Maintenance Strategy

Land Transport Unit

(Final)

Version 5.0

February 2013

Table of Contents

Table of Contents 3
1. Scope 5
2. Strategic Goals 7
2.1. High Road User Satisfaction 7
2.1.1. The Expected Benefit 7
2.2. Effectiveness and Efficiency 7
2.2.1. The Expected Benefit 7
2.3. Aligning Funding with Usage 7
2.3.1. The Expected Benefit 8
2.4. Maximising Asset Useful Life 8
2.4.1. The Expected Benefit 8
3. Actions Applied 9
4. Reference Documents 11
5. Document Versioning 13

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[1]. 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.

[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."

[2] http://www.nzta.govt.nz/consultation/rmtf-interim-report/index.htm

[3] Timaru District Council Long Term Plan 2012-22 – http://www.timaru.govt.nz/your-council/public-documents-top/ltp-2012-22.html

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.

[4] Timaru District Council District Plan – http://www.timaru.govt.nz/district-plan.html

[5] National Code of Practice for Utility Operators' Access to the Transport Corridor – http://nzuag.org.nz/national-code/CodeSeptember2011.pdf

3. Actions Applied

Asset Groups	Implementation / Actions			
	High Road User Satisfaction	**Effectiveness and Efficiency**	**Aligning Funding and Usage**	**Maximising Useful Life**
Pavements Bridges Footpaths Cycleways Drainage Retaining walls Street lights Traffic Facilities Street Furniture Car Parks	**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.	**Current:** • **Procurement:** A key means of ensuring cost-effect delivery is competitive tendering of the maintenance and renewal contracts. Opportunity exists to review the contract model used to procure maintenance services, to focus on performance and incentives, continuous improvement, and building long term relationships. • **Contract Specifications and Inspections:** Specifications are required to ensure that in the pursuit of cost reduction, there is no unplanned decline in capability. Regular inspection is carried out and recorded to ensure that work done complies with the specifications. • **Performance Measurement and Reporting:** The objective of performance evaluation is to provide a dialog to encourage the achievement of quality; including the effectiveness, accuracy, life, ride quality, and visual appearance of maintenance. Performance measurement and reporting has been established to monitor the effectiveness of the maintenance work programmed and completed. **Potential Future:** • **Continuous Improvement:** The approach taken by the Land Transport Unit is to: o Require the contractor to adopt quality systems complying with Transit New Zealand Quality Standard – TQS1 (NZS9001). o Inspect maintenance operations and completed works over a period of time. o Investigate the non-conformance through sampling to determine its frequency; and whether the cause is attributable to workmanship or materials or some other cause. o 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.	**Current:** • **Road Hierarchy:** A road hierarchy criteria to be established based on a multi criteria, such as road function, traffic volumes, strategic importance, contribution to economic value, and social importance. District roads assigned a hierarchy. **Potential Future:** • **Levels of Service:** Levels of Service is established for maintenance and renewal of roads based on hierarchy. • **Road Design / Maintenance Standards:** Align standards to road hierarchy to ensure effective use of funding for the greatest benefit.	**Current:** • **Preventing Failure Arising from New Construction:** Road maintenance by definition excludes activities, which improve the asset. Opportunity exists to ensure that common failures arising after construction on projects are not repeated. • **Managing Reinstatement:** The road corridor is exclusively under the control of the Timaru District Council. Utilities have legal rights to access the road corridor to install and maintain underground services. Historically, maintenance on failed reinstatement absorbs a significant proportion of maintenance expenditure. The Utilities Act 2010 allows improved corridor management and the imposition of reasonable conditions relating to reinstatement. The Utilities Act 2010 provides for compliance with a National Code of Practice for Utility Operators' Access to Transport Corridors. Council audits work sites to ensure compliance. Should this be managed effectively the need for maintaining failed reinstatement will reduce. • **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 steeps 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

No.	Title:	Source:
[1.]	Planning, Programming and Funding Manual (August 2008)	http://www.nzta.govt.nz/resources/planning-programme-funding-manual/
[2.]	Road Maintenance Task Force report	http://www.nzta.govt.nz/consultation/rmtf-interim-report/index.html
[3.]	Timaru District Council Long Term Plan 2012-22	http://www.timaru.govt.nz/your-council/public-documents-top/ltp-2012-22.html
[4.]	Timaru District Plan	http://www.timaru.govt.nz/district-plan.html
[5.]	National Code of Practice for Utility Operators' Access to the Transport Corridor	http://nzuag.org.nz/national-code/CodeSeptember2011.pdf

5. Document Versioning

Version:	Date:	Editor:	Reason:
1.0	14 February 2012	Joseph Gee	• Creation of document.
2.0	14 March 2012	Joseph Gee	• Update from Andrew Dixon's review.
3.0	15 August 2012	Andrew Dixon	• Update of document.
4.0	27 August 2012	Josephine Yeo	• Document formatted into report template and document reviewed and updated.
5.0	28 February 2013	Josephine Yeo	• Update section 3 based on Andrew Dixon's feedback.