Dusty Roads and Squeaky Wheels

Introduction on behalf of Brian McManaus – Roading Manager Hurunui DC
Trial Areas in 2014/15

- Dunedin
- Hurunui
- Masterton
- Whangarei
- NZ Defence
Product Trialled

- Stonewall is an acrylic copolymer.
- It is a combination of polymers used for dust control and soil stabilisation.
- The amount of polymer used determines the type of treatment whether it’s for dust or stabilisation.
- Once dry it is fully stable and won’t leach in wet conditions.
The “Co” in Co-polymer is Key
Methodology

- Applied through a water truck
- Typical application rate 10-20% polymer in water.
- Graded into surface and rolled.
Result after 3 weeks
After 5-6 weeks
Background

- Hurunui District is one of 2 districts that make up North Canterbury
- Bounded south by Waimakariri and North by Marlborough and Kaikoura.
- The District has a total area of 864,640 hectares and the permanent population is currently (as at March 2013) over 11,529 with approximately 8,500 ratepayers.
- The district is divided by the Hurunui River which flows (roughly) in an easterly direction from Lake Sumner to the coast just south of Gore Bay.
Figure A – Hurunui District Council. Map showing boundary
- North of the Hurunui River and with the exception of reasonably flat areas around the Culverden Township, the topography is generally undulating hills.

- The main commercial activities are Dairy, Beef and Sheep farming, Forestry and Tourism.

- South of the Hurunui River the topography is generally flat with undulating hills gradually increasing. The main commercial activities are also predominately rural namely Beef and Sheep farming, Viticulture and Forestry.

- The main urban centres are the townships of Amberley, Cheviot, Culverden and Hanmer Springs.
## Network Statistics (Overview)

The network comprises the following indicative quantities.

### B.3.1 Roads

<table>
<thead>
<tr>
<th>Category</th>
<th>Length</th>
<th>Sealed – Unsealed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Road Length</td>
<td>1457 km</td>
<td>609 km, 848 km</td>
</tr>
<tr>
<td>Total Urban Road Length</td>
<td>77 km</td>
<td>70 km, 7 km</td>
</tr>
<tr>
<td>Total Rural Roads</td>
<td>1380 km</td>
<td>539 km, 841 km</td>
</tr>
<tr>
<td>Total Traffic Density</td>
<td>82,880 VKT</td>
<td>Rural – Urban</td>
</tr>
</tbody>
</table>
Statistics

B.3.2 Traffic Volume Density

<table>
<thead>
<tr>
<th>Traffic Volume Range</th>
<th>Length of Road (km) in that Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADT &lt; 100 vpd</td>
<td>868 km</td>
</tr>
<tr>
<td>ADT 100 – 500 vpd</td>
<td>516 km</td>
</tr>
<tr>
<td>ADT 500 – 2000 vpd</td>
<td>64 km</td>
</tr>
<tr>
<td>ADT 2000 – 4000 vpd</td>
<td>10 km</td>
</tr>
</tbody>
</table>

B.3.3 Bridges and Major Culverts

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total bridges and major culverts &gt;3.4m2</td>
<td>280</td>
</tr>
<tr>
<td>Bridges longer than 20m</td>
<td>93</td>
</tr>
</tbody>
</table>
### More Statistics

B.3.4 Road Lengths as per ONRC (One Network Road Classification)

<table>
<thead>
<tr>
<th>Category</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Collector</td>
<td>107 km</td>
</tr>
<tr>
<td>Secondary Collector</td>
<td>283 km</td>
</tr>
<tr>
<td>Access</td>
<td>671 km</td>
</tr>
<tr>
<td>Low Volume Access</td>
<td>396 km</td>
</tr>
</tbody>
</table>
Dusty Roads and Customer expectations - Discussion

- Dust is one of the major complaint areas on our unsealed especially with more urban residents moving to rural areas.
- Limited budgets mean there is a real balance as to what can be done.
- 2 years of drought and high expectations make this difficult.
- Dust is one of the more emotive and political issues.
- Particularly when customers complain of negative health impacts due to dust, which is greatly amplified if children are affected.
- Through close work with our incumbent roading contractor we have managed to get on top of the usual unsealed roading issues such as potholes and corrugations.
Dusty Roads and Customer expectations - Discussion

- Dust remains a significant source of complaints from ratepayers and road users which in turn is reflected in the Hurunui District.
- Small ratepayer base and a proportionally large unsealed network makes it difficult to extend seal.
- NZTA reluctance to fund seal extensions with a B/C of less than 4, or unless they can justified under the Minor Improvement Work Category.
- Internal council programmes such as seeking part funding arrangements with affected landowners have often been fraught with difficulties.
- Vocal residents or “squeaky wheels” will try their best to raise the profile of the issue of dust on their road.
Dusty Roads and Customer expectations - Discussion

- Previously the cost for any extensions was shared 50/50 between Council and adjacent owners as long as 80% of those affected agreed to pay.
- There were always the ones that said there was nothing wrong which meant negotiation.
- All of this had the effect of taking up large portions of the Roading Teams time.
- Policy has now been changed to 100% with payment in advance.
- Although far more efficient, this has been a less than satisfactory outcome for some customers unable to meet this strict criteria and a number of less than positive letters and other communications have been received.
Dusty Roads and Customer expectations - Discussion

- In this environment the Roading Team are constantly looking to identify dust suppressant products that are cost effective, environmentally friendly and fit for purpose.

- To this end the Roading Department approached RST Environmental Solutions LTD and engaged them to carry out a trial using the Stonewall dust suppressant system.

- Results from the initial trial were very positive and results were consistent with expected outcomes.
Dusty Roads and Customer expectations - Discussion

- Initial cost evaluations indicated that due to the reduced loss of fines (dust) experienced by using the product, less wearing course metal was required. This combined with a reduced grading requirement meant initial application costs were significantly offset.

- The Roading Team is currently investigating further treatment areas and reviewing the possibility of covering any further treatment costs with targeted rates.

- We look forward to working further to develop this opportunity with Rob and his team.
Results

- Variability in result across aggregate types.
- Higher polymer rates improved success.
- Stone on the surface and traffic nature influence results.
- Good results shown where there is good application and mixing. Compaction is essential.
NZ Defence

- Modified application
- Polymer incorporated
- Sprayed over on completion
NZ Defence

- Aggregate base had finer material
- Well incorporated
- Lasted 4 months
- Gradual breakdown
Going Forward

- Vital Bonmatt HR is being imported for trials this season
- Methodology changing on incorporation
- Benefits being seen on sub base stabilisation
- Looking for partners to trial areas of sub base stabilisation and dust control
Questions?