Maintenance Strategy
Land Transport Unit
(Final)

Version 5.0
February 2013
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1. Scope

The strategy provides a framework of principles, which underpin road maintenance plans, operations, and contracts aimed to deliver broader Land Transport Unit goals.

Maintenance is the physical work required to maintain an asset’s structural integrity, serviceability, functionality, and appearance. Maintenance involves the correction of a deficiency / failure, as it has occurred or is in the process of occurring.

Maintenance can be proactive or reactive.

- **Proactive maintenance** – Measurement / inspection of the asset is required on a routine basis, on all or specific parts of the network, to assist in the identification, prioritisation, and programming of sites where remedial action may be required.

- **Reactive maintenance** – Measurement / inspection of the asset is required in response to public complaints or an incident. Maintenance may not need programming or prioritisation if considered urgent, such as a hazard to public, road user safety, or the environment.

Maintenance can be planned or unplanned.

- **Planned maintenance** – Work carried out to a predetermined schedule (e.g. street sweeping, unsealed roads grading, pavement repairs), and small maintenance projects. These works are generally identified via routine inspections, testing, and monitoring of the asset condition and in need for maintenance work.

- **Unplanned maintenance** – Work carried out in response to reported problems or defects (e.g. repair vandalism, damage). The nature of the defect will determine what response is appropriate. If the response required is either an emergency or urgent response then it will have a shorter incident response time and the time to “make safe” window. If the nature of the defect does not elicit one of these response requirements, it becomes routine maintenance and is programmed for remedial work as part of the planned maintenance regime.

Maintenance, by definition, excludes the renewal of an asset. Renewals work is initiated through quantification of condition, age, usage, or lifecycle costs. Maintenance can provide a useful basis for quantifying asset condition and lifecycle costs. Although maintenance in itself may not be the primary driver of renewal work, maintenance is a key consideration and the lowest cost maintenance option may be renewal.

This strategy frames the goals of the road maintenance programme and the benefits the Timaru District Council is intending to receive from targeting the achievement of these goals. The strategy briefly reviews the mechanisms that are presently in place and those the Land Transport Unit intends to put in place to achieve these goals.

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1 Definitions in PF7-2 to PF-9; Planning, Programming and Funding Manual
2. Strategic Goals

2.1. High Road User Satisfaction

A goal of the Land Transport Unit is to provide a quality level of service, to achieve high road user satisfaction.

The Land Transport Unit aims to address the following unique industry issues, which affect public perception of the quality of maintenance services provided:

- A gap exists between what is realistically possible with available technology and funding, and public expectation of service delivery.
- A knowledge gap exists, where the public are unfamiliar with the concepts relating to many aspects of road maintenance, and it is unreasonable to assume that the public possesses knowledge of these concepts.
- The public’s opinion of the condition and quality of the roading product is derived from a relatively small proportion of roads that they routinely use; rather than the condition of the network as a whole.

2.1.1. The Expected Benefit

By addressing these issues, the expected benefit is an improved road user perception of services provided.

2.2. Effectiveness and Efficiency

Efficiency is obtaining the most outputs from the given inputs, or requiring the least inputs for the given outputs.

Effectiveness is achieving desired results. It can be thought of as either “operational effectiveness” (meeting targets for delivery of outputs), or “policy effectiveness” (achieving desired outcomes).

This goal is one of the fundamental recommendations of the Government driven Road Maintenance Task Force report\(^2\). The report concludes that further efficiencies can be gained from changes to the way we do business, particularly improved asset management, bundling of contracts, and larger and longer term contracts, to attract more competitive prices.

2.2.1. The Expected Benefit

The benefit expected from this goal is the achievement of “more for less”, after deducting any decline in capability.

2.3. Aligning Funding with Usage

The application of higher standards of maintenance on assets with the greatest usage is a part of the Council’s Community Outcomes\(^3\), for example:

- “High quality infrastructure to meet community and business needs.”
- “Smart economic success supported and enabled.”

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This goal is also a key recommendation of the Government Road Maintenance Task Force that considers that "best value for money can be through more targeted expenditure on roads where there is the greatest need or usage and reduced expenditure on roads with less usage".

The Land Transport Unit has a historical road hierarchy for the urban centres and the rural road network, described in the Timaru District Plan\(^4\). This is currently being reviewed on the basis of ranking roads based on usage, function, and economic or social importance. A long term goal is to align capital and operational (maintenance) expenditure based on the road hierarchy.

This goal is an acceptance of a reality that not all roads can be funded and maintained at the same level. An approach adopted for confronting this funding shortfall whilst maintaining minimum safety standards is to match maintenance expenditure to usage.

### 2.3.1. The Expected Benefit

The benefits expected from this goal are, providing a safer transport environment, and to better use of funding in the “right” areas around the network.

### 2.4. Maximising Asset Useful Life

Maintenance can often be managed more effectively by addressing the causes of failures and defects.

A goal of the Land Transport Unit is to address the causes of failure with the fundamental principle of “fix the problem not just the fault”. This involves greater emphasis on preventative maintenance, timely renewals, and most importantly high standard of workmanship to ensure the design life is achieved.

The high standard of workmanship extends to utility works in the road reserve. Compliance with the “National Code of Practice for Utility Operators’ Access to the Transport Corridor”\(^5\) is required, to ensure utility services are located in an appropriate long term location and reinstatement of trenches is to a high standard. Therefore compliance with standards and best practice is a key.

### 2.4.1. The Expected Benefit

The benefit expected is the reduction in maintenance expenditure.

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### 3. Actions Applied

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<thead>
<tr>
<th>Asset Groups</th>
<th>Implementation / Actions</th>
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<tbody>
<tr>
<td></td>
<td>High Road User Satisfaction</td>
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<tr>
<td>Paveements</td>
<td>Current: Customer Satisfaction Monitoring: Bi-annual road user surveys.</td>
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<tr>
<td>Bridges</td>
<td>Potential Future: Information Technology: Communication with the public through the internet provides a forum for informing the public about how maintenance is performed and how funding is allocated.</td>
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<tr>
<td>Footpaths</td>
<td>Potential Future: Response Times: Response times for investigation of service requests are established by customer services upon receiving a complaint from the public. Where the response time is likely to exceed that given to the complainant at the time of the complaint, then the complainant is contacted by phone and informed of the course of action taken.</td>
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<tr>
<td>Cycleways</td>
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<td>Drainage</td>
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<td>Retaining walls</td>
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<td>Street lights</td>
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<td>Traffic Facilities</td>
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<td>Street Furniture</td>
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<td>Car Parks</td>
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</tbody>
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### Current:
- Customer Satisfaction Monitoring: Bi-annual road user surveys.
- Inspections: The Land Transport Unit aims to identify defects / failure by inspection.

For example, a standard is set so that there are no potholes on regional and district arterial roads. To achieve this regular inspections are required to identify potholing.

### Potential Future:
- Information Technology: Communication with the public through the internet provides a forum for informing the public about how maintenance is performed and how funding is allocated.

- Response Times: Response times for investigation of service requests are established by customer services upon receiving a complaint from the public. Where the response time is likely to exceed that given to the complainant at the time of the complaint, then the complainant is contacted by phone and informed of the course of action taken.

- Continuous Improvement: The approach taken by the Land Transport Unit is to:
  - Require the contractor to adopt quality systems complying with Transit New Zealand Quality Standard – TQS1 (NZS9001).
  - Inspect maintenance operations and completed works over a period of time.
  - Investigate the non-conformance through sampling to determine its frequency; and whether the cause is attributable to workmanship or materials or some other cause.
  - Where the non-conformance is attributable to workmanship and is frequent then it is to be formally managed through the contractor’s internal Quality Assurance processes.

- Preventing Intentional Damage: A significant proportion of maintenance expenditure derives from intentional damage. Fitting into this category is graffiti, theft of signs, damage to footpaths from fence or housing construction, and excessive vehicle loading. Various enforcement options exist to provide compensation where the offender can be identified.

- Timely Renewals: Sometimes maintenance is not the best option. Asset lifecycle must be considered and renewal may be the most economic treatment in regard to failure. This is defined as the lowest cost maintenance option. Examples are pavement deterioration where frequent dig out repairs indicate a wider pavement failure and rehabilitation is more effective. It is feasible that unsealed roads with high traffic volumes or steep sections causing frequent grading and repairs may require sealing that ultimately reduces long term maintenance costs. Similarly, seal widening to reduce seal edge break will reduce maintenance costs.
4. Reference Documents

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<tr>
<th>No.</th>
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5. Document Versioning

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<td>Joseph Gee</td>
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<td>2.0</td>
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<td>15 August 2012</td>
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<td>Update of document.</td>
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<td>27 August 2012</td>
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<td>Document formatted into report template and document reviewed and updated.</td>
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<td>5.0</td>
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<td>Josephine Yeo</td>
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