $\,$

					Vehicle type					
	Vehicles up to 4.	5t	Trucks 4.5t - 15	t	Trucks 15t or more	9	Buses		Total	
Vehicle model year										
1998 and later	69 707.8	А	1 688.3	В	10 703.3	В	424.9	С	82 524.3	А
1995 - 1997	64 434.5	А	1 513.7	В	5 492.3	В	511.3	В	71 951.9	А
1991 - 1994	72 007.1	А	1 158.5	В	1 939.8	С	453.3	В	75 558.6	А
1987 - 1990	51 260.9	В	949.2	С	1 724.8	С	276.8	В	54 211.7	А
1986 and earlier	24 005.4	В	597.6	С	712.4	D	216.5	С	25 531.9	В
Total	281 415.7	А	5 907.3	Α	20 572.7	Α	1 882.7	Α	309 778.4	А

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Passenger-km ('000 000) by vehicle type and vehicle body type

				Vehicle type					
	Vehicles up to 4.	5t	Trucks 4.5t - 15t	Trucks 15t or more	9	Buses		Total	
Vehicle body type									
Car	268 760.0	А						268 760.0	А
Station wagon	13 847.5	Е						13 847.5	E
Van	84 899.5	В				597.1	Е	85 496.6	В
Sport utility vehicle	36 650.5	С						36 650.5	С
Pickup	67 041.9	В						67 045.4	В
Straight truck									
Tractor trailer									
Bus						29 043.6	В	29 104.9	В
Other				 					
Total	475 073.9	А				29 800.3	В	504 874.1	А

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⁻ FOR THE REFERENCE YEAR 2000 ALL TRUCKS ARE EXCLUDED FROM PASSENGER-KM ESTIMATES.

Vehicle-km ('000 000) by vehicle type and vehicle body type

					Vehicle type					
	Vehicles up to 4.	5t	Trucks 4.5t - 15	t	Trucks 15t or more	9	Buses		Total	
Vehicle body type										
Car	161 009.6	А							161 029.6	А
Station wagon	7 765.1	С							7 765.1	С
Van	42 473.8	В	149.0	Е			102.3	D	42 743.3	В
Sport utility vehicle	22 104.7	В							22 148.2	В
Pickup	45 668.1	А	1 326.9	В					47 011.2	А
Straight truck			2 939.7	В	3 276.2	В			7 052.2	В
Tractor trailer			101.3	Е	16 999.5	А			17 101.3	А
Bus							1 756.0	А	1 810.4	А
Other			1 330.0	В	265.9	Е			3 117.2	Е
Total	281 415.7	А	5 907.3	А	20 572.7	А	1 882.7	А	309 778.4	А

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Number of vehicles in scope by vehicle type and vehicle body type

					Vehicle type					
	Vehicles up to 4.	5t	Trucks 4.5t - 15	t	Trucks 15t or more	9	Buses		Total	
Vehicle body type										
Car	10,050,952	A							10,052,424	А
Station wagon	411,636	В							411,636	В
Van	2,186,121	А	6,834	D			5,200	С	2,199,052	А
Sport utility vehicle	1,142,867	А							1,144,198	А
Pickup	2,681,296	А	63,888	В	1,431	Е			2,746,671	А
Straight truck	66,150	Е	177,341	А	104,918	Α			349,026	А
Tractor trailer			3,739	Е	135,946	Α			139,705	А
Bus							66,776	Α	74,931	С
Other	58,464	Е	58,750	В	9,439	D	882	E	127,535	С
Total	16,605,498	А	313,447	А	252,630	Α	73,603	А	17,245,178	А

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Passenger-km ('000 000) by vehicle type and fuel type

				Vehicle type				
	Vehicles up to 4.	5t	Trucks 4.5t - 15t	Trucks 15t or more	Buses		Total	
Fuel type								
Gasoline	456 897.9	А			 5 310.9	Е	462 208.7	A
Diesel					 23 681.8	В	39 820.6	В
Other					 807.6	Е		
Total	475 073.9	А			 29 800.3	В	504 874.1	А

⁻ THE LETTER BESIDE EACH ESTIMATE CLASSIFIES ITS QUALITY AS FOLLOWS: N - ADMINISTRATIVE DATA, -- - AMOUNT TOO SMALL TO BE EXPRESSED, A - EXCELLENT, B - VERY GOOD, C - GOOD, D - ACCEPTABLE, E - USE WITH CAUTION, ... - FIGURES NOT APPROPRIATE OR NOT APPLICABLE. - DUE TO ROUNDING THE NUMBERS MAY NOT ADD UP AND DIFFER SLIGHTLY AMONG THE TABLES.

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⁻ FOR THE REFERENCE YEAR 2000 ALL TRUCKS ARE EXCLUDED FROM PASSENGER-KM ESTIMATES.

Vehicle-km ('000 000) by vehicle type and fuel type

					Vehicle type					
	Vehicles up to 4.	5t	Trucks 4.5t - 15	t	Trucks 15t or more	9	Buses		Total	
Fuel type										
Gasoline	268 967.4	А	1 110.7	В	111.7	Е	375.1	С	270 564.9	А
Diesel	10 997.6	С	4 551.0	А	20 451.2	Α	1 459.5	А	37 459.3	А
Other	1 450.7	Е	245.6	D			48.2	Е	1 754.3	Е
Total	281 415.7	А	5 907.3	А	20 572.7	А	1 882.7	А	309 778.4	А

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Passenger-km ('000 000) by vehicle type and day of week

				Vehicle type						
	Vehicles up to 4.	5t	Trucks 4.5t - 151	Trucks 15t or more	9	Buses		Total		
Day of the week										
Sunday	65 606.2	А				1 773.1	Е	67 379.2	А	
Monday	65 393.3	В				4 619.8	В	70 013.2	А	
Tuesday	64 194.3	А				5 660.2	С	69 854.5	А	
Wednesday	63 194.9	А				5 662.5	В	68 857.4	А	
Thursday	72 626.3	А				5 625.7	С	78 252.0	А	
Friday	73 968.1	А				4 787.4	В	78 755.5	А	
Saturday	70 090.8	А				1 671.5	Е	71 762.3	А	
Total	475 073.9	А				29 800.3	В	504 874.1	А	

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Vehicle-km ('000 000) by vehicle type and day of week

					Vehicle type					
	Vehicles up to 4.	5t	Trucks 4.5t - 15	t	Trucks 15t or more	е	Buses		Total	
Day of the week										Ī
Sunday	35 251.0	А	274.3	D	1 267.4	В	98.3	С	36 891.0	A
Monday	39 253.5	А	940.7	А	3 173.9	А	309.2	А	43 677.4	А
Tuesday	40 106.7	А	1 138.5	В	3 967.8	А	336.0	А	45 549.0	А
Wednesday	39 558.6	А	1 079.3	А	3 877.3	А	355.7	Α	44 870.9	А
Thursday	43 314.8	А	1 122.7	В	3 745.8	А	348.2	Α	48 531.4	А
Friday	45 274.3	А	984.8	А	3 211.0	А	331.6	А	49 801.8	А
Saturday	38 656.8	А	366.9	С	1 329.4	В	103.7	С	40 456.8	А
Total	281 415.7	А	5 907.3	А	20 572.7	А	1 882.7	А	309 778.4	А

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Passenger-km ('000 000) by vehicle type and driver age group

				Vehicle type					
	Vehicles up to 4.	5t	Trucks 4.5t - 15t	Trucks 15t or more	9	Buses		Total	
Driver age									
Under 20 years	11 040.3	D						11 040.5	D
20 - 24 years	20 510.1	С						20 650.9	С
25 - 34 years	68 778.9	В				2 370.0	D	71 148.9	В
35 - 44 years	155 272.2	В				7 689.0	Е	162 961.2	А
45 - 54 years	112 233.2	А				10 901.6	С	123 134.8	А
55 - 64 years	59 942.6	В				6 978.7	Е	66 921.2	В
65 - 74 years	37 276.4	В						38 996.3	В
75 - 84 years	8 989.1	С						8 989.1	С
85 years and over									
Total	475 073.9	А				29 800.3	В	504 874.1	А

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Vehicle-km ('000 000) by vehicle type and driver age group

					Vehicle type					
	Vehicles up to 4.5	5t	Trucks 4.5t - 15	t	Trucks 15t or more	е	Buses		Total	
Driver age										
Under 20 years	6 356.1	С							6 384.2	С
20 - 24 years	13 630.6	С	282.1	Е	531.6	Е			14 465.9	С
25 - 34 years	42 526.4	Α	1 685.3	В	6 176.3	В	157.9	С	50 545.9	А
35 - 44 years	83 574.0	Α	1 877.1	В	6 424.2	В	569.6	В	92 445.0	А
45 - 54 years	70 777.5	Α	1 223.8	В	4 810.9	В	711.4	В	77 523.6	А
55 - 64 years	35 912.3	В	652.8	D	2 393.5	D	357.7	С	39 316.3	В
65 - 74 years	22 398.9	В					64.5	Е	22 829.2	В
75 - 84 years	5 721.0	С							5 748.3	С
85 years and over	519.0	E							519.9	Е
Total	281 415.7	Α	5 907.3	А	20 572.7	А	1 882.7	А	309 778.4	А

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Vehicles up to 4.5t: Passenger-km ('000 000) by vehicle type and trip purpose (specific to vehicle type)

	Vehicle type		
	Vehicles up to 4.5t		
Trip purpose			
To go home	141	604.3	А
To go to work or school	54	004.1	Α
To do shopping or errands	89	019.5	Α
To go to a recreational or social activity	77	929.4	А
To go somewhere else	84	662.6	В
(Job) picking up or delivering goods	9	137.9	D
(Job) to or from service call	7	634.2	Е
(Job) other work purpose	11	081.9	С
Total	475	073.9	Α

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Vehicles up to 4.5t: Vehicle-km ('000 000) by vehicle type and trip purpose (specific to vehicle type)

	Vehicle type	
	Vehicles up to 4.5	t
Trip purpose		
To go home	85 322.8	Α
To go to work or school	42 510.2	Α
To do shopping or errands	50 962.9	Α
To go to a recreational or social activity	38 271.2	А
To go somewhere else	41 693.5	В
(Job) picking up or delivering goods	7 873.7	D
(Job) to or from service call	6 344.4	D
(Job) other work purpose	8 437.0	С
Total	281 415.7	Α

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Trucks 4.5t or more: Vehicle-km ('000 000) by vehicle type and trip purpose (specific to vehicle type)

	Vel	hicle	e type	
	Trucks 4.5t - 15	t	Trucks 15t or more	е
Trip purpose				
Driving to or from service call	686.2	С	730.9	Е
Carrying goods or equipment	2 952.2	В	15 474.1	А
Empty	343.8	D	2 803.1	В
Other work purpose	324.2	С	258.4	E
Non-work purpose	1 600.9	В	1 306.2	D
Total	5 907.3	А	20 572.7	А

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Buses: Passenger-km ('000 000) by vehicle type and trip purpose (specific to vehicle type)

	Vehicle type	
	Buses	
Trip purpose		
Scheduled intercity		
School	18 171.4	В
Charter	6 523.7	Е
Other		
Total	29 800.3	В

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Buses: Vehicle-km ('000 000) by vehicle type and trip purpose (specific to vehicle type)

	Vehicle type	
	Buses	
Trip purpose		
Scheduled urban	511.7	С
Scheduled intercity	93.3	Е
School School	878.8	А
Charter	195.6	Е
Other	203.3	D
Total	1 882.7	А

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Passenger-km ('000 000) by vehicle type and driver sex

				Vehicle type					
	Vehicles up to 4.5	Vehicles up to 4.5t		Trucks 15t or more)	Buses		Total	
Driver sex									
Male	330 782.3	Α				21 261.3	С	352 043.6	A
Female	144 291.6	Α				8 539.0	С	152 830.5	А
Total	475 073.9	Α				29 800.3	В	504 874.1	А

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Vehicle-km ('000 000) by vehicle type and driver sex

					Vehicle type					
	Vehicles up to 4.5	5t	Trucks 4.5t - 151	t	Trucks 15t or more	9	Buses		Total	
Driver sex										
Male	191 573.8	Α	5 800.6	А	20 352.9	А	1 307.2	В	219 034.5	A
Female	89 842.0	А	106.7	Е			575.5	В	90 743.9	А
Total	281 415.7	Α	5 907.3	Α	20 572.7	Α	1 882.7	Α	309 778.4	А

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Passenger-km ('000 000) by vehicle type and time of day

				 Vehicle type					
	Vehicles up to 4.	Vehicles up to 4.5t		Trucks 15t or more)	Buses		Total	
Time of day									
00:00 - 05:59	15 134.2	С						16 538.1	С
06:00 - 11:59	134 629.7	А				13 234.4	В	147 864.2	А
12:00 - 17:59	218 725.2	А				12 496.6	В	231 221.9	А
18:00 - 23:59	106 584.7	А				2 665.3	Е	109 250.0	А
Total	475 073.9	А				29 800.3	В	504 874.1	А

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Vehicle-km ('000 000) by vehicle type and time of day

		Vehicle type										
	Vehicles up to 4.	5t	Trucks 4.5t - 15	t	Trucks 15t or more	9	Buses		Total			
Time of day												
00:00 - 05:59	9 168.2	В	271.4	С	2 273.3	В	72.9	Е	11 785.7	В		
06:00 - 11:59	87 376.8	А	2 521.7	А	7 299.0	Α	811.6	А	98 009.0	А		
12:00 - 17:59	127 704.8	А	2 580.0	А	7 434.3	Α	801.7	А	138 520.8	А		
18:00 - 23:59	57 166.0	А	534.1	С	3 566.1	Α	196.6	В	61 462.9	А		
Total	281 415.7	А	5 907.3	А	20 572.7	Α	1 882.7	Α	309 778.4	А		

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Passenger-km ('000 000) by vehicle type and carrying dangerous goods

	Vehicles up to 4.	5t	Trucks 4.5t - 15t	:	Trucks 15t or more)	Buses		Total	
Carrying dangerous goods										
Yes										
No	474 724.8	А					29 800.3	В	504 525.1	А
Total	475 073.9	А					29 800.3	В	504 874.1	А

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Vehicle-km ('000 000) by vehicle type and carrying dangerous goods $% \left(1\right) =\left(1\right) \left(1\right)$

					Vehicle type					
	Vehicles up to 4.	5t	Trucks 4.5t - 15		Trucks 15t or more)	Buses		Total	
Carrying dangerous goods										
Yes			372.7	Е	1 305.5	D			1 897.0	С
No	281 196.8	А	5 534.6	Α	19 267.2	Α	1 882.7	Α	307 881.4	А
Total	281 415.7	А	5 907.3	Α	20 572.7	Α	1 882.7	Α	309 778.4	А

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Passenger-km ('000 000) by vehicle type and day type

				Vehicle type					
	Vehicles up to 4.5	ōt	Trucks 4.5t - 15t	Trucks 15t or more)	Buses	Total		
Day type									
Non-working days	146 765.7	Α				3 611.4	Е	150 377.1	А
Working days	328 308.1	Α				26 188.9	В	354 497.0	А
Total	475 073.9	Α				29 800.3	В	504 874.1	А

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Vehicle-km ('000 000) by vehicle type and day type

					Vehicle type					
	Vehicles up to 4.5	5t	Trucks 4.5t - 15		Trucks 15t or more	9	Buses		Total	
Day type										
Non-working days	79 539.4	А	725.1	В	2 878.8	В	217.7	С	83 361.1	А
Working days	201 876.3	А	5 182.2	Α	17 693.8	А	1 665.0	Α	226 417.3	А
Total	281 415.7	А	5 907.3	Α	20 572.7	А	1 882.7	Α	309 778.4	А

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Passenger-km ('000 000) by vehicle type and road type

	Vehicle type									
	Vehicles up to 4.	Buses								
Road type										
Road with posted maximum speed of 80km/h or more	266 744.4	А	13 780.1	С						
Other roads	208 329.5	А	16 020.2	В						
Total	475 073.9	А	29 800.3	В						

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Vehicle-km ('000 000) by vehicle type and road type

	Vehicle type									
	Vehicles up to 4.5	5t	Buses							
Road type										
Road with posted maximum speed of 80km/h or more	150 553.6	А	609.3	В						
Other roads	130 862.1	Α	1 273.5	Α						
Total	281 415.7	Α	1 882.7	А						

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Passenger-km ('000 000) by vehicle type and passenger age group

	Vehicle type					
	Vehicles up to 4.5t					
Passenger age						
Under 5 years	14 760.9	С				
5-14 years	37 925.1	В				
15 years and over	422 387.9	А				
Total	475 073.9	А				

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Vehicles up to 4.5t: Passenger-km ('000 000) by vehicle type, vehicle group and trip purpose

		Vehicle type	
		Vehicles up to 4.	.5t
Vehicle group	Trip purpose		
Car and Station wagon	To go home		
	To go to work or school	32 221.2	А
	To do shopping or errands	57 163.9	А
	To go to a recreational or social activity	47 807.0	В
	To go somewhere else		
	(Job) picking up or delivering goods		
	(Job) to or from service call		Ţ.,
	(Job) other work purpose	3 323.5	E
	Total	282 607.5	A
Other below 4.5t	To go home	55 646.6	В
	To go to work or school	21 782.9	В
	To do shopping or errands	31 855.6	В
	To go to a recreational or social activity	30 122.3	В
	To go somewhere else	33 227.4	С
	(Job) picking up or delivering goods	7 129.7	E
	(Job) to or from service call	4 943.3	D
	(Job) other work purpose		ļ.,
	Total	192 466.3	1

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Vehicles up to 4.5t: Vehicle-km ('000 000) by vehicle type, vehicle group and trip purpose

		Vehicle type	
		Vehicles up to 4.	.5t
Vehicle group	Trip purpose		
Car and Station wagon	To go home	53 114.2	A
	To go to work or school	25 835.5	А
	To do shopping or errands	33 511.1	А
	To go to a recreational or social activity	24 918.9	В
	To go somewhere else		
	(Job) picking up or delivering goods		
	(Job) to or from service call		
	(Job) other work purpose	2 396.1	Е
	Total	168 774.7	А
Other below 4.5t	To go home	32 208.6	В
	To go to work or school	16 674.7	В
	To do shopping or errands	17 451.8	А
	To go to a recreational or social activity	13 352.3	В
	To go somewhere else	16 514.8	С
	(Job) picking up or delivering goods	6 125.1	Е
	(Job) to or from service call	4 272.8	D
	(Job) other work purpose	6 040.9	D
	Total	112 641.0	А

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Passenger-km ('000 000) by vehicle type, day type and time of day $% \left(1\right) =\left(1\right) \left(1\right) \left$

					Vehicle type					
		Vehicles up to 4.	5t	Trucks 4.5t - 15t	Trucks 15t or more)	Buses		Total	
Day type	Time of day									
Non-working days	00:00 - 05:59	5 069.1	D						5 297.6	D
	06:00 - 11:59	38 698.6	А				943.9	Е	39 642.5	А
	12:00 - 17:59	69 397.0	А				1 533.2	Е	70 930.1	А
	18:00 - 23:59	33 601.0	В				905.8	Е	34 506.8	В
	Total	146 765.7	А				3 611.4	Е	150 377.1	А
Working days	00:00 - 05:59								11 240.5	D
	06:00 - 11:59	95 931.1	А				12 290.5	В	108 221.7	А
	12:00 - 17:59	149 328.3	А				10 963.4	В	160 291.7	А
	18:00 - 23:59	72 983.7	А				1 759.5	Е	74 743.2	А
	Total	328 308.1	А				26 188.9	В	354 497.0	А
Total	00:00 - 05:59	15 134.2	С						16 538.1	С
	06:00 - 11:59	134 629.7	А				13 234.4	В	147 864.2	А
	12:00 - 17:59	218 725.2	А				12 496.6	В	231 221.9	А
	18:00 - 23:59	106 584.7	А				2 665.3	Е	109 250.0	А
	Total	475 073.9	А				29 800.3	В	504 874.1	А

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⁻ ALL PASSENGER-KM ESTIMATES EXCLUDE BUS URBAN TRANSIT.

⁻ FOR THE REFERENCE YEAR 2000 ALL TRUCKS ARE EXCLUDED FROM PASSENGER-KM ESTIMATES.

Vehicle-km ('000 000) by vehicle type, day type and time of day $% \left(1\right) =\left(1\right) \left(1\right) \left($

						Vehicle type					
		Vehicles up to 4.	5t	Trucks 4.5t - 15	t	Trucks 15t or mor	е	Buses		Total	
Day type	Time of day										
Non-working days	00:00 - 05:59	2 977.0	С	34.4	Е	321.8	D			3 346.1	С
	06:00 - 11:59	22 958.8	А	306.7	С	935.6	В	62.6	С	24 263.7	А
	12:00 - 17:59	36 986.2	А	309.3	С	1 010.7	В	93.4	С	38 399.6	А
	18:00 - 23:59	16 617.5	А	74.7	D	610.7	В	48.8	С	17 351.7	А
	Total	79 539.4	А	725.1	В	2 878.8	В	217.7	С	83 361.1	А
Working days	00:00 - 05:59	6 191.2	В	237.0	D	1 951.4	В	60.0	Е	8 439.6	В
	06:00 - 11:59	64 418.0	А	2 215.0	А	6 363.3	А	749.0	Α	73 745.3	А
	12:00 - 17:59	90 718.6	А	2 270.8	А	6 423.6	А	708.3	А	100 121.2	А
	18:00 - 23:59	40 548.5	А	459.4	С	2 955.5	А	147.8	В	44 111.2	А
	Total	201 876.3	А	5 182.2	А	17 693.8	А	1 665.0	А	226 417.3	А
Total	00:00 - 05:59	9 168.2	В	271.4	С	2 273.3	В	72.9	Е	11 785.7	В
	06:00 - 11:59	87 376.8	А	2 521.7	А	7 299.0	А	811.6	А	98 009.0	А
	12:00 - 17:59	127 704.8	А	2 580.0	А	7 434.3	А	801.7	Α	138 520.8	А
	18:00 - 23:59	57 166.0	А	534.1	С	3 566.1	А	196.6	В	61 462.9	А
	Total	281 415.7	А	5 907.3	А	20 572.7	А	1 882.7	А	309 778.4	А

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Passenger-km ('000 000) by vehicle type, driver age group and driver $\ensuremath{\mathsf{sex}}$

						Vehicle type					
		Vehicles up to 4.	5t	Trucks 4.5t - 15t		Trucks 15t or more	•	Buses		Total	
Driver age group	Driver sex										
Under 25 years	Male	17 271.3	С	-	-					17 305.5	С
	Female	14 279.1	С	-	-					14 386.0	С
	Total	31 550.4	В	-						31 691.4	В
25 - 55 years	Male	230 284.9	А	-				13 502.7	С	243 787.6	А
	Female	105 999.5	А	-				7 457.9	С	113 457.4	А
	Total	336 284.3	А	-	-			20 960.6	В	357 245.0	А
55 years and over	Male	83 226.2	В	-	-			7 724.4	Е	90 950.6	В
	Female	24 013.0	С	-	-					24 987.2	В
	Total	107 239.2	А	-				8 698.6	Е	115 937.7	А
Total	Male	330 782.3	А	-	-			21 261.3	С	352 043.6	А
	Female	144 291.6	А	-				8 539.0	С	152 830.5	А
	Total	475 073.9	А	-	-			29 800.3	В	504 874.1	А

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⁻ ALL PASSENGER-KM ESTIMATES EXCLUDE BUS URBAN TRANSIT.

⁻ FOR THE REFERENCE YEAR 2000 ALL TRUCKS ARE EXCLUDED FROM PASSENGER-KM ESTIMATES.

Vehicle-km ('000 000) by vehicle type, driver age group and driver $\ensuremath{\text{sex}}$

						Vehicle type					
		Vehicles up to 4.	5t	Trucks 4.5t - 15	Trucks 15t or mor	Buses		Total			
Driver age group	Driver sex										
Under 25 years	Male	10 229.2	С	307.1	Е	525.5	Е			11 073.8	С
	Female	9 757.5	С							9 776.3	С
	Total	19 986.7	В	307.3	Е	534.4	Е			20 850.1	В
25 - 55 years	Male	132 405.8	А	4 687.9	А	17 221.3	А	913.7	В	155 228.8	А
	Female	64 472.1	А	98.4	Е			525.1	В	65 285.7	А
	Total	196 877.9	А	4 786.3	А	17 411.5	А	1 438.8	А	220 514.5	А
55 years and over	Male	48 938.8	А	805.6	D	2 606.1	D	381.5	С	52 732.0	А
	Female	15 612.3	В					40.7	Е	15 681.8	В
	Total	64 551.1	А	813.7	С	2 626.8	D	422.2	С	68 413.8	А
Total	Male	191 573.8	А	5 800.6	А	20 352.9	А	1 307.2	В	219 034.5	А
	Female	89 842.0	А	106.7	Е			575.5	В	90 743.9	А
	Total	281 415.7	А	5 907.3	А	20 572.7	А	1 882.7	А	309 778.4	А

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Fuel ('000 000 litres) purchased by vehicle type and fuel type $\ensuremath{\text{\text{type}}}$

		Vehicle type											
	Vehicles up to 4.	5t	Trucks 4.5t - 15	Trucks 15t or more	Buses		Total						
Fuel type													
Gasoline	30 230.1	А	262.9	D			137.7	С	30 669.8	A			
Diesel			1 157.7	В	8 901.7	Α	429.6	В	11 756.5	А			

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Vehicle type: Vehicles up to 4.5t

		Jurisdiction												
	Newfound- land	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatche- wan	Alberta	British Columbia	Yukon Territory	Northwest Territor- ies	Nunavut	TOTAL
Vehicle model year														
1981 or earlier	4,013	2,518	17,389	11,313	71,512	184,028	38,622	72,410	180,115	184,994	2,608	1,433	103	771,063
1982	666	326	2,384	1,702	8,233	25,172	6,577	12,400	28,162	27,703	333	269	24	113,957
1983	1,052	761	3,849	3,543	15,278	41,433	8,418	14,023	30,781	34,249	391	254	21	154,058
1984	2,277	1,540	8,282	7,592	45,106	88,344	15,258	20,835	50,166	56,868	642	437	49	297,400
1985	3,521	2,106	11,562	10,557	73,287	136,314	20,011	24,075	64,550	71,776	723	544	77	419,110
1986	5,372	2,791	16,638	14,516	111,653	208,027	27,586	31,344	87,287	102,154	1,040	665	78	609,156
1987	7,655	3,772	21,140	18,643	156,644	256,487	26,483	26,917	76,790	103,504	1,074	580	107	699,802
1988	14,369	5,517	30,071	27,061	227,461	367,964	32,546	32,443	99,486	122,844	1,304	872	144	962,087
1989	16,827	5,737	32,409	28,944	237,715	397,230	32,598	32,390	105,027	134,565	1,303	942	139	1,025,832
1990	16,135	5,894	33,220	28,869	247,126	399,053	35,192	33,523	110,023	145,696	1,318	970	148	1,057,173
1991	16,505	5,124	31,944	27,921	253,519	385,979	36,341	34,458	109,399	140,645	1,174	909	168	1,044,091
1992	17,089	5,638	34,628	30,470	283,416	414,734	36,902	34,649	105,708	141,469	1,145	810	141	1,106,804
1993	17,777	5,258	33,343	27,121	255,133	390,585	33,197	31,560	96,479	130,161	1,113	834	145	1,022,712
1994	17,748	5,116	34,032	27,232	241,557	388,364	32,198	33,342	100,812	123,385	1,099	981	156	1,006,027
1995	16,475	5,068	34,428	27,809	256,818	413,887	34,830	35,301	106,554	125,986	1,136	1,027	161	1,059,484
1996	12,479	3,886	28,423	22,396	204,936	341,569	30,047	29,130	89,663	99,483	847	845	121	863,830
1997	16,881	3,918	34,172	27,098	258,248	431,995	38,353	37,297	121,825	126,944	1,210	1,308	155	1,099,407
1998	21,111	3,117	39,040	32,289	310,938	495,767	40,133	37,221	138,910	128,958	1,110	1,385	150	1,250,134
1999	20,793	2,447	35,987	29,903	305,299	500,040	33,609	26,217	118,601	117,514	1,085	1,510	136	1,193,146
2000	13,463	1,931	28,436	24,798	251,652	438,263	23,440	18,716	96,544	95,079	471	1,153	79	994,031
2001	473	130	1,644	1,486	19,808	38,997	1,370	1,671	9,607	7,472	13	116	14	82,805
2002	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	15	0	0	10	31	0	0	1	0	0	0	0	0	59
TOTAL	242,706	72,604	513,030	431,284	3,835,379	6,344,239	583,720	619,931	1,926,496	2,221,456	21,148	17,856	2,325	16,832,179

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Vehicle type: Trucks 4.5t - 15t

							Jurisdictio	n						
	Newfound- land	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatche- wan	Alberta	British Columbia	Yukon Territory	Northwest Territor- ies	Nunavut	TOTAL
Vehicle model year														
1981 or earlier	598	969	2,316	840	9,055	6,071	2,251	32,860	36,397	11,498	425	84	38	103,408
1982	55	59	181	84	713	733	214	1,001	1,956	824	31	11	3	5,870
1983	75	53	170	73	496	713	151	789	1,423	616	15	9	2	4,589
1984	131	76	280	133	1,432	1,246	251	785	2,001	1,069	37	24	3	7,473
1985	177	89	358	215	2,108	2,112	362	806	2,693	1,431	49	23	10	10,437
1986	197	98	405	273	2,309	2,810	457	965	3,242	1,977	37	25	11	12,810
1987	205	88	475	273	2,936	3,317	395	745	2,091	1,845	31	13	18	12,438
1988	322	97	580	371	3,690	4,866	463	848	3,953	2,709	54	26	17	18,002
1989	243	99	556	320	2,821	4,349	444	727	3,743	2,949	54	31	15	16,359
1990	251	70	554	326	2,934	4,680	544	822	4,074	3,345	59	38	16	17,718
1991	219	48	357	316	2,025	3,018	446	669	3,918	2,455	40	26	8	13,552
1992	177	30	336	390	1,704	3,036	384	670	3,498	2,484	41	26	7	12,788
1993	194	40	371	565	1,854	3,735	417	993	3,880	2,939	27	19	8	15,046
1994	207	43	364	614	2,281	4,494	407	943	4,802	3,192	45	19	10	17,427
1995	256	54	550	716	3,011	5,603	568	1,127	5,269	3,826	45	41	28	21,099
1996	142	25	333	613	1,895	4,112	417	736	4,002	2,759	32	21	9	15,101
1997	170	31	403	741	2,037	5,479	485	1,052	6,282	3,718	46	35	16	20,500
1998	128	19	495	1,050	2,595	5,694	425	1,110	5,911	3,176	43	26	10	20,687
1999	200	40	558	1,366	3,376	8,368	515	1,756	6,023	4,529	75	38	9	26,860
2000	98	22	305	723	1,872	5,189	240	1,160	4,171	2,778	22	22	3	16,609
2001	9	2	29	132	335	592	33	110	848	396	1	3	0	2,496
2002	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	4	0	0	0	3	0	0	0	0	0	0	0	0	8
TOTAL	4,068	2,060	9,984	10,143	51,491	80,226	9,877	50,683	110,186	60,523	1,217	569	250	391,284

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Vehicle type: Trucks 15t or more

	Jurisdiction													
	Newfound- land	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatche- wan	Alberta	British Columbia	Yukon Territory	Northwest Territor- ies	Nunavut	TOTAL
Vehicle model year														
1981 or earlier	303	837	878	517	727	4,552	1,229	7,664	15,904	2,583	177	125	10	35,511
1982	28	63	90	53	85	599	109	405	1,115	175	12	13	0	2,752
1983	23	42	40	26	51	421	59	156	330	52	4	4	5	1,218
1984	93	141	153	169	280	1,361	237	531	992	273	10	20	2	4,268
1985	124	148	246	198	483	2,203	331	728	1,682	353	27	20	0	6,551
1986	128	186	247	214	576	3,020	392	807	1,930	479	23	15	0	8,021
1987	160	208	338	313	911	4,106	438	810	1,692	551	18	12	3	9,566
1988	222	176	391	288	1,186	4,424	461	908	2,349	645	31	23	1	11,109
1989	207	120	354	232	927	4,625	426	739	2,190	575	30	32	1	10,464
1990	132	105	243	252	920	4,306	379	755	2,380	956	33	30	3	10,500
1991	131	58	156	148	522	2,695	219	511	1,828	531	21	27	8	6,861
1992	94	34	173	109	711	2,716	293	468	1,555	698	38	27	7	6,926
1993	95	45	258	189	1,220	4,061	453	670	2,086	659	27	21	1	9,790
1994	150	62	377	204	2,184	5,857	678	843	3,178	805	33	47	6	14,429
1995	181	93	565	308	3,149	9,541	793	1,000	3,911	866	41	67	13	20,534
1996	140	52	446	196	2,236	6,744	728	754	3,084	800	65	54	8	15,313
1997	122	25	337	189	2,331	6,612	691	824	3,633	850	65	59	4	15,748
1998	185	51	638	222	4,296	10,895	1,005	1,794	5,470	780	87	60	12	25,501
1999	171	64	686	297	4,584	11,996	1,065	2,669	4,826	736	74	65	24	27,263
2000	137	50	671	221	4,260	10,937	864	1,891	4,035	542	62	56	5	23,735
2001	21	7	98	46	777	1,813	115	170	877	121	4	8	1	4,064
2002	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	2	0	0	0	10	0	0	0	0	0	0	0	0	13
TOTAL	2,859	2,576	7,396	4,401	32,437	103,494	10,975	25,107	65,056	14,038	890	793	121	270,148

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Vehicle type: Buses

	Jurisdiction													
	Newfound- land	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatche- wan	Alberta	British Columbia	Yukon Territory	Northwest Territor- ies	Nunavut	TOTAL
Vehicle model year														
1981 or earlier	30	18	81	497	392	976	255	401	2,026	690	24	9	5	5,409
1982	13	0	16	122	86	158	51	121	409	240	8	1	1	1,229
1983	3	2	25	91	109	294	63	94	162	206	18	0	0	1,070
1984	6	1	30	139	196	207	85	162	258	156	4	3	0	1,250
1985	14	1	54	109	220	431	259	224	344	153	2	1	4	1,819
1986	98	3	73	124	248	520	180	225	393	214	5	1	0	2,090
1987	212	4	98	130	371	938	188	374	454	261	3	6	0	3,045
1988	198	0	133	161	687	1,427	270	237	566	377	15	2	0	4,079
1989	160	1	110	117	1,016	1,863	186	259	677	498	8	2	0	4,903
1990	107	0	140	186	1,161	2,223	134	281	682	499	15	2	0	5,435
1991	97	0	133	77	1,189	1,961	198	212	589	592	14	1	1	5,069
1992	95	2	78	82	1,156	1,898	182	169	597	488	5	0	0	4,756
1993	46	0	102	96	974	1,542	182	176	569	400	5	2	0	4,098
1994	23	0	54	37	1,484	1,316	266	109	416	447	12	1	0	4,170
1995	28	0	184	158	956	1,877	176	124	540	579	15	0	1	4,642
1996	19	1	79	19	1,200	1,940	175	146	444	633	17	0	0	4,677
1997	45	0	105	123	1,182	1,592	156	138	709	415	20	2	0	4,492
1998	33	0	190	184	1,109	1,999	194	169	720	740	12	1	0	5,356
1999	57	8	95	89	1,431	2,369	226	203	795	583	7	23	0	5,892
2000	27	10	65	56	874	1,339	110	60	499	385	13	4	0	3,448
2001	0	0	0	1	168	151	4	1	46	25	0	2	0	401
2002	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	2	0	0	0	0	0	0	0	0	0	2
TOTAL	1,319	60	1,854	2,610	16,218	27,028	3,547	3,892	11,904	8,592	230	67	15	77,341

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FOR FURTHER READING

Selected Publications from Statistics Canada

Selected Publications from Statistics Canada							
	Catalogue						
Surface and Marine Transport - Service Bulletin - Eight issues a year. Bilingual.	50-002-XIB						
Aviation - Service Bulletin - Bilingual. Monthly.	51-004-XIB						
Air Carrier Traffic at Canadian Airports - Annual. Bilingual.	51-203-XIB						
Air Passenger Origin and Destination: Domestic Report - Annual. Bilingual.	51-204-XIB						
Canadian Civil Aviation - Annual. Bilingual.	51-206-XIB						
Air Charter Statistics - Annual. Bilingual.	51-207-XIB						
Railway Carloadings – Monthly. English.	52-001-XIE						
French.	52-001-XIF						
Rail in Canada - Annual. Bilingual.	52-216-XIB						
Passenger Bus and Urban Transit Statistics - Annual. Bilingual.	53-215-XIB						
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