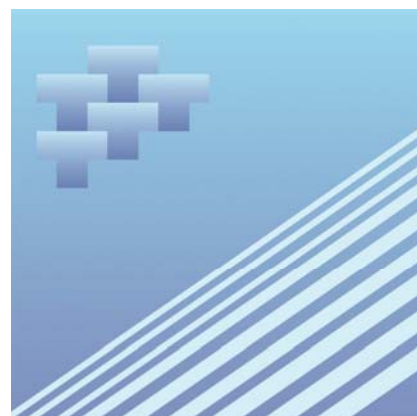


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Canadian Vehicle Survey: Annual

2009



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Canadian Vehicle Survey: Annual

2009

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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
- 0^s 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 more in 2009 compared to the previous year. For the year, Canadian vehicles were driven 333.3 billion kilometres, an increase of 2.4% from 2008.
- The number of vehicles on the road increased by 1.7% compared to 2008.
- Canadians drove their vehicles, on average, 16,249 kilometres during the year. This was 0.6% more than the previous year.

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 2009.

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.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
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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
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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	20,706,616	19,876,948	503,480	326,188
Newfoundland and Labrador	305,575	297,251	4,549	3,776
Prince Edward Island	85,934	81,696	1,435	2,802
Nova Scotia	558,484	541,750	8,953	7,782
New Brunswick	501,801	489,501	7,656	4,644
Quebec	4,708,307	4,613,926	58,509	35,872
Ontario	7,460,063	7,243,903	103,362	112,797
Manitoba	700,027	670,489	12,209	17,329
Saskatchewan	790,727	719,578	39,966	31,183
Alberta	2,827,480	2,605,010	132,751	89,719
British Columbia	2,709,361	2,561,332	130,612	17,417
Yukon	30,907	27,245	2,195	1,467
Northwest Territories	23,689	21,523	993	1,173
Nunavut	4,264	3,745	291	228

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	297,249	81,696	541,748	489,499	4,613,923	7,243,898	670,487
Earlier than 1991	8,561	4,206	22,520	19,653	143,655	298,875	42,964
1991	1,742	830	4,106	4,429	42,813	63,166	10,259
1992	2,250	1,321	6,006	6,583	65,624	91,098	13,536
1993	3,101	1,606	7,131	7,655	73,441	106,294	13,831
1994	4,649	2,238	9,972	10,514	93,138	140,340	16,598
1995	6,123	2,735	12,540	13,291	117,517	185,826	20,008
1996	6,538	2,966	13,860	14,023	119,863	192,953	20,280
1997	10,591	4,406	21,107	20,706	175,419	298,587	30,309
1998	13,831	5,131	26,482	25,546	210,720	360,140	34,188
1999	15,145	5,146	27,376	25,909	220,486	380,022	31,973
2000	19,007	6,430	35,166	33,131	283,378	490,799	38,705
2001	17,534	5,247	31,690	28,758	276,660	459,701	38,446
2002	20,882	6,427	40,355	35,200	334,855	537,673	46,925
2003	22,979	6,395	42,184	36,809	360,823	573,209	50,912
2004	20,260	5,294	37,527	32,631	313,133	483,768	45,823
2005	23,842	5,507	41,684	36,845	354,910	536,410	49,292
2006	21,856	4,307	38,971	33,861	333,307	532,602	45,121
2007	28,059	4,558	46,577	40,501	413,357	578,866	48,343
2008	29,603	3,816	46,294	38,337	399,692	553,284	45,339
2009	19,054	2,773	27,510	22,490	249,365	338,258	25,638
2010	1,618	347	2,681	2,616	31,661	41,062	1,993
2011	0	0	0	0	0	0	0
Year of vehicle model, unknown	18	0	0	3	97	956	0

	Saskat- chewan	Alberta	British Columbia	Yukon	Northwest Territories	Nunavut	Total
Total, all vehicle model years	719,577	2,605,007	2,561,329	27,244	21,522	3,744	19,876,930
Earlier than 1991	84,181	201,620	254,722	4,508	1,799	255	1,087,518
1991	14,709	44,773	65,014	766	384	67	253,058
1992	17,708	50,589	74,117	840	368	75	330,119
1993	17,578	51,762	74,603	838	418	113	358,375
1994	21,239	60,728	78,158	911	492	107	439,088
1995	24,040	69,957	86,698	1,004	544	126	540,414
1996	21,952	65,923	75,426	852	477	114	535,234
1997	31,328	97,268	105,073	1,191	714	182	796,886
1998	33,215	114,867	110,194	1,172	797	191	936,481
1999	28,740	103,534	103,559	1,068	806	199	943,968
2000	35,207	123,820	124,846	1,139	1,018	233	1,192,884
2001	36,661	133,486	128,299	1,241	1,114	267	1,159,108
2002	43,681	164,607	158,427	1,460	1,247	314	1,392,058
2003	48,338	180,409	166,128	1,711	1,640	271	1,491,813
2004	46,039	169,869	150,798	1,335	1,289	221	1,307,992
2005	46,743	189,534	172,005	1,577	1,508	234	1,460,098
2006	44,552	202,380	168,232	1,454	1,643	217	1,428,509
2007	50,577	233,910	193,282	1,810	1,891	237	1,641,973
2008	50,496	220,934	171,059	1,538	2,256	219	1,562,872
2009	20,985	114,649	90,615	759	1,056	90	913,248
2010	1,599	10,380	10,065	63	55	3	104,149
2011	0	0	0	0	0	0	0
Year of vehicle model, unknown	0	0	0	0	0	1	1,077

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	4,547	1,434	8,952	7,655	58,508	103,361	12,209
Earlier than 1991	976	659	1,933	919	12,649	7,372	2,758
1991	94	40	168	115	1,202	1,122	257
1992	90	38	156	136	1,160	1,183	231
1993	95	40	181	139	1,351	1,549	292
1994	121	49	185	173	1,867	1,907	344
1995	173	57	334	217	2,440	2,744	465
1996	111	34	220	164	1,626	2,288	313
1997	147	47	296	236	1,741	3,348	440
1998	136	40	307	252	2,237	3,645	381
1999	221	78	485	415	3,302	6,108	558
2000	206	48	449	323	2,897	5,635	438
2001	194	43	370	337	2,259	5,829	518
2002	225	44	381	373	2,090	5,860	453
2003	201	41	485	604	2,743	7,288	566
2004	189	32	480	604	2,691	7,201	575
2005	271	23	510	549	3,430	8,332	781
2006	334	36	622	609	3,398	9,303	818
2007	243	31	553	535	3,640	8,798	718
2008	390	26	584	715	3,093	9,890	975
2009	109	18	233	217	2,318	3,657	308
2010	13	1	15	15	347	268	12
2011	0	0	0	0	0	0	0
Year of vehicle model, unknown	0	0	0	1	20	24	0

	Saskat- chewan	Alberta	British Columbia	Yukon	Northwest Territories	Nunavut	Total
Total, all vehicle model years	39,965	132,750	130,611	2,194	992	290	503,473
Earlier than 1991	21,519	26,190	15,409	547	165	71	91,165
1991	425	1,371	2,184	35	16	3	7,030
1992	402	1,252	2,374	46	12	4	7,090
1993	469	1,348	2,777	38	11	10	8,305
1994	506	1,730	3,204	43	12	8	10,154
1995	675	2,289	3,731	36	29	27	13,222
1996	451	1,647	2,916	41	13	7	9,836
1997	655	2,638	3,777	72	24	10	13,435
1998	661	2,703	3,366	43	22	11	13,808
1999	761	3,712	4,526	73	36	17	20,297
2000	671	3,265	4,376	51	35	13	18,414
2001	944	5,154	5,301	61	31	9	21,056
2002	824	4,390	5,592	69	25	7	20,337
2003	974	5,411	9,055	113	35	7	27,531
2004	834	4,978	9,672	130	43	11	27,445
2005	1,683	9,738	10,846	131	70	5	36,377
2006	2,083	13,928	12,966	178	93	22	44,395
2007	1,872	15,382	12,071	212	96	12	44,168
2008	3,011	20,683	13,339	225	163	24	53,122
2009	495	4,668	2,999	38	52	3	15,120
2010	40	266	121	3	2	1	1,108
2011	0	0	0	0	0	0	0
Year of vehicle model, unknown	0	0	0	0	0	0	47

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	3,775	2,801	7,781	4,643	35,871	112,796	17,328
Earlier than 1991	581	1,442	983	1,257	1,336	8,716	2,037
1991	63	109	84	105	141	1,011	153
1992	54	53	78	76	226	1,026	172
1993	60	80	122	140	297	1,305	300
1994	101	91	192	195	573	1,956	423
1995	159	167	282	241	996	3,478	569
1996	143	110	233	173	751	2,588	490
1997	103	63	226	141	853	2,976	509
1998	184	103	366	241	1,592	5,273	792
1999	198	105	445	258	1,870	6,789	892
2000	240	90	505	232	2,675	8,337	1,061
2001	152	55	273	134	1,729	5,521	727
2002	109	21	246	103	1,081	4,412	464
2003	152	36	340	143	2,247	6,368	825
2004	155	33	463	165	2,174	6,780	925
2005	239	37	618	216	4,234	10,879	1,279
2006	260	47	564	244	4,012	10,428	1,306
2007	391	60	791	232	4,841	13,465	2,116
2008	176	50	473	165	1,688	5,245	1,055
2009	209	34	402	143	2,213	5,477	1,024
2010	38	7	88	30	335	744	201
2011	0	0	0	0	0	0	0
Year of vehicle model, unknown	1	0	0	0	1	14	0

	Saskat- chewan	Alberta	British Columbia	Yukon	Northwest Territories	Nunavut	Total
Total, all vehicle model years	31,182	89,718	17,416	1,466	1,172	227	326,182
Earlier than 1991	10,079	18,825	3,159	246	169	35	48,865
1991	543	1,193	364	17	17	8	3,805
1992	515	965	465	30	14	5	3,686
1993	823	1,417	435	24	23	4	5,036
1994	1,131	2,152	557	32	29	7	7,444
1995	1,630	2,728	655	41	40	9	10,999
1996	1,161	2,300	591	45	41	7	8,637
1997	1,227	2,692	676	36	41	5	9,553
1998	1,713	3,888	682	50	50	8	14,947
1999	1,535	3,430	635	41	46	18	16,268
2000	1,544	3,747	556	63	60	10	19,126
2001	1,105	3,405	612	61	48	8	13,835
2002	631	2,702	593	40	38	4	10,449
2003	872	3,034	643	58	46	13	14,781
2004	958	3,824	871	56	59	11	16,479
2005	1,196	5,919	1,209	87	69	10	25,998
2006	1,070	7,572	1,475	139	100	13	27,234
2007	1,592	11,209	1,696	219	159	24	36,800
2008	911	4,168	883	83	39	11	14,951
2009	882	4,079	601	77	70	9	15,227
2010	57	462	50	13	6	0	2,036
2011	0	0	0	0	0	0	0
Year of vehicle model, unknown	0	0	0	0	0	0	17

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	20,511,161^A	19,755,945^A	437,997^A	317,219^A
Newfoundland and Labrador	296,974 ^A	290,098 ^A	3,457 ^B	3,419 ^B
Prince Edward Island	85,493 ^A	81,499 ^A	1,310 ^B	2,684 ^A
Nova Scotia	553,594 ^A	537,694 ^A	7,943 ^A	7,957 ^A
New Brunswick	491,680 ^A	481,760 ^A	5,275 ^B	4,645 ^A
Quebec	4,679,516 ^A	4,593,169 ^A	48,509 ^A	37,838 ^A
Ontario	7,362,689 ^A	7,166,834 ^A	90,352 ^A	105,503 ^A
Manitoba	698,617 ^A	670,133 ^A	11,231 ^A	17,253 ^A
Saskatchewan	787,348 ^A	717,639 ^A	38,854 ^A	30,855 ^A
Alberta	2,800,022 ^A	2,581,262 ^A	131,408 ^A	87,352 ^A
British Columbia	2,696,877 ^A	2,583,861 ^A	96,300 ^A	16,716 ^A
Yukon	30,256 ^A	26,713 ^A	2,076 ^A	1,468 ^A
Northwest Territories	23,725 ^A	21,424 ^A	992 ^A	1,309 ^A
Nunavut	4,370 ^A	3,858 ^A	291 ^A	221 ^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	20,511,161^A	19,755,945^A	437,997^A	317,219^A
Later than 2006	3,844,622 ^A	3,688,609 ^A	90,551 ^B	65,462 ^A
2004 to 2006	4,548,349 ^A	4,380,595 ^A	95,897 ^B	71,857 ^A
2000 to 2003	5,668,083 ^A	5,530,252 ^A	84,445 ^B	53,386 ^B
1996 to 1999	3,392,357 ^A	3,297,185 ^A	48,175 ^B	46,997 ^B
Earlier than 1996	3,057,749 ^A	2,859,303 ^A	118,929 ^A	79,517 ^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	20,511,161^A	19,755,945^A	437,997^A	317,219^A
Car	10,953,099 ^A	10,952,468 ^A	...	...
Station wagon	687,096 ^B	686,687 ^B	...	...
Van	2,554,659 ^A	2,536,198 ^A	18,461 ^C	...
Sport utility vehicle	2,531,973 ^A	2,531,946 ^A	...	...
Pickup	3,073,988 ^A	2,993,480 ^A	80,438 ^B	F
Straight truck	465,080 ^A	42,423 ^E	312,050 ^A	110,607 ^A
Tractor trailer	223,931 ^A	...	20,939 ^C	202,890 ^A
Bus	F	...	F	...
Other vehicle type	21,224 ^E	F	5,561 ^E	3,022 ^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	20,511,161^A	19,755,945^A	437,997^A	317,219^A
Gasoline	19,269,153 ^A	19,145,666 ^A	115,572 ^B	7,915 ^E
Diesel	1,189,293 ^A	563,608 ^B	316,380 ^A	309,305 ^A
Other fuel type	52,716 ^E	46,670 ^E	6,046 ^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	333,287.0^A	303,576.1^A	8,294.6^A	21,416.3^A
Newfoundland and Labrador	4,633.7 ^B	4,367.6 ^B	41.1 ^C	225.1 ^C
Prince Edward Island	1,279.7 ^B	1,229.9 ^B	11.0 ^E	38.8 ^D
Nova Scotia	10,051.5 ^A	9,370.2 ^A	180.9 ^C	500.4 ^C
New Brunswick	7,963.0 ^B	7,765.2 ^B	60.3 ^D	137.5 ^E
Quebec	72,727.5 ^A	68,133.1 ^A	1,031.0 ^C	3,563.3 ^B
Ontario	125,802.4 ^A	116,076.7 ^A	1,719.3 ^B	8,006.4 ^B
Manitoba	11,716.3 ^A	10,027.3 ^A	160.1 ^D	1,528.9 ^C
Saskatchewan	12,760.7 ^B	11,007.3 ^B	529.2 ^C	1,224.3 ^C
Alberta	49,710.2 ^A	41,672.1 ^A	2,617.1 ^B	5,421.0 ^B
British Columbia	35,786.8 ^A	33,310.1 ^A	1,891.4 ^B	585.3 ^B
Yukon	510.1 ^A	353.8 ^B	34.2 ^B	122.0 ^B
Northwest Territories	314.4 ^A	236.6 ^A	16.0 ^D	61.8 ^C
Nunavut	30.7 ^C	26.3 ^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	333,287.0^A	303,576.1^A	8,294.6^A	21,416.3^A
Later than 2006	80,411.4 ^A	70,014.8 ^A	3,116.6 ^B	7,280.1 ^B
2004 to 2006	84,438.7 ^A	74,442.8 ^A	2,322.4 ^B	7,673.5 ^B
2000 to 2003	91,673.3 ^A	86,361.9 ^A	1,667.3 ^B	3,644.1 ^B
1996 to 1999	48,494.5 ^A	45,964.7 ^A	677.7 ^D	1,852.1 ^D
Earlier than 1996	28,269.0 ^B	26,791.8 ^B	510.6 ^E	966.6 ^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	333,287.0^A	303,576.1^A	8,294.6^A	21,416.3^A
Car	159,039.5 ^A	159,026.5 ^A	...	...
Station wagon	10,936.8 ^B	10,933.5 ^B	...	...
Van	42,536.0 ^A	42,035.3 ^A	500.7 ^C	...
Sport utility vehicle	43,757.9 ^A	43,757.5 ^A	...	...
Pickup	48,505.3 ^A	47,056.3 ^A	1,447.1 ^C	F
Straight truck	9,216.2 ^B	440.5 ^E	5,780.7 ^B	2,995.0 ^C
Tractor trailer	18,889.5 ^A	...	520.9 ^D	18,367.5 ^A
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				
Total, all fuel types	333,287.0^A	303,576.1^A	8,294.6^A	21,416.3^A
Gasoline	293,879.9 ^A	292,783.0 ^A	1,080.7 ^C	F
Diesel	38,882.7 ^A	10,336.6 ^B	7,146.0 ^A	21,400.1 ^A
Other fuel type	524.4 ^E	456.5 ^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	526,572.7^A	493,050.7^A	10,505.4^B	23,016.6^A
Newfoundland and Labrador	7,660.7 ^B	7,370.9 ^B	53.0 ^C	236.8 ^C
Prince Edward Island	1,996.3 ^C	1,941.5 ^C	15.2 ^E	39.6 ^D
Nova Scotia	15,843.9 ^B	15,066.9 ^B	231.3 ^C	545.6 ^C
New Brunswick	13,474.4 ^C	13,242.6 ^C	82.7 ^D	149.1 ^E
Quebec	116,052.2 ^A	111,014.8 ^A	1,254.7 ^B	3,782.7 ^B
Ontario	196,656.7 ^A	186,001.3 ^A	2,226.6 ^B	8,428.8 ^B
Manitoba	18,551.2 ^B	16,592.4 ^B	201.4 ^D	1,757.4 ^C
Saskatchewan	20,105.4 ^B	18,118.1 ^B	730.9 ^D	1,256.4 ^C
Alberta	79,439.6 ^B	69,956.6 ^B	3,314.4 ^C	6,168.6 ^B
British Columbia	56,792.2 ^B	53,745.5 ^B	2,395.3 ^C	651.4 ^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	526,572.7^A	493,050.7^A	10,505.4^B	23,016.6^A
Later than 2006	125,642.2 ^A	113,883.9 ^A	3,919.8 ^B	7,838.6 ^A
2004 to 2006	135,585.7 ^A	124,452.1 ^A	2,902.8 ^B	8,230.9 ^A
2000 to 2003	147,385.3 ^A	141,291.9 ^A	2,167.3 ^B	3,926.1 ^B
1996 to 1999	74,456.8 ^A	71,625.7 ^A	884.5 ^D	1,946.6 ^C
Earlier than 1996	43,502.6 ^B	41,797.1 ^B	631.0 ^E	1,074.6 ^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	526,572.7^A	493,050.7^A	10,505.4^B	23,016.6^A
Car	247,080.2 ^A	247,062.5 ^A	...	...
Station wagon	19,034.9 ^B	19,031.1 ^B	...	...
Van	82,469.3 ^A	81,823.8 ^A	645.4 ^D	...
Sport utility vehicle	73,491.4 ^A	73,491.4 ^A	...	...
Pickup	72,598.3 ^A	70,515.3 ^A	2,082.4 ^C	F
Straight truck	10,998.8 ^B	F	7,086.7 ^E	3,258.7 ^C
Tractor trailer	20,339.0 ^A	...	638.6 ^E	19,700.3 ^A
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				
Total, all fuel types	526,572.7^A	493,050.7^A	10,505.4^B	23,016.6^A
Gasoline	477,330.3 ^A	476,009.7 ^A	1,304.5 ^D	F
Diesel	48,232.4 ^A	16,103.4 ^B	9,128.5 ^A	23,000.5 ^A
Other fuel type	1,010.0 ^E	937.6 ^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	493,050.7 A
Under 5 years	9,631.3 C
5 to 14 years	31,224.8 B
15 to 19 years	18,060.3 B
20 to 24 years	16,395.4 B
25 to 34 years	46,138.7 B
35 to 54 years	175,929.7 A
55 to 64 years	118,692.9 A
65 to 74 years	58,424.2 A
75 to 84 years	15,864.3 B
85 years and over	2,689.1 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	332,431.9 A	302,959.4 A	8,241.5 A	21,230.9 A
Under 20 years	3,366.3 C	3,364.9 C	F	F
20 to 24 years	8,627.6 B	7,579.7 C	623.6 E	424.2 D
25 to 34 years	35,678.6 A	31,275.1 B	1,402.2 B	3,001.3 B
35 to 44 years	50,751.7 A	42,727.6 B	2,342.6 B	5,681.5 B
45 to 54 years	99,470.7 A	89,443.4 A	2,367.1 B	7,660.2 B
55 to 64 years	85,051.2 A	79,664.5 A	1,210.8 B	4,175.9 B
65 years and over	49,485.8 A	48,904.2 A	293.8 D	287.9 D
	millions of passenger-kilometres			
Total, all age groups	526,572.7 A	493,050.7 A	10,505.4 B	23,016.6 A
Under 20 years	5,346.2 C	5,344.1 C	F	F
20 to 24 years	12,489.7 C	11,170.8 C	879.7 E	439.3 D
25 to 34 years	56,983.5 B	51,752.8 B	1,771.4 B	3,459.3 B
35 to 44 years	81,947.1 A	72,972.9 B	2,859.5 B	6,114.6 B
45 to 54 years	152,837.8 A	141,880.9 A	2,934.4 B	8,022.4 B
55 to 64 years	132,868.5 A	126,612.9 A	1,562.5 C	4,693.1 B
65 years and over	84,100.0 A	83,316.4 A	495.8 D	287.9 D

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	332,431.9 A	302,959.4 A	8,241.5 A	21,230.9 A
Males	236,908.3 A	208,082.6 A	8,152.9 A	20,672.7 A
Females	95,523.6 A	94,876.8 A	88.6 E	558.2 D
	millions of passenger-kilometres			
Both sexes	526,572.7 A	493,050.7 A	10,505.4 B	23,016.6 A
Males	384,395.3 A	351,788.9 A	10,356.2 A	22,250.2 A
Females	142,177.4 A	141,261.8 A	149.2 E	766.4 D

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	332,431.9 A	302,959.4 A	8,241.5 A	21,230.9 A
Males	236,908.3 A	208,082.6 A	8,152.9 A	20,672.7 A
Females	95,523.6 A	94,876.8 A	88.6 E	558.2 D
Under 25 years				
Both sexes	11,993.9 B	10,944.6 B	625.1 E	424.2 D
Males	6,822.0 C	5,906.6 C	592.0 E	323.4 D
Females	5,171.9 C	5,038.0 C	33.1 E	100.8 E
25 to 54 years				
Both sexes	185,901.0 A	163,446.1 A	6,111.9 A	16,343.0 A
Males	125,994.0 A	104,038.1 A	6,070.4 A	15,885.6 A
Females	59,907.0 A	59,408.0 A	F	457.4 E
55 years and over				
Both sexes	134,537.0 A	128,568.7 A	1,504.5 B	4,463.7 B
Males	104,092.3 A	98,138.0 A	1,490.6 B	4,463.7 B
Females	30,444.7 B	30,430.8 B	14.0 E	F
millions of passenger-kilometres				
Total, all age groups				
Both sexes	526,572.7 A	493,050.7 A	10,505.4 B	23,016.6 A
Males	384,395.3 A	351,788.9 A	10,356.2 A	22,250.2 A
Females	142,177.4 A	141,261.8 A	149.2 E	766.4 D
Under 25 years				
Both sexes	17,835.9 B	16,514.9 B	881.8 E	439.3 D
Males	10,403.0 C	9,230.5 C	834.0 E	338.4 D
Females	7,432.9 C	7,284.4 C	47.7 E	100.8 E
25 to 54 years				
Both sexes	291,768.3 A	266,606.6 A	7,565.3 A	17,596.4 A
Males	199,500.5 A	175,080.7 A	7,489.0 A	16,930.8 A
Females	92,267.8 A	91,525.9 A	F	665.6 D
55 years and over				
Both sexes	216,968.5 A	209,929.2 A	2,058.3 B	4,981.0 B
Males	174,491.8 A	167,477.6 A	2,033.2 B	4,981.0 B
Females	42,476.7 B	42,451.6 B	25.1 E	F

Table 6-4
Estimates of vehicle-kilometres and passenger-kilometres for provinces only by type of vehicle and day of 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	332,431.9^A	302,959.4^A	8,241.5^A	21,230.9^A
Sunday	38,159.8 ^A	36,196.9 ^A	506.1 ^D	1,456.8 ^B
Monday	45,999.2 ^A	40,848.6 ^A	1,511.9 ^B	3,638.7 ^A
Tuesday	47,569.9 ^A	42,174.7 ^A	1,427.0 ^B	3,968.2 ^A
Wednesday	51,932.5 ^A	46,365.9 ^A	1,416.9 ^B	4,149.7 ^A
Thursday	56,100.9 ^A	50,978.0 ^A	1,493.7 ^B	3,629.2 ^A
Friday	52,020.7 ^A	47,524.5 ^A	1,436.5 ^B	3,059.7 ^A
Saturday	40,648.9 ^A	38,870.9 ^A	449.4 ^D	1,328.6 ^B
millions of passenger-kilometres				
Total, all days of the week	526,572.7^A	493,050.7^A	10,505.4^B	23,016.6^A
Sunday	70,419.0 ^A	68,121.9 ^A	643.9 ^D	1,653.1 ^B
Monday	69,686.7 ^A	63,961.6 ^A	1,889.0 ^B	3,836.1 ^A
Tuesday	66,920.0 ^A	60,885.8 ^A	1,764.8 ^B	4,269.5 ^A
Wednesday	76,274.0 ^A	69,908.3 ^A	1,822.1 ^B	4,543.6 ^A
Thursday	86,505.3 ^A	80,712.9 ^A	1,909.1 ^B	3,883.3 ^A
Friday	82,879.5 ^A	77,681.7 ^A	1,834.5 ^B	3,363.3 ^B
Saturday	73,888.2 ^A	71,778.4 ^A	642.1 ^D	1,467.7 ^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	332,431.9^A	302,959.4^A	8,241.5^A	21,230.9^A
Weekends and holidays	89,266.2 ^A	84,519.7 ^A	1,188.2 ^C	3,558.2 ^B
Weekdays	243,165.7 ^A	218,439.7 ^A	7,053.3 ^A	17,672.7 ^A
millions of passenger-kilometres				
Total, all days	526,572.7^A	493,050.7^A	10,505.4^B	23,016.6^A
Weekends and holidays	163,205.5 ^A	157,691.9 ^A	1,582.5 ^C	3,931.1 ^B
Weekdays	363,367.2 ^A	335,358.8 ^A	8,922.9 ^A	19,085.5 ^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	332,431.9^A	302,959.4^A	8,241.5^A	21,230.9^A
00:00 to 05:59	10,519.8 ^A	8,294.9 ^A	349.6 ^B	1,875.3 ^B
06:00 to 11:59	112,817.2 ^A	101,145.3 ^A	3,699.5 ^A	7,972.4 ^A
12:00 to 17:59	149,271.3 ^A	137,985.5 ^A	3,368.7 ^A	7,917.2 ^A
18:00 to 23:59	59,823.5 ^A	55,533.7 ^A	823.8 ^B	3,466.0 ^A
millions of passenger-kilometres				
Total, all hours	526,572.7^A	493,050.7^A	10,505.4^A	23,016.6^A
00:00 to 05:59	14,696.1 ^A	12,162.6 ^B	413.7 ^C	2,119.8 ^B
06:00 to 11:59	165,407.9 ^A	152,172.3 ^A	4,655.8 ^A	8,579.9 ^A
12:00 to 17:59	240,436.9 ^A	227,544.6 ^A	4,384.3 ^A	8,508.0 ^A
18:00 to 23:59	106,031.8 ^A	101,171.2 ^A	1,051.7 ^B	3,808.9 ^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	332,431.9^A	302,959.4^A	8,241.5^A	21,230.9^A
00:00 to 05:59	10,519.8 ^A	8,294.9 ^A	349.6 ^B	1,875.3 ^B
06:00 to 11:59	112,817.2 ^A	101,145.3 ^A	3,699.5 ^A	7,972.4 ^A
12:00 to 17:59	149,271.3 ^A	137,985.5 ^A	3,368.7 ^A	7,917.2 ^A
18:00 to 23:59	59,823.5 ^A	55,533.7 ^A	823.8 ^B	3,466.0 ^A
Weekends and holidays				
Total, all hours	89,266.2^A	84,519.7^A	1,188.2^B	3,558.2^B
00:00 to 05:59	2,937.0 ^B	2,605.5 ^B	49.2 ^E	282.4 ^C
06:00 to 11:59	28,024.0 ^A	26,264.2 ^A	483.5 ^E	1,276.4 ^B
12:00 to 17:59	41,684.5 ^A	39,821.9 ^A	493.3 ^B	1,369.2 ^B
18:00 to 23:59	16,620.6 ^A	15,828.2 ^A	162.2 ^C	630.2 ^B
Weekdays				
Total, all hours	243,165.7^A	218,439.7^A	7,053.3^A	17,672.7^A
00:00 to 05:59	7,582.8 ^A	5,689.4 ^B	300.4 ^C	1,592.9 ^B
06:00 to 11:59	84,793.2 ^A	74,881.2 ^A	3,216.0 ^A	6,696.0 ^A
12:00 to 17:59	107,586.9 ^A	98,163.5 ^A	2,875.4 ^A	6,548.0 ^A
18:00 to 23:59	43,202.9 ^A	39,705.5 ^A	661.5 ^B	2,835.8 ^A
millions of passenger-kilometres				
Total, all days				
Total, all hours	526,572.7^A	493,050.7^A	10,505.4^A	23,016.6^A
00:00 to 05:59	14,696.1 ^A	12,162.6 ^B	413.7 ^C	2,119.8 ^B
06:00 to 11:59	165,407.9 ^A	152,172.3 ^A	4,655.8 ^A	8,579.9 ^A
12:00 to 17:59	240,436.9 ^A	227,544.6 ^A	4,384.3 ^A	8,508.0 ^A
18:00 to 23:59	106,031.8 ^A	101,171.2 ^A	1,051.7 ^B	3,808.9 ^A
Weekends and holidays				
Total, all hours	163,205.5^A	157,691.9^A	1,582.5^B	3,931.1^B
00:00 to 05:59	4,587.7 ^B	4,185.0 ^B	57.7 ^E	344.9 ^C
06:00 to 11:59	47,111.7 ^A	45,065.9 ^A	639.8 ^B	1,406.0 ^B
12:00 to 17:59	78,756.7 ^A	76,600.0 ^A	672.8 ^B	1,484.0 ^B
18:00 to 23:59	32,749.5 ^A	31,841.0 ^A	212.2 ^D	696.3 ^B
Weekdays				
Total, all hours	363,367.2^A	335,358.8^A	8,922.9^A	19,085.5^A
00:00 to 05:59	10,108.5 ^B	7,977.6 ^B	356.0 ^C	1,774.9 ^B
06:00 to 11:59	118,296.3 ^A	107,106.4 ^A	4,015.9 ^A	7,173.9 ^A
12:00 to 17:59	161,680.2 ^A	150,944.6 ^A	3,711.5 ^A	7,024.1 ^A
18:00 to 23:59	73,282.3 ^A	69,330.2 ^A	839.5 ^B	3,112.6 ^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	332,431.9^A	302,959.4^A	8,241.5^A	21,230.9^A
Roads with posted maximum speed of 80 kilometres per hour or more	176,180.4 ^A	156,529.9 ^A	4,274.5 ^A	15,376.0 ^A
All other roads	156,251.5 ^A	146,429.5 ^A	3,967.0 ^B	5,854.9 ^B
millions of passenger-kilometres				
Total, all roads	526,572.7^A	493,050.7^A	10,505.4^B	23,016.6^A
Roads with posted maximum speed of 80 kilometres per hour or more	285,530.1 ^A	263,324.4 ^A	5,595.5 ^A	16,610.1 ^A
All other roads	241,042.7 ^A	229,726.2 ^A	4,909.9 ^B	6,406.5 ^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	52,821.5 ^A	26,196.3 ^A	10,710.7 ^B	12,757.3 ^B	36,551.2 ^A
Driver's regular workplace	22,425.1 ^A	7,008.2 ^B	2,174.0 ^C	1,132.0 ^D	5,567.9 ^B
Shopping centre, bank, other place of personal business	12,018.2 ^B	912.0 ^E	4,142.2 ^C	1,123.7 ^E	4,341.5 ^C
Leisure, entertainment, recreational facility, restaurant	11,685.2 ^B	740.8 ^E	1,227.9 ^E	2,678.6 ^C	4,266.4 ^B
Other	38,582.7 ^A	4,247.3 ^B	5,673.7 ^B	4,763.8 ^B	29,160.2 ^A
millions of passenger-kilometres					
Origin					
Driver's home	89,119.6 ^A	30,746.7 ^B	17,159.0 ^B	25,109.9 ^B	61,171.0 ^A
Driver's regular workplace	26,063.2 ^B	10,343.2 ^B	2,366.7 ^E	1,535.8 ^E	6,923.6 ^C
Shopping centre, bank, other place of personal business	19,176.8 ^B	F	7,221.8 ^D	2,159.9 ^E	7,669.5 ^C
Leisure, entertainment, recreational facility, restaurant	22,410.4 ^B	1,032.8 ^E	2,184.3 ^E	5,714.8 ^C	9,074.3 ^B
Other	62,986.9 ^A	5,356.4 ^C	10,336.5 ^C	9,992.6 ^B	56,005.0 ^A

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	302,959.4^A	493,050.7^A
Yes	50,385.1 ^A	66,966.0 ^A
No	252,574.3 ^A	426,084.7 ^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	1,506.0 ^B	454.3 ^D
Carrying goods or equipment	4,204.8 ^A	16,471.1 ^A
Empty	349.7 ^D	3,224.8 ^B
Other work purpose	646.0 ^C	283.2 ^E
Non-work purpose	1,535.1 ^B	797.5 ^C
Total	8,241.5^A	21,230.9^A
Straight trucks		
Driving to or from service call	1,368.5 ^B	143.8 ^E
Carrying goods or equipment	3,974.8 ^A	2,051.5 ^B
Empty	325.9 ^D	F
Other work purpose	627.2 ^C	F
Non-work purpose	1,425.0 ^B	329.5 ^E
Total	7,721.4^B	2,991.4^C
Other trucks over 4.5 tonnes		
Driving to or from service call	137.5 ^E	310.5 ^E
Carrying goods or equipment	230.0 ^E	14,419.6 ^A
Empty	F	2,875.9 ^B
Other work purpose	F	165.5 ^E
Non-work purpose	110.1 ^E	468.0 ^E
Total	520.1^D	18,239.5^A
millions of passenger-kilometres		
Total, all groups		
Driving to or from service call	1,778.7 ^B	561.0 ^D
Carrying goods or equipment	5,009.4 ^A	17,908.8 ^A
Empty	476.5 ^E	3,295.5 ^B
Other work purpose	950.4 ^B	393.6 ^D
Non-work purpose	2,290.4 ^B	857.8 ^C
Total	10,505.4^B	23,016.6^A
Straight trucks		
Driving to or from service call	1,619.5 ^C	204.2 ^E
Carrying goods or equipment	4,743.1 ^B	2,223.9 ^B
Empty	442.5 ^E	F
Other work purpose	917.1 ^B	F
Non-work purpose	2,144.5 ^B	373.5 ^E
Total	9,866.8^B	3,277.0^C
Other trucks over 4.5 tonnes		
Driving to or from service call	159.2 ^E	356.7 ^E
Carrying goods or equipment	266.3 ^E	15,684.9 ^A
Empty	F	2,943.8 ^C
Other work purpose	F	269.9 ^E
Non-work purpose	145.8 ^E	484.2 ^E
Total	638.6^E	19,739.6^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	29,472.5^A	8,241.5^A	21,230.9^A
With dangerous goods	2,333.3 ^B	308.0 ^C	2,025.3 ^B
Without dangerous goods	27,139.2 ^A	7,933.6 ^A	19,205.6 ^A
millions of passenger-kilometres			
Total with or without dangerous goods	33,522.0^A	10,505.4^B	23,016.6^A
With dangerous goods	2,542.6 ^B	316.4 ^C	2,226.3 ^B
Without dangerous goods	30,979.4 ^A	10,189.0 ^A	20,790.3 ^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	156,054.6 ^A	2,686.4 ^E	156,054.6 ^A	2,673.5 ^E	...	...	...	...
Station wagon	10,659.1 ^C	F	10,655.9 ^C	F	...	...	...	...
Van	41,123.7 ^B	1,201.5 ^E	41,044.9 ^B	785.0 ^E	F	416.6 ^E	...	...
SUV	43,070.8 ^B	F	43,070.8 ^B	F	...	...	...	...
Pickup	40,868.5 ^A	7,165.8 ^B	40,687.7 ^A	5,971.6 ^B	F	1,193.6 ^D	...	...
Straight truck	1,160.9 ^E	7,989.4 ^B	F	F	760.3 ^E	4,980.0 ^B	F	2,967.8 ^C
Tractor trailer	...	18,679.3 ^A	...	...	...	483.1 ^E	...	18,196.2 ^A
Bus	F	F	F	F	F	F	...	...
Other	F	F	F	F	F	F	...	F
Total	293,298.8^A	38,603.4^A	292,221.5^A	10,281.7^B	1,067.1^D	7,106.8^B	F	21,215.0^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	14,324.7 ^E	200.4 ^E	14,324.7 ^E	F	...	...	...	...
Station wagon	1,105.7 ^E	F	1,103.8 ^E	F	...	...	...	...
Van	4,923.4 ^E	158.5 ^E	4,899.7 ^E	87.9 ^E	23.8 ^E	70.7 ^E	...	...
SUV	5,163.8 ^B	F	5,163.8 ^B	F	...	...	...	...
Pickup	5,653.2 ^E	1,002.1 ^B	5,603.7 ^E	717.0 ^E	F	284.8 ^C	...	...
Straight truck	247.7 ^E	2,233.8 ^B	F	F	182.1 ^E	1,218.2 ^E	F	1,011.3 ^C
Tractor trailer	...	6,195.3 ^A	...	...	...	149.8 ^E	...	6,045.5 ^A
Bus	F	F	F	F	F	F	...	...
Other	F	F	F	F	F	F	...	F
Total	31,460.5^E	9,898.0^A	31,188.1^E	1,091.1^E	267.5^E	1,730.5^A	F	7,076.4^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	434,639 A	314,222 A
For-hire trucking	51,793 B	142,494 A
Owner-operator trucking	63,344 B	64,231 B
Private trucking	240,045 A	78,967 B
Other activity type	79,457 B	28,530 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	8,241.5 A	10,505.4 B
For-hire trucking	1,088.7 C	1,297.0 E
Owner-operator trucking	1,842.8 E	2,345.5 E
Private trucking	3,933.5 B	4,983.9 C
Other activity type	1,376.5 C	1,879.1 D

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	21,230.9 A	23,016.6 A
For-hire trucking	12,598.4 A	13,658.1 A
Owner-operator trucking	4,488.2 B	4,770.7 B
Private trucking	2,718.8 C	2,979.3 C
Other activity type	1,425.5 D	1,608.4 C

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	8,241.5 A	10,505.4 B
Trips within provinces	7,330.6 A	9,210.8 A
Trips between provinces	400.6 B	599.5 E
Trips across Canada and United States border	232.0 E	317.1 E
Trips outside Canada	278.4 C	378.0 C

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	21,230.9 ^A	23,016.6 ^A
Trips within provinces	12,539.1 ^A	13,436.7 ^A
Trips between provinces	4,243.9 ^A	4,968.1 ^A
Trips across Canada and United States border	2,936.6 ^B	3,022.8 ^B
Trips outside Canada	1,511.3 ^B	1,589.0 ^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 26,997 vehicles was drawn for the ten provinces. Another 16,488 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 Brunswick	Quebec	Ontario	Manitoba	Saskat- chewan	Alberta	British Columbia
	percent									
Light vehicles	52	59	51	51	56	54	62	48	43	45
Heavy vehicles 4.5 to 14.9 tonnes	53	62	58	48	55	58	61	56	51	49
Heavy vehicles 15 tonnes or more	61	57	66	62	63	61	52	58	44	56

Table B
Vehicle response rates by territory

	Yukon	Northwest Territories	Nunavut
	percent		
All vehicles	15	14	7

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.