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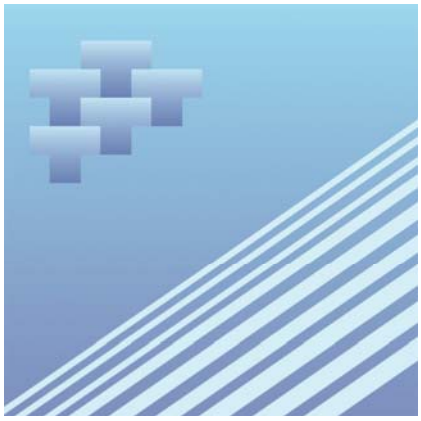
Canadian Vehicle Survey: Annual

2008



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Statistics Canada
Transport Division

Canadian Vehicle Survey: Annual

2008

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Note of appreciation

Canada owes the success of its statistical system to a long standing partnership between Statistics Canada, the citizens of Canada, its businesses, governments and other institutions. Accurate and timely statistical information could not be produced without their continued cooperation and goodwill.

User information

Symbols

The following standard symbols are used in Statistics Canada publications:

.	not available for any reference period
..	not available for a specific reference period
...	not applicable
0	true zero or a value rounded to zero
0s	value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
p	preliminary
r	revised
x	suppressed to meet the confidentiality requirements of the *Statistics Act*
E	use with caution
F	too unreliable to be published

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Highlights

- Canadians drove their vehicles less in 2008 compared to the previous year for the first time since 2004.
- Faced with rising consumer fuel prices throughout most of the year, Canadians shifted much of their driving to more fuel efficient smaller body styles such as cars and station wagons. While the smaller styles saw an increase of 6.7% in 2008 compared to the previous year, driving was down 10.1% for larger body styles (vans, sport utility vehicles and pickups).
- The number of vehicles on the road for these two styles also moved in opposite directions in 2008. And while the average distance per vehicle for the small styles was up a little in 2008 compared to the previous year, it declined by 9.0% for the larger styles.

Introduction

Road vehicles dominate passenger travel and freight traffic. However, prior to the Canadian Vehicle Survey (CVS), no measures of total vehicle-kilometres or passenger-kilometres were available. The CVS was developed at the request of Transport Canada to fill this data gap. The survey provides quarterly and annual 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 are the prime source of road vehicle use information for researchers and interested members of the public.

Prior to 2004, the survey was sponsored by Transport Canada. Since then, the survey has been co-sponsored by Transport Canada and Natural Resources Canada. They plan to combine the survey data with other data 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 2008.

Survey overview

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

The provincial component of the survey consists of two steps. The first step 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 trip log specific to his/her vehicle type. The trip log is then mailed out as a second step. 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 short questionnaires. 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 questionnaire asks respondents to record the odometer reading at the beginning of the first day of the quarter. All those returning the first questionnaire are mailed a second questionnaire 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.

Users who require additional information from Statistics Canada can obtain it from the Transportation Division upon request by phoning 1 866 500-8400 or e-mailing *transportationstatistics@statcan.gc.ca*

Related products

Selected publications from Statistics Canada

53F0004X	Canadian Vehicle Survey: Quarterly
53F0007X	Driving Characteristics of the Young and Aging Population

Selected CANSIM tables from Statistics Canada

405-0055	Canadian vehicle survey, number of vehicles in frame, by type of vehicle, province and territory
405-0056	Canadian vehicle survey, number of vehicles in scope, by type of vehicle, province and territory
405-0057	Canadian vehicle survey, passenger-kilometres, by type of vehicle and province
405-0058	Canadian vehicle survey, vehicle-kilometres, by type of vehicle, province and territory
405-0059	Canadian vehicle survey, number of vehicles in scope, by type of vehicle and type of fuel
405-0060	Canadian vehicle survey, passenger-kilometres, by type of vehicle and age of vehicle model
405-0061	Canadian vehicle survey, vehicle-kilometres, by type of vehicle and age of vehicle model
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405-0073	Canadian vehicle survey, vehicle-kilometres, by type of vehicle and sex of driver
405-0074	Canadian vehicle survey, passenger-kilometres, by type of vehicle and time of day

405-0075	Canadian vehicle survey, vehicle-kilometres, by type of vehicle and time of day
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405-0120	Canadian vehicle survey, vehicle-kilometres and passenger-kilometres for trucks 15 tonnes and over, by type of trip

Selected surveys from Statistics Canada

2749	Canadian Vehicle Survey

Statistical tables

Table 1

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

	Total, all vehicles	Vehicles up to 4.5 tonnes	Trucks 4.5 tonnes to 14.9 tonnes	Trucks 15 tonnes and over
Total - Canada	**20,435,976**	**19,612,942**	**490,154**	**332,880**
Newfoundland and Labrador	289,494	281,657	4,325	3,513
Prince Edward Island	83,370	79,135	1,460	2,775
Nova Scotia	556,096	539,007	9,018	8,070
New Brunswick	496,831	484,798	7,580	4,453
Quebec	4,622,780	4,525,952	58,888	37,941
Ontario	7,394,996	7,176,014	101,518	117,464
Manitoba	688,529	659,494	11,797	17,238
Saskatchewan	777,088	708,247	39,318	29,522
Alberta	2,777,196	2,558,245	127,982	90,969
British Columbia	2,691,297	2,548,213	125,085	17,999
Yukon	30,262	26,801	2,036	1,426
Northwest Territories	24,312	22,069	903	1,340
Nunavut	3,728	3,312	246	170

Table 2-1

Number of vehicles on the registration lists by jurisdiction and vehicle model year — Vehicles up to 4.5 tonnes

	Newfoundland and Labrador	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba
Total, all vehicle model years	**281,656**	**79,134**	**539,006**	**484,797**	**4,525,950**	**7,176,013**	**659,493**
Earlier than 1990	7,941	4,131	22,829	19,419	136,820	289,244	43,082
1990	1,990	1,087	5,008	5,200	43,693	71,512	10,352
1991	2,272	1,134	5,712	6,281	59,122	86,524	13,077
1992	3,104	1,845	8,307	9,242	89,221	124,876	16,833
1993	4,260	2,215	9,896	10,532	98,694	141,683	17,026
1994	6,259	2,897	13,409	14,021	120,033	183,614	19,803
1995	8,060	3,487	16,721	17,254	147,332	231,941	23,492
1996	8,112	3,533	17,521	17,119	141,618	233,728	23,159
1997	12,476	4,960	25,131	23,768	196,817	337,358	33,392
1998	15,570	5,520	30,367	28,294	228,566	399,646	36,971
1999	16,345	5,310	30,355	27,690	232,960	404,708	33,981
2000	19,838	6,497	37,743	34,726	295,008	516,518	40,360
2001	17,919	5,164	33,507	29,549	284,444	472,035	39,527
2002	20,929	6,238	41,980	35,742	341,383	550,826	47,685
2003	22,889	6,049	43,162	37,047	363,728	575,935	50,930
2004	20,094	4,556	36,591	31,898	317,093	476,642	43,343
2005	23,877	4,346	41,934	36,057	373,347	536,811	46,529
2006	21,669	3,654	39,646	33,519	345,051	542,495	43,938
2007	27,372	3,982	46,582	39,783	413,277	571,444	45,762
2008	18,727	2,155	29,613	24,793	266,187	384,895	27,552
2009	1,925	367	2,986	2,851	31,369	41,931	2,689
2010	0	0	0	0	1	0	0
Year of vehicle model, unknown	18	0	0	2	177	1,639	0

	Saskat-chewan	Alberta	British Columbia	Yukon	Northwest Territories	Nunavut	Total
Total, all vehicle model years	**708,247**	**2,558,244**	**2,548,212**	**26,800**	**22,068**	**3,310**	**19,612,935**
Earlier than 1990	85,390	197,069	241,329	4,319	1,879	224	1,053,676
1990	15,136	46,042	69,198	859	396	56	270,529
1991	17,860	54,363	76,865	861	471	78	324,624
1992	20,953	60,032	85,987	930	442	88	421,865
1993	20,617	60,553	84,987	919	485	114	451,986
1994	24,326	70,053	87,782	986	590	118	543,897
1995	27,182	79,294	95,919	1,105	625	131	652,548
1996	24,148	73,406	81,852	880	548	110	625,743
1997	33,688	105,252	111,359	1,244	808	177	886,436
1998	35,384	122,590	115,314	1,186	884	183	1,020,480
1999	30,299	108,784	107,049	1,072	897	190	999,646
2000	36,500	128,339	127,869	1,128	1,134	213	1,245,879
2001	37,579	137,424	130,348	1,240	1,214	242	1,190,196
2002	44,395	168,285	160,695	1,450	1,381	289	1,421,282
2003	48,395	183,220	166,787	1,682	1,793	244	1,501,865
2004	43,734	169,241	149,339	1,295	1,443	184	1,295,458
2005	43,372	190,347	171,436	1,486	1,689	189	1,471,427
2006	42,305	206,250	168,225	1,370	1,816	174	1,450,119
2007	46,664	233,190	189,041	1,710	1,930	204	1,620,947
2008	28,748	151,713	116,622	957	1,531	93	1,053,592
2009	1,564	12,788	10,200	112	103	2	108,891
2010	0	0	0	0	0	0	2
Year of vehicle model, unknown	0	0	0	0	1	0	1,839

Table 2-2

Number of vehicles on the registration lists by jurisdiction and vehicle model year — Trucks 4.5 tonnes to 14.9 tonnes

	Newfoundland and Labrador	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba
Total, all vehicle model years	**4,324**	**1,459**	**9,018**	**7,579**	**58,887**	**101,517**	**11,795**
Earlier than 1990	918	694	2,014	899	12,496	7,107	2,781
1990	129	48	249	131	1,968	1,698	356
1991	107	41	188	128	1,321	1,301	284
1992	103	40	180	148	1,270	1,399	256
1993	103	42	207	154	1,519	1,801	306
1994	142	50	210	191	2,052	2,231	363
1995	189	63	374	238	2,616	3,150	490
1996	117	34	247	189	1,718	2,530	334
1997	161	47	347	265	1,849	3,720	460
1998	147	39	334	266	2,421	4,031	404
1999	221	74	522	429	3,428	6,485	554
2000	214	41	470	339	2,956	5,961	430
2001	185	36	386	349	2,255	5,982	513
2002	224	39	369	375	2,112	6,022	434
2003	188	40	474	625	2,823	7,454	519
2004	166	25	463	612	2,716	7,312	541
2005	257	21	507	574	3,450	8,280	696
2006	307	29	594	600	3,355	9,328	726
2007	204	27	497	507	3,549	8,468	645
2008	225	19	357	528	2,273	6,802	668
2009	9	1	21	24	657	377	28
2010	0	0	0	0	0	0	0
Year of vehicle model, unknown	1	0	0	1	75	69	0

	Saskat-chewan	Alberta	British Columbia	Yukon	Northwest Territories	Nunavut	Total
Total, all vehicle model years	**39,317**	**127,980**	**125,084**	**2,035**	**902**	**244**	**490,147**
Earlier than 1990	22,536	26,796	14,769	524	148	57	91,737
1990	515	1,681	2,784	57	34	12	9,661
1991	440	1,504	2,343	38	17	2	7,719
1992	428	1,383	2,508	49	13	5	7,785
1993	484	1,460	2,934	36	12	8	9,073
1994	515	1,903	3,381	45	17	7	11,112
1995	699	2,463	3,901	35	30	23	14,275
1996	451	1,756	2,971	41	13	5	10,410
1997	642	2,829	3,841	71	24	10	14,272
1998	668	2,894	3,371	43	20	8	14,653
1999	739	3,894	4,543	71	38	13	21,016
2000	653	3,391	4,377	52	36	11	18,935
2001	912	5,319	5,225	66	30	7	21,270
2002	793	4,540	5,460	69	25	4	20,472
2003	926	5,558	9,082	110	40	6	27,849
2004	782	5,010	9,486	121	39	7	27,286
2005	1,517	9,996	10,584	125	65	4	36,082
2006	1,866	14,460	12,865	194	85	22	44,436
2007	1,702	15,474	11,654	137	79	8	42,957
2008	2,029	15,309	8,830	143	127	16	37,330
2009	12	353	168	1	4	0	1,662
2010	0	0	0	0	0	0	0
Year of vehicle model, unknown	0	0	0	0	0	0	147

Table 2-3

Number of vehicles on the registration lists by jurisdiction and vehicle model year — Trucks 15 tonnes or more

	Newfoundland and Labrador	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba
Total, all vehicle model years	**3,512**	**2,774**	**8,069**	**4,452**	**37,940**	**117,463**	**17,237**
Earlier than 1990	528	1,382	1,086	1,148	1,362	8,346	2,032
1990	70	150	140	203	282	1,830	223
1991	63	109	98	113	175	1,171	167
1992	51	51	96	79	278	1,204	188
1993	61	79	136	141	361	1,540	333
1994	106	91	237	201	731	2,310	480
1995	165	163	343	245	1,211	4,046	617
1996	144	112	272	165	921	3,016	545
1997	105	58	254	132	1,029	3,439	557
1998	198	96	411	231	1,912	6,220	858
1999	195	99	488	260	2,230	7,813	942
2000	239	82	562	208	3,088	9,478	1,144
2001	146	47	299	128	1,994	6,234	761
2002	106	18	263	89	1,182	4,860	480
2003	152	29	382	129	2,539	6,953	824
2004	149	27	495	156	2,485	7,394	948
2005	237	32	647	200	4,907	11,326	1,378
2006	255	42	574	240	4,211	10,743	1,377
2007	351	55	795	215	4,830	13,561	2,097
2008	121	39	367	119	1,431	4,289	918
2009	58	7	115	43	768	1,605	360
2010	0	0	0	0	0	0	0
Year of vehicle model, unknown	1	0	0	0	3	76	0

	Saskat-chewan	Alberta	British Columbia	Yukon	Northwest Territories	Nunavut	Total
Total, all vehicle model years	**29,521**	**90,969**	**17,998**	**1,425**	**1,339**	**169**	**332,873**
Earlier than 1990	9,731	18,548	2,993	230	170	30	47,585
1990	790	1,736	686	32	34	3	6,177
1991	550	1,300	400	15	22	6	4,194
1992	529	1,045	519	31	18	3	4,097
1993	834	1,540	491	27	23	5	5,576
1994	1,122	2,391	644	29	37	5	8,389
1995	1,591	2,990	708	44	52	7	12,187
1996	1,159	2,480	656	44	54	7	9,580
1997	1,204	2,996	731	40	48	3	10,604
1998	1,644	4,309	749	53	71	8	16,765
1999	1,447	3,736	668	46	59	13	18,003
2000	1,429	4,046	596	67	70	7	21,020
2001	988	3,677	642	63	64	6	15,055
2002	543	2,872	598	38	40	3	11,095
2003	740	3,192	662	57	53	11	15,730
2004	816	4,151	906	55	66	9	17,662
2005	974	6,313	1,257	105	79	7	27,469
2006	982	7,897	1,544	141	112	8	28,132
2007	1,483	11,017	1,690	214	191	16	36,521
2008	698	3,362	672	64	44	5	12,134
2009	258	1,364	177	20	26	0	4,808
2010	0	0	0	0	0	0	0
Year of vehicle model, unknown	0	0	0	0	0	0	81

Table 3-1
Estimates of number of vehicles in scope for Canada by type of vehicle and jurisdiction

	Total, all vehicles	Vehicles up to 4.5 tonnes	Trucks 4.5 tonnes to 14.9 tonnes	Trucks 15 tonnes and over
Total - Canada	**20,166,421** A	**19,426,504** A	**412,811** A	**327,106** A
Newfoundland and Labrador	286,058 A	278,916 A	3,743 B	3,399 A
Prince Edward Island	82,015 A	78,024 A	1,240 B	2,751 A
Nova Scotia	552,505 A	536,569 A	7,885 B	8,051 A
New Brunswick	480,730 A	470,710 A	5,674 A	4,347 A
Quebec	4,560,974 A	4,475,574 A	43,579 A	41,821 A
Ontario	7,285,377 A	7,089,069 A	83,395 A	112,913 A
Manitoba	685,881 A	657,844 A	11,201 A	16,835 A
Saskatchewan	771,651 A	706,053 A	37,396 A	28,203 A
Alberta	2,727,151 A	2,516,246 A	122,051 A	88,854 A
British Columbia	2,675,964 A	2,565,469 A	93,662 A	16,833 A
Yukon	30,087 A	26,735 A	1,941 A	1,410 A
Northwest Territories	24,473 A	21,967 A	904 A	1,602 A
Nunavut	3,555 A	3,328 A	140 A	87 A

Table 3-2
Estimates of number of vehicles in scope for Canada by type of vehicle and vehicle model year

	Total, all vehicles	Vehicles up to 4.5 tonnes	Trucks 4.5 tonnes to 14.9 tonnes	Trucks 15 tonnes and over
Total, all ages of vehicle model	**20,166,421** A	**19,426,504** A	**412,811** A	**327,106** A
Later than 2005	3,942,311 A	3,757,038 A	105,114 A	80,159 A
2003 to 2005	4,541,973 A	4,400,905 A	79,080 B	61,988 A
1999 to 2002	5,174,901 A	5,042,142 A	72,013 B	60,745 A
1995 to 1998	3,276,115 A	3,187,534 A	42,130 B	46,450 B
Earlier than 1995	3,231,121 A	3,038,885 A	114,474 A	77,763 A

Table 3-3
Estimates of number of vehicles in scope for Canada by type of vehicle and vehicle body type

	Total, all vehicles	Vehicles up to 4.5 tonnes	Trucks 4.5 tonnes to 14.9 tonnes	Trucks 15 tonnes and over
Total, all vehicles body types	**20,166,421** A	**19,426,504** A	**412,811** A	**327,106** A
Car	10,362,959 A	10,362,594 A	...	...
Station wagon	623,672 B	623,672 B	...	...
Van	2,684,401 A	2,668,567 A	15,833 C	...
Sport utility vehicle	2,295,665 A	2,295,322 A	...	...
Pickup	3,497,151 A	3,415,691 A	81,248 B	F
Straight truck	439,423 A	39,382 E	286,300 A	113,741 A
Tractor trailer	241,055 A	...	18,094 C	210,912 A
Bus	F	...	F	...
Other vehicle type	22,087 E	F	10,619 D	2,240 E

Table 3-4
Estimates of number of vehicles in scope for Canada by type of vehicle and type of fuel

	Total, all vehicles	Vehicles up to 4.5 tonnes	Trucks 4.5 tonnes to 14.9 tonnes	Trucks 15 tonnes and over
Total, all fuel types	**20,166,421** A	**19,426,504** A	**412,811** A	**327,106** A
Gasoline	18,923,790 A	18,808,773 A	107,159 A	7,857 E
Diesel	1,160,400 A	542,224 B	299,648 A	318,528 A
Other fuel type	82,231 D	75,507 E	6,004 E	F

Table 4-1
Estimates of vehicle-kilometres for Canada by type of vehicle and jurisdiction

	Total, all vehicles	Vehicles up to 4.5 tonnes	Trucks 4.5 tonnes to 14.9 tonnes	Trucks 15 tonnes and over
	millions			
Total - Canada	**325,610.6** A	**294,361.0** A	**8,415.7** A	**22,833.9** A
Newfoundland and Labrador	5,279.2 B	5,035.1 B	62.3 D	181.9 C
Prince Edward Island	1,271.0 B	1,192.8 B	F	66.5 C
Nova Scotia	9,498.6 A	8,880.6 A	142.5 C	475.5 B
New Brunswick	7,416.6 B	7,164.5 B	117.1 C	135.0 D
Quebec	68,923.9 A	63,981.3 A	1,110.2 B	3,832.4 B
Ontario	124,673.3 A	113,619.7 A	1,788.6 B	9,265.1 B
Manitoba	11,407.7 A	9,705.0 A	192.6 C	1,510.0 B
Saskatchewan	12,813.1 A	11,162.4 B	494.4 C	1,156.3 B
Alberta	47,424.8 A	39,336.0 A	2,649.5 B	5,439.3 B
British Columbia	35,928.9 A	33,570.7 A	1,800.3 B	557.8 B
Yukon	520.1 B	377.8 C	31.2 B	111.2 D
Northwest Territories	423.2 B	306.0 C	14.2 D	102.9 C
Nunavut	30.2 C	29.1 C	F	F

Table 4-2
Estimates of vehicle-kilometres for Canada by type of vehicle and vehicle model year

	Total, all vehicle	Vehicles up to 4.5 tonnes	Trucks 4.5 tonnes to 14.9 tonnes	Trucks 15 tonnes and over
	millions			
Total, all ages of vehicle model	**325,610.6** A	**294,361.0** A	**8,415.7** A	**22,833.9** A
Later than 2005	82,454.0 A	69,684.9 A	3,394.3 A	9,374.9 A
2003 to 2005	84,236.0 A	75,861.4 A	2,203.2 B	6,171.4 B
1999 to 2002	82,213.0 A	76,486.4 A	1,571.1 B	4,155.5 B
1995 to 1998	44,268.2 A	41,449.0 A	670.1 C	2,149.0 C
Earlier than 1995	32,439.5 A	30,879.4 A	577.0 D	983.2 E

Table 4-3
Estimates of vehicle-kilometres for Canada by type of vehicle and vehicle body type

	Total, all vehicles	Vehicles up to 4.5 tonnes	Trucks 4.5 tonnes to 14.9 tonnes	Trucks 15 tonnes and over
	millions			
Total, all vehicles body types	**325,610.6** A	**294,361.0** A	**8,415.7** A	**22,833.9** A
Car	147,980.2 A	147,979.9 A	...	...
Station wagon	10,312.7 B	10,312.7 B	...	...
Van	45,339.4 A	45,017.5 A	321.9 E	...
Sport utility vehicle	37,216.9 A	37,216.9 A	...	...
Pickup	54,866.5 A	52,982.5 A	1,874.2 B	F
Straight truck	9,646.7 A	565.5 E	5,696.8 A	3,384.5 C
Tractor trailer	20,010.3 A	...	456.7 E	19,437.1 A
Bus	F	...	F	...
Other vehicle type	237.4 E	169.6 E	F	F

Table 4-4
Estimates of vehicle-kilometres for Canada by type of vehicle and type of fuel

	Total, all vehicles	Vehicles up to 4.5 tonnes	Trucks 4.5 tonnes to 14.9 tonnes	Trucks 15 tonnes and over
	millions			
Total, all fuel types	**325,610.6** A	**294,361.0** A	**8,415.7** A	**22,833.9** A
Gasoline	285,072.6 A	283,990.1 A	1,038.2 C	F
Diesel	38,973.5 A	8,862.9 B	7,333.3 A	22,777.3 A
Other fuel type	1,564.6 E	1,508.1 E	F	F

Table 5-1
Estimates of passenger-kilometres for provinces only by type of vehicle and jurisdiction

	Total, all vehicles	Vehicles up to 4.5 tonnes	Trucks 4.5 tonnes to 14.9 tonnes	Trucks 15 tonnes and over
	millions			
Total	**513,222.7** A	**476,797.3** A	**11,527.3** A	**24,898.2** A
Newfoundland and Labrador	9,903.1 B	9,627.9 B	F	202.8 C
Prince Edward Island	1,992.1 B	1,905.6 B	13.2 C	73.4 C
Nova Scotia	15,653.7 B	14,880.0 B	185.1 C	588.6 B
New Brunswick	12,298.3 B	11,997.8 B	156.1 C	144.4 E
Quebec	111,397.8 A	105,822.9 B	1,425.3 B	4,149.5 B
Ontario	194,234.4 A	181,677.2 A	2,267.2 B	10,290.0 B
Manitoba	17,730.6 B	15,797.5 B	296.4 E	1,636.7 C
Saskatchewan	20,517.8 B	18,451.4 B	729.5 E	1,336.9 C
Alberta	72,927.5 B	63,275.2 B	3,771.4 B	5,880.9 B
British Columbia	56,567.5 A	53,361.8 A	2,610.6 B	595.1 B

Table 5-2
Estimates of passenger-kilometres for provinces only by type of vehicle and vehicle model year

	Total, all vehicles	Vehicles up to 4.5 tonnes	Trucks 4.5 tonnes to 14.9 tonnes	Trucks 15 tonnes and over
	millions			
Total, all ages of vehicle model	**513,222.7** [A]	**476,797.3** [A]	**11,527.3** [A]	**24,898.2** [A]
Later than 2005	127,915.3 [A]	112,617.3 [A]	4,921.9 [A]	10,376.1 [A]
2003 to 2005	131,478.4 [A]	121,796.5 [A]	3,038.3 [B]	6,643.6 [B]
1999 to 2002	132,646.2 [A]	126,214.8 [A]	1,966.1 [B]	4,465.3 [B]
1995 to 1998	70,182.4 [A]	66,945.3 [A]	856.5 [E]	2,380.7 [C]
Earlier than 1995	51,000.5 [B]	49,223.4 [B]	744.6 [D]	1,032.5 [E]

Table 5-3
Estimates of passenger-kilometres for provinces only by type of vehicle and vehicle body type

	Total, all vehicles	Vehicles up to 4.5 tonnes	Trucks 4.5 tonnes to 14.9 tonnes	Trucks 15 tonnes and over
	millions			
Total, all vehicles body types	**513,222.7** [A]	**476,797.3** [A]	**11,527.3** [A]	**24,898.2** [A]
Car	236,657.1 [A]	236,657.1 [A]	...	...
Station wagon	14,433.8 [B]	14,433.8 [B]	...	...
Van	85,161.9 [A]	84,757.3 [A]	404.6 [D]	...
Sport utility vehicle	60,371.7 [A]	60,371.7 [A]	...	...
Pickup	82,129.9 [A]	79,318.4 [A]	2,805.4 [B]	F
Straight truck	12,077.7 [B]	F	7,615.1 [E]	3,674.0 [C]
Tractor trailer	22,017.2 [A]	...	618.9 [E]	21,213.7 [A]
Bus	F	...	F	...
Other vehicle type	373.4 [E]	285.7 [E]	F	F

Table 5-4
Estimates of passenger-kilometres for provinces only by type of vehicle and type of fuel

	Total, all vehicles	Vehicles up to 4.5 tonnes	Trucks 4.5 tonnes to 14.9 tonnes	Trucks 15 tonnes and over
	millions			
Total, all fuel types	**513,222.7** [A]	**476,797.3** [A]	**11,527.3** [A]	**24,898.2** [A]
Gasoline	462,172.8 [A]	460,678.4 [A]	1,424.6 [B]	F
Diesel	48,687.7 [A]	13,839.2 [B]	10,034.6 [A]	24,813.9 [A]
Other fuel type	2,362.3 [E]	2,279.7 [E]	F	F

Table 5-5

Estimates of passenger-kilometres for provinces only by passenger age group for vehicles up to 4.5 tonnes

	Vehicles up to 4.5 tonnes
	millions
Total, all ages	**476,797.3** A
Under 5 years	10,907.7 C
5 to 14 years	26,665.9 B
15 to 19 years	15,281.0 C
20 to 24 years	17,762.5 B
25 to 34 years	49,077.5 B
35 to 54 years	187,189.4 A
55 to 64 years	91,492.8 A
65 to 74 years	58,683.6 A
75 to 84 years	16,591.6 B
85 years and over	3,145.4 E

Table 6-1

Estimates of vehicle-kilometres and passenger-kilometres for provinces only by type of vehicle and driver age group

	Total, all vehicles	Vehicles up to 4.5 tonnes	Trucks 4.5 tonnes to 14.9 tonnes	Trucks 15 tonnes and over
	millions of vehicle-kilometres			
Total, all age groups	**324,637.1** A	**293,648.1** A	**8,369.3** A	**22,619.8** A
Under 20 years	3,412.2 E	3,402.3 E	F	F
20 to 24 years	9,071.9 C	8,299.9 C	238.0 E	534.0 E
25 to 34 years	35,991.3 A	30,991.4 B	1,385.5 B	3,614.4 B
35 to 44 years	61,256.6 A	52,466.3 A	2,290.2 B	6,500.1 B
45 to 54 years	95,540.9 A	85,161.1 A	3,207.3 A	7,172.5 A
55 to 64 years	70,134.6 A	64,619.6 A	1,088.1 B	4,426.9 B
65 years and over	49,229.7 A	48,707.6 A	150.3 D	371.9 E
	millions of passenger-kilometres			
Total, all age groups	**513,222.7** A	**476,797.3** A	**11,527.3** A	**24,898.2** A
Under 20 years	5,243.1 E	5,229.5 E	F	F
20 to 24 years	13,995.1 C	13,125.3 C	335.8 E	534.0 E
25 to 34 years	57,680.8 B	51,434.6 B	2,023.1 B	4,223.1 B
35 to 44 years	99,995.2 A	89,870.0 A	2,985.9 B	7,139.3 B
45 to 54 years	147,816.8 A	135,492.0 A	4,483.0 A	7,841.7 B
55 to 64 years	104,554.4 A	98,303.2 A	1,468.4 B	4,782.8 B
65 years and over	83,937.3 A	83,342.6 A	217.4 E	377.2 E

Table 6-2

Estimates of vehicle-kilometres and passenger-kilometres for provinces only by type of vehicle and sex of driver

	Total, all vehicles	Vehicles up to 4.5 tonnes	Trucks 4.5 tonnes to 14.9 tonnes	Trucks 15 tonnes and over
	millions of vehicle-kilometres			
Both sexes	**324,637.1** A	**293,648.1** A	**8,369.3** A	**22,619.8** A
Males	230,144.5 A	200,482.2 A	8,118.4 A	21,543.9 A
Females	94,492.6 A	93,165.9 A	250.9 D	1,075.8 C
	millions of passenger-kilometres			
Both sexes	**513,222.7** A	**476,797.3** A	**11,527.3** A	**24,898.2** A
Males	367,550.8 A	332,879.0 A	11,065.5 A	23,606.2 A
Females	145,671.9 A	143,918.2 A	461.8 C	1,291.9 C

Table 6-3

Estimates of vehicle-kilometres and passenger-kilometres for provinces only by driver age group and sex of driver

	Total, all vehicles	Vehicles up to 4.5 tonnes	Trucks 4.5 tonnes to 14.9 tonnes	Trucks 15 tonnes and over
	millions of vehicle-kilometres			
Total, all age groups				
Both sexes	324,637.1 A	293,648.1 A	8,369.3 A	22,619.8 A
Males	230,144.5 A	200,482.2 A	8,118.4 A	21,543.9 A
Females	94,492.6 A	93,165.9 A	250.9 D	1,075.8 C
Under 25 years				
Both sexes	12,484.1 C	11,702.2 C	247.9 E	534.0 E
Males	7,955.8 C	7,229.1 C	192.6 E	534.0 E
Females	4,528.3 D	4,473.1 D	F	F
25 to 54 years				
Both sexes	192,788.8 A	168,618.8 A	6,883.0 A	17,287.0 A
Males	133,784.3 A	110,837.9 A	6,692.6 A	16,253.8 A
Females	59,004.5 A	57,780.9 A	190.4 D	1,033.2 C
55 years and over				
Both sexes	119,364.2 A	113,327.1 A	1,238.4 B	4,798.7 B
Males	88,404.5 A	82,415.2 A	1,233.2 B	4,756.1 B
Females	30,959.8 B	30,911.9 B	F	42.6 E
	millions of passenger-kilometres			
Total, all age groups				
Both sexes	513,222.7 A	476,797.3 A	11,527.3 A	24,898.2 A
Males	367,550.8 A	332,879.0 A	11,065.5 A	23,606.2 A
Females	145,671.9 A	143,918.2 A	461.8 C	1,291.9 C
Under 25 years				
Both sexes	19,238.3 C	18,354.8 C	349.4 E	534.0 E
Males	12,539.6 C	11,714.5 C	291.1 E	534.0 E
Females	6,698.6 E	6,640.3 E	F	F
25 to 54 years				
Both sexes	305,492.8 A	276,796.6 A	9,492.0 A	19,204.1 A
Males	211,792.1 A	184,699.6 A	9,095.1 A	17,997.4 A
Females	93,700.7 B	92,097.0 B	397.0 E	1,206.7 C
55 years and over				
Both sexes	188,491.6 A	181,645.8 A	1,685.8 B	5,160.0 B
Males	143,219.0 A	136,464.9 A	1,679.4 B	5,074.8 B
Females	45,272.6 B	45,180.9 B	F	85.2 E

Table 6-4
Estimates of vehicle-kilometres and passenger-kilometres for provinces only by type of vehicle and dayof week

	Total, all vehicles	Vehicles up to 4.5 tonnes	Trucks 4.5 tonnes to 14.9 tonnes	Trucks 15 tonnes and over
	millions of vehicle-kilometres			
Total, all days of the week	**324,637.1** A	**293,648.1** A	**8,369.3** A	**22,619.8** A
Sunday	37,431.1 A	35,623.6 A	330.2 D	1,477.3 B
Monday	46,773.3 A	41,411.4 A	1,491.7 B	3,870.2 A
Tuesday	49,726.0 A	43,704.6 A	1,612.1 A	4,409.3 A
Wednesday	51,523.0 A	45,430.8 A	1,738.3 A	4,353.9 A
Thursday	48,351.2 A	42,848.9 A	1,490.9 A	4,011.4 A
Friday	51,973.0 A	47,620.1 A	1,200.3 A	3,152.6 A
Saturday	38,859.5 A	37,008.6 A	505.7 C	1,345.1 B
	millions of passenger-kilometres			
Total, all days of the week	**513,222.7** A	**476,797.3** A	**11,527.3** A	**24,898.2** A
Sunday	70,969.5 A	68,843.2 A	470.1 D	1,656.2 C
Monday	68,923.3 A	62,533.7 A	2,007.8 B	4,381.8 A
Tuesday	72,623.7 A	65,597.0 A	2,169.7 B	4,857.0 A
Wednesday	74,596.4 A	67,426.2 A	2,451.2 A	4,719.0 A
Thursday	71,898.6 A	65,630.9 A	1,982.9 A	4,284.8 A
Friday	82,760.1 A	77,561.3 A	1,760.9 B	3,437.9 A
Saturday	71,451.2 A	69,205.1 A	684.6 C	1,561.5 C

Table 6-5
Estimates of vehicle-kilometres and passenger-kilometres for provinces only by type of vehicle and type of day

	Total, all vehicles	Vehicles up to 4.5 tonnes	Trucks 4.5 tonnes to 14.9 tonnes	Trucks 15 tonnes and over
	millions of vehicle-kilometres			
Total, all days	**324,637.1** A	**293,648.1** A	**8,369.3** A	**22,619.8** A
Weekends and holidays	86,536.1 A	81,796.8 A	1,114.0 B	3,625.3 B
Weekdays	238,101.0 A	211,851.3 A	7,255.3 A	18,994.4 A
	millions of passenger-kilometres			
Total, all days	**513,222.7** A	**476,797.3** A	**11,527.3** A	**24,898.2** A
Weekends and holidays	157,512.0 A	151,896.3 A	1,509.5 B	4,106.2 B
Weekdays	355,710.7 A	324,900.9 A	10,017.7 A	20,792.0 A

Table 6-6
Estimates of vehicle-kilometres and passenger-kilometres for provinces only by type of vehicle and time of day

	Total, all vehicles	Vehicles up to 4.5 tonnes	Trucks 4.5 tonnes to 14.9 tonnes	Trucks 15 tonnes and over
	millions of vehicle-kilometres			
Total, all hours	**324,637.1** A	**293,648.1** A	**8,369.3** A	**22,619.8** A
00:00 to 05:59	10,293.0 A	7,910.8 B	256.8 C	2,125.4 B
06:00 to 11:59	106,902.5 A	94,852.4 A	3,784.1 A	8,266.0 A
12:00 to 17:59	146,338.9 A	133,911.6 A	3,724.3 A	8,703.0 A
18:00 to 23:59	61,102.7 A	56,973.3 A	604.0 B	3,525.4 A
	millions of passenger-kilometres			
Total, all hours	**513,222.7** A	**476,797.3** A	**11,527.3** A	**24,898.2** A
00:00 to 05:59	13,882.7 B	11,181.0 B	288.1 C	2,413.5 B
06:00 to 11:59	156,801.7 A	142,652.9 A	5,055.3 A	9,093.5 A
12:00 to 17:59	234,966.7 A	220,151.4 A	5,283.5 A	9,531.8 A
18:00 to 23:59	107,571.7 A	102,812.0 A	900.3 B	3,859.4 A

Table 6-7

Estimates of vehicle-kilometres and passenger-kilometres for provinces only by type of vehicle, type of day and time of day

	Total, all vehicles	Vehicles up to 4.5 tonnes	Trucks 4.5 tonnes to 14.9 tonnes	Trucks 15 tonnes and over
	millions of vehicle-kilometres			
Total, all days				
Total, all hours	**324,637.1** A	**293,648.1** A	**8,369.3** A	**22,619.8** A
00:00 to 05:59	10,293.0 A	7,910.8 B	256.8 C	2,125.4 B
06:00 to 11:59	106,902.5 A	94,852.4 A	3,784.1 A	8,266.0 A
12:00 to 17:59	146,338.9 A	133,911.6 A	3,724.3 A	8,703.0 A
18:00 to 23:59	61,102.7 A	56,973.3 A	604.0 B	3,525.4 A
Weekends and holidays				
Total, all hours	**86,536.1** A	**81,796.8** A	**1,114.0** B	**3,625.3** B
00:00 to 05:59	2,463.8 B	2,079.0 B	26.4 E	358.3 C
06:00 to 11:59	25,242.7 A	23,548.2 A	488.6 E	1,205.9 B
12:00 to 17:59	40,972.7 A	39,084.1 A	503.0 B	1,385.7 B
18:00 to 23:59	17,856.9 A	17,085.5 A	95.9 C	675.5 B
Weekdays				
Total, all hours	**238,101.0** A	**211,851.3** A	**7,255.3** A	**18,994.4** A
00:00 to 05:59	7,829.2 A	5,831.8 B	230.4 C	1,767.0 B
06:00 to 11:59	81,659.9 A	71,304.2 A	3,295.5 A	7,060.2 A
12:00 to 17:59	105,366.1 A	94,827.5 A	3,221.3 A	7,317.3 A
18:00 to 23:59	43,245.8 A	39,887.8 A	508.1 C	2,849.9 A
	millions of passenger-kilometres			
Total, all days				
Total, all hours	**513,222.7** A	**476,797.3** A	**11,527.3** A	**24,898.2** A
00:00 to 05:59	13,882.7 B	11,181.0 B	288.1 C	2,413.5 B
06:00 to 11:59	156,801.7 A	142,652.9 A	5,055.3 A	9,093.5 A
12:00 to 17:59	234,966.7 A	220,151.4 A	5,283.5 A	9,531.8 A
18:00 to 23:59	107,571.7 A	102,812.0 A	900.3 B	3,859.4 A
Weekends and holidays				
Total, all hours	**157,512.0** A	**151,896.3** A	**1,509.5** B	**4,106.2** B
00:00 to 05:59	3,596.1 B	3,147.5 C	32.9 E	415.7 C
06:00 to 11:59	43,085.6 A	41,103.7 A	622.6 B	1,359.2 B
12:00 to 17:59	77,141.3 A	74,879.4 A	698.8 B	1,563.1 B
18:00 to 23:59	33,689.1 A	32,765.7 A	155.2 C	768.2 B
Weekdays				
Total, all hours	**355,710.7** A	**324,900.9** A	**10,017.7** A	**20,792.0** A
00:00 to 05:59	10,286.6 B	8,033.4 B	255.3 C	1,997.9 B
06:00 to 11:59	113,716.1 A	101,549.1 A	4,432.7 A	7,734.3 A
12:00 to 17:59	157,825.4 A	145,272.0 A	4,584.7 A	7,968.7 A
18:00 to 23:59	73,882.6 A	70,046.3 A	745.1 C	3,091.2 A

Table 6-8
Estimates of vehicle-kilometres and passenger-kilometres for provinces only by type of vehicle and road type

	Total, all vehicles	Vehicles up to 4.5 tonnes	Trucks 4.5 tonnes to 14.9 tonnes	Trucks 15 tonnes and over
	millions of vehicle-kilometres			
Total, all roads	**324,637.1** A	**293,648.1** A	**8,369.3** A	**22,619.8** A
Roads with posted maximum speed of 80 kilometres per hour or more	177,709.0 A	157,246.5 A	4,675.1 A	15,787.4 A
All other roads	146,928.1 A	136,401.5 A	3,694.2 B	6,832.4 B
	millions of passenger-kilometres			
Total, all roads	**513,222.7** A	**476,797.3** A	**11,527.3** A	**24,898.2** A
Roads with posted maximum speed of 80 kilometres per hour or more	287,636.5 A	263,474.2 A	6,520.2 A	17,642.2 A
All other roads	225,586.2 A	213,323.1 A	5,007.1 B	7,256.0 B

Table 6-9
Estimates of vehicle-kilometres and passenger-kilometres for provinces only by origin and destination of trips for vehicles up to 4.5 tonnes

	Destination				
	Driver's home	Driver's regular workplace	Shopping centre, bank, other place of personal business	Leisure, entertainment, recreational facility, restaurant	Other
	millions of vehicle-kilometres				
Origin					
Driver's home	54,460.8 A	27,363.6 A	11,421.0 B	12,162.3 B	31,980.3 A
Driver's regular workplace	23,760.9 A	10,584.6 B	2,617.9 C	1,172.6 E	7,145.0 B
Shopping centre, bank, other place of personal business	12,592.1 B	971.7 E	5,258.1 C	1,278.1 E	4,183.2 C
Leisure, entertainment, recreational facility, restaurant	11,630.9 B	773.6 E	1,708.2 D	2,673.5 C	3,962.3 B
Other	32,173.1 A	4,944.8 B	5,063.5 B	3,833.9 B	19,928.3 B
	millions of passenger-kilometres				
Origin					
Driver's home	92,891.3 A	32,238.4 B	19,268.3 B	25,222.8 B	52,803.0 A
Driver's regular workplace	27,814.0 B	13,704.8 B	3,118.8 E	1,534.5 E	8,979.7 C
Shopping centre, bank, other place of personal business	20,443.7 B	F	8,733.7 C	2,107.5 E	7,523.3 C
Leisure, entertainment, recreational facility, restaurant	22,528.9 B	F	3,313.2 D	5,573.3 D	8,848.4 B
Other	53,797.3 A	6,859.3 C	9,757.9 C	8,215.0 B	39,267.0 B

Table 6-10
Estimates of vehicle-kilometres and passenger-kilometres for provinces only by part of the driver's job for vehicles up to 4.5 tonnes

	Vehicle-kilometres	Passenger-kilometres
	millions	
Total	**293,648.1** A	**476,797.3** A
Yes	52,739.6 A	69,629.8 A
No	240,908.5 A	407,167.5 A

Table 6-11

Estimates of vehicle-kilometres and passenger-kilometres for provinces only by vehicle group and trip purpose for trucks weighing 4.5 tonnes or more

	Trucks 4.5 tonnes to 14.9 tonnes	Trucks 15 tonnes and over
	millions of vehicle-kilometres	
Total, all groups		
Driving to or from service call	1,605.5 B	590.3 C
Carrying goods or equipment	3,613.1 A	18,256.8 A
Empty	466.9 C	3,080.6 B
Other work purpose	477.5 C	208.6 E
Non-work purpose	2,206.2 B	483.4 C
Total	**8,369.3** A	**22,619.8** A
Straight trucks		
Driving to or from service call	1,571.0 E	186.5 E
Carrying goods or equipment	3,380.6 A	2,534.9 C
Empty	449.2 C	473.4 E
Other work purpose	448.6 C	F
Non-work purpose	2,063.9 B	F
Total	**7,913.3** A	**3,369.6** C
Other trucks over 4.5 tonnes		
Driving to or from service call	34.5 E	403.7 D
Carrying goods or equipment	232.5 C	15,721.9 A
Empty	F	2,607.2 B
Other work purpose	29.0 E	177.5 E
Non-work purpose	142.2 E	339.8 C
Total	**456.0** E	**19,250.1** A
	millions of passenger-kilometres	
Total, all groups		
Driving to or from service call	2,143.4 B	726.6 C
Carrying goods or equipment	4,361.7 A	20,066.6 A
Empty	573.7 C	3,358.1 B
Other work purpose	689.5 C	217.6 E
Non-work purpose	3,759.0 B	529.2 D
Total	**11,527.3** A	**24,898.2** A
Straight trucks		
Driving to or from service call	2,089.2 B	259.3 E
Carrying goods or equipment	4,069.5 B	2,723.6 C
Empty	556.0 C	F
Other work purpose	656.5 C	F
Non-work purpose	3,537.2 B	F
Total	**10,908.4** A	**3,680.1** C
Other trucks over 4.5 tonnes		
Driving to or from service call	54.2 E	467.3 D
Carrying goods or equipment	292.2 D	17,343.0 A
Empty	F	2,851.3 B
Other work purpose	F	F
Non-work purpose	221.8 E	370.0 C
Total	**618.9** E	**21,218.1** A

Table 6-12

Estimates of vehicle-kilometres and passenger-kilometres for provinces only by carrying dangerous goods for trucks weighing 4.5 tonnes or more

	Total, all vehicles	Trucks 4.5 tonnes to 14.9 tonnes	Trucks 15 tonnes and over
	millions of vehicle-kilometres		
Total with or without dangerous goods	**30,989.0** A	**8,369.3** A	**22,619.8** A
With dangerous goods	2,248.0 B	389.8 B	1,858.3 B
Without dangerous goods	28,741.0 A	7,979.5 A	20,761.5 A
	millions of passenger-kilometres		
Total with or without dangerous goods	**36,425.4** A	**11,527.3** A	**24,898.2** A
With dangerous goods	2,461.8 B	459.8 B	2,002.1 C
Without dangerous goods	33,963.6 A	11,067.5 A	22,896.1 A

Table 7-1

Estimates by type of vehicle, type of fuel and vehicle body type for provinces only — Vehicle-kilometres

	Total, all vehicles		Vehicles up to 4.5 tonnes		Trucks 4.5 tonnes to 14.9 tonnes		Trucks 15 tonnes and over	
	Gasoline	Diesel	Gasoline	Diesel	Gasoline	Diesel	Gasoline	Diesel
	millions of vehicle-kilometres							
Vehicle body type								
Car	144,578.2 A	2,922.9 E	144,578.2 A	2,922.9 E	...	...	...	...
Station wagon	10,066.3 C	F	10,066.3 C	F	...	...	...	...
Van	43,914.7 B	844.4 E	43,788.6 B	651.6 E	F	192.8 E	...	...
SUV	36,182.2 B	F	36,182.2 B	F	...	...	...	...
Pickup	48,365.5 A	5,880.6 B	48,066.6 A	4,354.4 C	298.9 E	1,520.1 B	...	...
Straight truck	861.0 E	8,718.3 B	F	F	527.5 E	5,138.6 E	F	3,334.3 C
Tractor trailer	...	19,650.9 A	...	...	...	430.4 E	...	19,220.4 A
Bus	F	F	F	F	F	F	...	...
Other	202.0 E	F	169.6 E	F	F	F	...	F
Total	**284,312.0** A	**38,739.9** A	**283,284.6** A	**8,861.9** C	**1,010.5** D	**7,314.6** A	**F**	**22,563.3** A

Table 7-2

Estimates by type of vehicle, type of fuel and vehicle body type for provinces only — Fuel consumed

	Total		Vehicles up to 4.5 tonnes		Trucks 4.5 tonnes to 14.9 tonnes		Trucks 15 tonnes and over	
	Gasoline	Diesel	Gasoline	Diesel	Gasoline	Diesel	Gasoline	Diesel
	millions of litres							
Vehicle body type								
Car	12,708.4 E	F	12,708.4 E	F	...	...	...	...
Station wagon	949.8 C	F	949.8 C	F	...	...	...	...
Van	5,124.6 E	119.4 E	5,098.2 E	77.5 E	F	41.9 E	...	...
SUV	4,333.9 E	F	4,333.9 E	F	...	...	...	...
Pickup	6,954.7 A	927.7 B	6,892.8 A	609.6 E	62.0 E	315.6 C	...	...
Straight truck	184.8 E	2,455.2 B	F	F	127.0 E	1,228.5 E	F	1,192.5 C
Tractor trailer	...	6,875.6 A	...	...	...	109.5 E	...	6,766.0 A
Bus	F	F	F	F	F	F	...	...
Other	29.4 E	F	22.7 E	F	F	F	...	F
Total	**30,312.3** E	**10,673.8** A	**30,072.6** E	**1,007.1** C	**232.0** E	**1,704.8** B	**F**	**7,962.0** A

Table 8-1

Activity type for trucks weighing 4.5 tonnes or more for provinces only — Number of vehicles in scope by type of vehicle

	Trucks 4.5 tonnes to 14.9 tonnes	Trucks 15 tonnes and over
Total, all activity types	**409,825** A	**324,007** A
For-hire trucking	46,292 B	148,600 A
Owner-operator trucking	68,755 B	79,787 B
Private trucking	226,422 A	66,943 B
Other activity type	68,355 B	28,676 B

Table 8-2

Activity type for trucks weighing 4.5 tonnes or more for provinces only — Vehicle-kilometres and passenger-kilometres for trucks 4.5 tonnes to 14.9 tonnes

	Vehicle-kilometres	Passenger-kilometres
	millions	
Total, all activity types	**8,369.3** A	**11,527.3** A
For-hire trucking	1,303.5 E	1,630.9 E
Owner-operator trucking	1,525.3 E	2,179.9 E
Private trucking	4,343.3 B	6,042.7 B
Other activity type	1,197.1 C	1,673.8 C

Table 8-3

Activity type for trucks weighing 4.5 tonnes or more for provinces only — Vehicle-kilometres and passenger-kilometres for trucks 15 tonnes or more

	Vehicle-kilometres	Passenger-kilometres
	millions	
Total, all activity types	**22,619.8** A	**24,898.2** A
For-hire trucking	13,299.4 A	14,534.8 A
Owner-operator trucking	5,401.7 B	6,159.3 B
Private trucking	2,649.1 C	2,807.1 C
Other activity type	1,269.5 D	1,396.9 E

Table 9-1

Trip type for trucks weighing 4.5 tonnes or more for provinces only — Vehicle-kilometres and passenger-kilometres for trucks 4.5 tonnes to 14.9 tonnes

	Vehicle-kilometres	Passenger-kilometres
	millions	
Total, all trip types	**8,369.3** A	**11,527.3** A
Trips within provinces	7,838.5 A	10,558.6 A
Trips between provinces	406.3 E	839.9 E
Trips across Canada and United States border	F	F
Trips outside Canada	F	F

Table 9-2

Trip type for trucks weighing 4.5 tonnes or more for provinces only — Vehicle-kilometres and passenger-kilometres for trucks 15 tonnes or more

	Vehicle-kilometres	Passenger-kilometres
	millions	
Total, all trip types	**22,619.8** A	**24,898.2** A
Trips within provinces	13,142.1 A	14,374.9 A
Trips between provinces	3,542.9 A	3,988.0 B
Trips across Canada and United States border	4,720.3 B	5,219.5 B
Trips outside Canada	1,214.5 B	1,315.8 B

Concepts and definitions

The population of interest

The **in-scope vehicles** for the CVS include all motor vehicles, except buses (buses were included in the survey prior to 2004), motorcycles, off road vehicles (for example, snowmobiles, dune buggies, amphibious vehicles) and special equipment (for example, 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.

Definitions of variables in tables

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

Passenger-kilometres is the sum of the distances traveled by individual passengers (the driver being considered as one of the passengers). For example, for a vehicle with three passengers (the driver being one of them) that is driven on a distance of 10 kilometres, the number of passenger-kilometres will be 30. Light vehicles (see the Vehicle type definition below) report the number of passengers for each trip (see the Trip definition below). The number of passengers in heavy vehicles with gross vehicle weight of 4.5 tonnes or more (see the Vehicle type definition below) 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).

Fuel consumed is the amount of fuel used to operate vehicles. This variable is derived for each vehicle using the reported fuel purchases and distance driven.

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

The number of vehicles in scope is an estimate of the average number of vehicles registered during the quarter 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.

Definitions of vehicle characteristics

Vehicle type is the weight classification created for the CVS, based on the information available on the vehicle registration lists. The vehicles are divided into three weight types: **light vehicles** with gross vehicle weights below 4.5 tonnes, **heavy vehicles** with gross vehicle weights of 4.5 tonnes or more and less than 15 tonnes, and **heavy vehicles** with gross vehicle weights of 15 tonnes or more.

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

Fuel type is based on the information provided by the respondent or from 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 sources.

Vehicle model year is derived based on the information available on the registration lists.

Definitions of vehicle usage characteristics

The CVS definition of a **trip** determines the trip characteristics. The definition of what delimits a trip depends on the **vehicle type**:

A new trip is reported for **light vehicles** if any of the following events happen:

- the driver gets in the car
- a passenger gets in or out of the car

A new trip is reported for **heavy vehicles weighing 4.5 tonnes or more** if any of the following events happen:

- 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 **time of day** and **day of week** the trip takes place.
- **Driver age group** and **driver sex**.
- **Trip origin and destination** for light vehicles.
- **Trip purpose** for heavy vehicles, as 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.
- If **dangerous goods** (as defined by the Transportation of Dangerous Goods Act) are carried by heavy vehicles.
- **Number of kilometres** traveled on roads with posted speed limit of 80 km/h or more.
- **Age group** (Under 5 years, 5 to 14, 15 to 19, 20 to 34, 35 to 54, 55 to 64, 65 to 74, 75 to 84, 85 years and over) of passengers and the number of passengers within each group, to calculate passenger-kms. Passenger age information is collected only for light vehicles (see "Data quality, concepts and methodology — Data quality"). We collect the total number of passengers only for heavy vehicles.
- **Truck configuration** for heavy vehicles.
- Total cost, unit cost and quantity of **fuel purchased**.

Methodology

The 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.

Survey design

Survey population

The survey population of vehicles was derived from the 13 jurisdiction vehicle registration lists (ten Provincial and three Territorial Governments) created three months before the reference period. The sample of vehicles for each quarter of 2007 was drawn from lists of motor vehicles with valid registrations in any province or territory available three months before the beginning of each quarter. Buses, motorcycles, off-road vehicles (e.g., snowmobiles, dune buggies, amphibious vehicles) and special equipment (e.g., cranes, street cleaners, snowplows and backhoes) were excluded from the survey. This population differs from the population of interest of vehicles; e.g., vehicles that were registered less than three months before the quarter began (or during the quarter) were not included in that quarter's sample.

The thirteen incoming lists underwent a thorough preparation procedure:

- First, out-of-scope vehicles are removed (buses, trailers, motorcycles, construction equipment, parade vehicles, motor homes, etc.) from each list.
- Second, vehicles with expired registrations are removed from each list.
- Then, records with duplicate Vehicle Identification Numbers (VIN) within each list are removed leaving only the record that had been updated most recently.
- Last, records in each file with irregular data are verified.

The most recent set of prepared lists was used to select the sample for each quarter of 2007. These sets of vehicle lists and the days within the respective quarter constitute the survey population.

Sample design

The CVS uses a two-stage sample design. At the first-stage, a sample of vehicles is selected, while at the secondstage, a sample of consecutive days within the quarter is selected.

To select the first-stage sample, all vehicles from the survey population were first stratified (grouped) into 78 strata. The vehicles were stratified into three vehicle types (see appendix I) and 13 jurisdictions (ten provinces and three territories). Then, in order to improve the precision of the estimates, the vehicles were further divided into two vehicle-age strata of newer and older vehicles.

Next, the vehicles were sorted within each stratum, using the first three characters of the postal code of the owner's address. Then, a systematic sample of vehicles (first stage sample) was selected from the survey population. Systematic sampling was used to spread the sample over all regions and to avoid heavy burden on owners of multiple vehicles. To minimize respondent burden, no vehicle is selected more than once during any consecutive four quarters for provinces and two consecutive quarters for territories.

In the second stage, a first reporting day within the quarter was randomly assigned to each vehicle selected in 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 "Survey overview").

Estimation

Since the sample was selected in two stages, the sampling weight (see appendix I) 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.

Sample size

A total sample of 21,495 vehicles was drawn for the ten provinces. Another 12,060 vehicles were included in the sample for the three territories.

Data collection and processing

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, the following information is collected about each sampled vehicle: vehicle type, fuel type used, distance driven the previous week, some information about anticipated vehicle usage during the following six weeks, current odometer reading, some vehicle maintenance questions and some questions on the household characteristics. Then the respondent was asked to complete a trip log. If the respondent agreed, personal information, such as name and address, were obtained in order to mail out the trip log for the vehicle.

The log type depended on the type of vehicle. There were two types of logs: a light vehicle log and a heavy vehicle log.

Respondents receiving a light vehicle log were requested to record information for 20 consecutive trips made in the selected vehicle, beginning on the assigned first reporting day. Respondents receiving a heavy vehicle log were requested to record information for all the trips made in the selected vehicle over the assigned seven-day period.

The collected data included information about each trip:

- Start and stop dates and times
- Start and stop odometer readings
- origin and destination (light vehicle log) or trip purpose (heavy vehicle log)
- number and age group of passengers (light vehicle log) or number of passengers at the start and end of the trip (heavy vehicle log)
- sex and age group of the driver
- fuel purchases

- distance traveled on roads with posted speed limit of 80km/h or more
- truck configuration (heavy vehicle log only)
- dangerous goods (heavy vehicle log only)

Starting in 2004, the respondents were also asked to continue to record their fuel purchases until they reported two fill-ups or five fuel purchases or until the 28-day reporting period is over.

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 companies with large vehicle fleets have special arrangements to lower their response burden. There is no follow-up done with these companies.)

Territorial collection

The registered owners of the selected vehicles were mailed questionnaires and asked to provide two odometer readings, one at the beginning of the quarter and another at the beginning of the next quarter. Information was also collected on the vehicle status (owned, sold, scrapped), body style (car, SUV, pick-up, etc.) and type of fuel used.

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.

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

Estimation

Since the survey population differs from the population of interest, several corrections were done to assure that the estimates correspond (as closely as possible) to the population of interest. 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, new sets of prepared vehicle lists were 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 jurisdiction and vehicle type;
- vehicle-kilometres by jurisdiction and vehicle type;

- passenger-kilometres by province and vehicle type;
- fuel consumed, by vehicle type and fuel type;
- cross tabulations of vehicle-kilometers and passenger-kilometers by a number of variables (described in "Data quality, concepts and methodology — Data quality"), such as body type, driver characteristics, time of day, day of week, etc.

Data quality

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

Sources of errors

While considerable effort is put forth to ensure that a high standard is maintained 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 value for the population, at which the survey estimate aims. The total survey error consists of two types of errors: sampling and non-sampling errors.

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.

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 nonsampling 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 the 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 can be conducted to obtain information from the total nonrespondents or to complete partially unanswered questionnaires for questions that are deemed essential. Various quality assurance procedures can be exercised at the data capture step. The data editing procedures can identify some inconsistencies in the data structure and the imputation procedures can then 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.

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 the CVS were observed:

- Errors in the classification variables of 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 reference period. Thus the vehicles registered after the list was created and before the end of the reference period 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.
- The survey population (see "Data quality, concepts and methodology — Methodology") can contain vehicles with the same Vehicle Identification Number (VIN), for example, when a vehicle is on the registration file of more than one jurisdiction. Since every vehicle has a unique VIN, this is likely to cause some overcoverage and consequently overestimation.
- A vehicle that was registered and subsequently unregistered between two consecutive registration lists causes undercoverage.

Thus the 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.

Since we assume that the respondent is right (unless we have hard evidence to the contrary), the corrections at the estimation stage are mostly based on the respondent statements.

Response errors

Response errors occur when a respondent provides incorrect information due to a misinterpretation of the survey questions or due to a lack of correct information, or when a respondent 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.

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 tables in "Data quality, concepts and methodology — Data quality".

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. A data capture error occurs when the data are misinterpreted or keyed incorrectly. For example, an odometer reading of 53467 could be keyed as 54367.

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, for vehicles that travel only a small distance during the reported period, fuel purchases that are missing or entered in error.

Measuring quality

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

Response rates

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

Table A
Vehicle response rates by province and vehicle type

	Newfoundland and Labrador	Prince Edward Island	Nova Scotia	New Brusnwick	Quebec	Ontario	Manitoba	Saskat-chewan	Alberta	British Columbia
	percent									
Light vehicles	61	67	55	57	65	59	67	58	53	53
Heavy vehicles 4.5 to 14.9 tonnes	58	69	65	65	68	63	68	60	57	60
Heavy vehicles 15 tonnes or more	66	69	67	64	71	65	64	63	51	62

Table B
Vehicle response rates by territory

	Yukon	Northwest Territories	Nunavut
	percent		
All vehicles	16	15	8

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.

Relative imputation rates

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 nonimputed data and 5 million from imputed data, then the relative imputation rate is .2 (5 million divided by 25 million) or 20%. The lower the relative imputation rates are, the more reliable the published estimates are.

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.

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 take into account the variability due to sampling and the variability due to non-response and imputation.

Quality indicator

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 is a function of the CV, which takes into account the variability due to sampling and the variability due to non-response and imputation.

Letter and significance	Coefficient of variation
A excellent	Less than 5%
B very good	5% to 9.9%
C good	10% to 14.9%
D acceptable	15% to 19.9%
E use with caution	20% to 34.9%
F too unreliable to be published	35% or more

The quality of counts (direct from registration lists) not accompanied by a quality symbol is good or better.

Notes for historical comparison

Recent updates to the vehicle registration files have now been incorporated into the Canadian Vehicle Survey counts and estimates for British Columbia. The revisions affect the 2003 to 2005 survey years. On average, estimated vehicle kilometres in British Columbia have been revised upward by 0.6% for 2003, 2.3% for 2004, and 6.7% for 2005.

Note that these revisions, in turn, affect the national estimates for the same periods, although the magnitude is much smaller – 0.1% in 2003, 0.4% in 2004, and 0.7% in 2005.

Revisions were also made in order to treat holidays consistently across the reference periods. This affected most variables for the four quarters of 2004. Impacts of the revisions vary depending on the variable, but are generally greatest for tables dealing with the day of week or time of day.

Beginning with Quarter 1, 2004, the following changes were made and may affect comparability with previous quarters:

- Buses are excluded from the survey
- Rather than estimates of the quantity of fuel purchased, the survey now produces estimates of the quantity of fuel consumed.
- The light vehicle log is based on 20 trips rather than reporting all trips for 7 days. Depending on vehicle usage, some respondents will report more than 7 days worth of trips while others will report less than 7 days.
- The definition of a trip for light vehicles has changed so that a new trip is now reported every time a driver gets in the vehicle or a passenger gets in or out of the vehicle. This change will mean that what was previously reported as one trip could now be reported as two, three or even more trips if there is a change in driver and/or multiple passengers are picked up or dropped off at different locations. This new definition will produce more accurate estimates of passenger-kilometres for light vehicles.

Beginning with Quarter 2, 2003, vehicles that were insured but not registered were removed from the registration lists for Manitoba. As a result, some estimates for Manitoba may be lower than the estimates from previous quarters.

Beginning with Quarter 4, 2001, vehicles that were registered but did not have license plates were removed from the registration lists for Quebec. As a result, some estimates for Quebec may be lower than the estimates from previous quarters.

Beginning with Quarter 1, 2001, the following changes were made and may affect comparability with previous quarters:

- Prior to this quarter, duplicate records found within the same list and duplicate records found in more than one list were removed. Starting in this quarter, duplicate records were removed from within each list only. This change may cause some overcoverage and, consequently, overestimation.
- Type of fuel used and body type are collected for the territories. Consequently, the four tables (3-3, 3-4, 4-3 and 4-4) now include the territories.
- The heavy vehicle logs were changed in 2001 in order to collect passenger information for heavy vehicles. This change means that passenger-kilometres are now estimated for all vehicles, except urban transit buses, for all the provinces (but not for territories).
- The heavy vehicle logs were also changed in 2001 in order to collect distance traveled on roads with posted speeds of 80 kilometres per hour or more. This change means that this information is now estimated for all vehicle types in all provinces (but not for the territories).

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

- Owners of buses and heavy vehicles registered in the territories are now sent two short questionnaires 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 questionnaire at the end of the quarter and requesting that bus and heavy vehicle owners rely on maintenance records to provide odometer readings for the start of the quarter.

The following changes were made in the first quarter of 2000 to improve the quality of the survey by diminishing non-sampling errors.

The changes that affect comparability with 1999 results:

- The trip purpose choices (for all vehicle types) were changed. The purpose is now based on the destination of the trip. Thus the results from 2000 and 1999 are not comparable for this item.
- Passenger-kilometers were not collected for heavy vehicles in 2000.

The changes that may affect comparability with the 1999 results:

- A new log was developed for survey year 2000 for all heavy vehicles. In 1999 heavy vehicles with gross vehicle weights of 4.5 tonnes or more and less than 15 tonnes had a different log than heavy vehicles with gross vehicle weights of 15 tonnes or more.
- The fuel purchased question was attached to each trip for the 2000 survey year for heavy vehicles. Previously it was recorded separately from the trips.

Appendix I

Glossary

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

Survey population: the collection of all units (for example, 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 (for example, 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.