Introductions

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Northland Transport Alliance

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Senior Transportation Engineer
Abley
Introductions
Contents

1. Setting the scene
2. Existing tools
3. The gap / opportunity
4. How the tool was built
5. Tool functionality
6. Next steps
Northland

- Number of fatalities and serious injuries happening on our roads is increasing
- Predominantly rural based roading network:
  - Lower population numbers
  - Smaller isolated communities
  - Lower Socioeconomic populations
- Funding Criteria – Results Alignment, Cost-Benefit Appraisals
- Programme Management – Tight timeframes, limited budgets, strong political influence.
Barriers to programme development

- Development of Low/Cost Low Risk programmes based on programme level business cases
- Demonstrates strategic alignment and alternative options
- Demonstrate clear rationale
- Most effective response to the problem
Existing tools
Why the tool was developed
Collective risk = \frac{(fatal\ crashes + serious\ crashes)}{number\ of\ years\ of\ data} \times \text{Length of road section}
Personal risk = \[
\frac{\text{Fatal crashes} + \text{serious crashes}}{\left(\text{length of road in km} \times \text{number of years of data} \times 365 \text{ days}\right) \times \frac{\text{AADT}}{10^3}}
\]
Why the tool was developed

- Bridge the gap
- Build programmes that can easily be prioritised
- Simultaneously call on all relevant documentation
- Link existing map packages
Work Smarter, Not Harder.

https://me.me/i/work-smarter-not-harder-4916699
Step 1. Create Database
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<table>
<thead>
<tr>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment Philosophy</td>
</tr>
<tr>
<td>Crash type(s) addressed</td>
</tr>
<tr>
<td>Urban / Rural</td>
</tr>
<tr>
<td>Crash reduction potential</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Intersections</th>
<th>Corridors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>ONRC</td>
</tr>
<tr>
<td>No. of approaches</td>
<td>Road attributes</td>
</tr>
<tr>
<td></td>
<td>AADT</td>
</tr>
<tr>
<td></td>
<td>Road type (divided etc)</td>
</tr>
</tbody>
</table>
Step 1. Create Database

- Corridors
- ONRC
- Road attributes
- AADT
- Road type (divided etc)
<table>
<thead>
<tr>
<th>ONRC</th>
<th>Secondary Collector</th>
</tr>
</thead>
<tbody>
<tr>
<td>AADT</td>
<td>&lt;1000 vpd</td>
</tr>
<tr>
<td>Collective Risk</td>
<td>Low Medium</td>
</tr>
<tr>
<td>Personal Risk</td>
<td>High</td>
</tr>
<tr>
<td>OoCC</td>
<td>2</td>
</tr>
<tr>
<td>Speed limit</td>
<td>100km/h</td>
</tr>
<tr>
<td>SaAS</td>
<td>80km/h</td>
</tr>
<tr>
<td>Common Crashes</td>
<td>Run off Road</td>
</tr>
</tbody>
</table>
## Safe Interventions

The treatment options below have been calculated based on the selected corridor in the map viewer. Select suitable treatment options, then confirm the crash reduction factor and enter the cost of implementation for each. Added projects will appear in the Saved Programmes tab in the web viewer.

### Treatment Options

<table>
<thead>
<tr>
<th>Treatment Options</th>
<th>% Crash Reduction</th>
<th>Est DSIA Saved per Annum</th>
<th>Cost ($) of Implementation</th>
<th>BCR</th>
<th>Select</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active signs (vehicle or speed activated)</td>
<td>35</td>
<td>0.08</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barriers at high risk locations</td>
<td>30</td>
<td>0.07</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Curve warning</td>
<td>25</td>
<td>0.06</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduce speed to SAAS</td>
<td>25</td>
<td>0.06</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Add custom intervention**  
Apply crash reduction to:  
- All crash types

[Add Custom Intervention]
Case Study
### Safe Interventions

The treatment options below have been calculated based on the selected corridor in the map viewer. Select suitable treatment options, then confirm the crash reduction factor and enter the cost of implementation for each. Added projects will appear in the Saved Programmes tab in the web viewer.

#### Treatment Options

**Treatment Philosophy:** Transformational

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<th>Select</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce speed to 50kph</td>
<td>35</td>
<td>0.14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mid Barrier</td>
<td>80</td>
<td>0.13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clear zone increase (e.g. roadside hazard removal)</td>
<td>10</td>
<td>0.12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roadside barriers (continuous)</td>
<td>45</td>
<td>0.08</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barriers at high risk locations</td>
<td>30</td>
<td>0.05</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Add custom intervention** Apply crash reduction to: All crash types

### Summary of projects

Annual Est. DSIs Saved: 0.00

**Add to Programme**

- Add to Existing Programme
- Select a Programme

- Add to New Programme
Safe Interventions

The treatment options below have been calculated based on the selected corridor in the map viewer.
Select suitable treatment options, then confirm the crash reduction factor and enter the cost of implementation for each. Added projects will appear in the Saved Programmes tab in the web viewer.

Treatment Options

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<th>Cost ($) of Implementation</th>
<th>BCR</th>
<th>Select</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce speed to 100 km/h</td>
<td>35</td>
<td>0.14</td>
<td>$30,000</td>
<td>101.20</td>
<td></td>
</tr>
<tr>
<td>Mid Barrier</td>
<td>80</td>
<td>0.13</td>
<td>$4,000,000</td>
<td>0.70</td>
<td></td>
</tr>
<tr>
<td>Clear zone increase (e.g., roadside hazard removal)</td>
<td>30</td>
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<td></td>
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<td>0.05</td>
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<td>1.08</td>
<td></td>
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</table>

Add custom intervention: Apply crash reduction to: All crash types

Summary of projects

Annual Est. DSI Saved: 0.00

Add to Programme

Add to Existing Programme
Select a Programme

Add to New Programme
### Safe Interventions

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<th>Cost ($) of Implementation</th>
<th>BCR</th>
<th>Select</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce speed to SAAS</td>
<td>34</td>
<td>0.14</td>
<td>$30,000</td>
<td>101.20</td>
<td>✔</td>
</tr>
<tr>
<td>Mid Barrier</td>
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<td>0.13</td>
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<td>$1,000,000</td>
<td>1.08</td>
<td>✔</td>
</tr>
</tbody>
</table>

Add custom intervention: Apply crash reduction to:

- All crash types
- Run off road
- Head On (corridor sections)
- Intersection (corridor sections)
- Veh
- Ped
- Over
- Right turn against (intersections)
- Crossing Intersections
- Movement H, J, K, L (intersections)
- Movement O (intersections)
- Cyclist (intersections)
- Pedestrian (intersections)

#### Summary of projects

- Annual Est. DSi Saved: 0.00

Select a Programme

Launch Safe Interventions
### Safe Interventions

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Cost (k$)</th>
<th>Benefit Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce speed to SAAS</td>
<td>30,000</td>
<td>101.20</td>
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<td>4,000,000</td>
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<td>5,200,000</td>
<td>0.54</td>
</tr>
<tr>
<td>Barriers at high risk locations</td>
<td>1,000,000</td>
<td>1.08</td>
</tr>
<tr>
<td>ATP Centraline and Edgeline</td>
<td>200,000</td>
<td>6.51</td>
</tr>
</tbody>
</table>

#### Summary of projects

- **Annual Est. DSI Saved:** 0.19
- **Total Cost of Implementation:** $1,239,000
- **BCR:** 3.40
- **Results Alignment:** High

#### Add to Programme

- **Add to Existing Programme:** [Select a Programme]
- **Add to New Programme:**
  - Car Test
  - Car Test 2
  - NAT Test
- **Project Name:**
- **Project Description:**
- **RSRP Start:**
- **RSRP End:**

#### Crash Details (2013-2017)

- **Head On:** 1
- **Run Off Road:** 3
- **Intersection:** 0
- **Wet:** 0
- **Dark:** 4
- **Pedestrian:** 0
- **Cyclist:** 1
- **Total:** 6

#### Download counter measures

[Launch Safe Interventions]
Next Steps

- Expanding dataset of interventions based on international best practice
- Refine economic assessments
- Post implementation performance tracking
- RAMM and RP data
Conclusion

- Streamlining processes
- Better prioritisation of programmes
- Enable programme flexibility