THE **SAFER SPEED** PROGRAMME

An update to the RCA Forum

29 November 2013

NZ TRANSPORT AGENCY WAKA KOTAHI

ACC PREVENTION. CARE. RECOVERY. Te Kaporeihana Āwhina Hunga Whara

New Zealand POLICE Nga Pirihimana O Aotearoa

Ministry of Transport TE MANATŪ WAKA

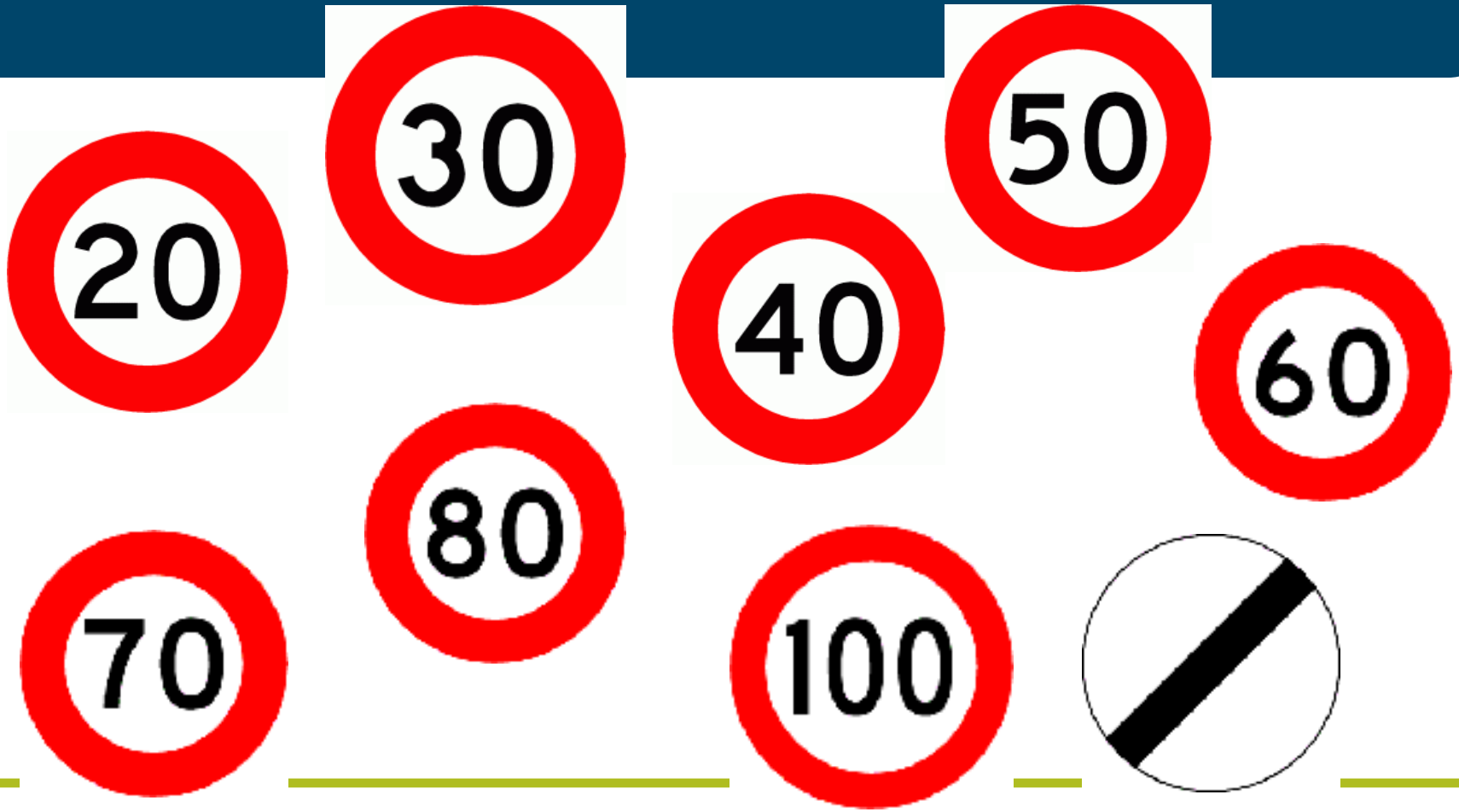
GPS Objectives

- **Safety:**
  - Safer Journeys
  - Safer Speed
  - Safe System
  - Roads and roadsides
  - User behaviour
- **Efficiency:**
  - Economic productivity
  - Travel time
  - Road hierarchy
  - Freight
  - Tourism
  - Regional / inter- regional

Speed Limit Rule Objectives

- balance mobility, travel efficiency and safety
- ensure speed limits are safe, appropriate and credible for the environment and level of road side development
- to be nationally consistent

Range of Speed Limits to Apply:



Speed Limit Calculation\ From rating survey

Uses the following information:

- road side development
- number and nature of side roads
- roadway characteristics
- vehicle, cycle and pedestrian activity
- road function and adjacent land use

Further consideration:

- Crash history, traffic speed, speed, survey, safety concerns, operational issues (eg schools)

Control Measures

Engineering
- Speed Limits
- Rural thresholds
- Safer roads and roadsides

Education
- road users, schools
- Advertising
- Electronic speed monitoring

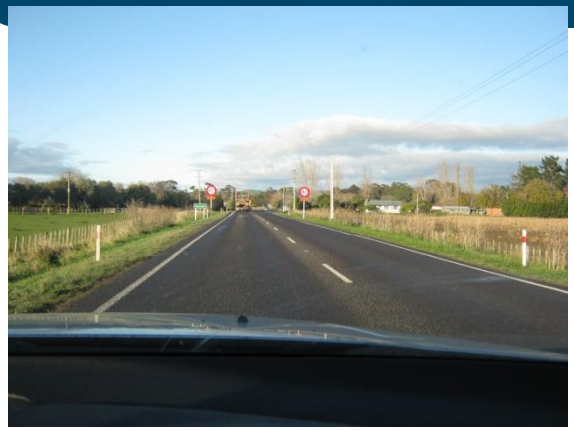
Enforcement
- Speed camera
- Road policing

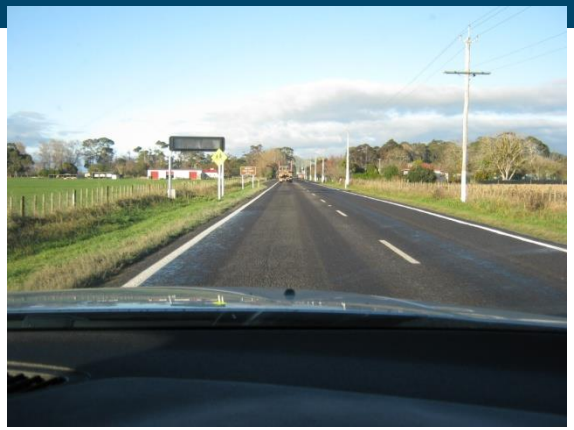
Reinforcing methods

- Change speed environment : Plantings , alignment
- Rural / Urban thresholds : Signs and markings
- Narrow lane markings, flush medians, striping
- Physical islands
- Education strategies
- Enforcement / travel speed information

Is this appropriate (70km/h)

Safer Roads and Roadsides





NZ TRANSPORT AGENCY
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New Zealand Government

Optimal speeds

Optimal travel speeds support both safety and economic productivity

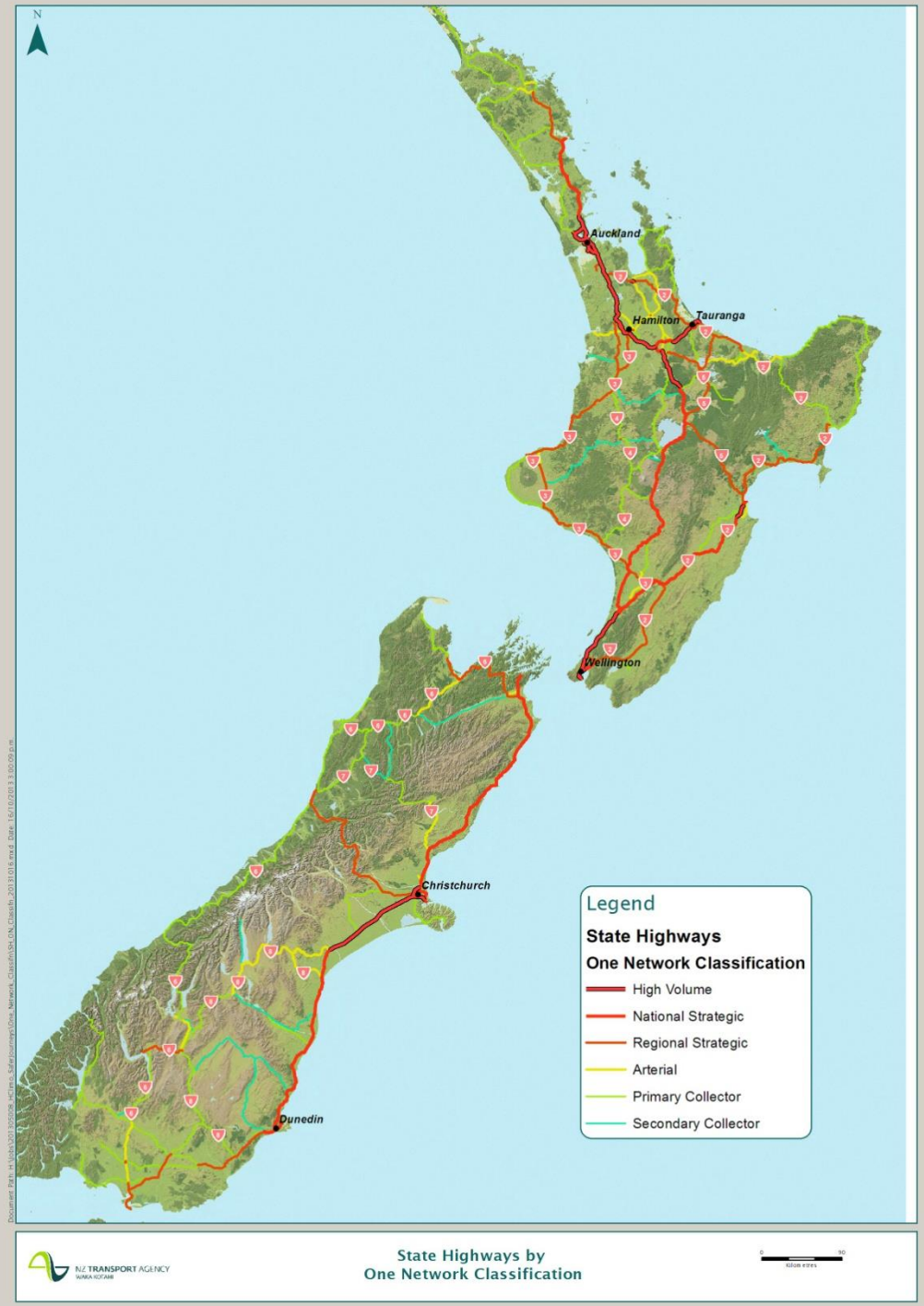
Optimal travel speeds find the "sweet spot" that meets the different economic, safety and social functions of different kinds of roads.

They take into account vehicle operating costs, travel time and travel time reliability, reduced death and serious injuries (**DSIs**), reduced social and economic cost of road crashes, as well as broader social and environmental goals.

We ask – what is the function of this type of road and what speed supports that function? Then ask – what features of the design (eg safety barriers present) or use on *this road* affect optimal speed.

Road classifications

An example:
how the proposed one network classifications apply on the SH network

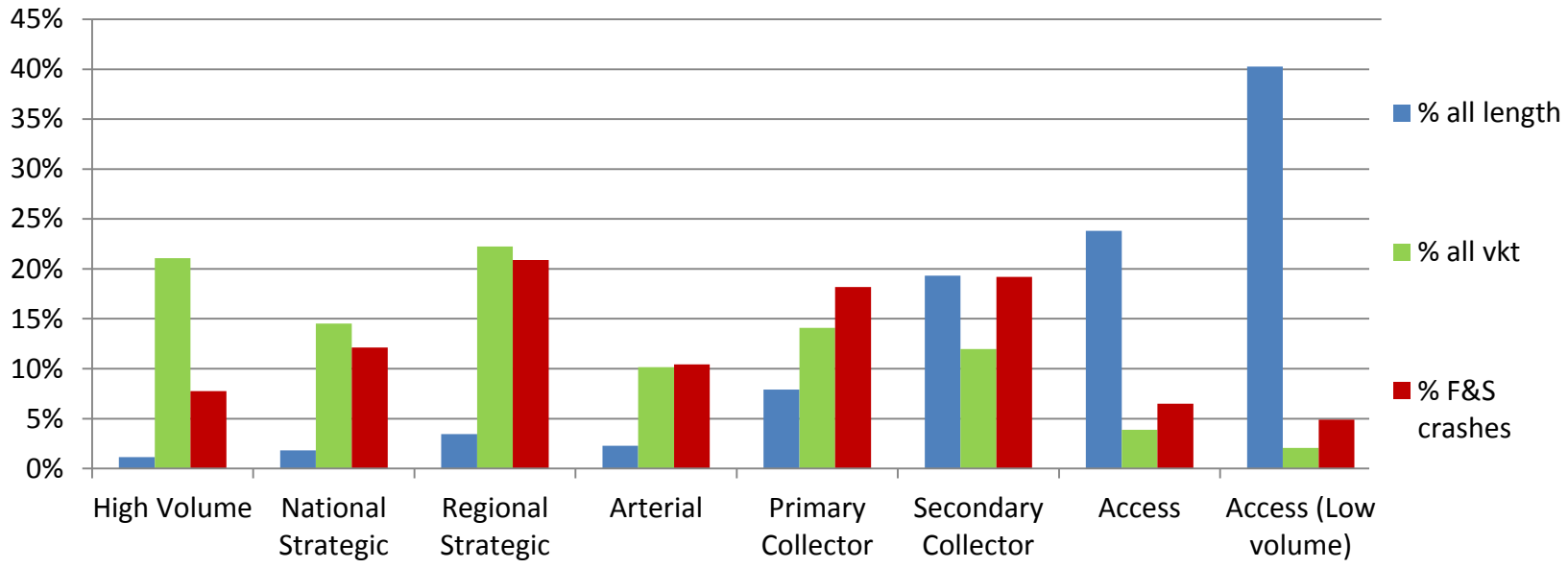


ONE NETWORK ROAD CLASSIFICATIONS

Rural 77% of length 50% of vkt 51 % of dsis	Daily traffic	% of rural length	% of rural vkt	Urban Daily traffic	% of urban network	% of urban vkt
High volume	>20000	0.5	21	>35000	2	25
National Strategic	>15000	1.6	13	>25000	1	6
Regional strategic	>10000	2	19	>15000	3	20
Arterial	>3000	2	12	>5000	7	26
Primary Collector	>1000	8	19	>3000	5	8
Secondary collector	>200	17	11	>1000	12	9
Access	<200	69	5	<1000	69	6
Low volume access	<50			<200		

Road function is designated by road classification…

Highest classification roads are few in length, carry the greatest relative volumes of traffic **(VKT)** and freight and are designed to the highest standards. designed to the highest standards.

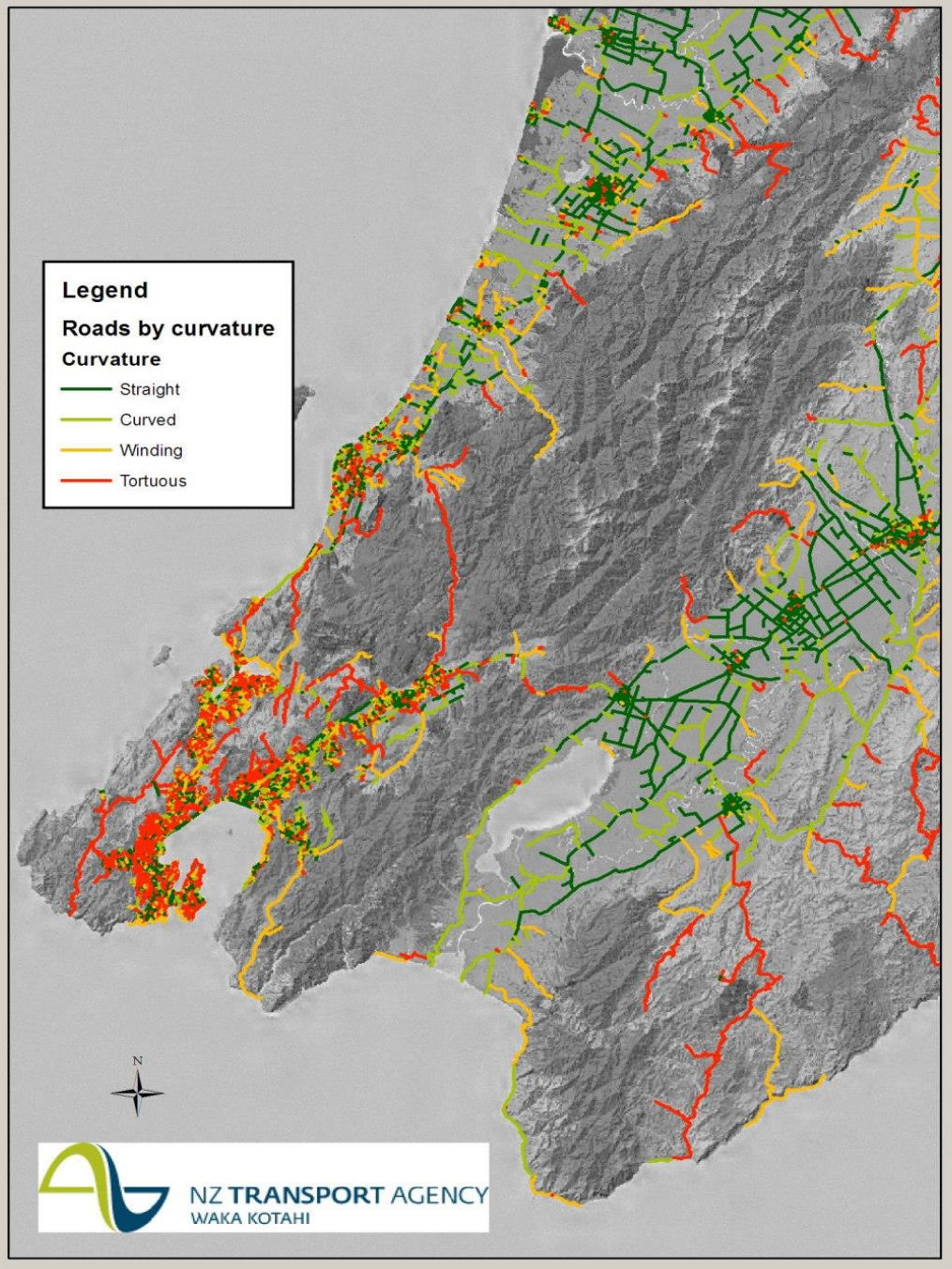


Road geometry illustrated

A local example

Illustrating which roads are

- straight
- curved
- winding
- tortuous



OPTIMAL SPEEDS - REVISED – depending on star rating or road risk

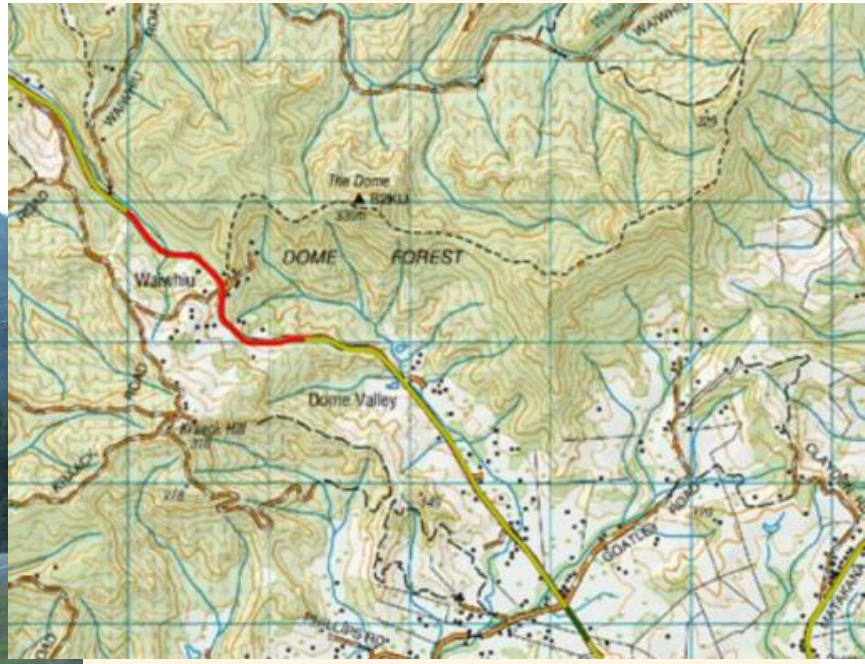
	Straight	Curved	Winding/ tortuous	Urban	If high vulnerable user counts or intersection density
High volume	100 or 110 0.2% length 9 % VKT 1 % of Dsis	80 or 100		50 60 or 80 if IRAP score allows	30 or 40 0.7 % of length 16 % of vkt 6 % of dsis
National strategic Regional strategic Arterial Primary Collector Secondary collector	80 or 100 18%of length 33 % vkt 35 % of dsis		60 or 80 59% of length 8% of vkt 15% of dsis	50	30 or 40 2.4 % of length 23 % of vkt 22 % of dsis
				50	30 or 40 4 % of length 8 % of vkt 11% of dsis
Access Low volume access	60 or 80			30 or 40	3 % of length 11 % of vkt 16% of dsis

ACHIEVING OPTIMAL SPEEDS BY ROAD TYPE

Nat Strategic	Focus on efficiency as well as safety Invest for safety and growth Over time speed management including speed limits support optimal speeds without undermining safety
Regional strategic	
Arterial	
Primary Collector	Complex environments. There are particular safety issues on curved / winding rural roads Topography/ land use /intersection density/ use of the road influences limits most especially in urban areas.
Secondary collector	
Access	Speed based on broad set of values including access, and safety of vulnerable users - less focus on efficiency
Low volume access	

A national strategic winding/tortuous route

– what they look like: SH1 Northland – Dome valley



Red = combined winding and tortuous.

This route is KiwiRAP 2 star.
Optimal speed on this road would be 60 or 80
Current mean speed is <80 (eRUC data)

An arterial winding/tortuous route

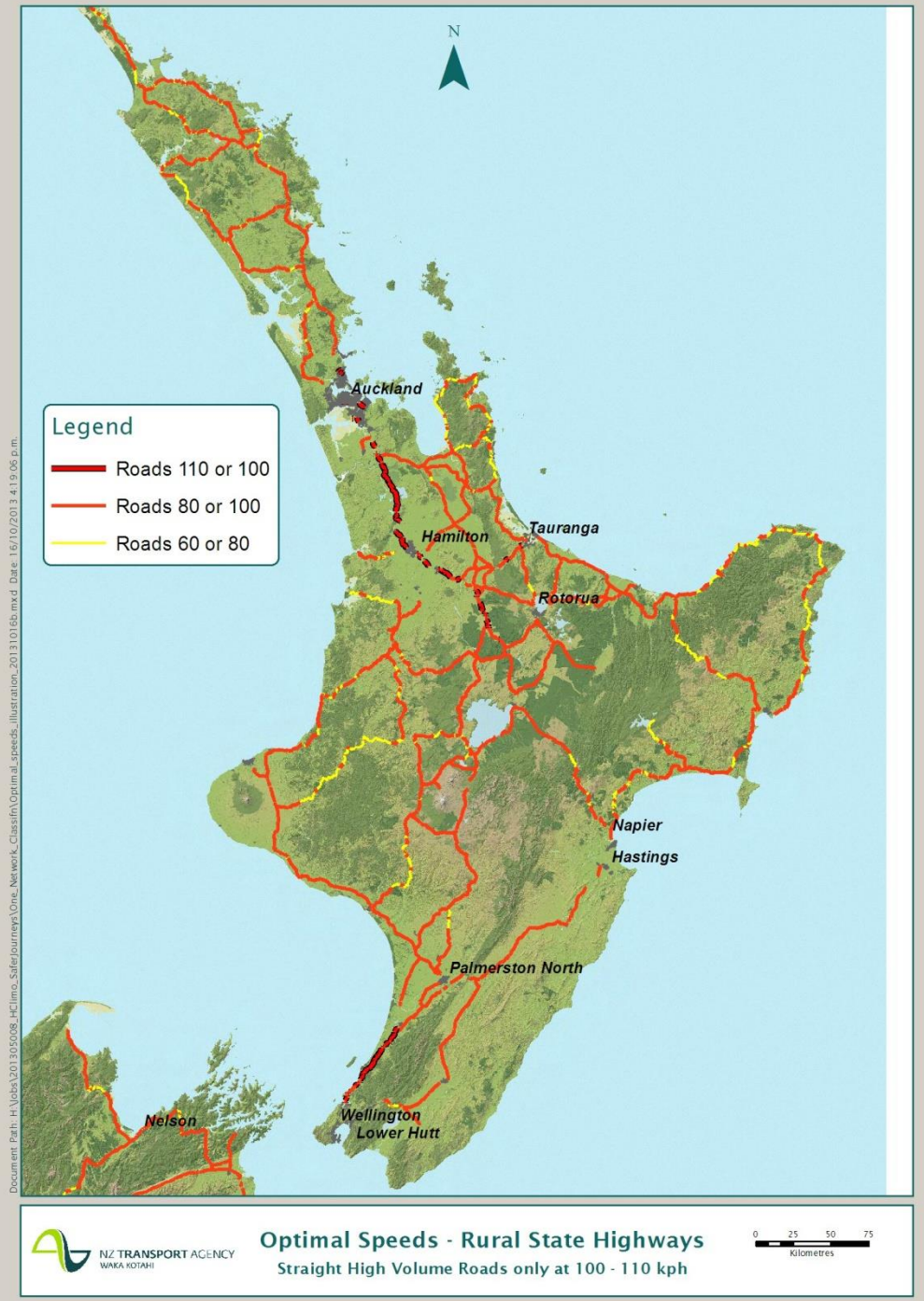
– Taihape road in the Hastings area

No star rating exists for this narrow (6.5-7 m) winding route but the red dots represent deaths, yellow dots are serious injuries

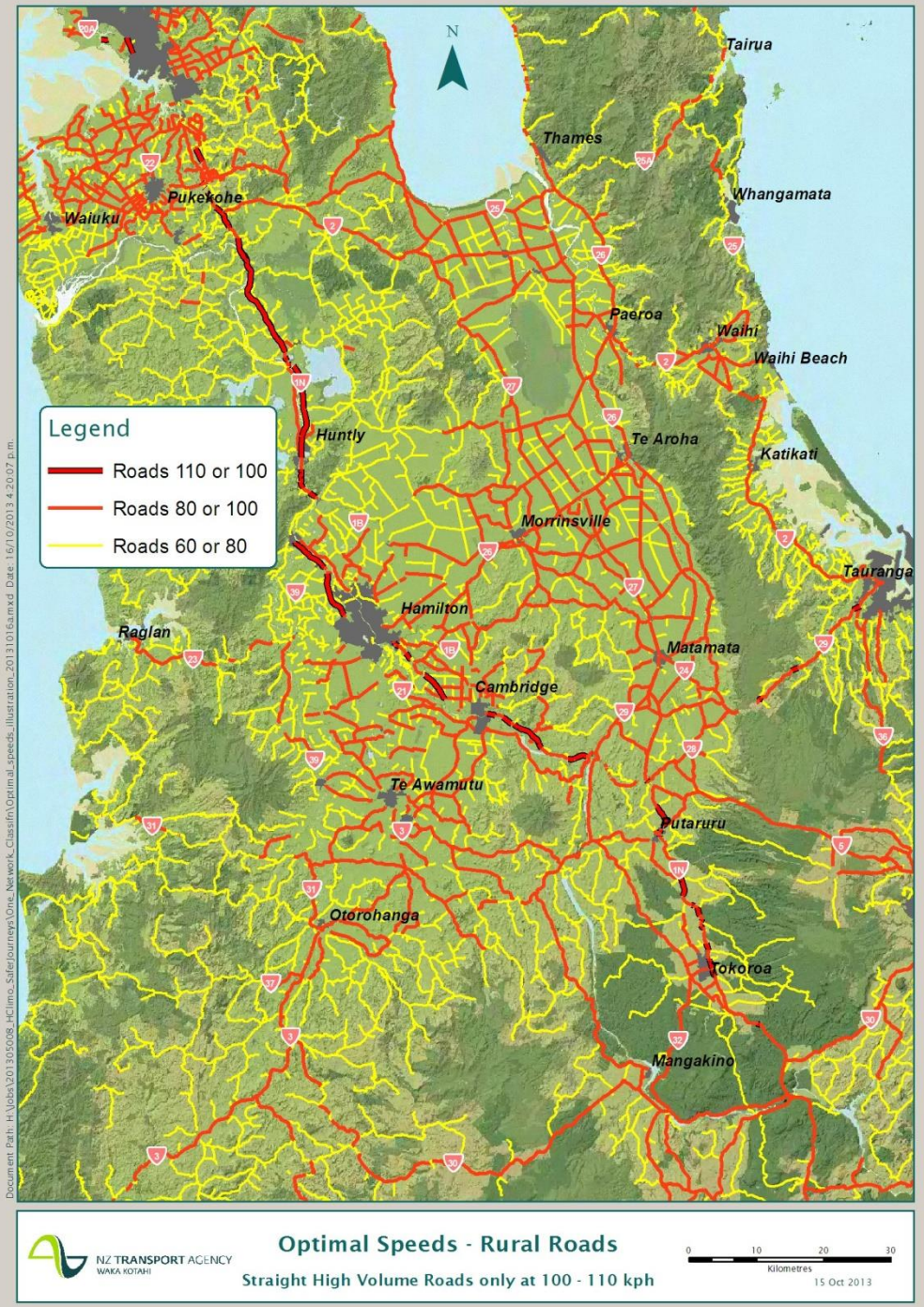
AADT 500 - 1000vpd
12-20% HCV (150 vpd)

Optimal speed on this road would be 60 for most sections
Current mean speed is <70 (eRUC data)

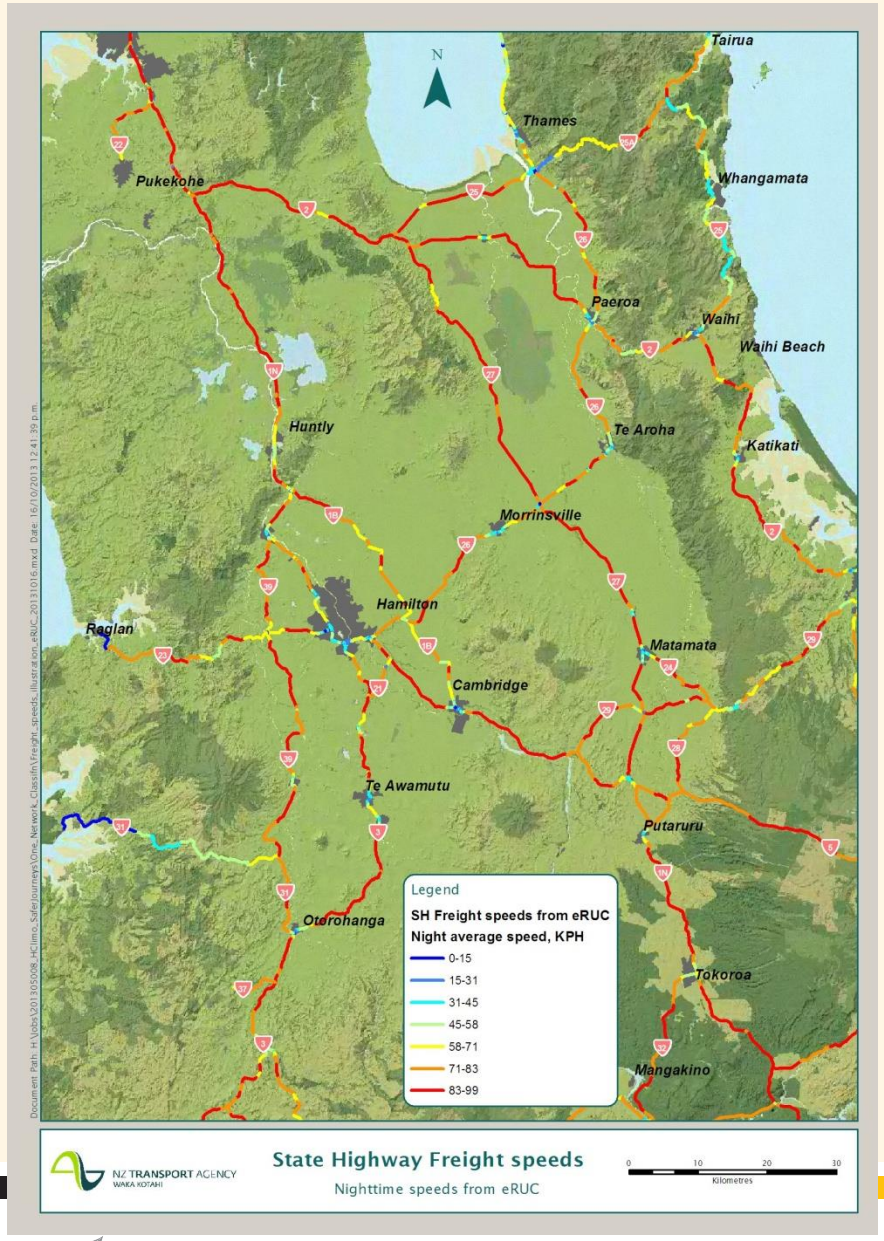
North Island current state applying the proposed optimal speeds for rural roads



Waikato rural case study applying the proposed optimal speeds for rural roads



Waikato rural eRUC speeds at night. These are an indicator of the speeds trucks will travel at when not constrained by other traffic. They also indicate where topography affects speeds.



Questions still to resolve

- We do not yet know actual mean light vehicle speeds on different types of roads
- There is more work to do on urban routes with RCAs who are experts on urban speeds
  - Road classification traffic volume criteria are not good indicators in many cases
  - Use may be more important
- What weight to place on intersection density and urban risk factors