THE NEW ZEALAND STATE HIGHWAYS SKID RESISTANCE POLICY

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Thanks

NZ TRANSPORT AGENCY
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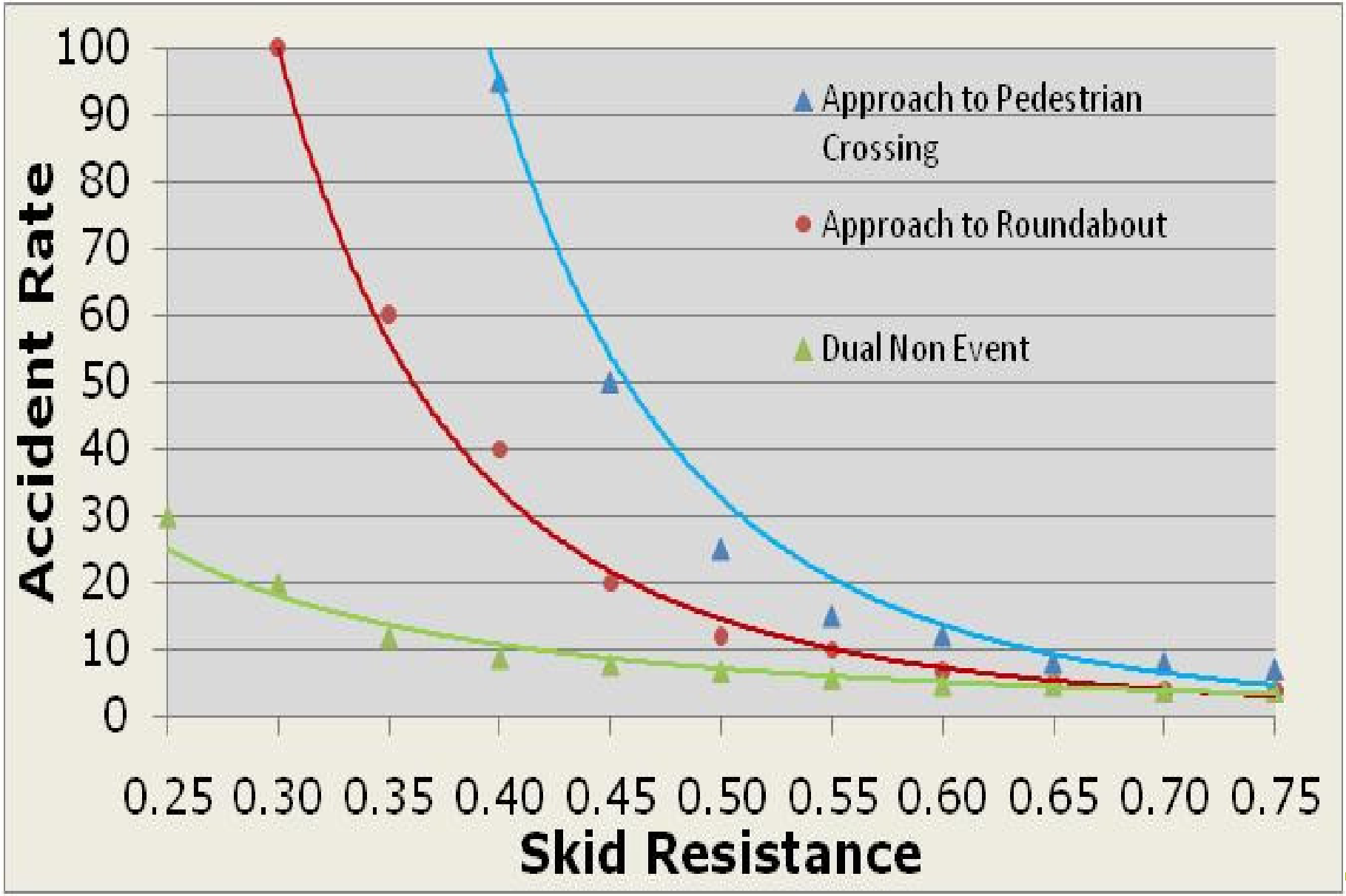
New Zealand Government

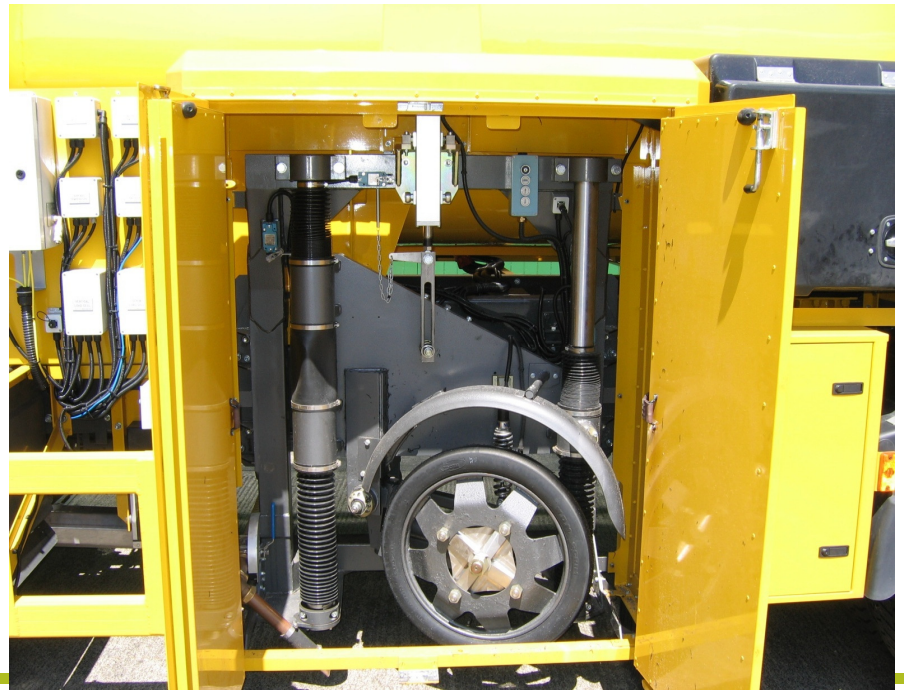
Investigatory levels (IL)

- Originally based on UK values
- Now based on relationships between wet crashes and skid resistance
- Actual IL for each site is determined from a site visit to assess the risk and set appropriate IL from band.


Accident Rate
100
90
80
70
60
50
40
30
20
10
0
Approach to Pedestrian Crossing
Approach to Roundabout
Dual Non Event
0.25 0.30 0.35 0.40 0.45 0.50 0.55 0.60 0.65 0.70 0.75
Skid Resistance

Survey of skid resistance

- Skid resistance measured annually by SCRIM



Macrotexture Levels

Minimum Macrotexture – Mean Profile Depth mm						
Permanent Speed Limit	Chipseal		Asphalt ESC≥ 0.4		Asphalt ESC<0.4	
	ILM	TLM	ILM	TLM	ILM	TLM
50km/h and less	1.0	0.7	0.4	0.3	0.5	0.5
>50km/h but ≤70km/h	1.0	0.7	0.4	0.3	0.7	0.5
>70km/h	1.0	0.7	0.4	0.7	0.9	0.7

Texture measured by SCRIM+ at same time as SC

SCRIM Survey from October to February

What do we do with the data?

- Concerned about leaving obviously slippery sites therefore NZ produce an Exception Report
- List of 10m sites that are:
  1. ≤ Threshold Level (IL-0.1)
  2. ≤ Threshold Level Macrotexture
  3. Both 1 and 2 above
- These skid values are not seasonally corrected

Exception Report

- In addition Screen shot supplied if five continuous 10m lengths
- The principle is good - rapid response to review sites that potentially have a problem.
- However, the number of sites on exception report was much much greater than the sites that we could fund for treatment - Need to prioritise

Prioritisation

Reduce the sites on the exception report by making sure the IL were correct.

Prioritised into A and B sites

Priority A are sites that are:

- below the TL or the TLM and have at least 2 wet skid related crash over the previous 5 years
- Sites that are flushed, and
- Sites where the SC is particularly low (IL-0.16)

Remaining sites are classified B and not investigated unless they are intermingled with the A sites

Early Response

- Investigating the "A" sites allows us to organise treatment for sites in need prior to winter this may include:
  - Resurfacing
  - Water blasting
  - Scabbling
  - Signage
  - etc

Seasonally Corrected Data

- Once data is seasonally corrected we concentrate on lengths of site categories 50m to 100m
- A scoring system has been developed
- Scores allocated to SCRIM deficiency, Texture deficiency, number of wet crashes and AADT.
- Subject of another presentation by Dave Whitehead NZTA

Ring Fenced Funding

- Funding only for improvement in skid resistance
- Using a scoring system allows us to allocate skid funding appropriately .
- This scoring process enabled each NMA to be benchmarked and allowed us to see where the major issues are.

Selection of Aggregate

If the stone has failed early by polishing please don't use again

Polish Stone Value

- Concerns over correlation between on road skid resistance and PSV
- Site sampling of aggregates for PSV test

Concerns with PSV Test

- Considering testing only crushed faces (allowing for river rounded indirectly)
- Is the amount of polishing right?
- Another presentation

PSV Equation

- $PSV = 100 \times SR + 0.00663 \times HCV + PSF$
- Polishing Stress Factor can be between:
  - 3 (straight pieces of road)
  - 9 (heavy braking and cornering)

Aggregate performance

- Best way to select aggregate is to use existing knowledge
- Encouraging our regions to use local knowledge as to what aggregate perform in various locations

Developing a Model

- Compare the skid performance of all aggregates used in New Zealand under the same conditions
- Numerous filters including:

Texture,	Hierarchy,	Urban/Rural,
Stress,	Geometry,	Traffic,
HCV,	Age,	Surface type

Goal

- There is already good evidence that implementing a policy for skid resistance has significantly reduced crashes in NZ

By

  - Ensuring the IL's are appropriate
  - Treating the right sites
  - Using the right treatments
  - Using the right aggregates
- We believe that further improvements can be made