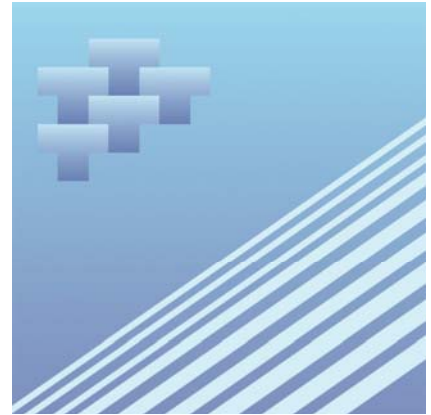




Catalogue no. 53F0004XIE

# Canadian Vehicle Survey: Quarterly

Third quarter 2005



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Statistics Canada  
Transportation Division

# Canadian Vehicle Survey: Quarterly

Third quarter 2005

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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

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## 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
- 0<sup>s</sup> 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

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- Over 18.8 million vehicles were in-scope for the Canadian Vehicle Survey during this quarter.
- Between July 1 and September 30, 2005, these vehicles travelled an estimated 88.6 billion kilometres.
- During this quarter, vehicles weighing less than 4 500 kilograms were driven an average of 4 460 kilometres while the largest of the trucks (trucks with gross weight 15 000 kilograms or more) were driven an average of 17 680 kilometres.

## Introduction

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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 third quarter of 2005.



## Survey overview

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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.ca](mailto:transportationstatistics@statcan.ca).

## Related products

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### Selected publications from Statistics Canada

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53-223-X	Canadian Vehicle Survey: Annual
53F0007X	Driving characteristics of the young and aging population

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### Selected CANSIM tables from Statistics Canada

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405-0005	Canadian vehicle survey, number of vehicles in frame, by type of vehicle, province and territory
405-0006	Canadian vehicle survey, number of vehicles in scope, by type of vehicle, province and territory
405-0007	Canadian vehicle survey, passenger-kilometres, by type of vehicle and province
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405-0108	Canadian vehicle survey, vehicle-kilometres and passenger-kilometres for trucks 15 tonnes and over, by type of activity
405-0109	Canadian vehicle survey, vehicle-kilometres and passenger-kilometres for trucks 4.5 tonnes to 14.9 tonnes, by type of trip
405-0110	Canadian vehicle survey, vehicle-kilometres and passenger-kilometres for trucks 15 tonnes and over, by type of trip

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### **Selected surveys from Statistics Canada**

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2749	Canadian Vehicle Survey
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# Statistical tables

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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
<b>Total - Canada</b>	<b>19,008,415</b>	<b>18,264,081</b>	<b>429,097</b>	<b>315,237</b>
Newfoundland and Labrador	260,453	252,708	4,105	3,640
Prince Edward Island	81,487	77,025	1,658	2,804
Nova Scotia	551,743	534,225	9,373	8,145
New Brunswick	471,032	457,647	8,242	5,143
Quebec	4,338,750	4,235,964	62,072	40,714
Ontario	7,055,159	6,844,295	92,708	118,156
Manitoba	662,177	635,435	10,694	16,048
Saskatchewan	746,842	675,746	43,494	27,602
Alberta	2,435,786	2,251,641	108,414	75,731
British Columbia	2,350,207	2,249,770	85,630	14,807
Yukon Territory	28,213	25,238	1,739	1,236
Northwest Territories	22,940	21,145	736	1,059
Nunavut	3,626	3,242	232	152

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
<b>Total, all vehicle model years</b>	<b>252,705</b>	<b>77,023</b>	<b>534,226</b>	<b>457,645</b>	<b>4,235,964</b>	<b>6,844,296</b>	<b>635,437</b>
Earlier than 1987	5,187	3,466	20,654	16,532	113,168	240,994	46,342
1987	1,586	1,035	5,155	4,746	38,436	58,579	10,048
1988	3,431	1,663	8,304	7,999	64,239	95,355	13,889
1989	4,049	2,053	10,073	9,710	77,878	127,946	16,000
1990	4,483	2,477	12,614	11,853	103,851	161,871	20,043
1991	5,673	2,722	14,676	14,315	132,049	194,832	23,561
1992	7,557	3,815	19,580	19,160	176,897	247,175	27,604
1993	10,075	4,164	22,050	19,872	180,212	271,262	26,434
1994	12,481	4,723	25,796	22,858	189,753	300,232	27,944
1995	13,395	5,129	28,367	25,131	211,221	349,974	31,532
1996	10,953	4,461	25,304	21,792	176,965	305,617	28,741
1997	15,132	5,519	32,642	27,222	225,679	409,129	38,686
1998	17,728	5,768	36,634	30,848	249,553	453,292	41,090
1999	17,679	5,335	34,802	28,915	248,029	446,582	36,341
2000	20,826	6,268	42,054	35,580	309,449	547,725	42,019
2001	18,334	4,461	34,772	29,167	288,265	488,535	39,098
2002	23,080	4,522	42,264	34,663	359,328	555,222	44,808
2003	24,768	4,024	42,532	35,666	399,317	595,333	46,713
2004	20,645	2,969	37,358	31,569	349,713	496,368	41,087
2005	15,451	2,354	36,586	28,768	327,119	468,578	32,231
2006	169	95	2,009	1,276	14,350	29,695	1,227
Year unknown	23	0	0	3	493	0	0
	Saskat- chewan	Alberta	British Columbia	Yukon Territory	Northwest Territories	Nunavut	Total
<b>Total, all vehicle model years</b>	<b>675,747</b>	<b>2,251,640</b>	<b>2,249,765</b>	<b>25,237</b>	<b>21,145</b>	<b>3,243</b>	<b>18,264,073</b>
Earlier than 1987	93,757	199,234	209,245	3,616	1,766	184	954,145
1987	14,303	35,923	51,609	730	316	47	222,513
1988	19,055	52,496	67,248	981	508	80	335,248
1989	21,022	62,744	80,986	1,067	583	75	414,186
1990	24,056	75,144	98,023	1,131	622	86	516,254
1991	26,625	82,945	101,665	1,091	670	113	600,937
1992	28,851	86,645	108,840	1,092	663	134	728,013
1993	27,333	83,366	103,675	1,059	639	145	750,286
1994	30,295	90,963	102,196	1,090	745	157	809,233
1995	32,791	98,565	107,267	1,163	786	178	905,499
1996	27,843	85,483	87,190	918	652	143	776,062
1997	37,277	117,640	114,233	1,262	961	208	1,025,590
1998	38,209	133,192	114,986	1,166	1,050	205	1,123,721
1999	31,853	114,736	104,075	1,048	1,109	216	1,070,720
2000	37,638	132,443	122,669	1,103	1,335	235	1,299,344
2001	36,992	138,498	120,132	1,216	1,521	254	1,201,245
2002	40,441	162,441	143,709	1,382	1,720	275	1,413,855
2003	42,040	175,160	148,135	1,618	2,280	218	1,517,804
2004	38,427	164,573	132,642	1,315	1,753	153	1,318,572
2005	26,298	151,519	125,594	1,141	1,409	123	1,217,171
2006	641	7,931	5,646	48	55	14	63,156
Year unknown	0	0	0	0	1	0	520

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
<b>Total, all vehicle model years</b>	<b>4,103</b>	<b>1,657</b>	<b>9,373</b>	<b>8,241</b>	<b>62,072</b>	<b>92,708</b>	<b>10,693</b>
Earlier than 1987	776	753	2,033	1,054	10,915	6,104	2,751
1987	109	71	311	162	2,389	1,628	286
1988	184	84	334	208	3,112	2,237	344
1989	152	96	343	193	2,632	2,317	321
1990	172	63	353	213	2,660	2,641	436
1991	170	45	267	219	1,771	1,945	402
1992	135	40	259	241	1,710	2,046	345
1993	152	50	282	287	1,973	2,619	393
1994	189	60	304	337	2,524	3,256	407
1995	243	65	511	403	3,245	4,384	567
1996	136	33	310	313	2,119	3,411	372
1997	193	47	413	386	2,241	4,775	477
1998	174	26	421	411	2,818	4,975	406
1999	227	55	559	549	3,869	7,468	533
2000	205	38	481	377	3,255	6,587	398
2001	176	27	399	416	2,527	6,510	436
2002	210	32	386	415	2,358	6,489	371
2003	176	26	489	702	3,062	7,824	437
2004	141	21	461	755	2,871	7,367	408
2005	167	21	399	518	3,135	7,121	528
2006	14	3	59	82	669	1,005	75
Year unknown	2	0	0	0	217	0	0

	Saskat- chewan	Alberta	British Columbia	Yukon Territory	Northwest Territories	Nunavut	Total
<b>Total, all vehicle model years</b>	<b>43,495</b>	<b>108,415</b>	<b>85,629</b>	<b>1,735</b>	<b>736</b>	<b>230</b>	<b>429,087</b>
Earlier than 1987	31,450	33,723	12,371	511	131	38	102,610
1987	500	1,883	1,448	35	15	11	8,848
1988	495	2,538	2,289	59	22	13	11,919
1989	432	2,620	2,513	60	21	8	11,708
1990	568	2,821	2,868	62	40	13	12,910
1991	519	2,175	2,307	36	23	9	9,888
1992	475	2,180	2,354	46	19	7	9,857
1993	529	2,206	2,800	35	16	13	11,355
1994	555	2,714	3,168	53	22	6	13,595
1995	764	3,401	3,691	34	30	26	17,364
1996	482	2,364	2,617	35	18	5	12,215
1997	678	3,872	3,472	65	30	9	16,658
1998	665	3,663	3,027	39	25	9	16,659
1999	673	4,609	3,876	71	40	14	22,543
2000	568	4,068	3,670	51	37	10	19,745
2001	815	5,877	4,401	63	33	6	21,686
2002	671	5,071	4,674	67	37	6	20,787
2003	829	6,224	7,815	142	34	10	27,770
2004	699	5,379	8,185	134	36	10	26,467
2005	1,074	9,612	7,585	135	91	5	30,391
2006	53	1,415	498	2	17	2	3,894
Year unknown	0	0	0	0	0	0	219



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
<b>Total, all vehicle model years</b>	<b>3,641</b>	<b>2,802</b>	<b>8,143</b>	<b>5,140</b>	<b>40,711</b>	<b>118,154</b>	<b>16,047</b>
Earlier than 1987	448	1,089	905	1,015	1,061	6,490	1,700
1987	132	217	238	345	440	2,544	344
1988	165	201	249	289	588	2,707	357
1989	177	150	295	269	515	2,905	327
1990	121	144	186	281	482	2,773	298
1991	101	94	115	147	303	1,701	209
1992	87	50	140	121	476	1,727	237
1993	95	66	202	204	672	2,403	419
1994	146	92	325	257	1,319	3,578	621
1995	236	155	451	312	2,085	6,211	774
1996	185	94	360	200	1,542	4,562	694
1997	168	47	316	162	1,639	4,974	674
1998	253	75	545	266	2,983	8,679	1,085
1999	224	84	605	261	3,461	10,469	1,144
2000	277	72	745	221	4,520	12,343	1,369
2001	139	35	379	132	2,889	7,745	832
2002	107	12	281	92	1,871	5,485	567
2003	151	34	478	134	3,652	7,834	986
2004	167	39	563	144	3,279	8,303	1,255
2005	225	39	595	190	5,388	11,345	1,725
2006	36	13	171	97	1,529	3,375	430
Year unknown	1	0	0	0	17	0	0

	Saskat- chewan	Alberta	British Columbia	Yukon Territory	Northwest Territories	Nunavut	Total
<b>Total, all vehicle model years</b>	<b>27,601</b>	<b>75,731</b>	<b>14,805</b>	<b>1,235</b>	<b>1,057</b>	<b>151</b>	<b>315,218</b>
Earlier than 1987	9,484	17,252	2,632	241	161	17	42,495
1987	955	1,364	420	18	14	4	7,035
1988	1,057	1,973	454	37	18	0	8,095
1989	892	1,783	459	23	22	5	7,822
1990	894	2,003	728	35	30	2	7,977
1991	583	1,483	425	20	23	7	5,211
1992	593	1,241	554	37	19	5	5,287
1993	887	1,761	528	33	23	5	7,298
1994	1,168	2,719	655	36	33	6	10,955
1995	1,613	3,500	726	48	58	9	16,178
1996	1,149	2,803	662	53	57	11	12,372
1997	1,107	3,349	694	55	54	4	13,243
1998	1,476	4,802	728	61	74	10	21,037
1999	1,173	3,856	656	61	64	20	22,078
2000	1,086	3,923	559	94	71	7	25,287
2001	778	3,723	596	78	67	8	17,401
2002	430	2,951	522	49	52	5	12,424
2003	559	3,339	632	66	50	9	17,924
2004	729	4,247	824	75	72	10	19,707
2005	850	6,052	1,064	101	82	4	27,660
2006	137	1,607	288	14	14	2	7,713
Year unknown	0	0	0	0	0	0	18

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
<b>Total - Canada</b>	<b>18,831,275<sup>A</sup></b>	<b>18,154,050<sup>A</sup></b>	<b>365,756<sup>A</sup></b>	<b>311,469<sup>A</sup></b>
Newfoundland and Labrador	262,489 <sup>B</sup>	255,166 <sup>B</sup>	4,022 <sup>D</sup>	3,300 <sup>C</sup>
Prince Edward Island	83,648 <sup>B</sup>	79,462 <sup>B</sup>	1,373 <sup>D</sup>	2,813 <sup>B</sup>
Nova Scotia	536,864 <sup>A</sup>	520,843 <sup>A</sup>	7,848 <sup>C</sup>	8,173 <sup>B</sup>
New Brunswick	457,021 <sup>A</sup>	445,680 <sup>A</sup>	6,256 <sup>C</sup>	5,084 <sup>B</sup>
Quebec	4,232,593 <sup>A</sup>	4,136,343 <sup>A</sup>	55,573 <sup>C</sup>	40,677 <sup>B</sup>
Ontario	7,014,485 <sup>A</sup>	6,822,285 <sup>A</sup>	76,563 <sup>B</sup>	115,637 <sup>B</sup>
Manitoba	658,666 <sup>A</sup>	633,257 <sup>A</sup>	9,585 <sup>C</sup>	15,823 <sup>B</sup>
Saskatchewan	741,336 <sup>A</sup>	673,467 <sup>A</sup>	42,820 <sup>C</sup>	25,049 <sup>C</sup>
Alberta	2,431,420 <sup>A</sup>	2,265,172 <sup>A</sup>	89,336 <sup>C</sup>	76,911 <sup>B</sup>
British Columbia	2,359,349 <sup>A</sup>	2,274,336 <sup>A</sup>	69,746 <sup>B</sup>	15,267 <sup>B</sup>
Yukon Territory	27,204 <sup>A</sup>	24,220 <sup>A</sup>	1,665 <sup>A</sup>	1,319 <sup>A</sup>
Northwest Territories	22,640 <sup>A</sup>	20,601 <sup>A</sup>	736 <sup>A</sup>	1,303 <sup>A</sup>
Nunavut	3,562 <sup>A</sup>	3,216 <sup>A</sup>	232 <sup>A</sup>	F

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
<b>Total, all vehicle model years</b>	<b>18,831,275<sup>A</sup></b>	<b>18,154,050<sup>A</sup></b>	<b>365,756<sup>A</sup></b>	<b>311,469<sup>A</sup></b>
Later than 2002	3,405,407 <sup>A</sup>	3,270,013 <sup>A</sup>	69,870 <sup>B</sup>	65,524 <sup>B</sup>
2000 to 2002	4,586,591 <sup>A</sup>	4,467,740 <sup>A</sup>	61,766 <sup>C</sup>	57,084 <sup>B</sup>
1996 to 1999	4,940,857 <sup>A</sup>	4,770,555 <sup>A</sup>	80,644 <sup>C</sup>	89,659 <sup>B</sup>
1992 to 1995	3,327,014 <sup>B</sup>	3,239,161 <sup>B</sup>	42,964 <sup>D</sup>	44,889 <sup>C</sup>
Earlier than 1992	2,571,406 <sup>B</sup>	2,406,581 <sup>B</sup>	110,512 <sup>C</sup>	54,313 <sup>C</sup>

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
<b>Total, all vehicle body types</b>	<b>18,831,275<sup>A</sup></b>	<b>18,154,050<sup>A</sup></b>	<b>365,756<sup>A</sup></b>	<b>311,469<sup>A</sup></b>
Car	9,951,989 <sup>A</sup>	9,951,989 <sup>A</sup>	.	.
Station wagon	269,824 <sup>E</sup>	269,824 <sup>E</sup>	.	.
Van	3,033,761 <sup>B</sup>	3,012,265 <sup>B</sup>	21,431 <sup>E</sup>	.
Sport utility vehicle	1,406,258 <sup>B</sup>	1,406,258 <sup>B</sup>	.	.
Pickup	3,508,739 <sup>B</sup>	3,460,428 <sup>B</sup>	48,310 <sup>D</sup>	F
Straight truck	449,432 <sup>B</sup>	F	284,423 <sup>B</sup>	121,970 <sup>B</sup>
Tractor trailer	190,950 <sup>B</sup>	.	F	188,179 <sup>B</sup>
Bus	F	.	F	.
Other vehicle type	F	F	F	F

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
<b>Total, all fuel types</b>	<b>18,831,275<sup>A</sup></b>	<b>18,154,050<sup>A</sup></b>	<b>365,756<sup>A</sup></b>	<b>311,469<sup>A</sup></b>
Gasoline	17,686,214 <sup>A</sup>	17,566,753 <sup>A</sup>	115,139 <sup>C</sup>	F
Diesel	1,072,403 <sup>B</sup>	528,128 <sup>C</sup>	238,307 <sup>B</sup>	305,968 <sup>A</sup>
Other fuel type	F	F	12,310 <sup>E</sup>	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				
<b>Total - Canada</b>	<b>88,583.4<sup>A</sup></b>	<b>81,009.5<sup>A</sup></b>	<b>2,067.2<sup>C</sup></b>	<b>5,506.7<sup>B</sup></b>
Newfoundland and Labrador	1,283.8 <sup>D</sup>	1,199.3 <sup>D</sup>	F	75.7 <sup>E</sup>
Prince Edward Island	370.9 <sup>D</sup>	340.7 <sup>D</sup>	F	F
Nova Scotia	2,873.3 <sup>C</sup>	2,694.3 <sup>C</sup>	40.4 <sup>E</sup>	138.7 <sup>E</sup>
New Brunswick	2,153.8 <sup>C</sup>	2,069.5 <sup>C</sup>	42.3 <sup>E</sup>	F
Quebec	17,002.1 <sup>C</sup>	15,591.2 <sup>C</sup>	414.9 <sup>E</sup>	996.0 <sup>C</sup>
Ontario	35,093.8 <sup>B</sup>	32,693.3 <sup>B</sup>	356.7 <sup>E</sup>	2,043.9 <sup>C</sup>
Manitoba	2,948.9 <sup>C</sup>	2,554.4 <sup>C</sup>	42.2 <sup>E</sup>	352.2 <sup>D</sup>
Saskatchewan	3,331.6 <sup>C</sup>	2,886.7 <sup>C</sup>	F	322.7 <sup>E</sup>
Alberta	13,534.9 <sup>C</sup>	11,757.2 <sup>C</sup>	503.9 <sup>D</sup>	1,273.8 <sup>C</sup>
British Columbia	9,713.0 <sup>C</sup>	9,021.6 <sup>C</sup>	522.0 <sup>E</sup>	169.3 <sup>E</sup>
Yukon Territory	150.4 <sup>B</sup>	109.1 <sup>C</sup>	8.3 <sup>C</sup>	32.9 <sup>D</sup>
Northwest Territories	116.6 <sup>B</sup>	82.1 <sup>C</sup>	F	32.1 <sup>D</sup>
Nunavut	10.4 <sup>D</sup>	10.0 <sup>D</sup>	F	F

Table 4-2

## Estimates of vehicle-kilometres 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
millions				
<b>Total, all vehicle model years</b>	<b>88,583.4<sup>A</sup></b>	<b>81,009.5<sup>A</sup></b>	<b>2,067.2<sup>C</sup></b>	<b>5,506.7<sup>B</sup></b>
Later than 2002	21,529.5 <sup>C</sup>	19,030.2 <sup>C</sup>	768.3 <sup>E</sup>	1,731.1 <sup>C</sup>
2000 to 2002	25,067.2 <sup>B</sup>	23,248.3 <sup>B</sup>	435.9 <sup>E</sup>	1,382.9 <sup>C</sup>
1996 to 1999	22,565.5 <sup>B</sup>	20,487.0 <sup>C</sup>	394.8 <sup>E</sup>	1,683.8 <sup>D</sup>
1992 to 1995	11,283.8 <sup>C</sup>	10,589.2 <sup>C</sup>	F	461.8 <sup>E</sup>
Earlier than 1992	8,137.4 <sup>D</sup>	7,654.7 <sup>D</sup>	235.5 <sup>E</sup>	247.2 <sup>E</sup>

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			
<b>Total, all vehicle body types</b>	<b>88,583.4</b> <sup>A</sup>	<b>81,009.5</b> <sup>B</sup>	<b>2,067.2</b> <sup>C</sup>	<b>5,506.7</b> <sup>B</sup>
Car	41,610.7 <sup>B</sup>	41,610.7 <sup>B</sup>	.	.
Station wagon	F	F	.	.
Van	15,608.2 <sup>C</sup>	15,478.9 <sup>C</sup>	F	.
Sport utility vehicle	5,626.1 <sup>D</sup>	5,626.1 <sup>D</sup>	.	.
Pickup	17,303.4 <sup>C</sup>	16,976.5 <sup>C</sup>	327.0 <sup>E</sup>	F
Straight truck	2,711.7 <sup>C</sup>	F	1,561.6 <sup>C</sup>	857.6 <sup>C</sup>
Tractor trailer	4,692.2 <sup>B</sup>	.	F	4,648.9 <sup>B</sup>
Bus	F	.	F	.
Other vehicle type	F	F	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			
<b>Total, all fuel types</b>	<b>88,583.4</b> <sup>A</sup>	<b>81,009.5</b> <sup>A</sup>	<b>2,067.2</b> <sup>C</sup>	<b>5,506.7</b> <sup>B</sup>
Gasoline	77,555.2 <sup>B</sup>	77,241.1 <sup>B</sup>	290.4 <sup>E</sup>	F
Diesel	10,795.2 <sup>B</sup>	3,585.3 <sup>E</sup>	1,729.9 <sup>C</sup>	5,479.9 <sup>B</sup>
Other fuel type	F	F	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			
<b>Total</b>	<b>154,979.3</b> <sup>B</sup>	<b>146,236.0</b> <sup>B</sup>	<b>2,576.9</b> <sup>C</sup>	<b>6,166.3</b> <sup>B</sup>
Newfoundland and Labrador	2,191.6 <sup>C</sup>	2,092.9 <sup>D</sup>	F	86.9 <sup>E</sup>
Prince Edward Island	628.8 <sup>D</sup>	596.0 <sup>D</sup>	F	F
Nova Scotia	4,638.0 <sup>C</sup>	4,422.0 <sup>C</sup>	64.7 <sup>E</sup>	151.3 <sup>E</sup>
New Brunswick	4,259.3 <sup>C</sup>	4,156.4 <sup>C</sup>	48.1 <sup>E</sup>	F
Quebec	30,533.9 <sup>C</sup>	28,829.2 <sup>C</sup>	490.2 <sup>E</sup>	1,214.5 <sup>C</sup>
Ontario	62,839.4 <sup>C</sup>	60,308.0 <sup>C</sup>	423.1 <sup>E</sup>	2,108.2 <sup>C</sup>
Manitoba	4,774.5 <sup>C</sup>	4,201.5 <sup>C</sup>	67.8 <sup>E</sup>	505.1 <sup>E</sup>
Saskatchewan	6,033.8 <sup>C</sup>	5,506.4 <sup>D</sup>	F	349.5 <sup>E</sup>
Alberta	23,300.8 <sup>C</sup>	21,144.1 <sup>C</sup>	670.2 <sup>D</sup>	1,486.4 <sup>E</sup>
British Columbia	15,779.4 <sup>C</sup>	14,979.4 <sup>C</sup>	618.7 <sup>E</sup>	181.2 <sup>E</sup>

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				
<b>Total, all vehicle model years</b>	<b>154,979.3<sup>B</sup></b>	<b>146,236.0<sup>B</sup></b>	<b>2,576.9<sup>C</sup></b>	<b>6,166.3<sup>B</sup></b>
Later than 2002	39,320.1 <sup>C</sup>	36,336.6 <sup>C</sup>	936.1 <sup>E</sup>	2,047.4 <sup>C</sup>
2000 to 2002	45,164.8 <sup>B</sup>	43,054.2 <sup>C</sup>	572.7 <sup>E</sup>	1,537.9 <sup>C</sup>
1996 to 1999	38,540.1 <sup>B</sup>	36,268.6 <sup>C</sup>	473.8 <sup>E</sup>	1,797.7 <sup>D</sup>
1992 to 1995	17,693.4 <sup>C</sup>	16,879.0 <sup>C</sup>	288.4 <sup>E</sup>	526.0 <sup>E</sup>
Earlier than 1992	14,260.9 <sup>D</sup>	13,697.8 <sup>D</sup>	305.9 <sup>E</sup>	F

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				
<b>Total, all vehicle body types</b>	<b>154,979.3<sup>B</sup></b>	<b>146,236.0<sup>B</sup></b>	<b>2,576.9<sup>C</sup></b>	<b>6,166.3<sup>B</sup></b>
Car	68,081.7 <sup>B</sup>	68,081.7 <sup>B</sup>	.	.
Station wagon	F	F	.	.
Van	36,957.9 <sup>C</sup>	36,812.5 <sup>C</sup>	F	.
Sport utility vehicle	10,619.1 <sup>D</sup>	10,619.1 <sup>D</sup>	.	.
Pickup	29,067.7 <sup>C</sup>	28,644.2 <sup>C</sup>	423.4 <sup>E</sup>	F
Straight truck	3,272.6 <sup>C</sup>	F	1,943.6 <sup>C</sup>	958.2 <sup>D</sup>
Tractor trailer	5,259.0 <sup>B</sup>	.	F	5,208.1 <sup>B</sup>
Bus	F	.	F	.
Other vehicle type	F	F	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				
<b>Total, all fuel types</b>	<b>154,979.3<sup>B</sup></b>	<b>146,236.0<sup>B</sup></b>	<b>2,576.9<sup>C</sup></b>	<b>6,166.3<sup>B</sup></b>
Gasoline	139,634.5 <sup>B</sup>	139,219.5 <sup>B</sup>	367.9 <sup>E</sup>	F
Diesel	15,018.9 <sup>C</sup>	6,749.3 <sup>E</sup>	2,153.4 <sup>C</sup>	6,116.3 <sup>B</sup>
Other fuel type	F	F	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
<b>Total, all ages</b>	<b>146,236.0<sup>B</sup></b>
Under 5 years	6,310.2 <sup>D</sup>
5 to 14 years	12,828.0 <sup>D</sup>
15 to 19 years	5,715.2 <sup>E</sup>
20 to 24 years	4,241.3 <sup>E</sup>
25 to 34 years	14,798.4 <sup>D</sup>
35 to 54 years	54,512.1 <sup>B</sup>
55 to 64 years	27,956.8 <sup>C</sup>
65 to 74 years	15,210.5 <sup>C</sup>
75 to 84 years	4,145.9 <sup>E</sup>
85 years and over	F

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				
<b>Total, all age groups</b>	<b>88,306.1<sup>B</sup></b>	<b>80,808.3<sup>B</sup></b>	<b>2,056.1<sup>C</sup></b>	<b>5,441.7<sup>B</sup></b>
Under 20 years	F	F	F	F
20 to 24 years	F	F	F	149.5 <sup>E</sup>
25 to 34 years	10,882.7 <sup>D</sup>	9,377.9 <sup>E</sup>	314.5 <sup>E</sup>	1,190.3 <sup>D</sup>
35 to 44 years	18,024.6 <sup>C</sup>	16,390.1 <sup>D</sup>	412.6 <sup>E</sup>	1,221.9 <sup>C</sup>
45 to 54 years	25,435.1 <sup>C</sup>	22,596.0 <sup>C</sup>	789.3 <sup>D</sup>	2,049.8 <sup>C</sup>
55 to 64 years	18,543.6 <sup>C</sup>	17,338.2 <sup>C</sup>	429.8 <sup>E</sup>	775.6 <sup>D</sup>
65 years and over	11,898.6 <sup>C</sup>	11,801.0 <sup>C</sup>	F	F
millions of passenger-kilometres				
<b>Total, all age groups</b>	<b>154,979.3<sup>B</sup></b>	<b>146,236.0<sup>B</sup></b>	<b>2,576.9<sup>C</sup></b>	<b>6,166.3<sup>B</sup></b>
Under 20 years	F	F	F	F
20 to 24 years	F	F	F	151.6 <sup>E</sup>
25 to 34 years	19,224.4 <sup>D</sup>	17,488.9 <sup>E</sup>	396.5 <sup>E</sup>	1,339.0 <sup>D</sup>
35 to 44 years	37,484.6 <sup>D</sup>	35,480.4 <sup>D</sup>	515.3 <sup>E</sup>	1,489.0 <sup>C</sup>
45 to 54 years	40,424.7 <sup>C</sup>	37,096.0 <sup>C</sup>	1,021.6 <sup>D</sup>	2,307.1 <sup>C</sup>
55 to 64 years	32,168.7 <sup>C</sup>	30,859.2 <sup>C</sup>	484.5 <sup>E</sup>	825.0 <sup>E</sup>
65 years and over	20,300.7 <sup>C</sup>	20,181.0 <sup>C</sup>	F	F

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				
<b>Both sexes</b>	<b>88,306.1</b> <sup>B</sup>	<b>80,808.3</b> <sup>B</sup>	<b>2,056.1</b> <sup>C</sup>	<b>5,441.7</b> <sup>B</sup>
Males	59,717.7 <sup>B</sup>	52,271.5 <sup>B</sup>	2,026.1 <sup>C</sup>	5,420.0 <sup>B</sup>
Females	28,588.4 <sup>C</sup>	28,536.8 <sup>C</sup>	F	F
millions of passenger-kilometres				
<b>Both sexes</b>	<b>154,979.3</b> <sup>B</sup>	<b>146,236.0</b> <sup>B</sup>	<b>2,576.9</b> <sup>C</sup>	<b>6,166.3</b> <sup>B</sup>
Males	107,272.7 <sup>B</sup>	98,601.1 <sup>B</sup>	2,526.9 <sup>C</sup>	6,144.6 <sup>B</sup>
Females	47,706.6 <sup>C</sup>	47,634.9 <sup>C</sup>	F	F



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				
<b>Total, all age groups</b>				
Both sexes	88,306.1 <sup>B</sup>	80,808.3 <sup>B</sup>	2,056.1 <sup>C</sup>	5,441.7 <sup>B</sup>
Males	59,717.7 <sup>B</sup>	52,271.5 <sup>B</sup>	2,026.1 <sup>C</sup>	5,420.0 <sup>B</sup>
Females	28,588.4 <sup>C</sup>	28,536.8 <sup>C</sup>	F	F
<b>Under 25 years</b>				
Both sexes	F	F	F	150.1 <sup>E</sup>
Males	F	F	F	150.1 <sup>E</sup>
Females	F	F	F	F
<b>25 to 54 years</b>				
Both sexes	54,342.4 <sup>B</sup>	48,364.0 <sup>B</sup>	1,516.4 <sup>C</sup>	4,462.0 <sup>B</sup>
Males	36,455.5 <sup>B</sup>	30,523.0 <sup>B</sup>	1,490.6 <sup>C</sup>	4,441.8 <sup>B</sup>
Females	17,886.9 <sup>D</sup>	17,841.0 <sup>D</sup>	F	F
<b>55 years and over</b>				
Both sexes	30,442.2 <sup>C</sup>	29,139.2 <sup>C</sup>	473.4 <sup>E</sup>	829.6 <sup>D</sup>
Males	21,909.9 <sup>C</sup>	20,612.6 <sup>C</sup>	469.2 <sup>E</sup>	828.1 <sup>D</sup>
Females	8,532.3 <sup>E</sup>	8,526.6 <sup>E</sup>	F	F
millions of passenger-kilometres				
<b>Total, all age groups</b>				
Both sexes	154,979.3 <sup>B</sup>	146,236.0 <sup>B</sup>	2,576.9 <sup>C</sup>	6,166.3 <sup>B</sup>
Males	107,272.7 <sup>B</sup>	98,601.1 <sup>B</sup>	2,526.9 <sup>C</sup>	6,144.6 <sup>B</sup>
Females	47,706.6 <sup>C</sup>	47,634.9 <sup>C</sup>	F	F
<b>Under 25 years</b>				
Both sexes	F	F	F	152.2 <sup>E</sup>
Males	F	F	F	152.2 <sup>E</sup>
Females	F	F	F	F
<b>25 to 54 years</b>				
Both sexes	97,133.7 <sup>B</sup>	90,065.2 <sup>B</sup>	1,933.5 <sup>C</sup>	5,135.0 <sup>B</sup>
Males	67,067.4 <sup>B</sup>	60,058.6 <sup>C</sup>	1,893.9 <sup>C</sup>	5,114.9 <sup>B</sup>
Females	30,066.3 <sup>D</sup>	30,006.6 <sup>D</sup>	F	F
<b>55 years and over</b>				
Both sexes	52,469.4 <sup>C</sup>	51,040.2 <sup>C</sup>	550.1 <sup>E</sup>	879.0 <sup>E</sup>
Males	37,781.0 <sup>C</sup>	36,363.9 <sup>C</sup>	539.6 <sup>E</sup>	877.5 <sup>E</sup>
Females	14,688.3 <sup>E</sup>	14,676.3 <sup>E</sup>	F	F

Table 6-4

## Estimates of vehicle-kilometres and passenger-kilometres for provinces only by type of vehicle and day of the 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				
<b>Total, all days of the week</b>	<b>88,306.1<sup>A</sup></b>	<b>80,808.3<sup>B</sup></b>	<b>2,056.1<sup>C</sup></b>	<b>5,441.7<sup>B</sup></b>
Sunday	11,104.6 <sup>B</sup>	10,740.3 <sup>C</sup>	F	323.3 <sup>C</sup>
Monday	13,148.1 <sup>C</sup>	11,837.1 <sup>C</sup>	363.3 <sup>D</sup>	947.8 <sup>B</sup>
Tuesday	12,749.1 <sup>B</sup>	11,419.1 <sup>B</sup>	341.9 <sup>D</sup>	988.0 <sup>B</sup>
Wednesday	12,326.5 <sup>B</sup>	11,076.5 <sup>C</sup>	366.8 <sup>D</sup>	883.2 <sup>B</sup>
Thursday	12,801.9 <sup>B</sup>	11,443.4 <sup>B</sup>	406.5 <sup>D</sup>	952.0 <sup>B</sup>
Friday	15,726.6 <sup>C</sup>	14,314.6 <sup>C</sup>	344.9 <sup>D</sup>	1,067.1 <sup>C</sup>
Saturday	10,434.6 <sup>C</sup>	9,966.2 <sup>C</sup>	191.1 <sup>E</sup>	277.3 <sup>D</sup>
millions of passenger-kilometres				
<b>Total, all days of the week</b>	<b>154,979.3<sup>B</sup></b>	<b>146,236.0<sup>B</sup></b>	<b>2,576.9<sup>C</sup></b>	<b>6,166.3<sup>B</sup></b>
Sunday	26,206.1 <sup>C</sup>	25,774.3 <sup>C</sup>	F	372.0 <sup>D</sup>
Monday	21,849.2 <sup>C</sup>	20,259.1 <sup>C</sup>	452.7 <sup>D</sup>	1,137.3 <sup>C</sup>
Tuesday	20,062.5 <sup>B</sup>	18,529.1 <sup>C</sup>	438.1 <sup>D</sup>	1,095.4 <sup>B</sup>
Wednesday	17,782.9 <sup>C</sup>	16,374.7 <sup>C</sup>	466.2 <sup>D</sup>	942.0 <sup>B</sup>
Thursday	20,655.1 <sup>B</sup>	19,071.2 <sup>B</sup>	507.2 <sup>D</sup>	1,076.7 <sup>B</sup>
Friday	28,584.2 <sup>C</sup>	26,954.0 <sup>C</sup>	432.2 <sup>D</sup>	1,198.0 <sup>C</sup>
Saturday	19,839.3 <sup>C</sup>	19,273.6 <sup>C</sup>	220.8 <sup>E</sup>	344.9 <sup>D</sup>

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				
<b>Total, all days</b>	<b>88,306.1</b> <sup>A</sup>	<b>80,808.3</b> <sup>B</sup>	<b>2,056.1</b> <sup>C</sup>	<b>5,441.7</b> <sup>B</sup>
Weekends and holidays	24,980.4 <sup>B</sup>	23,781.8 <sup>B</sup>	298.2 <sup>E</sup>	900.4 <sup>D</sup>
Weekdays	63,325.7 <sup>B</sup>	57,026.5 <sup>B</sup>	1,757.9 <sup>C</sup>	4,541.3 <sup>B</sup>
millions of passenger-kilometres				
<b>Total, all days</b>	<b>154,979.3</b> <sup>B</sup>	<b>146,236.0</b> <sup>B</sup>	<b>2,576.9</b> <sup>C</sup>	<b>6,166.3</b> <sup>B</sup>
Weekends and holidays	51,780.0 <sup>B</sup>	50,368.6 <sup>B</sup>	357.6 <sup>E</sup>	1,053.7 <sup>E</sup>
Weekdays	103,199.3 <sup>B</sup>	95,867.4 <sup>B</sup>	2,219.3 <sup>C</sup>	5,112.6 <sup>B</sup>

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				
<b>Total, all hours</b>	<b>88,306.1</b> A	<b>80,808.3</b> B	<b>2,056.1</b> C	<b>5,441.7</b> B
00:00 to 05:59	2,995.5 D	2,203.5 E	104.4 E	687.6 C
06:00 to 11:59	29,164.1 B	26,328.9 B	947.0 C	1,888.2 B
12:00 to 17:59	38,866.2 B	36,069.6 B	872.7 C	1,924.0 B
18:00 to 23:59	17,280.3 B	16,206.3 B	132.0 E	941.9 C
millions of passenger-kilometres				
<b>Total, all hours</b>	<b>154,979.3</b> B	<b>146,236.0</b> B	<b>2,576.9</b> C	<b>6,166.3</b> B
00:00 to 05:59	4,420.5 D	3,474.7 E	139.2 E	806.6 C
06:00 to 11:59	48,311.7 B	45,006.3 B	1,187.7 C	2,117.8 B
12:00 to 17:59	70,556.3 B	67,307.3 B	1,089.5 C	2,159.6 B
18:00 to 23:59	31,690.8 B	30,447.8 B	160.7 E	1,082.3 C

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				
<b>Total, all days</b>				
<b>Total, all hours</b>	<b>88,306.1</b> <sup>A</sup>	<b>80,808.3</b> <sup>B</sup>	<b>2,056.1</b> <sup>C</sup>	<b>5,441.7</b> <sup>B</sup>
00:00 to 05:59	2,995.5 <sup>D</sup>	2,203.5 <sup>E</sup>	104.4 <sup>E</sup>	687.6 <sup>C</sup>
06:00 to 11:59	29,164.1 <sup>B</sup>	26,328.9 <sup>B</sup>	947.0 <sup>C</sup>	1,888.2 <sup>B</sup>
12:00 to 17:59	38,866.2 <sup>B</sup>	36,069.6 <sup>B</sup>	872.7 <sup>C</sup>	1,924.0 <sup>B</sup>
18:00 to 23:59	17,280.3 <sup>B</sup>	16,206.3 <sup>B</sup>	132.0 <sup>E</sup>	941.9 <sup>C</sup>
<b>Weekends and holidays</b>				
<b>Total, all hours</b>	<b>25,036.1</b> <sup>B</sup>	<b>23,807.1</b> <sup>B</sup>	<b>307.2</b> <sup>E</sup>	<b>921.7</b> <sup>D</sup>
00:00 to 05:59	926.8 <sup>E</sup>	F	F	141.9 <sup>E</sup>
06:00 to 11:59	7,726.3 <sup>C</sup>	7,286.5 <sup>C</sup>	134.0 <sup>E</sup>	305.8 <sup>D</sup>
12:00 to 17:59	11,484.4 <sup>C</sup>	11,064.4 <sup>C</sup>	114.9 <sup>E</sup>	305.1 <sup>D</sup>
18:00 to 23:59	4,843.0 <sup>D</sup>	4,666.5 <sup>D</sup>	F	147.6 <sup>E</sup>
<b>Weekdays</b>				
<b>Total, all hours</b>	<b>63,270.0</b> <sup>B</sup>	<b>57,001.1</b> <sup>B</sup>	<b>1,748.9</b> <sup>B</sup>	<b>4,520.0</b> <sup>B</sup>
00:00 to 05:59	2,068.7 <sup>D</sup>	1,439.0 <sup>E</sup>	84.0 <sup>E</sup>	545.7 <sup>C</sup>
06:00 to 11:59	21,437.8 <sup>B</sup>	19,042.4 <sup>B</sup>	812.9 <sup>C</sup>	1,582.4 <sup>B</sup>
12:00 to 17:59	27,381.9 <sup>B</sup>	25,005.2 <sup>B</sup>	757.8 <sup>C</sup>	1,618.9 <sup>B</sup>
18:00 to 23:59	12,437.3 <sup>C</sup>	11,539.8 <sup>C</sup>	103.1 <sup>E</sup>	794.3 <sup>C</sup>
millions of passenger-kilometres				
<b>Total, all days</b>				
<b>Total, all hours</b>	<b>154,979.3</b> <sup>B</sup>	<b>146,236.0</b> <sup>B</sup>	<b>2,576.9</b> <sup>C</sup>	<b>6,166.3</b> <sup>B</sup>
00:00 to 05:59	4,420.5 <sup>D</sup>	3,474.7 <sup>E</sup>	139.2 <sup>E</sup>	806.6 <sup>C</sup>
06:00 to 11:59	48,311.7 <sup>B</sup>	45,006.3 <sup>B</sup>	1,187.7 <sup>C</sup>	2,117.8 <sup>B</sup>
12:00 to 17:59	70,556.3 <sup>B</sup>	67,307.3 <sup>B</sup>	1,089.5 <sup>C</sup>	2,159.6 <sup>B</sup>
18:00 to 23:59	31,690.8 <sup>B</sup>	30,447.8 <sup>B</sup>	160.7 <sup>E</sup>	1,082.3 <sup>C</sup>
<b>Weekends and holidays</b>				
<b>Total, all hours</b>	<b>51,780.0</b> <sup>B</sup>	<b>50,368.6</b> <sup>B</sup>	<b>357.6</b> <sup>E</sup>	<b>1,053.7</b> <sup>E</sup>
00:00 to 05:59	1,548.9 <sup>E</sup>	F	F	171.3 <sup>E</sup>
06:00 to 11:59	15,535.1 <sup>C</sup>	15,031.1 <sup>C</sup>	155.4 <sup>E</sup>	348.6 <sup>E</sup>
12:00 to 17:59	24,832.2 <sup>C</sup>	24,341.4 <sup>C</sup>	141.7 <sup>E</sup>	349.0 <sup>D</sup>
18:00 to 23:59	9,863.7 <sup>C</sup>	9,640.9 <sup>C</sup>	F	184.8 <sup>E</sup>
<b>Weekdays</b>				
<b>Total, all hours</b>	<b>103,199.3</b> <sup>B</sup>	<b>95,867.4</b> <sup>B</sup>	<b>2,219.3</b> <sup>B</sup>	<b>5,112.6</b> <sup>B</sup>
00:00 to 05:59	2,871.6 <sup>E</sup>	2,119.6 <sup>E</sup>	116.6 <sup>E</sup>	635.3 <sup>C</sup>
06:00 to 11:59	32,776.6 <sup>B</sup>	29,975.1 <sup>B</sup>	1,032.3 <sup>C</sup>	1,769.2 <sup>B</sup>
12:00 to 17:59	45,724.1 <sup>B</sup>	42,965.8 <sup>B</sup>	947.7 <sup>C</sup>	1,810.6 <sup>B</sup>
18:00 to 23:59	21,827.0 <sup>C</sup>	20,806.8 <sup>C</sup>	122.7 <sup>E</sup>	897.5 <sup>C</sup>

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				
<b>Total, all roads</b>	<b>88,306.1<sup>B</sup></b>	<b>80,808.3<sup>B</sup></b>	<b>2,056.1<sup>C</sup></b>	<b>5,441.7<sup>B</sup></b>
Roads with posted maximum speed of 80 kilometres per hour or more	50,157.5 <sup>B</sup>	45,152.8 <sup>B</sup>	1,257.7 <sup>C</sup>	3,747.1 <sup>B</sup>
All other roads	38,148.5 <sup>B</sup>	35,655.5 <sup>C</sup>	798.4 <sup>C</sup>	1,694.6 <sup>B</sup>
millions of passenger-kilometres				
<b>Total, all roads</b>	<b>154,979.3<sup>B</sup></b>	<b>146,236.0<sup>B</sup></b>	<b>2,576.9<sup>C</sup></b>	<b>6,166.3<sup>B</sup></b>
Roads with posted maximum speed of 80 kilometres per hour or more	91,216.1 <sup>B</sup>	85,559.0 <sup>B</sup>	1,521.5 <sup>C</sup>	4,135.6 <sup>B</sup>
All other roads	63,763.2 <sup>B</sup>	60,677.0 <sup>C</sup>	1,055.4 <sup>C</sup>	2,030.7 <sup>C</sup>

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 or other place of personal business	Leisure, entertainment, recreational facility or restaurant	Other
millions of vehicle-kilometres					
Origin					
Driver's home	18,376.4 <sup>B</sup>	6,119.2 <sup>D</sup>	F	2,553.2 <sup>E</sup>	8,577.9 <sup>D</sup>
Driver's regular workplace	5,630.7 <sup>E</sup>	1,743.4 <sup>E</sup>	F	F	F
Shopping centre, bank or other place of personal business	F	F	F	F	F
Leisure, entertainment, recreational facility or restaurant	F	F	F	F	F
Other	9,632.8 <sup>D</sup>	F	F	F	6,377.2 <sup>E</sup>
	Destination				
	Driver's home	Driver's regular workplace	Shopping centre, bank or other place of personal business	Leisure, entertainment, recreational facility or restaurant	Other
millions of passenger-kilometres					
Origin					
Driver's home	32,727.1 <sup>B</sup>	7,887.6 <sup>E</sup>	F	5,036.1 <sup>E</sup>	15,352.9 <sup>D</sup>
Driver's regular workplace	7,044.8 <sup>E</sup>	2,151.2 <sup>E</sup>	F	F	F
Shopping centre, bank or other place of personal business	F	F	F	F	4,353.6 <sup>E</sup>
Leisure, entertainment, recreational facility or restaurant	4,691.4 <sup>E</sup>	F	F	F	3,621.3 <sup>E</sup>
Other	17,693.3 <sup>C</sup>	F	F	5,926.1 <sup>E</sup>	14,001.5 <sup>D</sup>

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	
<b>Total</b>	<b>80,808.3<sup>A</sup></b>	<b>146,236.0<sup>B</sup></b>
Yes	13,759.2 <sup>C</sup>	20,640.9 <sup>D</sup>
No	67,048.8 <sup>B</sup>	125,594.9 <sup>B</sup>

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		
<b>Total, all groups</b>		
Driving to or from service call	259.3 <sup>E</sup>	248.4 <sup>E</sup>
Carrying goods or equipment	1,365.3 <sup>D</sup>	4,076.7 <sup>B</sup>
Empty	F	772.2 <sup>D</sup>
Other work purpose	F	F
Non-work purpose	F	329.4 <sup>E</sup>
<b>Total</b>	<b>2,056.1<sup>C</sup></b>	<b>5,441.7<sup>B</sup></b>
<b>Straight trucks</b>		
Driving to or from service call	253.1 <sup>E</sup>	F
Carrying goods or equipment	1,345.4 <sup>D</sup>	568.0 <sup>D</sup>
Empty	F	F
Other work purpose	F	F
Non-work purpose	F	F
<b>Total</b>	<b>2,013.4<sup>C</sup></b>	<b>850.7<sup>D</sup></b>
<b>Other trucks over 4.5 tonnes</b>		
Driving to or from service call	F	F
Carrying goods or equipment	F	3,508.7 <sup>B</sup>
Empty	F	708.1 <sup>D</sup>
Other work purpose	F	F
Non-work purpose	F	232.1 <sup>E</sup>
<b>Total</b>	<b>F</b>	<b>4,591.0<sup>B</sup></b>
millions of passenger-kilometres		
<b>Total, all groups</b>		
Driving to or from service call	382.8 <sup>E</sup>	332.3 <sup>E</sup>
Carrying goods or equipment	1,553.0 <sup>D</sup>	4,469.5 <sup>B</sup>
Empty	F	916.6 <sup>D</sup>
Other work purpose	314.6 <sup>E</sup>	F
Non-work purpose	F	432.9 <sup>E</sup>
<b>Total</b>	<b>2,576.9<sup>C</sup></b>	<b>6,166.3<sup>B</sup></b>
<b>Straight trucks</b>		
Driving to or from service call	376.6 <sup>E</sup>	140.3 <sup>E</sup>
Carrying goods or equipment	1,526.3 <sup>D</sup>	612.3 <sup>D</sup>
Empty	F	F
Other work purpose	299.5 <sup>E</sup>	F
Non-work purpose	F	F
<b>Total</b>	<b>2,526.0<sup>C</sup></b>	<b>958.2<sup>D</sup></b>
<b>Other trucks over 4.5 tonnes</b>		
Driving to or from service call	F	F
Carrying goods or equipment	F	3,857.2 <sup>B</sup>
Empty	F	845.2 <sup>E</sup>
Other work purpose	F	F
Non-work purpose	F	307.3 <sup>E</sup>
<b>Total</b>	<b>F</b>	<b>5,208.2<sup>B</sup></b>



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			
<b>Total with or without dangerous goods</b>	<b>7,497.8<sup>B</sup></b>	<b>2,056.1<sup>C</sup></b>	<b>5,441.7<sup>B</sup></b>
With dangerous goods	489.3 <sup>D</sup>	F	465.4 <sup>D</sup>
Without dangerous goods	7,008.5 <sup>B</sup>	2,032.2 <sup>C</sup>	4,976.3 <sup>B</sup>
millions of passenger-kilometres			
<b>Total with or without dangerous goods</b>	<b>8,743.3<sup>B</sup></b>	<b>2,576.9<sup>C</sup></b>	<b>6,166.3<sup>B</sup></b>
With dangerous goods	507.4 <sup>D</sup>	F	482.8 <sup>E</sup>
Without dangerous goods	8,235.8 <sup>B</sup>	2,552.3 <sup>C</sup>	5,683.5 <sup>B</sup>

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 litres								
<b>Vehicle body type</b>								
Car	40,417.9 <sup>B</sup>	F	40,417.9 <sup>B</sup>	F	.	.	.	.
Station wagon	F	F	F	F	.	.	.	.
Van	15,161.2 <sup>C</sup>	F	15,116.0 <sup>C</sup>	F	45.2 <sup>E</sup>	F	.	.
SUV	5,458.7 <sup>E</sup>	F	5,458.7 <sup>E</sup>	F	.	.	.	.
Pickup	14,815.9 <sup>C</sup>	2,322.6 <sup>E</sup>	14,745.2 <sup>C</sup>	2,076.2 <sup>E</sup>	F	246.3 <sup>E</sup>	.	.
Straight truck	F	2,197.9 <sup>B</sup>	F	F	169.4 <sup>E</sup>	1,350.3 <sup>C</sup>	F	847.6 <sup>C</sup>
Tractor trailer	.	4,610.1 <sup>B</sup>	.	.	.	F	.	4,567.4 <sup>B</sup>
Bus	F	F	F	F	F	F	.	.
Other	F	F	F	F	F	F	.	F
<b>Total</b>	<b>77,335.9<sup>B</sup></b>	<b>10,716.7<sup>C</sup></b>	<b>77,050.2<sup>B</sup></b>	<b>3,578.0<sup>E</sup></b>	<b>285.6<sup>E</sup></b>	<b>1,723.6<sup>C</sup></b>	<b>F</b>	<b>5,415.1<sup>B</sup></b>

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								
<b>Vehicle body type</b>								
Car	F	F	F	F	.	.	.	.
Station wagon	F	F	F	F	.	.	.	.
Van	F	F	F	F	F	F	.	.
SUV	F	F	F	F	.	.	.	.
Pickup	1,907.5 <sup>E</sup>	F	1,887.2 <sup>E</sup>	F	F	50.9 <sup>E</sup>	.	.
Straight truck	F	690.2 <sup>B</sup>	F	F	F	358.6 <sup>C</sup>	F	331.6 <sup>C</sup>
Tractor trailer	.	1,609.9 <sup>B</sup>	.	.	.	F	.	1,599.8 <sup>B</sup>
Bus	F	F	F	F	F	F	.	.
Other	F	F	F	F	F	F	.	F
<b>Total</b>	<b>7,725.0<sup>E</sup></b>	<b>2,750.4<sup>C</sup></b>	<b>7,648.4<sup>E</sup></b>	<b>F</b>	<b>F</b>	<b>439.5<sup>C</sup></b>	<b>F</b>	<b>1,931.5<sup>B</sup></b>

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
<b>Total, all activity types</b>	<b>363,124<sup>A</sup></b>	<b>308,733<sup>A</sup></b>
For-hire trucking	33,427 <sup>D</sup>	142,309 <sup>B</sup>
Owner-operator trucking	41,619 <sup>D</sup>	63,763 <sup>C</sup>
Private trucking	221,451 <sup>B</sup>	79,609 <sup>B</sup>
Other activity type	66,627 <sup>C</sup>	23,053 <sup>E</sup>

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	
<b>Total, all activity types</b>	<b>2,056.1<sup>C</sup></b>	<b>2,576.9<sup>C</sup></b>
For-hire trucking	F	324.1 <sup>E</sup>
Owner-operator trucking	F	F
Private trucking	1,254.2 <sup>D</sup>	1,550.4 <sup>D</sup>
Other activity type	372.4 <sup>E</sup>	477.9 <sup>E</sup>

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	
<b>Total, all activity types</b>	<b>5,441.7<sup>B</sup></b>	<b>6,166.3<sup>B</sup></b>
For-hire trucking	3,008.6 <sup>C</sup>	3,395.5 <sup>C</sup>
Owner-operator trucking	1,203.4 <sup>D</sup>	1,397.5 <sup>D</sup>
Private trucking	1,040.7 <sup>D</sup>	1,165.0 <sup>D</sup>
Other activity type	189.1 <sup>E</sup>	208.3 <sup>E</sup>

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	
<b>Total, all trip types</b>	<b>2,056.1<sup>C</sup></b>	<b>2,576.9<sup>C</sup></b>
Trips within provinces	2,039.3 <sup>C</sup>	2,551.9 <sup>C</sup>
Trips between provinces	F	F
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	
<b>Total, all trip types</b>	<b>5,441.7<sup>B</sup></b>	<b>6,166.3<sup>B</sup></b>
Trips within provinces	3,338.4 <sup>B</sup>	3,569.6 <sup>B</sup>
Trips between provinces	662.1 <sup>D</sup>	901.4 <sup>D</sup>
Trips across Canada and United States border	1,329.3 <sup>D</sup>	1,575.9 <sup>D</sup>
Trips outside Canada	111.9 <sup>E</sup>	119.4 <sup>E</sup>

# Concepts and definitions

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## 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 — Concepts and definitions"). 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

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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 this quarter was drawn from lists of motor vehicles with valid registrations in any province or territory available in April 2005. Buses, motorcycles, off-road vehicles (e.g., snowmobiles, dune buggies, amphibious vehicles) and special equipment (for example, cranes, street cleaners, snowplows and backhoes) are excluded from the survey. This population differs from the population of interest of vehicles; for example, vehicles that were registered after April 2005 are not included.

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 last set of processed lists, before the beginning of the reference period, consisted of the thirteen lists provided in April 2005 to Statistics Canada for the CVS. This set of prepared vehicle lists and the set of days within the third quarter of 2005 constitute the survey population of vehicle-days.

### 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 of 5,375 vehicles out of 18,509,163 from the survey population were drawn for the ten provinces. Another 2,707 vehicles out of 51,490 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 — Concepts and definitions"), such as body type, driver characteristics, time of day, day of week, etc.

## Data quality

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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 Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia
	percent									
Light vehicles	65	74	59	68	66	68	74	71	66	66
Heavy vehicles 4.5 to 14.9 tonnes	59	57	69	67	68	73	79	60	69	57
Heavy vehicles 15 tonnes or more	70	59	65	82	68	68	61	60	49	75

Table B

## Vehicle response rates by territory

	Yukon	Northwest Territories	Nunavut
	percent		
All vehicles	18	14	11

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

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 (pages: 28, 29, 34, 36) 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

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## 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.