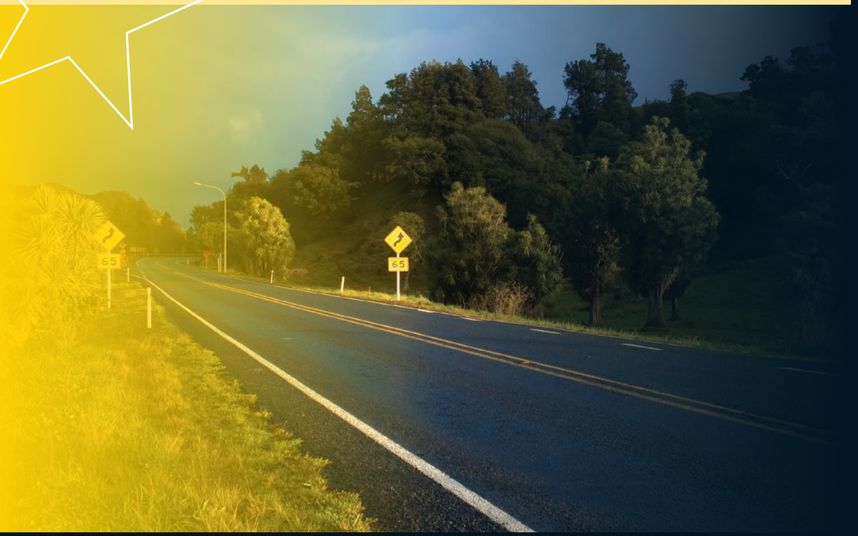
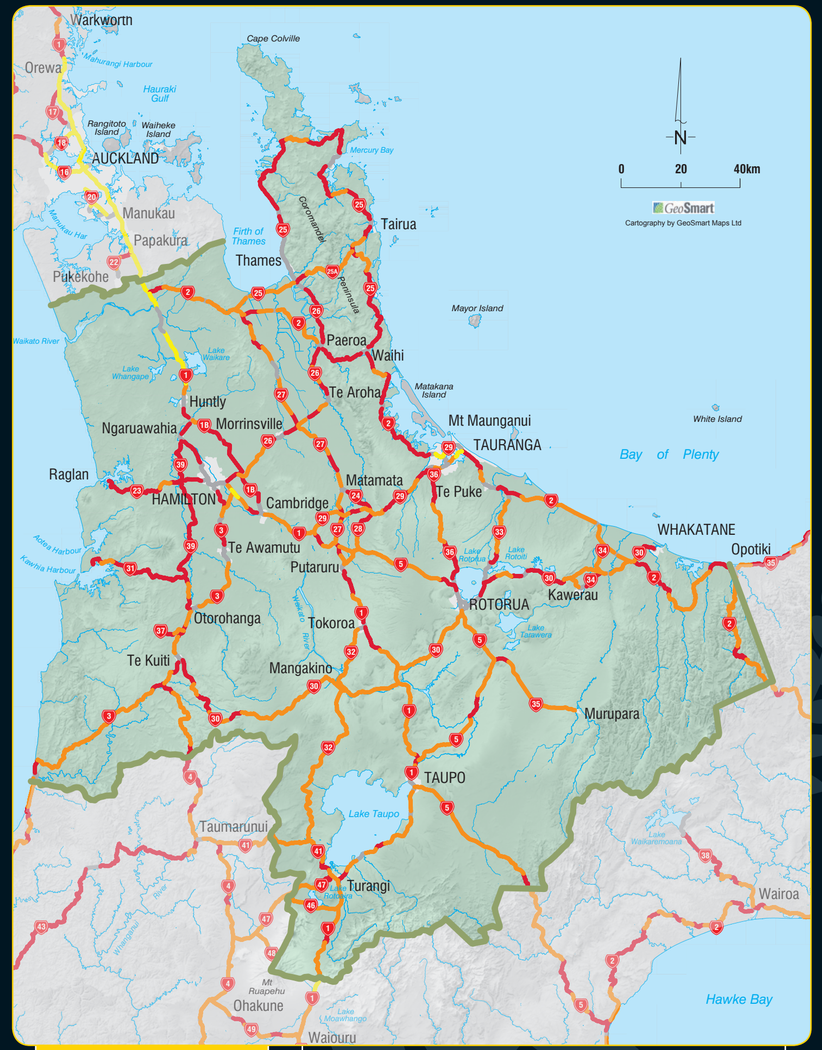
Bay of Plenty	Length (km)	Median divided	Good horizontal alignment	Safe roadside	Wide lanes (> 3.4-m)	Good sealed shoulder width (1.2 m or more)	Good/ excellent delineation	Intersections
SH2	239	5.8%	65.0%	23.6%	92.7%	22.9%	98.2%	1 every 2-km
SH2A	6	100.0%	98.3%	22.4%	100.0%	39.7%	39.7%	1 every 3-km
SH5	61	0.0%	80.2%	14.4%	91.8%	37.8%	98.7%	1 every 2-km
SH29	27	0.4%	69.4%	20.4%	100.0%	35.0%	99.3%	1 every 2-km
SH30	93	0.3%	68.2%	17.0%	100.0%	25.7%	98.3%	1 every 2-km
SH30A*	0	NA	NA	NA	NA	NA	NA	NA
SH33	31	0.0%	67.4%	15.4%	100.0%	41.4%	98.4%	1 every 3-km
SH34	22	0.9%	82.2%	21.4%	100.0%	9.0%	100.0%	1 every 1-km
SH35	121	0.0%	46.7%	13.2%	100.0%	0.5%	98.9%	1 every 3-km
SH36	43	0.0%	56.1%	11.0%	100.0%	10.1%	99.1%	1 every 2-km
SH38	37	0.0%	96.4%	38.1%	100.0%	5.4%	100.0%	1 every 2-km
Total	680	3.0%	65.8%	19.4%	96.7%	19.9%	98.1%	1 every 2-km

* The entire length of highway 30A is urban and has not been assessed.





WAIKATO AND BAY OF PLENTY

STAR RATING KEY

*	**	***	****	*****	Not rated

KiwiRAP
NEW ZEALAND ROAD ASSESSMENT PROGRAMME

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 initiataed 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 Waikato and Bay of Plenty 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
Waikato	0%	39%	58%	3%	0%
Bay of Plenty	0%	42%	56%	2%	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 Waikato and Bay of Plenty state highway network in each Star Rating.

Waikato	Length (km)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
SH1B	39	0%	85%	15%	0%	0%
SH1N	288	0%	26%	59%	16%	0%
SH2	89	0%	39%	61%	0%	0%
SH3	130	0%	26%	74%	0%	0%
SH4	35	0%	29%	71%	0%	0%
SH5	109	0%	5%	95%	0%	0%
SH21	7	0%	0%	100%	0%	0%
SH23	39	0%	87%	13%	0%	0%
SH24	11	0%	100%	0%	0%	0%
SH25	191	0%	73%	27%	0%	0%
SH25A	28	0%	18%	82%	0%	0%
SH26	74	0%	64%	36%	0%	0%
SH27	82	0%	32%	68%	0%	0%
SH28	21	0%	50%	50%	0%	0%
SH29	29	0%	14%	86%	0%	0%
SH30	107	0%	23%	77%	0%	0%
SH31	56	0%	82%	18%	0%	0%
SH32	92	0%	0%	100%	0%	0%
SH37	7	0%	44%	56%	0%	0%
SH39	50	0%	100%	0%	0%	0%
SH41	35	0%	15%	85%	0%	0%
SH46	19	0%	0%	100%	0%	0%
SH47	21	0%	27%	73%	0%	0%
Total	**1,560**	**0%**	**39%**	**58%**	**3%**	**0%**

Bay of Plenty	Length (km)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
SH2	235	0%	41%	55%	5%	0%
SH2A	2	0%	0%	0%	100%	0%
SH5	61	0%	26%	74%	0%	0%
SH29	25	0%	64%	36%	0%	0%
SH30	92	0%	32%	68%	0%	0%
SH33	25	0%	20%	80%	0%	0%
SH34	22	0%	32%	68%	0%	0%
SH35	121	0%	63%	37%	0%	0%
SH36	43	0%	63%	37%	0%	0%
SH38	37	0%	14%	86%	0%	0%
Total	**663**	**0%**	**42%**	**56%**	**2%**	**0%**

BY VEHICLE KILOMETRES TRAVELLED

The following table shows the proportion of the Waikato and Bay of Plenty state highway network in each Star Rating based on the annual vehicle kilometres travelled (VKT). Sixteen per cent of New Zealand's annual vehicle kilometres travelled occurs on Waikato state highways, while 7% occurs on Bay of Plenty highways.

Region	VKT ($x10^6$ VKT/year)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
Waikato	25.19	0%	38%	55%	7%	0%
Bay of Plenty	10.91	0%	51%	45%	5%	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 Waikato and Bay of Plenty state highways.

Waikato	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
SH1B	41	0.0%	82.6%	17.6%	100.0%	19.1%	99.8%	1 every 2-km
SH1N	293	20.6%	81.4%	31.0%	100.0%	46.5%	99.1%	1 every 2-km
SH2	90	1.4%	74.2%	19.5%	100.0%	39.3%	99.6%	1 every 1-km
SH3	132	0.0%	62.8%	15.6%	83.3%	29.7%	97.7%	1 every 2-km
SH4	35	0.0%	49.5%	9.1%	94.3%	0.0%	98.6%	1 every 3-km
SH5	109	0.0%	79.7%	37.2%	100.0%	7.5%	94.0%	1 every 4-km
SH21	7	0.0%	81.0%	28.9%	100.0%	23.2%	98.4%	1 every 1-km
SH23	40	0.0%	54.3%	10.2%	100.0%	6.8%	100.0%	1 every 1-km
SH24	11	0.0%	74.2%	5.1%	100.0%	0.0%	100.0%	1 every 1-km
SH25	203	0.0%	45.3%	12.5%	100.0%	3.8%	98.8%	1 every 2-km
SH25A	28	0.0%	45.4%	2.2%	100.0%	1.4%	93.6%	1 every 14-km
SH26	77	0.0%	81.5%	17.4%	100.0%	31.3%	100.0%	1 every 1-km
SH27	82	0.0%	86.8%	19.6%	100.0%	8.8%	99.4%	1 every 2-km
SH28	21	0.0%	57.2%	17.9%	100.0%	9.3%	100.0%	1 every 4-km
SH29	29	0.0%	75.6%	18.3%	100.0%	38.4%	99.7%	1 every 2-km
SH30	107	0.0%	65.1%	17.9%	91.2%	1.6%	95.2%	1 every 3-km
SH31	56	0.0%	39.8%	5.9%	24.3%	3.6%	95.7%	1 every 3-km
SH32	92	0.0%	71.1%	16.1%	100.0%	2.2%	100.0%	1 every 4-km
SH37	7	0.0%	48.6%	18.1%	100.0%	0.0%	100.0%	1 every 7-km
SH39	51	0.0%	60.7%	13.5%	100.0%	2.6%	99.6%	1 every 1-km
SH41	35	0.0%	66.1%	17.0%	100.0%	1.4%	99.7%	1 every 3-km
SH46	19	0.0%	93.2%	20.1%	100.0%	2.1%	100.0%	1 every 5-km
SH47	21	0.0%	68.1%	23.4%	100.0%	0.0%	100.0%	1 every 3-km
Total	**1,585**	**2.6%**	**57.3%**	**15.5%**	**80.5%**	**14.1%**	**83.7%**	**1 every 2-km**

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