

WHAT IS KIWIRAP?

The New Zealand Road Assessment Programme, KiwiRAP, is part of the International Road Assessment Programme (iRAP) which investigates road networks in order to make roads safe.

iRAP now works in partnership with government and non-government organisations in 60 countries. Programmes have been implemented in Europe (EuroRAP), Australia (AusRAP), the United States of America (usRAP), South Africa and Malaysia.

KiwiRAP was initiated in New Zealand as a partnership between government agencies (NZ Transport Agency, Ministry of Transport, Accident Compensation Corporation and New Zealand Police) and the New Zealand Automobile Association.

In 2009, 384 people died on New Zealand roads and more than 2,400 people were seriously injured.

KiwiRAP's objectives are:

- To reduce deaths and injuries on New Zealand's roads by systematically assessing risk and identifying safety shortcomings that can be addressed with practical road improvement measures
- To have risk assessment as a key factor in strategic decisions on road improvements, crash protection and standards of road management
- To provide meaningful information on where the greatest levels of risk are faced, and in turn, to influence driver behaviour.

HOW DOES A ROAD ASSESSMENT PROGRAMME WORK?

KiwiRAP consists of three 'protocols'.

> RISK MAPPING

uses historical traffic and crash data to produce colour-coded maps illustrating the relative level of risk on sections of the road network. KiwiRAP produced risk maps for New Zealand in January 2008.

> STAR RATING

inspections of the engineering features of a road (such as lane and

shoulder width or presence of safety barriers), and the allocation of between 1 and 5 stars depending on the level of 'built-in' safety, ending on the level of safety which is 'built in' to the road.

> PERFORMANCE TRACKING

involves a comparison of crash rates over time to establish whether fewer – or more – people are being killed or injured; and to determine if countermeasures have been effective.

HOW ARE STAR RATINGS CALCULATED?

KiwiRAP assessed the safety performance of New Zealand's rural state highways with speed limits of 80kms or greater. The assessment included line markings, road alignment, lane and shoulder width, median protection barriers, roadside environment and intersection design. The roads were videoed by a vehicle equipped with five cameras and the footage was then viewed in 100 metre sections and a 5km road length allocated an appropriate star rating.

1 STAR – The least safe roads. Most likely to feature severe roadside conditions such as trees, power poles and ditches. Likely to be undivided, have narrow lanes and shoulders, include a high frequency of major intersections, and have poor alignment and mountainous terrain.

2 STAR – Typically undivided roads with major deficiencies in road features such as poor roadside conditions and/or many minor deficiencies such as insufficient overtaking provision, narrow lanes, and/or poorly designed intersections at regular intervals. Any divided 2-Star road would have major deficiencies such as poor alignment, poor roadside conditions and poorly designed intersections at regular intervals.

3 STAR – Typically roads will be undivided and have deficiencies in some road features such as alignment and roadsides and/or poorly designed intersections at regular intervals. A divided 3-Star road would have deficiencies in some road features such as poorly designed intersections at regular intervals.

4 STAR – Roads are typically divided however have minor deficiencies in some road features such as shoulder width or roadside hazards. Divided 4-Star roads are very safe roads with a good safety performance. Undivided 4-Star roads are straight with good overtaking provision, feature good delineation and safe roadsides. Typically an undivided 4-Star road will not have high traffic volumes.

5 STAR – The safest of roads. Five star roads must be divided, have grade separated intersections, good alignment, wide road shoulders, safe roadsides and excellent delineation. Roads with any at-grade intersections, or those that are undivided, cannot achieve a 5-Star rating.

RESULTS

This table shows the proportion of the Otago and Southland state highway networks in each Star band, compared to the national result.

Region	Proportion in each Star Rating				
	1-star	2-stars	3-stars	4-stars	5-stars
Otago	0%	30%	69%	1%	0%
Southland	0%	37%	63%	0%	0%
New Zealand	0%	39%	56%	5%	0%

KiwiRAP is a road safety partnership between the Automobile Association and New Zealand's main transport agencies: New Zealand Transport Agency, Ministry of Transport, ACC and New Zealand Police.



HOW SAFE ARE OUR ROADS?

Star Rating New Zealand's State Highways

BY STATE HIGHWAY

The following tables show the proportion of the Otago and Southland state highway network in each Star Rating.

Otago	Length (km)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
SH1S	243	0%	53%	41%	6%	0%
SH6	225	0%	20%	80%	0%	0%
SH8	286	0%	21%	79%	0%	0%
SH8A	21	0%	0%	100%	0%	0%
SH8B	3	0%	100%	0%	0%	0%
SH83	105	0%	25%	75%	0%	0%
SH84	0	0%	NA	NA	NA	NA
SH85	157	0%	19%	81%	0%	0%
SH86	4	0%	0%	100%	0%	0%
SH87	109	0%	25%	75%	0%	0%
SH88	7	0%	100%	0%	0%	0%
SH90	58	0%	58%	43%	0%	0%
Total	1,217	0%	30%	69%	1%	0%

Southland	Length (km)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
SH1S	93	0%	77%	23%	0%	0%
SH6	120	0%	19%	81%	0%	0%
SH93	41	0%	39%	61%	0%	0%
SH94	229	0%	21%	79%	0%	0%
SH95	19	0%	27%	73%	0%	0%
SH96	87	0%	50%	50%	0%	0%
SH97	19	0%	0%	100%	0%	0%
SH98	21	0%	100%	0%	0%	0%
SH99	85	0%	38%	62%	0%	0%
Total	713	0%	37%	63%	0%	0%

BY VEHICLE KILOMETRES TRAVELLED

The following table shows the proportion of the Otago and Southland state highway network in each Star Rating based on the annual vehicle kilometres travelled (VKT). Six per cent of New Zealand's annual vehicle kilometres travelled occurs on Otago state highways, while 3% occurs on Southland highways.

Region	VKT (x10 ⁸ VKT/year)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
Otago	9.92	0%	38%	56%	6%	0%
Southland	4.48	0%	44%	56%	0%	0%
New Zealand	154.76	0%	33%	40%	28%	0%

KEY SAFETY FEATURES

The following tables provide a snapshot of the key safety features of the Otago and Southland state highways.

Otago	Length (km)	Median divided	Good horizontal alignment	Safe roadside	Wide lanes (> 3.4-m)	Good sealed shoulder width (1.2 m or more)	Good/excellent delineation	Intersections
SH1S	243	7.1%	84.5%	12.3%	100.0%	18.4%	99.7%	1 every 1-km
SH6	227	0.0%	70.4%	20.5%	100.0%	3.3%	99.2%	1 every 3-km
SH8	286	0.0%	76.4%	18.9%	100.0%	2.2%	93.9%	1 every 3-km
SH8A	21	0.0%	83.8%	25.3%	100.0%	0.5%	100.0%	1 every 7-km
SH8B	3	0.0%	76.9%	51.9%	100.0%	0.0%	100.0%	1 every 1-km
SH83	105	0.0%	87.4%	13.6%	100.0%	1.4%	99.7%	1 every 2-km
SH84	2	0.0%	77.8%	27.8%	100.0%	88.9%	100.0%	1 every 2-km
SH85	157	0.0%	77.4%	16.2%	100.0%	2.2%	98.9%	1 every 2-km
SH86	4	0.0%	89.7%	34.6%	100.0%	0.0%	97.4%	1 every 1-km
SH87	109	0.0%	71.8%	7.4%	100.0%	0.4%	98.5%	1 every 2.7-km
SH88	7	0.0%	44.9%	14.1%	100.0%	0.0%	100.0%	1 every 0-km
SH90	58	0.0%	76.5%	0.9%	100.0%	0.5%	99.4%	1 every 2-km
Total	1,220	1.4%	77.6%	15.4%	100.0%	5.4%	98.0%	1 every 2-km

Southland	Length (km)	Median divided	Good horizontal alignment	Safe roadside	Wide lanes (> 3.4-m)	Good sealed shoulder width (1.2 m or more)	Good/excellent delineation	Intersections
SH1S	93	0.0%	92.3%	8.4%	100.0%	17.7%	99.6%	1 every 1-km
SH6	120	0.0%	90.0%	14.9%	100.0%	6.1%	99.2%	1 every 2-km
SH93	41	0.0%	77.1%	5.0%	100.0%	3.7%	95.4%	1 every 2-km
SH94	229	0.0%	73.7%	11.5%	100.0%	1.8%	89.9%	1 every 3-km
SH95	19	0.0%	78.4%	4.1%	100.0%	1.6%	100.0%	1 every 2-km
SH96	87	0.0%	79.3%	11.7%	100.0%	2.8%	88.3%	1 every 2-km
SH97	19	0.0%	88.7%	20.6%	100.0%	2.6%	94.8%	1 every 3-km
SH98	21	0.0%	91.9%	2.1%	100.0%	6.6%	80.1%	1 every 2-km
SH99	85	0.0%	82.2%	9.4%	100.0%	6.3%	94.9%	1 every 1-km
Total	713	0.0%	81.8%	10.8%	100.0%	5.5%	93.6%	1 every 2-km

Total percentages may not add to 100% due to rounding.



OTAGO AND SOUTHLAND

STAR RATING KEY

- ★
- ★★
- ★★★
- ★★★★
- ★★★★★
- Not rated