

“ The programme of works

The WDC has provided evidence based on robust data and presented information about their own asset’s performance against that of their peer group, classifying information under the ONRC customer outcomes and CLoS. They have also provided a narrative of what the information indicates using a written description and a traffic light rating system (detailed previously under this heading).

Overall, the WDC presents relevant and comprehensive detail in a concise format to back up the problems and benefits that they have identified related to sealed roads. This is only one example of what they have done – and what your organisation could do – for one type of asset or problem.

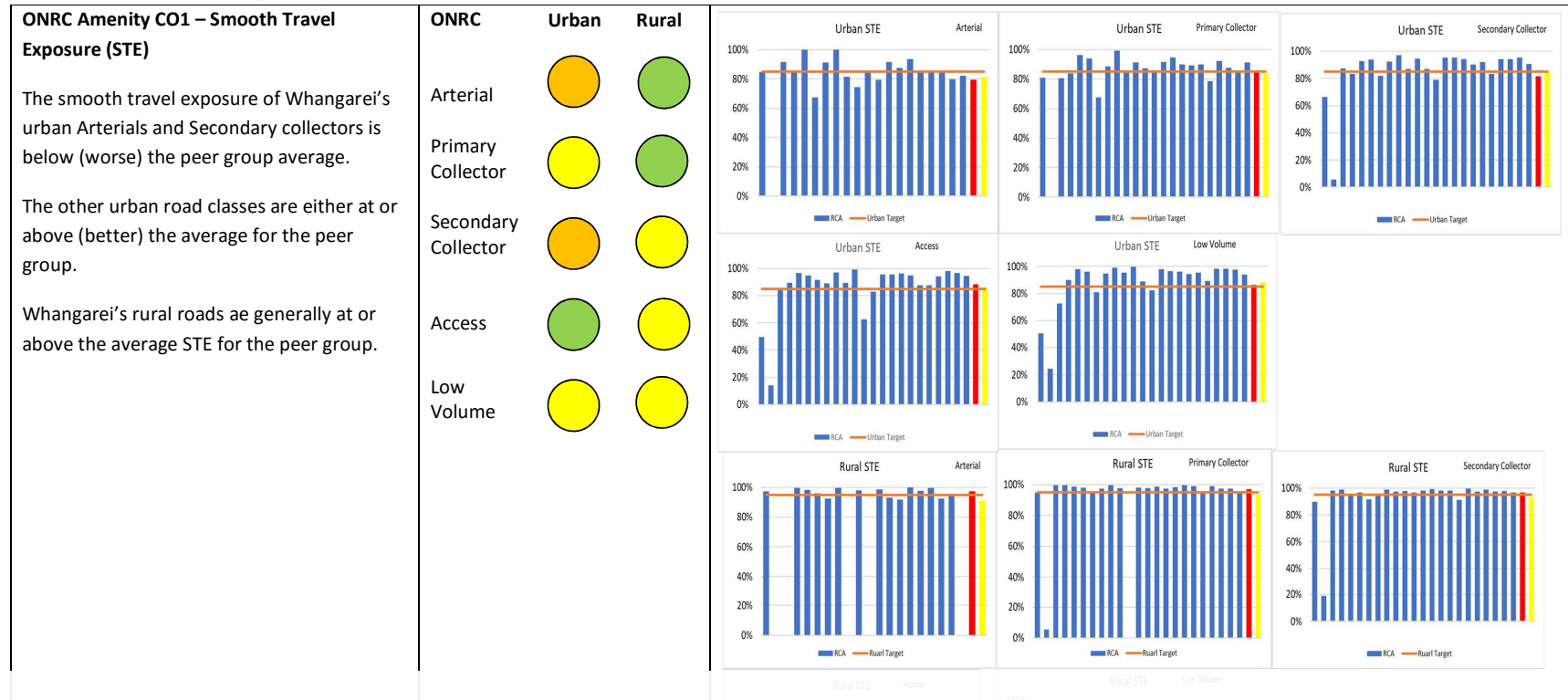


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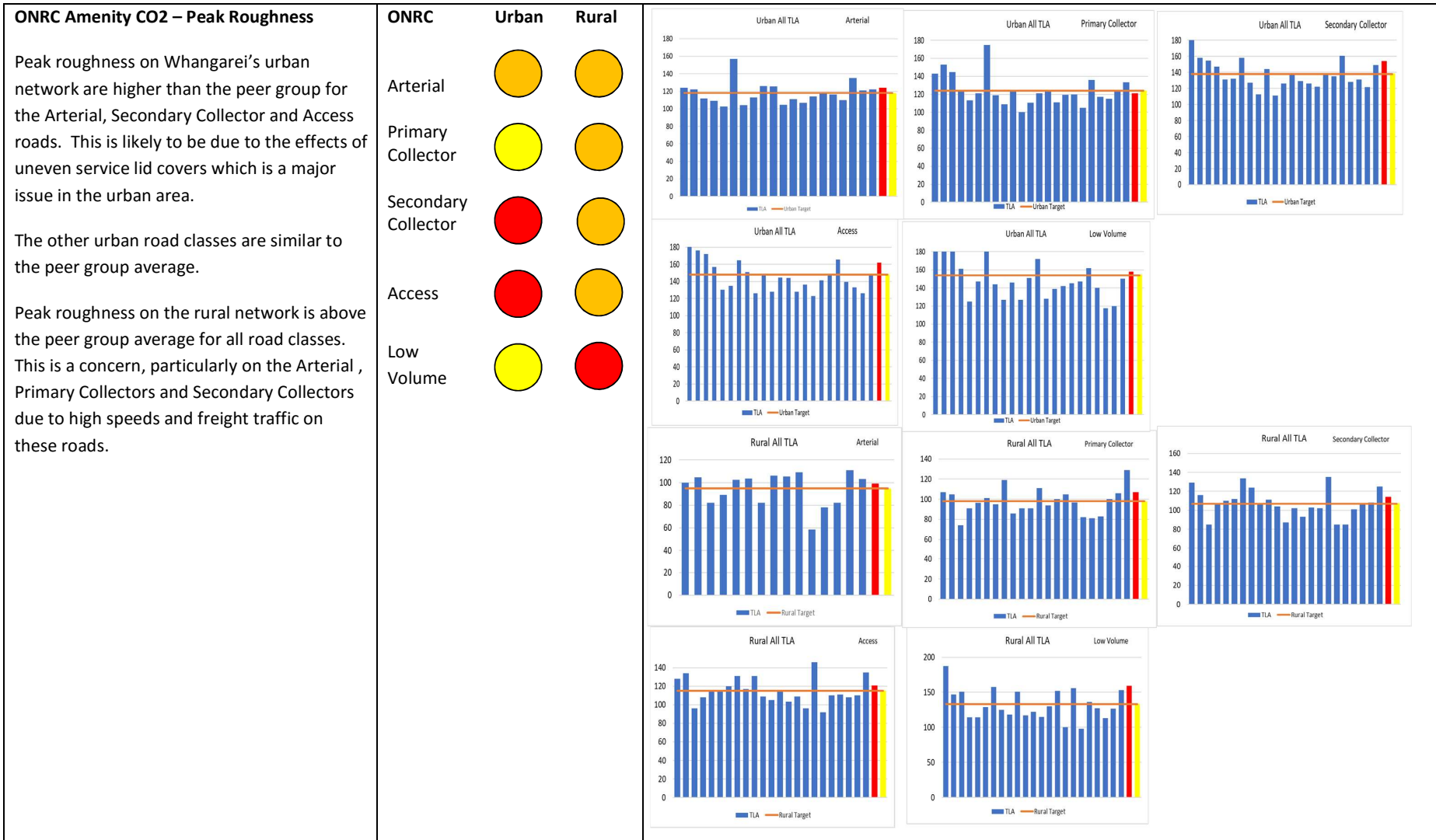


This example demonstrates good practice and fit-for-purpose effort.

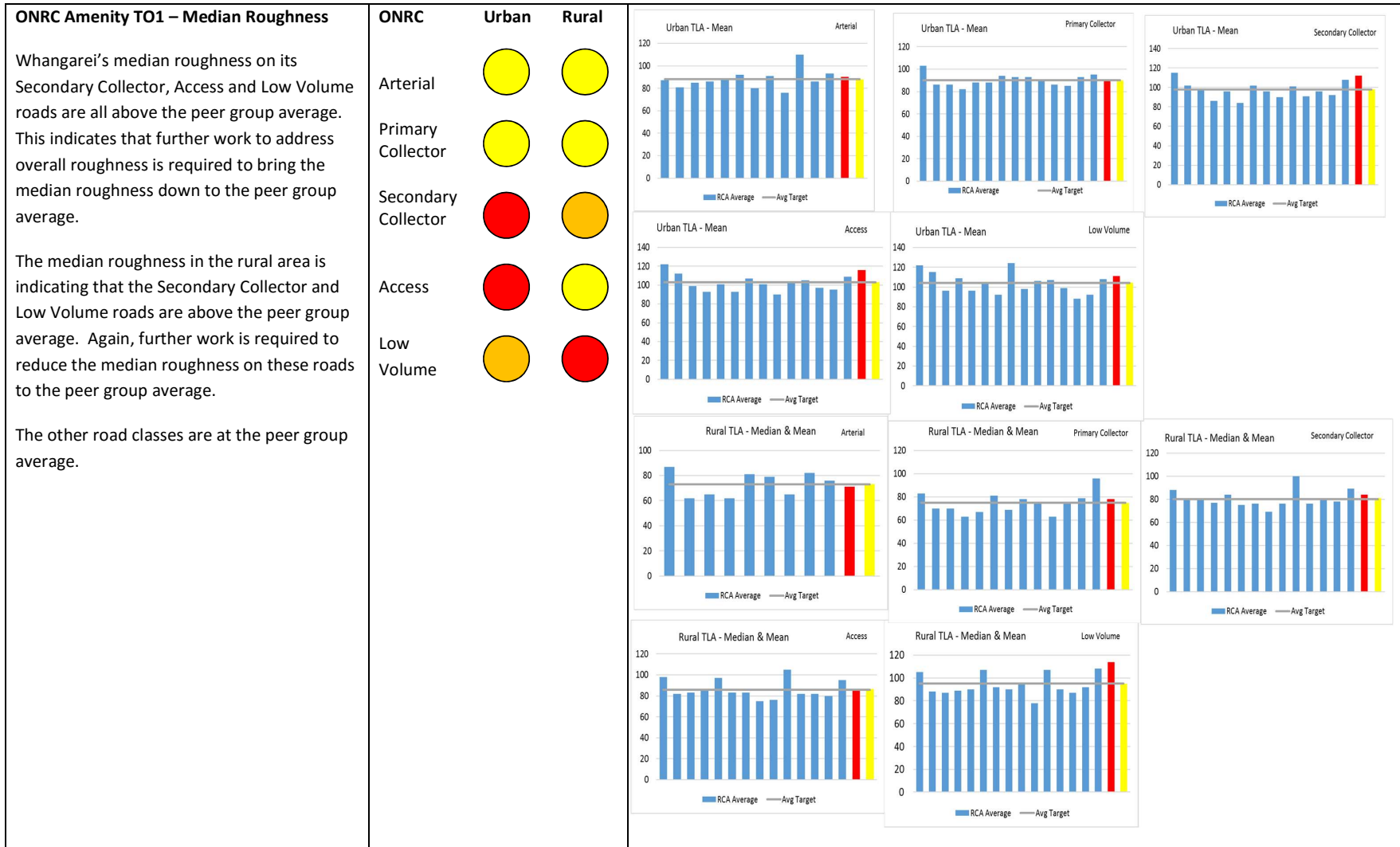
6.2.3 Evidence and Gap Analysis








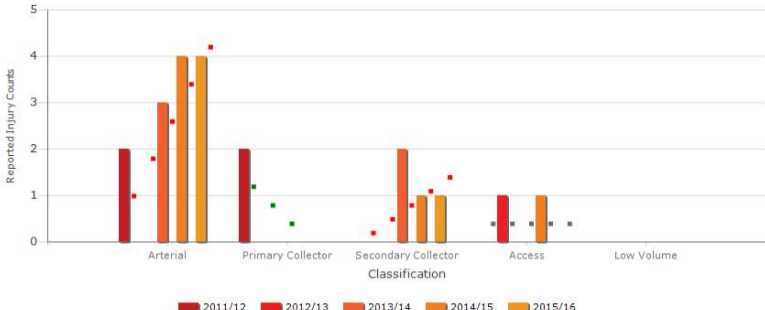
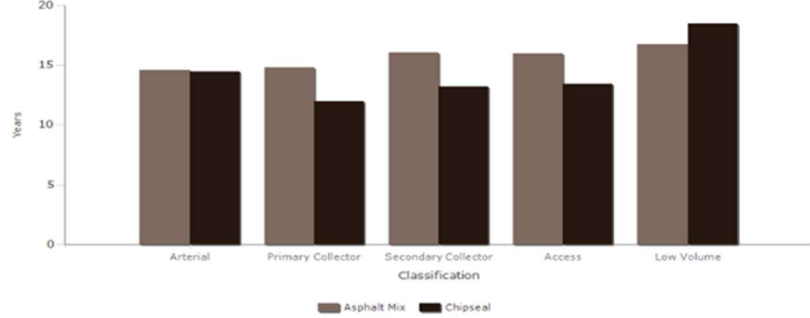
Source: Whangarei District Council Transportation AMP 2018-2048







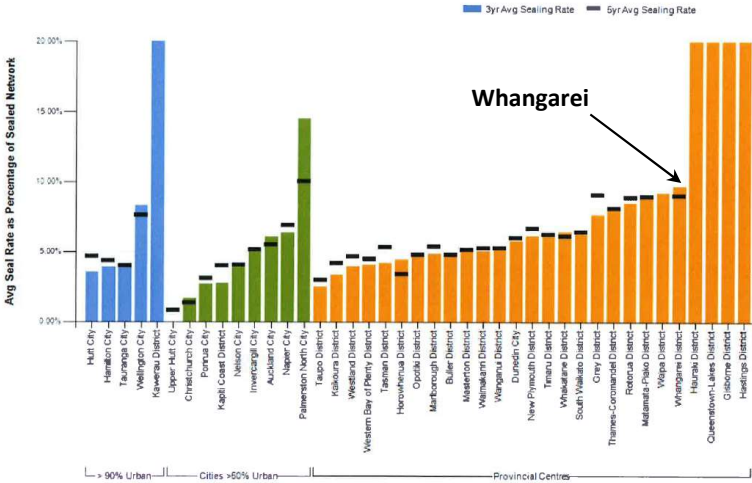
Source: Whangarei District Council Transportation AMP 2018-2048



Source: Whangarei District Council Transportation AMP 2018-2048

<p>ONRC Safety TO4 –Loss of Driver Control on Wet Roads</p> <p>It should be noted that there is not much data available for this LOS and this reduces the usefulness of this measure.</p> <p>However, it does appear that there is a significantly increasing trend of serious injury and fatal wet road loss of control crashes on the Arterial road network in Whangarei. The crashes in the wet on Secondary Collector roads may also be increasing.</p>	<p>ONRC</p> <p>Arterial </p> <p>Primary Collector </p> <p>Secondary Collector </p> <p>Access </p> <p>Low Volume </p>	<p style="text-align: center;">Safety Technical Output 4 - Loss of Control on Wet Roads</p> <p style="text-align: center;">The number of reported serious injuries and fatalities (DSI) attributable to loss of driver control on wet roads, each year on the network.</p> <p>Financial Year: 2016/17 RCA: Whangarei Classifications: High Volume, National, Regional, Arterial, Primary Collector, Secondary Collector, Access, Low Volume Urban/Rural: Urban, Rural Year: 2011/12, 2012/13, 2013/14, 2014/15, 2015/16 <i>* There are 6 data validation errors, see below for details</i></p>  <table border="1"> <caption>Reported Injury Counts by Classification and Year</caption> <thead> <tr> <th>Classification</th> <th>2011/12</th> <th>2012/13</th> <th>2013/14</th> <th>2014/15</th> <th>2015/16</th> </tr> </thead> <tbody> <tr> <td>Arterial</td> <td>2</td> <td>3</td> <td>4</td> <td>4</td> <td>4</td> </tr> <tr> <td>Primary Collector</td> <td>2</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>Secondary Collector</td> <td>2</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>Access</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>Low Volume</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table>	Classification	2011/12	2012/13	2013/14	2014/15	2015/16	Arterial	2	3	4	4	4	Primary Collector	2	1	1	1	1	Secondary Collector	2	1	1	1	1	Access	1	1	1	1	1	Low Volume	0	0	0	0	0
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<p>ONRC Cost Efficiency 2d & 3d – Chipseal and Asphalt Resurfacing</p> <p>Whangarei’s resurfacing cycle time is 14 years on average which suggests that the resurfacing cycle times are appropriate.</p> <p>Resurfacing times for asphalt are generally higher than for chip seal.</p>		<p style="text-align: center;">Cost Efficiency 2 & 3 - Average Life Achieved of Sealed Surfaces Renewed</p> <p style="text-align: center;">The average lives achieved for asphalt and chipseal resurfacing undertaken over the previous year.</p> <p>Financial Year: 2016/17 RCA: Whangarei Classifications: High Volume, National, Regional, Arterial, Primary Collector, Secondary Collector, Access, Low Volume</p>  <table border="1"> <caption>Average Life Achieved (Years) by Classification and Material</caption> <thead> <tr> <th>Classification</th> <th>Asphalt Mix</th> <th>Chipseal</th> </tr> </thead> <tbody> <tr> <td>Arterial</td> <td>14</td> <td>14</td> </tr> <tr> <td>Primary Collector</td> <td>14</td> <td>12</td> </tr> <tr> <td>Secondary Collector</td> <td>16</td> <td>13</td> </tr> <tr> <td>Access</td> <td>16</td> <td>13</td> </tr> <tr> <td>Low Volume</td> <td>17</td> <td>18</td> </tr> </tbody> </table>	Classification	Asphalt Mix	Chipseal	Arterial	14	14	Primary Collector	14	12	Secondary Collector	16	13	Access	16	13	Low Volume	17	18																		
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Source: Whangarei District Council Transportation AMP 2018-2048

<p>ONRC Cost Efficiency 2d – Chipseal Resurfacing</p> <p>When compared to its peer group, Whangarei generally achieves a shorter chipseal life, apart from Arterial and Low Volume roads which achieve average lives. This suggest that Whangarei can start to ease back on its current strategy to achieve 100km of resurfacing per year to address a historic backlog of resurfacing due.</p>	<p>ONRC</p> <p>Arterial </p> <p>Primary Collector </p> <p>Secondary Collector </p> <p>Access </p> <p>Low Volume </p>	 <p>Average Life Achieved Years - Peer Group</p>
<p>NZTA Peer Group Charts – 3 year Sealing Rates</p> <p>When compared to its peer group, Whangarei is carrying out more resealing per annum than most of its peer group. This high resurfacing rate was to address a historic backlog of resurfacing due to previous under investment.</p> <p>This again suggests that Whangarei can start to reduce the amount of annual resurfacing being carried out.</p>	<p>Overall </p>	 <p>Avg Seal Rate as Percentage of Sealed Network</p> <p>Legend: 3yr Avg Sealing Rate (Blue), 5yr Avg Sealing Rate (Black)</p> <p>Whangarei</p>

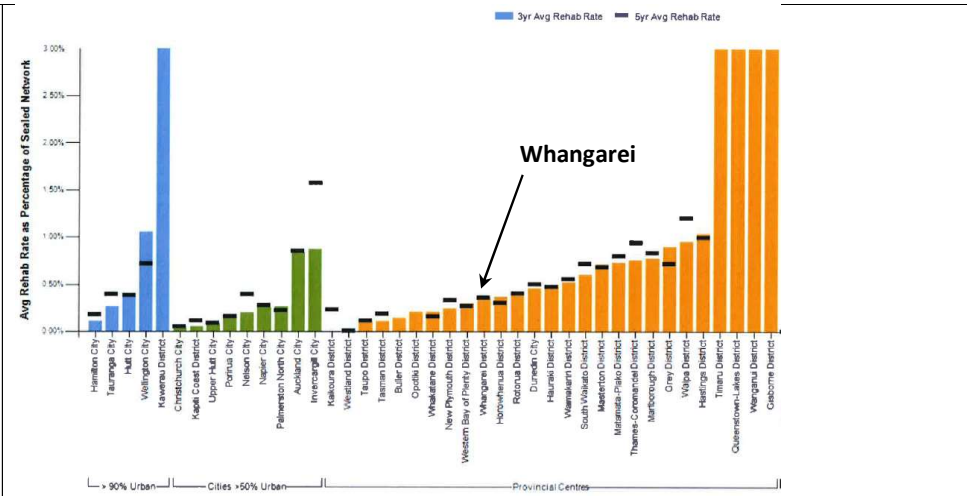
Source: Whangarei District Council Transportation AMP 2018-2048

NZTA Peer Group Charts – 3 year Rehabilitation Rates

When compared to its peer group, Whangarei is carrying out less pavement rehabilitation per annum than most of its peer group. The achievement over the past 3 years has been less than 0.5%/annum of the whole network being rehabilitated.

A funding increase was obtained in 2015/18 to address this low level of achievement and this needs to be continued to increase the rehabilitation rate to a more sustainable level of about 1% per annum.

Overall



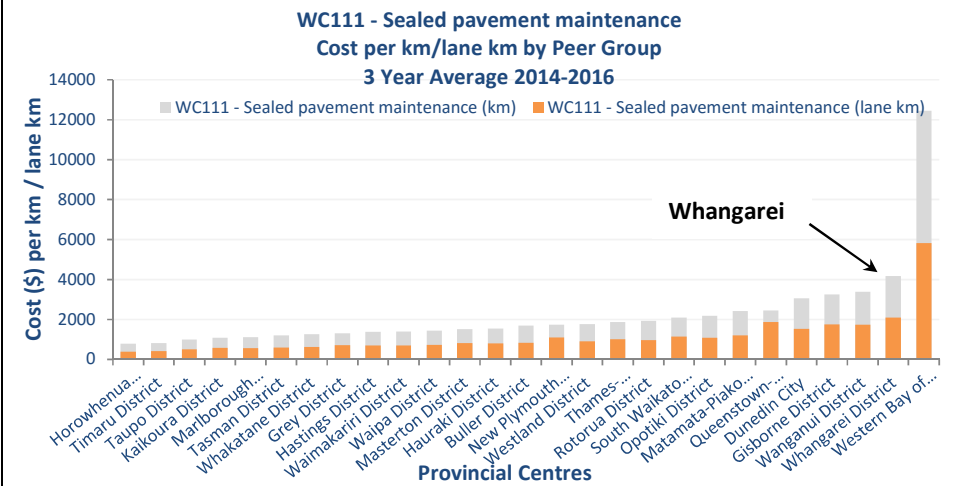
NZTA Peer Group Charts – 3yr Cost/km W/C 111 - Sealed Pavement Maintenance

Whangarei has the second highest spend per km on sealed pavement maintenance and about twice the peer group average.

It should be noted that Whangarei charges all of its contractor management costs to W/C 111 and this adds about 20% or \$800/km to the overall cost/km. If this was removed it would place Whangarei at a similar level to Dunedin and Gisborne.

It should also be noted that Whangarei has the third highest VKT/km in its peer group with a high portion of freight and weak

Overall



Source: Whangarei District Council Transportation AMP 2018-2048

pavements and subgrades which also contributes to higher costs/km.


However, Whangarei consider that some efficiency can be gained by targeting sealed pavement maintenance on higher ONRC class roads and tightening up on its dispatch raising processes which should see a decrease in these costs. The increased investment in pavement renewals over the last 2-3 years will also have an effect on reducing sealed maintenance costs.

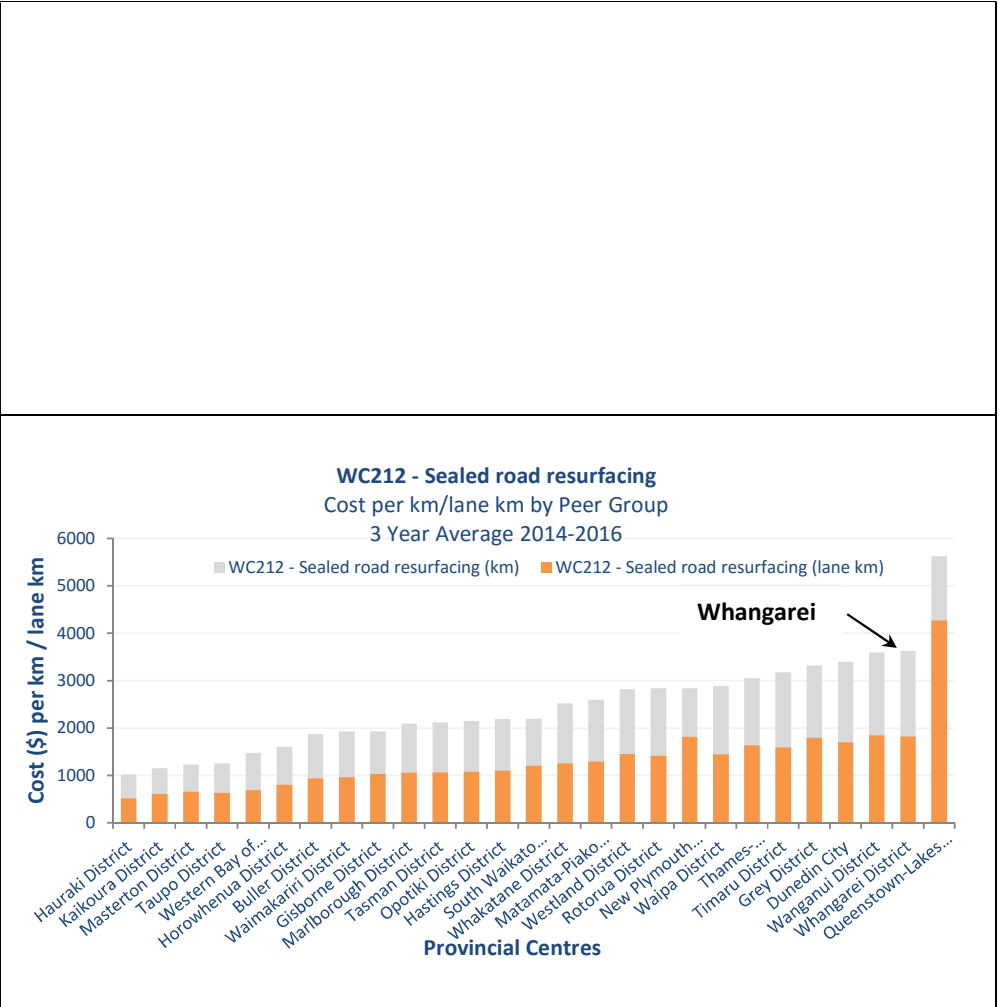
NZTA Peer Group Charts – 3yr Cost/km W/C 212 - Sealed Road Resurfacing

Whangarei has the second highest spend per km in its peer group.

This is likely to be as a result of a number of factors including shorter reseal lives due to high VKT, targeting expensive urban TAC sites in the last 2 years and elevated annual reseal lengths to reduce a historical backlog due to previous under investment.

As mentioned above, Whangarei is looking at reducing its reseal programme because sufficient progress has now been made in addressing the historical backlog and by using longer life single coat seals where possible.

Overall 



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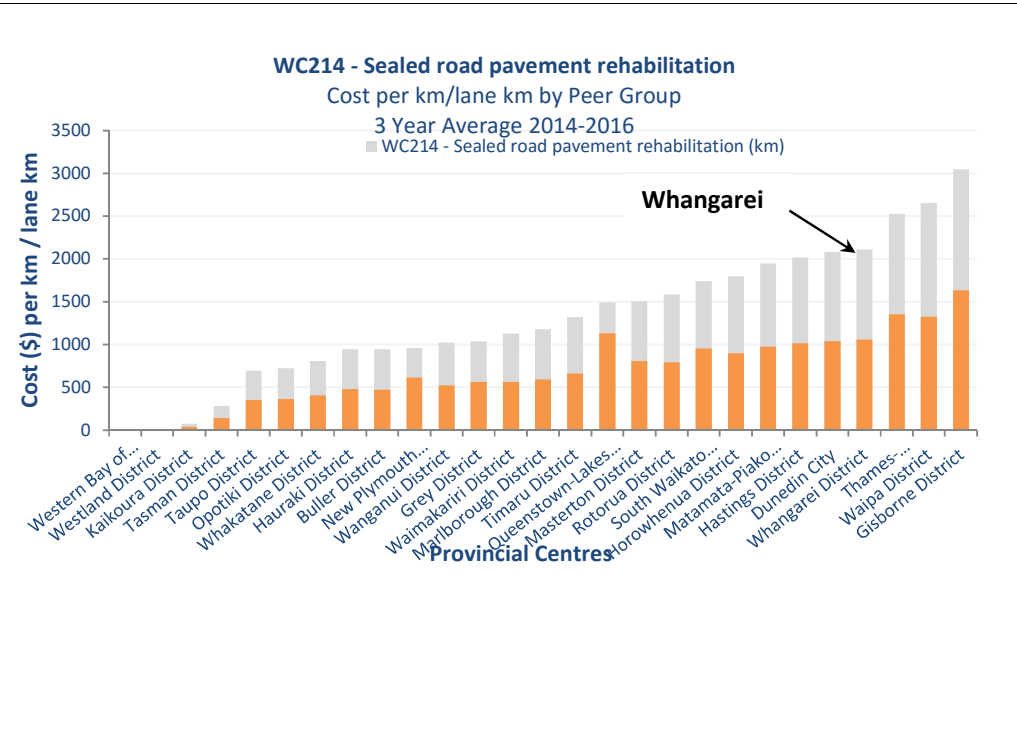
NZTA Peer Group Charts – 3yr Cost/km W/C 214 - Sealed Road Pavement Rehabilitation

Whangarei is in the upper third of its peer group for spend per km on sealed road pavement rehabilitation.


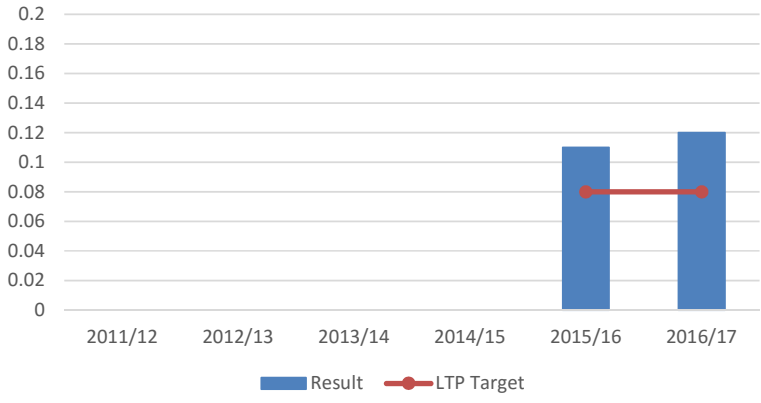

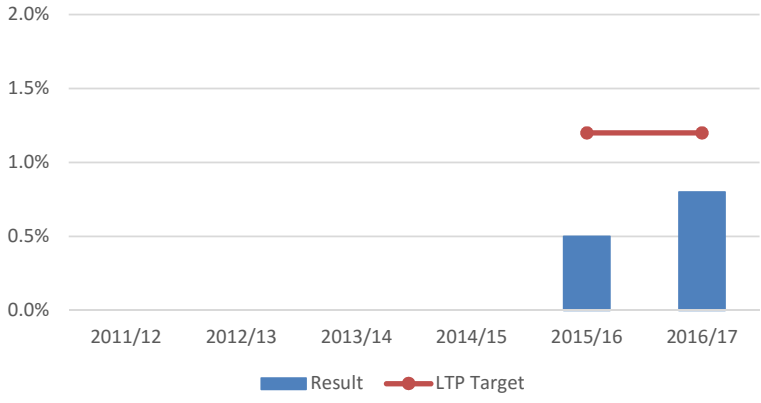
This is likely to be due to a greater focus on rehabilitations in the last 2 years to correct a significant period of historic under investment. Whangarei has also been focusing on expensive urban rehabilitations that generally cost more than \$1M/km to construct.

As mentioned above, continued focus on pavement rehabilitation will be required to help address above average roughness levels and reduce the high sealed pavement maintenance spend (W/C 111).

Overall



Source: Whangarei District Council Transportation AMP 2018-2048

<p>LTP Measure 1.1.5 – Percentage of the Sealed Road Network that is Sealed (DIA)</p> <p>This is a Department of Internal Affairs (DIA) measure that was introduced in 2015/16.</p> <p>The percentage of the network resurfaced in the last two years has been significantly higher than the target of 8%. As mentioned earlier, this high resurfacing rate was to address a historic backlog of resurfacing due to previous under investment. It also was making use of lower bitumen prices which enabled more resurfacing to be achieved. WDC will now look at reducing the amount of resurfacing going forward.</p>	<p>Overall </p>	<p>LTP Measure (DIA) - Length of Sealed Network Resurfaced</p>  <table border="1"> <thead> <tr> <th>Year</th> <th>Result</th> <th>LTP Target</th> </tr> </thead> <tbody> <tr> <td>2015/16</td> <td>0.11</td> <td>0.08</td> </tr> <tr> <td>2016/17</td> <td>0.12</td> <td>0.08</td> </tr> </tbody> </table>	Year	Result	LTP Target	2015/16	0.11	0.08	2016/17	0.12	0.08	
Year	Result	LTP Target										
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<p>LTP Measure 1.1.6 – Percentage of the Sealed Road Network that is Rehabilitated</p> <p>The percentage of the network rehabilitated in the last two years has been significantly less than the target of 1.2%. This is due to Whangarei focusing on more expensive urban rehabilitations which has resulted in less rehabilitation being achieved. It also reflects that the reduced demand for rehabilitation resulting from the hand-over of the Mangakahia Rd/Otaika Valley Rd route to NZTA as SH15.</p> <p>WDC will look to reset this target down to a level based on its current network condition.</p>	<p>Overall </p>	<p>LTP Measure - Length of Sealed Network Rehabilitated</p>  <table border="1"> <thead> <tr> <th>Year</th> <th>Result</th> <th>LTP Target</th> </tr> </thead> <tbody> <tr> <td>2015/16</td> <td>0.5%</td> <td>1.2%</td> </tr> <tr> <td>2016/17</td> <td>0.8%</td> <td>1.2%</td> </tr> </tbody> </table>	Year	Result	LTP Target	2015/16	0.5%	1.2%	2016/17	0.8%	1.2%	
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SUMMARY – Whangarei’s sealed roads generally have peak and median roughnesses that are the same or worse than the average for their peer group. Smooth travel exposure (STE) is the same or better than the peer group average apart from on urban Arterials and Secondary Collectors which are worse, partially caused by uneven service covers. The Arterial and Secondary Collector crashes are also showing increasing trend of serious injury and fatal loss of control crashes on wet roads.

The amount of sealed road resealed in Whangarei is high when compared to the peer group, but the amount of pavement rehabilitated is low. Sealed road costs in Whangarei are some of the highest in the peer group, which is not a surprise given that Whangarei has the third highest VKT and has poor subgrades and lack of quality pavement materials. Resident satisfaction with the quality of the sealed roads has increased in the last year, which is likely be due to the increase in pavement rehabilitations undertaken in 2015/16.

Overall this indicates that Whangarei is not over maintaining their roads and that their costs are high mainly due to environmental factors (climate, soils, VKT and lack of pavement aggregate).

6.2.4 Options to be Considered

Based on the above data and the problem definition, the following options have been considered for addressing the sealed pavements:

Source: Whangarei District Council Transportation AMP 2018-2048