From Nothing to Something… Creating a Road Maintenance Culture in Tonga

Megan Schlotjes
Christopher R. Bennett
Asif Faiz
Alex Visser
Ian Greenwood
Kingdom of Tonga

- Population 105,000
- 870 km road network
- > 90 % sealed
- Most < 1,000 vpd
- Coral construction with hard well-draining basecourse
Tonga’s Roads
What is the Problem…?

No skilled workers  No govt’c capacity
No Funding  No forward planning

= NO SUSTAINABLE ROAD MAINTENANCE
Approach

- Governance of Transport Sector
- Funding, Future Planning & Programming
- Legislation & Standards
- Cost-effective Maintenance Technologies
- Road Maintenance Program
- Local Road Maintenance Industry
Ministry of Works
- Road maintenance
- Day works

Ministry of Infrastructure
- Regulatory function
- Legal and policy
- Asset management
- Safety and security

Ministry of Transport
- Legislation
- Enforcement
- Management of services

Divestment Program
Domestic Road Maintenance

Step 1: Contractor Capacity

Funding
- Capacity Development vs
- Physical Investments

Interest
- 32 local firms

Training
- Bidding
- Civil Works
- Environmental H&S
- Business Operations
Step 2: Road Maintenance Requirements

What’s the right mix?

- Periodic Maintenance
- General Routine Maintenance
- Heavy Routine Maintenance
Step 3: Routine Maintenance Contracts

- Less variation amongst contract prices, more interest from bidders

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 contractors</td>
<td>4 contractors</td>
</tr>
<tr>
<td>US$ 1.9 million</td>
<td>US$ 1.5 million</td>
</tr>
</tbody>
</table>

- Network Split
- Data
- Hybrid PBC

Minimum amount of works
## Periodic Maintenance: What to Do?

<table>
<thead>
<tr>
<th>Quarry</th>
<th>Aggregate Dry Strength (kN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ahononou</td>
<td>133</td>
</tr>
<tr>
<td>Nishi</td>
<td>101</td>
</tr>
<tr>
<td>Malapo</td>
<td>95</td>
</tr>
<tr>
<td>Royco</td>
<td>87</td>
</tr>
<tr>
<td>Vete</td>
<td>85</td>
</tr>
<tr>
<td>Chinese</td>
<td>83</td>
</tr>
<tr>
<td>Tafolo</td>
<td>60</td>
</tr>
</tbody>
</table>

### Typical Specifications

- **Asphaltic Concrete**
  - Strength: > 160 kN
- **Chip Seal**
  - Strength: > 150 kN
- **Otta Seal**
  - Strength: 90-110 kN
PRESS RELEASE

Investing in New Technologies for Road Maintenance

The Ministry of Infrastructure’s Land Transport Division has started rolling out a new road maintenance technique after learning lessons on recently completed trial sections. A local contractor, Vavai Construction, is now resurfacing Holiope Road with an Otto Sealing surface. The process uses a layer of small aggregate and builds an asphalt style road (similar to the road to the airport) that results in a strong surface treatment that will withstand large volume of traffic, vehicle turning stress and the high impact of solar radiation.

The acting Director of Land Transport Division, Tevita Lavemai has said that, “this style of road maintenance has the ability to minimize the cost to correct badly deteriorated pavements and give an even wearing surface in one application, saving costs, time and inconvenience to the travelling public”.

Further to this the acting Director believes that with the lesson learnt in Tonga by using Otta Seals in this Tongan style of road maintenance may well be adopted by other counties in the Pacific region.

The works are funded by the World Bank and Australian Aid, as part of their commitment under the Transport Sector Consolidation Project. This project is assisting the Government to achieve its strategic objectives of providing appropriate, well planned and maintained infrastructure that improves the everyday lives of the people and lowers the cost of business, by the adequate funding and implementation of the National Infrastructure Investment Plan.

The Ministry is now looking forward to implementing a larger scale road maintenance program next year with roads ressealed and routine maintenance tasks such as pothole patching and cutting grass. So the travelling public will start to see a noticeable improvement in road conditions.
Road Safety
Legislation & Technical Standards

- **Legislation**
  - Roads Act
  - Traffic Act

- **Road Maintenance Fund**
  - Funding Mechanisms

- **Technical Standards**
  - Otta Seals
  - Contract Management
Lessons Learned

- Takes a lot of time and effort
- Contractor competition
- Training
- Experience
- Review and Update

Drivers would have noticed that the Ministry of Infrastructure has started work between Nuku'alofa and the airport, with these hard-working men and women, cutting grass to improve the safety and drainage on this road. The public will also notice shortly the installation of new road signs and pedestrian crossings.

According to the acting Director for Land Transport, Tevita Lavemali “this is the first of 12 significant contracts being undertaken under the Transport Sector Consolidation Project, to repave roads and make them safer”.

The Ministry has recently awarded another three contracts to local contractors to start repairing bitumen roads around Tongatapu. The Ministry is also about to award another seven contracts employing many more men and women to cut grass alongside the roads, clear drains and patch potholes in the road.

According to Mr. Lavemali “proper tendering out of road maintenance of roads around the country has just started, the first time the government has done anything like this for a long time, representing a huge step towards improving the roads around the country”.

The Ministry has asked that drivers be aware of workers on the road. If you come across one of these groups of hard-working men and women, please slow down and give them space.
Acknowledgements

- Government of Tonga
- Australian Government
- TSCP Team
- World Bank Group