Two new tools for RCA’s Asset Managers – Thanks REG
REAAA Forum 17 August 2017

Simon Fendall
NZ Transport Agency

Mike Tapper
Beca
REG Direction

Mandate - The Sector works together to:

‘The Prize’

And Levels of Service & the value of roads

With Risk

Which Balance Whole of Life Cost

Use/develop existing tools & guidance
ONRC Performance Measures

One Network Road Classification
Performance Measures Reporting Tool

Reported Injury Counts

- Arterial
- Primary Collector
- Secondary Collector
- Access
- Low Volume

Classification

Resilience Customer Outcome 2 - The Number of Instances Where Road Access is Lost

The number of unplanned road closures and the number of vehicles affected by closures where there was no viable detour.

Financial Year: 2015/16, 2016/17
RCA:
Classifications: Arterial, Primary Collector, Secondary Collector, Low Volume, Access
ONRC Performance Measures

The Two tools

- Data Quality Project Dashboard
- Performance Measures Summary Report
REG - Data Quality Project

REG ONRC Data Quality Project

Introduction
As part of the role out of the ONRC performance measures and the standard reports provided to each RCA a need has been identified to interrogate the data that is feeding the results within the ONRC Performance Measure Reporting Tool (PMRT).

As the standard report provides peer to peer comparison data for the various measures it is important to have an understanding of the data quality behind the results. A suite of 38 data quality measures have been initially identified to test the data feeding the PMRT. These data quality measures interrogate the data in terms of completeness, accuracy and timeliness.

What this report tells me
This report provides the results of these data quality measures for your network. The report indicates how you are positioned against both what is considered good, and where the industry is currently sitting. The intention is for the results to identify opportunities for improvement in the way the industry collects, manages and uses data to support our decision making processes.

Background behind the measures
The measures have been grouped into categories and sub-categories. Each has a number of measures interrogating the dimensions of completeness, accuracy and timeliness of the data underpinning the results in the PMRT. Each measure has a result and a grading (1-5). Those measures with a result which is a grade 2 or 3 means there is a reduced confidence in the results published in the PMRT.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 1</td>
<td>Data quality to expected standard - Maintain current practices</td>
</tr>
<tr>
<td>Grade 2</td>
<td>Minor data quality issues present</td>
</tr>
<tr>
<td>Grade 3</td>
<td>Major data quality issues present</td>
</tr>
</tbody>
</table>

What is the source of the data being used?
The results presented use the following data sources:
- Data as recorded in the NZTA 10 year data up to and including the 2014/15 financial year
- The crash data results are based on the data loaded to the ONRC PMRT as at 27/06/2017.

My Results Overall

My Results by Dimension

- Completeness
- Accuracy
- Timeliness
Data Quality - Can we compare?

<table>
<thead>
<tr>
<th>Category</th>
<th>Sub-Cat</th>
<th>PM Influenced/Affected</th>
<th>Rec</th>
<th>Measure Description</th>
<th>Type</th>
<th>My Measure Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carriageway</td>
<td>Safety</td>
<td>Amenity</td>
<td>Cost Efficiency</td>
<td>Ca1a</td>
<td>Rural number of lanes matches width</td>
<td>completeness</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ca1b</td>
<td>Urban number of lanes matches width</td>
<td>completeness</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ca2</td>
<td>ONRC categories are assigned</td>
<td>completeness</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ca3a</td>
<td>Rural carriageways are generally not short</td>
<td>accuracy</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ca3b</td>
<td>Urban carriageways are generally not short</td>
<td>accuracy</td>
</tr>
<tr>
<td>Network</td>
<td>Amenity</td>
<td>Treatment Length</td>
<td></td>
<td>TL1a</td>
<td>Treatment Lengths are generally not short</td>
<td>accuracy</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TL1b</td>
<td>Treatment Lengths are not too long</td>
<td>accuracy</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TL2</td>
<td>Treatment Lengths match major surfaces</td>
<td>accuracy</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TL3a</td>
<td>Unsealed network has no surface records</td>
<td>accuracy</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TL3b</td>
<td>Sealed network has surface records</td>
<td>accuracy</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TL4</td>
<td>Network with STE reading</td>
<td>completeness</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TL5</td>
<td>Treatment Lengths match renewals</td>
<td>timeliness</td>
</tr>
</tbody>
</table>

[Graphs showing data distribution and comparison]
Data Quality – Can we compare?

The distribution of results for all RCAs shown against the grade ranges (The traffic light colours reflect the grade ranges for this measure).
Benchmarking - Summary Report

Benchmarks against nine key measures

- Safety (DSI Crash, Collective and Personal risk trends)
- Amenity (STE, Peak Roughness (Urban and Rural))
- Cost efficiency ( % Renewals, Sealed and Unsealed Mtce Costs, Overall Network Costs)

Benchmarked against:

- Time (Typically last 5 years)
- Peer Group
- Regionally and Nationally

Results are indicators of “performance” only
**Network Characteristics**

<table>
<thead>
<tr>
<th>ONRC Category</th>
<th>Urban (Km)</th>
<th>Rural (Km)</th>
<th>TOTAL LENGTH (Km)</th>
<th>Urban Journeys</th>
<th>Rural Journeys</th>
<th>ANNUAL TOTAL JOURNEYS TRAVELLED (M Veh Km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arterial</td>
<td>13</td>
<td>1</td>
<td>14</td>
<td>50</td>
<td>4</td>
<td>54</td>
</tr>
<tr>
<td>Primary Collector</td>
<td>23</td>
<td>22</td>
<td>45</td>
<td>48</td>
<td>15</td>
<td>63</td>
</tr>
<tr>
<td>Secondary Collector</td>
<td>45</td>
<td>252</td>
<td>297</td>
<td>21</td>
<td>34</td>
<td>56</td>
</tr>
<tr>
<td>Access</td>
<td>77</td>
<td>542</td>
<td>619</td>
<td>10</td>
<td>19</td>
<td>29</td>
</tr>
<tr>
<td>Low Volume</td>
<td>80</td>
<td>847</td>
<td>928</td>
<td>3</td>
<td>9</td>
<td>12</td>
</tr>
<tr>
<td><strong>TOTAL NETWORK</strong></td>
<td><strong>238</strong></td>
<td><strong>1,666</strong></td>
<td><strong>1,903</strong></td>
<td><strong>132</strong></td>
<td><strong>82</strong></td>
<td><strong>214</strong></td>
</tr>
</tbody>
</table>

*Table 1: Network Statistics for network length (km) and journeys travelled (Million vehicle km) by ONRC Class - Sourced from ONRC performance measures reporting tool*

**Network % Length (km) & Journeys Travelled (veh km)**

- Arterial
- Primary Collector
- Secondary Collector
- Access
- Low Volume

**Sealed v Unsealed Proportion**

- Sealed (653 km) - 55%
- Unsealed (1050 km) - 45%

*Figure 1: Network Percentage Length and Journeys Travelled - Sourced from ONRC performance measures reporting tool*

*Figure 2: Sealed v Unsealed - Sourced from ONRC performance measures reporting tool*

**What am I looking for?** The data details the road network length and number of journeys by ONRC category. Journeys travelled are measured by multiplying the volume of traffic on a road by its length. This shows where most customer journeys are made. Primary collector routes make up only 2% of the network by length but carry 30% of the amount of travel undertaken in the district due to the higher traffic volumes.
**Benchmarking - Summary Report**

Customer Outcome 2: collective risk (serious injuries and fatalities (DSI) per km of road)

**Collective Risk** is a measure of the total number of Serious injuries and fatalities (DSI) per km over a section of road. **Personal Risk** is a measure of the danger to each individual using the road being assessed. These risk ratings were devised by the New Zealand Road Assessment Programme (KiwiRAP – a partnership between the Automobile Association, NZ Transport Agency, Ministry of Transport, ACC and NZ Police.)

Key Question: Are my collective risk ratings at the low end or high end? How does my network compare with my peers, my region and nationally?

![Safety Customer Outcome 2 - Collective Risk](image)

*Figure 4: Serious injuries and fatalities (DSI) per km of road by ONRC category (low/medium ratings per KiwiRAP) - Sourced from ONRC performance measures reporting tool*
Benchmarking - Summary Report

Cost Efficiency

Percentage of network surfacing renewed annually

Key Question: How much of my sealed network am I renewing each year in comparison with others?

Figure 9: Annual surfacing renewal & pavement renewal percentage - Sourced from NZ Transport Agency TIO annual achievement figures
Cost Efficiency 2 & 3 - Sealed road maintenance

Key Question: How does the cost of maintaining my sealed road network compare to others?

Figure 10: Sealed road maintenance costs per kilometre - Sourced from NZ Transport Agency TIO Work Category funding reports
Thank you