

# Traffic Note 48

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**From** Safer Roads

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## Light vehicle sizes and dimensions: street survey results and parking space requirements – Information

### Background

*Road traffic standards information sheet No 35* (Land Transport Safety Authority, June 1994) provided details of a survey carried out in February 1993 of light vehicle sizes and dimensions. The publication updated an earlier booklet *Metric parking dimensions* (Land Transport Division, Ministry of Transport, 1975). The continuing request for this information sheet indicates an on-going interest in the data it contained. As the other information sheets have now been superseded it has been decided to re-publish the data in the form of this Traffic Note.

### Survey method

Parked vehicles were surveyed in Auckland, Wellington, Christchurch, Masterton and Carterton recording the make and model of light vehicles and measuring as accurately as possible the length, width and height of vehicles. The sample data was entered onto a database and examined for make and model matches to verify the vehicle specification data against data obtained from manufacturers and service manual sources. The sample data was then analysed for percentile values within the database for each variable.

The data obtained are tabulated by percentile in Table 1. For design purposes percentile values are used on the basis that a defined percentile value will adequately represent the vehicle fleet, ie for 90%ile values it is surmised that 80% of the vehicle fleet is smaller than this value.

## Comparison data

The data obtained from the survey was compared to the data published in *Metric parking dimensions* and dimensions used in Australian Standard AS2890.1: 1986. The comparison was to determine:

- if a significant change had occurred in the dimensions of the New Zealand vehicle fleet necessitating an update of the *Metric parking dimensions* booklet
- how comparable Australian vehicles were with New Zealand in terms of the use of the Australian standards in New Zealand.

The comparison indicated the 1993 New Zealand vehicle was similar (4–15 cm shorter, 7–16 cm narrower and 7–10 cm higher) to the comparable vehicle from 1975. This suggested *Metric parking dimensions* was still an adequate, even slightly generous, definition of the parking requirements of the New Zealand vehicle fleet in 1994.

The New Zealand vehicle was shorter, narrower but higher than comparable Australian vehicles across the full range of percentiles. This suggested use of the Australian standard and Austroads *Guide to traffic engineering practice Part 11: Parking* (NAASRA 1988) should also provide adequately for the New Zealand vehicle fleet.

A more recent comparison has been made with data used in the recently published joint Australian/New Zealand standard, *AS/NZS 2890.1:2004 Parking facilities part 1: Off-street car parking*. This standard has used the 50<sup>th</sup> percentile vehicle in the 1993 New Zealand survey as a basis for warranting a smaller car space of 2.3 x 4.5 m in New Zealand (compared with the 2.3 x 5.0 space of Australia). Appendix A and B of the standard also provides useful background information on design vehicles characteristics and dimensions. The New Zealand vehicle remains shorter and narrower than the comparable Australian vehicle.

The comparison data is shown in Table 2 below.

## Conclusion

The data obtained from the 1993 surveys appears to remain a basis for design purposes. Since then AS/NZS 2890.1: 2004 has been published and reflects the New Zealand data. Therefore, use of the standard for off-street parking design is encouraged by Land Transport New Zealand.

Table 1: 1993 New Zealand vehicle dimensions (metres)  
(incorporating manufacturers specifications where available)

<i>Dimension</i>	<i>Percentile</i>									
	<i>1</i>	<i>5</i>	<i>10</i>	<i>15</i>	<i>50</i>	<i>85</i>	<i>90</i>	<i>95</i>	<i>99</i>	<i>99.8</i>
<i>Length</i>	3.165	3.660	3.845	3.930	4.247	4.585	4.680	4.774	4.910	4.988
<i>Width</i>	1.390	1.460	1.480	1.520	1.660	1.695	1.729	1.775	1.860	1.880
<i>Height</i>	1.255	1.330	1.340	1.346	1.390	1.440	1.470	1.560	1.945	1.945
<i>Wheelbase</i>	2.108	2.375	2.400	2.440	2.600	3.160	3.310	3.505	3.730	3.810
<i>Ground clearance</i>	0.100	0.100	0.100	0.100	0.150	0.165	0.170	0.180	0.200	0.241
<i>Front track</i>	1.204	1.245	1.285	1.320	1.450	1.470	1.475	1.510	1.525	1.559
<i>Rear track</i>	1.163	1.257	1.278	1.292	1.440	1.460	1.478	1.500	1.525	1.527
<i>Turning circle</i>	8.690	8.840	9.500	9.600	10.060	10.970	11.000	11.000	11.500	12.200
<i>Front overhang</i>	0.180	0.330	0.380	0.390	0.470	0.570	0.580	0.630	0.780	1.011
<i>Rear overhang</i>	0.250	0.380	0.430	0.440	0.630	0.750	0.770	0.810	1.680	1.680

Table 2: Comparison between percentile dimensions from 1975 and 1993 New Zealand surveys and Australian Standards 1986 and 2004

<i>Dimension</i>	<i>AS/NZS</i>		<i>AS</i>		<i>NZ 1975</i>		<i>NZ1993</i>	
	<i>2890.1:2004</i>		<i>2890.1:1986</i>					
	<i>85</i>	<i>99.8</i>	<i>85</i>	<i>99.8</i>	<i>85</i>	<i>99</i>	<i>85</i>	<i>99.8</i>
<i>Length</i>	4.910	5.200	4.740	5.370	4.740	4.950	4.585	4.988
<i>Width</i>	1.770	1.940	1.860	1.960	1.860	1.940	1.695	1.880
<i>Wheelbase</i>	2.800	3.050	2.820	3.070	2.570	3.140	3.160	3.810
<i>Track</i>	1.770	1.840	1.530	1.560	1.520	1.550	1.470	1.559
<i>Front overhang</i>	0.920	0.950	0.813	0.996	0.790	0.850	0.570	1.011
<i>Rear overhang</i>	1.190	1.200	1.100	1.300	1.270	1.290	0.750	1.680