OTAGO AND SOUTHLAND

Regional results 2012

KiwiRAP
NEW ZEALAND ROAD ASSESSMENT PROGRAMME

WHAT IS KIWIRAP?

KiwiRAP analyses the road safety ratings of New Zealand's (80+km/h) rural state highway network.

KiwiRAP is part of an international family of Road Assessment Programmes (RAP) under the umbrella of the International Road Assessment Programme (iRAP). iRAP now works in partnership with government and non-government organisations in 70 countries. From its findings, iRAP recommends design improvements that need to be implemented in order to save lives and reduce the number of serious injuries on the world's roads.

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

The first KiwiRAP Risk Maps were produced in 2008, followed by Star Ratings in 2010. This brochure shows results for Risk Mapping and Performance Tracking, comparing crash data for 2007-2011 to that from 2002-2006.

PERFORMANCE TRACKING

Performance tracking is the comparison of crash rates over time to establish whether fewer – or more – people are being killed or seriously injured on various road sections; and to determine how effective any countermeasures have been.

Performance tracking in this report compares 2007-2011 data to 2002-2006 data and is New Zealand's first opportunity to track the safety performance of the state highway network using KiwiRAP methods.

For the purpose of comparing the level of risk of crashes between different parts of the network, KiwiRAP has broken the 10,849km of the assessed state highway network into 168 road sections (known as 'links').

The same links that were developed and used for the first Risk Maps (released in 2008) have been used, where possible, in these results.

2012 RISK MAPS

For the purposes of displaying the safety risk of the state highway network, KiwiRAP looks at two different measures of risk: Collective Risk and Personal Risk. The focus of both is on crashes where people have been killed or seriously injured. The crash statistics used for the calculations are for the five-year period between 2007-2011.

The roads highlighted as being of higher risk than others are likely to have specific reasons why. The road, the vehicle, the speed and the driver/rider each contribute to risk.

Collective Risk (or Crash Density)
Collective Risk is a measure of the total number of fatal and serious injury crashes per kilometre over a section of road.

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Because Collective Risk is measured in terms of the number of crashes per kilometre of state highway, you would generally expect that those with higher traffic volumes would have a higher Collective Risk.

Personal Risk
Personal Risk is a measure of the risk to each individual using the state highway being assessed. Unlike Collective Risk, Personal Risk takes into account the traffic volumes on each section of state highway.

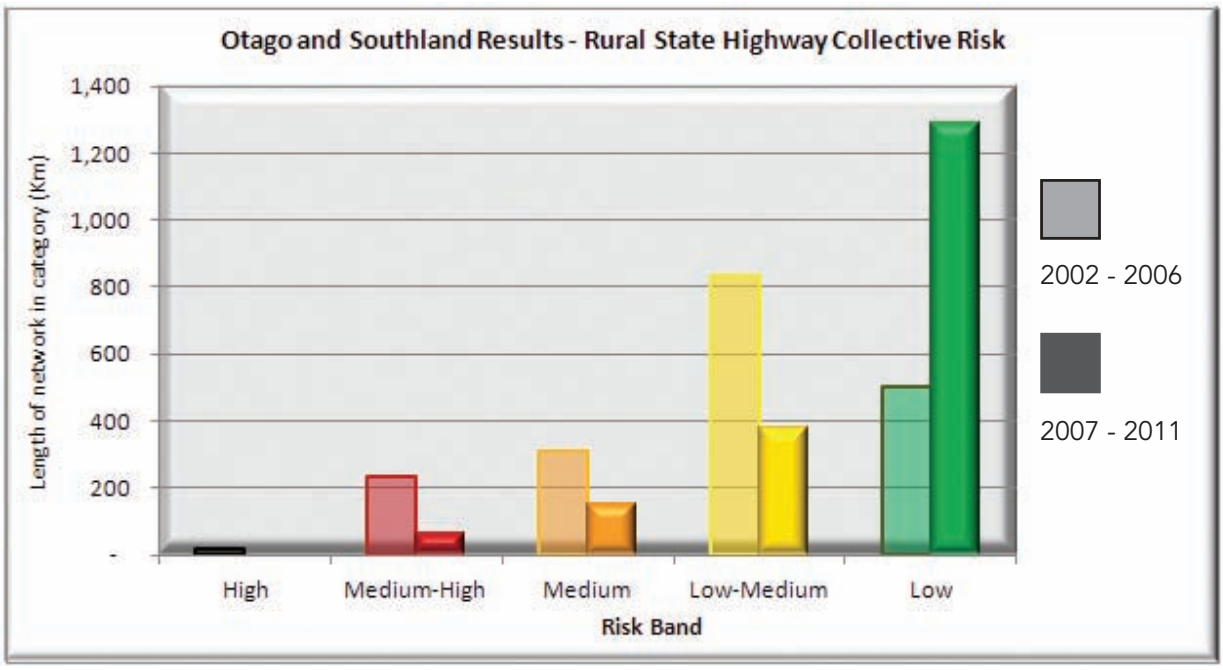
RISK RATING	COLLECTIVE RISK Average annual fatal and serious injury crashes per km	PERSONAL RISK Average annual fatal and serious injury crashes per 100 million vehicle-km	COLOUR
Low	≤0.039	<4	
Low-medium	0.04≤0.069	4≤4.9	
Medium	0.07≤0.10	5≤6.9	
Medium-high	0.11≤0.189	7≤8.9	
High	0.19+	9+	

The risk thresholds for the bands have remained the same in order for comparisons to be made between the 2008 Risk Maps (covering crashes in the 2002-2006 period) and the Risk Maps in this report for the 2007-2011 period.

PERFORMANCE TRACKING FOR OTAGO AND SOUTHLAND REGION

Collective Risk
The percentage of state highway in all collective risk bands in the Otago and Southland region have decreased except the low-risk category which has increased from 26% to 68% over the two time periods.

Changes in Collective Risk in the Otago and Southland Region (comparing 2002-2006 data with 2007-2011)



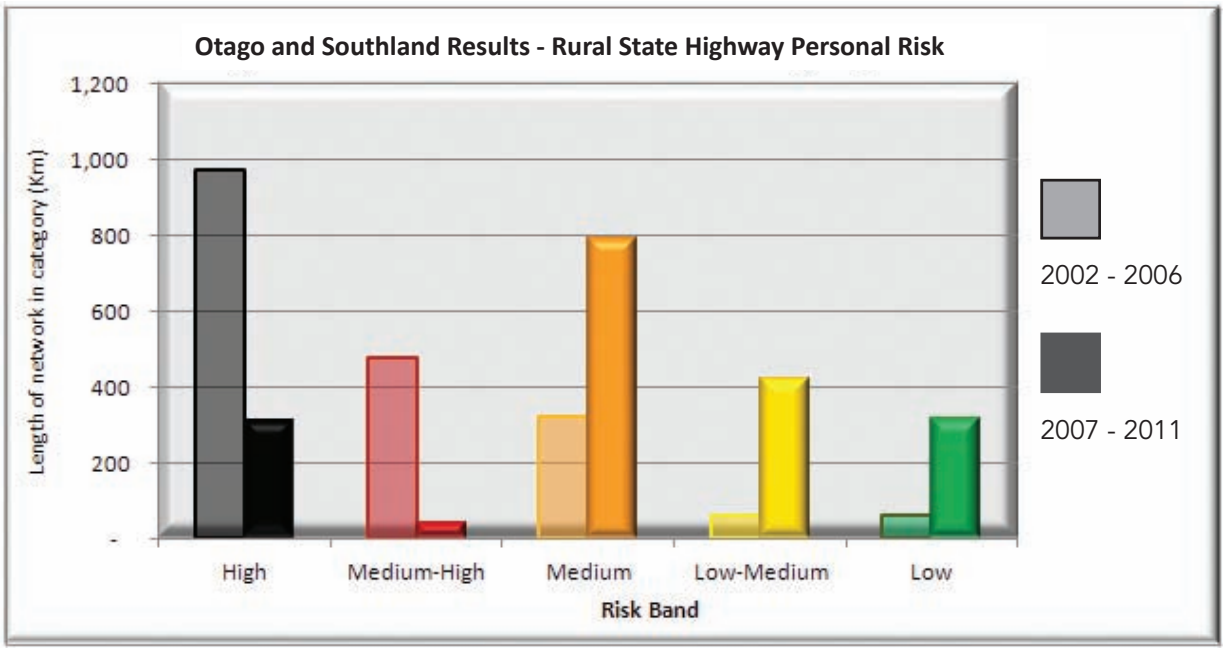
Period		High	Medium-High	Medium	Low-Medium	Low	Total
2002-2006	Percentage	1%	12%	16%	44%	26%	100%
	Length (km)	**20**	**234**	**310**	**834**	**499**	**1,897**
2007-2011	Percentage	0%	3%	8%	20%	68%	100%
	Length (km)	**-**	**64**	**149**	**382**	**1,291**	**1,886**

Note: percentages may not add to 100% due to rounding

Personal Risk

The percentage of state highway in the Otago and Southland region in the high and medium-high personal risk bands have collectively decreased 58% over the two time periods while the percentage in the medium, low-medium and low risk bands have all increased.

Changes in Personal Risk in the Otago and Southland Region (comparing 2002-2006 data with 2007-2011)



Period		High	Medium-High	Medium	Low-Medium	Low	Total
2002-2006	Percentage	51%	25%	17%	3%	3%	100%
	Length (km)	**971**	**478**	**322**	**64**	**61**	**1,897**
2007-2011	Percentage	16%	2%	42%	22%	17%	100%
	Length (km)	**311**	**43**	**792**	**424**	**316**	**1,886**

Note: percentages may not add to 100% due to rounding

The table below details how the risk categories of the links in the Otago and Southland region have changed between the two time periods.

CHANGES IN COLLECTIVE RISK		LINK	CHANGES IN PERSONAL RISK	
2002-2006 DATA	2007-2011 DATA		2002-2006 DATA	2007-2011 DATA
High	Medium-High	SH 1 from Dunedin to Mosgiel (SH 87)	Low-Medium	Low
Medium	Low-Medium	SH 1 from Gore to Invercargill	Medium	Low
Medium-High	Medium	SH 1 from Invercargill to Bluff	High	Medium
Medium	Low-Medium	SH 1 from Milton to Gore	Medium-High	Medium
Medium-High	Medium-High	SH 1 from Mosgiel to Milton	Medium-High	Low-Medium
Medium-High	Medium	SH 1 from Oamaru to Dunedin	High	Low-Medium
Medium	Medium	SH 1 from Timaru to Oamaru*	Low-Medium	Low-Medium
Low-Medium	Low	SH 6 SH 8B and SH 8 from Wanaka to Alexandra	Medium	Low
Medium-High	Low-Medium	SH 6 from Cromwell to Queenstown	Medium-High	Low
Low	Low	SH 6 from Haast to Wanaka*	High	High
Low-Medium	Low-Medium	SH 6 from Lumsden to Invercargill	Medium	Low
Low-Medium	Low-Medium	SH 6 from Queenstown to Lumsden	Medium	Low-Medium
Medium	Low	SH 8 from Alexandra to Milton	High	Medium
Low	Low	SH 8 from Alexandra to Palmerston	High	Medium
Low-Medium	Low	SH 8 from Omarama to Cromwell and SH 8A	High	Low-Medium
Low	Low	SH 83 from Omarama to SH 1*	Low-Medium	Low
Low	Low	SH 87 from Kyeburn to Mosgiel	Medium-High	High
Low	Low	SH 90 from Rays Junction to Gore	Medium-High	Medium
Low-Medium	Low	SH 93 from Clinton to Mataura	High	Medium -High
Low	Low	SH 94 from Gore to Lumsden	Low	Low-Medium
Low-Medium	Low	SH 94 from Te Anau to Manapouri	High	High
Low-Medium	Low	SH 94, 95, 97 from Lumsden to Manapouri	High	Medium
Low-Medium	Low	SH 96 from Mataura to Ohai	High	Medium
Low-Medium	Low	SH 98 and SH 99 from Dacre (SH 1) to Clifden	Medium-High	Medium

*These links cross boundaries, so will appear in more than one regional list.

Boxes highlighted green depict a decrease in risk between the 2002-2006 and 2007-2011 time periods; red depicts an increase in risk; no colour is no change in risk.

Note: (Table below)
[1]The link length includes urban sections. However, the urban lengths and urban crashes have been excluded from the crash risk analysis.
[2]These links cross map boundaries, so will appear in more than one regional list.
[3]This link has been altered within the analysis period.
[4] The length of this link differs to that published in the 2008 Risk Map report due to the reassessment of where the urban boundary limits were set.
Symbol – : no data.

HOW SAFE ARE OUR ROADS?

Tracking the safety performance of New Zealand's state highway network

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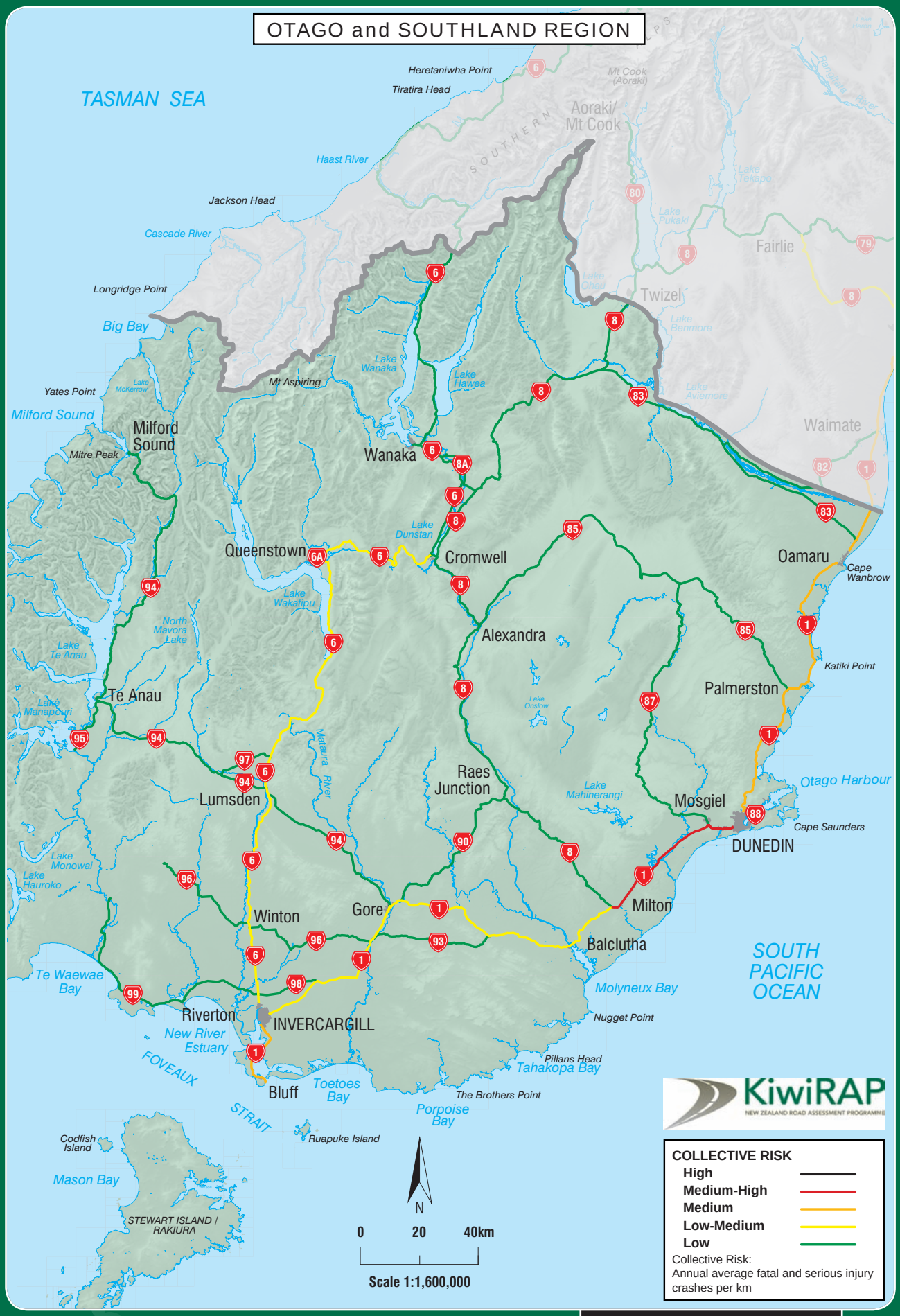
2012 RISK MAPS FOR OTAGO AND SOUTHLAND REGION

Link	Length[1] (km)	Serious Injury Crashes 2007 to 2011	Fatal Crashes 2007 to 2011	Collective Risk Annual average fatal and serious injury crashes per km	Collective Risk Band	Personal Risk Annual average fatal and serious injury crashes per 100 million vehicle-km	Personal Risk Band
SH 1 from Dunedin to Mosgiel (SH 87)	18.5	14	-	0.15	Medium-High	2.2	Low
SH 1 from Gore to Invercargill	62.5	13	3	0.06	Low-Medium	3.3	Low
SH 1 from Invercargill to Bluff	26.5	6	2	0.07	Medium	6.5	Medium
SH 1 from Milton to Gore	92.7	23	4	0.06	Low-Medium	5.4	Medium
SH 1 from Mosgiel to Milton	45.5	19	4	0.11	Medium-High	4.4	Low-Medium
SH 1 from Oamaru to Dunedin	106.2	34	5	0.08	Medium	4.5	Low-Medium
SH 1 from Timaru to Oamaru[2][4]	75.4	20	10	0.08	Medium	4.4	Low-Medium
SH 6 from Cromwell to Queenstown	52.8	9	2	0.04	Low-Medium	2.5	Low
SH 6 from Haast to Wanaka[2]	137.8	19	3	0.03	Low	10.8	High
SH 6 from Lumsden to Invercargill	74.9	13	2	0.04	Low-Medium	2.7	Low
SH 6 from Queenstown to Lumsden	98.9	19	3	0.05	Low-Medium	4.9	Low-Medium
SH 6 SH 8B and SH 8 from Wanaka to Alexandra	85.7	12	-	0.03	Low	2.5	Low
SH 8 from Alexandra to Milton	131.0	16	8	0.04	Low	5.7	Medium
SH 8 from Omarama to Cromwell and SH 8A[2][3]	128.0	13	2	0.02	Low	4.8	Low-Medium
SH 83 from Omarama to SH 1[2]	109.2	4	2	0.01	Low	3.0	Low
SH 85 from Alexandra to Palmerston	164.9	8	3	0.01	Low	5.5	Medium
SH 87 from Kyeburn to Mosgiel	114.1	14	-	0.03	Low	9.9	High
SH 90 from Rays Junction to Gore	59.3	6	1	0.02	Low	5.2	Medium
SH 93 from Clinton to Mataura	43.1	5	2	0.03	Low	8.3	Medium-High
SH 94 from Gore to Lumsden	61.4	5	1	0.02	Low	4.4	Low-Medium
SH 94 from Te Anau to Milford	119.0	18	3	0.04	Low	13.7	High
SH 94 SH 95 SH 97 from Lumsden to Te Anau	113.9	10	5	0.03	Low	6.1	Medium
SH 96 from Mataura to Ohai	89.5	9	2	0.03	Low	6.4	Medium
SH 98 and SH 99 from Dacre (SH1) to Clifden	113.9	15	2	0.03	Low	6.3	Medium



COLLECTIVE RISK MAP

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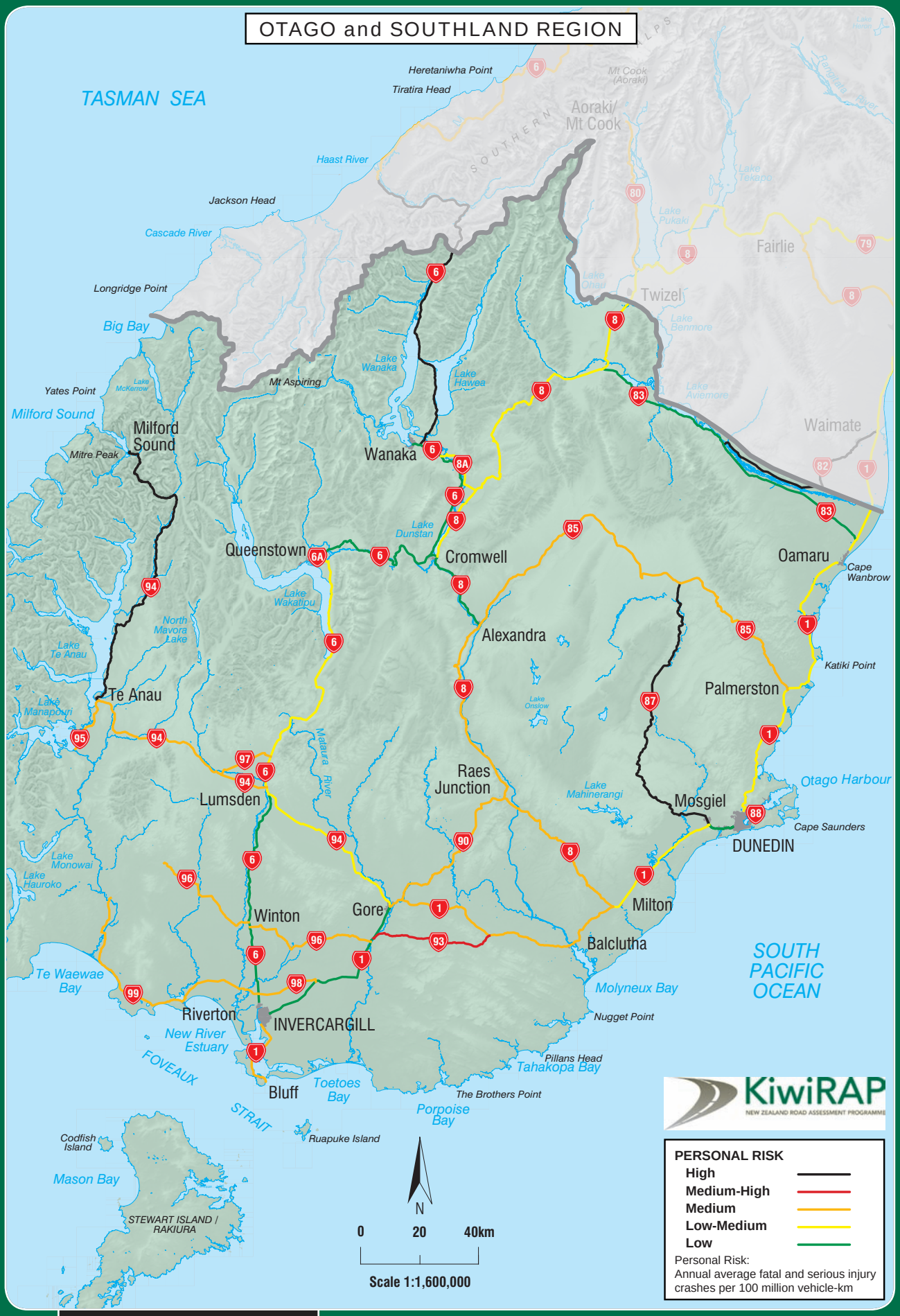

PERSONAL RISK MAP

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