



KiwiRAP

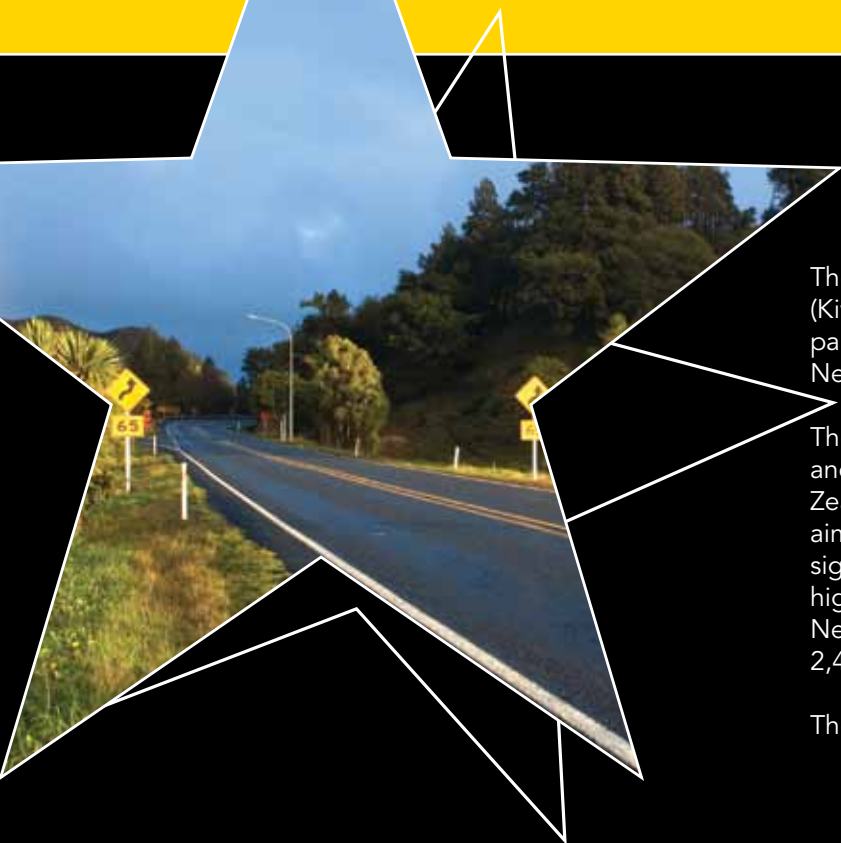
NEW ZEALAND ROAD ASSESSMENT PROGRAMME



HOW SAFE ARE OUR ROADS?

2010

Star Rating New Zealand's State Highways



The New Zealand Road Assessment Programme (KiwiRAP) has been initiated in New Zealand as a partnership between government agencies and the New Zealand Automobile Association.

These organisations have an interest in road safety and in achieving the aims of Safer Journeys: New Zealand's Road Safety Strategy 2010. This strategy aims to achieve safer roads and roadsides, to significantly reduce the crash risk on New Zealand's high risk routes. In 2009, 384 people died on New Zealand roads. There were many more - over 2,400-seriously injured.

The following organisations are partners in KiwiRAP:

> **NEW ZEALAND AUTOMOBILE ASSOCIATION (NZAA)**

The New Zealand Automobile Association represents over 1.3 million Members and has a strong interest in road safety. Overseas automobile clubs have pioneered the development of road assessment programmes globally and the NZAA has been able to link into that network to make the expertise available to New Zealand.

> **MINISTRY OF TRANSPORT**

As the government's principal transport policy adviser, the Ministry both leads and generates policy. The Ministry is the lead agency in the development and implementation of Safer Journeys: New Zealand's Road Safety Strategy 2010.

> **NZ TRANSPORT AGENCY (NZTA)**

The NZ Transport Agency allocates funding for land transport infrastructure and services through the National Land Transport Programme. The NZTA also manages the state highway network, including maintenance, improvement and operations activities. Other responsibilities include managing access to the transport system through driver and vehicle licensing, vehicle inspections and rules development, and providing land transport safety and sustainability information and education.

> **ACCIDENT COMPENSATION CORPORATION**

The Accident Compensation Corporation administers New Zealand's accident compensation scheme, which provides personal injury cover for all New Zealand citizens, residents and temporary visitors to New Zealand. The ACC has an interest in injury prevention and, therefore, road safety.

> **NEW ZEALAND POLICE**

The New Zealand Police is responsible for the enforcement of the majority of road safety rules and regulations.

Exclusion of Liability

The material in this report is not intended to be relied upon as advice, and in particular the authors and publishers accept no responsibility for loss or injury suffered by any person as a consequence, direct or indirect, of anything contained in this report.

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iRAP has a vision of



'a world free of high risk roads'

Foreword



The New Zealand Automobile Association has called for a Decade of Action for Road Safety in New Zealand, and is very proud to have introduced, in partnership with government agencies, KiwiRAP - our country's first ever national road assessment programme. Coupled with the government's road safety strategy Safer Journeys, we aim to improve road safety outcomes in New Zealand.

Whilst drivers make mistakes that unfortunately lead to crashes, the road infrastructure largely determines the consequences of these crashes.

It is the AA's sincere hope that this report will help inform infrastructure investment, inform drivers of roads where extra care is needed, and in doing so, make New Zealand's roads safer for all.



Mike Noon
NZAA



It is clear that New Zealand needs to do better when it comes to road safety. We lag behind other OECD countries in this area. Based on 2008 results, our rate of road deaths is 8.6 per 100,000 population. This compares with 6.9 deaths per 100,000 population for Australia, and 4.3 deaths per 100,000 population for the United Kingdom.

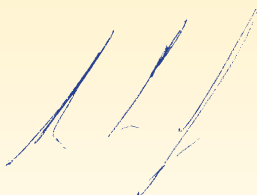
To improve this situation, the government has launched Safer Journeys: New Zealand's Road Safety Strategy 2010 – 2020. This strategy sets out a vision for a safe road system increasingly free of death and serious injury. It sets road safety actions for the entire road system, aiming for safer road use, safer vehicles, safer speeds and safer roads and roadsides.

KiwiRAP is a key road safety tool that will support these actions and help us achieve our vision. Understanding and measuring the in built safety of our rural state highway network will help focus safety engineering spending in the highest value areas. It can also raise public awareness about the different levels of safety on our roads. Drivers need to become more conscious of what roadside hazards are and how they affect safety levels so they can drive to the conditions of the road.

The government has made a commitment to substantially progress seven Roads of National Significance projects over the next ten years, and to ensure that these major strategic routes are built to high safety standards. These seven roads are the routes that carry high levels of traffic, including freight and it is important that they are safe. Upgrading them will not only raise their star ratings, it will help save lives and reduce injuries.

KiwiRAP has been developed as a partnership, a reflection of the fact that road safety is everyone's responsibility and it is only by working together that we can make a significant impact on New Zealand's rate of road death and injury.

I commend you to read this report. It is an important step in the journey to make our roads safer.



Steven Joyce
Minister of Transport

Introduction

What is KiwiRAP?

KiwiRAP is part of an international family of Road Assessment Programmes (RAP) under the umbrella of the International Road Assessment Programme (iRAP). The RAP is a sister programme to ANCAP, the Australasian New Car Assessment Programme that assigns Star Ratings to vehicles based upon the protection they provide to occupants.

Similar programmes have been implemented in Europe (EuroRAP), Australia (AusRAP), the United States of America (usRAP), South Africa and Malaysia.

A not-for-profit organisation, iRAP now works in partnership with government and non-government organisations in 60 countries to investigate road networks. From its findings, iRAP recommends design improvements that need to be implemented in order to ultimately save lives and reduce the number of serious injuries on the world's roads.

Globally each year, 1.3 million people die in road crashes and up to 50 million people are seriously injured. In 2009, 384 people died on New Zealand roads and more than 2,400 people were seriously injured.

The objectives of KiwiRAP 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?

Road Assessment Programmes internationally consist of three 'protocols'.

1. **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
2. **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
3. **Star Rating** – road inspections look at the engineering features of a road (such as lane and shoulder width or presence of safety barriers). Between 1- and 5-Stars are awarded to road links, depending on the level of safety 'built-in' to the road (the higher the star, the better the road).



This report

This report publishes the results of the Star Ratings, the third KiwiRAP protocol.

Star Ratings follows on from Risk Mapping, which was launched in January 2008 to illustrate the Personal Risk and Collective Risk on New Zealand's state highways, and to show where crashes occur (but not why they occur). Star Ratings can be seen as a proactive approach to identify where crashes may occur. Star Ratings measure and rate the safety that is built-in to roads within the rural state highway network.

It involves an inspection of a number of road and roadside design elements such as lane and shoulder width, and the presence of safety barriers which are known to have an impact on the likelihood of a crash and its severity. Between 1 and 5-Stars are awarded to road segments (typically five kilometres in length) depending on the level of safety which is 'built-in' to the road:

- A 5-Star Rating represents the safest road infrastructure design for the prevailing speed environment
- A 1-Star Rating represents a road with poor infrastructure design for the prevailing speed environment.

Unlike Risk Mapping, Star Ratings do not take into account a road's crash history. Only New Zealand's rural state highways, where the speed limit is 80 km/h and above, have been star rated.

Performance Tracking will follow on from Star Ratings to determine whether the Star Rating has been raised by the work undertaken to improve the safety of roads and roadsides.

Results

The New Zealand state highway network consists of 11,235 kilometres of rural and urban roads. The total length of the rural state highway network assessed is 10,187 kilometres. Star Ratings have been provided for 10,002 kilometres of this network. Star Ratings have not been provided for the remaining 185 kilometres because the section lengths are less than three kilometres, underlying base rating data was unavailable or road construction work was being carried out.

Star Ratings are based on a section length of five kilometres (with a range between three kilometres and seven kilometres). These five kilometre sections of road are referred to as segments.

The following table shows the overall Star Rating results for New Zealand using two methods:

- The actual Star Ratings given to the rural state highway network in New Zealand
- The vehicle kilometres travelled for each Star Rating. This shows the percentage of traffic driving within each of the given Star Ratings.

	1-star	2-stars	3-stars	4-stars	5-stars
Star Ratings	0%	39%	56%	5%	0%
Vehicle kilometres travelled for each Star Rating	0%	33%	40%	28%	0%

There are no 1-Star or 5-Star roads over the five kilometre segment length. However, there are small sections of 1-Star and 5-Star roads. Thirty nine per cent of our roads are 2-Star; 56% are 3-Star; and 5% are 4-Star. Twenty eight per cent of New Zealand's travel occurs on our 4-Star roads (i.e. on motorways with a high volume of traffic); 40% on our 3-Star roads; and 33% on 2-Star roads.

The following table provides a snapshot of the key safety features that have a large influence on safety outcomes over New Zealand's rural state highways:

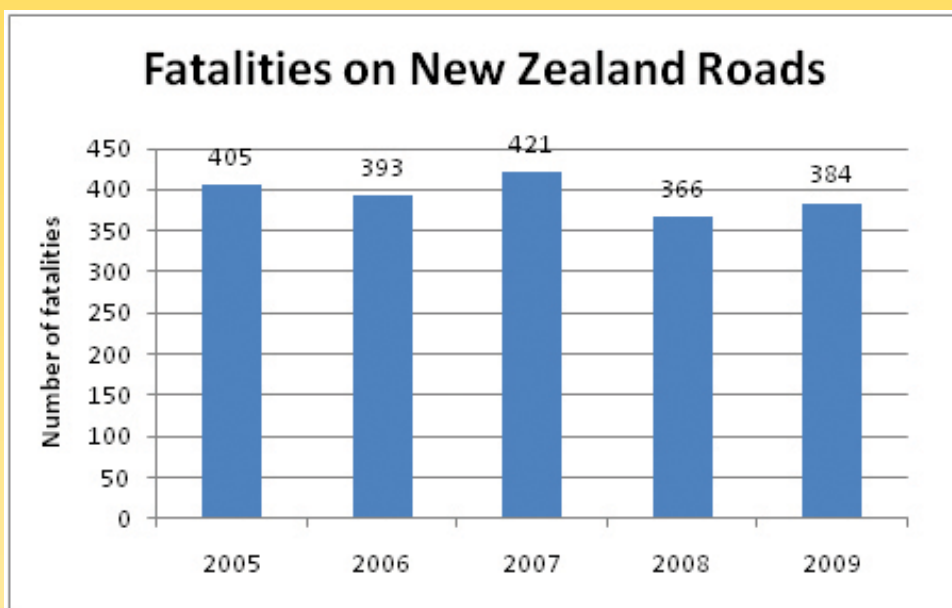
Region	Length (km)	Median divided	Good horizontal alignment	Safe roadside (> 3.4-m)	Wide lanes width	Good sealed shoulder (1.2 m or more)	Good/ excellent delineation	Intersections
New Zealand	10,002	5.0%	72.1%	20.3%	98.2%	13.1%	95.9%	1 every 2-km

The reported attribute statistics are based on 100 metre road section data.

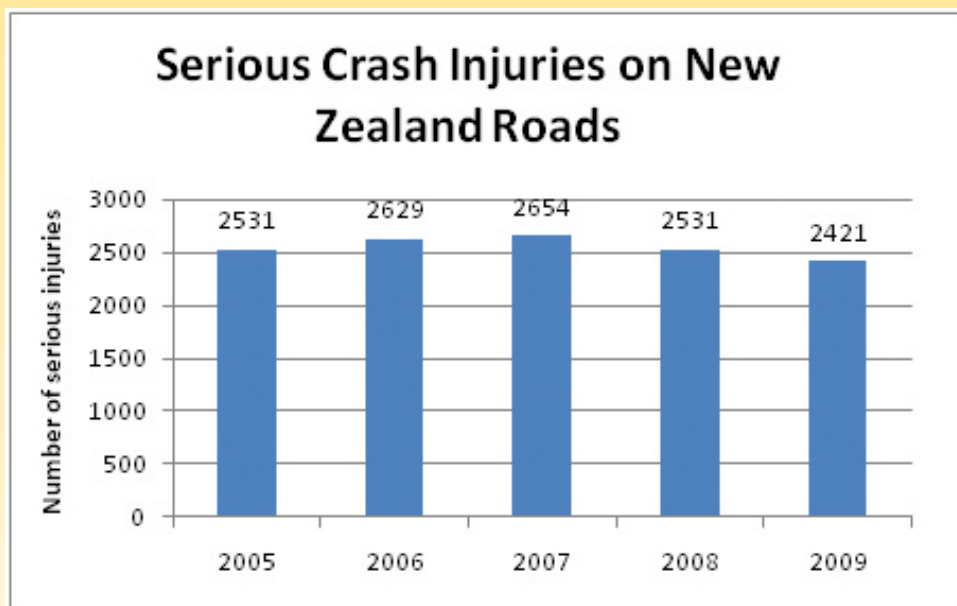
Only 5% of the network is median divided; 20% has forgiving and safe roadside conditions; 96% has good delineation; 98% has wide lanes; 13% has good sealed shoulder width; 72% has good horizontal alignment and has an intersection frequency of one intersection for every two kilometres of travel.

How can KiwiRAP help save lives?

In 2009, 384 people died on New Zealand roads and more than 2,400 were seriously injured. Preventing, or at least reducing, this road trauma requires vehicle manufacturers, road authorities, drivers and many others involved in the road system design to share responsibility for road safety.



Source: Ministry of Transport.

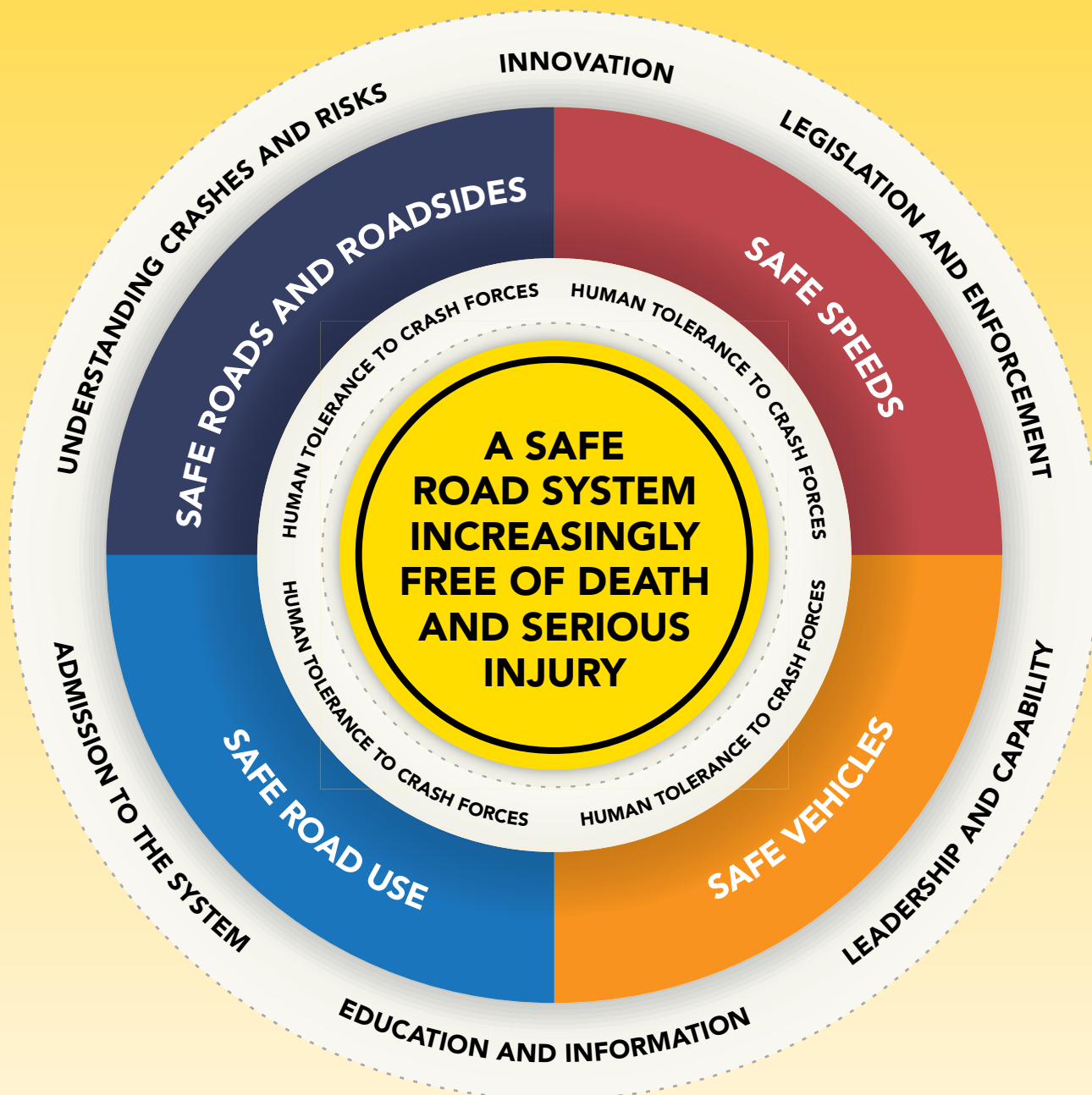


Source: Ministry of Transport.

KiwiRAP is focused on making roads and roadsides safer through investigating where the higher risk roads are, and how the safety of those roads can be improved. Following this, the NZ Transport Agency can use the data to help guide its approach to state highway safety improvements, to reduce the number of deaths and serious injuries.

The safe road system

Road safety can be considered through a Safe System approach. This looks at the entire road system: roads and roadsides, speeds, vehicles and road use.



To effectively increase road safety requires improvements in all four elements of the system: safer drivers in safer vehicles on safer roads, travelling at safe speeds. Reasonably objective and accepted measures are currently available to help define what constitutes a 'safe driver' and a 'safe vehicle'.

Safe road users are skilled and competent, alert and unimpaired. They comply with road rules, take steps to improve safety, and demand and expect safety improvements.

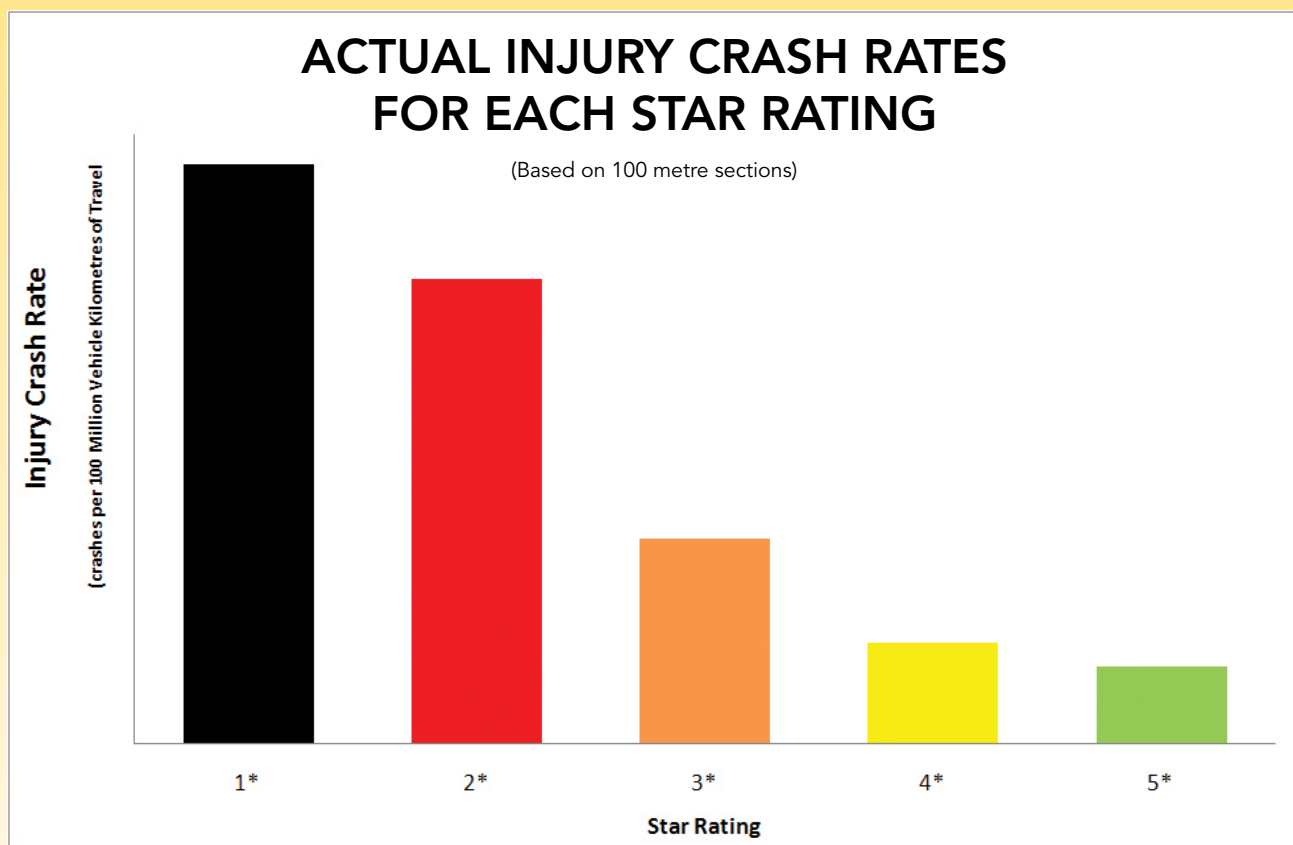
Safe vehicles equipped with additional safety features—such as electronic stability control – prevent crashes and protect road users, including pedestrians and cyclists, in the event of a crash.

Similar to KiwiRAP’s assessment of the road and roadsides, the Australasian New Car Assessment Programme (ANCAP) crash-tests vehicles and assigns a Star Rating out of five – the more ANCAP stars, the safer the vehicle.

Safe speeds suit the function and the road’s level of safety, taking into consideration other factors such as weather conditions. Drivers understand and comply with the speed limits and drive to the conditions.

KiwiRAP provides a systematic and internationally recognised way of measuring what constitutes a safe road. By giving New Zealand’s roads a safety rating, KiwiRAP will be able to communicate the risk of death and injury more meaningfully. It will help drivers understand how risk can vary according to changes in the road environment. A risk-aware driver will be more likely to adapt their driving to reduce their risk of being involved in a crash.

The following graph shows the crash rate per 100 million vehicle kilometres travelled within each Star Rating on New Zealand roads. The greatest difference in crash rate is between the 2-star and 3-star rating. The 5-star crash rate shown is based on the expected crash rate.



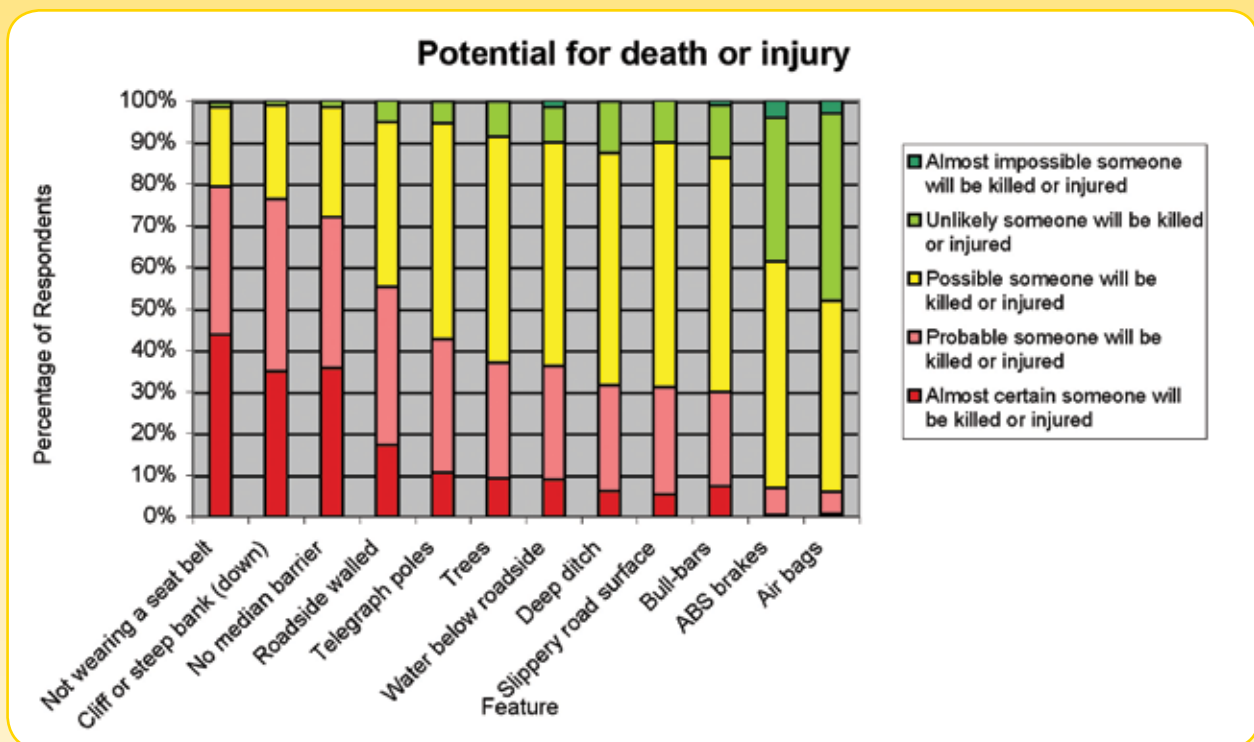
What do drivers think about road engineering?

In July 2007, the NZAA Member Opinion Survey included a series of questions to measure how motorists assessed different hazards or road safety features.

Survey respondents were presented with photographs picturing different roads and were asked to mark on a scale how safe or dangerous they thought the roads were.

Respondents were able to identify that a road with a median barrier was safer and that a road with a cliff or steep bank was more dangerous. However, respondents did not consider roads with roadside hazards such as ditches or poles as dangerous.

This lack of knowledge was reinforced when respondents were asked to imagine a situation where they were driving and lost control of a medium sized car on an open road at 70 km/h. They were asked to identify the likelihood of someone in their vehicle being killed or injured due to the existence (or absence) of a number of features. The survey results are illustrated in the graph below.



The benefits of wearing a safety belt are obviously well known, with almost 80% of respondents marking it either almost certain or probable that someone would be killed or injured by not wearing a seatbelt.

The dangers of a cliff or a steep bank were also identified, with 75% of respondents thinking that a cliff or steep bank would mean it was probable or almost certain that someone would be killed or injured. In contrast, roadside hazards such as deep ditches and trees were recognised by few respondents. In fact, around 12% of respondents thought it would be almost impossible or unlikely someone would be killed or injured by a deep ditch.

Crash statistics show that 50% of rural and 28% of urban accidents in New Zealand involve a roadside hazard and the majority of these are 'single vehicle loss of control' crashes. Major hazard types are upright cliff banks, ditches, trees and poles, with water bodies and trees contributing to particularly severe crash outcomes.

How can engineering make our roads safer?

Road crashes are almost always multi-factor events involving the driver, vehicle and/or the environment, including the road. There are many elements of the road that contribute to safety outcomes. These include road width, alignment, the presence of and type of intersections, and roadside hazards such as trees, poles and ditches.

In the past, road safety has focused on the road user through enforcement and education. It is still crucial that we enforce safe limits on the road system.

However, it is also recognised that whatever we do to make drivers more alert, law abiding and competent, some will still make mistakes. They should not, however, have to suffer unnecessarily harsh crash outcomes, such as serious injury or death. We must work on designing and operating a road network that is more forgiving and protecting of driver mistakes and crashes.

By re-designing roads to make them safer, we can reduce both the number of crashes that happen and the severity of those that do occur. All risk cannot be eliminated through infrastructure and vehicle safety improvements alone. Drivers must always share responsibility for a safe road system.

Engineering measures can influence the messages we receive as drivers by making a road more 'self-explaining'. Ideally, each type of road should have a recognisable and distinctive set of self-explaining features such as signage, lane width, road markings and speed limits. This ensures roads are predictable so that road users can expect particular safety features on each type of road.

To reduce the consequences of those crashes that do occur, roads can also be made more forgiving. Examples of specific road environment treatments, their potential effect on the four main crash types, and their relative costs are provided in the following table.



Potential Reductions (%) in Various Injury Crash Types

TREATMENT		HEAD-ON CRASHES	RUN-OFF ROAD	INTERSECTION CRASHES	RELATIVE COST
Road signs and delineation		25-40	25-40	25-40	\$
Rumble strips		10-25	10-25		\$-\$\$
Central median hatching		10-25			\$
Speed reduction (per 10km/h)		15-40	15-40	15-40	\$
Dedicated lanes for turning traffic				25-40	\$-\$\$
Removal of roadside objects			25-40		\$\$
Roadside barriers			25-40		\$\$
Shoulder sealing		25-40	25-40		\$\$
Intersection - roundabout				60+	\$\$ - \$\$\$
Straighten our curvy roads		25-40	25-40		\$\$\$
Overtaking lanes		10-25	10-25		\$\$\$
Divided roads and/or median barriers		40-60	40-60		\$\$\$
Intersection - grade separation				40-60	\$

NOTE: The effect of combined treatments is not cumulative, as various treatments are often targeting the same types of crashes.

This table has been prepared with the assistance of the iRAP Road Safety Toolkit <http://toolkit.irap.org/>

KEY

- \$ Less than \$50,000 per km or low cost
- \$\$ \$50,000 to \$500,000 per km or medium cost
- \$\$\$ Greater than \$500,000 per km or high cost

What should drivers do when on a stretch of road with a low star rating?

Drivers must always take care regardless of the road they are driving on. It is always important for drivers to adapt their driving to respond to the conditions they face on any stretch of road.

Roads that have been highlighted in this report as being least safe are likely to have unique reasons for why they have low safety ratings. Drivers must consider what the contributing factors are that make a particular stretch of road less safe. This will assist drivers in deciding how best to respond to the conditions of the road and environment—remembering that the road, vehicle speed and driver each contribute to a safe road system.

Variables to always keep in mind when driving, especially on roads with a lower Star Rating, include:

The Road

Because roadside features - such as trees and ditches - can be unforgiving in an accident, this can make a section of road less safe.

Drivers and passengers face an increased risk of a head-on crash when travelling on undivided roads, particularly if these roads have high traffic flows.

Roads with a high number of connecting intersections also increase risk, as traffic travelling at different speeds merge and cross.

Removing roadside hazards, and introducing engineering features such as guardrails and median barriers, can make a section of road more forgiving - and safer - in an accident.

Speed

A reduced speed is required on winding roads, sharp corners, steep gradients and gravel surfaces. As road conditions worsen, drivers need to reduce their speed so that they remain in control.

The Weather

Rain instantly reduces tyre grip. When driving too fast on a section of road with ice, it is very easy to lose control. Wind gusts can side-swipe a vehicle unexpectedly, while sun glare or fog can blind a driver.

Drivers need to drive to the conditions and alter speed in poor weather. If weather conditions make safe driving challenging, drivers should consider rescheduling their journey, and travel only if it is really necessary.

The Traffic

Peak hour, holidays or special events can impact traffic flow. Drivers need to adjust to the reduced flow, avoid risky overtaking and keep a safe following distance. There are situations when travelling at the speed limit is simply not the safe option. A reduced speed may be necessary.

The Unexpected

Children stepping out without looking, heavy vehicles pulling onto the road, livestock and road works can be an unexpected surprise. It is up to drivers to be vigilant and to reduce speed so there is time to react safely should the unexpected happen.

The Vehicle

Drivers and owners of any vehicle must ensure the vehicle is in sound condition and ready for safe travel. This includes:

This includes:

- **Warrant of Fitness:** Always ensure it is current; however, do not rely solely on a WoF as a guide to the vehicle's current road worthiness
- **Tyres:** Regularly check all tyres (including the spare) for correct pressure and required tread
- **Lights:** Check often, as it is difficult to know if a light bulb has blown
- **Windscreen wipers:** Replace when worn, so they remain fit to effectively clean the windscreen
- **Windows and mirrors:** Keep them clean. A dirty windscreen can make it difficult for the driver to see clearly when hit with sun glare or oncoming headlights
- **ANCAP Safety Ratings:** Drivers should be encouraged to buy vehicles with good ANCAP safety ratings and features such as electronic stability control.

The Driver

Fatigue and sleepiness are a potential major hazard. Drivers should schedule a break at least once every two hours, or whenever they begin to feel sleepy.


Drivers are recommended to find the safest place to pull over, and preferably get out of the vehicle for a break. Taking a walk or trying some other form of exercise can help increase alertness.

A break may also entail a nap in the driver's seat. A nap for up to 40 minutes can be refreshing; however, any longer can leave a driver feeling groggy and disoriented for up to 10 to 15 minutes after waking up. Prior to taking a nap, drivers should lock the doors and windows and even phone someone to let them know where they are.

Remember, a nap is not as regenerative as a good night's sleep. A rested and alert driver can adjust better to the conditions as well as the errors of other drivers. If a driver has any doubts, they should not drive.

No matter whether the trip is long or short, drivers need to be objective about their fitness to drive. If they do not feel up to it, the trip should be postponed or someone else should take over the driving responsibility.

Driving requires a high level of concentration and focus, so drivers need to minimise distracting activities such as eating or tuning the radio to another station.



Drivers must constantly be aware of the environment - road, weather and other drivers - and this may include searching for a possible escape route to avoid a head-on collision with an oncoming vehicle. Distractions will hinder that process.

How does KiwiRAP star rate roads for safety?

Star Rating a road is a proactive approach to road safety. It enables sections of road with a relatively high level of risk to be identified before a crash occurs.

The degree of risk, or just how safe a road is, depends to an extent on whether built-in safety features have been incorporated into the road's design. These include wide lanes, shoulders, and

safety barriers which are known to reduce the impact and severity of a crash.

The safest roads are likely to be straight, divided, have good line-markings, wide lanes and sealed shoulders. Roadsides with no trees or ditches, and roads with few, if any, intersections are also deemed safer.



Comparatively, single or narrow lanes, undivided roads and unsealed shoulders are deemed the least safe. Tight curves in mountainous terrain, poor line markings and unforgiving roadside features such as trees, power poles and ditches also form part of the 'least safe roads' list.

Based on inspection of various design elements, the Star Rating provides an evaluation of the impact and severity those elements would have in a crash scenario. This approach to road safety assessment has rapidly spread internationally with 60 countries taking up the iRAP assessment programmes. iRAP provides technical support to all countries that are part of the iRAP programme.

How is data collected?

The KiwiRAP Star Ratings are the result of a thorough visual inspection of New Zealand's roads and road design elements.

Using a vehicle specially equipped with five cameras, digital images of New Zealand's

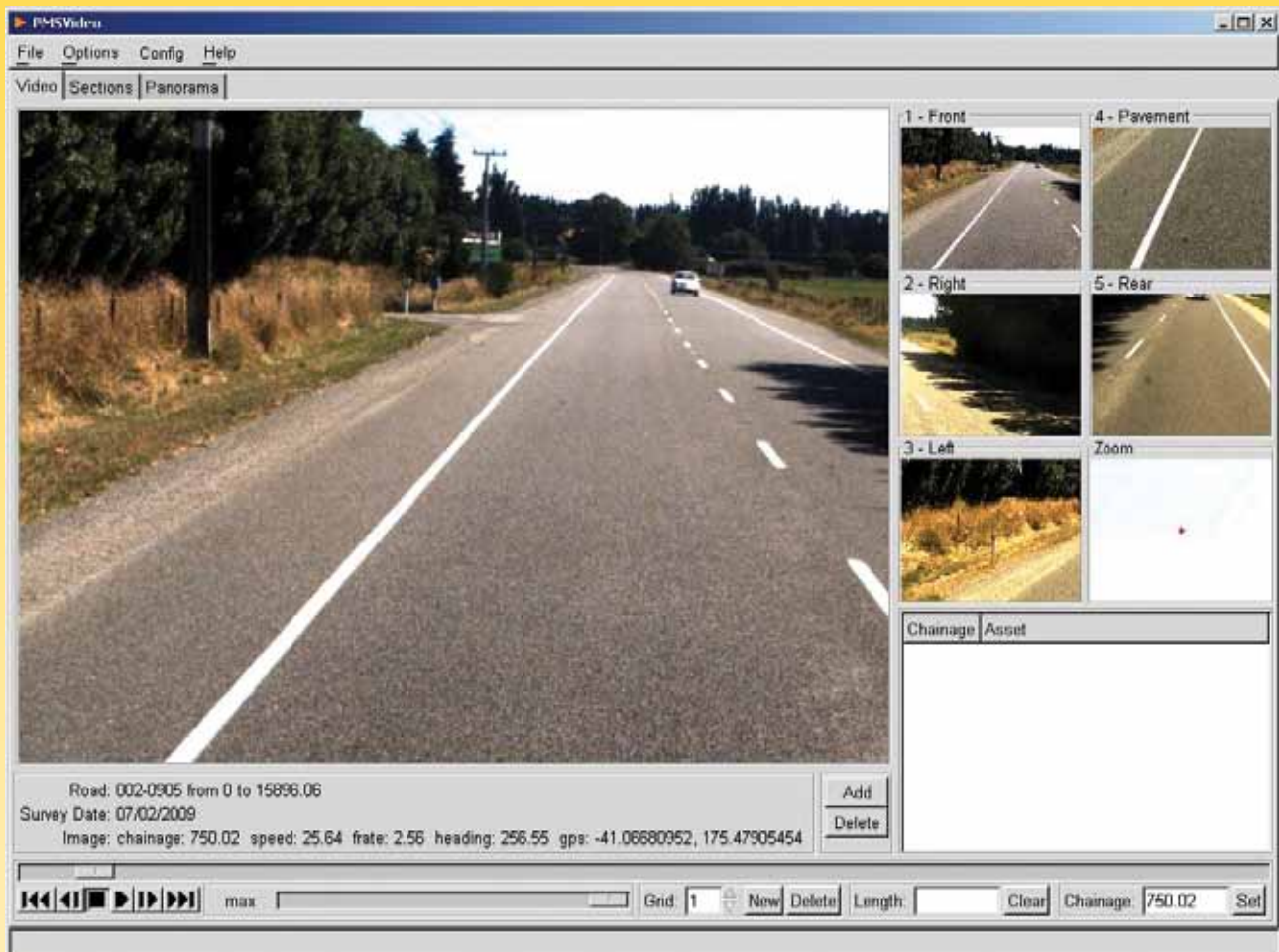
roads were recorded at 100 metre intervals. Each of the five cameras - a forward camera, rear camera, left camera, right camera and pavement camera - were aligned to film views of the road and its surrounding environment.



Digital images were then streamed together to form a video of the road. Skilled analysts inspected the footage by taking a 'virtual' drive-through of the

road network. This virtual testing was completed at highway speed or on a frame-by-frame basis, depending on the complexity of the road.

Computer screen showing the five camera views



The software used by the analysts enabled accurate measurement of elements such as lane widths, and the distance between the road edge and fixed hazards such as trees and power poles.

For divided roads, each carriageway was rated separately. The rated data was supplemented with several other model data sets (horizontal alignment, sight distance, overtaking opportunities, speed

environment and terrain) obtained automatically off-line from New Zealand speed data sets calculated at 10 metre intervals.

Importing the resulting composite data into the KiwiRAP software for analysis, calculations were then made of the Road Protection Score (RPS) over 100 metres and Star Ratings over five kilometre segments.

Which road elements are inspected?

Extensive research has highlighted the design elements most likely to influence the occurrence of road crashes - and the severity of those incidents.

The Star Rating approach focuses on the elements influencing the three most common and severe types of crashes on New Zealand's rural state highways.

1. Run-off road crashes (which account for over 50% of all crashes)
2. Head-on crashes
3. Crashes at intersections

Together, these three crash types account for over 80% of all fatal and serious injury crashes on our rural roads.

The Star Rating system looks at not just the design and engineering elements of the road itself, but also any intersecting road that meets with it. Road elements can include:

- Road section type (motorway, four lane divided, two lane undivided, etc)
- Lane width
- Sealed shoulder
- Horizontal alignment*
- Terrain*
- Delineation
- Overtaking provision
- Overtaking requirements*
- Speed environment*
- Offset and severity of roadside hazards
- Traffic volume.

* These elements have been measured using NZ Transport Agency database information, rather than information sourced from the video.



KiwiRAP Star Rating tool

MIDBLOCK FORM

This screen enables analysts to categorise road section attributes including:

- Whether it is divided or undivided
- Lane width
- Width of sealed shoulders
- Speed limit
- Delineation - and more.

INTERSECTION FORM

The Intersection Form enables intersections to be individually assessed, breaking down features - such as signage, railway crossings, street lighting - that may be found at an intersection.

Intersection elements:

- Intersection type (grade separated, three leg, T-junction etc)
- Volume of traffic on side road*
- Alignment of legs
- Sight distance
- Right turn provision
- Left turn provision
- Speed environment (of through road).

* This element has been measured using NZ Transport Agency database information, rather than information sourced from the video.

Road Protection Score

Star Ratings are derived from a Road Protection Score (RPS); this risk score is determined via evaluation of each of the road's design elements. For example, the risk of being involved in a crash on a road with no sealed shoulders is greater than on a road with wide sealed shoulders of 1.2 metres or more.

Using the three primary crash types (run-off road crashes, head-on crashes and intersection crashes), the RPS is calculated for every 100 metre section of road.

Star Ratings have been presented in map form and tables in this report. Since risk scores and therefore

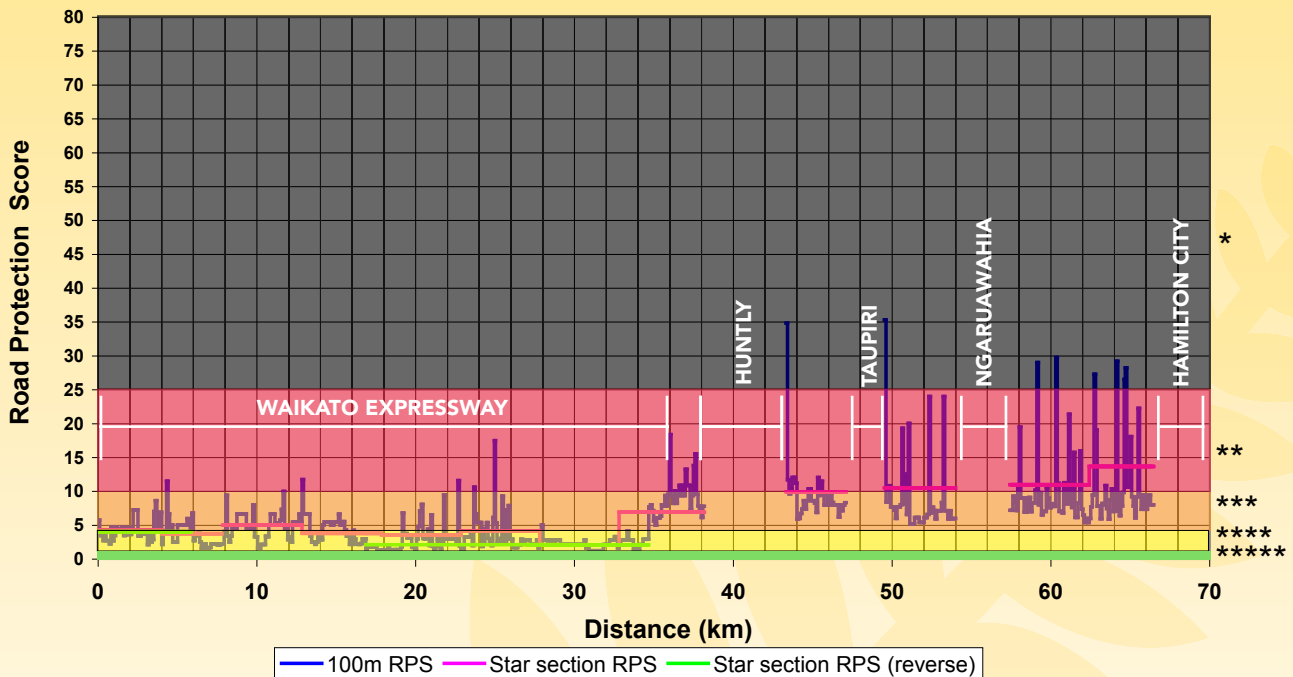
Star Ratings, often fluctuate over a given length of road, the predominant Star Rating is assigned to each given section of road.

The Risk Worm graph below shows a 70 kilometre stretch of road from Bombay, south of Auckland, to Hamilton. The blue line denotes the 100 metre sections and the pink line shows the predominant Star Rating for each five-kilometre segment.

The graph shows that the first 30 kilometres of road is rating highly with a predominately 4-Star Rating. However, from 32 kilometres through to the 70 kilometre mark, this falls to a 3-Star and then poor 2-Star Rating.

RISK WORM: STATE HIGHWAY 1 – BOMBAY TO HAMILTON

Road Protection Score - SH1N
(Waikato Region Northern Boundary to Hamilton)



The Road Protection Score rating bands in the table over page describe the typical features found within each Star Rating.

Road Protection Score

STAR RATING BANDS

Rating scale	DESCRIPTION OF FEATURES	
	DIVIDED ROAD	UNDIVIDED ROAD
5-star *****	Straight with good line marking, wide lanes and sealed shoulders, safe roadsides and occasional grade separated intersections. Roads with a local, minor or major at-grade intersection cannot achieve a 5-Star Rating.	No undivided road can achieve a 5-Star Rating.
4-star ****	Deficiencies in some road features such as lane width, shoulder width or roadside hazards.	Straight with good overtaking provision, good line marking and safe roadsides. Such a road will not achieve a 4-Star Rating if it has high traffic volumes.
3-star ***	Major deficiencies in some road features. These may include poor median protection against head-on crashes, many minor deficiencies and /or poorly designed intersections at regular intervals.	Deficiencies in some road features such as alignment, roadsides, and /or poorly designed intersections at regular intervals.
2-star **	Many major deficiencies such as poor alignment, poor roadside conditions and median protection, and poorly designed intersections at regular intervals.	Major deficiencies in some 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
1-star *	Poor alignment, in mountainous terrain, narrow lanes, narrow shoulders, severe roadside conditions and many major intersections.	Poor alignment, in mountainous terrain, narrow lanes, sealed shoulders, poor line markings and severe roadsides conditions.

Examples of Star Ratings

The following images show what 1, 2, 3, 4 or 5-Star roads may look like. They also explain why that particular stretch of road has been allocated its Star Rating.

5-Star Rating



Linear: 01N-0398102.13-D Spatial (NZTM): 2650103 E, 6005020 N Surveyed 20/01/2006

SH1, Auckland Northern Motorway

Good Horizontal Alignment
(risk score of 1 out of 6)

Negligible Roadside Hazard Risk

Divided, Multi-lane

Good Sealed Shoulder Width
(1.7 - 2.4m)

4-Star Rating



Linear: 009-01150078-1 Spatial (NZTM): 2529240 E, 5089400 N Surveyed 22/03/2006

SH6, north of Nelson

Adequate Horizontal Alignment
(risk score of 1 out of 6)

Minor/Negligible Roadside Hazard Risk

Adequate Shoulder Width
(1.7 - 2.4m)

Divided, Multi-lane

4-Star Rating



Good Horizontal Alignment
(risk score of 2 out of 6)

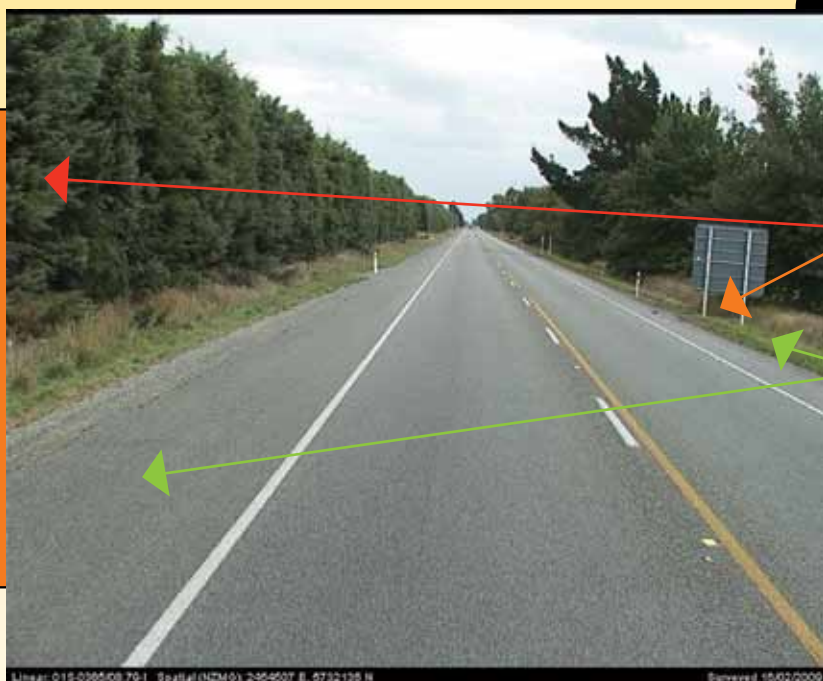
Negligible Roadside Hazard Risk

Poor Sealed Shoulder Width
(0.6 - 1.2m)

Good overtaking provision with high sight distance and low volume

SH7, Culverden Straight

3-Star Rating



Good Horizontal Alignment
(risk score of 1 out of 6)

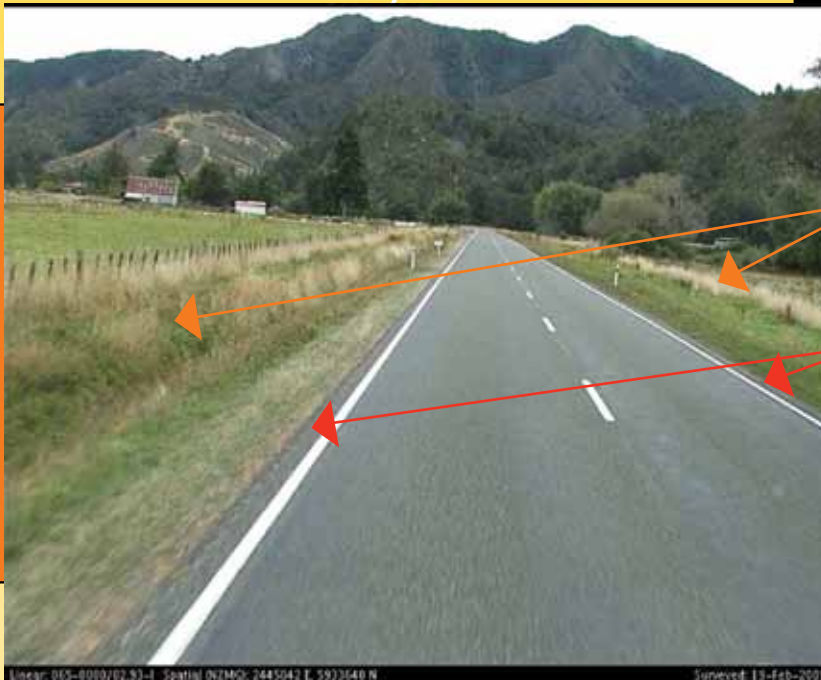
Moderate/Severe Hazard Risk

Good Sealed Shoulder Width
(1.7 - 2.4m)

Poor overtaking provision as high traffic volume provides no opportunities

SH1S, south of Christchurch

3-Star Rating



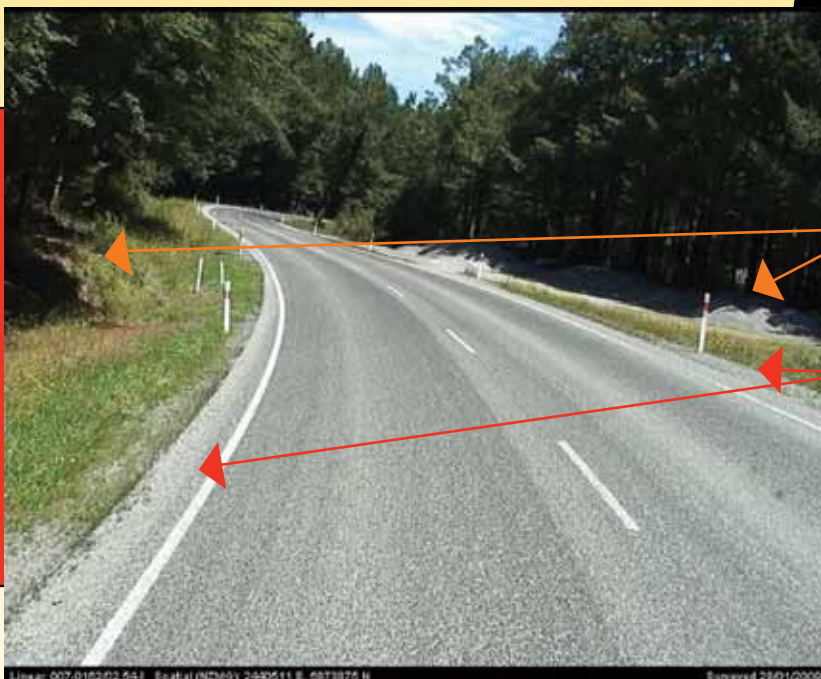
SH65, south of Murchison

Good Horizontal Alignment
(risk score of 1 out of 6)

Moderate Roadside Hazard Risk

Poor Sealed Shoulder Width
($<0.6\text{m}$)

2-Star Rating
**



SH7, west of Springs Junction

Poor Horizontal Alignment
(risk score of 5 out of 6)

Moderate Roadside Hazard Risk

Poor Sealed Shoulder Width
($<0.6\text{m}$)

Examples of Star Ratings

CONTINUED...

2-Star Rating
**



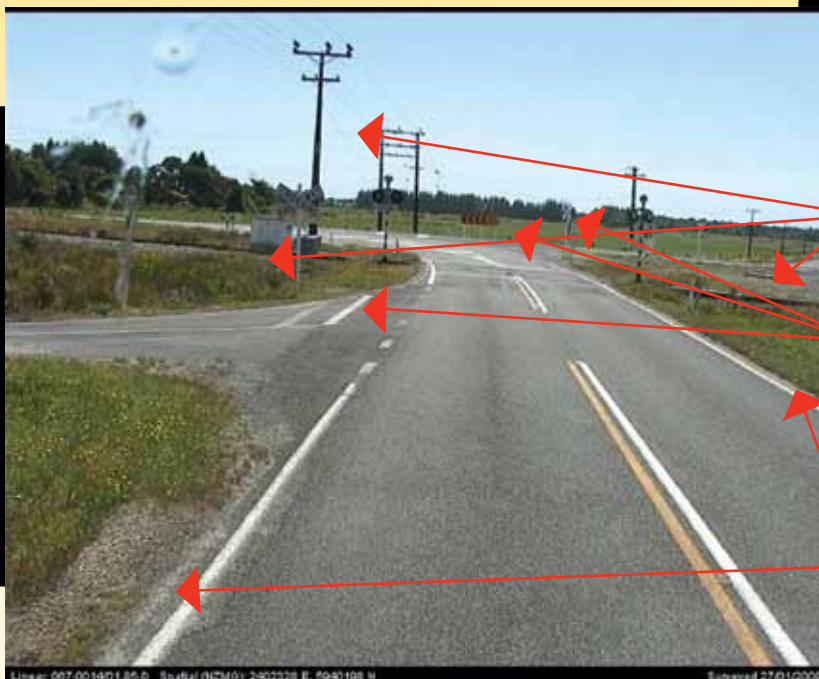
Severe
Roadside
Hazard Risk

Good Horizontal
Alignment
(risk score of
2 out of 6)

Poor Sealed
Shoulder Width
($<0.6\text{m}$)

SH2, Napier to Hastings

1-Star Rating
*



Poor Horizontal
Alignment
(risk score of
6 out of 6)

Severe Roadside
Hazard Risk

Multiple (3) poor
intersections
(rail crossing are
intersections for
KiwiRAP)

Poor Shoulder
Width ($<0.6\text{m}$)

SH67, north of Westport

Summary of results

This table shows the Star Rating results for each of the 15 regions. The results illustrate what percentage of the rural state highway network fall within each of the 5-Star Rating bands.

Of the 10,002 kilometres assessed:

- 39% rated 2-Star
- 56% rated 3-Star
- 5% rated 4-Star

There are no 1-Star or 5-Star roads over a five-kilometre length.

DISTRIBUTION OF STAR RATINGS

Region	Length (km)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
Northland	656	0%	36%	64%	0%	0%
Auckland	399	0%	28%	8%	64%	0%
Waikato	1,560	0%	39%	58%	3%	0%
Bay of Plenty	663	0%	42%	56%	2%	0%
Gisborne	311	0%	54%	46%	0%	0%
Hawkes Bay	452	0%	43%	57%	0%	0%
Taranaki	749	0%	59%	40%	1%	0%
Manawatu-Wanganui	445	0%	49%	51%	0%	0%
Wellington	239	0%	26%	38%	36%	0%
Nelson/Tasman	353	0%	43%	54%	3%	0%
Marlborough	241	0%	47%	53%	0%	0%
Canterbury	1,186	0%	26%	71%	3%	0%
West Coast	818	0%	50%	51%	0%	0%
Otago	1,217	0%	30%	69%	1%	0%
Southland	713	0%	37%	63%	0%	0%
New Zealand	10,002	0%	39%	56%	5%	0%

Percentages may not add up to 100% due to rounding.

This table shows the Star Ratings for each of the 15 regions based on vehicle kilometres travelled. Of the 10,002 kilometres assessed, 33% of annual vehicle kilometres travelled is on 2-Star roads; 40% on 3-Star roads; and approximately 28% on 4-Star roads.

PROPORTION OF VEHICLE KILOMETRES TRAVELLED IN EACH STAR RATING, BY REGION

Region	VKT (x10 ⁸ VKT/year)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
Northland	7.73	0%	35%	65%	0%	0%
Auckland	35.59	0%	9%	3%	88%	0%
Waikato	25.19	0%	38%	55%	7%	0%
Bay of Plenty	10.91	0%	51%	45%	5%	0%
Gisborne	1.42	0%	57%	43%	0%	0%
Hawkes Bay	5.62	0%	33%	67%	0%	0%
Taranaki	6.75	0%	62%	37%	1%	0%
Manawatu-Wanganui	8.77	0%	50%	50%	0%	0%
Wellington	13.24	0%	16%	31%	53%	0%
Nelson/Tasman	3.49	0%	58%	28%	14%	0%
Marlborough	2.56	0%	63%	37%	0%	0%
Canterbury	15.61	0%	34%	61%	6%	0%
West Coast	3.48	0%	54%	46%	0%	0%
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%

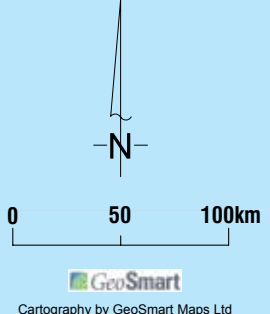
Percentages may not add up to 100% due to rounding.



Snapshot of key safety features, by region

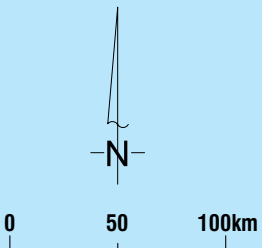
The reported attribute statistics are based on 100 metre road section data. The sum of the individual region's values may not add up to the total due to rounding to the nearest whole number.

Region	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
Northland	683	0.1%	63.1%	15.5%	89.5%	10.4%	94.6%	1 every 2-km
Auckland	429	65.1%	80.6%	52.4%	97.6%	42.8%	99.3%	1 every 1-km
Waikato	1,585	2.6%	57.3%	15.5%	80.5%	14.1%	83.7%	1 every 2-km
Bay of Plenty	680	3.0%	65.8%	19.4%	96.7%	19.9%	98.1%	1 every 2-km
Gisborne	313	0.0%	55.2%	16.0%	100.0%	0.8%	99.6%	1 every 2-km
Hawkes Bay	475	2.1%	69.0%	20.5%	100.0%	6.9%	94.6%	1 every 2-km
Taranaki	766	0.0%	67.4%	14.0%	98.9%	8.3%	79.2%	1 every 2-km
Manawatu-Wanganui	450	0.0%	82.4%	24.5%	99.9%	23.6%	97.3%	1 every 1-km
Wellington	246	43.5%	78.5%	43.3%	99.8%	42.3%	99.5%	1 every 1-km
Nelson/Tasman	356	1.6%	61.5%	18.7%	100.0%	11.5%	97.2%	1 every 2-km
Marlborough	241	0.0%	75.8%	19.8%	100.0%	13.8%	98.8%	1 every 2-km
Canterbury	1,202	1.7%	80.8%	31.8%	100.0%	12.9%	99.3%	1 every 2-km
West Coast	826	0.0%	65.8%	7.8%	100.0%	1.5%	94.4%	1 every 4-km
Otago	1,220	1.4%	77.6%	15.4%	100.0%	5.4%	98.0%	1 every 2-km
Southland	713	0.0%	81.8%	10.8%	100.0%	5.5%	93.6%	1 every 2-km
New Zealand	10,187	5.0%	72.1%	20.3%	98.2%	13.1%	95.9%	1 every 2-km



NORTH ISLAND





GeoSmart

Cartography by GeoSmart Maps Ltd

RATING KEY

- ****
- *****
- Not rated

SOUTH ISLAND

Northland

KiwiRAP has assessed 656 kilometres of the Northland rural state highway network. The Star Rated Northland state highways make up 7% of the New Zealand total and carry 5% of vehicle kilometres travelled.

STAR RATINGS BY STATE HIGHWAY

The following table shows the proportion of the Northland network in each Star band by state highway. Northland has no 1-Star, 4-Star or 5-Star state highway sections; 36% are rated 2-Star; and 64% are rated 3-Star.

Highway	Length (km)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
SH10	95	0%	33%	67%	0%	0%
SH11	22	0%	82%	19%	0%	0%
SH12	194	0%	43%	57%	0%	0%
SH14	47	0%	63%	37%	0%	0%
SH1N	291	0%	27%	73%	0%	0%
SH15A	8	0%	0%	100%	0%	0%
Total	656	0%	36%	64%	0%	0%

STAR RATINGS BY VEHICLE KILOMETRES TRAVELLED

Five per cent of New Zealand's annual vehicle kilometres travelled occurs on Northland state highways.

The following table shows the annual vehicle kilometres travelled on the Northland state highway network for each Star Rating.

Thirty five per cent of Northland's annual vehicle kilometres travelled is on 2-Star state highways; and 65% is on 3-Star state highways.

Region	VKT (x10 ⁸ VKT/year)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
Northland	7.73	0%	35%	65%	0%	0%
New Zealand	154.76	0%	33%	40%	28%	0%

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

SNAPSHOT OF KEY SAFETY FEATURES*

The following table provides a snapshot of the key safety features of the Northland state highway network. As the table below shows, only a small proportion of the network in this region (0.8-km in total length) is divided. Although the network has good delineation and wide lanes, only 10% has a sealed shoulder width of more than 1.2 metres; and only 16% has safe roadside conditions.

Highway	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
SH10	95	0.3%	63.7%	10.8%	93.3%	8.2%	99.8%	1 every 2-km
SH11	24	0.0%	52.6%	4.6%	97.7%	1.6%	99.6%	1 every 1-km
SH12	195	0.0%	60.4%	12.1%	100.0%	2.0%	88.7%	1 every 2-km
SH14	47	0.0%	56.9%	9.9%	100.0%	2.6%	98.5%	1 every 2-km
SH1N	314	0.1%	66.3%	20.0%	78.7%	16.1%	95.6%	1 every 2-km
SH15A	8	1.2%	67.5%	44.0%	100.0%	88.0%	95.2%	1 every 1-km
Total	683	0.1%	63.1%	15.5%	89.5%	10.4%	94.6%	1 every 2-km

* The reported attribute statistics are based on 100 metre road section data.

Auckland

KiwiRAP has assessed 399 kilometres of the Auckland state highway network. The Star Rated Auckland state highways are 4% of the New Zealand total and carry 23% of vehicle kilometres travelled.

STAR RATINGS BY STATE HIGHWAY

The following table shows the proportion of the Auckland network in each Star band by state highway. Auckland has no 1-Star or 5-Star state highway sections. Twenty eight per cent are rated 2-Star; 8% are rated 3-Star; and 64% are 4-Star.

Highway	Length (km)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
SH1N	218	0%	10%	7%	83%	0%
SH16	114	0%	60%	9%	32%	0%
SH17	15	0%	100%	0%	0%	0%
SH18	15	0%	0%	20%	80%	0%
SH20	23	0%	0%	0%	100%	0%
SH22	10	0%	50%	51%	0%	0%
SH20A	4	0%	0%	0%	100%	0%
Total	399	0%	28%	8%	64%	0%

STAR RATINGS BY VEHICLE KILOMETRES TRAVELLED

Twenty three per cent of New Zealand's annual vehicle kilometres travelled occurs on Auckland state highways.

The following table shows the annual vehicle kilometres travelled on the Auckland state highway network for each Star Rating.

Nine per cent of Auckland's annual vehicle kilometres travelled is on 2-Star state highways; 3% is on 3-Star; and 88% is on 4-Star state highways.

Region	VKT (x10 ⁸ VKT/year)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
Auckland	35.59	0%	9%	3%	88%	0%
New Zealand	154.76	0%	33%	40%	28%	0%

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

SNAPSHOT OF KEY SAFETY FEATURES

The following table provides a snapshot of the key safety features of the Northland state highway network. As the table below shows, only a small proportion of the network in this region (0.8 km in total length) is divided. Although the network has good delineation and wide lanes, only 10% has a sealed shoulder width of more than 1.2 metres; and only 16% has safe roadside conditions.

Highway	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
SH1A*	8	100.0%	0.0%	84.0%	0.0%	100.0%	100.0%	None
SH1N	229	80.5%	88.6%	62.6%	100.0%	48.0%	99.3%	1 every 1-km
SH16	114	31.5%	70.1%	32.2%	100.0%	16.2%	99.0%	1 every 1-km
SH17	18	18.1%	69.5%	8.2%	100.0%	31.6%	100.0%	1 every 1-km
SH18	15	92.0%	96.0%	76.7%	100.0%	78.7%	100.0%	1 every 1-km
SH20	25	100.0%	96.1%	71.9%	100.0%	44.3%	100.0%	1 every 1-km
SH22	11	8.8%	64.5%	22.4%	83.9%	85.1%	99.1%	1 every 1-km
SH20A	8	100.0%	74.8%	51.2%	100.0%	95.3%	100.0%	1 every 1-km
SH20B**	2	0.0%	78.8%	28.3%	100.0%	89.4%	100.0%	1 every .5-km
Total	429	65.1%	80.6%	52.4%	97.6%	42.8%	99.3%	1 every 1-km

*Highway 1A: no RAMM data, so unable to provide Star Ratings.

**Highway 20B: only 1.8 km long, so no Star Rating provided.



NORTHLAND AND AUCKLAND

STAR RATING KEY



Waikato

KiwiRAP has assessed 1,560 kilometres of the Waikato state highway network. The Star Rated Waikato state highways are 16% of the New Zealand total and carry 16% of vehicle kilometres travelled.

STAR RATINGS BY STATE HIGHWAY

The following table shows the proportion of the Waikato network in each Star band by state highway. Waikato has no 1-Star or 5-Star state highway sections. Thirty nine per cent is rated 2-Star; 58% is rated 3-Star; and 3% is rated 4-Star.

Highway	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%

STAR RATINGS BY VEHICLE KILOMETRES TRAVELLED

Sixteen per cent of New Zealand's annual vehicle kilometres travelled occurs on Waikato state highways. The following table shows the annual vehicle kilometres travelled on the Waikato state highway network for each Star Rating.

Thirty eight per cent of Waikato's annual vehicle kilometres travelled is on 2-Star state highways; 55% is on 3-Star; and 7% is on 4-Star state highways.

Region	VKT (x10 ⁸ 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%
New Zealand	154.76	0%	33%	40%	28%	0%

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

SNAPSHOT OF KEY SAFETY FEATURES

The following table provides a snapshot of the key safety features of the Waikato state highway network. Only 3% of the Waikato state highway network is divided, and 16% has safe roadside conditions. Nearly 84% has good delineation and 81% wide lanes; but only 14% has sealed shoulder width of more than 1.2 metres.

Highway	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

Bay of Plenty

KiwiRAP has assessed 663 kilometres of the Bay of Plenty state highway network. The Star Rated Bay of Plenty state highways are 7% of the New Zealand total and carry 7% of vehicle kilometres travelled.

STAR RATINGS BY STATE HIGHWAY

The following table shows the proportion of the Bay of Plenty network in each Star band by state highway. Bay of Plenty has no 1-Star or 5-Star state highway sections. Forty two per cent is rated 2-Star; 56% is rated 3-Star; and 2% rated 4-Star.

Highway	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%

STAR RATINGS BY VEHICLE KILOMETRES TRAVELLED

Seven per cent of New Zealand's annual vehicle kilometres travelled occurs on Bay of Plenty state highways. The following table shows the annual vehicle kilometres travelled on the Bay of Plenty state highway network for each Star Rating.

Fifty one per cent of Bay of Plenty's annual vehicle kilometres travelled is on 2-Star state highways; 45% is on 3-Star; and 5% is on 4-Star state highways.

Region	VKT (x10 ⁸ VKT/year)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
Bay of Plenty	10.91	0%	51%	45%	5%	0%
New Zealand	154.76	0%	33%	40%	28%	0%

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

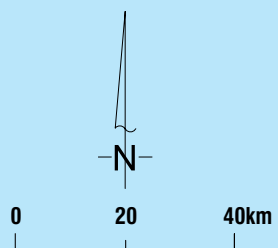
SNAPSHOT OF KEY SAFETY FEATURES

The following table provides a snapshot of the key safety features of the Bay of Plenty state highway network.

The network has good delineation and lanes are generally wide; however, only 3% is divided. Of this network, 20% has good sealed shoulder width of more than 1.2 metres; and 19% has safe roadside conditions.

Highway	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.



GeoSmart

Cartography by GeoSmart Maps Ltd

WAIKATO AND BAY OF PLENTY

STAR RATING KEY



Gisborne

KiwiRAP has assessed 311 kilometres of the Gisborne state highway network. The Star Rated Gisborne state highways are 3% of the New Zealand total and carry 1% of vehicle kilometres travelled.

STAR RATINGS BY STATE HIGHWAY

The following table shows the proportion of the Gisborne network in each Star band by state highway.

Gisborne has no 1-Star, 4-Star or 5-Star state highway sections. Fifty four per cent is rated 2-Star; and 46% is rated 3-Star.

Highway	Length (km)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
SH2	118	0%	44%	56%	0%	0%
SH35	193	0%	60%	40%	0%	0%
Total	311	0%	54%	46%	0%	0%

STAR RATINGS BY VEHICLE KILOMETRES TRAVELLED

Only 1% of New Zealand's annual vehicle kilometres travelled occurs on Gisborne state highways.

The following table shows the annual vehicle kilometres travelled on the Gisborne state highway network for each Star Rating.

Fifty seven per cent of Gisborne's annual vehicle kilometres travelled is on 2-Star state highways; and 43% is on 3-Star state highways.

Region	VKT (x10 ⁸ VKT/year)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
Gisborne	1.42	0%	57%	43%	0%	0%
New Zealand	154.76	0%	33%	40%	28%	0%

SNAPSHOT OF KEY SAFETY FEATURES

The following table provides a snapshot of the key safety features of the Gisborne state highway network. The network is undivided; less than 1% has good sealed shoulder width (more than 1.2 metres); and only 16% has safe roadside conditions. However, the assessed network has wide lanes and good delineation.

Highway	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	118	0.0%	63.1%	20.7%	100.0%	1.9%	99.8%	1 every 2-km
SH35	195	0.0%	50.4%	13.3%	100.0%	0.2%	99.5%	1 every 3-km
Total	313	0.0%	55.2%	16.0%	100.0%	0.8%	99.6%	1 every 2-km

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

Hawkes Bay

KiwiRAP has assessed 451 kilometres of the Hawkes Bay state highway network. The Star Rated Hawkes Bay state highways are 5% of the New Zealand total and carry nearly 4% of vehicle kilometres travelled.

STAR RATINGS BY STATE HIGHWAY

The following table shows the proportion of the Hawkes Bay network in each Star band by state highway.

Hawkes Bay has no 1-Star, 4-Star or 5-Star state highway sections. Forty three per cent is rated 2-Star; and 57% is rated 3-Star.

Highway	Length (km)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
SH2	235	0%	39%	61%	0%	0%
SH2B	4	0%	0%	100%	0%	0%
SH5	69	0%	35%	65%	0%	0%
SH38	40	0%	63%	37%	0%	0%
SH50	87	0%	54%	46%	0%	0%
SH50A	16	0%	35%	65%	0%	0%
Total	451	0%	43%	57%	0%	0%

STAR RATINGS BY VEHICLE KILOMETRES TRAVELLED

Four per cent of New Zealand's annual vehicle kilometres travelled occurs on Hawkes Bay state highways.

The following table shows the annual vehicle kilometres travelled on the Hawkes Bay state highway network for each Star Rating.

Thirty three per cent of Hawkes Bay's annual vehicle kilometres travelled is on 2-Star state highways; and 67% is on 3-Star state highways.

Region	VKT (x10 ⁸ VKT/year)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
Hawkes Bay	5.62	0%	33%	67%	0%	0%
New Zealand	154.76	0%	33%	40%	28%	0%

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

SNAPSHOT OF KEY SAFETY FEATURES

The following table provides a snapshot of the key safety features of the Hawkes Bay state highway network.

Only 2% of the rural network is divided; 7% has good sealed shoulder width (of more than 1.2 -metres); and 21% has safe roadside conditions. The assessed rural network has wide lanes and good delineation.

Highway	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	235	1.6%	68.3%	22.8%	100.0%	6.6%	99.2%	1 every 2-km
SH2B	4	9.9%	80.3%	52.3%	100.0%	34.1%	85.2%	1 every 2-km
SH5	69	0.0%	60.1%	13.8%	100.0%	1.7%	100.0%	1 every 2-km
SH38	62	0.0%	53.8%	8.3%	100.0%	0.0%	63.8%	1 every 3-km
SH50	87	5.5%	80.8%	21.8%	100.0%	4.0%	99.7%	1 every 2-km
SH50A	17	7.1%	85.6%	46.8%	100.0%	66.2%	96.2%	1 every 1-km
Total	475	2.1%	69.0%	20.5%	100.0%	6.9%	94.6%	1 every 2-km





GISBORNE AND HAWKES BAY

STAR RATING KEY

- *
- **
- ***
- ****
- *****
- Not rated

GeoSmart
Cartography by GeoSmart Maps Ltd

Taranaki

KiwiRAP has assessed 749 kilometres of the Taranaki state highway network. The Star Rated Taranaki state highways are 7% of the New Zealand total and carry 4% of vehicle kilometres travelled.

STAR RATINGS BY STATE HIGHWAY

The following table shows the proportion of the Taranaki network in each Star band by state highway.

Taranaki has no 1-Star or 5-Star state highway sections. Fifty nine per cent is rated 2-Star; 40% is rated 3-Star; and 1% rated 4-Star.

Highway	Length (km)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
SH1N	33	0%	0%	85%	15%	0%
SH3	201	0%	61%	39%	0%	0%
SH3A	15	0%	100%	0%	0%	0%
SH4	188	0%	40%	60%	0%	0%
SH41	23	0%	0%	100%	0%	0%
SH43	132	0%	97%	3%	0%	0%
SH45	91	0%	100%	0%	0%	0%
SH47	26	0%	0%	100%	0%	0%
SH48	6	0%	0%	100%	0%	0%
SH49	34	0%	29%	71%	0%	0%
Total	749	0%	59%	40%	1%	0%

STAR RATINGS BY VEHICLE KILOMETRES TRAVELLED

Four per cent of New Zealand's annual vehicle kilometres travelled occurs on Taranaki state highways.

The following table shows the annual vehicle kilometres travelled on the Taranaki state highway network for each Star Rating.

Sixty two per cent of Taranaki's annual vehicle kilometres travelled is on 2-Star state highways; 37% is on 3-Star; and 1% is on 4-Star state highways.

Region	VKT (x10 ⁸ VKT/year)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
Taranaki	6.75	0%	62%	37%	1%	0%
New Zealand	154.76	0%	33%	40%	28%	0%

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

SNAPSHOT OF KEY SAFETY FEATURES

The following table provides a snapshot of the key safety features of the Taranaki state highway network.

The network is undivided. Only 8% has good sealed shoulder width (of more than 1.2 metres); and 14% has safe roadside conditions. Nearly the entire network has wide lanes; and 79% has good delineation.

Highway	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
SH1N	33	0.0%	88.7%	44.3%	100.0%	24.1%	91.4%	1 every 7-km
SH3	206	0.0%	78.8%	15.6%	100.0%	19.4%	97.5%	1 every 1-km
SH3A	15	0.0%	92.7%	3.3%	100.0%	2.7%	88.7%	1 every 2-km
SH4	188	0.0%	61.7%	13.1%	95.6%	3.0%	87.1%	1 every 3-km
SH41	23	0.0%	56.0%	13.0%	100.0%	3.5%	96.0%	1 every 8-km
SH43	144	0.0%	33.9%	4.0%	100.0%	0.1%	16.7%	1 every 4-km
SH44*	0	NA	NA	NA	NA	NA	NA	NA
SH45	91	0.0%	79.8%	11.6%	100.0%	6.6%	97.6%	1 every 1-km
SH47	26	0.0%	90.2%	26.2%	100.0%	2.5%	96.5%	1 every 6-km
SH48	6	0.0%	94.8%	1.7%	100.0%	3.4%	100.0%	None
SH49	34	0.0%	81.2%	26.6%	100.0%	4.1%	97.4%	1 every 2-km
Total	766	0.0%	67.4%	14.0%	98.9%	8.3%	79.2%	1 every 2-km

*The entire length of highway 44 is urban and has not been assessed.

Manawatu-Wanganui

KiwiRAP has assessed 445 kilometres of the Manawatu-Wanganui state highway network. The Star Rated Manawatu-Wanganui state highways are 4% of the New Zealand total and carry 6% of vehicle kilometres travelled.

STAR RATINGS BY STATE HIGHWAY

The following table shows the proportion of the Manawatu-Wanganui network in each Star band by state highway.

Manawatu-Wanganui has no 1-Star, 4-Star or 5-Star state highway sections. Forty nine per cent is rated 2-Star; and 51% is rated 3-Star.

Highway	Length (km)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
SH1N	154	0%	27%	73%	0%	0%
SH2	92	0%	57%	43%	0%	0%
SH3	69	0%	58%	42%	0%	0%
SH54	51	0%	49%	51%	0%	0%
SH56	19	0%	53%	47%	0%	0%
SH57	59	0%	83%	17%	0%	0%
Total	445	0%	49%	51%	0%	0%

STAR RATINGS BY VEHICLE KILOMETRES TRAVELLED

Six per cent of New Zealand's annual vehicle kilometres travelled occurs on Manawatu-Wanganui state highways.

The following table shows the annual vehicle kilometres travelled on the Manawatu-Wanganui state highway network for each Star Rating.

Fifty per cent of Manawatu-Wanganui's annual vehicle kilometres travelled is on 2-Star state highways; and 50% is on 3-Star state highways.

Region	VKT (x10 ⁸ VKT/year)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
Manawatu-Wanganui	8.77	0%	50%	50%	0%	0%
New Zealand	154.76	0%	33%	40%	28%	0%

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

SNAPSHOT OF KEY SAFETY FEATURES

The following table provides a snapshot of the key safety features of the Manawatu-Wanganui state highway network.

The network is undivided. Twenty four per cent has good sealed shoulder width (of more than 1.2 metres); and 25% has safe roadside conditions. The network has wide lanes and good delineation.

Highway	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
SH1N	154	0.0%	88.8%	24.5%	100.0%	25.9%	96.7%	1 every 1-km
SH2	95	0.0%	80.0%	23.6%	100.0%	19.5%	95.7%	1 every 1-km
SH3	69	0.0%	78.4%	32.2%	100.0%	30.0%	98.5%	1 every 1-km
SH54	51	0.0%	76.4%	19.4%	98.8%	8.6%	99.0%	1 every 2-km
SH56	21	0.0%	87.2%	41.1%	100.0%	39.6%	99.1%	1 every 1-km
SH57	59	0.0%	77.4%	15.1%	100.0%	23.9%	98.0%	1 every 1-km
Total	450	0.0%	82.4%	24.5%	99.9%	23.6%	97.3%	1 every 1-km

Wellington

KiwiRAP has assessed 239 kilometres of the Wellington state highway network. The Star Rated Wellington state highways are 2% of the New Zealand total and carry 9% of vehicle kilometres travelled.

STAR RATINGS BY STATE HIGHWAY

The following table shows the proportion of the Wellington network in each Star band by state highway.

Wellington has no 1-Star or 5-Star state highway sections. Twenty six per cent is rated 2-Star; 38% rated 3-Star; and 36% rated as 4-Star.

Highway	Length (km)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
SH1N	97	0%	5%	34%	61%	0%
SH2	113	0%	29%	48%	23%	0%
SH53	16	0%	68%	32%	0%	0%
SH58	13	0%	100%	0%	0%	0%
Total	239	0%	26%	38%	36%	0%

STAR RATINGS BY VEHICLE KILOMETRES TRAVELLED

Nine per cent of New Zealand's annual vehicle kilometres travelled occurs on Wellington state highways.

The following table shows the annual vehicle kilometres travelled on the Wellington state highway network for each Star Rating.

Sixteen per cent of Wellington's annual vehicle kilometres travelled is on 2-Star state highways; 31% is on 3-Star; and 53% is on 4-Star state highways.

Region	VKT (x10 ⁸ VKT/year)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
Wellington	13.24	0%	16%	31%	53%	0%
New Zealand	154.76	0%	33%	40%	28%	0%

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

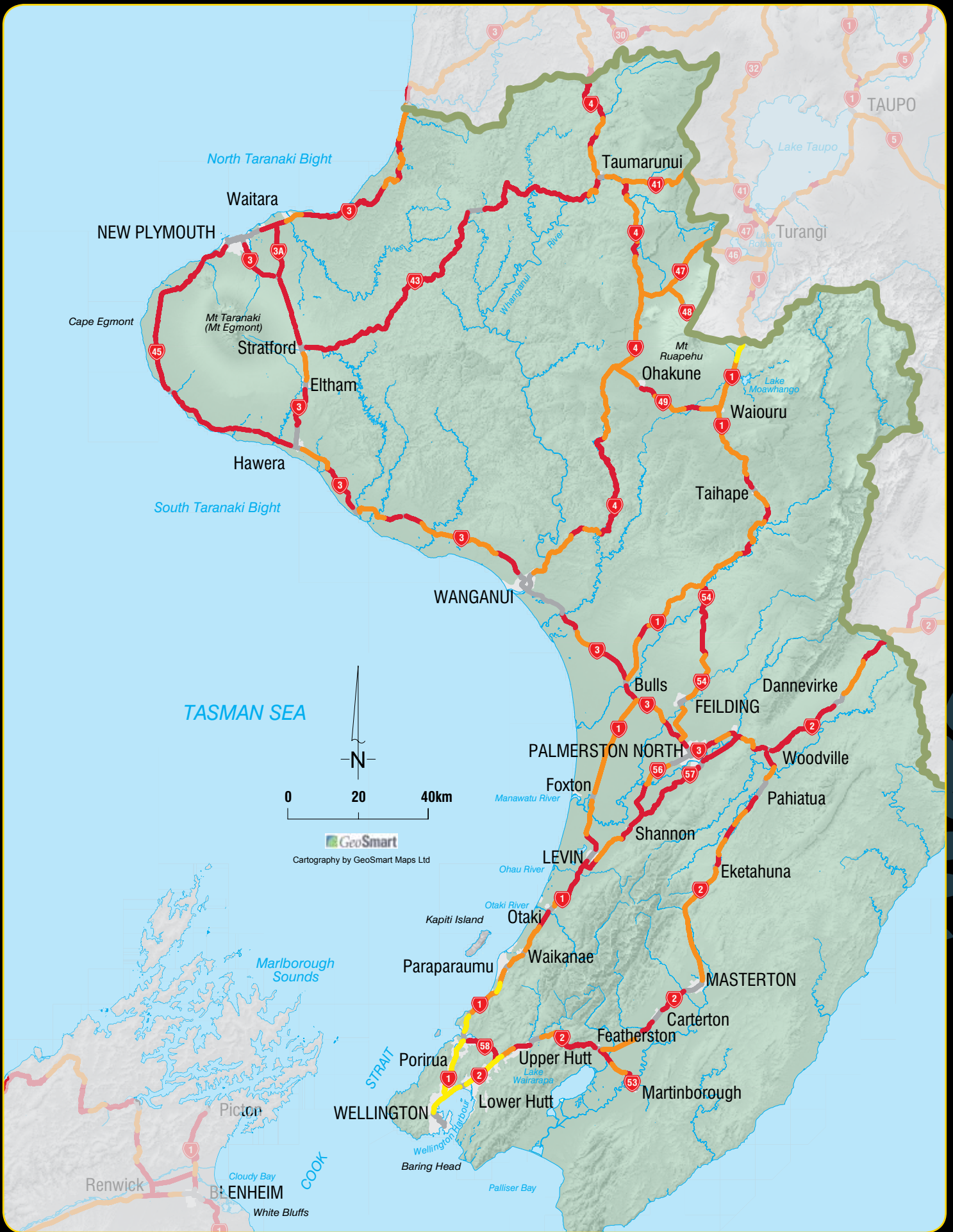
SNAPSHOT OF KEY SAFETY FEATURES

The following table provides a snapshot of the key safety features of the Wellington state highway network.

More than 43% of the Wellington state highway network is divided, and 43% has safe roadside conditions.

The state highways have good delineation and wide lanes; however, only 43% has sealed shoulder width of more than 1.2 metres.

Highway	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
SH1N	100	69.1%	80.0%	52.4%	100.0%	54.6%	100.0%	1 every 1-km
SH2	118	31.8%	80.6%	42.0%	100.0%	39.0%	99.0%	1 every 1-km
SH53	16	0.0%	78.7%	15.2%	96.8%	3.9%	100.0%	1 every 2-km
SH58	13	6.0%	49.3%	19.0%	100.0%	24.6%	100.0%	1 every 1-km
Total	246	43.5%	78.5%	43.3%	99.8%	42.3%	99.5%	1 every 1-km



**TARANAKI, MANAWATU
-WANGANUI AND
WELLINGTON**

STAR RATING KEY

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

Nelson/Tasman

KiwiRAP has assessed 353 kilometres of the Nelson/Tasman state highway network. The Star Rated Nelson/Tasman state highways are 4% of the New Zealand total and carry 2% of vehicle kilometres travelled.

STAR RATINGS BY STATE HIGHWAY

The following table shows the proportion of the Nelson/Tasman network in each Star band by state highway.

Nelson/Tasman has no 1-Star or 5-Star state highway sections. Forty three per cent is rated 2-Star; 54% rated 3-Star; and 3% rated as 4-Star.

Highway	Length (km)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
SH6	174	0%	28%	69%	4%	0%
SH60	101	0%	90%	10%	0%	0%
SH63	32	0%	42%	43%	16%	0%
SH65	46	0%	0%	100%	0%	0%
Total	353	0%	43%	54%	3%	0%

STAR RATINGS BY VEHICLE KILOMETRES TRAVELLED

Two per cent of New Zealand's annual vehicle kilometres travelled occurs on Nelson/Tasman state highways.

The following table shows the annual vehicle kilometres travelled on the Nelson/Tasman state highway network for each Star Rating.

Fifty eight per cent of Nelson/Tasman's annual vehicle kilometres travelled is on 2-Star state highways; 28% is on 3-Star; and 14% is on 4-Star state highways.

Region	VKT (x10 ⁸ VKT/year)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
Nelson/Tasman	3.49	0%	58%	28%	14%	0%
New Zealand	154.76	0%	33%	40%	28%	0%

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

SNAPSHOT OF KEY SAFETY FEATURES

The following table provides a snapshot of the key safety features of the Nelson/Tasman state highway network.

Less than 2% of the rural network is divided. Only 12% has good sealed shoulder width (of more than 1.2 metres); and 19% has safe roadside conditions. Pleasingly, lane widths are wide and delineation is generally good.

Highway	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
SH6	174	3.2%	62.1%	24.6%	100.0%	18.9%	96.6%	1 every 3-km
SH60	104	0.0%	58.9%	8.5%	100.0%	7.5%	97.4%	1 every 1-km
SH63	32	0.0%	68.3%	29.1%	100.0%	0.3%	98.1%	1 every 4-km
SH65	46	0.0%	60.4%	12.4%	100.0%	0.2%	98.3%	1 every 9-km
Total	356	1.6%	61.5%	18.7%	100.0%	11.5%	97.2%	1 every 2-km

Marlborough

KiwiRAP has assessed 241 kilometres of the Marlborough state highway network. The Star Rated Marlborough state highways are 2% of the New Zealand total and carry nearly 2% of vehicle kilometres travelled.

STAR RATINGS BY STATE HIGHWAY

The following table shows the proportion of the Marlborough network in each Star band by state highway.

Marlborough has no 1-Star, 4-Star or 5-Star state highway sections. Forty seven per cent is rated 2-Star; and 53% rated 3-Star.

Highway	Length (km)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
SH1S	81	0%	69%	31%	0%	0%
SH6	65	0%	60%	40%	0%	0%
SH62	13	0%	100%	0%	0%	0%
SH63	82	0%	6%	94%	0%	0%
Total	241	0%	47%	53%	0%	0%

STAR RATINGS BY VEHICLE KILOMETRES TRAVELLED

Two per cent of New Zealand's annual vehicle kilometres travelled occurs on Marlborough state highways.

The following table shows the annual vehicle kilometres travelled on the Marlborough state highway network for each Star Rating.

Sixty three per cent of Marlborough's annual vehicle kilometres travelled is on 2-Star state highways; and 37% is on 3-Star state highways.

Region	VKT (x10 ⁹ VKT/year)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
Marlborough	2.56	0%	63%	37%	0%	0%
New Zealand	154.76	0%	33%	40%	28%	0%

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

SNAPSHOT OF KEY SAFETY FEATURES

The following table provides a snapshot of the key safety features of the Marlborough state highway network.

The Marlborough state highway network is undivided and 20% has safe roadside conditions. The state highways have good delineation and wide lanes, but only 14% has sealed shoulder width of more than 1.2 metres.

Highway	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	81	0.0%	68.7%	12.8%	100.0%	14.7%	100.0%	1 every 2-km
SH6	65	0.0%	69.9%	15.2%	100.0%	17.9%	99.5%	1 every 2-km
SH62	13	0.0%	94.9%	19.1%	100.0%	52.2%	100.0%	1 every 1-km
SH63	82	0.0%	84.5%	30.6%	100.0%	3.8%	96.9%	1 every 4-km
Total	241	0.0%	75.8%	19.8%	100.0%	13.8%	98.8%	1 every 2-km

Canterbury

KiwiRAP has assessed 1,186 kilometres of the Canterbury state highway network. The Star Rated Canterbury state highways are 12% of the New Zealand total and carry 10% of vehicle kilometres travelled.

STAR RATINGS BY STATE HIGHWAY

The following table shows the proportion of the Canterbury network in each Star band by state highway.

Canterbury has no 1-Star or 5-Star state highway sections. Twenty six per cent is rated 2-Star; 71% rated 3-Star, and 3% rated as 4-Star.

Highway	Length (km)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
SH1S	416	0%	35%	61%	4%	0%
SH7	129	0%	4%	92%	4%	0%
SH7A	7	0%	49%	51%	0%	0%
SH8	154	0%	12%	85%	3%	0%
SH71	6	0%	100%	0%	0%	0%
SH73	133	0%	7%	90%	4%	0%
SH74	9	0%	0%	100%	0%	0%
SH75	65	0%	49%	51%	0%	0%
SH77	88	0%	27%	73%	0%	0%
SH79	58	0%	56%	44%	0%	0%
SH80	55	0%	0%	100%	0%	0%
SH82	68	0%	41%	52%	7%	0%
Total	1,186	0%	26%	71%	3%	0%

STAR RATINGS BY VEHICLE KILOMETRES TRAVELLED

Ten per cent of New Zealand's annual vehicle kilometres travelled occurs on Canterbury state highways.

The following table shows the annual vehicle kilometres travelled on the Canterbury state highway network for each Star Rating.

Thirty four per cent of Canterbury's annual vehicle kilometres travelled is on 2-Star state highways; 61% is on 3-Star; and 6% is on 4-Star state highways.

Region	VKT (x10 ⁸ VKT/year)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
Canterbury	15.61	0%	34%	61%	6%	0%
New Zealand	154.76	0%	33%	40%	28%	0%

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

SNAPSHOT OF KEY SAFETY FEATURES

The following table provides a snapshot of the key safety features of the Canterbury state highway network.

Only 2% of the Canterbury network is divided. Thirteen per cent has good sealed shoulder width (more than 1.2 metres); and 32% has safe roadside conditions. The network has wide lanes and good delineation.

Highway	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	417	3.7%	84.1%	28.1%	100.0%	28.2%	99.1%	1 every 2-km
SH7	129	0.0%	72.4%	38.1%	100.0%	1.9%	99.8%	1 every 8-km
SH7A	7	0.0%	63.4%	45.8%	100.0%	0.0%	93.0%	1 every 2-km
SH8	154	0.0%	85.1%	41.3%	100.0%	4.0%	100.0%	1 every 2-km
SH71	6	4.7%	89.0%	9.4%	100.0%	49.8%	100.0%	1 every 1-km
SH73	138	1.0%	80.6%	43.7%	100.0%	6.6%	99.0%	1 every 3-km
SH74	14	23.8%	90.0%	29.7%	100.0%	62.2%	100.0%	1 every 4-km
SH75	69	0.1%	58.7%	25.0%	100.0%	6.8%	100.0%	1 every 2-km
SH77	88	0.0%	88.8%	22.7%	100.0%	1.4%	99.3%	1 every 2-km
SH79	58	0.0%	74.2%	10.2%	100.0%	3.3%	99.8%	1 every 3-km
SH80	55	0.0%	87.6%	39.0%	100.0%	0.4%	99.3%	1 every 11-km
SH82	68	0.0%	78.3%	29.8%	100.0%	0.0%	98.2%	1 every 3-km
Total	1,202	1.7%	80.8%	31.8%	100.0%	12.9%	99.3%	1 every 2-km

West Coast

KiwiRAP has assessed 818 kilometres of the West Coast state highway network. The Star Rated West Coast state highways are 8% of the New Zealand total and carry 2% of vehicle kilometres travelled.

STAR RATINGS BY STATE HIGHWAY

The following table shows the proportion of the West Coast network in each Star band by state highway.

West Coast has no 1-Star, 4-Star or 5-Star state highway sections. Fifty per cent is rated 2-Star; and 50% is rated 3-Star.

Highway	Length (km)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
SH6	511	0%	46%	54%	0%	0%
SH7	126	0%	64%	36%	0%	0%
SH65	25	0%	61%	39%	0%	0%
SH67	41	0%	63%	37%	0%	0%
SH67A	9	0%	100%	0%	0%	0%
SH69	32	0%	32%	68%	0%	0%
SH73	75	0%	39%	61%	0%	0%
Total	818	0%	50%	51%	0%	0%

STAR RATINGS BY VEHICLE KILOMETRES TRAVELLED

Two per cent of New Zealand's annual vehicle kilometres travelled occurs on West Coast state highways.

The following table shows the annual vehicle kilometres travelled on the West Coast state highway network for each Star Rating.

Fifty four per cent of West Coast annual vehicle kilometres travelled is on 2-Star state highways; and 46% is on 3-Star state highways.

Region	VKT (x10 ⁸ VKT/year)	Proportion in each Star Rating				
		1-star	2-stars	3-stars	4-stars	5-stars
West Coast	3.48	0%	54%	46%	0%	0%
New Zealand	154.76	0%	33%	40%	28%	0%

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

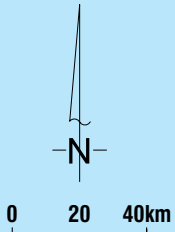


SNAPSHOT OF KEY SAFETY FEATURES

The following table provides a snapshot of the key safety features of the West Coast state highway network.

The network is undivided. Eight per cent has safe roadside conditions; and only 2% has good sealed shoulder width of more than 1.2 metres. However, 94% of the network has wide lanes and good delineation.

Highway	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
SH6	517	0.0%	63.7%	5.8%	100.0%	2.1%	96.5%	1 every 4-km
SH7	127	0.0%	66.8%	9.1%	100.0%	1.3%	86.3%	1 every 4-km
SH65	25	0.0%	70.2%	6.3%	100.0%	0.4%	98.4%	1 every 6-km
SH67	41	0.0%	81.8%	7.2%	100.0%	0.0%	98.7%	1 every 2-km
SH67A	9	0.0%	84.3%	3.9%	100.0%	0.0%	100.0%	1 every 2-km
SH69	32	0.0%	81.0%	38.4%	100.0%	0.0%	97.2%	1 every 2-km
SH73	75	0.0%	59.6%	8.2%	100.0%	0.0%	87.5%	1 every 5-km
Total	826	0.0%	65.8%	7.8%	100.0%	1.5%	94.4%	1 every 4-km



GeoSmart

Cartography by GeoSmart Maps Ltd

**NELSON/TASMAN,
MARLBOROUGH,
WEST COAST AND
CANTERBURY**



Otago

KiwiRAP has assessed 1,217 kilometres of the Otago state highway network. The Star Rated Otago state highways are 4% of the New Zealand total and carry 23% of vehicle kilometres travelled.

STAR RATINGS BY STATE HIGHWAY

The following table shows the proportion of the Otago network in each Star band by state highway.

Otago has no 1-Star or 5-Star state highway sections. Nearly 30% is rated 2-Star; 69% rated 3-Star; and 1% rated as 4-Star.

Highway	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%

STAR RATINGS BY VEHICLE KILOMETRES TRAVELLED

Twenty three per cent of New Zealand's annual vehicle kilometres travelled occurs on Otago state highways.

The following table shows the annual vehicle kilometres travelled on the Otago state highway network for each Star Rating.

Thirty eight per cent of Otago's annual vehicle kilometres travelled is on 2-Star state highways; 56% is on 3-Star; and 6% is on 4-Star state 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%
New Zealand	154.76	0%	33%	40%	28%	0%

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

SNAPSHOT OF KEY SAFETY FEATURES

The following table provides a snapshot of the key safety features of the Otago state highway network.

Just over 1% of the Otago network is divided. Sixteen per cent has safe roadside conditions and only 5% has good sealed shoulder width of more than 1.2 metres. Pleasingly, the assessed network has wide lanes and good delineation.

Highway	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%	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

KiwiRAP has assessed 713 kilometres of the Southland state highway network. The Star Rated Southland state highways are 7% of the New Zealand total and carry 3% of vehicle kilometres travelled.

STAR RATINGS BY STATE HIGHWAY

The following table shows the proportion of the Southland network in each Star band by state highway.

Southland has no 1-Star, 4-Star or 5-Star state highway sections. Thirty seven per cent is rated 2-Star; and 63% is rated 3-Star.

Highway	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%

STAR RATINGS BY VEHICLE KILOMETRES TRAVELLED

Three per cent of New Zealand's annual vehicle kilometres travelled occurs on Southland state highways.

The following table shows the annual vehicle kilometres travelled on the Southland state highway network for each Star Rating.

Forty four per cent of Southland's annual vehicle kilometres travelled is on 2-Star state highways; and 56% is on 3-Star state highways.

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

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

SNAPSHOT OF KEY SAFETY FEATURES

The following table provides a snapshot of the key safety features of the Southland state highway network.

The assessed Southland network has wide lanes and good delineation. Eighty two per cent has good horizontal alignment. The network is undivided. Only 6% has good sealed shoulder width of more than 1.2 metres; and 11% has safe roadside conditions.

Highway	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



OTAGO AND SOUTHLAND

STAR RATING KEY

- *
- **
- ***
- ****
- *****
- Not rated

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