Implementing the New Zealand Skid Resistance Policy
(Ring Fenced Funding and Skid Reviews)

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Historical background – main points of T10 and recap of 2014 presentation.

Ring Fenced Funding – how it is worked out.

Skid reviews – what these involve.

Results and Progress – how we are doing?

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Historical Background

T10 introduced in 1997 – policy for managing skid resistance in New Zealand.

Skid resistance is managed around Investigatory Level (IL) and Threshold Level (TL).

To enable "early" action an Exception Report is issued promptly after survey using non seasonally corrected data on 10m sections of the network that are below TL.

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Various revisions up to 2013.

Below TL for either texture, skid resistance or both

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Historical Background

In 2010 we introduced a Curve Risk Analysis Policy to target a reduction in the number of "loss of control" wet road crashes on curves.

As a result:
More network was managed as curves and at a higher IL.
Significant increase in number of Exceptions reported.

Parallel to this financial constraints on maintenance budgets put additional pressure on addressing this increase in the Exception Report.

No mechanism for prioritising when funding < No. of sites.

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Research showed we were having a large number of crashes on curves between 250-400m radius which were previously "non event" sections.

These were assigned a H,M or L risk rating based on a crash prediction model which took account of "out of contextness" (approach speed and curve speed difference) and curve geometry.

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Historical Background

T10 also requires a further review of seasonally corrected data which needed to be prioritised.

These issues were addressed in 2012 with the introduction of a two level prioritisation process

Exception Report - 10m lengths around TL.
Skid Assessment Lengths (SAL) - typically 50-100m lengths around IL.

Both levels use microtexture, macrotexture and "wet crash" history to target a "best value" safety outcome on the State highway network.

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SAL – based on site category feature lengths and using average values over these lengths.

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Historical Background

1st Level - Identifies most urgent 10m sites for investigation.

Each length is assigned either a Priority A or B.

2nd Level – After seasonal correction and based on longer skid assessment lengths (SAL).

Uses site category feature lengths and is directional.

Lengths are prioritised using a scoring system which utilises crashes, average skid resistance and texture level and traffic volume.

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Scoring for skid resistance and texture is cumulative.

Lower the value the higher the points score.

Ramps up in bands below TL to elevate priority.

Uses only 2 “wet crashes” to count as 1 Could be considered a “random” occurrence.

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Ring Fenced Funding

Since 2014 the prioritisation has been used to determine the level of "ring-fenced" funding allocated to skid resistance.

Dedicated funding removes the Engineer's dilemma between prioritising asset preservation against safety when budgets are constrained.

The final analysis used the following criteria:

SAL score ≥140 and with an average ESC value of IL ≤ -0.05.

Total length of 10m sites meeting above was calculated and given as % of national need.

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The twin criteria eliminates sites where high score is not connected to low skid resistance.

The use of a 140 score enables sites with low skid resistance but no crash history to be addressed. –pro-active approach.

For each network area, total length is expressed as %of national need.

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Ring Fenced Funding

Each region is then allocated funding to treat sites with SAL score ≥140.

2014/15 was $13.2M
2015/16 was $13.2M
2016/17 is $12.1M

For 2017/18 we are requesting $11.3M

NMA	Length of (≥ 140) sites (m)	% of total sites	Allocation % Total sites ($)
Northland	59800	19.87%	$2,404,000
East Waikato	38650	12.84%	$1,553,756
Wellington	23220	7.71%	$933,460
Southland	22070	7.33%	$887,229
Coastal Otago	20010	6.65%	$804,415
Manawatu/Wanganui	13550	4.50%	$544,719
West Waikato North	12110	4.02%	$486,830
Taranaki	11950	3.97%	$480,398
Central Waikato	11370	3.78%	$457,082
North Canterbury	11040	3.67%	$443,815
West Waikato South	9850	3.27%	$395,977
Hawkes Bay	9720	3.23%	$390,751
Christchurch	7300	2.43%	$293,465
Tairawhiti West	6870	2.28%	$276,179
South Canterbury	6700	2.23%	$269,344
BOP West	5880	1.95%	$236,380
Otago Central	5760	1.91%	$231,556
BOP East	5460	1.81%	$219,496
Marlborough	5240	1.74%	$210,652
West Coast	5180	1.72%	$208,239
Nelson	4870	1.62%	$195,777
Tairawhiti North	3410	1.13%	$137,084
Milford	980	0.33%	$39,397
AMA	0	0.00%	$0

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Using current costs for asphalt/chipseal and other assumptions around % of each network covered by current programmed work and asset funding.

Total annual need is estimated and % for each network calculated.

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Ring Fenced Funding

Timing of survey and sealing season dictates that funding covers..

Sites identified for resurfacing in the next season from the current survey.

Urgent sites from next Exception Report.

Top 7 areas account for around 60-65 % of total funding.

Only covers "skid related" treatments – not rehabilitation!!

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Under current Contract model NZTA/supplier shares cost of watercutting based on certain risk profiles in the contract.

Only surface type treatments (including pre-seal repairs) are funded for this "bucket"

Rehab and Recycle is ASSET funding.

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Skid Reviews

These top 7 funded areas get a review along with an audit of the T10 process.

The review involves:-

- Assistance in compiling the skid programme using the ER and SAL process.
- Assistance with treatment and aggregate selection.
- Identifies the need for limited "high performing" aggregates.
- Site visits to confirm treatments.
- Involves NZTA network staff, NOC supplier and STAG member.

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Important to utilise the limited "high performing"
Aggregates in the right locations.

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Skid Reviews

Normally take between 2-4 days.

Undertaken in May-July to determine following year programme.

Now in 4th Year.

Northland, East Waikato and Wellington – each year so far but coming down!....

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As we will show in later slides.

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Results and Progress

Looking at 10m Exceptions on SH network

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So how are we doing?

Red words show various important development introductions.

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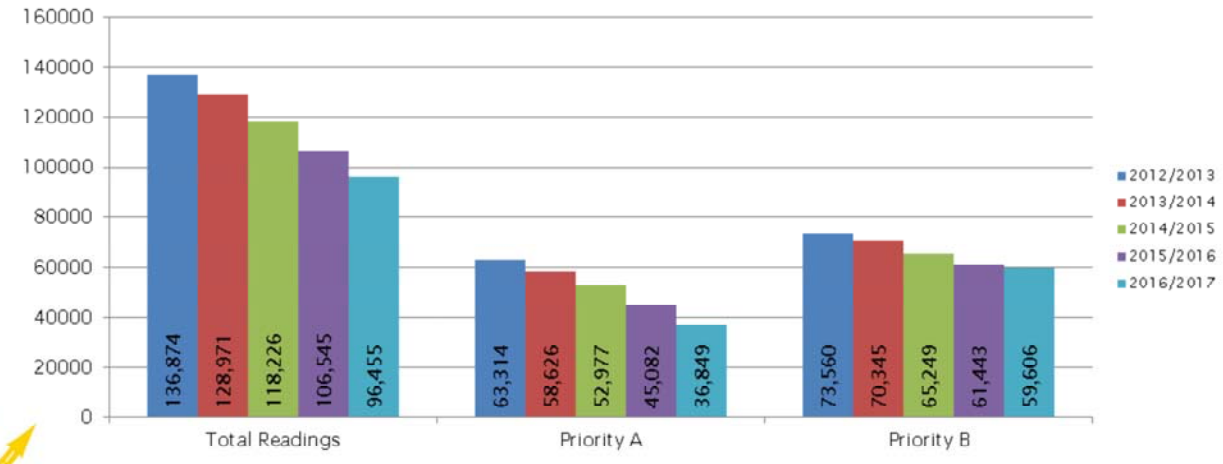
Results and Progress

Looking at 10m A and B Exceptions on SH network



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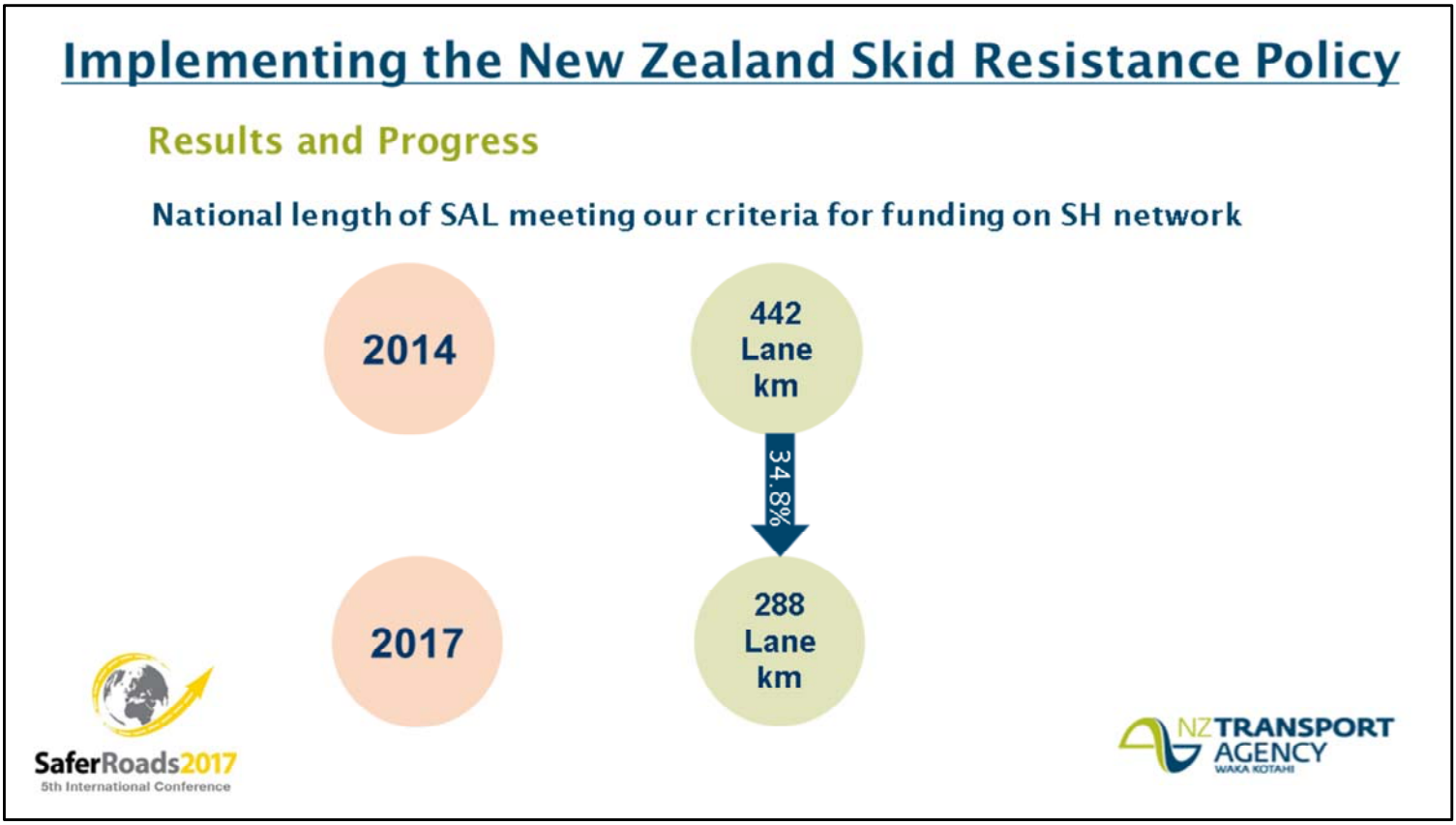
Priority A values are falling faster than B - targeted



These are the total lane km of the network which meet our SAL criteria.

Looking at the 3 areas which have featured in all skid reviews to date.

Some historical short seal cycle issues in Northland which are being methodically addressed with better performing aggregate to bring about the change.

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Results and Progress

Latest Benefit Cost

Looked at "Out of Context" curves (Site Cat 2)

Crash density has reduced by 86%.
Apply to number of wet injury crashes per annum (98).
Equates to 98 x 0.86 or 84 wet injury crashes.
Assume a social cost of $717,500/injury crash.
Saving is $60.3M/annum
BCR is therefore 60.3/13.2 = **4.6**

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And finally the BC of the policy.

THANK YOU

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