



SURVEY OF MOTOR VEHICLE USE

AUSTRALIA

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- For further information about these and related statistics, contact the National Information and Referral Service on 1300 135 070.

NOTES

ABOUT THIS PUBLICATION

This publication presents estimates from the 2001 Survey of Motor Vehicle Use (SMVU). It contains statistics on passenger vehicle, motor cycle, truck and bus use for characteristics such as distance travelled, fuel consumption and area of operation.

The data were collected in four quarterly sample surveys conducted by the Australian Bureau of Statistics (ABS) over the period 1 November 2000 to 31 October 2001.

Revised estimates from the 2000 SMVU are also included in this publication. These relate to the period 1 November 1999 to 31 October 2000.

CHANGES IN THIS ISSUE

The 2000 SMVU data presented in this publication have been revised since their initial release on 27 June 2001. Deficiencies in the survey population frame were identified which have been rectified. Further information on the frame deficiency and the action taken to make corrections is given in Technical Note 2: Methodological Review.

HISTORICAL COMPARISONS

The ABS will also be revising 1998 and 1999 SMVU data due to the same deficiencies in the survey population frame. Therefore, comparisons between data contained in this publication and those contained in previous SMVU publications should not be made.

Revised data for 1998 and 1999 SMVU will be published along with 2002 SMVU data in September 2003.

For 2000 and 2001 SMVU data care should be taken in drawing inferences from changes in data over these two years as movements may be subject to high relative standard errors. Therefore the resulting estimates of movements may not be considered statistically significant. There is also potential for increased volatility in the estimates due to the changes that have been implemented as a result of the methodological review.

Additional information about the reliability of the level and movement estimates is given in Technical Note 1: Data Quality.

Dennis Trewin
Australian Statistician

SUMMARY OF FINDINGS

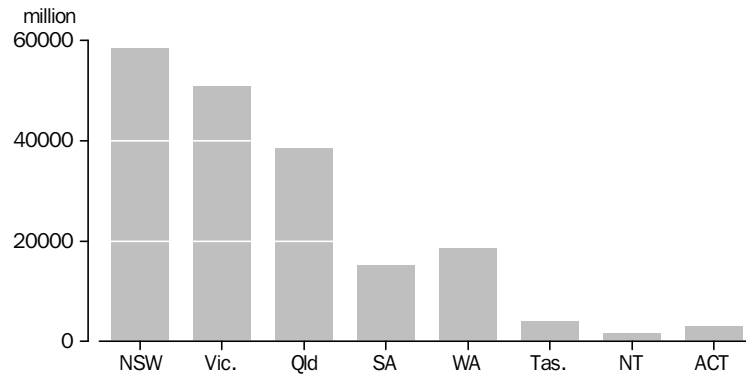
DISTANCE TRAVELLED

During the period 1 November 2000 to 31 October 2001, vehicles registered in Australia for road use travelled 190,152 million kilometres at an average 15,300 kilometres per vehicle.

The majority of vehicles on the road were passenger vehicles (80%) and these accounted for 76% (143,925 million kilometres) of total distance travelled in Australia. Freight carrying vehicles accounted for 17% of all vehicles and 22% (42,676 million kilometres) of total distance travelled. Motor cycles and buses each contributed 1% to total distance travelled in Australia.

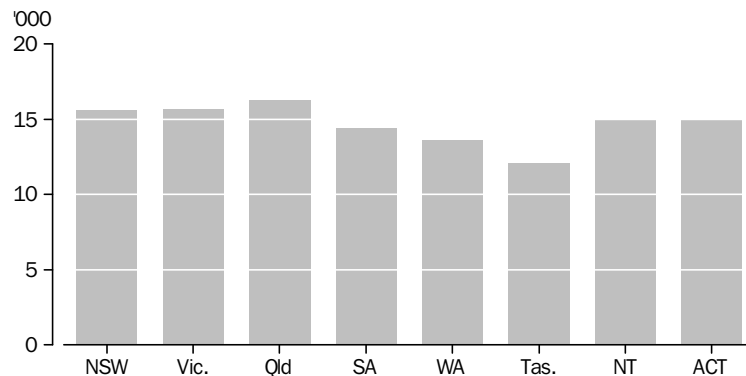
Vehicles registered in New South Wales, Victoria and Queensland accounted for just over three-quarters (78%) of the total distance travelled. These states accounted for 75% of all the vehicles registered in Australia.

TOTAL KILOMETRES TRAVELLED, State/territory of registration—2001



Vehicles registered in Queensland recorded the highest average distance travelled, 16,300 kilometres per vehicle, for the year ended 31 October 2001. Tasmania recorded the lowest average distance travelled of 12,100 kilometres for the survey period.

AVERAGE KILOMETRES TRAVELLED, State/territory of registration—2001



Articulated trucks had the highest average kilometres travelled of all vehicle types (86,500 kilometres). Those registered in the Northern Territory travelled furthest, with an average of 100,300 kilometres in the year ended 31 October 2001.

SUMMARY OF FINDINGS *continued*

FUEL CONSUMPTION

Total fuel consumption by all vehicles during the 12 months ended 31 October 2001 was estimated at 25,948 million litres, with passenger vehicles accounting for 63% (16,436 million litres) of total fuel consumed and freight-carrying vehicles accounting for 34% (8,865 million litres).

For passenger vehicles using petrol, consumption averaged 11.1 litres per hundred kilometres. This comprised an average of 10.9 litres per hundred kilometres for passenger vehicles using unleaded petrol and 12.4 litres per hundred kilometres for passenger vehicles using leaded petrol.

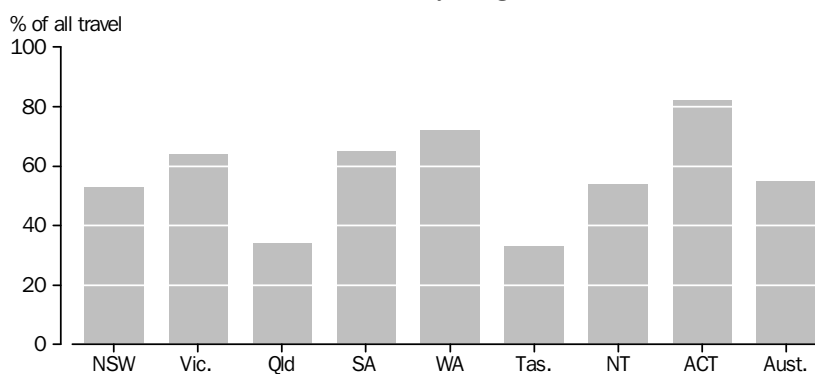
Consumption of diesel fuel in the 12 months ended 31 October 2001 averaged 25.2 litres per hundred kilometres for all vehicles, with articulated trucks recording the highest average consumption at 53.1 litres.

AREA OF OPERATION

An estimated 96% (182,595 million kilometres) of the total distance travelled by all vehicles in the 12 months ended 31 October 2001 was within the state or territory of registration of the vehicle. With the exception of the Australian Capital Territory, all states recorded under 8% of travel as interstate. The Australian Capital Territory had 18% of all travel as interstate.

The majority of total distance travelled, 55% or 104,747 million kilometres, was in the capital city area of the state or territory of registration. Tasmania and Queensland had the lowest share of total distance travelled within the capital city area, at 33% and 34% respectively. All other states reported over 50% of travel within the capital city area.

TRAVEL WITHIN CAPITAL CITY(a), State/territory of registration—2001



(a) Travel within the capital city of the state/territory of registration.

BUSINESS AND PRIVATE USE OF VEHICLES

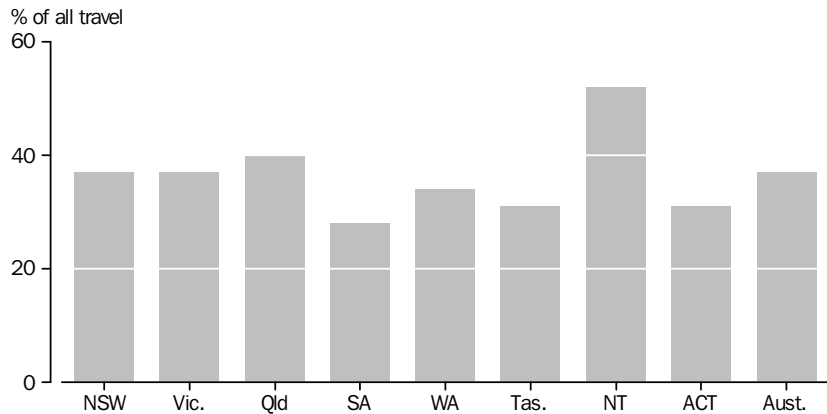
Personal and other use accounted for 41% (77,632 million kilometres) of the total distance travelled by all vehicles in the 12 months ended 31 October 2001. Business use accounted for 37% and travel to and from work accounted for 23% of the total distance travelled.

Approximately 49% (70,307 million kilometres) of the total distance travelled by passenger vehicles was for private use, 26% (37,261 million kilometres) was for travel to and from work, and 25% (36,357 million kilometres) was for business use.

The Northern Territory had the highest share of travel for business purposes, with 52% of all travel in NT being partly or wholly for business purposes. South Australia was the lowest with 28% of all travel in that state being partly or wholly for business purposes.

SUMMARY OF FINDINGS *continued*

TRAVEL FOR BUSINESS PURPOSES, State/territory of registration—2001



FREIGHT VEHICLE USE

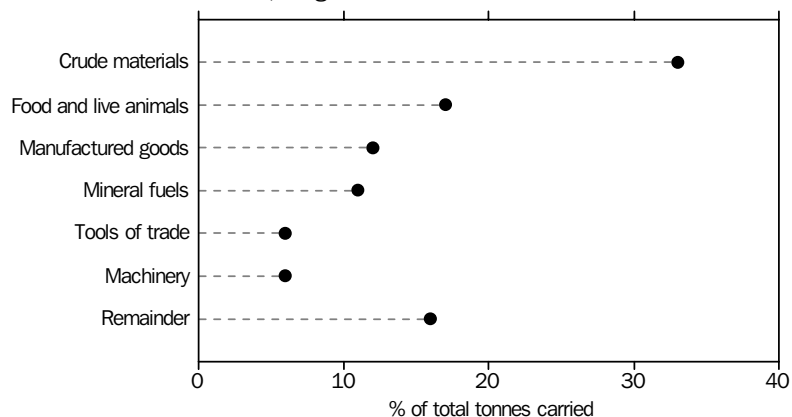
In the 12 months ended 31 October 2001, freight vehicles travelled an estimated 22,512 million kilometres for business purposes while laden, carrying a total of 1,482 million tonnes of goods.

Freight vehicles registered in New South Wales travelled the highest average laden business distance of 20,000 kilometres followed by Victoria with an average of 18,800 kilometres.

A total of 132,442 million tonne-kilometres was travelled by all freight vehicles in the 12 months ended 31 October 2001. Articulated trucks recorded the largest proportion of total tonne-kilometres at 77% (101,892 million tonne-kilometres). Rigid trucks accounted for 19% (24,881 million tonne-kilometres) of total tonne-kilometres and light commercial vehicles for 4% (5,649 million tonne-kilometres).

Crude materials accounted for the largest share of total tonnes carried in the 12 months ended 31 October 2001, at 33% (492 million tonnes). This was followed by food and live animals, which accounted for 17% (249 million tonnes) of total tonnes carried.

TYPE OF FREIGHT CARRIED, Weight—2001

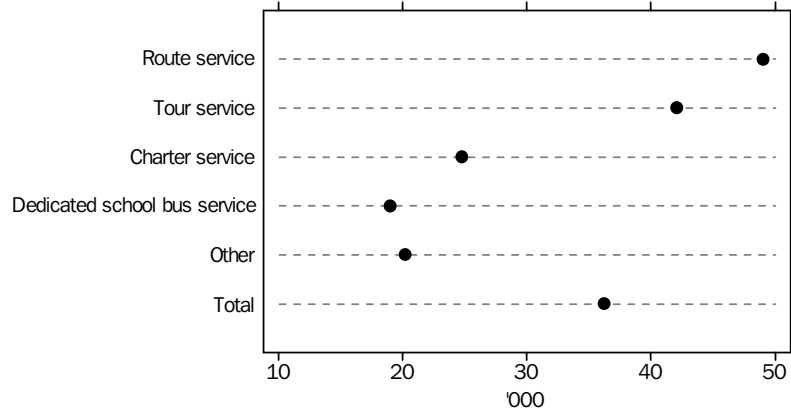


SUMMARY OF FINDINGS *continued*

BUS USE

Buses used partly or wholly for business purposes travelled 1,775 million kilometres in the 12 months ended 31 October 2001, an average of 36,200 kilometres per bus. Route services accounted for 35% (626 million kilometres) of the total distance travelled, dedicated school bus services contributed 18% (323 million kilometres), charter services 17% (297 million kilometres) and tour services accounted for 9% (165 million kilometres).

AVERAGE KILOMETRES TRAVELLED, Type of bus service—2001



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BUS USE

SUMMARY OF MOTOR VEHICLE USE, Type of vehicle

Type of vehicle	2000	2001
TOTAL KILOMETRES TRAVELLED (million)		
Passenger vehicles	141 519	143 925
Motor cycles	1 135	1 448
Light commercial vehicles	27 829	30 728
Rigid trucks	6 536	6 627
Articulated trucks	5 578	5 321
Non-freight carrying trucks	220	267
Buses	1 776	1 835
Total	184 593	190 152

NUMBER OF VEHICLES (a) (no.)		
Passenger vehicles	9 711 320	9 861 807
Motor cycles	337 793	349 465
Light commercial vehicles	1 696 631	1 719 654
Rigid trucks	346 628	332 102
Articulated trucks	61 117	61 502
Non-freight carrying trucks	18 714	18 980
Buses	55 805	55 078
Total	12 228 008	12 398 588

AVERAGE KILOMETRES TRAVELLED (b) ('000)		
Passenger vehicles	14.6	14.6
Motor cycles	3.4	4.1
Light commercial vehicles	16.4	17.9
Rigid trucks	18.9	20.0
Articulated trucks	91.3	86.5
Non-freight carrying trucks	11.8	14.1
Buses	31.8	33.3
Total	15.1	15.3

TOTAL FUEL CONSUMPTION (million litres)		
Passenger vehicles	16 838	16 436
Motor cycles	70	83
Light commercial vehicles	3 723	4 186
Rigid trucks	1 795	1 855
Articulated trucks	2 904	2 824
Non-freight carrying trucks	57	67
Buses	466	498
Total	25 853	25 948

AVERAGE RATE OF FUEL CONSUMPTION (c) (litres per 100 kilometres)		
Passenger vehicles	11.9	11.4
Motor cycles	6.1	5.7
Light commercial vehicles	13.4	13.6
Rigid trucks	27.5	28.0
Articulated trucks	52.1	53.1
Non-freight carrying trucks	25.9	25.0
Buses	26.2	27.1
Total	14.0	13.6

(a) The average number of vehicles registered for the 12 months. Includes registered vehicles that did not travel during the reference period.

(b) Calculated using average number of registered vehicles. Includes registered vehicles that did not travel during the reference period.

(c) Calculated using the total fuel consumption divided by the total kilometres travelled.

SUMMARY OF FREIGHT VEHICLE USE

<i>Type of vehicle</i>	2000	2001
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TOTAL LADEN BUSINESS KILOMETRES
TRAVELLED (million)

Light commercial vehicles	13 120	13 889
Rigid trucks	4 537	4 690
Articulated trucks	4 071	3 933
Total	21 728	22 512

.....

AVERAGE LADEN BUSINESS KILOMETRES
TRAVELLED (a) ('000)

Light commercial vehicles	14.7	15.3
Rigid trucks	16.1	16.3
Articulated trucks	72.8	69.6
Total	17.7	18.0

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TOTAL TONNE-KILOMETRES TRAVELLED
(million)

Light commercial vehicles	5 695	5 649
Rigid trucks	25 168	24 881
Articulated trucks	103 515	101 892
Total	134 378	132 422

.....

AVERAGE TONNE-KILOMETRES TRAVELLED (b)
('000)

Light commercial vehicles	6.4	6.2
Rigid trucks	89.1	86.5
Articulated trucks	1 852.0	1 804.4
Total	109.3	105.8

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TOTAL TONNES CARRIED (million)

Light commercial vehicles	103	103
Rigid trucks	711	683
Articulated trucks	655	697
Total	1 469	1 482

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AVERAGE LOAD CARRIED PER TRIP (c)
(kilograms)

Light commercial vehicles	377	326
Rigid trucks	5 854	5 632
Articulated trucks	22 615	23 639
Total	3 471	3 180

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- (a) Calculated using the total laden business kilometres travelled divided by the number of vehicles that travelled laden business kilometres.
- (b) Calculated using the total tonne-kilometres travelled divided by the number of vehicles that travelled tonne-kilometres.
- (c) Calculated using the total load carried divided by the total number of laden trips.

SUMMARY OF MOTOR VEHICLE USE, State/territory of registration

<i>State/territory of registration</i>	2000	2001
.....		
TOTAL KILOMETRES TRAVELLED (million)		
New South Wales	51 088	58 553
Victoria	54 500	50 817
Queensland	36 746	38 538
South Australia	13 153	15 085
Western Australia	19 875	18 610
Tasmania	4 376	3 979
Northern Territory	1 627	1 522
Australian Capital Territory	3 228	3 048

Australia **184 593** **190 152**

.....		
NUMBER OF VEHICLES (a) (no.)		
New South Wales	3 663 210	3 745 732
Victoria	3 232 708	3 235 515
Queensland	2 340 267	2 365 530
South Australia	1 021 386	1 051 115
Western Australia	1 340 533	1 365 714
Tasmania	332 110	329 963
Northern Territory	102 846	101 159
Australian Capital Territory	194 948	203 859

Australia **12 228 008** **12 398 588**

.....		
AVERAGE KILOMETRES TRAVELLED (b) ('000)		
New South Wales	13.9	15.6
Victoria	16.9	15.7
Queensland	15.7	16.3
South Australia	12.9	14.4
Western Australia	14.8	13.6
Tasmania	13.2	12.1
Northern Territory	15.8	15.0
Australian Capital Territory	16.6	15.0

Australia **15.1** **15.3**

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- (a) The average number of vehicles registered for the 12 months. Includes registered vehicles that did not travel during the reference period.
 - (b) Calculated using the total kilometres travelled divided by the average number of registered vehicles. Includes registered vehicles that did not travel during the reference period.

MOTOR VEHICLE USE, State/territory of registration, Type of vehicle

	Passenger vehicles	Motor cycles	Light commercial vehicles	Rigid trucks	Articulated trucks	Non- freight carrying trucks	Buses	Total
TOTAL KILOMETRES TRAVELLED (million)								
2000								
New South Wales	38 856	393	7 733	2 195	1 400	**34	477	51 088
Victoria	43 657	302	6 856	1 526	1 796	59	304	54 500
Queensland	26 597	235	6 865	1 473	1 090	63	423	36 746
South Australia	10 441	59	1 589	383	547	23	110	13 153
Western Australia	15 038	83	3 194	712	514	*33	*301	19 875
Tasmania	3 204	25	844	134	120	4	46	4 376
Northern Territory	997	15	402	57	73	*2	82	1 627
Australian Capital Territory	2 729	22	347	56	37	*2	35	3 228
Australia	141 519	1 135	27 829	6 536	5 578	220	1 776	184 593

2001								
New South Wales	44 480	389	9 536	2 293	1 295	*68	492	58 553
Victoria	39 643	352	7 101	1 648	1 639	70	364	50 817
Queensland	28 051	387	7 018	1 374	1 174	65	468	38 538
South Australia	11 977	118	1 926	404	520	18	121	15 085
Western Australia	13 539	132	3 498	647	499	*36	259	18 610
Tasmania	2 708	25	939	152	107	7	43	3 979
Northern Territory	953	16	385	46	65	2	55	1 522
Australian Capital Territory	2 575	27	326	64	22	*1	34	3 048
Australia	143 925	1 448	30 728	6 627	5 321	267	1 835	190 152

NUMBER OF VEHICLES (a) (no.)

2000								
New South Wales	2 966 192	85 483	472 899	105 869	14 935	*3 233	14 599	3 663 210
Victoria	2 634 781	91 476	383 038	87 857	17 847	6 059	11 649	3 232 708
Queensland	1 763 630	74 909	403 362	69 081	13 043	3 284	12 958	2 340 267
South Australia	844 077	24 210	117 478	24 610	5 716	1 863	3 432	1 021 386
Western Australia	1 017 055	44 112	217 027	43 811	7 110	3 169	8 249	1 340 533
Tasmania	247 657	8 528	62 118	9 681	1 413	845	1 869	332 110
Northern Territory	68 614	3 390	24 045	3 590	792	152	2 263	102 846
Australian Capital Territory	169 313	5 685	16 664	2 129	263	107	787	194 948
Australia	9 711 320	337 793	1 696 631	346 628	61 117	18 714	55 805	12 228 008
2001								
New South Wales	3 041 251	91 753	478 213	101 112	15 687	3 310	14 407	3 745 732
Victoria	2 637 201	93 780	386 144	82 210	17 793	5 701	12 686	3 235 515
Queensland	1 778 871	73 758	419 022	64 744	12 973	3 534	12 628	2 365 530
South Australia	865 419	27 234	122 627	24 937	5 651	1 729	3 519	1 051 115
Western Australia	1 051 496	44 599	208 536	43 304	7 091	3 408	7 279	1 365 714
Tasmania	244 631	8 422	63 014	9 755	1 426	981	1 735	329 963
Northern Territory	67 215	3 537	24 054	3 514	648	226	1 965	101 159
Australian Capital Territory	175 723	6 383	18 044	2 526	234	91	859	203 859
Australia	9 861 807	349 465	1 719 654	332 102	61 502	18 980	55 078	12 398 588

** estimate has a relative standard error greater than 50% and is considered too unreliable for general use

* estimate has a relative standard error of between 25% and 50% and should be used with caution

(a) The average number of vehicles registered for the 12 months. Includes registered vehicles that did not travel during the reference period.

	Passenger vehicles	Motor cycles	Light commercial vehicles	Rigid trucks	Articulated trucks	Non- freight carrying trucks	Buses	Total
AVERAGE KILOMETRES TRAVELLED (a) ('000)								
2000								
New South Wales	13.1	4.6	16.4	20.7	93.8	*10.5	32.7	13.9
Victoria	16.6	3.3	17.9	17.4	100.6	9.7	26.1	16.9
Queensland	15.1	3.1	17.0	21.3	83.6	19.2	32.6	15.7
South Australia	12.4	2.4	13.5	15.6	95.8	12.3	32.2	12.9
Western Australia	14.8	1.9	14.7	16.3	72.2	*10.5	36.5	14.8
Tasmania	12.9	2.9	13.6	13.8	85.0	4.4	24.7	13.2
Northern Territory	14.5	4.5	16.7	15.8	92.6	14.8	36.1	15.8
Australian Capital Territory	16.1	4.0	20.8	26.3	140.3	*20.8	44.0	16.6
Australia	14.6	3.4	16.4	18.9	91.3	11.8	31.8	15.1
2001								
New South Wales	14.6	4.2	19.9	22.7	82.6	20.5	34.1	15.6
Victoria	15.0	3.8	18.4	20.0	92.1	12.3	28.7	15.7
Queensland	15.8	5.3	16.7	21.2	90.5	18.5	37.1	16.3
South Australia	13.8	4.3	15.7	16.2	92.1	10.2	34.4	14.4
Western Australia	12.9	3.0	16.8	14.9	70.3	*10.7	35.6	13.6
Tasmania	11.1	3.0	14.9	15.5	75.0	6.7	24.5	12.1
Northern Territory	14.2	4.5	16.0	13.2	100.3	9.6	27.9	15.0
Australian Capital Territory	14.7	4.2	18.1	25.3	93.9	*12.4	39.1	15.0
Australia	14.6	4.1	17.9	20.0	86.5	14.1	33.3	15.3

* estimate has a relative standard error of between 25% and 50% and should be used with caution

(a) Calculated using the total kilometres travelled divided by the average number of registered vehicles. Includes registered vehicles that did not travel during the reference period.

FUEL CONSUMPTION, Type of fuel, Type of vehicle

	Passenger vehicles	Motor cycles	Light commercial vehicles	Rigid trucks	Articulated trucks	Non- freight carrying trucks	Buses	Total
TOTAL FUEL CONSUMPTION (million litres)								
2000								
Petrol								
Leaded	2 993	20	491	28	**—	*3	*2	3 537
Unleaded	11 206	50	1 702	10	—	5	17	12 989
Total	14 199	70	2 193	38	**—	8	19	16 526
Diesel	617	—	951	1 721	2 904	41	438	6 672
LPG/CNG/dual fuel	(a)np	—	579	*37	—	*8	*9	2 655
Total	16 838	70	3 723	1 795	2 904	57	466	25 853
2001(b)								
Petrol								
Leaded	1 901	18	411	37	**—	*2	*2	2 373
Unleaded	12 730	65	2 037	6	**—	10	19	14 867
Total	14 631	83	2 448	43	**1	12	21	17 240
Diesel	708	—	1 135	1 790	2 823	49	446	6 951
LPG/CNG/dual fuel	(a)np	—	602	22	—	5	30	1 757
Total	16 436	83	4 186	1 855	2 824	67	498	25 948
AVERAGE RATE OF FUEL CONSUMPTION(c) (litres per 100 kilometres)								
2000								
Petrol								
Leaded	12.0	6.4	14.2	23.9	45.7	27.5	20.4	12.3
Unleaded	11.2	6.1	13.1	19.5	—	18.8	16.0	11.4
Total	11.3	6.1	13.3	22.5	45.7	21.6	16.4	11.5
Diesel	12.8	—	11.9	27.5	52.1	25.8	26.8	25.2
LPG/CNG/dual fuel	17.7	—	17.2	31.6	—	33.1	36.5	17.7
Total	11.9	6.1	13.4	27.5	52.1	25.9	26.2	14.0
2001(b)								
Petrol								
Leaded	12.4	5.7	14.1	21.7	**37.1	29.2	16.9	12.6
Unleaded	10.9	5.7	13.2	16.3	**49.6	20.4	13.1	11.1
Total	11.1	5.7	13.3	20.7	*42.2	21.6	13.4	11.3
Diesel	13.6	—	12.7	28.3	53.1	25.6	27.8	25.2
LPG/CNG/dual fuel	16.8	—	17.8	24.2	—	30.0	41.8	17.4
Total	11.4	5.7	13.6	28.0	53.1	25.0	27.1	13.6
—	nil or rounded to zero (including null cells)							
**	estimate has a relative standard error greater than 50% and is considered too unreliable for general use							
*	estimate has a relative standard error of between 25% and 50% and should be used with caution							
np	not available for publication but included in totals where applicable, unless otherwise indicated							
(a)	The reported consumption of LPG/CNG/dual fuel in the years 2001 and 2002 is considered too unreliable for general use.							
(b)	The introduction of lead replacement fuel occurred progressively over the reference period. See Technical Note 1: Data Quality.							
(c)	Calculated using the total fuel consumption divided by the total kilometres travelled.							

AREA OF OPERATION, Type of vehicle

WITHIN STATE/TERRITORY OF
REGISTRATION

	Capital city	Other urban areas	Other areas	Total	Interstate	Australia
TOTAL KILOMETRES TRAVELLED (million)						
2000						
Passenger vehicles	83 396	18 199	31 893	133 489	8 030	141 519
Motor cycles	529	185	321	1 034	*101	1 135
Light commercial vehicles	12 619	4 515	9 841	26 975	855	27 829
Rigid trucks	3 569	741	1 984	6 294	242	6 536
Articulated trucks	1 025	363	2 638	4 026	1 552	5 578
Non-freight carrying trucks	106	**52	*52	211	*9	220
Buses	825	268	598	1 691	86	1 776
Total	102 069	24 323	47 326	173 718	10 875	184 593

2001						
Passenger vehicles	84 502	19 666	35 094	139 262	4 663	143 925
Motor cycles	853	217	324	1 393	*55	1 448
Light commercial vehicles	13 773	4 594	11 272	29 639	1 090	30 728
Rigid trucks	3 548	922	1 891	6 362	265	6 627
Articulated trucks	1 073	308	2 538	3 919	1 402	5 321
Non-freight carrying trucks	156	34	71	261	*6	267
Buses	842	356	561	1 759	76	1 835
Total	104 747	26 097	51 750	182 595	7 557	190 152

AVERAGE KILOMETRES TRAVELLED (a) ('000)

2000						
Passenger vehicles	11.7	6.5	9.9	14.3	9.9	15.1
Motor cycles	4.0	3.4	2.9	4.1	5.3	4.4
Light commercial vehicles	15.8	10.1	13.0	17.0	7.8	17.4
Rigid trucks	22.4	11.3	14.1	20.6	14.3	21.2
Articulated trucks	29.8	19.4	65.8	71.9	88.3	96.5
Non-freight carrying trucks	16.0	*14.4	6.5	12.5	*8.9	12.7
Buses	27.1	18.6	26.4	31.8	21.9	32.8
Total	12.4	7.1	11.0	15.0	11.2	15.8
2001						
Passenger vehicles	12.1	7.5	9.9	14.6	5.5	15.1
Motor cycles	5.5	3.1	2.8	5.0	3.1	5.2
Light commercial vehicles	16.7	10.1	14.4	18.3	9.2	18.8
Rigid trucks	22.4	14.3	13.9	21.1	15.5	21.9
Articulated trucks	32.3	17.0	62.4	69.9	82.6	92.1
Non-freight carrying trucks	19.5	10.5	8.5	15.4	*10.7	15.4
Buses	29.0	23.2	24.5	33.2	17.3	34.3
Total	12.8	8.1	11.1	15.4	7.3	16.0

* estimate has a relative standard error of between 25% and 50% and should be used with caution

** estimate has a relative standard error greater than 50% and is considered too unreliable for general use

(a) Average distance travelled for registered vehicles which were used.

AREA OF OPERATION, State/territory of registration

WITHIN STATE/TERRITORY OF
REGISTRATION

	Capital city	Other urban areas	Other areas	Total	Interstate	Australia
TOTAL KILOMETRES TRAVELLED (million)						
2000						
New South Wales	29 780	8 634	11 194	49 608	*1 480	51 088
Victoria	32 268	4 533	13 392	50 193	4 307	54 500
Queensland	15 665	9 914	8 963	34 542	2 205	36 746
South Australia	7 971	..	4 141	12 112	1 041	13 153
Western Australia	11 531	..	7 518	19 049	**826	19 875
Tasmania	1 645	1 241	1 382	4 268	*108	4 376
Northern Territory	770	..	735	1 506	*122	1 627
Australian Capital Territory	2 441	..	..	2 441	787	3 228
Australia	102 069	24 323	47 326	173 718	10 875	184 593

2001						
New South Wales	31 181	9 286	16 315	56 782	1 771	58 553
Victoria	32 566	4 186	11 761	48 513	2 305	50 817
Queensland	13 092	11 388	12 350	36 830	1 708	38 538
South Australia	9 801	—	4 427	14 227	858	15 085
Western Australia	13 468	—	4 970	18 437	*173	18 610
Tasmania	1 326	1 238	1 325	3 889	*91	3 979
Northern Territory	818	—	604	1 422	101	1 522
Australian Capital Territory	2 496	—	—	2 496	552	3 048
Australia	104 747	26 097	51 750	182 595	7 557	190 152

AVERAGE KILOMETRES TRAVELLED (a) ('000)

2000						
New South Wales	12.0	7.2	9.7	13.8	*5.5	14.2
Victoria	13.3	5.4	11.9	16.6	16.2	17.8
Queensland	12.2	8.2	10.5	15.6	10.1	16.4
South Australia	10.4	..	10.7	12.9	13.3	13.7
Western Australia	12.8	..	13.0	15.5	**27.6	16.1
Tasmania	10.2	7.7	9.5	13.6	8.8	13.7
Northern Territory	11.5	..	13.9	16.1	16.1	16.8
Australian Capital Territory	13.5	..	..	13.5	8.5	17.6
Australia	12.4	7.1	11.0	15.0	11.2	15.8
2001						
New South Wales	13.2	8.6	11.6	15.6	5.4	16.1
Victoria	13.2	4.9	9.9	15.7	8.1	16.4
Queensland	10.7	9.9	13.4	16.1	7.2	16.7
South Australia	12.2	—	9.8	14.3	14.2	15.1
Western Australia	14.2	—	10.0	14.7	*13.3	14.7
Tasmania	9.2	8.4	9.9	13.0	9.5	13.2
Northern Territory	13.3	—	12.3	15.4	15.3	16.1
Australian Capital Territory	13.0	—	—	13.0	6.0	15.4
Australia	12.8	8.1	11.1	15.4	7.3	16.0

* estimate has a relative standard error of between 25% and 50% and should be used with caution

.. not applicable

** estimate has a relative standard error greater than 50% and is considered too unreliable for general use

— nil or rounded to zero (including null cells)

(a) Average distance travelled for registered vehicles which were used.

BUSINESS AND PRIVATE USE OF VEHICLES, Type of vehicle

BUSINESS

	Laden	Unladen	All business use(a)	To and from work	Personal and other	Total
TOTAL KILOMETRES TRAVELLED (million)						
2000						
Passenger vehicles	na	na	38 097	34 857	68 565	141 519
Motor cycles	na	na	152	421	561	1 135
Light commercial vehicles	13 120	4 964	18 085	4 209	5 535	27 829
Rigid trucks	4 537	1 830	6 367	92	77	6 536
Articulated trucks	4 071	1 497	5 569	*7	*2	5 578
Non-freight carrying trucks	na	na	218	**1	**1	220
Buses	na	na	1 689	20	68	1 776
Total	21 728	8 292	70 176	39 608	74 809	184 593

2001						
Passenger vehicles	na	na	36 357	37 261	70 307	143 925
Motor cycles	na	na	250	452	745	1 448
Light commercial vehicles	13 889	5 413	19 301	4 962	6 466	30 728
Rigid trucks	4 690	1 773	6 463	101	63	6 627
Articulated trucks	3 933	1 384	5 317	*3	*2	5 321
Non-freight carrying trucks	na	na	265	*1	**—	267
Buses	na	na	1 759	27	49	1 835
Total	22 512	8 569	69 713	42 807	77 632	190 152

AVERAGE KILOMETRES TRAVELLED (b) ('000)

2000						
Passenger vehicles	na	na	11.9	7.1	8.3	15.1
Motor cycles	na	na	2.6	4.3	2.9	4.4
Light commercial vehicles	14.7	8.8	18.2	7.3	6.3	17.4
Rigid trucks	16.1	8.2	22.3	4.7	2.4	21.2
Articulated trucks	72.8	30.8	98.4	3.4	*1.3	96.5
Non-freight carrying trucks	na	na	12.8	*3.4	*1.7	12.7
Buses	na	na	34.3	4.2	9.2	32.8
Total	17.7	9.9	15.1	7.1	7.9	15.8
2001						
Passenger vehicles	na	na	11.4	7.7	8.4	15.1
Motor cycles	na	na	4.8	4.3	3.4	5.2
Light commercial vehicles	15.3	8.6	19.5	7.7	7.5	18.8
Rigid trucks	16.3	8.2	22.3	4.5	3.2	21.9
Articulated trucks	69.6	29.9	93.6	2.3	*1.7	92.1
Non-freight carrying trucks	na	na	15.3	*2.3	**1.5	15.4
Buses	na	na	35.9	7.5	8.0	34.3
Total	18.0	9.6	15.0	7.6	8.2	16.0

na not available

* estimate has a relative standard error of between 25% and 50% and should be used with caution

** estimate has a relative standard error greater than 50% and is considered too unreliable for general use

— nil or rounded to zero (including null cells)

(a) Including the business travel of non-freight carrying vehicles.

(b) Average distance travelled for registered vehicles which were used.

BUSINESS AND PRIVATE USE OF VEHICLES, State/territory of registration

BUSINESS

	Laden	Unladen	All business use (a)	To and from work	Personal and other	Total
TOTAL KILOMETRES TRAVELLED (million)						
2000						
New South Wales	6 546	2 389	18 468	11 860	20 760	51 088
Victoria	5 259	2 188	20 151	13 606	20 742	54 500
Queensland	5 208	1 846	15 606	6 234	14 906	36 746
South Australia	1 402	585	4 547	2 455	6 151	13 153
Western Australia	2 286	859	8 250	3 298	8 328	19 875
Tasmania	493	208	1 464	976	1 936	4 376
Northern Territory	256	137	841	301	486	1 627
Australian Capital Territory	276	79	850	878	1 500	3 228
Australia	21 728	8 292	70 176	39 608	74 809	184 593

2001						
New South Wales	7 491	2 601	21 727	12 419	24 407	58 553
Victoria	5 571	1 992	19 051	11 162	20 604	50 817
Queensland	4 750	1 958	15 481	8 462	14 595	38 538
South Australia	1 471	672	4 251	3 844	6 990	15 085
Western Australia	2 193	954	6 255	4 935	7 420	18 610
Tasmania	557	229	1 215	947	1 817	3 979
Northern Territory	258	107	797	295	430	1 522
Australian Capital Territory	220	58	935	744	1 370	3 048
Australia	22 512	8 569	69 713	42 807	77 632	190 152

AVERAGE KILOMETRES TRAVELLED (b) ('000)

2000						
New South Wales	18.1	10.4	12.7	6.7	7.0	14.2
Victoria	19.6	11.2	18.2	8.5	8.5	17.8
Queensland	17.9	9.7	16.0	6.4	8.3	16.4
South Australia	15.0	8.5	12.5	5.9	7.6	13.7
Western Australia	15.1	7.8	15.3	6.1	9.0	16.1
Tasmania	14.6	9.0	14.1	6.9	7.5	13.7
Northern Territory	15.6	13.1	18.1	6.1	7.5	16.8
Australian Capital Territory	20.9	11.4	12.4	7.8	9.3	17.6
Australia	17.7	9.9	15.1	7.1	7.9	15.8
2001						
New South Wales	20.0	10.4	15.8	7.4	8.6	16.1
Victoria	18.8	8.5	15.1	7.3	8.0	16.4
Queensland	16.9	9.9	16.8	8.4	8.1	16.7
South Australia	15.3	9.2	11.3	7.8	8.7	15.1
Western Australia	16.2	10.0	13.1	7.6	7.6	14.7
Tasmania	14.0	8.1	12.4	7.5	7.1	13.2
Northern Territory	15.2	9.4	16.2	6.4	7.4	16.1
Australian Capital Territory	18.7	9.0	12.0	6.4	8.1	15.4
Australia	18.0	9.6	15.0	7.6	8.2	16.0

(a) Including the business travel of non-freight carrying vehicles.

(b) Average distance travelled for registered vehicles which were used.

	Passenger vehicles	Motor cycles	Light commercial vehicles	Rigid trucks	Articulated trucks	Non- freight carrying trucks	Buses	Total
TOTAL BUSINESS KILOMETRES TRAVELLED (million)								
2000								
New South Wales	9 012	**33	5 402	2 134	1 399	**34	454	18 468
Victoria	12 307	*52	4 169	1 485	1 793	57	288	20 151
Queensland	8 063	*30	4 523	1 444	1 088	63	394	15 606
South Australia	2 414	*15	1 066	374	547	23	108	4 547
Western Australia	4 769	**11	1 944	689	512	*33	*292	8 250
Tasmania	711	*5	450	131	120	4	44	1 464
Northern Territory	365	**4	266	55	73	*2	75	841
Australian Capital Territory	456	**3	264	55	37	*2	34	850
Australia	38 097	152	18 085	6 367	5 569	218	1 689	70 176

2001								
New South Wales	11 036	*49	6 559	2 239	1 294	*66	483	21 727
Victoria	10 993	*78	4 307	1 618	1 637	70	348	19 051
Queensland	8 189	**73	4 202	1 333	1 174	65	445	15 481
South Australia	1 948	*25	1 230	392	520	18	118	4 251
Western Australia	2 811	*15	2 018	631	498	*36	246	6 255
Tasmania	385	**1	532	147	107	7	37	1 215
Northern Territory	379	**2	255	45	65	2	50	797
Australian Capital Territory	616	*7	200	57	22	*1	33	935
Australia	36 357	250	19 301	6 463	5 317	265	1 759	69 713

AVERAGE BUSINESS KILOMETRES TRAVELLED (a) ('000)

2000								
New South Wales	8.7	*3.8	19.0	23.2	102.1	*10.7	34.5	12.7
Victoria	15.9	*2.5	19.6	22.5	106.7	11.3	27.8	18.2
Queensland	12.9	*2.0	18.2	24.5	88.2	19.6	35.5	16.0
South Australia	9.6	*3.0	14.5	17.7	102.9	12.5	35.6	12.5
Western Australia	13.2	**2.1	16.3	19.5	82.6	*11.8	39.9	15.3
Tasmania	11.3	*2.6	16.3	18.0	93.4	4.7	27.2	14.1
Northern Territory	14.2	*6.2	18.7	18.0	103.6	17.4	39.2	18.1
Australian Capital Territory	8.6	**6.2	22.4	27.7	151.0	22.5	46.2	12.4
Australia	11.9	2.6	18.2	22.3	98.4	12.8	34.3	15.1
2001								
New South Wales	11.5	*5.5	23.2	24.0	89.8	20.2	35.1	15.8
Victoria	12.0	*4.2	18.6	23.9	97.3	13.7	31.6	15.1
Queensland	13.9	**6.4	17.8	22.3	97.7	19.9	40.2	16.8
South Australia	7.6	*4.5	15.5	17.4	103.6	11.2	35.4	11.3
Western Australia	8.8	**2.7	19.6	18.3	77.0	*12.9	39.7	13.1
Tasmania	7.2	**2.1	16.5	19.3	80.9	6.7	24.7	12.4
Northern Territory	13.3	**4.5	16.9	14.5	117.6	11.6	35.1	16.2
Australian Capital Territory	9.7	*5.5	20.0	27.4	105.1	*13.6	41.3	12.0
Australia	11.4	4.8	19.5	22.3	93.6	15.3	35.9	15.0

** estimate has a relative standard error greater than 50% and is considered too unreliable for general use

* estimate has a relative standard error of between 25% and 50% and should be used with caution

(a) Average distance travelled for registered vehicles which were used.

	<i>Light commercial vehicles</i>	<i>Rigid trucks</i>	<i>Articulated trucks</i>	<i>Total</i>
.....				
TOTAL LADEN BUSINESS KILOMETRES TRAVELLED (million)				
2000				
New South Wales	4 061	1 523	962	6 546
Victoria	2 815	1 069	1 376	5 259
Queensland	3 361	1 032	816	5 208
South Australia	725	254	424	1 402
Western Australia	1 457	488	341	2 286
Tasmania	326	91	75	493
Northern Territory	169	40	47	256
Australian Capital Territory	207	40	30	276
Australia	13 120	4 537	4 071	21 728
2001				
New South Wales	4 913	1 671	908	7 491
Victoria	3 123	1 171	1 277	5 571
Queensland	2 919	947	884	4 750
South Australia	781	289	401	1 471
Western Australia	1 420	441	332	2 193
Tasmania	386	101	70	557
Northern Territory	184	31	42	258
Australian Capital Territory	164	38	18	220
Australia	13 889	4 690	3 933	22 512
.....				
AVERAGE LADEN BUSINESS KILOMETRES TRAVELLED (a) ('000)				
2000				
New South Wales	15.8	16.7	70.5	18.1
Victoria	15.2	16.2	83.7	19.6
Queensland	15.2	17.8	67.3	17.9
South Australia	10.7	12.2	80.3	15.0
Western Australia	13.2	14.2	55.0	15.1
Tasmania	12.9	12.6	58.7	14.6
Northern Territory	13.3	13.1	68.2	15.6
Australian Capital Territory	18.8	20.0	121.4	20.9
Australia	14.7	16.1	72.8	17.7
2001				
New South Wales	18.4	18.1	63.5	20.0
Victoria	14.7	17.5	76.2	18.8
Queensland	13.9	16.1	73.6	16.9
South Australia	11.3	13.0	81.1	15.3
Western Australia	15.0	12.8	52.2	16.2
Tasmania	12.5	13.4	53.1	14.0
Northern Territory	13.9	10.2	77.0	15.2
Australian Capital Territory	17.2	18.6	87.7	18.7
Australia	15.3	16.3	69.6	18.0

(a) Calculated using the total laden business kilometres travelled divided by the number of vehicles that travelled laden business kilometres.

	<i>Light commercial vehicles</i>	<i>Rigid trucks</i>	<i>Articulated trucks</i>	<i>Total</i>
TOTAL TONNE-KILOMETRES TRAVELLED (million)				
2000				
New South Wales	1 653	8 033	21 814	31 500
Victoria	1 200	6 148	32 202	39 551
Queensland	1 549	6 065	20 456	28 071
South Australia	352	1 542	12 056	13 950
Western Australia	656	2 584	11 735	14 974
Tasmania	143	426	1 927	2 496
Northern Territory	57	*207	2 636	2 900
Australian Capital Territory	85	163	689	937
Australia	5 695	25 168	103 515	134 378
2001				
New South Wales	1 984	8 395	20 314	30 693
Victoria	1 097	6 273	31 608	38 978
Queensland	1 321	5 062	22 518	28 901
South Australia	326	1 357	10 882	12 565
Western Australia	636	2 785	11 808	15 229
Tasmania	146	685	1 811	2 642
Northern Territory	74	152	2 557	2 783
Australian Capital Territory	66	172	395	633
Australia	5 649	24 881	101 892	132 422
AVERAGE TONNE-KILOMETRES TRAVELLED (a) ('000)				
2000				
New South Wales	6.4	88.1	1 598.9	86.9
Victoria	6.5	93.2	1 958.2	147.5
Queensland	7.0	104.8	1 688.9	96.5
South Australia	5.2	74.3	2 284.9	148.9
Western Australia	5.9	75.3	1 892.8	99.1
Tasmania	5.6	58.8	1 503.1	73.8
Northern Territory	4.5	*68.0	3 804.6	176.6
Australian Capital Territory	7.7	82.4	2 824.5	70.8
Australia	6.4	89.1	1 852.0	109.3
2001				
New South Wales	7.4	90.9	1 420.0	82.1
Victoria	5.2	93.5	1 886.1	131.5
Queensland	6.3	85.9	1 874.1	103.0
South Australia	4.7	61.2	2 199.8	130.4
Western Australia	6.7	80.9	1 854.3	112.6
Tasmania	4.7	90.8	1 373.3	66.5
Northern Territory	5.6	*49.4	4 659.0	164.3
Australian Capital Territory	6.9	83.3	1 893.8	53.6
Australia	6.2	86.5	1 804.4	105.8

* estimate has a relative standard error of between 25% and 50% and should be used with caution

(a) Calculated using the total tonne-kilometres travelled divided by the number of vehicles that travelled tonne-kilometres.

	<i>Light commercial vehicles</i>	<i>Rigid trucks</i>	<i>Articulated trucks</i>	<i>Total</i>
TOTAL TONNE-KILOMETRES TRAVELLED (million)				
2000				
New South Wales	1 674	8 872	34 705	45 250
Victoria	1 197	5 857	21 617	28 671
Queensland	1 553	5 514	18 645	25 711
South Australia	347	1 553	10 938	12 838
Western Australia	655	2 582	12 532	15 769
Tasmania	143	419	1 895	2 457
Northern Territory	53	*204	2 987	3 244
Australian Capital Territory	73	167	198	438
Australia	5 695	25 168	103 515	134 378

2001				
New South Wales	2 029	8 235	34 610	44 874
Victoria	1 054	6 155	23 257	30 466
Queensland	1 301	4 971	18 184	24 457
South Australia	310	1 628	9 739	11 677
Western Australia	648	2 797	11 823	15 268
Tasmania	146	673	1 827	2 646
Northern Territory	77	*280	2 252	2 610
Australian Capital Territory	84	141	*200	425
Australia	5 649	24 881	101 892	132 422

AVERAGE TONNE-KILOMETRES TRAVELLED (a) ('000)

2000				
New South Wales	5.9	89.1	1 461.7	110.6
Victoria	5.9	88.0	1 023.9	99.2
Queensland	6.8	92.1	1 064.8	83.7
South Australia	4.6	72.7	1 180.7	120.7
Western Australia	5.9	75.2	1 760.4	104.0
Tasmania	5.3	58.1	1 528.0	69.6
Northern Territory	3.9	*64.6	2 257.1	180.8
Australian Capital Territory	*3.7	37.9	168.2	17.3
Australia	6.4	89.1	1 852.0	109.3
2001				
New South Wales	6.7	82.7	1 385.2	105.2
Victoria	4.9	85.5	1 086.3	98.5
Queensland	6.1	81.9	1 079.0	84.3
South Australia	4.3	70.1	1 144.0	112.0
Western Australia	6.7	81.5	1 677.0	110.5
Tasmania	4.7	90.0	1 295.3	66.6
Northern Territory	5.1	*75.1	1 944.9	129.3
Australian Capital Territory	*4.2	43.9	*149.0	*17.2
Australia	6.2	86.5	1 804.4	105.8

* estimate has a relative standard error of between 25% and 50% and should be used with caution

(a) Calculated using the total tonne-kilometres travelled divided by the number of vehicles that travelled tonne-kilometres.

RIGID TRUCK USE, Axles, GVM/GCM(a)

	8 tonnes and under	Over 8 tonnes to 20 tonnes	Over 20 tonnes	Total
.....				
TOTAL TONNE-KILOMETRES TRAVELLED (million)				
2000				
2 axles	2 180	6 891	*296	9 366
3 axles	—	*769	13 026	13 795
4 or more axles	—	—	2 007	2 007
Total	2 180	7 660	15 328	25 168
2001				
2 axles	2 282	6 632	*821	9 736
3 axles	**1	*271	12 660	12 932
4 or more axles	—	—	2 213	2 213
Total	2 283	6 904	15 694	24 881
.....				
AVERAGE TONNE-KILOMETRES TRAVELLED (b) (‘000)				
2000				
2 axles	19.1	60.2	146.3	40.6
3 axles	—	*111.0	332.6	299.3
4 or more axles	—	—	361.9	361.9
Total	19.1	63.1	328.0	89.1
2001				
2 axles	17.8	61.2	*394.6	40.8
3 axles	**48.5	*76.1	308.3	289.7
4 or more axles	—	—	479.1	479.1
Total	17.8	61.7	328.6	86.5

- * estimate has a relative standard error of between 25% and 50% and should be used with caution
- nil or rounded to zero (including null cells)
- ** estimate has a relative standard error greater than 50% and is considered too unreliable for general use
- (a) Gross Vehicle Mass/Gross Combination Mass.
- (b) Calculated using the total tonne-kilometres travelled divided by the number of vehicles that travelled tonne-kilometres.

ARTICULATED TRUCK USE, Trailer configuration, GCM(a)

	30 tonnes and under	Over 30 tonnes to 40 tonnes	Over 40 tonnes	Total
TOTAL TONNE-KILOMETRES TRAVELLED (million)				
2000				
Single axle trailer	*184	—	—	*184
Tandem axle trailer	*405	3 967	*1 475	5 847
Triaxle trailer	—	2 080	50 452	52 532
B-Double	—	—	24 463	24 463
Road train	—	—	17 704	17 704
Other	—	—	*2 785	*2 785
Total	589	6 047	96 879	103 515

2001				
Single axle trailer	169	**49	—	218
Tandem axle trailer	*445	3 634	*812	4 891
Triaxle trailer	**8	2 975	47 882	50 865
B-Double	—	—	26 387	26 387
Road train	—	—	16 865	16 865
Other	—	—	*2 667	*2 667
Total	622	6 658	94 612	101 892

AVERAGE TONNE-KILOMETRES TRAVELLED (b) ('000)

2000				
Single axle trailer	*119.5	—	—	*119.5
Tandem axle trailer	174.0	477.0	982.9	481.4
Triaxle trailer	—	780.4	1 716.0	1 638.2
B-Double	—	—	4 795.7	4 795.7
Road train	—	—	4 941.1	4 941.1
Other	—	—	*1 909.5	*1 909.5
Total	152.3	550.6	2 360.4	1 852.0
2001				
Single axle trailer	73.6	**493.6	—	91.1
Tandem axle trailer	*305.3	402.3	790.7	424.6
Triaxle trailer	**260.7	842.8	1 682.8	1 588.9
B-Double	—	—	4 791.2	4 791.2
Road train	—	—	4 517.0	4 517.0
Other	—	—	*2 042.3	*2 042.3
Total	164.5	525.8	2 363.7	1 804.4

- * estimate has a relative standard error of between 25% and 50% and should be used with caution
- nil or rounded to zero (including null cells)
- ** estimate has a relative standard error greater than 50% and is considered too unreliable for general use
- (a) Gross combination mass.
- (b) Calculated using the total tonne-kilometres travelled divided by the number of vehicles that travelled tonne-kilometres.

	<i>Light commercial vehicles</i>	<i>Rigid trucks</i>	<i>Articulated trucks</i>	<i>Total</i>
TOTAL LOAD CARRIED (million tonnes)				
2000				
New South Wales	26	186	184	396
Victoria	26	200	169	395
Queensland	27	159	113	299
South Australia	8	46	64	118
Western Australia	11	96	93	199
Tasmania	3	14	21	37
Northern Territory	1	6	7	15
Australian Capital Territory	1	5	3	9
Australia	103	711	655	1 469

2001				
New South Wales	30	216	199	444
Victoria	21	149	175	344
Queensland	26	165	133	324
South Australia	7	37	51	95
Western Australia	14	82	111	207
Tasmania	3	22	18	43
Northern Territory	2	5	8	15
Australian Capital Territory	2	7	2	10
Australia	103	683	697	1 482

AVERAGE LOAD CARRIED PER TRIP (a) (kilograms)

2000				
New South Wales	349	4 786	21 639	3 249
Victoria	403	6 771	20 391	3 886
Queensland	391	6 642	23 344	3 060
South Australia	357	6 247	23 259	3 723
Western Australia	382	5 672	28 156	4 108
Tasmania	387	5 419	23 752	3 341
Northern Territory	334	*4 016	30 787	2 564
Australian Capital Territory	371	5 602	24 360	1 984
Australia	377	5 854	22 615	3 471
2001				
New South Wales	340	5 177	23 569	3 223
Victoria	*222	5 540	20 965	*2 688
Queensland	431	5 900	24 839	3 485
South Australia	352	5 174	22 489	3 285
Western Australia	361	6 663	28 024	3 827
Tasmania	329	6 997	23 403	3 345
Northern Territory	366	5 065	33 546	2 561
Australian Capital Territory	376	6 241	18 395	1 786
Australia	326	5 632	23 639	3 180

* estimate has a relative standard error of between 25% and 50% and should be used with caution

(a) Calculated using the total load carried divided by the total number of laden trips.

FREIGHT VEHICLE USE, Total tonnes carried (million)

<i>Commodity</i>	<i>Light commercial vehicles</i>	<i>Rigid trucks</i>	<i>Articulated trucks</i>	<i>Total freight vehicles</i>
2000				
Food and live animals	7	96	159	262
Beverages and tobacco	**—	*4	*12	16
Crude materials, inedible, except fuels	*4	293	179	475
Mineral fuels, lubricants and related materials	*3	17	84	103
Animal and vegetable oils, fats and waxes	*—	*1	*3	4
Chemicals and related products, not elsewhere specified	2	7	17	27
Manufactured goods	9	107	91	207
Machinery, transport equipment	8	42	*46	96
Miscellaneous manufactured articles	*3	9	3	15
Tools of trade	56	25	*3	84
Other commodities, not elsewhere specified	*10	103	52	164
Unspecified(a)	*3	7	*6	15
Total	103	711	655	1 469
2001				
Food and live animals	9	71	169	249
Beverages and tobacco	**1	8	12	21
Crude materials, inedible, except fuels	*6	295	191	492
Mineral fuels, lubricants and related materials	*3	**48	107	158
Animal and vegetable oils, fats and waxes	**—	*1	2	3
Chemicals and related products, not elsewhere specified	*3	*7	*16	26
Manufactured goods	9	96	77	181
Machinery, transport equipment	11	30	42	82
Miscellaneous manufactured articles	*3	10	7	19
Tools of trade	49	30	*3	82
Other commodities, not elsewhere specified	7	85	58	150
Unspecified(a)	*3	*3	*11	18
Total	103	683	697	1 482

— nil or rounded to zero (including null cells)

** estimate has a relative standard error greater than 50% and is considered too unreliable for general use

* estimate has a relative standard error of between 25% and 50% and should be used with caution

(a) Represents loads carried where type of commodity could not be obtained.

	Route service	Dedicated school bus service	Charter service	Tour service	Other	Not specified(b)	Total
TOTAL KILOMETRES TRAVELLED (million)							
2000							
Buses with fewer than 20 seats	**47	49	*51	**155	261	*12	574
Buses with 20 or more seats	594	257	138	81	69	**4	1 142
Total	641	305	188	*236	330	*16	1 716
2001							
Buses with fewer than 20 seats	*38	50	*113	*52	277	**9	539
Buses with 20 or more seats	588	273	184	113	78	—	1 236
Total	626	323	297	165	355	**9	1 775
AVERAGE KILOMETRES TRAVELLED (c) ('000)							
2000							
Buses with fewer than 20 seats	*36.0	21.4	25.2	*70.6	18.6	13.8	28.6
Buses with 20 or more seats	51.1	18.4	19.4	46.9	12.5	**10.8	39.2
Total	49.6	18.8	20.7	60.2	16.9	12.9	34.9
2001							
Buses with fewer than 20 seats	*52.8	20.5	41.2	*42.6	20.7	**114.9	29.4
Buses with 20 or more seats	48.8	18.8	19.9	41.9	18.8	—	40.2
Total	49.0	19.0	24.8	42.1	20.2	**114.9	36.2
**	estimate has a relative standard error greater than 50% and is considered too unreliable for general use		(a)	Excluding distance travelled by buses used exclusively for private purposes.			
*	estimate has a relative standard error of between 25% and 50% and should be used with caution		(b)	Represents travel by buses where type of service could not be obtained.			
—	nil or rounded to zero (including null cells)		(c)	Average distance travelled for registered vehicles which were used.			

BUS USE(a), State/territory of registration, Type of service

	Route service	Dedicated school bus service	Charter service	Other(b)	Not specified(c)	Total
TOTAL KILOMETRES TRAVELLED (million)						
2000						
New South Wales	218	100	55	88	—	461
Victoria	95	51	48	91	*8	293
Queensland	153	69	*36	141	**5	403
South Australia	64	18	*5	*22	*2	110
Western Australia	70	45	**16	**162	**1	*293
Tasmania	16	11	4	12	—	44
Northern Territory	*6	*5	*21	45	**1	78
Australian Capital Territory	19	7	*3	*5	—	34
Australia	641	305	188	566	*16	1 716
2001						
New South Wales	191	124	68	101	—	485
Victoria	128	70	58	87	**9	351
Queensland	128	59	115	145	—	447
South Australia	70	13	*8	28	—	120
Western Australia	65	*36	*41	109	—	251
Tasmania	15	11	3	8	—	37
Northern Territory	*7	*4	**2	36	—	50
Australian Capital Territory	21	5	**1	*6	—	33
Australia	626	323	297	520	**9	1 775
AVERAGE KILOMETRES TRAVELLED (d) ('000)						
2000						
New South Wales	43.9	20.3	19.5	17.3	—	35.0
Victoria	41.8	18.1	25.0	17.4	*13.6	28.3
Queensland	65.6	17.1	16.1	26.1	*17.7	36.3
South Australia	64.1	17.1	11.1	22.7	*13.0	36.2
Western Australia	50.5	24.7	*23.3	*39.0	**3.8	40.0
Tasmania	43.2	13.6	8.3	22.0	—	27.4
Northern Territory	*45.4	15.0	*49.0	32.9	**18.7	40.6
Australian Capital Territory	41.9	15.3	*45.6	25.6	—	46.8
Australia	49.6	18.8	20.7	24.6	12.9	34.9
2001						
New South Wales	40.3	22.6	20.0	22.1	—	35.2
Victoria	49.4	19.2	24.8	19.3	**114.9	31.9
Queensland	59.1	14.6	31.9	28.4	—	40.5
South Australia	57.3	18.1	*15.3	22.2	—	36.0
Western Australia	59.8	23.1	*29.0	31.1	—	40.5
Tasmania	37.7	13.0	5.9	14.7	—	24.8
Northern Territory	*66.8	*22.3	**22.1	32.9	—	35.4
Australian Capital Territory	45.7	11.5	*16.7	*21.7	—	41.9
Australia	49.0	19.0	24.8	24.9	**114.9	36.2
—	nil or rounded to zero (including null cells)		(b) Includes tour service operations.			
*	estimate has a relative standard error of between 25% and 50% and should be used with caution		(c) Represents travel by buses where type of service could not be obtained.			
**	estimate has a relative standard error greater than 50% and is considered too unreliable for general use		(d) Average distance travelled for registered vehicles which were used.			
(a)	Excluding distance travelled by buses used exclusively for private purposes.					

EXPLANATORY NOTES

INTRODUCTION

1 This publication presents estimates from the 2001 Survey of Motor Vehicle Use (SMVU). The data were collected in four quarterly sample surveys conducted by the Australia Bureau of Statistics (ABS) over the period 1 November 2000 to 31 October 2001. Revised estimates from the 2000 SMVU are also included in this publication. These relate to the period 1 November 1999 to 31 October 2000. Estimates in this publication have been produced by employing post-stratification to correct for population frame deficiencies. Detail on this process can be found in Technical Note 2: Methodological Review.

SCOPE

2 The scope of the survey is all vehicles that were registered with a motor vehicle authority for road use at some stage during the 12 months ended 31 October 2001. Not included are caravans, trailers, tractors, plant and equipment, vehicles belonging to the defence services and vehicles with diplomatic or consular plates. Where they were registered as such, vintage and veteran cars were also excluded from the survey. The population was identified using information obtained from the state and territory motor vehicle registration authorities.

METHODOLOGY

3 For the 2001 SMVU, a sample of approximately 17,000 vehicles was selected to report on vehicle use over a three-month period within the reference year 1 November 2000 to 31 October 2001. Of these, 25% were passenger vehicles and motor cycles, 59% were freight vehicles, 11% were buses and 5% were other non-freight carrying vehicles. The sample size was chosen to give a suitable level of precision for estimates of total distance travelled and tonne-kilometres for each state/territory of registration by type of vehicle category.

4 The survey methodology is described as pre-advice, where owners of vehicles selected in the survey received early advice about their inclusion to encourage record keeping and minimise reliance on recall. These owners were asked to complete two mail questionnaires tailored to their vehicle type. The first, at the beginning of each quarterly survey period, asked for selected vehicle characteristics and the vehicle's odometer reading. Owners were also advised that they would receive a follow up questionnaire at the end of the quarter seeking details about the use of the vehicle over the quarter and a second odometer reading. Examples of the main items requested in the second questionnaire were included with the first questionnaire.

5 When questionnaires were returned to the ABS they were checked for completeness and accuracy and, where possible, follow-up contact was made with owners to resolve reporting problems. Where contact with providers could not be made, missing items on incomplete questionnaires were filled by imputing average data from like vehicles for which data were obtained.

6 Where the selected vehicle owner had not owned the vehicle for the whole quarterly survey period, the details provided for the period of ownership were adjusted to give a three-month equivalent, except where the vehicle was deregistered, in which case only the use up to the date of deregistration was included.

7 In addition, adjustments were made in the estimation process to account for the use of new motor vehicles registered after the survey population was identified, as well as the re-registration of other vehicles during this time. More information about these adjustments is provided in Technical Note 1: Data Quality.

8 Estimates from information reported in each quarterly collection period were produced and these were then aggregated into annual estimates relating to the use of vehicles during the period 1 November 2000 to 31 October 2001. The size of the sample is insufficient to produce reliable quarterly results.

EXPLANATORY NOTES *continued*

RELIABILITY OF ESTIMATES

9 When interpreting the results of a survey it is important to take into account factors that may affect the reliability of estimates. Such factors can be classified as either sampling error or non-sampling error. Information on sampling and non-sampling error is provided in Technical Note 1: Data Quality.

COMPARISON WITH MOTOR VEHICLE CENSUS DATA

10 Survey estimates of the numbers of vehicles, by vehicle type, are not fully comparable with ABS Motor Vehicle Census data (see *Motor Vehicle Census Australia*, (cat. no. 9309.0)). The main differences are:

- survey estimates of the numbers of vehicles relate to the average number of vehicles registered for road use during the period 1 November 2000 to 31 October 2001, not to the number of vehicles registered at a specific date, as is the case for the Motor Vehicle Census;
- the characteristics of the type of vehicle identified from the survey information may differ from those recorded by the motor registries.

CONCEPT OF AVERAGES

11 Most tables in this publication include statistics presented as averages. Tables 1, 3 and 4 are summary tables and present average kilometres travelled per vehicle for all registered vehicles including those that travelled zero kilometres. The other tables present more detailed information on actual vehicle use where the denominator used in calculating the average is limited to the estimated number of vehicles that contribute to the particular cell. In some cases a vehicle may contribute to more than one cell in a table (e.g. a bus used for route service and charter purposes) but will only be counted once in the denominator for the total.

12 As the denominators used to calculate each average are different it should be noted that the averages along a table row cannot be used to derive the total column entry for that row.

HISTORICAL COMPARISONS

13 This publication includes estimates of vehicle use for 2000 and 2001. Care should be taken in drawing inferences from changes in data over these two years as movements may be subject to high RSEs and hence the changes may not be statistically significant.

14 The ABS will also be revising 1998 and 1999 SMVU data. Therefore, comparisons between data contained in this publication and those contained in previous SMVU publications should not be made.

15 Revised data for 1998 and 1999 SMVU will be published along with 2002 SMVU data in September 2003.

ABS DATA AVAILABLE ON REQUEST

16 As well as the statistics included in this publication, the ABS has data available on request. Inquiries should be directed to ABS Client Services. Contact details are shown on the back of this publication.

RELATED PUBLICATIONS AND PRODUCTS

17 Users may also wish to refer to the following publications and products which contain information relating to motor vehicles in Australia:

Motor Vehicle Census, Australia cat. no. 9309.0 — issued annually from 1995

Sales of New Motor Vehicles, Australia, (Electronic Publication) cat. no. 9314.0 — issued monthly

Directory of Transport Statistics, 1998 cat. no. 1132.0 — released in January 1999

Transport Theme page on ABS Internet site <<http://www.abs.gov.au>>.

TECHNICAL NOTE 1 DATA QUALITY

DATA QUALITY

1 When interpreting the results of a survey it is important to take into account factors that may affect the reliability of estimates. Such factors can be classified as either sampling error or non-sampling error.

SAMPLING ERROR

2 Estimates in this publication are based on information collected for a sample of registered motor vehicles, rather than a full enumeration, and are therefore subject to sampling error. They may differ from the figures that would have been produced if the information had been obtained for all registered motor vehicles. Examples of the sampling error for selected estimates from the Survey of Motor Vehicle Use (SMVU) for the 12 months ended 31 October 2000 and 2001 are included below. The sampling error associated with any estimate can be calculated from the sample results. One measure of sampling error is given by the standard error, which indicates the extent to which an estimate might have varied by chance because only a sample of vehicles was included. There are about two chances in three that a sample estimate will differ by less than one standard error from the figure that would have been obtained if all vehicles had been included, and about 19 chances in 20 that the difference will be less than two standard errors.

3 Another measure of sampling variability is the relative standard error (RSE) which is obtained by expressing the standard error as a percentage of the estimate to which it refers. The RSE is a useful measure in that it provides an immediate indication of the percentage error likely to have occurred due to sampling. In this publication, only estimates with a RSE of less than 25% are considered sufficiently reliable for most purposes. Estimates with a RSE between 25% and 50% are preceded by a single asterisk (*) and should be used with caution while those with an RSE of greater than 50% are preceded by two asterisks (***) and are considered too unreliable for general use.

4 The RSEs relating to 2000 and 2001 estimates contained in table 4 of this publication are shown in the following tables.

TECHNICAL NOTE 1 DATA QUALITY *continued*

RSE OF MOTOR VEHICLE USE 2000(a), State/territory of registration, Type of vehicle

	<i>Passenger vehicles</i>	<i>Motor cycles</i>	<i>Light commercial vehicles</i>	<i>Rigid trucks</i>	<i>Articulated trucks</i>	<i>Non- freight carrying trucks</i>	<i>Buses</i>	<i>Total</i>
TOTAL KILOMETRES TRAVELLED (%)								
New South Wales	7	19	5	5	6	56	8	5
Victoria	5	15	6	6	6	19	8	4
Queensland	7	16	7	14	5	18	8	5
South Australia	7	20	6	7	6	22	10	6
Western Australia	7	16	7	6	7	30	29	5
Tasmania	6	14	7	7	6	22	9	5
Northern Territory	8	25	8	9	14	27	13	5
Australian Capital Territory	5	15	10	7	14	42	8	5
Australia	3	8	3	4	3	17	6	2
NUMBER OF VEHICLES (%)								
New South Wales	3	5	3	2	4	32	5	2
Victoria	2	5	3	4	4	9	4	2
Queensland	2	5	4	3	3	13	3	2
South Australia	2	5	3	2	3	5	4	2
Western Australia	3	4	4	2	4	12	10	2
Tasmania	2	4	3	2	3	6	5	1
Northern Territory	4	8	4	9	4	13	6	3
Australian Capital Territory	3	5	5	3	10	22	8	2
Australia	1	2	2	1	2	8	2	1
AVERAGE KILOMETRES TRAVELLED (%)								
New South Wales	6	18	5	5	6	49	7	5
Victoria	5	15	6	7	5	18	7	4
Queensland	6	16	6	14	5	16	8	5
South Australia	7	20	5	7	5	19	9	5
Western Australia	6	16	6	6	7	29	21	5
Tasmania	6	14	7	7	6	21	8	4
Northern Territory	7	23	8	8	13	24	12	5
Australian Capital Territory	5	14	7	7	9	25	8	4
Australia	3	8	3	4	3	15	5	2

(a) These relative standard errors relate to the estimates in table 4.

TECHNICAL NOTE 1 DATA QUALITY *continued*

RSE OF MOTOR VEHICLE USE 2001(a), State/territory of registration, Type of vehicle

	Passenger vehicles	Motor cycles	Light commercial vehicles	Rigid trucks	Articulated trucks	Non- freight carrying trucks	Buses	Total
TOTAL KILOMETRES TRAVELLED (%)								
New South Wales	5	15	5	5	5	27	6	4
Victoria	5	18	6	6	5	19	7	4
Queensland	6	19	6	6	4	13	7	4
South Australia	6	18	6	7	4	24	8	5
Western Australia	6	14	7	9	7	30	12	5
Tasmania	8	17	7	7	6	24	9	6
Northern Territory	7	25	8	7	13	22	12	5
Australian Capital Territory	4	13	7	8	13	39	8	4
Australia	2	8	3	3	2	10	3	2
NUMBER OF VEHICLES (%)								
New South Wales	1	5	2	2	6	15	4	1
Victoria	2	5	3	3	3	9	4	2
Queensland	2	4	3	3	2	10	3	1
South Australia	2	5	2	2	2	11	4	2
Western Australia	2	3	3	2	4	10	6	2
Tasmania	2	3	3	5	6	7	5	2
Northern Territory	2	6	4	8	4	8	8	2
Australian Capital Territory	2	3	5	7	6	18	6	2
Australia	1	2	1	1	2	5	2	1
AVERAGE KILOMETRES TRAVELLED (%)								
New South Wales	5	15	5	5	6	20	6	4
Victoria	4	18	6	6	5	19	6	4
Queensland	5	19	5	6	4	14	7	4
South Australia	5	18	5	7	4	18	7	4
Western Australia	6	14	7	9	7	30	11	4
Tasmania	8	17	6	8	8	22	8	6
Northern Territory	7	24	7	10	12	21	11	5
Australian Capital Territory	4	13	6	6	11	36	7	3
Australia	2	8	2	3	2	9	3	2

(a) These relative standard errors relate to the estimates in table 4.

SAMPLING ERROR *continued*

5 As an example of the use of an RSE, the 2001 estimate of 143,925 million kilometres for total kilometres travelled for all passenger vehicles registered in Australia from table 4 of the publication has an RSE of 2% as shown above i.e. the standard error for the 2001 SMVU estimate is 2,879 million kilometres. There are about two chances in three that the figure obtained if all vehicles had been included, would have been in the range 141,046 million kilometres to 146,804 million kilometres. There are about 19 chances in 20 that the figure would have been in the range 138,167 million kilometres to 149,683 million kilometres.

6 It is important to note that estimates at more detailed levels than the above are subject to higher RSEs and therefore are less reliable.

7 RSEs for other key variables are shown in the following tables. The RSEs of further detailed variables can be made available on request.

TECHNICAL NOTE 1 DATA QUALITY *continued*

RSE OF FUEL CONSUMPTION(a), Type of fuel, Type of vehicle

	Passenger vehicles	Motor cycles	Light commercial vehicles	Rigid trucks	Articulated trucks	Non- freight carrying trucks	Buses	Total
TOTAL FUEL CONSUMPTION (%)								
2000								
Petrol								
Leadedl	8	23	10	18	68	25	28	7
Unleaded	4	9	5	24	—	19	17	3
Total	3	9	4	15	68	15	15	3
Diesel	21	—	7	5	3	20	5	3
LPG/CNG/dual fuel	(b)np	—	13	31	—	31	33	12
Total	3	9	3	5	3	16	5	2
2001								
Petrol								
Leaded	10	18	11	15	76	30	28	8
Unleaded	3	10	5	25	99	24	18	3
Total	3	8	4	14	60	20	16	2
Diesel	20	—	7	4	2	13	3	3
LPG/CNG/dual fuel	(b)np	—	15	23	—	23	20	11
Total	3	8	3	4	2	10	3	2

AVERAGE RATE OF FUEL CONSUMPTION (%)

2000								
Petrol								
Leadedl	2	8	4	8	3	11	13	2
Unleaded	3	7	3	9	—	11	13	3
Total	2	5	3	7	3	8	12	2
Diesel	10	—	4	4	2	20	3	3
LPG/CNG/dual fuel	13	—	7	15	—	6	17	9
Total	2	5	2	4	2	15	3	2
2001								
Petrol								
Leaded	3	4	4	6	70	8	14	2
Unleaded	1	3	2	11	96	8	5	1
Total	1	3	1	5	27	7	5	1
Diesel	4	—	3	2	1	5	2	2
LPG/CNG/dual fuel	5	—	4	11	—	8	20	4
Total	1	3	1	2	1	4	2	1

— nil or rounded to zero (including null cells)

(a) These relative standard errors relate to the estimates in table 5.

(b) The reported consumption of LPG/CNG/dual fuel in the years 2001 and 2002 is considered too unreliable for general use.

TECHNICAL NOTE 1 DATA QUALITY *continued*

SAMPLING ERROR *continued*

RSE OF FREIGHT VEHICLES(a), State/territory of operation

	<i>Light commercial vehicles</i>	<i>Rigid trucks</i>	<i>Articulated trucks</i>	<i>Total</i>
TOTAL TONNE-KILOMETRES (%)				
2000				
New South Wales	10	10	4	4
Victoria	13	15	8	7
Queensland	14	12	7	6
South Australia	13	13	9	8
Western Australia	13	12	8	7
Tasmania	15	13	8	7
Northern Territory	16	34	18	17
Australian Capital Territory	17	24	20	13
Australia	6	6	3	3
2001				
New South Wales	10	9	5	4
Victoria	13	11	5	5
Queensland	13	10	5	4
South Australia	17	14	7	6
Western Australia	18	20	9	8
Tasmania	14	12	8	6
Northern Territory	15	45	14	13
Australian Capital Territory	21	13	27	14
Australia	6	5	3	2

(a) These relative standard errors relate to the estimates in table 13.

8 All tables in this publication contain estimates from the 2000 and 2001 SMVUs. The SMVU is not designed to minimise the standard errors of the movements between reference periods so care should be taken in drawing inferences from changes in data over these two years. The RSE for the movement can be calculated using:

$$RSE(M_t) = 100 * \frac{\sqrt{(RSE(Y_{2t}) * Y_{2t}/100)^2 + (RSE(Y_{1t}) * Y_{1t}/100)^2}}{M_t}$$

where

Y_{1t} is an estimate of total of the variable of interest, obtained from the 1st time point.

Y_{2t} is an estimate of total of the same variable of interest, obtained from the 2nd time point.

M_t is an estimate of movement of the total of the variable of interest from the 1st time point to the 2nd time point i.e. $M_t = Y_{2t} - Y_{1t}$

9 For total kilometres travelled by type of vehicle from the 2000 and 2001 SMVUs, the RSEs of the movements and the estimates from which they are derived are shown below.

TECHNICAL NOTE 1 DATA QUALITY *continued*

RSE OF THE MOVEMENT OF TOTAL KILOMETRES TRAVELLED

	2000	RSE (2000)	2001	RSE (2001)	Movement	RSE (Movement) (a)
	million	%	million	%	million	%
Passenger vehicles	141 519	2.91	143 925	2.47	2 406	226.13
Motor cycles	1 135	8.48	1 448	8.16	313	48.71
Light commercial vehicles	27 829	2.72	30 728	2.73	2 899	39.00
Rigid trucks	6 536	4.03	6 627	2.74	92	348.96
Articulated trucks	5 578	2.76	5 321	2.24	-256.45	76.03
Non-freight carrying trucks	220	16.83	267	10.16	47	97.31
Buses	1 776	5.63	1 835	3.35	59	199.51
Total	184 593	2.27	190 152	1.91	5 559	99.70

(a) Calculated on unrounded data.

SAMPLING ERROR *continued*

10 From the previous table it can be seen that many of the movements have an RSE of greater than 50%. Therefore, it cannot be said with 95% (19 chances in 20) confidence that the movements are significantly different from zero.

NON-SAMPLING ERROR

11 Non-sampling error covers the range of errors that are not caused by sampling and can occur in any statistical collection whether it is based on full enumeration or a sample. For example, non-sampling error can occur because of non-response to the statistical collection, errors in reporting by providers, definition or classification difficulties, errors in transcribing and processing data and under-coverage of the frame from which the sample was selected. If these errors are systematic (not random) then the survey results will be distorted in one direction and therefore unrepresentative of the target population. Systematic errors are called bias.

12 Two steps undertaken to help minimise non-sampling error are pre-advice and the reduction in the reporting of rounded data. The pre-advice methodology involves vehicle owners receiving early advice about their inclusion in the survey. This encourages a higher degree of record keeping. In addition, the reporting of odometer readings taken at the start and end of the survey periods (approximately three months apart) provide reliable estimates of total distance travelled without a recall bias.

13 The second step is the reduction in the reporting of rounded data for total distance travelled. Such rounding could cause significant errors, especially with the prevalence of certain distances which could be seen as arbitrary guesses on the part of the provider. Where rounding is identified, providers are contacted and the estimate of their total distance travelled is queried. Distances considered to be rounded are every 1,000 kilometres in the range 1,000 kilometres up to 10,000 kilometres and every 5,000 kilometres for distances over 10,000 kilometres.

Response and non-response

14 A potentially important factor relating to non-sampling error is the response rate achieved. Responses were received from 80% of selections for both 2000 and 2001 SMVU. When vehicles found to be deregistered or out of scope are removed, the live response rate for both the 2000 and 2001 SMVU is 79%.

15 The ABS makes all reasonable efforts to maximise response rates. Where appropriate, mail reminders and telephone follow-up are used to attempt to contact non-responding vehicle owners.

16 A large non-response increases the potential for non-response bias, which occurs if the usage patterns of the non-responding vehicles differ significantly from those of the responding vehicles. For the SMVU, it is assumed that the characteristics of non-responding vehicles including the proportion of deregistered, out of scope and nil use vehicles are the same as for responding vehicles.

TECHNICAL NOTE 1 DATA QUALITY *continued*

*Response and non-response
continued*

RESPONSE AND NON-RESPONSE, BY CATEGORY

	Percentage of selections 2000	Percentage of selections 2001
Response received		
Registered vehicle	75	73
Unregistered vehicle(a)	6	7
Non-response		
Untraceable—mailing address unknown	7	9
Other(b)	12	11
Total selections	100	100

- (a) Includes deregistration, out of scope and duplicates.
- (b) Includes responses that were unusable because of unresolved queries or where the vehicle was sold during the reference quarter and the reported data covered less than 14 days; and non-response where no listing could be found to enable contact by telephone, owner contacted by telephone but response still not secured and refusals.

Imputation

17 The need for imputation of unfilled items on the returned questionnaires, as for previous surveys, remained quite high. Imputation is the process whereby a value is generated for missing data items by averaging the responses for similar vehicles which were operating for the reference period. Of the questionnaires returned for 2000, 14% of those reporting some vehicle use needed imputation of one or more items apart from the average rate of fuel consumption. The imputation for average rate of fuel consumption for 2000 was 25%. For the 2001 questionnaires the imputation rates were 15% and 24% respectively.

Adjustments

18 The SMVU measures the use of all vehicles registered during the reference year. Because selections are taken from vehicles registered some time before the beginning of each collection period, adjustments and additional selections from New Motor Vehicle Registrations are made to account for the change in size of the registered motor vehicle fleet since the population frame was created. This involved two categories:

- re-registrations—older vehicles that are returning to the registered vehicle fleet after a period of deregistration
- new motor vehicles—vehicles which have not been previously registered.

19 These activities occur continuously and the adjustments are made to account for the registrations that are estimated to have been added to the registered vehicle fleet between the population frame date and the reference period.

20 Refer to Technical Note 2: Methodological Review for details of changes made as a result of the review.

Fuel estimates - petrol

21 Introduction of lead replacement petrol (LRP) occurred progressively over the 2001 SMVU reference period. As LRP was not identified as a separate category on the collection form it is not known whether data providers categorised LRP as leaded or unleaded petrol. However, the large reduction in leaded petrol suggests that a significant proportion of providers did classify LRP as unleaded. For this reason caution should be taken in interpreting the ratio of leaded to unleaded petrol in 2001.

22 Users should contact the ABS if they have any queries on the quality and reliability of estimates for particular purposes.

TECHNICAL NOTE 2 METHODOLOGICAL REVIEW

INTRODUCTION

1 A review of the methodology used for the Survey of Motor Vehicle Use (SMVU) was undertaken in 2002 to address data quality issues raised in relation to previously published data. This review identified deficiencies in the SMVU population frame which resulted in the selection of a sample that was not representative of the registered vehicle population. This deficiency has been rectified for the selection of the sample for SMVU 2003.

2 The review identified some minor errors in the adjustments used to account for re-registration. These errors have now been rectified. The review also investigated new vehicle provision calculations. While no errors were identified a number of options to improve these calculations were investigated and implemented.

3 This Technical Note specifically outlines the investigations that led to the identification of the frame deficiency and the post-stratification technique used to correct it.

FRAME PROBLEM

4 To ensure the SMVU sample was representative of the population, random selection was used within each stratum. For the SMVU, the random selection process allocated a random number to each unit on the frame. To select the sample, the frame was sorted by random number and a start point was randomly selected. A number of units were selected in order, depending on the number of selection units required for a particular stratum.

5 An investigation of the SMVU frame revealed a large number of units which had duplicate random numbers. Duplicate random numbers will not produce a bias in a sample as long as the duplicates contain a random assortment of units.

6 The SMVU frame investigation showed however, that the characteristics of certain variables differed between those units with unique random numbers and those with duplicated random numbers. This was particularly the case with Year of Manufacture. Therefore, the distribution of these variables within the resulting sample was dependant on whether the random start and the units selected incorporated duplicate random numbers. All estimates produced from samples selected under this scenario would contain bias, with the direction of this bias dependant on the inclusion of duplicates.

POST-STRATIFICATION

7 The collection of SMVU data for 2000 and 2001 had already been completed before the concerns with the frame were identified. To correct for the unrepresentative sample, a process of post-stratification was used.

8 Post-stratification is a method of stratifying a sample after the responses have been received. It is used to improve the quality of results through stratifying by variables that were not used at the time of sample design.

9 In the case of SMVU the frame investigation identified six variables to be used in the post-stratification. These variables were State, Vehicle Type, Year of Manufacture, Body Code, Fuel Class and Number of Cylinders. Once post-stratification was applied to the SMVU data, the weights of each unit were adjusted based on the particular post-stratum of that unit to realign sample totals to be representative of population totals. Both 2000 and 2001 were post-stratified independently and the post-strata will vary from one year to the next.

10 Caution needs to be taken in making comparisons between 2000 and 2001. Comparisons at the broad level are more reliable than those at the detailed level.

11 Previously published 1998 and 1999 data will be re-estimated using post-stratification and published with post-stratified 2002 SMVU data in September 2003.

IMPACT

12 The impact of the review on the estimates for the main data items is summarised in the following table. The size of the change varies by data item.

TECHNICAL NOTE 2 METHODOLOGICAL REVIEW *continued*

IMPACT *continued*

IMPACT OF METHODOLOGICAL REVIEW ON SMVU DATA, Australia

	<i>Before review</i>	<i>After review</i>	<i>% change</i>
2000			
Total kilometres travelled (million)	180 782	184 593	2.11
Total tonne-kilometres travelled (million)	128 702	134 378	4.41
Total fuel (million litres)	24 926	25 853	3.72
2001			
Total kilometres travelled (million)	187 819	190 152	1.24
Total tonne-kilometres travelled (million)	132 756	132 422	-0.25
Total fuel (million litres)	25 931	25 948	0.07

13 It is important to understand that the percentage change before and after the review can vary significantly between state and vehicle type. Therefore, the percentage change figures in the above table for all vehicles at the national level cannot be used at the state or vehicle type level to calculate the changes due to post-stratification.

14 For 2000 and 2001 SMVU data care should be taken in drawing inferences from changes in data over these two years as movements may be subject to high relative standard errors. Therefore the resulting estimates of movements may not be considered statistically significant. There is also potential for increased volatility in the estimates due to the changes that have been implemented as a result of the methodological review.

15 Users should contact the ABS if they have any queries on the methodological review.

GLOSSARY

Articulated trucks	Motor vehicles constructed primarily for load carrying, consisting of a prime mover which has no significant load carrying area, but with a turntable device which can be linked to a semitrailer.
Average load carried	Average load carried is calculated by dividing the total weight of loads carried by the number of trips made while carrying a load.
B-Doubles	A B-Double combination consists of a prime mover towing two semitrailers. The first trailer includes a turntable which links to the second trailer, rather than using a dolly to link the trailers as in road train configurations.
Buses	Motor vehicles constructed for the carriage of passengers. Included are all motor vehicles with 10 or more seats, including the driver's seat.
Business kilometres	Distance travelled for hire and reward, or charged to a business expense, or for which an allowance was received. All distances travelled for business purposes, irrespective of actual use, and irrespective of vehicle type, are included in total business kilometres. The laden-unladen dissection of distance travelled for business purposes relates only to freight vehicles, i.e. light commercial vehicles, rigid trucks and articulated trucks.
Capital city	<p>These areas are based on capital city Statistical Divisions as defined in the <i>Australian Standard Geographical Classification (ASGC) 1996</i>.</p> <p>Sydney — this includes the area bounded by Gosford and Wyong; Hawkesbury and Blue Mountains; Campbelltown, Wollondilly and the Sutherland Local Government Areas.</p> <p>Melbourne — this includes the area bounded by Werribee, Melton, Sunbury, Craigieburn, Whittlesea, Healesville, Warburton, Berwick, Pakenham and the whole of Mornington Peninsula.</p> <p>Brisbane — this includes the area bounded by Caboolture, the eastern part of the Pine Rivers Shire, Redcliffe City, Redland Shire, Beenleigh, Logan City and the City of Ipswich.</p> <p>Adelaide — this includes the area bounded by the Gulf of St. Vincent, the Gawler River and the Mount Lofty Ranges from Gawler to Bridgewater through Kangarilla and Willunga to Sellicks Beach.</p> <p>Perth — this includes the area bounded by Yanchep and Bullsbrook; Warnbro, Keysbrook and Wooroloo.</p> <p>Hobart — this includes the area bounded by New Norfolk; Sorell and Carlton Creek; Brighton and Snug.</p> <p>Darwin — this includes Darwin and suburbs, Palmerston and other areas north of the Howard Springs turn-off.</p> <p>Canberra — this includes all of the Australian Capital Territory.</p>
Commodity carried	The publication of commodities carried is based on the 10 sectional groupings of the <i>Australian Transport Freight Commodity Classification (ATFCC)</i> , with the addition of Tools of Trade.
Dolly	A device intended to link two semitrailers or a rigid truck and a semitrailer.
Freight vehicles	Consists of light commercial vehicles, rigid trucks and articulated trucks.
Fuel consumption	Total fuel consumption is calculated by adding the product of total kilometres travelled and reported average fuel consumption for each vehicle. The average rate of fuel consumption is calculated by dividing the total fuel consumption by total kilometres for each vehicle type.
Gross Combination Mass (GCM)	Tare weight (i.e. unladen weight) of the motor vehicle and attached trailers, plus their maximum carrying capacity. In the survey, this was obtained for vehicles operated in combination (e.g. a prime mover/semitrailer combination, or a rigid truck/trailer combination).

GLOSSARY *continued*

Gross Vehicle Mass (GVM)	Tare weight (i.e. unladen weight) of the motor vehicle, plus its maximum carrying capacity. In the survey, this was obtained for buses and rigid trucks not usually towing trailers.
Interstate	This refers to any travel by vehicles outside their state or territory of registration.
Light commercial vehicles	Motor vehicles constructed for the carriage of goods and which are less than or equal to 3.5 tonnes GVM. Included are utilities, panel vans, cab-chassis and goods carrying vans (whether four-wheel drive or not).
Non-freight carrying trucks	Specialist motor vehicles or motor vehicles fitted with special purpose equipment, and having little or no goods carrying capacity, e.g. ambulances, cherry pickers, fire trucks and tow trucks.
Other Urban Areas	<p>These are based on the <i>Australian Standard Geographical Classification (ASGC) 1996</i> as being either Statistical Districts with a population greater than 40,000 or clusters of collection districts and other urban areas with a population greater than 40,000, based on the 1996 Population Census.</p> <p>New South Wales — within the areas of Newcastle, Wollongong, Bathurst-Orange, Maitland, Albury (excluding Wodonga), Wagga Wagga, Tweed Heads (excluding Gold Coast), Queanbeyan (excluding Canberra ACT), Lismore, Coffs Harbour, Greater Taree, Shellharbour, Cessnock, Nelson Bay, Port Macquarie and Nowra.</p> <p>Victoria — within the areas of Geelong, Ballarat, Bendigo, Wodonga (excluding Albury), Shepparton and Mildura.</p> <p>Queensland — within the areas of Gold Coast (excluding Tweed Heads), Sunshine Coast, Bundaberg, Rockhampton, Mackay, Townsville, Cairns and Toowoomba.</p> <p>Tasmania — within the areas of Launceston, Burnie, Devonport, Penguin, Ulverstone, Wynyard and Latrobe.</p> <p>This category is not applicable in South Australia, Western Australia, the Northern Territory and the Australian Capital Territory.</p>
Passenger vehicles	Motor vehicles constructed primarily for the carriage of persons and containing up to nine seats (including the driver's seat). Included are cars, station wagons, four-wheel drive passenger vehicles, passenger vans or mini buses with fewer than 10 seats and campervans.
Prime movers	Motor vehicles constructed primarily for towing semitrailers. Prime movers have no significant load carrying area but are fitted with a turntable for linking to a semitrailer.
Rigid trucks	Motor vehicles exceeding 3.5 tonnes GVM, constructed with a load carrying area. Included are normal rigid trucks with a tow bar, draw bar or other non-articulated coupling on the rear of the vehicle.
Road trains	Motor vehicles comprising a prime mover hauling two or more trailers and employing a dolly or a rigid truck hauling two or more trailers.
RSE	Relative standard error. The standard error expressed as a percentage of the estimate to which it refers.
Semitrailer	Trailers designed to impose a substantial load on the towing vehicle, usually via a turntable on a prime mover.
Stratification	Stratification is the process where a population is divided into homogeneous groups called strata that are non-overlapping, and together comprise the whole population. This technique uses auxiliary information to increase the efficiency of a sample design and units are selected independently within each stratum.

GLOSSARY *continued*

Tonne-kilometres	Total tonne-kilometres is the aggregation of 'the number of tonnes moved multiplied by the distance travelled in kilometres for each individual vehicle carrying freight'. Note that it is not the aggregation of 'the total number of tonnes moved by total kilometres travelled by all vehicles carrying freight'.
Tonnes carried	Total tonnes carried is the total weight of goods and freight carried during the survey period. The estimate of annual tonnes carried relates to goods and freight uplifted by vehicles and therefore will overstate the actual physical quantity of goods and freight moved during the survey period to the extent that transshipment occurs (i.e. the transfer of goods and freight from one vehicle to another).
Travel to and from work	The travel between place of residence and place of work at the beginning and end of all working days, including travel to and from public transport stations.

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