



# **SURVEY OF MOTOR VEHICLE USE**

AUSTRALIA

EMBARGO: 11.30AM (CANBERRA TIME) THURS 7 SEP 2006

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## INQUIRIES

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 2005 Survey of Motor Vehicle Use (SMVU). It contains statistics on passenger vehicle, motor cycle, truck and bus use for characteristics such as distance travelled, tonne-kilometres and fuel consumption.

The data were collected in four quarterly sample surveys conducted by the Australian Bureau of Statistics (ABS) over the period 1 November 2004 to 31 October 2005.

### COMPARISONS WITH PREVIOUS SURVEY RESULTS

This survey has been designed to provide a measure of total distance travelled and tonne-kilometres for each state/territory of registration by type of vehicle. While comparisons are made between 2005 survey results and earlier iterations of the SMVU, the survey has not been designed to provide accurate estimates of change.

Care should be taken in drawing inferences from changes in data over time as movements may be subject to high relative standard errors and the resulting estimates of movements may not be considered statistically significant. See Explanatory Notes paragraph 14.

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

Susan Linacre  
Acting Australian Statistician

## ABBREVIATIONS

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'000	thousand
ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
ASGC	Australian Standard Geographical Classification
ATFCC	Australian Transport Freight Commodity Classification
Aust.	Australia
CNG	compressed natural gas
GCM	gross combination mass
GVM	gross vehicle mass
km	kilometre
LPG	liquefied petroleum gas
no.	number
NSW	New South Wales
NT	Northern Territory
Qld	Queensland
RSE	relative standard error
SA	South Australia
SE	standard error
Tas.	Tasmania
Vic.	Victoria
WA	Western Australia

## SUMMARY OF FINDINGS

### NUMBER OF VEHICLES

In the 12 months ended 31 October 2005 there were an estimated 13.9 million vehicles registered in Australia.

Passenger vehicles (78.9%) made up the largest group of registered vehicles in 2005, followed by freight vehicles (17.4%). The remainder (3.6%) comprised buses, motor cycles and non-freight carrying trucks. Of the freight vehicles, 82.1% were light commercial vehicles, 15.1% were rigid trucks and 2.8% were articulated trucks.

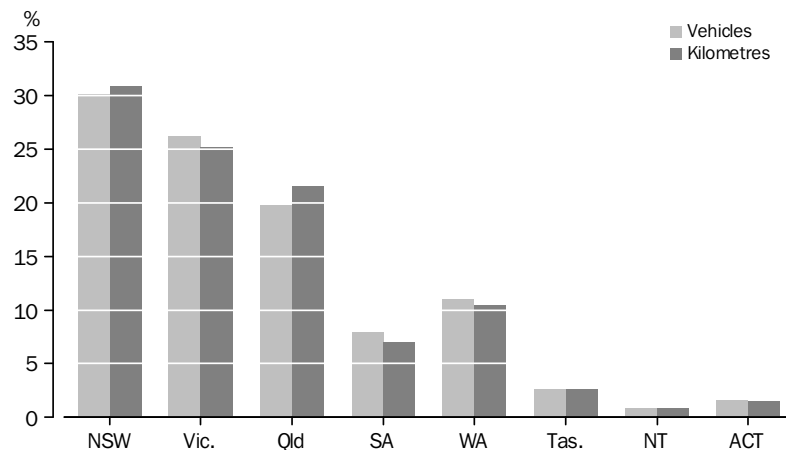
The 13.9 million vehicles represented an increase of 1.5 million vehicles (12.5%) compared with the 12 months ended 31 October 2001.

### KILOMETRES TRAVELLED

Motor vehicles in Australia travelled an estimated 206,383 million kilometres in the 12 months ended 31 October 2005. While the number of vehicles increased by 12.5% compared with the 12 months ended 31 October 2001, the distance travelled by these vehicles has only increased by 8.5% over this time.

The state/territory proportion of total kilometres travelled is closely related to the number of registered vehicles in each state/territory. New South Wales had the largest share of total kilometres travelled (30.9%) and the largest number of registered vehicles.

PROPORTION OF VEHICLES AND TOTAL KILOMETRES TRAVELLED, State/territory of registration—Year ended 31 October 2005

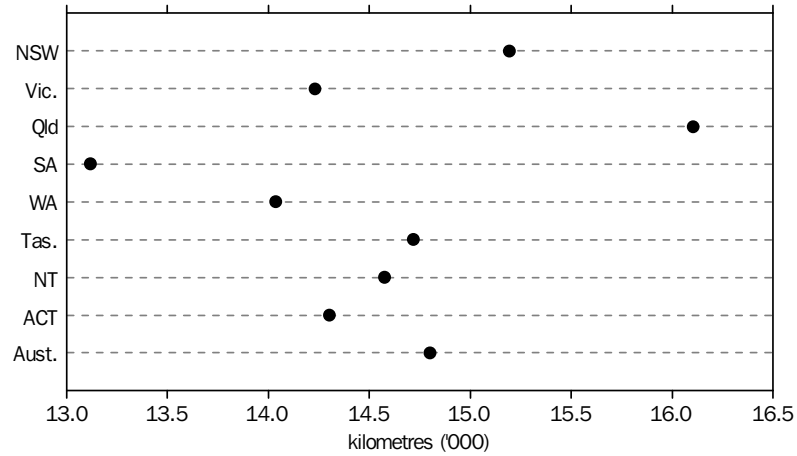


Australian registered motor vehicles each travelled an average of 14,800 kilometres in the 12 months ended 31 October 2005. Queensland (16,100 kilometres) and New South Wales (15,200 kilometres) were above the national average, while vehicles registered in South Australia travelled the least number of average kilometres (13,100).

## SUMMARY OF FINDINGS *continued*

### KILOMETRES TRAVELLED *continued*

AVERAGE KILOMETRES TRAVELLED, Motor vehicles by state/territory of registration—Year ended 31 October 2005



Passenger vehicles accounted for 75.1% of the total distance travelled in the 12 months ended 31 October 2005. This represents a slight decrease compared with the proportion travelled by passenger vehicles in the 12 months ended 31 October 2001 (75.7%).

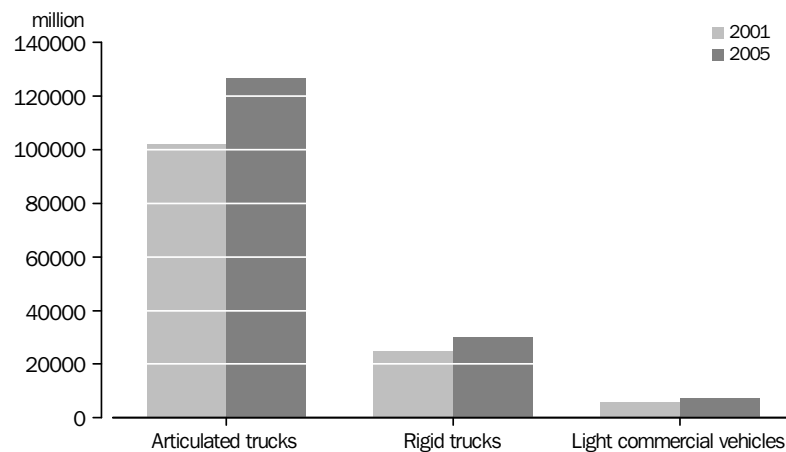
Personal and other use accounted for 52.5% of the total kilometres travelled by passenger vehicles in Australia during 2005. Travel to and from work (27.4%) and business use (20.0%) accounted for the remaining kilometres travelled by passenger vehicles.

Freight carrying vehicles accounted for 47,743 million kilometres travelled (23.1%) in the 12 months ended 31 October 2005. Of this, light commercial vehicles accounted for 70.7% of the kilometres travelled, rigid trucks for 16.1%, and articulated trucks for 13.2%.

### TONNE-KILOMETRES

Freight vehicles in Australia travelled an estimated 164,394 million tonne-kilometres in the 12 months ended 31 October 2005. This is an increase of 31,972 million tonne-kilometres (24.1%) travelled since the 12 months ended 31 October 2001. An increase in tonne-kilometres was reported in all freight vehicle types.

TOTAL TONNE-KILOMETRES TRAVELLED, Type of vehicle—Years ended 31 October 2001 and 31 October 2005



## SUMMARY OF FINDINGS *continued*

### TONNE-KILOMETRES

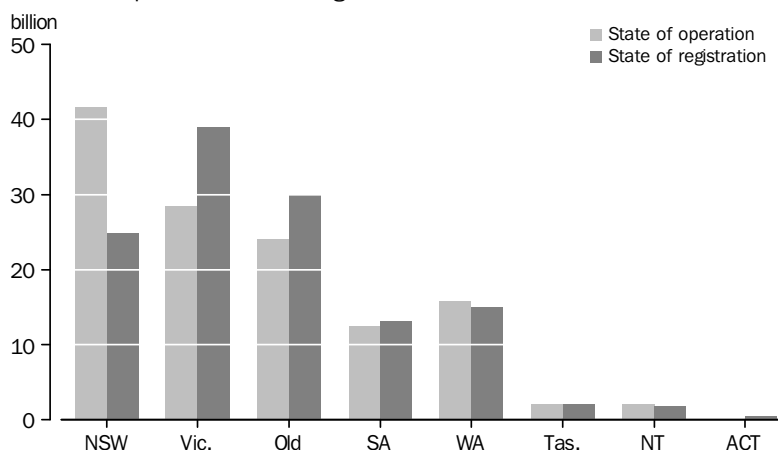
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Articulated trucks accounted for 77.2% of the total freight vehicle tonne-kilometres travelled in the 12 months ended 31 October 2005. Rigid trucks accounted for 18.3% and light commercial vehicles for 4.4%. Articulated trucks each travelled an average of 2.0 million tonne-kilometres. In comparison, rigid trucks and light commercial vehicles travelled an average of 98,000 and 6,400 tonne-kilometres respectively in the 12 months ended 31 October 2005.

In the 12 months ended 31 October 2005, articulated trucks of a Gross Combination Mass (GCM) over 40 tonnes travelled 118,432 million tonne-kilometres, out of a total 126,926 million tonne-kilometres travelled by all articulated trucks.

The amount of tonne-kilometres travelled by articulated trucks in the 12 months ended 31 October 2005 varied when comparing the state of operation and the state of registration, with the largest difference occurring in New South Wales.

### TOTAL TONNE-KILOMETRES TRAVELLED BY ARTICULATED TRUCKS, State of operation and registration—Year ended 31 October 2005



### FUEL CONSUMPTION

Registered motor vehicles in Australia consumed 28,967 million litres of fuel in the 12 months ended 31 October 2005. This is an increase of 11.6% (3,019 million litres) since the 12 months ended 31 October 2001. Over the same period, the estimated number of motor vehicles in Australia increased by 12.5% and kilometres travelled increased by 8.5%.

Of the total fuel consumed by motor vehicles in the 12 months ended 31 October 2005, 64.6% of fuel was petrol and 30.0% was diesel fuel.

Passenger vehicles used 15,856 million litres of petrol in the 12 months ended 31 October 2005, of which 95.6% (15,160 million litres) was unleaded petrol.

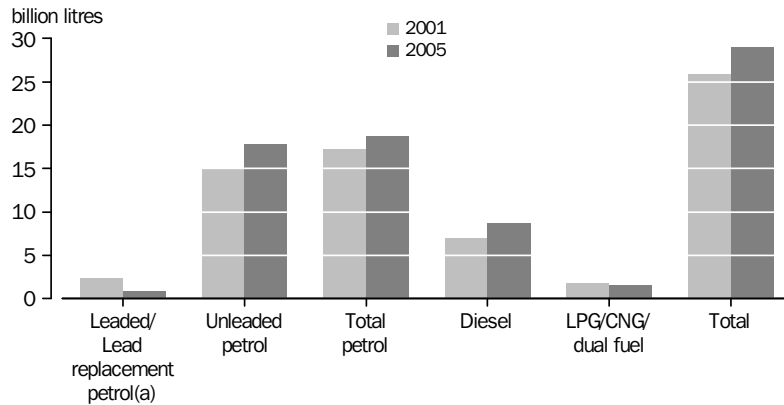
A total of 5,636 million litres of diesel fuel was used by articulated and rigid trucks. This was 64.9% of all diesel fuel used.

The total fuel consumption by other vehicles in the 12 months ended 31 October 2005 included 4,484 million litres of fuel by light commercial vehicles and 506 million litres of fuel by buses.

## SUMMARY OF FINDINGS *continued*

### FUEL CONSUMPTION *continued*

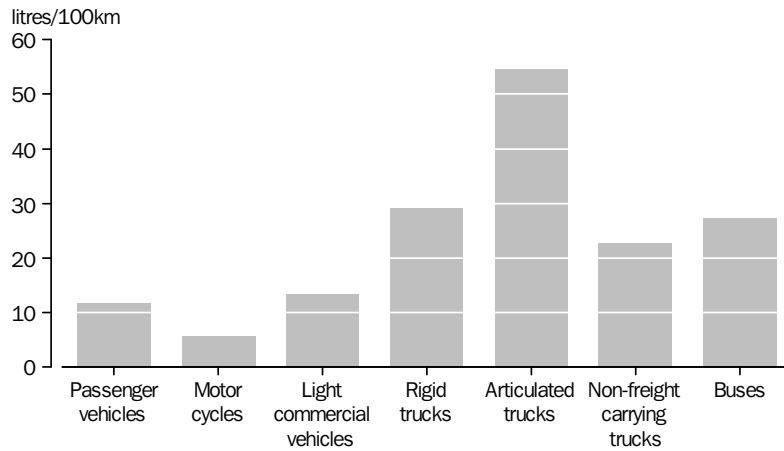
TOTAL FUEL CONSUMPTION, Type of fuel—Years ended 31 October 2001 and 31 October 2005



(a) 2001 data is leaded petrol and 2005 data is lead replacement petrol

The average rate of fuel consumption for all motor vehicles in the 12 months ended 31 October 2005 was 14.0 litres per 100 kilometres, an increase of 0.4 litres per 100 kilometres since 2001. Articulated trucks had the highest average fuel consumption with 54.7 litres per 100 kilometres.

AVERAGE FUEL CONSUMPTION, Type of vehicle—Year ended 31 October 2005



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## SUMMARY OF MOTOR VEHICLE USE, Type of vehicle

	2001	2002	2003	2004	2005
TOTAL KILOMETRES TRAVELLED ( <i>million</i> )					
Passenger vehicles	143 925	144 676	151 743	147 728	155 068
Motor cycles	1 448	1 681	1 376	1 478	1 429
Light commercial vehicles	30 728	31 349	32 671	34 007	33 764
Rigid trucks	6 627	7 080	7 768	7 639	7 671
Articulated trucks	5 321	5 425	5 841	6 013	6 308
Non-freight carrying trucks	^267	224	203	221	^286
Buses	1 835	1 775	1 893	1 968	1 856
<b>Total</b>	<b>190 152</b>	<b>192 209</b>	<b>201 497</b>	<b>199 055</b>	<b>206 383</b>

	NUMBER OF VEHICLES (a) ( <i>no.</i> )				
Passenger vehicles	9 861 807	10 194 637	10 415 165	10 654 328	11 010 506
Motor cycles	349 465	367 258	378 475	392 648	421 549
Light commercial vehicles	1 719 654	1 810 071	1 893 122	1 940 180	1 996 269
Rigid trucks	332 102	341 651	346 538	358 704	366 875
Articulated trucks	61 502	61 519	62 982	66 197	68 509
Non-freight carrying trucks	18 980	17 504	17 912	17 616	20 304
Buses	55 078	56 754	60 033	61 728	62 350
<b>Total</b>	<b>12 398 588</b>	<b>12 849 393</b>	<b>13 174 227</b>	<b>13 491 401</b>	<b>13 946 362</b>

	AVERAGE KILOMETRES TRAVELLED (b) ( <i>'000</i> )				
Passenger vehicles	14.6	14.2	14.6	13.9	14.1
Motor cycles	4.1	4.6	3.6	3.8	3.4
Light commercial vehicles	17.9	17.3	17.3	17.5	16.9
Rigid trucks	20.0	20.7	22.4	21.3	20.9
Articulated trucks	86.5	88.2	92.7	90.8	92.1
Non-freight carrying trucks	14.1	12.8	11.4	12.5	14.1
Buses	33.3	31.3	31.5	31.9	29.8
<b>Total</b>	<b>15.3</b>	<b>15.0</b>	<b>15.3</b>	<b>14.8</b>	<b>14.8</b>

	TOTAL FUEL CONSUMPTION ( <i>million litres</i> )				
Passenger vehicles	16 436	16 401	17 282	16 937	18 144
Motor cycles	83	100	83	^92	83
Light commercial vehicles	4 186	4 145	4 275	4 471	4 484
Rigid trucks	1 855	2 041	2 185	2 123	2 234
Articulated trucks	2 824	2 922	3 164	3 305	3 452
Non-freight carrying trucks	67	58	52	53	65
Buses	498	497	523	524	506
<b>Total</b>	<b>25 948</b>	<b>26 164</b>	<b>27 564</b>	<b>27 505</b>	<b>28 967</b>

	AVERAGE RATE OF FUEL CONSUMPTION (c) ( <i>litres per 100 kilometres</i> )				
Passenger vehicles	11.4	11.3	11.4	11.5	11.7
Motor cycles	5.7	6.0	6.0	6.3	5.8
Light commercial vehicles	13.6	13.2	13.1	13.1	13.3
Rigid trucks	28.0	28.8	28.1	27.8	29.1
Articulated trucks	53.1	53.9	54.2	55.0	54.7
Non-freight carrying trucks	25.0	26.0	25.7	24.0	22.7
Buses	27.1	28.0	27.6	26.6	27.3
<b>Total</b>	<b>13.6</b>	<b>13.6</b>	<b>13.7</b>	<b>13.8</b>	<b>14.0</b>

^ estimate has a relative standard error of 10% to less than 25% 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.
- (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, Type of vehicle

	2001	2002	2003	2004	2005
.....					
TOTAL LADEN BUSINESS KILOMETRES TRAVELLED ( <i>million</i> )					
Light commercial vehicles	13 889	14 054	15 346	15 844	15 537
Rigid trucks	4 690	4 830	5 425	5 322	5 169
Articulated trucks	3 933	4 012	4 399	4 367	4 777
<b>Total freight vehicles</b>	<b>22 512</b>	<b>22 896</b>	<b>25 171</b>	<b>25 533</b>	<b>25 483</b>
.....					
AVERAGE LADEN BUSINESS KILOMETRES TRAVELLED (a) ('000)					
Light commercial vehicles	15.3	14.0	14.9	14.4	13.5
Rigid trucks	16.3	16.2	17.6	16.8	16.8
Articulated trucks	69.6	70.4	75.9	71.4	75.9
<b>Total freight vehicles</b>	<b>18.0</b>	<b>16.8</b>	<b>18.0</b>	<b>17.2</b>	<b>16.8</b>
.....					
TOTAL TONNE-KILOMETRES TRAVELLED ( <i>million</i> )					
Light commercial vehicles	5 649	5 624	6 710	6 634	7 308
Rigid trucks	24 881	28 337	30 411	29 752	30 160
Articulated trucks	101 892	106 977	115 656	121 282	126 926
<b>Total freight vehicles</b>	<b>132 422</b>	<b>140 938</b>	<b>152 777</b>	<b>157 668</b>	<b>164 394</b>
.....					
AVERAGE TONNE-KILOMETRES TRAVELLED (b) ('000)					
Light commercial vehicles	6.2	5.6	6.5	6.0	6.4
Rigid trucks	86.5	95.1	98.9	93.7	98.0
Articulated trucks	1 804.4	1 876.3	1 996.7	1 983.3	2 015.9
<b>Total freight vehicles</b>	<b>105.8</b>	<b>103.5</b>	<b>109.2</b>	<b>106.4</b>	<b>108.2</b>
.....					
TOTAL TONNES CARRIED ( <i>million</i> )					
Light commercial vehicles	103	115	121	120	136
Rigid trucks	683	802	707	807	938
Articulated trucks	697	747	725	769	682
<b>Total freight vehicles</b>	<b>1 482</b>	<b>1 664</b>	<b>1 553</b>	<b>1 696</b>	<b>1 756</b>
.....					
AVERAGE LOAD CARRIED PER TRIP (c) ( <i>kilograms</i> )					
Light commercial vehicles	326	353	400	362	423
Rigid trucks	5 632	6 130	5 773	6 068	6 415
Articulated trucks	23 639	23 749	24 685	23 921	23 872
<b>Total freight vehicles</b>	<b>3 180</b>	<b>3 404</b>	<b>3 411</b>	<b>3 421</b>	<b>3 543</b>

(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

	2001	2002	2003	2004	2005
TOTAL KILOMETRES TRAVELLED ( <i>million</i> )					
New South Wales	58 553	60 792	62 125	58 875	63 717
Victoria	50 817	51 459	55 107	52 583	51 952
Queensland	38 538	36 690	39 082	41 643	44 526
South Australia	15 085	14 855	14 963	15 241	14 533
Western Australia	18 610	19 160	20 810	21 324	21 647
Tasmania	3 979	4 433	4 639	4 561	5 302
Northern Territory	1 522	1 712	1 573	1 594	1 603
Australian Capital Territory	3 048	3 108	3 199	3 234	3 104
<b>Australia</b>	<b>190 152</b>	<b>192 209</b>	<b>201 497</b>	<b>199 055</b>	<b>206 383</b>
NUMBER OF VEHICLES (a) ( <i>no.</i> )					
New South Wales	3 745 732	3 859 620	3 954 303	4 059 983	4 193 362
Victoria	3 235 515	3 442 573	3 502 517	3 538 822	3 650 826
Queensland	2 365 530	2 459 307	2 543 696	2 665 200	2 764 824
South Australia	1 051 115	1 051 720	1 075 855	1 082 691	1 107 910
Western Australia	1 365 714	1 392 316	1 445 390	1 471 497	1 542 199
Tasmania	329 963	334 259	336 651	350 976	360 238
Northern Territory	101 159	103 155	103 743	106 651	109 968
Australian Capital Territory	203 859	206 444	212 072	215 581	217 036
<b>Australia</b>	<b>12 398 588</b>	<b>12 849 393</b>	<b>13 174 227</b>	<b>13 491 401</b>	<b>13 946 362</b>
AVERAGE KILOMETRES TRAVELLED (b) ('000)					
New South Wales	15.6	15.8	15.7	14.5	15.2
Victoria	15.7	14.9	15.7	14.9	14.2
Queensland	16.3	14.9	15.4	15.6	16.1
South Australia	14.4	14.1	13.9	14.1	13.1
Western Australia	13.6	13.8	14.4	14.5	14.0
Tasmania	12.1	13.3	13.8	13.0	14.7
Northern Territory	15.0	16.6	15.2	14.9	14.6
Australian Capital Territory	15.0	15.1	15.1	15.0	14.3
<b>Australia</b>	<b>15.3</b>	<b>15.0</b>	<b>15.3</b>	<b>14.8</b>	<b>14.8</b>

(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 ( <i>million</i> )								
New South Wales	48 662	^ 337	10 350	2 393	1 372	*61	541	63 717
Victoria	40 398	^ 401	6 890	1 780	1 969	^ 109	^ 406	51 952
Queensland	31 457	^ 362	8 609	2 062	1 563	^ 58	^ 416	44 526
South Australia	10 948	^ 92	2 330	422	600	*11	131	14 533
Western Australia	16 263	^ 157	^ 3 685	694	588	^ 35	^ 224	21 647
Tasmania	3 767	^ 27	^ 1 137	187	136	^ 6	42	5 302
Northern Territory	923	^ 18	^ 464	^ 73	55	^ 4	^ 65	1 603
Australian Capital Territory	2 651	^ 35	299	61	26	^ 3	^ 30	3 104
<b>Australia</b>	<b>155 068</b>	<b>1 429</b>	<b>33 764</b>	<b>7 671</b>	<b>6 308</b>	<b>^ 286</b>	<b>1 856</b>	<b>206 383</b>

	NUMBER OF VEHICLES (a) ( <i>no.</i> )							
New South Wales	3 357 074	114 019	575 459	109 815	15 496	^ 3 966	17 534	4 193 362
Victoria	2 980 353	107 613	434 258	88 820	21 010	5 625	13 146	3 650 826
Queensland	2 063 409	97 551	492 655	78 244	14 968	3 836	14 161	2 764 824
South Australia	903 868	29 625	136 213	26 122	6 260	^ 1 919	3 902	1 107 910
Western Australia	1 178 643	53 033	242 603	47 844	8 323	^ 3 559	8 194	1 542 199
Tasmania	267 501	9 216	69 385	9 669	1 486	^ 1 021	1 959	360 238
Northern Territory	71 801	3 436	27 084	^ 4 077	747	^ 261	2 561	109 968
Australian Capital Territory	187 857	7 055	18 612	2 284	218	^ 115	893	217 036
<b>Australia</b>	<b>11 010 506</b>	<b>421 549</b>	<b>1 996 269</b>	<b>366 875</b>	<b>68 509</b>	<b>20 304</b>	<b>62 350</b>	<b>13 946 362</b>

	AVERAGE KILOMETRES TRAVELLED (b) ( <i>'000</i> )							
New South Wales	14.5	^ 3.0	18.0	21.8	88.5	^ 15.4	30.9	15.2
Victoria	13.6	^ 3.7	15.9	20.0	93.7	^ 19.4	^ 30.9	14.2
Queensland	15.2	^ 3.7	17.5	26.4	104.4	^ 15.1	29.4	16.1
South Australia	12.1	^ 3.1	17.1	16.2	95.8	*5.5	33.6	13.1
Western Australia	13.8	^ 3.0	^ 15.2	14.5	70.7	^ 9.8	^ 27.3	14.0
Tasmania	14.1	^ 3.0	^ 16.4	19.3	91.3	^ 6.0	21.5	14.7
Northern Territory	12.9	^ 5.3	^ 17.1	^ 18.0	73.6	^ 14.2	^ 25.6	14.6
Australian Capital Territory	14.1	^ 5.0	16.1	26.6	118.8	^ 23.3	^ 33.8	14.3
<b>Australia</b>	<b>14.1</b>	<b>3.4</b>	<b>16.9</b>	<b>20.9</b>	<b>92.1</b>	<b>14.1</b>	<b>29.8</b>	<b>14.8</b>

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 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.

(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.

## 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)								
Petrol								
Lead replacement	^ 697	*3	^ 160	*22	**—	*1	**1	^ 883
Unleaded	15 160	80	2 539	*12	**—	*3	^ 35	17 827
Total	15 856	83	2 699	*34	**—	*3	^ 35	18 710
Diesel	^ 1 081	—	1 472	2 185	3 451	60	435	8 683
LPG/CNG/dual fuel	^ 1 207	**—	^ 313	*16	**—	**2	*36	^ 1 574
<b>Total</b>	<b>18 144</b>	<b>83</b>	<b>4 484</b>	<b>2 234</b>	<b>3 452</b>	<b>65</b>	<b>506</b>	<b>28 967</b>

## AVERAGE RATE OF FUEL CONSUMPTION (a) (litres per 100 kilometres)

Petrol								
Lead replacement	12.6	^ 6.5	13.8	^ 31.3	*30.9	18.9	*15.5	13.0
Unleaded	11.3	5.8	13.6	21.2	**47.1	^ 8.8	14.2	11.5
Total	11.4	5.8	13.6	^ 26.8	*32.7	^ 9.8	14.2	11.6
Diesel	13.1	—	12.7	29.2	54.7	24.5	28.5	24.5
LPG/CNG/dual fuel	16.9	**3.0	13.3	^ 28.1	43.2	**21.4	^ 43.7	16.3
<b>Total</b>	<b>11.7</b>	<b>5.8</b>	<b>13.3</b>	<b>29.1</b>	<b>54.7</b>	<b>22.7</b>	<b>27.3</b>	<b>14.0</b>

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— nil or rounded to zero (including null cells)

(a) 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 intrastate	Interstate	Australia
TOTAL KILOMETRES TRAVELLED ( <i>million</i> )						
Passenger vehicles	85 400	28 438	33 796	147 635	^ 7 433	155 068
Motor cycles	^ 649	^ 231	^ 458	1 338	*92	1 429
Light commercial vehicles	16 718	5 567	10 685	32 970	^ 794	33 764
Rigid trucks	3 914	1 316	2 161	7 391	^ 280	7 671
Articulated trucks	1 078	448	3 038	4 565	1 744	6 308
Non-freight carrying trucks	^ 131	*58	^ 93	^ 281	**5	^ 286
Buses	910	^ 378	^ 502	1 790	^ 66	1 856
<b>Total</b>	<b>108 801</b>	<b>36 435</b>	<b>50 733</b>	<b>195 969</b>	<b>^ 10 414</b>	<b>206 383</b>

## AVERAGE KILOMETRES TRAVELLED (a) ('000)

Passenger vehicles	11.2	8.1	10.1	14.0	^ 8.3	14.6
Motor cycles	^ 3.6	^ 2.3	^ 3.5	3.9	*4.2	4.1
Light commercial vehicles	16.2	10.9	14.3	17.5	^ 7.8	17.8
Rigid trucks	23.0	15.9	15.5	22.3	^ 14.5	23.0
Articulated trucks	31.0	24.8	67.6	72.7	85.6	97.9
Non-freight carrying trucks	^ 15.1	^ 15.0	^ 11.1	15.1	**14.5	15.2
Buses	27.3	^ 24.7	22.4	29.6	^ 17.8	30.4
<b>Total</b>	<b>11.9</b>	<b>8.6</b>	<b>11.4</b>	<b>14.8</b>	<b>9.8</b>	<b>15.5</b>

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(a) Average distance travelled for registered vehicles which were used. Excludes registered vehicles that did not travel during the reference period.

AREA OF OPERATION, State/territory of registration

WITHIN STATE/TERRITORY OF REGISTRATION

	Capital city	Other urban areas	Other areas	Total intrastate	Interstate	Australia
TOTAL KILOMETRES TRAVELLED ( <i>million</i> )						
New South Wales	33 931	^ 12 119	^ 15 512	61 563	^ 2 154	63 717
Victoria	28 950	^ 7 323	12 233	48 506	^ 3 446	51 952
Queensland	18 286	13 789	^ 10 377	42 452	* 2 074	44 526
South Australia	8 463	—	4 941	13 404	^ 1 129	14 533
Western Australia	13 896	^ 1 511	^ 5 645	21 052	** 594	21 647
Tasmania	1 918	^ 1 692	1 404	5 014	* 288	5 302
Northern Territory	913	—	^ 620	1 534	* 69	1 603
Australian Capital Territory	2 444	—	—	2 444	660	3 104
<b>Australia</b>	<b>108 801</b>	<b>36 435</b>	<b>50 733</b>	<b>195 969</b>	<b>^ 10 414</b>	<b>206 383</b>

AVERAGE KILOMETRES TRAVELLED (a) ('000)

New South Wales	12.6	8.7	12.1	15.2	^ 6.9	15.7
Victoria	11.3	6.1	9.6	13.9	^ 10.0	14.8
Queensland	12.6	10.9	13.2	16.1	^ 12.5	16.8
South Australia	10.6	—	10.9	13.0	^ 12.4	13.8
Western Australia	12.6	^ 5.9	12.8	15.0	^ 25.1	15.3
Tasmania	9.9	11.3	9.8	14.9	^ 17.9	15.6
Northern Territory	12.2	—	12.8	14.9	^ 12.8	15.3
Australian Capital Territory	11.9	—	—	11.9	6.4	14.8
<b>Australia</b>	<b>11.9</b>	<b>8.6</b>	<b>11.4</b>	<b>14.8</b>	<b>9.8</b>	<b>15.5</b>

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— nil or rounded to zero (including null cells)

(a) Average distance travelled for registered vehicles which were used. Excludes registered vehicles that did not travel during the reference period.

## 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 ( <i>million</i> )						
Passenger vehicles	—	—	31 039	42 542	81 488	155 068
Motor cycles	—	—	^ 194	^ 356	879	1 429
Light commercial vehicles	15 537	6 301	21 838	5 417	6 508	33 764
Rigid trucks	5 169	2 213	7 382	^ 183	^ 106	7 671
Articulated trucks	4 777	1 522	6 299	*7	*2	6 308
Non-freight carrying trucks	—	—	^ 283	**3	*—	^ 286
Buses	—	—	1 783	*28	^ 45	1 856
<b>Total</b>	<b>25 483</b>	<b>10 037</b>	<b>68 819</b>	<b>48 536</b>	<b>89 029</b>	<b>206 383</b>
AVERAGE KILOMETRES TRAVELLED (b) ( <i>'000</i> )						
Passenger vehicles	—	—	9.7	7.7	8.6	14.6
Motor cycles	—	—	^ 3.7	^ 3.3	3.0	4.1
Light commercial vehicles	13.5	8.2	17.7	8.3	6.7	17.8
Rigid trucks	16.8	9.2	23.7	^ 5.6	^ 3.6	23.0
Articulated trucks	75.9	29.3	99.1	*4.5	*2.0	97.9
Non-freight carrying trucks	—	—	15.2	**6.3	*0.9	15.2
Buses	—	—	31.5	^ 6.3	^ 7.3	30.4
<b>Total</b>	<b>16.8</b>	<b>9.5</b>	<b>13.9</b>	<b>7.6</b>	<b>8.3</b>	<b>15.5</b>

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— 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. Excludes registered vehicles that did not travel during the reference period.



## 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 ( <i>million</i> )						
New South Wales	7 485	3 002	20 797	15 788	27 132	63 717
Victoria	5 871	^ 2 104	16 299	12 987	22 665	51 952
Queensland	6 955	^ 2 353	16 663	^ 10 255	17 607	44 526
South Australia	1 808	^ 735	4 757	2 936	6 840	14 533
Western Australia	^ 2 190	^ 1 348	^ 7 052	4 271	10 323	21 647
Tasmania	^ 718	^ 275	1 850	^ 1 085	2 368	5 302
Northern Territory	^ 261	^ 142	751	342	510	1 603
Australian Capital Territory	195	^ 77	^ 650	871	1 583	3 104
<b>Australia</b>	<b>25 483</b>	<b>10 037</b>	<b>68 819</b>	<b>48 536</b>	<b>89 029</b>	<b>206 383</b>
AVERAGE KILOMETRES TRAVELLED (b) ('000)						
New South Wales	15.9	9.5	14.2	8.2	8.3	15.7
Victoria	17.1	^ 8.9	12.4	7.6	7.8	14.8
Queensland	19.8	9.6	15.6	8.4	8.6	16.8
South Australia	15.6	9.0	13.0	5.8	7.8	13.8
Western Australia	^ 13.5	^ 10.7	14.2	6.5	9.0	15.3
Tasmania	^ 16.4	^ 8.8	15.9	^ 7.1	8.9	15.6
Northern Territory	^ 13.3	^ 10.2	15.8	6.1	6.8	15.3
Australian Capital Territory	13.7	^ 8.6	9.6	6.7	9.2	14.8
<b>Australia</b>	<b>16.8</b>	<b>9.5</b>	<b>13.9</b>	<b>7.6</b>	<b>8.3</b>	<b>15.5</b>

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

(b) Average distance travelled for registered vehicles which were used. Excludes 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
TOTAL BUSINESS KILOMETRES TRAVELLED ( <i>million</i> )								
New South Wales	^ 9 681	*38	6 828	2 291	1 369	*61	529	20 797
Victoria	^ 7 742	**83	^ 4 289	1 718	1 968	^ 106	^ 393	16 299
Queensland	^ 6 874	*22	^ 5 765	1 982	1 560	^ 58	^ 401	16 663
South Australia	^ 2 056	*18	1 531	413	599	*10	130	4 757
Western Australia	^ 3 255	**25	^ 2 284	667	587	^ 35	^ 199	^ 7 052
Tasmania	^ 808	**3	^ 676	182	135	^ 6	40	1 850
Northern Territory	^ 282	**2	^ 278	^ 69	55	^ 4	^ 61	751
Australian Capital Territory	^ 340	*4	^ 188	59	26	^ 3	^ 30	^ 650
<b>Australia</b>	<b>31 039</b>	<b>^ 194</b>	<b>21 838</b>	<b>7 382</b>	<b>6 299</b>	<b>^ 283</b>	<b>1 783</b>	<b>68 819</b>

	AVERAGE BUSINESS KILOMETRES TRAVELLED (a) ('000)							
New South Wales	^ 10.3	*2.9	17.8	24.0	93.4	^ 16.0	31.6	14.2
Victoria	^ 8.4	*5.0	^ 16.4	23.5	100.6	^ 20.5	^ 33.7	12.4
Queensland	^ 10.5	*1.7	19.3	28.7	111.8	^ 16.6	31.4	15.6
South Australia	^ 8.8	*5.0	16.3	18.4	103.3	*6.2	34.7	13.0
Western Australia	^ 10.7	**4.6	^ 17.3	17.6	79.5	^ 11.1	^ 28.1	14.2
Tasmania	^ 12.2	**3.8	^ 17.9	22.9	98.8	^ 6.4	23.1	15.9
Northern Territory	^ 11.6	**5.7	^ 17.1	^ 18.4	85.1	^ 16.2	^ 30.0	15.8
Australian Capital Territory	^ 6.7	*5.3	14.5	29.2	125.1	^ 24.6	^ 39.5	9.6
<b>Australia</b>	<b>9.7</b>	<b>^ 3.7</b>	<b>17.7</b>	<b>23.7</b>	<b>99.1</b>	<b>15.2</b>	<b>31.5</b>	<b>13.9</b>

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(a) Average distance travelled for registered vehicles which were used. Excludes registered vehicles that did not travel during the reference period.

	<i>Light commercial vehicles</i>	<i>Rigid trucks</i>	<i>Articulated trucks</i>	<i>Total</i>
<b>TOTAL LADEN BUSINESS KILOMETRES TRAVELLED (million)</b>				
New South Wales	^ 4 871	1 590	1 024	7 485
Victoria	^ 3 077	1 235	1 559	5 871
Queensland	^ 4 386	1 371	1 198	6 955
South Australia	^ 1 057	296	455	1 808
Western Australia	^ 1 326	467	397	^ 2 190
Tasmania	^ 511	^ 116	90	^ 718
Northern Territory	^ 176	^ 50	^ 34	^ 261
Australian Capital Territory	^ 132	44	20	195
<b>Australia</b>	<b>15 537</b>	<b>5 169</b>	<b>4 777</b>	<b>25 483</b>

	<b>AVERAGE LADEN BUSINESS KILOMETRES TRAVELLED (a) ( '000)</b>			
New South Wales	^ 13.5	16.9	69.8	15.9
Victoria	^ 12.2	17.1	80.7	17.1
Queensland	16.3	20.2	87.1	19.8
South Australia	^ 12.1	13.3	79.0	15.6
Western Australia	^ 11.3	12.4	54.8	^ 13.5
Tasmania	^ 14.9	^ 14.7	65.7	^ 16.4
Northern Territory	^ 11.5	^ 13.5	54.6	^ 13.3
Australian Capital Territory	11.0	21.5	96.2	13.7
<b>Australia</b>	<b>13.5</b>	<b>16.8</b>	<b>75.9</b>	<b>16.8</b>

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(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 ( <i>million</i> )				
New South Wales	^ 2 507	8 427	24 955	35 890
Victoria	^ 1 444	^ 8 822	39 074	49 339
Queensland	^ 1 814	^ 7 602	30 175	39 591
South Australia	^ 586	^ 1 835	13 250	15 672
Western Australia	^ 665	^ 2 206	15 038	17 909
Tasmania	^ 179	^ 762	2 165	3 106
Northern Territory	^ 55	^ 281	^ 1 811	^ 2 147
Australian Capital Territory	^ 58	^ 226	457	741
<b>Australia</b>	<b>7 308</b>	<b>30 160</b>	<b>126 926</b>	<b>164 394</b>

.....				
AVERAGE TONNE-KILOMETRES TRAVELLED (a) ('000)				
New South Wales	^ 6.9	89.4	1 701.7	76.4
Victoria	^ 5.7	^ 122.1	2 021.7	143.6
Queensland	^ 6.7	^ 112.1	2 194.2	112.9
South Australia	^ 6.7	^ 82.4	2 299.4	135.4
Western Australia	^ 5.6	^ 58.8	2 074.0	^ 110.1
Tasmania	^ 5.2	^ 96.1	1 580.5	71.1
Northern Territory	^ 3.6	* 75.9	^ 2 875.3	^ 109.6
Australian Capital Territory	^ 4.8	^ 111.1	2 237.1	^ 51.9
<b>Australia</b>	<b>6.4</b>	<b>98.0</b>	<b>2 015.9</b>	<b>108.2</b>

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(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 ( <i>million</i> )				
New South Wales	^ 2 517	8 866	41 690	53 074
Victoria	^ 1 448	^ 8 445	28 563	38 457
Queensland	^ 1 834	^ 7 256	24 053	33 143
South Australia	^ 568	^ 1 759	12 531	14 858
Western Australia	^ 661	^ 2 507	15 827	18 994
Tasmania	^ 174	^ 757	2 157	3 088
Northern Territory	^ 55	^ 287	^ 2 014	^ 2 356
Australian Capital Territory	^ 51	*284	^ 90	^ 424
<b>Australia</b>	<b>7 308</b>	<b>30 160</b>	<b>126 926</b>	<b>164 394</b>

.....				
AVERAGE TONNE-KILOMETRES TRAVELLED (a) ('000)				
New South Wales	^ 6.6	85.7	1 528.3	103.1
Victoria	^ 5.6	^ 114.6	1 154.0	107.5
Queensland	^ 6.5	^ 103.7	1 293.7	89.6
South Australia	^ 6.3	^ 75.0	1 181.1	119.6
Western Australia	^ 5.7	^ 66.2	1 964.9	^ 117.2
Tasmania	^ 5.2	^ 95.9	1 526.2	72.2
Northern Territory	^ 3.7	*70.3	^ 1 503.5	^ 116.3
Australian Capital Territory	*3.1	*52.3	^ 111.0	*18.6
<b>Australia</b>	<b>6.4</b>	<b>98.0</b>	<b>2 015.9</b>	<b>108.2</b>

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(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 ( <i>million</i> )				
2 axles	2 357	7 134	*474	9 965
3 axles	—	*233	17 568	17 801
4 or more axles	—	—	^ 2 395	^ 2 395
<b>Total</b>	<b>2 357</b>	<b>7 367</b>	<b>20 437</b>	<b>30 160</b>

.....				
AVERAGE TONNE-KILOMETRES TRAVELLED (b) ('000)				
2 axles	18.6	62.0	^ 166.1	40.7
3 axles	—	*53.6	332.6	311.4
4 or more axles	—	—	^ 389.5	^ 389.5
<b>Total</b>	<b>18.6</b>	<b>61.7</b>	<b>330.6</b>	<b>98.0</b>

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— nil or rounded to zero (including null cells)

(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.

	30 tonnes and under	Over 30 tonnes to 40 tonnes	Over 40 tonnes	Total
TOTAL TONNE-KILOMETRES TRAVELLED ( <i>million</i> )				
Single axle trailer	*161	—	—	*161
Tandem axle trailer	**410	^ 4 089	*223	^ 4 721
Triaxle trailer	**20	^ 3 047	47 544	50 611
B-Double	—	—	46 934	46 934
Road train	—	—	19 398	19 398
Other	—	**767	^ 4 333	^ 5 100
<b>Total</b>	<b>*590</b>	<b>^ 7 904</b>	<b>118 432</b>	<b>126 926</b>

	AVERAGE TONNE-KILOMETRES TRAVELLED (b) ('000)			
Single axle trailer	*99.6	—	—	*99.6
Tandem axle trailer	*330.5	^ 581.7	*822.9	^ 552.9
Triaxle trailer	**158.4	^ 765.3	1 485.4	1 401.3
B-Double	—	—	4 699.8	4 699.8
Road train	—	—	4 405.3	4 405.3
Other	—	**2 015.1	^ 2 255.1	^ 2 215.4
<b>Total</b>	<b>*198.2</b>	<b>^ 693.8</b>	<b>2 437.4</b>	<b>2 015.9</b>

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— nil or rounded to zero (including null cells)

(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 ( <i>million tonnes</i> )				
New South Wales	^ 44	273	154	470
Victoria	^ 29	^ 243	192	464
Queensland	^ 29	^ 239	131	398
South Australia	^ 11	*70	53	^ 135
Western Australia	^ 15	^ 79	119	213
Tasmania	*5	^ 21	21	47
Northern Territory	^ 1	^ 7	^ 9	18
Australian Capital Territory	^ 2	^ 6	^ 2	10
<b>Australia</b>	<b>136</b>	<b>938</b>	<b>682</b>	<b>1 756</b>

	AVERAGE LOAD CARRIED PER TRIP (a) ( <i>kilograms</i> )			
New South Wales	456	5 990	22 220	3 176
Victoria	^ 397	^ 7 447	22 799	^ 4 030
Queensland	386	6 079	23 581	3 346
South Australia	474	^ 7 091	24 607	^ 3 726
Western Australia	507	^ 6 092	28 388	^ 4 646
Tasmania	^ 318	^ 6 525	23 645	^ 2 395
Northern Territory	^ 347	^ 4 521	^ 30 443	^ 3 017
Australian Capital Territory	^ 395	5 487	20 827	^ 1 757
<b>Australia</b>	<b>423</b>	<b>6 415</b>	<b>23 872</b>	<b>3 543</b>

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



## FREIGHT VEHICLE USE, Commodity—Total tonnes carried (million)

	<i>Light commercial vehicles</i>	<i>Rigid trucks</i>	<i>Articulated trucks</i>	<i>Total</i>
Food and live animals	*9	^ 70	158	237
Beverages and tobacco	**—	*8	^ 16	^ 24
Crude materials, inedible, except fuels	*3	508	175	686
Mineral fuels, lubricants and related materials	*1	^ 25	^ 46	^ 72
Animal and vegetable oils, fats and waxes	**—	**—	*1	*2
Chemicals and related products, not elsewhere specified	*3	^ 13	^ 26	^ 42
Manufactured goods	*15	^ 121	106	241
Machinery, transport equipment	^ 11	^ 36	^ 55	102
Miscellaneous manufactured articles	^ 4	^ 11	^ 12	^ 27
Tools of trade	70	^ 35	*2	106
Other commodities, not elsewhere specified	^ 13	^ 102	77	193
Unspecified(a)	*6	^ 9	*10	^ 24
<b>Total</b>	<b>136</b>	<b>938</b>	<b>682</b>	<b>1 756</b>

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— nil or rounded to zero (including null cells)

(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 ( <i>million</i> )							
Buses with fewer than 20 seats	*41	*78	*94	*79	^ 354	**2	^ 647
Buses with 20 or more seats	^ 569	^ 293	^ 176	*63	*61	—	1 162
<b>Total</b>	<b>^ 610</b>	<b>^ 371</b>	<b>^ 270</b>	<b>^ 143</b>	<b>^ 415</b>	<b>**2</b>	<b>1 810</b>

	AVERAGE KILOMETRES TRAVELLED (c) ('000)						
Buses with fewer than 20 seats	*28.0	*20.2	*30.0	^ 26.9	^ 19.1	*32.3	24.6
Buses with 20 or more seats	50.6	18.2	18.4	^ 38.1	*16.3	—	38.4
<b>Total</b>	<b>48.0</b>	<b>18.6</b>	<b>^ 21.3</b>	<b>^ 30.9</b>	<b>^ 18.6</b>	<b>*32.3</b>	<b>32.0</b>

- ^ estimate has a relative standard error of 10% to less than 25% and should be used with caution
- \* estimate has a relative standard error of 25% to 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) Excluding distance travelled by buses used exclusively for private purposes.
- (b) Represents travel by buses where type of service could not be obtained.
- (c) Average distance travelled for registered vehicles which were used. Excludes registered vehicles that did not travel during the reference period.

	Route service	Dedicated school bus service	Charter service	Other(b)	Not specified(c)	Total
TOTAL KILOMETRES TRAVELLED ( <i>million</i> )						
New South Wales	^ 174	^ 131	^ 69	^ 160	—	535
Victoria	*146	*101	^ 59	^ 91	—	^ 396
Queensland	^ 104	^ 78	*81	^ 143	—	^ 406
South Australia	^ 67	^ 23	^ 16	^ 24	—	130
Western Australia	^ 76	^ 19	*21	*93	—	^ 209
Tasmania	^ 14	^ 12	^ 7	*8	—	41
Northern Territory	*8	*4	*13	^ 37	**2	^ 63
Australian Capital Territory	^ 21	*3	**3	*2	—	^ 30
<b>Australia</b>	<b>^ 610</b>	<b>^ 371</b>	<b>^ 270</b>	<b>^ 558</b>	<b>**2</b>	<b>1 810</b>
AVERAGE KILOMETRES TRAVELLED (d) ('000)						
New South Wales	^ 40.3	17.4	^ 16.5	^ 22.3	—	32.0
Victoria	^ 52.1	*24.9	^ 26.1	^ 20.0	—	^ 33.9
Queensland	^ 48.1	17.8	*27.8	^ 21.1	—	31.7
South Australia	63.8	^ 21.4	^ 16.9	^ 17.2	—	35.0
Western Australia	56.6	^ 14.8	*20.4	^ 21.8	—	^ 29.5
Tasmania	^ 35.9	^ 13.1	^ 10.6	^ 15.3	—	23.6
Northern Territory	^ 31.9	^ 14.8	*35.8	^ 28.8	*32.3	^ 31.0
Australian Capital Territory	52.9	^ 6.9	**10.5	^ 8.5	—	^ 39.5
<b>Australia</b>	<b>48.0</b>	<b>18.6</b>	<b>^ 21.3</b>	<b>21.3</b>	<b>*32.3</b>	<b>32.0</b>

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 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) Excluding distance travelled by buses used exclusively for private purposes.

(b) Includes tour service operations.

(c) Represents travel by buses where type of service could not be obtained.

(d) Average distance travelled for registered vehicles which were used. Excludes registered vehicles that did not travel during the reference period.

## EXPLANATORY NOTES

### INTRODUCTION

**1** This publication presents estimates from the 2005 Survey of Motor Vehicle Use (SMVU). The data were collected in four quarterly sample surveys conducted by the Australian Bureau of Statistics (ABS) over the period 1 November 2004 to 31 October 2005.

### SCOPE AND FRAME

**2** The scope of the survey comprises all vehicles that were registered with a motor vehicle authority for road use at some stage during the 12 months ended 31 October 2005. 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. Unregistered vehicles are out of scope.

**3** The population was identified on 31 March 2004 using information obtained from the state and territory motor vehicle registration authorities, as part of the annual ABS Motor Vehicle Census (MVC) (Cat No. 9309.0). There were 13.5 million vehicles identified at this time, an increase of 2.8% on the number registered at the same time the previous year. The population information identified is referred to as the survey frame.

### METHODOLOGY

**4** For the 2005 SMVU, a stratified sample of 15,988 vehicles was selected to report on vehicle use over a three-month period within the reference year 1 November 2004 to 31 October 2005. Of these, 28% were passenger vehicles and motor cycles, 59% were freight vehicles, 10% were buses and 3% were 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.

**5** 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. (Sample questionnaires can be found under the on-line version of the Survey's Explanatory Notes, at the ABS website).

**6** 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.

**7** 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. Where the vehicle was deregistered during the quarterly survey period, only the use up to the date of deregistration was included.

**8** 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. For the 2005 SMVU the population frame was created on 31 March 2004. More information about these adjustments is provided in paragraph 24 of the Technical Note.

**9** 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 2004 to 31 October 2005. The size of the sample is insufficient to produce reliable quarterly results.

## EXPLANATORY NOTES *continued*

### RELIABILITY OF ESTIMATES

**10** 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 survey methodology, sampling error or non-sampling error. Information on these factors is provided in the Technical Note.

### COMPARISON WITH MOTOR VEHICLE CENSUS DATA

**11** 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 2004 to 31 October 2005, 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

**12** 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 in scope of the survey. This includes those vehicles that travelled zero kilometres during the reference period (also known as nil use vehicles). See paragraph 26 of the Technical Note for more details on nil use vehicles. 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.

**13** 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

**14** This publication includes estimates of vehicle use for earlier years. However, it should be noted that the survey methodology was designed to produce reliable level estimates of key data items at the state by vehicle type level. The survey was not designed to produce reliable estimates of annual movements. Changes in data over time may be subject to high RSEs and hence the changes may not be statistically significant. While the analysis in this publication does make comparisons over time, the limitations as outlined above should be taken into account and care should be taken in drawing inferences from these comparisons. See paragraphs 9, 10, 11 and 12 of the Technical Note.

### RELATED PUBLICATIONS AND PRODUCTS

**15** 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
- Sales of New Motor Vehicles, Australia* (cat. no. 9314.0 or 9314.0.55.001) — issued monthly

### ABS DATA AVAILABLE ON REQUEST

**16** As well as the statistics included in this publication, the ABS has other relevant data available on request. Inquiries should be made to the National Information and Referral Service on 1300 135 070.

# TECHNICAL NOTE DATA QUALITY INDICATORS

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## 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. The survey methodology procedures as well as sampling and non-sampling errors should be considered. Examination of the following quality indicators will assist users in determining fitness for purpose of the Survey of Motor Vehicle Use (SMVU).

## 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 data that would have been produced if the information had been obtained for all registered motor vehicles. Examples of the sampling error for this publication are included in this Technical Note.

**3** The sampling error associated with an estimate can be estimated 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 data 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.

**4** 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, estimates that have an estimated relative standard error between 10% and 25% are annotated with the symbol '^'. These estimates should be used with caution as they are subject to sampling variability too high for some purposes. Estimates with an RSE between 25% and 50% are annotated with the symbol '\*', indicating that the estimate should be used with caution as it is subject to sampling variability too high for most practical purposes. Estimates with an RSE greater than 50% are annotated with the symbol '\*\*' indicating that the sampling variability causes the estimates to be considered too unreliable for general use.

**5** The RSEs relating to 2005 estimates contained in Table 4 of this publication are shown in the following table.

## TECHNICAL NOTE DATA QUALITY INDICATORS *continued*

### RSE OF MOTOR VEHICLE USE(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	5.2	16.9	6.6	4.8	5.0	25.4	8.4	4.0
Victoria	4.5	16.1	8.2	5.9	4.0	20.7	12.0	3.7
Queensland	5.1	13.8	7.2	6.6	4.8	13.3	10.2	3.9
South Australia	4.4	21.0	7.3	8.0	5.3	34.7	7.9	3.6
Western Australia	6.1	18.2	10.2	8.0	5.9	24.4	11.5	5.0
Tasmania	6.2	16.6	10.7	9.6	5.3	18.9	7.9	5.0
Northern Territory	6.8	17.4	12.8	11.1	9.7	23.8	10.7	5.3
Australian Capital Territory	4.3	13.2	7.0	7.2	8.8	17.0	10.5	3.7
<b>Australia</b>	<b>2.4</b>	<b>7.3</b>	<b>3.5</b>	<b>2.7</b>	<b>2.1</b>	<b>10.2</b>	<b>4.6</b>	<b>1.9</b>
NUMBER OF VEHICLES								
New South Wales	1.4	3.2	3.4	1.4	2.7	18.3	4.1	1.1
Victoria	1.9	2.7	3.3	1.7	1.9	9.3	4.2	1.5
Queensland	1.9	2.4	2.3	1.6	2.1	8.0	3.5	1.4
South Australia	1.6	3.7	3.3	1.6	2.2	13.0	3.5	1.3
Western Australia	1.1	2.8	1.5	1.1	2.0	10.5	6.2	0.9
Tasmania	2.0	2.9	2.9	2.5	2.0	10.2	3.4	1.5
Northern Territory	1.6	2.7	3.4	11.3	3.6	13.8	8.4	1.2
Australian Capital Territory	2.2	4.9	2.9	1.7	4.5	16.4	4.4	1.9
<b>Australia</b>	<b>0.8</b>	<b>1.3</b>	<b>1.4</b>	<b>0.7</b>	<b>1.0</b>	<b>5.0</b>	<b>1.9</b>	<b>0.6</b>
AVERAGE KILOMETRES TRAVELLED								
New South Wales	5.1	16.8	6.2	4.6	4.5	23.9	7.8	4.0
Victoria	4.3	16.1	8.0	5.8	4.0	18.6	12.0	3.6
Queensland	5.0	13.9	6.9	6.4	4.6	13.9	9.7	3.8
South Australia	4.2	20.3	6.9	8.0	5.4	36.4	7.5	3.4
Western Australia	5.9	18.1	10.2	8.0	5.9	23.2	10.7	4.9
Tasmania	6.1	16.5	10.3	9.4	5.2	21.8	7.7	4.8
Northern Territory	6.6	16.9	12.2	12.8	8.9	19.5	11.9	5.2
Australian Capital Territory	4.2	12.9	6.6	7.1	7.8	19.8	11.6	3.6
<b>Australia</b>	<b>2.4</b>	<b>7.3</b>	<b>3.3</b>	<b>2.7</b>	<b>2.0</b>	<b>9.5</b>	<b>4.4</b>	<b>1.9</b>

(a) These RSEs relate to the estimates in Table 4.

#### SAMPLING ERROR *continued*

**6** As an example of the use of an RSE, the 2005 estimate for kilometres travelled by all passenger vehicles registered in Australia is 155,068 million kilometres (Table 4 of the publication). The rounded RSE for this estimate is 2.4%, as shown above. Therefore, the standard error for the 2005 kilometres travelled by passenger vehicles estimate is 3,722 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 151,346 million kilometres to 158,790 million kilometres. There are about 19 chances in 20 that the figure would have been in the range 147,624 million kilometres to 162,512 million kilometres.

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

**8** 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 DATA QUALITY INDICATORS *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								
Petrol								
Lead replacement	19.0	34.8	24.1	44.6	85.7	47.3	69.1	15.3
Unleaded	2.8	7.6	5.4	25.1	99.4	43.2	17.0	2.5
Total	2.7	7.4	5.2	29.6	72.5	36.4	16.9	2.4
Diesel	18.8	—	8.6	3.4	2.0	9.9	6.5	3.1
LPG/CNG/dual fuel	20.0	105.5	23.2	44.0	86.3	51.6	28.0	16.0
<b>Total</b>	<b>2.7</b>	<b>7.4</b>	<b>3.7</b>	<b>3.4</b>	<b>2.0</b>	<b>9.4</b>	<b>5.4</b>	<b>1.8</b>

## AVERAGE RATE OF FUEL CONSUMPTION

Petrol								
Lead replacement	5.7	11.1	4.8	18.1	41.9	9.7	30.3	4.6
Unleaded	1.1	2.4	1.8	8.9	100.0	20.5	2.8	0.9
Total	1.1	2.3	1.7	14.1	34.2	22.5	2.8	0.9
Diesel	7.3	—	2.5	1.8	0.8	5.6	2.9	2.6
LPG/CNG/dual fuel	6.7	100.0	6.3	15.0	1.4	53.9	12.2	5.7
<b>Total</b>	<b>1.2</b>	<b>2.3</b>	<b>1.4</b>	<b>1.8</b>	<b>0.8</b>	<b>6.1</b>	<b>3.0</b>	<b>0.9</b>

— nil or rounded to zero (including null cells)

(a) These RSEs relate to the estimates in Table 5.

## SAMPLING ERROR *continued*

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

	Light commercial vehicles	Rigid trucks	Articulated trucks	Total
	%	%	%	%
TOTAL TONNE-KILOMETRES				
New South Wales	16.2	8.3	4.8	4.0
Victoria	15.8	11.3	5.2	4.7
Queensland	14.2	11.0	5.7	4.7
South Australia	17.0	22.2	6.9	6.4
Western Australia	18.9	16.0	8.5	7.5
Tasmania	17.3	12.8	6.1	5.2
Northern Territory	16.5	24.0	15.9	13.9
Australian Capital Territory	19.1	31.5	19.7	21.8
<b>Australia</b>	<b>7.7</b>	<b>5.0</b>	<b>2.7</b>	<b>2.3</b>

(a) These RSEs relate to the estimates in Table 13.



# TECHNICAL NOTE DATA QUALITY INDICATORS *continued*

## SAMPLING ERROR *continued*

**9** Summary tables in this publication contain estimates for earlier years. Because of cost and provider load constraints, the SMVU cannot be designed to provide accurate measures of the movements between reference periods. Care should be taken in drawing inferences from changes in data over these years.

**10** The standard error for the movement can be calculated using:

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

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, ie  $M_t = Y_{2t} - Y_{1t}$

**11** For total kilometres travelled by type of vehicle from the 2001 and 2005 SMVUs, the standard errors of the movements and the estimates from which they are derived are shown in the following table.

### SE OF THE MOVEMENT OF TOTAL KILOMETRES TRAVELLED

	LEVEL ESTIMATES				MOVEMENT ESTIMATES	
	2001	RSE (2001)	2005	RSE (2005)	Movement	SE (Movement)(a)
Type of vehicle	mill.	%	mill.	%	mill.	mill.
Passenger vehicles	143 925	2.5	155 068	2.4	11 143	5 233
Motor cycles	1 448	8.2	1 429	7.3	-18	157
Light commercial vehicles	30 728	2.8	33 764	3.5	3 036	1 446
Rigid trucks	6 627	2.8	7 671	2.7	1 044	278
Articulated trucks	5 321	2.3	6 308	2.1	987	179
Non-freight carrying trucks	267	10.1	286	10.2	19	40
Buses	1 835	3.4	1 856	4.6	21	106
<b>Total</b>	<b>190 152</b>	<b>2.0</b>	<b>206 383</b>	<b>1.9</b>	<b>16 231</b>	<b>5 416</b>

(a) Calculated on unrounded RSE estimates

**12** As indicated in the table above, the estimates of movement are subject to significant sampling error and caution should be used in analysing the movements in the estimates. For example, the estimate of movement for passenger vehicles is an increase of 11,143 million kilometres and the standard error is 5,233 million kilometres, which means there are 19 chances in 20 that the true movement estimate is between an increase of 677 million kilometres and 21,609 million kilometres.

## NON-SAMPLING ERROR

**13** 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 or omissions 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 will be unrepresentative of the target population. Systematic errors result in bias.

### *Response and non-response*

**14** An important factor that affects non-sampling error is the response rate achieved. 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. Responses were received from 78% of all of the selections for 2005. After

# TECHNICAL NOTE DATA QUALITY INDICATORS *continued*

*Response and non-response  
continued*

removing those vehicles that had been found to be deregistered or out of scope, the live response rate for the 2005 SMVU was 77%.

## RESPONSE AND NON-RESPONSE BY CATEGORY

	<i>Percentage of selections 2005</i>
	%
Response received	
Registered vehicle	73
Unregistered vehicle(a)	5
Non-response	
Untraceable - mailing address unknown	7
Other(b)	15
<b>Total selections</b>	<b>100</b>

- (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; non-response where no listing could be found to enable contact by telephone; and owner contacted by telephone but response still not secured.

**15** Live response rates for each state and territory, and for each vehicle type, are shown in the following tables:

### LIVE RESPONSE RATES, State/Territory

	<i>Response rate</i>
	%
New South Wales	79
Victoria	76
Queensland	80
South Australia	82
Western Australia	77
Tasmania	79
Northern Territory	65
Australian Capital Territory	74
<b>Australia</b>	<b>77</b>

### LIVE RESPONSE RATES, Type of vehicle

	<i>Response rate</i>
	%
Passenger vehicle	73
Motor cycles	70
Light commercial vehicles	72
Rigid trucks	79
Articulated trucks	78
Non-freight carrying trucks	84
Buses	85
<b>Total</b>	<b>77</b>

### *Response and non-response continued*

**16** A large non-response increases the potential magnitude of non-response bias, which occurs if the usage patterns of the non-responding vehicles differ 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.

### *Frame quality*

**17** The scope of the survey comprises all vehicles that were registered with a motor vehicle authority for road use at some stage during the 12 months ended 31 October 2005 (excluding caravans, trailers, tractors, plant and equipment, defence services vehicles, diplomatic or consular-plated vehicles and vintage or veteran registered vehicles). A population or survey frame of 13.5 million vehicles was identified on 31 March 2004 using information obtained from the state and territory motor vehicle registration authorities, as part of the annual ABS Motor Vehicle Census (MVC) (Cat No. 9309.0). From this frame a stratified sample of 15,988 vehicles was selected for reporting on vehicle use.

**18** The responses received in the SMVU provide an indication of the quality of the frame. In 2005 the effects of duplicate vehicle registrations, vehicle de-registrations prior to frame extract, and out-of-scope vehicles on the frame was estimated to be approximately 0.2% of the total frame. This indicates the frame was reliable in terms of providing an accurate number of registered vehicles in Australia.

**19** Vehicle classification anomalies arise when respondents indicate an alteration has been made to the vehicle body, resulting in a different vehicle type to that recorded on the frame. These changes can happen during the time-lag between finalising the frame and collection of SMVU data (between 7 and 19 months). Vehicle classification anomalies can also result from data supplied by state and territory vehicle registration authorities. An assessment of vehicle classification anomalies from 2005 data shows that while there was no bias towards specific states or territories, there were marked discrepancies for some vehicle types. For vehicles on the frame that were listed as non-freight carrying trucks, 14.6% were found to be other vehicle types, while 14.3% of vehicles listed as buses were found to be other vehicle types. This issue is not significant for other vehicle types on the frame.

### *Imputation*

**20** Imputation is the process whereby a value is generated for missing data items, based on the responses for similar vehicles which were operating for the reference period. As for previous surveys, the need for imputation of unanswered items on the returned questionnaires remained quite high. This is called partial imputation. Of the questionnaires returned for 2005, 11% needed imputation of one or more items apart from the average rate of fuel consumption.

**21** Total fuel consumption can be difficult to collect, being derived from the product of total distance travelled and the average fuel consumption rate. The average fuel consumption rate can be reported directly by the respondent or derived from the respondent reporting an amount of fuel consumed and the distance travelled on that fuel (for all or part of the period). If records have not been kept during the reference period, it can be difficult for the provider to provide or reasonably estimate fuel consumption. If this is the case the fuel consumption rate is imputed from the average of 'like' responding providers.

**22** Additional imputation is needed due to questionnaire non-response and is called full imputation. The tables below show the percentage contribution to the estimates from both partial and full imputation.

## TECHNICAL NOTE DATA QUALITY INDICATORS *continued*

*Imputation continued*

### CONTRIBUTION TO ESTIMATES FROM IMPUTATION (a), State/territory of registration

	Percentage of total kilometres travelled	Percentage of total tonne-kilometres travelled	Percentage of fuel consumption
	%	%	%
New South Wales	22	28	40
Victoria	28	35	44
Queensland	23	27	41
South Australia	20	22	39
Western Australia	26	32	42
Tasmania	23	33	45
Northern Territory	39	56	53
Australian Capital Territory	24	36	43
<b>Australia</b>	<b>24</b>	<b>30</b>	<b>42</b>

(a) Includes both partial and full imputation

### CONTRIBUTION TO ESTIMATES FROM IMPUTATION (a), Type of vehicle

	Percentage of total kilometres travelled	Percentage of total tonne-kilometres travelled	Percentage of fuel consumption
	%	%	%
Passenger vehicles	24	..	45
Motor cycles	28	..	49
Light commercial vehicles	26	46	43
Rigid trucks	19	28	34
Articulated trucks	20	30	33
Non-freight carrying vehicles	17	..	43
Buses	15	..	24
<b>Total</b>	<b>24</b>	<b>30</b>	<b>42</b>

.. not applicable

(a) Includes both partial and full imputation

## SURVEY PROCEDURES

**23** The survey is comprised of four independent samples, with a different one used for each 3 month quarter in the overall 12 month survey period. Estimates from each of these samples are aggregated and adjusted for new motor vehicles and re-registrations of vehicles to produce an annual estimate.

### *Adjustments*

**24** 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 are made to account for the change in size of the registered motor vehicle fleet since the population frame was created. For the 2005 SMVU the frame was created on 31 March 2004. These adjustments involved two categories:

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

# TECHNICAL NOTE DATA QUALITY INDICATORS *continued*

*Adjustments continued*

## CONTRIBUTION OF ADJUSTMENTS FOR RE-REGISTRATIONS, Australia

Type of vehicle	PERCENTAGE OF TOTAL KILOMETRES TRAVELLED				
	SMVU 2001	SMVU 2002	SMVU 2003	SMVU 2004	SMVU 2005
	%	%	%	%	%
Passenger vehicles	3	3	2	1	3
Motor cycles	7	5	6	6	4
Light commercial vehicles	2	1	2	2	1
Rigid trucks	3	3	2	4	2
Articulated trucks	3	4	4	4	4
Non-freight carrying vehicles	6	4	2	6	1
Buses	1	4	-1	—	-2
<b>Total</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>3</b>

— nil or rounded to zero (including null cells)

## CONTRIBUTION OF NEW VEHICLES REGISTERED AFTER 31 MARCH

Type of vehicle	PERCENTAGE OF TOTAL KILOMETRES TRAVELLED				
	2000	2001	2002	2003	2004
	%	%	%	%	%
Passenger vehicles	4	5	9	10	10
Motor cycles	5	8	17	15	15
Light commercial vehicles	4	5	11	14	14
Rigid trucks	3	4	10	10	13
Articulated trucks	6	6	14	17	18
Non-freight carrying trucks	4	2	8	13	13
Buses	3	5	11	14	12
<b>Total</b>	<b>4</b>	<b>5</b>	<b>10</b>	<b>11</b>	<b>11</b>

**25** These activities occur continuously and the adjustments are made to account for the registrations that are estimated to have been added to or removed from the registered vehicle fleet between the population frame date and the end of the reference period. The adjustment process also accounts for de-registrations. This means it is possible for the re-registration factor to be negative.

*Pre-advice methodology*

**26** The quality of survey responses is improved by employing a pre-advice methodology. This involves vehicle owners receiving early advice about their inclusion in the survey and 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.

*Nil use*

**27** Some providers may report nil use for the 3 month reference period in which they were selected. Nil use vehicles are live registered vehicles that reported travelling zero kilometres during that specific reference period only. Nil use vehicles are included in the survey as their reported nil use is representative of other vehicles in the population. Vehicles may have nil use due to factors such as seasonal usage, mechanical faults or economic conditions. Where a provider gives a nil use response, a follow-up phone call is used to check the veracity of the response.

# TECHNICAL NOTE DATA QUALITY INDICATORS *continued*

*Nil use continued*

## NIL USE, Vehicle type

	2001	2002	2003	2004	2005
NUMBER OF REGISTERED VEHICLES WITH NIL USE					
Passenger vehicles	305 723	350 224	345 789	406 865	393 971
Motor cycles	69 740	87 690	76 212	92 953	73 570
Light commercial vehicles	84 806	70 111	77 282	93 220	103 683
Rigid trucks	29 059	26 130	21 725	24 214	32 944
Articulated trucks	3 740	3 575	4 187	3 967	4 105
Non-freight carrying trucks	1 675	1 563	1 270	1 547	1 518
Buses	1 569	1 217	1 679	1 319	1 303
<i>Total</i>	<i>496 312</i>	<i>540 510</i>	<i>528 144</i>	<i>624 085</i>	<i>611 094</i>

## PROPORTION OF REGISTERED VEHICLES WITH NIL USE (%)

Passenger vehicles	3	3	3	4	4
Motor cycles	20	24	20	24	17
Light commercial vehicles	5	4	4	5	5
Rigid trucks	9	8	6	7	9
Articulated trucks	6	6	7	6	6
Non-freight carrying trucks	9	9	7	9	7
Buses	3	2	3	2	2
<i>Total</i>	<i>4</i>	<i>4</i>	<i>4</i>	<i>5</i>	<i>4</i>

## STRATIFICATION CHANGES

**28** An investigation into the stratification of the SMVU was conducted in 2003 to determine whether the quality of the SMVU estimates could be improved by using alternate or additional stratification variables or boundaries. The aim of the investigation was to reduce the RSEs of the key data items of total distance travelled and tonne-kilometres travelled, at the state by vehicle type level, while maintaining the existing quarterly sample size of 4,000 vehicles.

**29** The investigations showed that by implementing changes to the stratification, a reduction in RSEs for these key data items would be realised. The main changes to the stratification variables were to increase the importance of, and number of, 'vehicle age' cohorts, and to remove 'area of registration'.

**30** These changes were implemented for the 2004 SMVU and have resulted in the survey frame being stratified by state of registration, vehicle type, vehicle age and vehicle size.

## DISTRIBUTIONS

**31** The following tables provide values for total kilometres travelled and total tonne-kilometres travelled for selected percentiles. These percentiles have been calculated from all values reported in each quarter of the reference period. Percentiles provide some indication of the distribution of vehicle use across the survey population. For example, one-fifth of New South Wales passenger vehicles reported a distance travelled of 1,238 kilometres or less for the quarter they were selected in the survey. Note that the minimum value for every combination of state/territory by type of vehicle for both tables is zero.

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

# TECHNICAL NOTE DATA QUALITY INDICATORS *continued*

## SELECTED PERCENTILES (a), State/territory of registration—Type of vehicle

	20th Percentile	40th Percentile	50th Percentile	60th Percentile	80th Percentile	95th Percentile	99th Percentile
<b>TOTAL KILOMETRES TRAVELLED</b>							
<b>Passenger vehicles</b>							
New South Wales	1 238	2 298	2 887	3 816	5 582	8 329	17 569
Victoria	1 192	2 358	2 831	3 290	5 050	8 287	13 283
Queensland	1 510	2 650	3 205	3 660	5 689	8 948	13 007
South Australia	1 290	2 135	2 614	2 991	4 655	7 325	10 339
Western Australia	1 006	2 273	2 859	3 490	5 133	9 739	14 695
Tasmania	1 328	2 150	2 698	3 428	5 156	10 344	15 781
Northern Territory	1 207	2 072	2 559	2 957	4 230	8 163	20 550
Australian Capital Territory	1 115	2 727	3 228	3 985	5 543	8 094	9 947
<i>Australia</i>	1 246	2 336	2 867	3 512	5 300	8 542	13 493
<b>Motorcycles</b>							
New South Wales	31	243	358	497	1 231	2 936	4 395
Victoria	33	175	427	664	1 569	3 365	5 571
Queensland	82	423	546	681	1 352	3 820	4 966
South Australia	—	162	296	527	1 126	2 858	7 187
Western Australia	—	32	138	371	1 479	3 218	4 107
Tasmania	—	76	274	472	1 320	3 168	3 844
Northern Territory	197	483	593	784	1 872	4 994	9 805
Australian Capital Territory	119	549	825	1 256	2 247	4 213	4 838
<i>Australia</i>	19	205	415	576	1 483	3 365	5 571
<b>Light commercial vehicles</b>							
New South Wales	1 509	2 931	3 579	4 551	6 879	11 980	16 495
Victoria	1 134	2 321	3 332	4 092	6 430	11 854	14 121
Queensland	951	2 731	3 426	4 860	7 299	11 538	16 737
South Australia	1 562	2 699	3 649	4 523	7 005	11 648	15 498
Western Australia	534	2 320	2 736	3 650	5 916	11 612	19 371
Tasmania	793	1 708	2 425	3 396	6 822	13 355	18 739
Northern Territory	1 023	2 381	3 368	3 809	6 233	12 294	26 530
Australian Capital Territory	1 617	2 761	3 257	3 870	6 539	9 677	11 251
<i>Australia</i>	1 152	2 572	3 368	4 227	6 516	11 806	17 058
<b>Rigid trucks</b>							
New South Wales	612	2 346	3 551	4 873	9 105	19 050	28 689
Victoria	195	1 444	2 661	4 352	8 789	16 420	34 592
Queensland	640	2 841	4 401	6 066	10 346	22 214	37 890
South Australia	161	1 203	2 166	3 468	6 481	12 390	28 810
Western Australia	94	800	1 616	2 245	6 784	13 545	25 807
Tasmania	391	1 731	2 752	3 836	6 531	18 435	32 227
Northern Territory	391	1 727	2 809	4 078	7 199	14 198	28 689
Australian Capital Territory	1 226	3 323	4 906	6 014	10 470	20 927	34 941
<i>Australia</i>	356	1 835	3 030	4 553	8 712	18 208	31 370
<b>Articulated trucks</b>							
New South Wales	3 507	11 674	16 408	23 669	40 057	58 123	87 875
Victoria	3 354	10 279	17 641	24 808	44 181	62 777	87 690
Queensland	2 728	13 518	20 016	28 476	47 508	65 758	95 945
South Australia	2 955	10 026	16 569	23 060	45 884	67 619	103 471
Western Australia	1 358	8 268	11 401	17 023	32 632	51 828	86 662
Tasmania	4 302	15 723	22 425	26 855	34 635	55 430	86 215
Northern Territory	1 386	7 703	13 314	16 701	33 411	59 796	71 134
Australian Capital Territory	4 126	17 485	29 857	36 927	49 248	69 215	93 773
<i>Australia</i>	2 893	10 565	16 790	23 888	42 290	62 238	92 917

— nil or rounded to zero (including null cells)

(a) Based on distance travelled in a quarter

# TECHNICAL NOTE DATA QUALITY INDICATORS *continued*

## SELECTED PERCENTILES (a), State/territory of registration—Type of vehicle *continued*

	20th Percentile	40th Percentile	50th Percentile	60th Percentile	80th Percentile	95th Percentile	99th Percentile
TOTAL KILOMETRES TRAVELLED							
<b>Non-freight carrying trucks</b>							
New South Wales	486	1 209	1 543	2 660	5 136	20 057	23 341
Victoria	368	438	1 174	4 594	9 612	20 524	25 009
Queensland	301	1 755	2 430	3 523	6 291	12 579	18 601
South Australia	28	285	355	461	839	9 175	21 455
Western Australia	8	241	316	508	4 594	9 191	13 852
Tasmania	113	113	142	635	2 875	6 685	12 431
Northern Territory	154	1 015	2 387	3 007	8 126	10 879	12 465
Australian Capital Territory	1 326	1 905	3 335	5 170	9 253	23 110	29 349
<i>Australia</i>	226	508	1 061	2 122	6 291	12 990	23 341
<b>Buses</b>							
New South Wales	2 325	4 384	5 439	7 878	11 793	18 949	44 377
Victoria	2 508	4 814	5 692	6 547	11 550	20 327	39 006
Queensland	1 711	3 775	4 757	5 583	11 243	19 970	53 166
South Australia	2 677	4 429	6 038	7 937	13 135	21 546	32 759
Western Australia	1 344	3 391	4 487	5 604	12 740	23 335	27 520
Tasmania	1 321	2 761	3 979	5 445	8 684	15 450	20 807
Northern Territory	1 247	2 632	3 222	4 430	10 252	21 969	35 586
Australian Capital Territory	778	3 066	3 867	7 820	15 021	23 221	43 248
<i>Australia</i>	2 020	4 051	5 172	6 087	11 715	20 237	39 884
<b>Total</b>							
New South Wales	1 191	2 297	2 931	3 841	5 873	9 131	19 900
Victoria	1 058	2 273	2 762	3 351	5 214	9 050	16 708
Queensland	1 234	2 526	3 185	3 761	5 937	10 465	14 516
South Australia	1 145	2 054	2 670	3 094	4 911	8 170	12 591
Western Australia	784	2 123	2 788	3 397	5 156	10 462	17 058
Tasmania	1 005	2 012	2 588	3 400	5 595	10 521	18 398
Northern Territory	1 075	2 070	2 631	3 278	5 078	9 952	22 140
Australian Capital Territory	1 029	2 660	3 181	3 827	5 578	8 199	10 358
<i>Australia</i>	1 134	2 273	2 857	3 569	5 543	9 370	17 058

(a) Based on distance travelled in a quarter



# TECHNICAL NOTE DATA QUALITY INDICATORS *continued*

## SELECTED PERCENTILES (a), State/territory of registration—Type of freight vehicle

	20th Percentile	40th Percentile	50th Percentile	60th Percentile	80th Percentile	95th Percentile	99th Percentile
TOTAL TONNE-KILOMETRES TRAVELLED							
<b>Light commercial vehicles</b>							
New South Wales	—	6	148	310	1 508	4 932	11 293
Victoria	—	—	89	200	1 235	4 549	7 910
Queensland	—	—	18	308	1 556	5 296	6 796
South Australia	—	41	137	427	1 751	4 947	9 203
Western Australia	—	—	—	161	1 110	3 848	4 944
Tasmania	—	—	—	72	1 067	3 264	9 427
Northern Territory	—	—	55	175	707	2 689	4 839
Australian Capital Territory	—	10	119	279	1 143	3 257	6 838
<i>Australia</i>	—	—	78	288	1 385	4 605	7 948
<b>Rigid trucks</b>							
New South Wales	269	1 570	3 412	5 872	21 394	79 769	340 196
Victoria	74	1 282	3 142	7 219	22 736	120 476	425 096
Queensland	258	2 873	5 111	8 987	26 145	104 396	340 685
South Australia	118	1 156	3 133	6 192	18 207	53 402	234 787
Western Australia	—	977	1 759	3 465	12 910	44 872	131 995
Tasmania	57	1 812	4 009	6 423	16 243	63 505	314 650
Northern Territory	541	1 857	3 674	6 541	13 588	35 452	241 952
Australian Capital Territory	853	3 575	5 535	9 964	25 295	105 079	381 936
<i>Australia</i>	122	1 672	3 456	6 425	20 431	82 240	338 194
<b>Articulated trucks</b>							
New South Wales	36 573	127 315	184 589	332 315	668 020	1 590 195	2 612 761
Victoria	30 574	125 963	201 473	342 793	872 143	1 813 425	2 296 426
Queensland	21 944	149 904	248 325	400 127	898 379	1 846 315	2 641 077
South Australia	24 829	108 302	214 764	353 401	971 152	2 061 924	3 145 854
Western Australia	11 152	96 745	182 342	241 976	655 260	1 982 400	3 466 489
Tasmania	39 065	196 247	273 214	347 090	538 390	1 077 688	1 774 223
Northern Territory	9 112	103 329	165 025	300 343	915 902	3 084 422	3 823 713
Australian Capital Territory	34 603	218 558	406 820	518 612	872 442	1 727 637	2 113 696
<i>Australia</i>	24 886	127 247	205 170	339 158	814 140	1 752 643	2 612 761

— nil or rounded to zero (including null cells)

(a) Based on distance travelled in a quarter

## GLOSSARY

<b>Articulated trucks</b>	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 is linked to a semitrailer.
<b>Average load carried</b>	Average load carried is calculated by dividing the total weight carried by the number of trips made while carrying a load.
<b>B-Doubles</b>	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.
<b>Buses</b>	Motor vehicles constructed for the carriage of passengers. Included are all motor vehicles with 10 or more seats, including the driver's seat.
<b>Business kilometres</b>	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.
<b>Capital city</b>	<p>These areas are based on capital city Statistical Divisions as defined in the <i>Australian Standard Geographical Classification (ASGC) 2004</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>
<b>Commodity carried</b>	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.
<b>Dolly</b>	A device intended to link two semitrailers or a rigid truck and a semitrailer.
<b>Freight vehicles</b>	Consists of light commercial vehicles, rigid trucks and articulated trucks.
<b>Fuel consumption</b>	Fuel consumption is calculated by aggregating the total kilometres travelled multiplied by reported average rate of fuel consumption for each vehicle.
<b>Fuel consumption (average)</b>	The average rate of fuel consumption is calculated by dividing the total fuel consumption by total kilometres travelled for each type of vehicle.
<b>Gross Combination Mass (GCM)</b>	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*

<b>Gross Vehicle Mass (GVM)</b>	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.
<b>Interstate</b>	This refers to any travel by vehicles outside their state or territory of registration.
<b>Light commercial vehicles</b>	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).
<b>Non-freight carrying trucks</b>	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.
<b>Other Urban Areas</b>	<p>These are based on the <i>Australian Standard Geographical Classification (ASGC) 2004</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 2001 Population Census.</p> <p>New South Wales — within the areas of Newcastle, Lake Macquarie, Port Stephens, Wollongong, Kiama, Bathurst-Orange, Maitland, Albury (excluding Wodonga), Hume, Wagga Wagga, Tweed Heads (excluding Gold Coast), Queanbeyan (excluding Canberra ACT), Lismore, Coffs Harbour, Greater Taree, Tamworth, Shellharbour, Cessnock, Nelson Bay, Port Macquarie and Nowra.</p> <p>Victoria — within the areas of Geelong, Ballarat, Bendigo, Wodonga (excluding Albury), Shepparton, La Trobe Valley and Mildura.</p> <p>Queensland — within the areas of The Sunshine Coast, Bundaberg, Hervey Bay, Rockhampton, Mackay, Townsville, Cairns, Gold Coast (excluding Tweed Heads), and Toowoomba.</p> <p>Western Australia — within the areas of Mandurah and Bunbury.</p> <p>Tasmania — within the areas of Launceston, Burnie, Devonport, Penguin, Ulverston, Wynyard and Latrobe.</p> <p>This category is not applicable in South Australia, the Northern Territory and the Australian Capital Territory.</p>
<b>Passenger vehicles</b>	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.
<b>Prime movers</b>	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.
<b>Rigid trucks</b>	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.
<b>Road trains</b>	Motor vehicles comprising a prime mover hauling two or more trailers and employing a dolly or a rigid truck hauling two or more trailers.
<b>Relative standard error (RSE)</b>	The standard error expressed as a percentage of the estimate to which it refers.
<b>Semitrailer</b>	Trailers designed to impose a substantial load on the towing vehicle, usually via a turntable on a prime mover.
<b>Standard error (SE)</b>	Indicates the extent to which an estimate might have varied by chance because only a sample of vehicles was included.

## GLOSSARY *continued*

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<b>Stratification</b>	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.
<b>Tonne-kilometres</b>	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.
<b>Tonnes carried</b>	Total tonnes carried is the total weight of goods and freight carried during the survey period. The estimate of total 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).
<b>Travel to and from work</b>	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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ISSN 1444 5670

RRP \$28.00