Timaru District Council

Land Transport

Lifecycle Management Plan

Quality Record Sheet

Timaru District Council

Land Transport

Lifecycle Management Plan

Issue Information	
Issue Purpose	Final Draft
Issue Date	15 October 2007
Version Number	1.0

Authorisation	
Timaru District Council	Andrew Dixon
Prepared By	Grant Holland
Reviewed By	Ross Waugh
Date	April 2007
Report Number	64-069-1018

Waugh Consultants Ltd Level 2 18 Woollcombe St PO Box 827 Timaru
Phone 0800 4 WAUGH or 03 686 6994 Fax 03 688 9138
E-mail info@waughconsult.co.nz
www.waughconsult.co.nz

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1.0 INTRODUCTION

1.1 Plan Purpose

This Plan has been developed to assist Land Transport Asset Mangers and Operations Managers to align Timaru District Councils strategic goals and the legislative regime of the Land Transport Management Act 2003 & Local Government Act 2002, with the delivery of service to the wider community.

Lifecycle Management seeks to provide the best value combination of Management, Operations, Maintenance, Renewal and Capital Works to meet the needs to the community at large.

1.2 Plan Context

Council's Vision for Land Transport states:

"We will provide a Transport System that promotes Community Prosperity"[1]

This Vision has been developed through the Lifecycle Management Strategy into a number of Asset Strategy Statements and Asset Lifecycle Strategies.

This Plan is part of Council's Land Transport Planning Framework with many linkages as illustrated in Figure 1.

[1] *Timaru District Transportation Vision Statement*

(Timaru District Council, 2006)

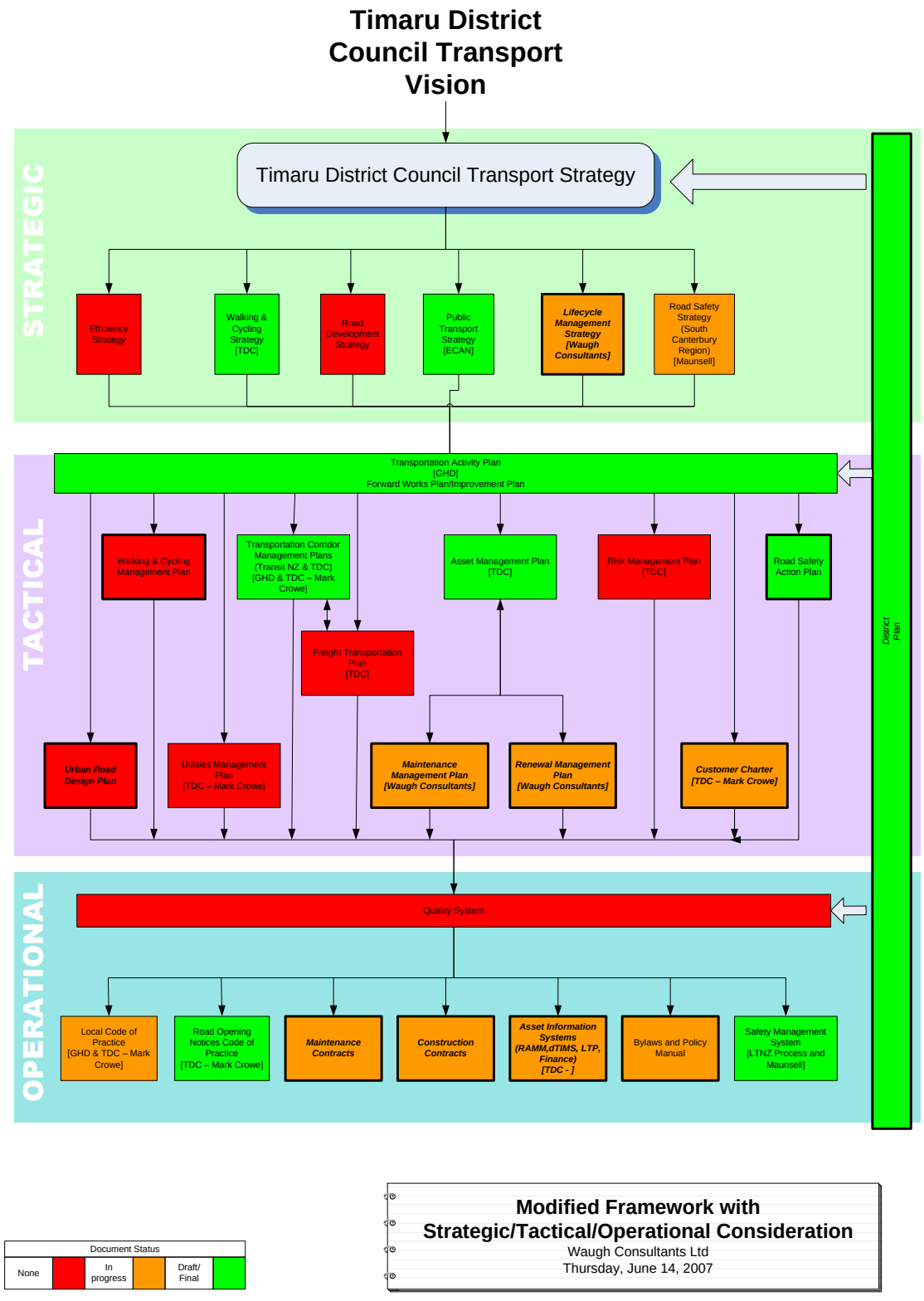
Timaru District Council Transport Vision
STRATEGIC
Timaru District Council Transport Strategy
Efficiency Strategy
Walking & Cycling Strategy [TDC]
Road Development Strategy
Public Transport Strategy [ECAN]
Lifecycle Management Strategy [Waugh Consultants]
Road Safety Strategy (South Canterbury Region) [Maunsell]
TACTICAL
Transportation Activity Plan [GHD]
Forward Works Plan/Improvement Plan
Walking & Cycling Management Plan
Transportation Corridor Management Plans (Transit NZ & TDC) [GHD & TDC – Mark Crowe]
Asset Management Plan [TDC]
Risk Management Plan [TDC]
Road Safety Action Plan
Freight Transportation Plan [TDC]
Urban Road Design Plan
Utilities Management Plan [TDC – Mark Crowe]
Maintenance Management Plan [Waugh Consultants]
Renewal Management Plan [Waugh Consultants]
Customer Charter [TDC – Mark Crowe]
District Plan
OPERATIONAL
Quality System
Local Code of Practice [GHD & TDC – Mark Crowe]
Road Opening Notices Code of Practice [TDC – Mark Crowe]
Maintenance Contracts
Construction Contracts
Asset Information Systems (RAMM,dTIMS, LTP, Finance) [TDC -]
Bylaws and Policy Manual
Safety Management System [LTNZ Process and Maunsell]
Document Status
None
In progress
Draft/ Final
Modified Framework with Strategic/Tactical/Operational Consideration
Waugh Consultants Ltd
Thursday, June 14, 2007

Figure 1

1.3 How To Use This Plan

This plan is a technical document designed to assist with other tactical planning within the Land Transport Sector and to inform other operational documents.

The plan has been structured as follows:

Section	Description	Comments
2	Lifecycle Management Plan for each Asset Group	Format suitable for inclusion in other documents specific to those Asset Groups
	Supporting Information	
3	Plan Implementation	
4	Plan Monitoring	
5	Introduction to Lifecycle Management Planning	
6	Lifecycle Management Planning for TDC	Overview and general issues
7	Consultation and Framework	
8	Bibliography and References	
9	Glossary of Terms	
10	Appendices – including Linkage Diagrams for Land Transport Asset Types	

2.0 THE LIFECYCLE MANAGEMENT PLAN

2.1 Pavements (A) Sealed Pavement Formation and Structural Elements

2.1.1 Introduction

Sealed pavement formations and structural elements form the backbone of the sealed portion of the network. There is considerable value in these assets and constitutes a high proportion of the value of the roading asset.

Timaru District roads benefit from the alluvial gravels comprising the plains and solid foothill geology. Accordingly the renewal level is very low and is the renewals are more related to the traffic numbers and proportion of heavy vehicles on any carriageway; this is turn is demonstrated through the maintenance and renewal requirements of arterial routes.

There is a significant amount of data collected and information is available in terms of:

- Roughness (NAASRA)
- Smooth Travel Exposure (STE)
- Pavement Integrity Index (PII)
- Condition Index (CI)
- Pavement Strength (SNP)

Much of this information is available through RAMM and dTIMS and used to optimise the forward works plan for programmed maintenance and renewal works.

The Timaru roading network is classified into a roading hierarchy as follows:

Primary roads

- National routes – roads of strategic importance nationally and significant to the national economy controlled by Transit NZ (e.g. SH 1, 8)

- Regional arterials – roads of strategic importance to the region and significant to the regional economy controlled by TDC (e.g. Factory Road)

- District arterials – roads of strategic district importance and controlled by Timaru District Council (e.g. Otipua Road, Milford/Clandeboye Road)

- Principal routes – urban or rural roads that are essential to sustain overall travel within the district (e.g. Orari Station Road, Stafford Street)

Secondary roads

- Collector roads – these collect and distribute traffic to and from the primary road network and link to the local road network (e.g. Seadown Road, Taiko Road)

- Local roads – these roads provide direct access to properties

- Service Lanes – these provide rear or side access to any land from district arterials or collector roads within the business area

2.1.2 Lifecycle Management Plan

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**1A**	**Sealed Pavement Formation and Structural Elements**
How Do We Manage Sealed Pavement Formation and Structural Elements?		
PURPOSE		
What is it?	1A.1.1	Arterial, Principal, Collector, Local, Sealed, Urban and Rural Pavements
Is it a core or support asset	1A.1.2	Core
What is its purpose?	1A.1.3	To ensure road pavements are well designed and maintained cost-effectively and responsively to maximize accessibility and quality
STRATEGY GOAL		
What is our approach to Pavements?	1A.2.1	To provide, operate and manage quality Pavement assets that meet community needs to support the District's economic development and provide improved transportation access, mobility and safety.
WHAT ARE OUR OBJECTIVES FOR EACH STAGE OF THE ASSET LIFECYCLE?		
Planning	1A.3.1	Undertake Pavement Planning in terms of the network as a whole and the projected network demand while meeting performance standards and optimising the overall lifecycle cost. Adopted an integrated planning approach and consider independencies with other utilities, adjacent land use activities, aesthetics and sustainability
Creation/ Acquisition	1A.3.2	Build Pavements to accepted standards using quality materials
Operating & Maintaining	1A.3.3	Ensure Pavements are fit for purpose, safe and aim to optimise the overall lifecycle cost
Performance & Condition Monitoring	1A.3.4	Undertake Monitoring to ensure Pavements meet performance standards and the overall lifecycle cost is optimised
Renewal	1A.3.5	Renew Pavements to ensure performance standards are met and overall lifecycle cost is optimised
Disposal/ Rationalisation	1A.3.6	Remove or downgrade Pavements where disposal/rationalisation meets performance standards and it can be demonstrated that the overall lifecycle cost is optimised

<table>
<tr><td colspan="3">Timaru District Council Land Transport Lifecycle Management Plan</td></tr>
<tr><td>Asset Group</td><td>1A</td><td>Sealed Pavement Formation and Structural Elements</td></tr>
<tr><td colspan="3">What do we know about Sealed Pavement Formation and Structural Elements?</td></tr>
<tr><td colspan="3">OVERVIEW</td></tr>
<tr><td>Statistics</td><td>1A.4.1</td><td>Urban 222km, Sealed Rural 703km</td></tr>
<tr><td>Information System</td><td>1A.4.2</td><td>RAMM
dTIMS</td></tr>
<tr><td colspan="3">HOW LONG WILL IT LAST?</td></tr>
<tr><td>Base lives</td><td>1A.5.1</td><td>Timaru District Council’s Road Asset Valuation (as at 1 July 2005) provides an outline of the Land Transport assets
<table>
<tr><td></td><td></td><td>Rural</td><td></td><td></td><td>Urban</td><td></td><td></td></tr>
<tr><td></td><td></td><td>Local</td><td>Collector</td><td>Other</td><td>Local</td><td>Collector</td><td>Other</td></tr>
<tr><td>Sealed</td><td>Sub-base</td><td>Infinite</td><td>Infinite</td><td>120</td><td>180</td><td>120</td><td>80</td></tr>
<tr><td></td><td>Base</td><td>90</td><td>60</td><td>40</td><td>90</td><td>60</td><td>40</td></tr>
<tr><td>Unsealed</td><td>Sub-base</td><td>Infinite</td><td>Infinite</td><td>Infinite</td><td>Infinite</td><td>Infinite</td><td>Infinite</td></tr>
<tr><td></td><td>Base</td><td>90</td><td></td><td></td><td></td><td></td><td></td></tr>
</table></td></tr>
<tr><td>Construction dates</td><td>1A.5.2</td><td>Layer dates in RAMM are not extensive enough to provide reliable data.
Assumed Construction Date
Urban 30 June 1960

Rural 30 June 1950</td></tr>
<tr><td>Remarks</td><td>1A.5.3</td><td>dTIMS Modelling has identified an optimised pavement renewal programme, at 2007 there was a small back log of this type of work</td></tr>
<tr><td>What other considerations are there?</td><td>1A.5.4</td><td>Considerable impact on asset performance and expected life of trenching operations, proposal to use trenchless technology wherever possible for utilities replacements.[2]
Regionally distributed funds are available for periodic road reconstruction activities (LTNZ July 2007)</td></tr>
<tr><td></td><td>1A.5.5</td><td>Rail Crossing Maintenance needs requires identification and communication to the Rail Authority (ONTRACK)</td></tr>
<tr><td></td><td>1A.5.6</td><td>Ongoing liaison and agreement is required with other RCAs in terms of cross boundary assets</td></tr>
</table>

[2] *South Canterbury SMS June 2007*

WHAT ARE THE ISSUES WITH PAVEMENTS?		
Levels of Service and Road User Satisfaction	1A.6.1	Traffic growth , particularly heavy vehicles Increasing customer expectations for higher levels of service Developments in CBD areas Movement of specialized farming machinery
Safety	1A.6.2	Traffic growth , particularly heavy vehicles Pavement width, reflective of the speed environment
Asset Preservation	1A.6.3	Traffic growth , particularly heavy vehicles Renewal of roading asset as a significant portion nears the end of it's design life Use of dTIMS for deterioration modeling
Economic	1A.6.4	Cost Increases (e.g. oil prices and aggregate supplies) Continuity of financial assistance from LTNZ Changes in central, regional and local government policy Changes in land use patterns
Environmental	1A.6.5	Possible use of recycled materials in aggregates or aggregate substitutes Use of rehabilitation construction techniques such as foamed Bitumen
Social and Cultural	1A.6.6	Surface type Urban design principles

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**1A**	**Sealed Pavement Formation and Structural Elements**
What to do with Sealed Pavement Formation and Structural Elements		
DECISION FRAMEWORK – CORE MANAGEMENT		
Key Result Area/Performance Targets 1. Road User Satisfaction (incorporates LTCCP measure	1A.7.1	Customer Satisfaction Surveys (Road Roughness) LTCCP and AMP Roads are designed and maintained to community expectations Road roughness rating (NAASRA) < 90 Arterial roads reducing to < 80 arterial roads - measured < 120 Other sealed roads reducing to < 100 other sealed roads – measured Metal and sealed roads are fit for purpose, maintained well and provide a comfortable ride 70% of people who live on sealed roads believe they are fit for purpose and are maintained well, increasing to 85% (Customer Survey) AMP Resident and visitor satisfaction with CBD. Roads available and accessible 24/7, In emergency, access restored in response time (within 6 hours), or reopened to at least a single lane 90% of the time. 75% people believe that Timaru is attractive and well maintained, increasing to 90% No potholes within bridge approach, 70% of bridge approaches sealed within 50 metres of bridges by 2016, All bridge approaches on roads with >100 ADT (Average daily Traffic) are sealed
Key Result Area/Performance Targets 2. Safety	1A.7.2	What does the Safety Management System say? Are safety targets met? Customer perception LTCCP & AMP Safe and efficient roading network supported by quality maintenance and capital works meeting established needs of the community 75% of users believe the network is safe, increasing to 85%.(Customer Survey) 70% of customers surveyed believe that Council is responsive to customers, increasing to 90% Reduction in accidents on TDC roads from previous year
Key Result Area/Performance Targets 3. Asset Preservation	1A.7.3	How old is the Pavement? Has it been inspected and maintained correctly? (check pavement segment in RAMM)

Key Result Area Prudent Financial Management & Affordability (Financial Considerations)	1A.7.4	What are the historic funding and expenditure characteristics? What are the future funding and expenditure characteristics? What financial assistance is available? LTNZ funding approval as per Project Evaluation Manual (do nothing/maintain/replace) LTCCP and AMP Roads are designed and maintained to community expectations 65% ratepayers believe they get good value for money and costs are reasonable, increasing to 80% (Customer Survey) AMP 95% of projects commenced in current financial year +/- 5% variance between planned and actual years expenditure on capital and maintenance		
Regulatory or Policy Framework	1A.7.5	What legislation or regulations apply? (e.g. LTNZ Policies & Guidelines, HASIE Act, RMA) Is there a TDC Policy? Do the regulations or policies form the absolute or minimum requirement?		
Asset Composition& Non-Asset Solutions	1A.7.6	What components of the Pavement can be maintained/renewed individually?' Is there a non-asset solution available? NB: A bridge approach issue should be considered as a pavement issue		
Evaluation Point	**1A.7.7**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	
DECISION FRAMEWORK – COMPREHENSIVE MANAGEMENT				
Asset Condition Data	1A.8.1	What Asset Condition data is available? (check details in RAMM) Is it sufficient to assist decision making?		
Asset Performance Data	1A.8.2	What Asset Performance data is available? (check details in RAMM) Is it sufficient to assist decision making?		
Interdependencies with TDC Land Transport Assets	1A.8.3	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Pavements Lifecycle Management? (kerb and channel ,storm water, bridges, traffic services, foot paths, corridors)		
Interdependencies with other Utility Assets	1A.8.4	Identify Interdependencies with other Utility Assets. Is there an impact on the approach to Pavements Lifecycle Management?		

Interdependencies with TDC Land Transport Assets	1A.8.5	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Pavements Lifecycle Management?		
Evaluation Point	**1A.8.6**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	
ASSUMPTIONS AND LIMITATIONS				
Legal and Regulatory Framework	1A.9.1	Assumption that no additional restrictions are placed on Pavements		

2.2 Pavements (B) Unsealed Pavements

2.2.1 Introduction

Unsealed pavements are more dynamic in nature than sealed pavements and react quickly to their operating conditions, including weather and use. Structural layers and running course may not be well defined and renewal activities are closely related to periodic maintenance metalling.

There is little asset condition or performance data available and lifecycle management is based on cyclic maintenance and managing the risks of change on operating environment.

2.2.2 Lifecycle Management Plan

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**1.B**	**Unsealed Pavements**
How Do We Manage Unsealed Pavements?		
PURPOSE		
What is it?	1B.1.1	Collector, Local, Unsealed, Urban and Rural Pavements
Is it a core or support asset	1B.1.2	Core
What is its purpose?	1B.1.3	To ensure road pavements are well designed and maintained cost-effectively and responsively to maximize accessibility and quality
STRATEGY GOAL		
What is our approach to Pavements?	1B.2.1	To provide, operate and manage quality Pavement assets that meet community needs to support the District's economic development and provide improved transportation access, mobility and safety.
WHAT ARE OUR OBJECTIVES FOR EACH STAGE OF THE ASSET LIFECYCLE?		
Planning	1B.3.1	Undertake Pavement Planning in terms of the network as a whole and the projected network demand while meeting performance standards and optimising the overall lifecycle cost. Adopted an integrated planning approach and consider independencies with other utilities, adjacent land use activities, aesthetics and sustainability
Creation/ Acquisition	1B.3.2	Build Pavements to accepted standards using quality materials
Operating & Maintaining	1B.3.3	Ensure Pavements are fit for purpose, safe and aim to optimise the overall lifecycle cost
Performance & Condition Monitoring	1B.3.4	Undertake Monitoring to ensure Pavements meet performance standards and the overall lifecycle cost is optimised
Renewal	1B.3.5	Renew Pavements to ensure performance standards are met and overall lifecycle cost is optimised
Disposal/ Rationalisation	1B.3.6	Remove or downgrade Pavements where disposal/rationalisation meets performance standards and it can be demonstrated that the overall lifecycle cost is optimised

<table>
<tr><td colspan="3">Timaru District Council Land Transport Lifecycle Management Plan</td></tr>
<tr><td>Asset Group</td><td>1B</td><td>Unsealed Pavements</td></tr>
<tr><td colspan="3">What do we know about Unsealed Pavements?</td></tr>
<tr><td colspan="3">OVERVIEW</td></tr>
<tr><td>Statistics</td><td>1B.4.1</td><td>Unsealed Urban 5km, Unsealed Rural 775km</td></tr>
<tr><td>Information System</td><td>1B.4.2</td><td>RAMM</td></tr>
<tr><td colspan="3">HOW LONG WILL IT LAST?</td></tr>
<tr><td>Base lives</td><td>1B.5.1</td><td>Timaru District Council’s Road Asset Valuation (as at 1 July 2005) provides an outline of the Land Transport assets.[3]
<table>
<tr><td></td><td></td><td>Rural</td><td></td><td></td><td>Urban</td><td></td><td></td></tr>
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</table></td></tr>
<tr><td>Construction dates</td><td>1B.5.2</td><td>Pavement layer dates in RAMM are not extensive enough to provide reliable data.</td></tr>
<tr><td>Remarks</td><td>1B.5.3</td><td></td></tr>
<tr><td>What other considerations are there?</td><td>1B.5.4</td><td>Grading carried out to schedule which has been developed to deliver other Levels of Service
Regionally distributed funds are available for periodic road reconstruction activities (LTNZ July 2007)</td></tr>
<tr><td></td><td>1B.5.5</td><td>Rail Crossing Maintenance needs require identification and communication to the Rail Authority (ONTRACK)</td></tr>
<tr><td></td><td>1B.5.6</td><td>Ongoing liaison and agreement is required with other RCAs in terms of cross boundary assets</td></tr>
</table>

[3] *Timaru District Council – Roading Infrastructure Revaluation (As at 1 July 2005) Maunsell Aecom February 2006*

WHAT ARE THE ISSUES WITH PAVEMENTS?		
Levels of Service and Road User Satisfaction	1B.6.1	Traffic growth , particularly heavy vehicles Increasing customer expectations for higher levels of service Movement of specialized farming machinery
Safety	1B.6.2	Traffic growth , particularly heavy vehicles Pavement width, reflective of the speed environment Speed on unsealed Roads Dust
Asset Preservation	1B.6.3	Traffic growth , particularly heavy vehicles Renewal of roading asset as a significant portion nears the end of it's design life Metal loss through grading activities Drainage and shoulders (crossfall)
Economic	1B.6.4	Cost Increases (e.g. oil prices and aggregate supplies) Continuity of financial assistance from LTNZ Changes in central, regional and local government policy Changes in land use patterns Dust nuisance on productive land
Environmental	1B.6.5	Possible use of recycled materials in aggregates or aggregate substitutes Use of rehabilitation construction techniques such as foamed Bitumen Dust Runoff (fires/silt)
Social and Cultural	1B.6.6	Surface type Urban design principles Dust nuisance may aggravate health issues

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**1B**	**Unsealed Pavements**
What to do with Unsealed Pavements		
DECISION FRAMEWORK – CORE MANAGEMENT		
Key Result Area/Performance Targets 1. Road User Satisfaction (incorporates LTCCP measure	1B.7.1	Measured by number of complaints received LTCCP Resident and visitor satisfaction with CBD Metal and sealed roads are fit for purpose, maintained well and provide a comfortable ride 55% of people who live on sealed roads believe they are fit for purpose and are maintained well, increasing to 70% (Customer Survey) AMP In emergency, access restored in response time (within 6 hours), or reopened to at least a single lane 90% of the time. (AMP) Manage and maintain network in accordance with the LTNZ Maintenance Guidelines Seal extension policy implemented (based on Council Policy)
Key Result Area/Performance Targets 2. Safety	1B.7.2	Customer perception LTCCP & AMP Safe and efficient roading network supported by quality maintenance and capital works meeting established needs of the community 75% of users believe the network is safe, increasing to 85%.(Customer Survey) Reduction in accidents on TDC roads from previous year
Key Result Area/Performance Targets 3. Asset Preservation	1B.7.3	How old is the Pavement? Has it been inspected and maintained correctly?
Key Result Area Prudent Financial Management & Affordability (Financial Considerations)	1B.7.4	What are the historic funding and expenditure characteristics? What are the future funding and expenditure characteristics? What financial assistance is available? LTNZ funding approval as per Project Evaluation Manual (do nothing/maintain/replace) LTCCP and AMP Roads are designed and maintained to community expectations 65% ratepayers believe they get good value for money and costs are reasonable, increasing to 80% (Customer Survey) AMP 95% of projects commenced in current financial year +/- 5% variance between planned and actual years expenditure on capital and maintenance
Regulatory or Policy Framework	1B.7.5	What legislation or regulations apply? (e.g. LTNZ Policies & Guidelines, HASIE Act, RMA) Is there a TDC Policy? Do the regulations or policies form the absolute or minimum requirement?

Asset Composition & Non-Asset Solutions	1B.7.6	What components of the Pavement can be maintained/renewed individually? Is there a non-asset solution available?		
Evaluation Point	**1B.7.7**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	
DECISION FRAMEWORK – COMPREHENSIVE MANAGEMENT				
Asset Condition Data	1B.8.1	What Asset Condition data is available? Is it sufficient to assist decision making?		
Asset Performance Data	1B.8.2	What Asset Performance data is available? Is it sufficient to assist decision making?		
Interdependencies with TDC Land Transport Assets	1B.8.3	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Pavements Lifecycle Management?		
Interdependencies with other Utility Assets	1B.8.4	Identify Interdependencies with other Utility Assets. Is there an impact on the approach to Pavements Lifecycle Management?		
Interdependencies with TDC Land Transport Assets	1B.8.5	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Pavements Lifecycle Management?		
Evaluation Point	**1B.8.6**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	

ASSUMPTIONS AND LIMITATIONS		
Legal and Regulatory Framework	1B.9.1	Assumption that no additional restrictions are placed on Pavements

2.3 Pavements (C) Pavement Surfacing

2.3.1 Introduction

Pavement surfacing adds up to a large proportion of the value in Timaru District's roading asset, and consumes significant maintenance and renewal expenditure.

Surfacing types include:

- Chip Seal
- Asphaltic Concrete (predominantly in township CBDs and Industrial areas)
- Slurry Seal
- Interlocking Paving

There is a significant amount of data collected and information is available in terms of:

- Pavement Integrity Index (PII)
- Condition Index (CI)

Much of this information is available through RAMM and dTIMS and used to optimise the forward works plan for programmed maintenance and renewal works

During the 1990s and early 200s a backlog in resealing occurred and this lag remains. It is expected this lag will remain in place for some time unless additional funding is applied to the reseal programme.

2.3.2 Lifecycle Management Plan

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**1C**	**Pavement Surfacing**
How Do We Manage Pavement Surfacing?		
PURPOSE		
What is it?	1C.1.1	Arterial, Principal, Collector, Local, Sealed, Urban and Rural Pavements
Is it a core or support asset	1C.1.2	Core
What is its purpose?	1C.1.3	To ensure road pavements are well designed and maintained cost-effectively and responsively to maximize accessibility and quality
STRATEGY GOAL		
What is our approach to Pavements?	1C.2.1	To provide, operate and manage quality Pavement assets that meet community needs to support the District's economic development and provide improved transportation access, mobility and safety.
WHAT ARE OUR OBJECTIVES FOR EACH STAGE OF THE ASSET LIFECYCLE?		
Planning	1C.3.1	Undertake Pavement Surfacing Asset Planning to meet performance standards and minimise the overall lifecycle cost of the Surfacing and the Sealed Pavement Formation and Structural Elements. Adopt an integrated planning approach and consider independencies with other utilities and land use activities
Creation/ Acquisition	1C.3.2	Construct Pavement Surfacing to accepted standards using quality materials
Operating & Maintaining	1C.3.3	Ensure Pavement Surfacing is fit for purpose, safe and am to optimise the overall lifecycle cost
Performance & Condition Monitoring	1C.3.4	Undertake Monitoring to ensure Pavement Surfacing meets performance standards and the overall lifecycle cost is optimised.
Renewal	1C.3.5	Renew Pavements Surfacing to ensure performance standards are met and the overall lifecycle cost of the network is optimised
Disposal/ Rationalisation	1C.3.6	Downgrade Pavement Surfacing where disposal/rationalisation meets performance standards and it can be demonstrated that the overall lifecycle cost is optimised

<table>
<tr><td colspan="3">Timaru District Council Land Transport Lifecycle Management Plan</td></tr>
<tr><td>Asset Group</td><td>1C</td><td>Pavement Surfacing</td></tr>
<tr><td colspan="3">What do we know about Pavement Surfacing?</td></tr>
<tr><td colspan="3">OVERVIEW</td></tr>
<tr><td>Statistics</td><td>1C.4.1</td><td>Urban 222km, Sealed Rural 703km</td></tr>
<tr><td>Information System</td><td>1C.4.2</td><td>RAMM
dTIMS</td></tr>
<tr><td colspan="3">HOW LONG WILL IT LAST?</td></tr>
<tr><td>Base lives</td><td>1C.5.1</td><td>Timaru District Council's Road Asset Valuation (as at 1 July 2005) provides an outline of the Land Transport assets.[4]

Pavement surfacing lives have been determined based on the type of surface material. These lives have been established from records of the achieved life of pavement surfaces obtained from analysis of Timaru District Council RAMM data

<table>
<tr><th>Asset Group</th><th>Description</th><th>Effective Life</th></tr>
<tr><td>Pavement Surface</td><td>Asphaltic concrete</td><td>25</td></tr>
<tr><td></td><td>Interlocking concrete blocks</td><td>35</td></tr>
<tr><td></td><td>Metal</td><td>8</td></tr>
<tr><td></td><td>Open Graded Emulsion Mix</td><td>15</td></tr>
<tr><td></td><td>Open Graded Porous Asphalt</td><td>15</td></tr>
<tr><td></td><td>Racked in Seal (Reseal)</td><td>15</td></tr>
<tr><td></td><td>Single Coat Seal (1st Coat)</td><td>3</td></tr>
<tr><td></td><td>Single Coat Seal (2nd Coat)</td><td>17</td></tr>
<tr><td></td><td>Single Coat Seal (Reseal)</td><td>17</td></tr>
<tr><td></td><td>Slurry Seal</td><td>8</td></tr>
<tr><td></td><td>Two Coat Seal (1st Coat)</td><td>5</td></tr>
<tr><td></td><td>Two Coat Seal (2nd Coat)</td><td>20</td></tr>
<tr><td></td><td>Two Coat Seal (Reseal)</td><td>20</td></tr>
<tr><td></td><td>Brioche/Sandwich</td><td>-</td></tr>
<tr><td></td><td>Void fill seal</td><td>10</td></tr>
</table></td></tr>
<tr><td>Construction dates</td><td>1C.5.2</td><td>For the majority of sealed pavements (99% by length), surface construction dates are supplied in RAMM, ranging between 1960 and 2005. However, none of the unsealed pavements have surface re-metalling dates. For surfaces with no supplied construction dates it is assumed that the surface is halfway through its effective life</td></tr>
</table>

[4] *Timaru District Council – Roading Infrastructure Revaluation (As at 1 July 2005) Maunsell Aecom February 2006*

Remarks	1C.5.3	Inconsistencies in asset ages – AC 15 years in dTIMS report, 25 in Valuation and 23-30 expected (Frazer) Ten year reseal backlog identified at 2005, despite catch-up works the backlog remains at about ten years (mostly due to LTNZ Financial Assistance restrictions)
What other considerations are there?	1C.5.4	There is currently no policy on the use of asphaltic concrete surfacing beyond its use in CBD area Smooth surfaces free from uneven utility Covers should be maintained on carriageway cycleways Regionally distributed funds are available for periodic road reconstruction activities (LTNZ July 2007)
	1C.5.5	Rail Crossing Maintenance needs require identification and communication to the Rail Authority (ONTRACK)
	1C.5.6	Ongoing liaison and agreement is required with other RCAs in terms of cross boundary assets

WHAT ARE THE ISSUES WITH PAVEMENTS?		
Levels of Service and Road User Satisfaction	1C.6.1	Traffic growth , particularly heavy vehicles Increasing customer expectations for higher levels of service Developments in CBD areas Movement of specialized farming machinery
Safety	1C.6.2	Traffic growth , particularly heavy vehicles Some high demand sites are showing loss in surface friction and skid resistance may necessitate early resurfacing Pavement width, reflective of the speed environment
Asset Preservation	1C.6.3	Traffic growth , particularly heavy vehicles Renewal of roading asset as a significant portion nears the end of it's design life Movement of specialized farming machinery
Economic	1C.6.4	Cost Increases (e.g. oil prices and aggregate supplies) Continuity of financial assistance from LTNZ Changes in central, regional and local government policy Changes in land use patterns
Environmental	1C.6.5	Possible use of recycled materials in aggregates or aggregate substitutes
Social and Cultural	1C.6.6	Surface type Urban design principles

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**1C**	**Pavement Surfacing**
What to do with Pavement Surfacing		
DECISION FRAMEWORK – CORE MANAGEMENT		
Key Result Area/Performance Targets 1. Road User Satisfaction (incorporates LTCCP measure	1C.7.1	Measured by number of complaints received Have any justified complaints regarding quality of bridges been received? What action was undertaken? LTCCP and AMP Metal and sealed roads are fit for purpose, maintained well and provide a comfortable ride 70% of people who live on sealed roads believe they are fit for purpose and are maintained well, increasing to 85% (Customer Survey) AMP Resident and visitor satisfaction with CBD. Roads available and accessible 24/7. In emergency, access restored in response time (within 6 hours), or reopened to at least a single lane 90% of the time. (AMP) 70% of people who live on sealed roads believe they are fit for purpose and are maintained well, increasing to 90% 75% people believe that Timaru is attractive and well maintained, increasing to 90%
Key Result Area/Performance Targets 2. Safety	1C.7.2	What does the Safety Management System say? Are safety targets met? Customer perception LTCCP & AMP Safe and efficient roading network supported by quality maintenance and capital works meeting established needs of the community 75% of users believe the network is safe, increasing to 85%.(Customer Survey) Reduction in accidents on TDC roads from previous year
Key Result Area/Performance Targets 3. Asset Preservation	1C.7.3	How old is the Pavement? Has it been inspected and maintained correctly?
Key Result Area Prudent Financial Management & Affordability (Financial Considerations)	1C.7.4	What are the historic funding and expenditure characteristics? What are the future funding and expenditure characteristics? What financial assistance is available? LTNZ funding approval as per Project Evaluation Manual (do nothing/maintain/replace) LTCCP and AMP Roads are designed and maintained to community expectations 65% ratepayers believe they get good value for money and costs are reasonable, increasing to 80% (Customer Survey) AMP Financial Assistance from LTNZ maximised

Regulatory or Policy Framework	1C.7.5	What legislation or regulations apply? (e.g. LTNZ Policies & Guidelines, HASIE Act, RMA) Is there a TDC Policy? (AC surfacing in CBD areas) Do the regulations or policies form the absolute or minimum requirement?		
Asset Composition & Non-Asset Solutions	1C.7.6	What components of the Pavement can be maintained/renewed individually? Is there a non-asset solution available?		
Evaluation Point	**1C.7.7**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	
DECISION FRAMEWORK – COMPREHENSIVE MANAGEMENT				
Asset Condition Data	1C.8.1	What Asset Condition data is available? Is it sufficient to assist decision making?		
Asset Performance Data	1C.8.2	What Asset Performance data is available? Is it sufficient to assist decision making?		
Interdependencies with TDC Land Transport Assets	1C.8.3	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Pavements Lifecycle Management?		
Interdependencies with other Utility Assets	1C.8.4	Identify Interdependencies with other Utility Assets. Is there an impact on the approach to Pavements Lifecycle Management?		
Interdependencies with TDC Land Transport Assets	1C.8.5	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Pavements Lifecycle Management?		
Evaluation Point	**1C.8.6**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	

ASSUMPTIONS AND LIMITATIONS		
Legal and Regulatory Framework	1C.9.1	Assumption that no additional restrictions are placed on Pavements

2.4 Structures - Bridges

2.4.1 Introduction

Bridges are integral to the efficiency of the roading network and have defined development of the district around strategic crossing points.

Bridges are subject to a regulatory regime of inspection and programmed maintenance while capital works or renewal are often subject to specific funding approval. Works are subject to the Building Act 2004 and environmental controls as per resource consent.

While the inspection regime is systemic, asset data and asset information systems could be improved to assist with management and decision making.

There is a clear objective to have no weight restricted bridges by 2016, this target will only be achieved through capital works and this should be considered as maintenance regimes are developed and implemented.

There are a number of low usage bridges that have been replaced by permanent fords. In some cases the bridges remain to provide access when the fords `are impassable. Retention of these bridges should be considered in line with any other alternative access options available.

2.4.2 Lifecycle Management Plan

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**2**	**Bridges**
How Do We Manage Bridges?		
PURPOSE		
What is it?	2.1.1	Concrete and Steel Bridges Timber Deck Bridges All timber Bridges Armco Culverts Other Culverts (area greater than 3.4m^2) Abutment Protection (including Gabions, armouring and stream maintenance
Is it a core or support asset	2.1.2	Core
What is its purpose?	2.1.3	To provide all weather roads over rivers, streams, irregular terrain, stock routes, supporting vehicles and ensuring the safety of all road users
STRATEGY GOAL		
What is our approach to Bridges?	2.2.1	To provide, operate and manage quality Bridge assets that meet community needs to support the District's economic development and provide improved transportation access, mobility and safety.
WHAT ARE OUR OBJECTIVES FOR EACH STAGE OF THE ASSET LIFECYCLE?		
Planning	2.3.1	Undertake Street Furniture in terms of the Network as a whole, projected network demand, as well as site and resource availability
Creation/ Acquisition	2.3.2	Construct Bridges to accepted standards using quality materials
Operating & Maintaining	2.3.3	Ensure Bridges are fit for purpose, safe and aim to optimise the overall lifecycle cost
Performance & Condition Monitoring	2.3.4	Undertake Monitoring to ensure bridges meet performance standards and the overall lifecycle cost is optimised
Renewal	2.3.5	Renew Bridges to ensure bridges meet performance standards and the overall lifecycle cost is optimised
Disposal/ Rationalisation	2.3.6	Remove or downgrade Bridges are where disposal/rationalisation meets performance standards and it can be demonstrated that the the overall lifecycle cost is optimised

<table>
<tr><th colspan="3">Timaru District Council Land Transport Lifecycle Management Plan</th></tr>
<tr><td>Asset Group</td><td>2</td><td>Bridges</td></tr>
<tr><td colspan="3">What do we know about Bridges?</td></tr>
<tr><td colspan="3">OVERVIEW</td></tr>
<tr><td>Statistics</td><td>2.4.1</td><td>180 bridges including 4 boundary bridges
120 culverts
ORC $82 million</td></tr>
<tr><td>Information System</td><td>2.4.2</td><td>RAMM
Inspections data MS Access 2003</td></tr>
<tr><td colspan="3">HOW LONG WILL IT LAST?</td></tr>
<tr><td>Base lives</td><td>2.5.1</td><td>Timaru District Council's Road Asset Valuation (as at 1 July 2005, prepared by Maunsell Aecom) provides an outline of the useful Lives of Land Transport assets adopted by Council for the asset valuation and depreciation calculation.[5]
<table>
<tr><th>Structure</th><th>Description</th><th>Base-Life</th></tr>
<tr><td>Bridge</td><td>Concrete, steel, or combination</td><td>110-120</td></tr>
<tr><td></td><td>Steel beam and timber deck, timber through truss</td><td>90</td></tr>
<tr><td></td><td>Timber beam and deck</td><td>80</td></tr>
<tr><td>Culvert</td><td>Armco pipe</td><td>80</td></tr>
<tr><td></td><td>Concrete pipe culvert</td><td>120</td></tr>
<tr><td></td><td>Concrete box or Reinforced Concrete pipe (includes Cattle Underpass)</td><td>120</td></tr>
<tr><td>Ford</td><td>Ford - Plain</td><td>Not depreciated</td></tr>
<tr><td>Arch</td><td>Armco structural aluminium or steel-plate pipe arch</td><td>80</td></tr>
<tr><td></td><td>Concrete arch</td><td>120</td></tr>
<tr><td></td><td>Masonry arch</td><td>150</td></tr>
</table></td></tr>
<tr><td>Construction dates</td><td>2.5.2</td><td>In the few cases where the construction date was not known an assumed date of 1965 was used</td></tr>
<tr><td>Remarks</td><td>2.5.3</td><td>Lives of Armco culverts vary considerably depending upon the location and installation. Generally Armco culverts should be inspected to determine if in-situ lining is favorable (approx 25 years & $20,000 each) and may last another 25 years</td></tr>
<tr><td>What other considerations are there?</td><td>2.5.4</td><td>Renewal funding is subject to LTNZ approval and consideration of alternative routes
Any increase in maximum heavy vehicle weight would impact bridge functionality and renewal planning
Regionally distributed funds are available for periodic road reconstruction activities (LTNZ July 2007)</td></tr>
<tr><td></td><td>2.5.5</td><td>Minor bridges could be downgraded to fords
Some low use bridges accompany fords and are only for use when waterway flows are high. If removed access to properties would be affected</td></tr>
</table>

[5] *Timaru District Council – Roading Infrastructure Revaluation (As at 1 July 2005) Maunsell Aecom February 2006*

	2.5.6	Ongoing liaison and agreement is required with other RCAs in terms of cross boundary assets
	2.5.7	There is a lack of historic bridge information

WHAT ARE THE ISSUES WITH BRIDGES?		
Levels of Service and Road User Satisfaction	2.6.1	Traffic growth , particularly heavy vehicles Increasing customer expectations for higher levels of service Developments in CBD areas Movement of specialized farming machinery Weight restrictions affect network efficiency and user satisfaction. Bridge approach pavement failure rate is high (potholes) Bridges are well presented (clean, paint is in good condition)
Safety	2.6.2	Traffic growth , particularly heavy vehicles Users may ignore weight restrictions if postings not known (signage, public notices, website) Bridge approach pavement failure rate is high (potholes) Visibility, signage and pavement markings supports safe use of bridge National standards are minimum standards
Asset Preservation	2.6.3	Traffic growth , particularly heavy vehicles Renewal of roading asset as a significant portion nears the end of it's design life National standards are minimum standards Inspection and forward works program in terms of Bridge Inspection and Maintenance Manual (Transit NZ, SP/M/016, July 2001)
Economic	2.6.4	Cost Increases (e.g. oil prices and aggregate supplies) Continuity of financial assistance from LTNZ Changes in central, regional and local government policy Changes in land use patterns resulting in changes in heavy traffic Weight restrictions affect network efficiency Network hierarchy is facilitated Continuity of financial assistance from LTNZ Consequences of deferred maintenance or renewal
Environmental	2.6.5	Weight restrictions affect network efficiency Maintenance meets environmental standards (e.g. consents)
Social and Cultural	2.6.6	Community cohesion and avoidance of social severance is dependant upon efficient transport networks Emergency routes are considered

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**2**	**Bridges**
What to do with Bridges?		
DECISION FRAMEWORK – CORE MANAGEMENT		
Key Result Area/Performance Targets 1. Road User Satisfaction	2.7.1	Measured by number of complaints received (Focus Group) Have any justified complaints regarding quality of bridges been received? What action was undertaken? (Refer to RFS System) LTCCP Bridges culverts and other structures are fit for purpose, safely designed and appropriately signposted and marked Number of complaints received Number of weight restricted bridges, 90 or 95% increasing to 100% (Audits, Inspections (AMP)) AMP Bridges designed and maintained to national standards Accident reports Resident and visitor satisfaction with CBD. 75% people believe that Timaru is attractive and well maintained, increasing to 90%
Key Result Area/Performance Targets 2. Safety	2.7.2	What does the Safety Management System say? (Refer SMS Section) Are safety targets met? (Evaluate) LTCCP & AMP Safe and efficient roading network supported by quality maintenance and capital works meeting established needs of the community 75% of users believe the network is safe, increasing to 85%.(Customer Survey) Reduction in accidents on TDC roads from previous year Bridge Inspections Research latest Bridge Inspection and any recommendations made
Key Result Area/Performance Targets 3. Asset Preservation	2.7.3	How old is the bridge? (Refer RAMM) Has it been inspected and maintained correctly? (Refer latest “Inspection of Bridges”)

Key Result Area Prudent Financial Management & Affordability (Financial Considerations)	2.74	What are the historic funding and expenditure characteristics? (Refer RAMM and Corporate Vision) What are the future funding and expenditure characteristics? (Refer RAMM, Bridge AMP, LTCCP Forecast) What financial assistance is available? LTNZ funding approval as per Bridge Inspection and Maintenance Manual and Project Evaluation Manual (do nothing/maintain/replace) (Refer Manuals and LTP) LTCCP and AMP Roads are designed and maintained to community expectations 65% ratepayers believe they get good value for money and costs are reasonable, increasing to 80% (Customer Survey) AMP 95% of projects commenced in current financial year +/-5% variance between planned and actual years expenditure on capital and maintenance		
Regulatory or Policy Framework	2.7.5	What legislation or regulations apply? (e.g. LTNZ Policies & Guidelines, HASIE Act, RMA) Is there a TDC Policy? (Refer Policy register) Do the regulations or policies form the absolute or minimum requirement? (Refer Policy register)		
Asset Composition & Non-Asset Solutions	2.7.6	What components of the bridge can be maintained/renewed individually? (Refer RAMM for asset components) Is there a non-asset solution available? NB: A bridge approach issue should be considered as a pavement issue.		
Evaluation Point	**2.7.7**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	

DECISION FRAMEWORK – COMPREHENSIVE MANAGEMENT				
Asset Condition Data	2.8.1	What Asset Condition data is available? Is it sufficient to assist decision making?		
Asset Performance Data	2.8.2	What Asset Performance data is available? Is it sufficient to assist decision making?		
Interdependencies with TDC Land Transport Assets	2.8.3	Identify Interdependencies with TDC Land Transport Assets. (Consider network hierarchy, Walking and Cycling Strategy) Is there an impact on the approach to Bridge Lifecycle Management?		
Interdependencies with other Assets (TDC Utilities Electricity, Telecom, Rail etc)	2.8.4	Identify Interdependencies with other Assets. (Any Utilities attached to the bridge?) Is there an impact on the approach to Bridge Lifecycle Management?		
Evaluation Point	**2.8.5**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	
ASSUMPTIONS AND LIMITATIONS				
Legal and Regulatory Framework	2.9.1	Assumption that no additional restrictions are placed on bridges and culverts (including increased weight restrictions).		

2.5 Structures (A) Sea Walls, Retaining Walls, and Facing Walls

2.5.1 Introduction

There are eight retaining walls and a similar number of sea walls that support the roading network.

- Arthur Street, Timaru — Concrete
- Quarry Road, Timaru — Bluestone Dry Stack
- Wilson/Church Streets, Timaru — Concrete
- Kellands Hill, Timaru — Block
- McDonald St, Geraldine — Concrete
- Chaucer Street, Timaru — Crib
- Wilson/North, Timaru — Concrete
- North Otipua, Timaru — Concrete
- Mountainview Road, Timaru — Timber Crib
- The Bay Hill, Timaru — ?

These structures are managed in a similar manner to bridges with a regular regime of inspections and programming of maintenance.

There are also various sea walls and facing walls which require attention from time to time. There is currently no inventory of these assets.

2.5.2 Lifecycle Management Plan

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**3A**	**Sea Walls, Retaining Walls, and Facing Walls**
How Do We Manage Sea Walls, Retaining Walls, and Facing Walls?		
PURPOSE		
What is it?	3A.1.1	Sea Walls Retaining Walls Facing Walls
Is it a core or support asset	3A.1.2	Support
What is its purpose?	3A.1.3	To ensure that traffic facilities and furniture are suitably located and maintained to assist all road corridor users in using the transportation network safely and reliably, and enable clear navigation and enforcement of associated laws
GOAL		
What is our approach to Sea Walls, Retaining Walls and Facing Walls?	3A.2.1	*Timaru District Council provides, operates and manages these assets to facilitate efficient and safe use and development of the Land Transportation Network as a whole*
WHAT ARE OUR OBJECTIVES FOR EACH STAGE OF THE ASSET LIFECYCLE?		
Planning	3A.3.1	Undertake Wall Planning in terms of the network as a whole and the projected network demand
Creation/ Acquisition	3A.3.2	Build Walls to accepted standards using quality materials
Operating & Maintaining	3A.3.3	Ensure Walls are fit for purpose, safe and aim to optimise the overall lifecycle cost
Performance & Condition Monitoring	3A.3.4	Undertake Monitoring to ensure Walls meet performance standards and overall lifecycle cost is optimised
Renewal	3A.3.5	Renew Walls to ensure area meets performance standards and overall lifecycle cost is optimised
Disposal/ Rationalisation	3A.3.6	Remove Walls where they are no longer required as a support asset

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**3A**	**Sea Walls, Retaining Walls, and Facing Walls**
What do we know about Sea Walls, Retaining Walls and Facing Walls?		
OVERVIEW		
Statistics	3A.4.1	
Information System	3A.4.2	
HOW LONG WILL IT LAST?		
Base lives	3A.5.1	Timaru District Council's Road Asset Valuation (as at 1 July 2005, prepared by Maunsell Aecom) provides an outline of the useful Lives of Land Transport assets adopted by Council for the asset valuation and depreciation calculation.[6] *All retaining walls have assessed useful lives of 90 years with a minimum remaining life of two years*
Construction dates	3A.5.2	*Construction dates are known for all for all of the retaining walls*
Remarks	3A.5.3	
What other considerations are there?	3A.5.4	Regionally distributed funds are available for periodic road reconstruction activities (LTNZ July 2007)
	3A.5.5	
WHAT ARE THE ISSUES WITH SEA WALLS, RETAINING WALLS, AND FACING WALLS?		
Levels of Service and Road User Satisfaction	3A.6.1	
Safety	3A.6.2	
Asset Preservation	3A.6.3	
Economic	3A.6.4	Cost Increases (e.g. oil prices and aggregate supplies) Continuity of financial assistance from LTNZ Changes in central, regional and local government policy Changes in land use patterns
Environmental	3A.6.5	
Social and Cultural	3A.6.6	

[6] *Timaru District Council – Roading Infrastructure Revaluation (As at 1 July 2005) Maunsell Aecom February 2006*

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**3A**	**Sea Walls, Retaining Walls, and Facing Walls**
What do we do with Sea Walls, Retaining Walls, and Facing Walls?		
DECISION FRAMEWORK – CORE MANAGEMENT		
Key Result Area/Performance Targets 1. Road User Satisfaction (incorporates LTCCP measure	3A.7.1	Measured by number of complaints received Have any justified complaints regarding quality of Sea Walls, Retaining Walls, and Facing Walls been received? What action was undertaken? AMP Structures are reliable as far as practical, Maximise structure reliability by undertaking programmed maintenance. 75% of people believe that minor structures are reliable. Increasing 95% 2014 Resident and visitor satisfaction with CBD. 75% people believe that Timaru is attractive and well maintained, increasing to 90% Minor structures support a safe and reliable network. 80% of people believe minor structures enhance the safety of the network. Increasing to 100% 2014
Key Result Area/Performance Targets 2. Safety	3A.7.2	What does the Safety Management System say? Are safety targets met? LTCCP & AMP Safe and efficient roading network supported by quality maintenance and capital works meeting established needs of the community 75% of users believe the network is safe.(Customer Survey) Reduction in accidents on TDC roads from previous year
Key Result Area/Performance Targets 3. Asset Preservation	3A.7.3	How old is the Sea Walls, Retaining Walls, and Facing Walls? Has it been inspected and maintained correctly?
Key Result Area Prudent Financial Management & Affordability (Financial Considerations)	3A.7.4	What are the historic funding and expenditure characteristics? What are the future funding and expenditure characteristics? What financial assistance is available? LTNZ funding approval as per Project Evaluation Manual (do nothing/maintain/replace) LTCCP and AMP Roads are designed and maintained to community expectations 65% ratepayers believe they get good value for money and costs are reasonable, increasing to 80% (Customer Survey) AMP 95% of projects commenced in current financial year +/-5% variance between planned and actual years expenditure on capital and maintenance

Regulatory or Policy Framework	3A.7.5	What legislation or regulations apply? (e.g. LTNZ Policies & Guidelines, HASIE Act, RMA) Is there a TDC Policy? Do the regulations or policies form the absolute or minimum requirement?		
Asset Composition & Non-Asset Solutions	3A.7.6	What components of the Sea Walls, Retaining Walls or Facing Walls can be maintained/renewed individually? Is there a non-asset solution available?		
Evaluation Point	**3A.7.7**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	
DECISION FRAMEWORK – COMPREHENSIVE MANAGEMENT				
Asset Condition Data	3A.8.1	What Asset Condition data is available? Is it sufficient to assist decision making?		
Asset Performance Data	3A.8.2	What Asset Performance data is available? Is it sufficient to assist decision making?		
Interdependencies with TDC Land Transport Assets	3A.8.3	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Sea Walls, Retaining Walls, and Facing Walls Lifecycle Management?		
Interdependencies with other Utility Assets	3A.8.4	Identify Interdependencies with other Utility Assets. Is there an impact on the approach to Sea Walls, Retaining Walls, and Facing Walls Lifecycle Management?		
Interdependencies with TDC Land Transport Assets	3A.8.5	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Sea Walls, Retaining Walls, and Facing Walls Lifecycle Management?		
Evaluation Point	**3A.8.6**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	

ASSUMPTIONS AND LIMITATIONS		
Legal and Regulatory Framework	3A.9.1	Assumption that no additional restrictions are placed on Sea Walls, Retaining Walls, and Facing Walls

2.6 Structures (B) Guardrails and Barriers

2.6.1 Introduction

There are various guardrails and barriers which require attention from time to time. There is currently no inventory on these assets.

2.6.2 Lifecycle Management Plan

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**3B**	**Guardrails and Barriers**
How Do We Manage Guardrails and Barriers?		
PURPOSE		
What is it?	3B.1.1	Guardrails Barriers
Is it a core or support asset	3B.1.2	Support
What is its purpose?	3B.1.3	To ensure that traffic facilities and furniture are suitably located and maintained to assist all road corridor users in using the transportation network safely and reliably, and enable clear navigation and enforcement of associated laws
GOAL		
What is our approach to Guardrails and Barriers?	3B.2.1	*Timaru District Council provides, operates and manages these assets to facilitate efficient and safe use and development of the Land Transportation Network as a whole*
WHAT ARE OUR OBJECTIVES FOR EACH STAGE OF THE ASSET LIFECYCLE?		
Planning	3B.3.1	Undertake Guardrail and Barrier Planning in terms of the network as a whole and the projected network demand
Creation/ Acquisition	3B.3.2	Build Guardrails and Barriers to accepted standards using quality materials
Operating & Maintaining	3B.3.3	Ensure Guardrails and Barriers are fit for purpose, safe and aim to optimise the overall lifecycle cost
Performance & Condition Monitoring	3B.3.4	Undertake Monitoring to ensure Guardrails and Barriers meet performance standards and overall lifecycle cost is optimised
Renewal	3B.3.5	Renew Guardrails and Barriers to ensure area meets performance standards and overall lifecycle cost is optimised
Disposal/ Rationalisation	3B.3.6	Remove Guardrails and Barriers where they are no longer required as a support asset

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**3B**	**Guardrails and Barriers**
What do we know about Guardrails and Barriers?		
OVERVIEW		
Statistics	3B.4.1	
Information System	3B.4.2	
HOW LONG WILL IT LAST?		
Base lives	3B.5.1	Timaru District Council's Road Asset Valuation (as at 1 July 2005, prepared by Maunsell Aecom) provides an outline of the useful Lives of Land Transport assets adopted by Council for the asset valuation and depreciation calculation.[7] *All retaining walls have assessed useful lives of 90 years with a minimum remaining life of two years*
Construction dates	3B.5.2	*Construction dates are known for all for all of the retaining walls*
Remarks	3B.5.3	
What other considerations are there?	3B.5.4	Regionally distributed funds are available for periodic road reconstruction activities (LTNZ July 2007)
	3B.5.5	
WHAT ARE THE ISSUES WITH GUARDRAILS AND BARRIERS?		
Levels of Service and Road User Satisfaction	3B.6.1	
Safety	3B.6.2	
Asset Preservation	3B.6.3	
Economic	3B.6.4	Cost Increases (e.g. oil prices and aggregate supplies) Continuity of financial assistance from LTNZ Changes in central, regional and local government policy Changes in land use patterns
Environmental	3B.6.5	
Social and Cultural	3B.6.6	

[7] *Timaru District Council – Roading Infrastructure Revaluation (As at 1 July 2005) Maunsell Aecom February 2006*

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**3B**	**Guardrails and Barriers**
What do we do with Guardrails and Barriers?		
DECISION FRAMEWORK – CORE MANAGEMENT		
Key Result Area/Performance Targets 1. Road User Satisfaction (incorporates LTCCP measure	3B.7.1	Measured by number of complaints received Have any justified complaints regarding quality of Guardrails and Barriers been received? What action was undertaken? AMP Structures are reliable as far as practical, Maximise structure reliability by undertaking programmed maintenance. 75% of people believe that minor structures are reliable. Increasing 95% 2014 Resident and visitor satisfaction with CBD. 75% people believe that Timaru is attractive and well maintained, increasing to 90% Minor structures support a safe and reliable network. 80% of people believe minor structures enhance the safety of the network. Increasing to 100% 2014
Key Result Area/Performance Targets 2. Safety	3B.7.2	What does the Safety Management System say? Are safety targets met? LTCCP & AMP Safe and efficient roading network supported by quality maintenance and capital works meeting established needs of the community 75% of users believe the network is safe.(Customer Survey) Reduction in accidents on TDC roads from previous year
Key Result Area/Performance Targets 3. Asset Preservation	3B.7.3	How old is the Guardrails and Barriers? Has it been inspected and maintained correctly?
Key Result Area Prudent Financial Management & Affordability (Financial Considerations)	3B.7.4	What are the historic funding and expenditure characteristics? What are the future funding and expenditure characteristics? What financial assistance is available? LTNZ funding approval as per Project Evaluation Manual (do nothing/maintain/replace) LTCCP and AMP Roads are designed and maintained to community expectations 65% ratepayers believe they get good value for money and costs are reasonable, increasing to 80% (Customer Survey) AMP 95% of projects commenced in current financial year +/-5% variance between planned and actual years expenditure on capital and maintenance

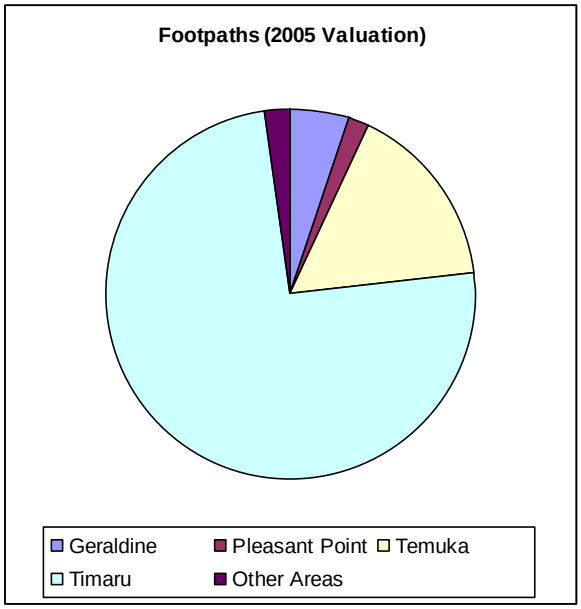
Regulatory or Policy Framework	3B.7.5	What legislation or regulations apply? (e.g. LTNZ Policies & Guidelines, HASIE Act, RMA) Is there a TDC Policy? Do the regulations or policies form the absolute or minimum requirement?		
Asset Composition & Non-Asset Solutions	3B.7.6	What components of the Guardrails and Barriers can be maintained/renewed individually? Is there a non-asset solution available?		
Evaluation Point	**3B.7.7**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	
DECISION FRAMEWORK – COMPREHENSIVE MANAGEMENT				
Asset Condition Data	3B.8.1	What Asset Condition data is available? Is it sufficient to assist decision making?		
Asset Performance Data	3B.8.2	What Asset Performance data is available? Is it sufficient to assist decision making?		
Interdependencies with TDC Land Transport Assets	3B.8.3	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Guardrails and Barriers Lifecycle Management?		
Interdependencies with other Utility Assets	3B.8.4	Identify Interdependencies with other Utility Assets. Is there an impact on the approach to Guardrails and Barriers Lifecycle Management?		
Interdependencies with TDC Land Transport Assets	3B.8.5	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Guardrails and Barriers Lifecycle Management?		
Evaluation Point	**3B.8.6**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	

ASSUMPTIONS AND LIMITATIONS		
Legal and Regulatory Framework	3B.9.1	Assumption that no additional restrictions are placed on Guardrails and Barriers

2.7 Footpaths and Cycleways

2.7.1 Introduction

Within Timaru District footpaths total approximately 630km. There are a range of footpaths spread throughout the district as illustrated.



Footpaths are generally sealed with a high proportion of Asphaltic Concrete (black).

The information held is incomplete in terms of asset condition and the reliability of the paving type data.

While regular inspections are programmed, this does not necessarily result in the implementation of a forward works programme. Currently much of the maintenance is reactive to faults and there are response time within the LTCCP and Maintenance Contract.

Renewal and capital works are typically undertaken to match the available budget, and renewals equate to around 75% of footpath expenditure.

2.7.2 Lifecycle Management Plan

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**4**	**Footpaths and Cycleways**
How Do We Manage Footpaths and Cycleways?		
PURPOSE		
What is it?	4.1.1	Sealed Footpaths Paved Footpaths Unsealed Footpaths Sealed Cycleways (Off Road)
Is it a core or support asset	4.1.2	Core
What is it's purpose?	4.1.3	To ensure adequate pedestrian access is provided and maintained where necessary to ensure safety and accessibility To support walking and cycling consistent with a shift in transport mode
GOAL		
What is our approach to Footpaths & Cycleways?	4.2.1	*To provide, operate and manage quality Footpath and Cycleway assets that meet community needs, support active and healthy lifestyles and sustainable transport goals*
WHAT ARE OUR OBJECTIVES FOR EACH STAGE OF THE ASSET LIFECYCLE?		
Planning	4.3.1	Undertake Footpath and Cycleway Asset Planning in terms of the network as a whole and the projected network demand including relevant TDM Strategies
Creation/ Acquisition	4.3.2	Build Footpaths and Cycleways to accepted standards using quality materials
Operating & Maintaining	4.3.3	Ensure Footpaths and Cycleways are fit for purpose, safe and aim to optimise the overall lifecycle cost
Performance & Condition Monitoring	4.3.4	Undertake Monitoring to ensure Footpaths and Cycleways meet performance standards/Levels of Service and the overall lifecycle cost is optimised
Renewal	4.3.5	Renew Footpaths and Cycleways to ensure Footpaths and Cycleways meet performance standards and the overall lifecycle cost is optimised
Disposal/ Rationalisation	4.3.6	Remove or downgrade Footpaths and Cycleways where disposal/rationalisation meets performance standards and it can be demonstrated that the the overall lifecycle cost is optimised

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**4**	**Footpaths and Cycleways**
What do we know about Footpaths and Cycleways?		
OVERVIEW		
Statistics	4.4.1	*Various materials* — *313 km* *Sealed or paved* — *308 km* *Unsealed* — *7 km* *Total* — *628 km*
Information System	4.4.2	RAMM
HOW LONG WILL IT LAST?		
Base lives	4.5.1	Timaru District Council's Road Asset Valuation (as at 1 July 2005, prepared by Maunsell Aecom) provides an outline of the useful Lives of Land Transport assets adopted by Council for the asset valuation and depreciation calculation.[8] ***Material*** — ***Life*** *Asphaltic concrete (black)* — *25* *Clay Pavers* — *50* *Concrete (100mm)* — *50* *Interlocking blocks* — *50* *Metal* — *10* *Seal* — *25* ***Footpath Foundation Material*** — ***Life*** *75mm of M4/M5 Base course and all associated material in place on footpath* — *75* *On average Timaru District Council has found that a layer replacement cycle equivalent to three life cycles asphaltic-concrete-surfacing, depending on the surface material, is the expected optimum life, after which full reconstruction of layers and surfaces is required. The average foundation base life is therefore taken as 75 years. Portland-cement-concrete (concrete) foundations require renewing with the concrete path.*

[8] *Timaru District Council – Roading Infrastructure Revaluation (As at 1 July 2005) Maunsell Aecom February 2006*

Construction dates	4.5.2	***Material*** ***Length (m)*** ***Default Year Built*** *Asphaltic concrete (black)* *242,101* *1990* *Clay Pavers* *402* *1999* *Concrete (100mm)* *14,634* *1977* *Interlocking blocks* *1,378* *1977* *Metal* *7,301* *1997* *Seal* *56,160* *1990* ***Footpath Foundation Material*** ***Default Year Built*** *75mm of M4/M5 Base course and all associated material in place on footpath* *1977*
Remarks	4.5.3	Clay pavers installed in CBD 1999
What other considerations are there?	4.5.4	There is a priority to provide new footpaths within 2km of Primary Schools and 3.8km of High Schools Footpath renewal planning needs to be integrated with kerb and channel renewal parts Regionally distributed funds are available for periodic road reconstruction activities (LTNZ July 2007)
	4.5.5	
WHAT ARE THE ISSUES WITH FOOTPATHS AND CYCLEWAYS?		
Levels of Service and Road User Satisfaction	4.6.1	Traffic growth , particularly heavy vehicles Increasing customer expectations for higher levels of service Developments in CBD areas
Safety	4.6.2	Special needs requirements are higher than general pedestrians, especially at drop crossings (mobility scooters, wheelchairs, visually impaired) Within rural areas, berms may be used as footpaths and steep cross-falls cause issues Pedestrian refuges are common and more refuges are anticipated at well used crossing points on principal roads
Asset Preservation	4.6.3	
Economic	4.6.4	Cost Increases (e.g. oil prices and aggregate supplies) Continuity of financial assistance from LTNZ Changes in central, regional and local government policy Changes in land use patterns
Environmental	4.6.5	Contribution to GPD Targets and NZTS
Social and Cultural	4.6.6	Contribution to active lifestyles

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**4**	**Footpaths and Cycleways**
What to do with Footpaths and Cycleways		
DECISION FRAMEWORK – CORE MANAGEMENT		
Key Result Area/Performance Targets 1. Road User Satisfaction (incorporates LTCCP measure	4.7.1	Measured by number of complaints received Have any justified complaints regarding quality of Footpaths and Cycleways been received? What action was undertaken? *2006-16 LTCCP* *Footpaths are safe, well designed and maintained* *75% of people are satisfied with smoothness, safety and maintenance of footpaths – Customer Survey, increasing to 95% (Customer Survey)* *2006 AMP* *Resident and visitor satisfaction with CBD.* *75% people believe that Timaru is attractive and well maintained, increasing to 90%* *75% of people within urban areas believe footpaths are accessible for everyday activities (i.e. retail facilities, schools, parks etc) Increasing to 100% (Survey)* *75% of people within urban areas believe that responsiveness to maintenance is adequate Increasing to 100%. 5 days normal, 3 hours urgent (Survey and complaints received)* *75% of people within urban areas believe that the quality of footpaths is adequate e.g. design, functionality, smoothness Increasing to 100%.(Survey and complaints received)* *75% of people within urban areas believe that the quality of footpaths is adequate e.g. design, functionality, smoothness Increasing to 100%, Compliance with standards for aged and wheelchair access. (Survey and complaints received)*
Key Result Area/Performance Targets 2. Safety	4.7.2	What does the Safety Management System say? Are safety targets met? *2006 AMP* *75 % of people within urban areas believe that footpaths are safe Increasing to 100% (Survey, inspections and complaints received)*
Key Result Area/Performance Targets 3. Asset Preservation	4.7.3	How old is the Footpath/Cycleway? Has it been inspected and maintained correctly?

Key Result Area Prudent Financial Management & Affordability (Financial Considerations)	4.7.4	What are the historic funding and expenditure characteristics? What are the future funding and expenditure characteristics? What financial assistance is available? LTNZ funding approval as per Project Evaluation Manual (do nothing/maintain/replace) *2006-16 LTCCP and 2006 AMP* *Roads are designed and maintained to community expectations* *65% ratepayers believe they get good value for money and costs are reasonable, increasing to 80% (Customer Survey)* *2006 AMP* *95% of projects commenced in current financial year* *+/-5% variance between planned and actual years expenditure on capital and maintenance*		
Regulatory or Policy Framework	4.7.5	What legislation or regulations apply? (e.g. LTNZ Policies & Guidelines, HASIE Act, RMA) Is there a TDC Policy? Do the regulations or policies form the absolute or minimum requirement?		
Asset Composition & Non- Asset Solutions	4.7.6	What components of the Footpath/Cycleway can be maintained/renewed individually? Is there a non-asset solution available?		
Evaluation Point	**4.7.7**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	
DECISION FRAMEWORK – COMPREHENSIVE MANAGEMENT				
Asset Condition Data	4.8.1	What Asset Condition data is available? Is it sufficient to assist decision making?		
Asset Performance Data	4.8.2	What Asset Performance data is available? Is it sufficient to assist decision making?		
Interdependencies with TDC Land Transport Assets	4.8.3	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Footpath/Cycleway Lifecycle Management?		
Interdependencies with other Utility Assets	4.8.4	Identify Interdependencies with other Utility Assets. Is there an impact on the approach to Footpath/Cycleway Lifecycle Management?		

Interdependencies with TDC Land Transport Assets	4.8.5	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Footpath/Cycleway Lifecycle Management?		
Evaluation Point	**4.8.6**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	
ASSUMPTIONS AND LIMITATIONS				
Legal and Regulatory Framework	4.9.1	Assumption that no additional restrictions are placed on Footpaths and Cycleways		

2.8 Car Parks

2.8.1 Introduction

This includes monitoring parking compliance in the district, mainly in the Timaru Central Business District, Timaru suburban areas, Temuka and Geraldine, and managing the parking asset (e.g. parking meters, carparks).

2.8.2 Lifecycle Management Plan

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**5**	**Car Parks**
How Do We Manage Car Parks?		
PURPOSE		
What is it?	5.1.1	Off Street Car Parks ~~Car Parks adjacent to pavements but separate from the carriageway. e.g. Hobbs St?~~
Is it a core or support asset	5.1.2	Support
What is its purpose?	5.1.3	To ensure a suitable amount of safe, available parking is provided through good location, design and enforcement
GOAL		
What is our approach to car Parks?	5.2.1	*Timaru District Council provides operates and manages quality Car Park assets that meet community needs to support the District's Economic and Social activity.*
WHAT ARE OUR OBJECTIVES FOR EACH STAGE OF THE ASSET LIFECYCLE?		
Planning	5.3.1	Undertake Car Park Planning in terms of the network as a whole and the projected network demand including relevant TDM Strategies
Creation/ Acquisition	5.3.2	Build Car Parks to accepted standards using quality materials
Operating & Maintaining	5.3.3	Ensure Car Parks are fit for purpose, safe and aim to optimise the overall lifecycle cost. Integrated maintenance with adjacent pavement maintenance
Performance & Condition Monitoring	5.3.4	Undertake monitoring to ensure Car Parks meet performance standards and the overall lifecycle cost is optimised. Integrate Performance & Condition Monitoring with adjacent pavement Performance & Condition Monitoring
Renewal	5.3.5	Renew Car Parks to ensure that performance standards are met and the overall lifecycle cost is optimised. Integrate Renewal with adjacent pavement Renewal
Disposal/ Rationalisation	5.3.6	Remove or downgrade Car Parks are where disposal/rationalisation meets performance standards and it can be demonstrated that the overall lifecycle cost is optimised

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**5**	**Car Parks**
What do we know about Car Parks?		
OVERVIEW		
Statistics	5.4.1	Timaru Large 7,400 Timaru Small 8,300 Temuka Chip seal 1,500 Temuka AC 1,500 Geraldine 600 Pleasant Point 1,700
Information System	5.4.2	RAMM
HOW LONG WILL IT LAST?		
Base lives	5.5.1	Timaru District Council's Road Asset Valuation (as at 1 July 2005, prepared by Maunsell Aecom) provides an outline of the useful Lives of Land Transport assets adopted by Council for the asset valuation and depreciation calculation[9]
Construction dates	5.5.2	
Remarks	5.5.3	
What other considerations are there?	5.5.4	Regionally distributed funds are available for periodic road reconstruction activities (LTNZ July 2007)
	5.5.5	
WHAT ARE THE ISSUES WITH CAR PARKS?		
Levels of Service and Road User Satisfaction	5.6.1	Traffic growth , particularly heavy vehicles Increasing customer expectations for higher levels of service Developments in CBD areas
Safety	5.6.2	
Asset Preservation	5.6.3	

[9] *Timaru District Council – Roading Infrastructure Revaluation (As at 1 July 2005) Maunsell Aecom February 2006*

Economic	5.6.4	Cost Increases (e.g. oil prices and aggregate supplies) Continuity of financial assistance from LTNZ Changes in central, regional and local government policy Changes in land use patterns
Environmental	5.6.5	
Social and Cultural	5.6.6	

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**5**	**Car Parks**
What to do with Car Parks		
DECISION FRAMEWORK – CORE MANAGEMENT		
Key Result Area/Performance Targets 1. Road User Satisfaction (incorporates LTCCP measure	5.7.1	Measured by number of complaints received Have any justified complaints regarding quality of Car Parks been received? What action was undertaken? AMP Resident and visitor satisfaction with CBD. Carparks are fit for purpose, smooth, comfortable, designed well, clean, tidy, adequate signage & markings 75% of people believe that carparks are adequately maintained Increasing to 100% in 2016 (Survey, inspections and complaints received)
Key Result Area/Performance Targets 2. Safety	5.7.2	What does the Safety Management System say? Are safety targets met? LTCCP and AMP 75% of users believe the network is safe, increasing to 85%. (Customer Survey) 70% of customers surveyed believe that Council is responsive to customers, increasing t to 90% Reduction in accidents on TDC roads from previous year
Key Result Area/Performance Targets 3. Asset Preservation	5.7.3	How old s the Car Park? Has it been inspected and maintained correctly?
Key Result Area/ Prudent Financial Management & Affordability (Financial Considerations)	5.7.4	What are the historic funding and expenditure characteristics? What are the future funding and expenditure characteristics? What financial assistance is available? LTNZ funding approval as per Project Evaluation Manual (do nothing/maintain/replace) LTCCP and AMP Roads are designed and maintained to community expectations 65% ratepayers believe they get good value for money and costs are reasonable, increasing to 80% (Customer Survey) AMP 95% of projects commenced in current financial year +/-5% variance between planned and actual years expenditure on capital and maintenance
Regulatory or Policy Framework	5.7.5	What legislation or regulations apply? (e.g. LTNZ Policies & Guidelines, HASIE Act, RMA) Is there a TDC Policy? Do the regulations or policies form the absolute or minimum requirement?
Asset Composition & Non-Asset Solutions	5.7.6	What components of the Car Park can be maintained/renewed individually? Is there a non-asset solution available?

Evaluation Point	**5.7.7**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
			Continue Maintenance Regime	
			Consider amending the Maintenance Regime **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	
DECISION FRAMEWORK – COMPREHENSIVE MANAGEMENT				
Asset Condition Data	5.8.1	What Asset Condition data is available? Is it sufficient to assist decision making?		
Asset Performance Data	5.8.2	What Asset Performance data is available? Is it sufficient to assist decision making?		
Interdependencies with TDC Land Transport Assets	5.8.3	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Car Park Lifecycle Management?		
Interdependencies with other Utility Assets	5.8.4	Identify Interdependencies with other Utility Assets. Is there an impact on the approach to Car Park Lifecycle Management?		
Interdependencies with TDC Land Transport Assets	5.8.5	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Car Park Lifecycle Management?		
Evaluation Point	**5.8.6**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	
ASSUMPTIONS AND LIMITATIONS				
Legal and Regulatory Framework	5.9.1	Assumption that no additional restrictions are placed on Car Parks		

2.9 Corridors

2.9.1 Introduction

Road corridors are the portions of the legal roads that are not managed as part of another asset, such as the pavement or footpath.

The only works undertaken are vegetation control (rural and urban), removal of obstructions and other operations such as managing licenses to occupy to protect the clear zone (refer SMS). This is particularly important on regional arterials where the Clear zone extends from boundary to boundary.

Management is an operational matter and there is no maintenance or renewal works performed.

2.9.2 Lifecycle Management Plan

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**6**	**Corridors**
How Do We Manage Corridors?		
PURPOSE		
What is it?	6.1.1	Road Corridors – Berms
Is it a core or support asset	6.1.2	
What is it's purpose?	6.1.3	To ensure road pavements are well designed and maintained cost-effectively and responsively to maximize accessibility and quality
GOAL		
What is our approach to Corridors?	6.2.1	Timaru District Council provides, operates and manages these assets to facilitate efficient and safe use and development of the Land Transportation Network as a whole
WHAT ARE OUR OBJECTIVES FOR EACH STAGE OF THE ASSET LIFECYCLE?		
Planning	6.3.1	Corridor Asset Planning is undertaken in terms of the network as a whole and the projected network demand. An integrated planning approach is adopted to consider interdependencies with utilities
Creation/ Acquisition	6.3.2	Corridors are established to accepted standards and with consideration of future needs
Operating & Maintaining	6.3.3	Corridors are fit for purpose, safe and the overall lifecycle cost is optimised
Performance & Condition Monitoring	6.3.4	Monitoring is undertaken to ensure Corridors meet performance standards and overall lifecycle cost is optimised
Renewal	6.3.5	There is no renewal expected
Disposal/ Rationalisation	6.3.6	Corridor provision is reviewed where disposal/rationalisation meets performance standards and the overall lifecycle cost is optimized

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**6**	**Corridors**
What do we know about Corridors?		
OVERVIEW		
Statistics	6.4.1	
Information System	6.4.2	
HOW LONG WILL IT LAST?		
Base lives	6.5.1	Timaru District Council's Road Asset Valuation (as at 1 July 2005, prepared by Maunsell Aecom) provides an outline of the useful Lives of Land Transport assets adopted by Council for the asset valuation and depreciation calculation[10]
Construction dates	6.5.2	
Remarks	6.5.3	
What other considerations are there?	6.5.4	Regionally distributed funds are available for periodic road reconstruction activities (LTNZ July 2007)
	6.5.5	
WHAT ARE THE ISSUES WITH CORRIDORS?		
Levels of Service and Road User Satisfaction	6.6.1	Traffic growth , particularly heavy vehicles Increasing customer expectations for higher levels of service Developments in CBD areas
Safety	6.6.2	Management of Clear Zone Maintenance of trees and removal of debris Maintaining sight distances inside-bends Vegetation control around edge markers and signs
Asset Preservation	6.6.3	
Economic	6.6.4	Importance of retaining corridors is closely linked with network hierarchy
Environmental	6.6.5	
Social and Cultural	6.6.6	

[10] *Timaru District Council – Roading Infrastructure Revaluation (As at 1 July 2005) Maunsell Aecom February 2006*

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**6**	**Corridors**
What to do with Corridors		
DECISION FRAMEWORK – CORE MANAGEMENT		
Key Result Area/Performance Targets 1. Road User Satisfaction (incorporates LTCCP measure	6.7.1	Measured by number of complaints received Have any justified complaints regarding quality of Corridors been received? What action was undertaken? AMP Resident and visitor satisfaction with CBD. 75% people believe that Timaru is attractive and well maintained, increasing to 90%
Key Result Area/Performance Targets 2. Safety	6.7.2	What does the Safety Management System say? Are safety targets met? LTCCP and AMP 75% of users believe the network is safe, increasing to 85%. (Customer Survey) 70% of customers surveyed believe that Council is responsive to customers, increasing t to 90% Reduction in accidents on TDC roads from previous year
Key Result Area/Performance Targets 3. Asset Preservation	6.7.3	How old are the Corridors? Has it been inspected and maintained correctly?
Key Result Area Prudent Financial Management & Affordability (Financial Considerations)	6.7.4	What are the historic funding and expenditure characteristics? What are the future funding and expenditure characteristics? What financial assistance is available? LTNZ funding approval as per Project Evaluation Manual (do nothing/maintain/replace) LTCCP and AMP Roads are designed and maintained to community expectations 65% ratepayers believe they get good value for money and costs are reasonable, increasing to 80% (Customer Survey) AMP 95% of projects commenced in current financial year +/-5% variance between planned and actual years expenditure on capital and maintenance
Regulatory or Policy Framework	6.7.5	What legislation or regulations apply? (e.g. LTNZ Policies & Guidelines, HASIE Act, RMA) Is there a TDC Policy? Do the regulations or policies form the absolute or minimum requirement?
Asset Composition & Non-Asset Solutions	6.7.6	What components of the Corridors can be maintained/renewed individually? Is there a non-asset solution available?

Evaluation Point	**6.7.7**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	
DECISION FRAMEWORK – COMPREHENSIVE MANAGEMENT				
Asset Condition Data	6.8.1	What Asset Condition data is available? Is it sufficient to assist decision making?		
Asset Performance Data	6.8.2	What Asset Performance data is available? Is it sufficient to assist decision making?		
Interdependencies with TDC Land Transport Assets	6.8.3	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Corridors Lifecycle Management?		
Interdependencies with other Utility Assets	6.8.4	Identify Interdependencies with other Utility Assets. Is there an impact on the approach to Corridors Lifecycle Management? Consider Ministerial Paper "Improving Utilities Access to Road and Rail Corridors"		
Interdependencies with TDC Land Transport Assets	6.8.5	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Corridors Lifecycle Management?		
Evaluation Point	**6.8.6**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	
ASSUMPTIONS AND LIMITATIONS				
Legal and Regulatory Framework	6.9.1	Assumption that no additional restrictions are placed on Corridors		

2.10 Surface Water Channels and Other Drainage

2.10.1 Introduction

Drainage of often regarded as the most important asset in ensuring the satisfactory condition and performance of a pavement.

Through providing drainage from pavements and footpaths, the drainage assets enable safe and efficient use of those pavements and footpaths. Effective drainage is also a key factor in maintaining the structural integrity of other assets.

Maintenance undertaken includes cleaning and minor repairs, while renewal is triggered by unacceptable performance of the drainage assets.

2.10.2 Lifecycle Management Plan

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**7**	**Surface Water Channels and Other Drainage**
How Do We Manage Surface Water Channels and Other Drainage		
PURPOSE		
What is it?	7.1.1	Assets included: Culverts, Fords, Surface Water Channels, Slot Drains, Soakage Pits, Vehicle Access Culverts, Vehicle Access Fords, Flumes, Subsoil Drains, Grates, Sumps and Sumpleads
Is it a core or support asset	7.1.2	Support
What is its purpose?	7.1.3	To ensure roads are kept clear of surface stormwater and flooding so that road access, safety and quality are maintained
GOAL		
What is our approach to Bridges?	7.2.1	Timaru District Council provides, operates and manages these assets to facilitate efficient and safe use and development of the Land Transportation Network as a whole
WHAT ARE OUR OBJECTIVES FOR EACH STAGE OF THE ASSET LIFECYCLE?		
Planning	7.3.1	Drainage Planning is undertaken in terms of the network as a whole and the projected network demand. The Environmental impact is minimised wherever practicable
Creation/ Acquisition	7.3.2	Drainage assets are built to accepted standards using quality materials, and the Environmental impact is minimised wherever practicable
Operating & Maintaining	7.3.3	Drainage is fit for purpose, safe and the overall lifecycle cost is optimised. The Environmental impact is minimised wherever practicable
Performance & Condition Monitoring	7.3.4	Monitoring is undertaken to ensure Drainage meet performance standards and overall lifecycle cost is optimised. The Environmental impact is minimised wherever practicable
Renewal	7.3.5	Drainage is renewed to ensure area meets performance standards and overall lifecycle cost is optimised. The Environmental impact is minimised wherever practicable
Disposal/ Rationalisation	7.3.6	Drainage assets are removed or downgraded where disposal/rationalisation meets performance standards and the overall lifecycle cost is optimised

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**7**	**Surface Water Channels and Other Drainage**
What do we know about Surface Water Channels and Other Drainage?		
OVERVIEW		
Statistics	7.4.1	
Information System	7.4.2	RAMM
HOW LONG WILL IT LAST?		
Base lives	7.5.1	Timaru District Council's Road Asset Valuation (as at 1 July 2005, prepared by Maunsell Aecom) provides an outline of the useful Lives of Land Transport assets adopted by Council for the asset valuation and depreciation calculation[11] ***Unlined Deep Surface-water Channels*** *Properly maintained deep drains (>300 or so mm) have an unlimited* ***Kerb and channel and Other Surface-water Channels*** *Current experience confirms that an average age of 75 years, the same as that for the adjacent footpaths, is appropriate for all kerb and channel assets* ***OTHER ROAD DRAINAGE*** ***Base Lives*** *An average useful life of 80 years has been assessed for all culverts, including headwalls and pipes.* ***Drainage Assets, Base-Lives***

Sub-asset	***Useful Life***
Box Culverts Twin Arch Twin Armco Twin RC	*80*
Culvert Asbestos, Concrete	*80*
Culvert Alum, Armco Culvert Helical Culvert NG	*80*
Culvert Earthenware	*80*
Double Sump Side Sump Soak pit	*75*
Subsoil Drain	*50*

[11] *Timaru District Council – Roading Infrastructure Revaluation (As at 1 July 2005) Maunsell Aecom February 2006*

Construction dates	7.5.2	***Sub-asset*** / ***Assumed Construction Date*** *Box Culverts Twin Arch Twin Armco Twin RC* — *1965* *Culvert Asbestos, Concrete* — *1970* *Culvert Alum, Armco Culvert Helical Culvert NG* — *1985* *Culvert Earthenware* — *1950* *Double Sump Side Sump Soak pit* — *1965* *Subsoil Drain* — *1965*
Remarks	7.5.3	
What other considerations are there?	7.5.4	Clandeboye Land Drainage District, WR areas (Seadown, RO/OW) are maintained separately as utilities Regionally distributed funds are available for periodic road reconstruction activities (LTNZ July 2007)
	7.5.5	
WHAT ARE THE ISSUES WITH DRAINAGE?		
Levels of Service and Road User Satisfaction	7.6.1	Traffic growth , particularly heavy vehicles Increasing customer expectations for higher levels of service Developments in CBD areas
Safety	7.6.2	Traffic growth
Asset Preservation	7.6.3	Traffic growth
Economic	7.6.4	Cost Increases (e.g. oil prices and aggregate supplies) Continuity of financial assistance from LTNZ Changes in central, regional and local government policy Changes in land use patterns
Environmental	7.6.5	Climate and weather pattern changes may cause increased storm intensities which are beyond the original drainage designs Pollutant and heavy metals carriage and remediation Compliance with ECan TRP and NRRP (WQL5,6,7) Financial assistance is available for “special” treatment of run-off (LTNZ W/C 121)
Social and Cultural	7.6.6	

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**7**	**Surface Water Channels and Other Drainage**
What to do with Surface Water Channels and Other Drainage		
DECISION FRAMEWORK – CORE MANAGEMENT		
Key Result Area/Performance Targets 1. Road User Satisfaction (incorporates LTCCP measure	7.7.1	Measured by number of complaints received Have any justified complaints regarding quality of drainage been received? What action was undertaken? LTCCP Promote use of low impact environmental design for kerb and channel replacements e.g. swales) where possible AMP Avoid road closures due to drainage facilities causing flooding. No roads per year closed due to failure of drainage facilities Efficient drainage to ensure the water is removed from the road quickly 75% users satisfied that road drainage facilities are effectively maintained. Increasing to 95% 2014 Blockages cleared within 14 days normal or 7 days urgent That the quality of drainage facilities are adequate to remove water without disruption to road use. 80% of people believe they are not disrupted by inadequate drainage facilities Increasing to 95% 2012 That drainage facilities operate 100% of the time 75% of people believe that drainage facilities are reliable 100% of the time. Increasing to 100% 2016 Resident and visitor satisfaction with CBD 75% people believe that Timaru is attractive and well maintained, increasing to 90%
Key Result Area/Performance Targets 2. Safety	7.7.2	What does the Safety Management System say? Are safety targets met? AMP Drainage facilities that safely remove water from the road surface 100% of people believe safety is maintained at all times 75% of users believe the network is safe, increasing to 85%. (Customer Survey) 70% of customers surveyed believe that Council is responsive to customers, increasing t to 90% Reduction in accidents on TDC roads from previous year
Key Result Area/Performance Targets 3. Asset Preservation	7.7.3	How old is the Drainage? Has it been inspected and maintained correctly?

Key Result Area Prudent Financial Management & Affordability (Financial Considerations)	7.7.4	What are the historic funding and expenditure characteristics? What are the future funding and expenditure characteristics? What financial assistance is available? LTNZ funding approval as per Project Evaluation Manual (do nothing/maintain/replace) LTCCP and AMP Roads are designed and maintained to community expectations 65% ratepayers believe they get good value for money and costs are reasonable, increasing to 80% (Customer Survey) AMP 95% of projects commenced in current financial year +/-5% variance between planned and actual years expenditure on capital and maintenance		
Regulatory or Policy Framework	7.7.5	What legislation or regulations apply? (e.g. LTNZ Policies & Guidelines, HASIE Act, RMA) Is there a TDC Policy? Do the regulations or policies form the absolute or minimum requirement?		
Asset Composition & Non-Asset Solutions	7.7.6	What components of the Drainage can be maintained/renewed individually? Is there a non-asset solution available?		
Evaluation Point	**7.7.7**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	
DECISION FRAMEWORK – COMPREHENSIVE MANAGEMENT				
Asset Condition Data	7.8.1	What Asset Condition data is available? Is it sufficient to assist decision making?		
Asset Performance Data	7.8.2	What Asset Performance data is available? Is it sufficient to assist decision making?		
Interdependencies with TDC Land Transport Assets	7.8.3	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Drainage Lifecycle Management?		
Interdependencies with other Utility Assets	7.8.4	Identify Interdependencies with other Utility Assets. Is there an impact on the approach to Drainage Lifecycle Management?		
Interdependencies with TDC Land Transport Assets	7.8.5	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Drainage Lifecycle Management?		

Evaluation Point	**7.8.6**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	
ASSUMPTIONS AND LIMITATIONS				
Legal and Regulatory Framework	7.9.1	Assumption that no additional restrictions are placed on Drainage		

2.11 Traffic Services (A). Pavement Markings

2.11.1 Introduction

Pavement markings and other delineation devices on the road surface and adjacent to the roadway contribute to the overall operational efficiency of a roadway. Pavement marking can increase traffic capacity, improve safety and contribute to the orderly use of design paths by drivers, particularly at critical points in the road system.

Roadside markings and delineation devices assist drivers in their assessment of changes in the road alignment, particularly at night. Roadside markings also highlight the position of features within the road system that may be geometrically substandard or constitute a hazard to the motorist. Uniform pavement and roadside markings are just as important as uniform signing. When marking motorways and other roads which have to cater for large traffic volumes and high speed manoeuvres it is necessary to use additional markings that have greater impact than those used on other roads lower in the roading hierarchy

(Extracted and abridged from MOTSAM - Part II: MARKINGS (LTNZ July 2004))

Specifications for the style of roadmarkings used on New Zealand roads, including those with speed limits of greater than 70 km/h, are set out in the *Manual of Traffic Signs and Markings* (*MOTSAM*), and the *Road and traffic standard 5: Guidelines for delineation on rural roads* (*RTS-5*). On New Zealand's rural roads, delineation is provided by a combination of edge marker posts carrying reflectors, painted roadmarkings, and reflectorised raised pavement markers (RRPMs). *MOTSAM* and *RTS-5* prescribe that the extent of delineation provided (intersections excluded) should increase as the annual average daily traffic (AADT) on the road increases, such that edge marker posts, then centre line roadmarkings, then edge line roadmarkings, and finally RRPMs are added progressively as traffic volume increases. As a result, the typical state highway rural road's delineation is provided by a combination of edge marker posts, centre line roadmarkings, edge line roadmarkings, and RRPMs. The typical local authority rural road will have edge marker posts and centre line roadmarkings only. Very low-volume rural roads (<100 vehicles per day) are usually without edge marker posts and are unmarked.

Historically, the required brightness of the roadmarkings has not been defined. About 1996, Transit New Zealand established a retroreflectivity (brightness level) requirement for roadmarkings on state highways. From 1997, the introduction of performance-based contracts, entailing meeting of this retroreflectivity requirement, and the development of roadmarking materials and application techniques has tended to result in:

- a significant increase in the retroreflectivity of the roadmarkings being achieved, and
- these levels of roadmarking retroreflectivity being sustained for long periods of time

Any trend toward improved safety from making existing pavement markings brighter has not been conclusive.

(Extracted and abridged: The safety benefits of brighter roadmarkings Land Transport New Zealand Research Report 310 (2006))

2.11.2 Lifecycle Management Plan

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**8A**	**Traffic Services – Pavement Markings**
How Do We Manage Pavement Markings?		
PURPOSE		
What is it?	8A.1.1	Painted roadmarkings Reflectorised raised pavement markers (RRPMs)
Is it a core or support asset	8A.1.2	Support
What is its purpose?	8A.1.3	To ensure that Traffic Services and furniture are suitably located and maintained to assist all road corridor users in using the transportation network safely and reliably, and enable clear navigation and enforcement of associated laws
GOAL		
What is our approach to Pavement Markings?	8A.2.1	Timaru District Council provides, operates and manages these assets to facilitate efficient and safe use and development of the Land Transportation Network as a whole
WHAT ARE OUR OBJECTIVES FOR EACH STAGE OF THE ASSET LIFECYCLE?		
Planning	8A.3.1	Traffic Services Planning is undertaken in terms of the network as a whole, projected network demand, safety (SMS) and Level of Service requirements
Creation/ Acquisition	8A.3.2	Traffic Services are installed to accepted standards using quality materials
Operating & Maintaining	8A.3.3	Traffic Services are fit for purpose, safe and the overall lifecycle cost is optimised
Performance & Condition Monitoring	8A.3.4	Monitoring is undertaken to ensure Traffic Services meet performance standards and overall lifecycle cost is optimised. Performance is focused on safety and image
Renewal	8A.3.5	Traffic Services are renewed to ensure area meets performance standards and overall lifecycle cost is optimised. Safety and image standards affect renewal more than life expectancy
Disposal/ Rationalisation	8A.3.6	Traffic Services are removed or downgraded where disposal/rationalisation meets performance standards and the overall lifecycle cost is optimised

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**8A**	**Traffic Services – Pavement Markings**
What do we know about Pavement Markings?		
OVERVIEW		
Statistics	8A.4.1	Not recorded
Information System	8A.4.2	Not recorded
HOW LONG WILL IT LAST?		
Base lives	8A.5.1	Timaru District Council's Road Asset Valuation (as at 1 July 2005, prepared by Maunsell Aecom) provides an outline of the useful Lives of Land Transport assets adopted by Council for the asset valuation and depreciation calculation[12] *Painting road marking is a cyclic activity that is typically performed at intervals ranging from three months to three years. Most assets in this group are effectively replaced every year under a maintenance contract, therefore a depreciation charge has not been applied and useful lives have not been assigned. This situation can be summarised as follows: Road markings have a useful life of one year; a minimum remaining useful life of two years has been applied to these assets, in accordance with Timaru District Council's standard practice*
Construction dates	8A.5.2	*Most assets in this group are effectively replaced every year under a maintenance contract,*
Remarks	8A.5.3	
What other considerations are there?	8A.5.4	Image of district is affected by condition of road markings Poor road markings affect the position of vehicles on sealed pavements, this may contribute to unexpected deterioration Regionally distributed funds are available for periodic road reconstruction activities (LTNZ July 2007)

[12] *Timaru District Council – Roading Infrastructure Revaluation (As at 1 July 2005) Maunsell Aecom February 2006*

WHAT ARE THE ISSUES WITH PAVEMENT MARKING?		
Levels of Service and Road User Satisfaction	8A.6.1	Traffic growth , particularly heavy vehicles Increasing customer expectations for higher levels of service Developments in CBD areas Paint used for pavement marking on state highways shall meet the requirements of Transit New Zealand Specifications M/7 and M/7 Notes and shall be applied to the road surface as per Transit New Zealand specifications P/12 and P/12 Notes Raised pavement markers on state highways shall meet the requirements of Transit New Zealand Specifications M/12 and M/12 Notes and shall be applied to the road surface as per Transit New Zealand specifications P/14(P) and P/14 Notes. Local road controlling authorities may approve specifications for pavement markings different from those listed above (MOTSAM) There may be some inconsistencies across the District if a policy approach is not applied uniformly Prompt pavement marking should occur following pavement maintenance works, this requires a high degree of liaison between Contractors
Safety	8A.6.2	Traffic growth , particularly heavy vehicles The South Canterbury SMS has highlighted a target that "all roads have appropriate delineation and kerb warning signs" The South Canterbury SMS has highlighted a target that "all road markings at intersections are to conform to Traffic control devices rule and MOTSAM, and are maintained to appropriate standards RRPMs used on rural principal and arterial roads Reinstatement of pavement markings following road openings (this includes Land Transport and other Utilities)
Asset Preservation	8A.6.3	Traffic growth , particularly heavy vehicles
Economic	8A.6.4	Cost Increases (e.g. oil prices and aggregate supplies) Continuity of financial assistance from LTNZ Changes in central, regional and local government policy Changes in land use patterns
Environmental	8A.6.5	
Social and Cultural	8A.6.6	

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**8A**	**Traffic Services – Pavement Markings**
What to do with Pavement Markings		
DECISION FRAMEWORK – CORE MANAGEMENT		
Key Result Area/Performance Targets 1. Road User Satisfaction (incorporates LTCCP measures	8A.7.1	Measured by number of complaints received Have any justified complaints regarding quality of Pavement Markings been received? What action was undertaken? LTCCP Road signage and marking provides clear guidance and efficient route destinations for road users 75% of people consider road marking, signage and traffic facilities are helpful and effective, increasing to 95% (Customer Survey) AMP Resident and visitor satisfaction with CBD. 75% people believe that Timaru is attractive and well maintained, increasing to 90% Road signage and marking provides clear guidance and efficient route destinations for road users 85% of people consider road marking, signage and traffic facilities are helpful and effective, increasing to 95% , Response times 14 days normal and 7 days Urgent (Complaints and Maintenance Contract reports) All sealed roads with ADT>300 vpd have reflective raised pavement markers All graffiti removed in accordance with requirements of maintenance contracts
Key Result Area/Performance Targets 2. Safety	8A.7.2	What does the Safety Management System say? Are safety targets met? LTCCP Adequate provision, reflectivity and visibility (including positioning) of signs, markings and delineation throughout the network for safe travel 80% of traffic signs to comply with LTNZ standards and MOTSAM** and Council's Signs Policy, increasing to 100% AMP Accidents at intersections reduced from previous year (Audits, statistics and surveys) 75% of users believe the network is safe, increasing to 85%. (Customer Survey) 70% of customers surveyed believe that Council is responsive to customers, increasing to 90% Reduction in accidents on TDC roads from previous year
Key Result Area/Performance Targets 3. Asset Preservation	8A.7.3	How old are the Pavement Markings? Has it been inspected and maintained correctly?

Financial Considerations	8A.7.4	What are the historic funding and expenditure characteristics? What are the future funding and expenditure characteristics? What financial assistance is available? LTNZ funding approval as per Project Evaluation Manual (do nothing/maintain/replace) LTCCP and AMP 65% ratepayers believe they get good value for money and costs are reasonable, increasing to 80% (Customer Survey) AMP 95% of projects commenced in current financial year +/-5% variance between planned and actual years expenditure on capital and maintenance	
Regulatory or Policy Framework	8A.7.5	What legislation or regulations apply? (e.g. LTNZ Policies & Guidelines, HASIE Act, RMA) Is there a TDC Policy? Do the regulations or policies form the absolute or minimum requirement?	
Asset Composition & Non-Asset Solutions	8A.7.6	What components of the Pavement Markings can be maintained/renewed individually? Is there a non-asset solution available?	
Evaluation Point	**8A.7.7**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**
		Are targets achieved?	**Continue Maintenance Regime**
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**
DECISION FRAMEWORK – COMPREHENSIVE MANAGEMENT			
Asset Condition Data	8A.8.1	What Asset Condition data is available? Is it sufficient to assist decision making?	
Asset Performance Data	8A.8.2	What Asset Performance data is available? Is it sufficient to assist decision making?	
Interdependencies with TDC Land Transport Assets	8A.8.3	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Pavement Markings Lifecycle Management?	
Interdependencies with other Utility Assets	8A.8.4	Identify Interdependencies with other Utility Assets. Is there an impact on the approach to Pavement Markings Lifecycle Management?	
Interdependencies with TDC Land Transport Assets	8A.8.5	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Pavement Markings Lifecycle Management?	

Evaluation Point	**8A.8.6**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**
		Are targets achieved?	**Continue Maintenance Regime**
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**
ASSUMPTIONS AND LIMITATIONS			
Legal and Regulatory Framework	8A.9.1	Assumption that no additional restrictions are placed on Pavement Markings	

2.12 Traffic Services (B) Signs

2.12.1 Introduction

Traffic signs are an important part of the roading system. They are provided to aid the safe and orderly movement of traffic and may contain:

- Regulatory instructions which road users are required to obey
- Warnings of temporary or permanent hazards which may not be self evident
- Directions and distances to destinations on the road ahead or on an intersecting road
- An indication of road user services and tourist features/establishments adjacent to the road ahead, or on an intersecting road
- Other information which is likely to be of general interest to road users

Clear and efficient signing is therefore essential and a road with poor and/or badly maintained signing is an unsatisfactory road in the user's view. To be effective traffic signs must be readily recognized as such, and:

- Be co-ordinated with geometric road layout so they are conspicuous by day or night
- Have messages which can be quickly read and understood and
- Be located far enough in advance of the situation to give sufficient time for the road user to take the appropriate action

Traffic signs have been classified by function into five main groups. These are:

- **Regulatory:** General, Parking and Heavy Vehicle
- **Warning:** Temporary and Permanent
- **Guide**
- **Motorist Service**
- **Tourist**
- **General Information**

(Extracted and abridged from MOTSAM - Part II: MARKINGS (LTNZ July 2004))

There is currently no formal contract for the maintenance or renewal of traffic signs (To be confirmed). The inventory of signs is poor and the condition of the aging signs asset group is typically unknown.

2.12.2 Lifecycle Management Plan

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**8B**	**Traffic Services – Signs**
How Do We Manage Signs?		
PURPOSE		
What is it?	8B.1.1	Regulatory Signs Warning Signs Guide Signs Motorist Service Signs Tourist Signs General Information Signs
Is it a core or support asset	8B.1.2	Support
What is it's purpose?	8B.1.3	To ensure that traffic Services and furniture are suitably located and maintained to assist all road corridor users in using the transportation network safely and reliably, and enable clear navigation and enforcement of associated laws
GOAL		
What is our approach to Signs?	8B.2.1	Timaru District Council provides, operates and manages these assets to facilitate efficient and safe use and development of the Land Transportation Network as a whole
WHAT ARE OUR OBJECTIVES FOR EACH STAGE OF THE ASSET LIFECYCLE?		
Planning	8B.3.1	Traffic Facility Planning is undertaken in terms of the network as a whole, projected network demand, safety (SMS) and Level of Service requirements
Creation/ Acquisition	8B.3.2	Traffic Services are installed to accepted standards using quality materials
Operating & Maintaining	8B.3.3	Traffic Services are fit for purpose, safe and the overall lifecycle cost is optimised
Performance & Condition Monitoring	8B.3.4	Monitoring is undertaken to ensure Traffic Services meet performance standards and overall lifecycle cost is optimised. Performance is focused on safety and image
Renewal	8B.3.5	Traffic Services are renewed to ensure area meets performance standards and overall lifecycle cost is optimised. Safety and image standards affect renewal more than life expectancy
Disposal/ Rationalisation	8B.3.6	Traffic Services are removed or downgraded where disposal/rationalisation meets performance standards and the overall lifecycle cost is optimised

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**8B**	**Traffic Services – Signs**
What do we know about Signs?		
OVERVIEW		
Statistics	8B.4.1	Not recorded
Information System	8B.4.2	Not recorded – work in progress
HOW LONG WILL IT LAST?		
Base lives	8B.5.1	Timaru District Council's Road Asset Valuation (as at 1 July 2005, prepared by Maunsell Aecom) provides an outline of the useful Lives of Land Transport assets adopted by Council for the asset valuation and depreciation calculation[13] *An average useful life of 13 years has been assumed pending the accumulation of more data*
Construction dates	8B.5.2	*It is assumed that each sign is halfway through its base life*
Remarks	8B.5.3	
What other considerations are there?	8B.5.4	High vandalism rate affects functionality and life All new and replacement signs to be high reflectivity or better Regionally distributed funds are available for periodic road reconstruction activities (LTNZ July 2007)
	8B.5.5	
WHAT ARE THE ISSUES WITH SIGNS?		
Levels of Service and Road User Satisfaction	8B.6.1	Traffic growth , particularly heavy vehicles Increasing customer expectations for higher levels of service Developments in CBD areas
Safety	8B.6.2	Traffic growth , particularly heavy vehicles The South Canterbury SMS has highlighted a target that "all roads have appropriate delineation and kerb warning signs" The South Canterbury SMS has highlighted a target that "all road markings at intersections are to conform to Traffic control devices rule and MOTSAM, and are maintained to appropriate standards Progressive installation of curve warning signs
Asset Preservation	8B.6.3	Traffic growth , particularly heavy vehicles

[13] *Timaru District Council – Roading Infrastructure Revaluation (As at 1 July 2005) Maunsell Aecom February 2006*

Economic	8B.6.4	Cost Increases (e.g. oil prices and aggregate supplies) Continuity of financial assistance from LTNZ Changes in central, regional and local government policy Changes in land use patterns
Environmental	8B.6.5	
Social and Cultural	8B.6.6	

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**8B**	**Traffic Services – Signs**
What to do with Signs		
DECISION FRAMEWORK – CORE MANAGEMENT		
Key Result Area/Performance Targets 1. Road User Satisfaction (incorporates LTCCP measure	8B.7.1	Measured by number of complaints received Have any justified complaints regarding quality of Pavement Markings been received? What action was undertaken? LTCCP Road signage and marking provides clear guidance and efficient route destinations for road users 75% of people consider road marking, signage and traffic facilities are helpful and effective, increasing to 95% (Customer Survey) AMP Road signage and marking provides clear guidance and efficient route destinations for road users 85% of people consider road marking, signage and traffic facilities are helpful and effective, increasing to 95% , Response times 14 days normal and 7 days Urgent (Complaints and Maintenance Contract reports) Traffic signs to comply with LTNZ standards and MOTSAM and Council's Signs Policy. All graffiti removed in accordance with requirements of maintenance contracts All bridges adequately sign posted Resident and visitor satisfaction with CBD 75% people believe that Timaru is attractive and well maintained, increasing to 90%
Key Result Area/Performance Targets 2. Safety	8B.7.2	What does the Safety Management System say? Are safety targets met? LTCCP Adequate provision, reflectivity and visibility (including positioning) of signs, markings and delineation throughout the network for safe travel 80% of traffic signs to comply with LTNZ standards and MOTSAM** and Council's Signs Policy, increasing to 100% AMP Accidents at intersections reduced from previous year (Audits, statistics and surveys) 75% of users believe the network is safe, increasing to 85%. (Customer Survey) 70% of customers surveyed believe that Council is responsive to customers, increasing to 90% Reduction in accidents on TDC roads from previous year
Key Result Area/Performance Targets 3. Asset Preservation	8B.7.3	How old are the Signs? Has it been inspected and maintained correctly?

Key Result Area Prudent Financial Management & Affordability (Financial Considerations)	8B.7.4	What are the historic funding and expenditure characteristics? What are the future funding and expenditure characteristics? What financial assistance is available? LTNZ funding approval as per Project Evaluation Manual (do nothing/maintain/replace) LTCCP and AMP 65% ratepayers believe they get good value for money and costs are reasonable, increasing to 80% (Customer Survey) AMP 95% of projects commenced in current financial year +/-5% variance between planned and actual years expenditure on capital and maintenance		
Regulatory or Policy Framework	8B.7.5	What legislation or regulations apply? (e.g. LTNZ Policies & Guidelines, HASIE Act, RMA)) Is there a TDC Policy? Do the regulations or policies form the absolute or minimum requirement?		
Asset Composition & Non-Asset Solutions	8B.7.6	What components of the Signs can be maintained/renewed individually? Is there a non-asset solution available?		
Evaluation Point	**8B.7.7**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	
DECISION FRAMEWORK – COMPREHENSIVE MANAGEMENT				
Asset Condition Data	8B.8.1	What Asset Condition data is available? Is it sufficient to assist decision making?		
Asset Performance Data	8B.8.2	What Asset Performance data is available? Is it sufficient to assist decision making?		
Interdependencies with TDC Land Transport Assets	8B.8.3	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Signs Lifecycle Management?		
Interdependencies with other Utility Assets	8B.8.4	Identify Interdependencies with other Utility Assets. Is there an impact on the approach to Signs Lifecycle Management?		
Interdependencies with TDC Land Transport Assets	8B.8.5	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Signs Lifecycle Management?		

Evaluation Point	**8B.8.6**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	
ASSUMPTIONS AND LIMITATIONS				
Legal and Regulatory Framework	8B.9.1	Assumption that no additional restrictions are placed on Signs		

2.13 Traffic Services (C) Edge Marker Posts

2.13.1 Introduction

Currently Timaru District Council have a Draft Policy which differs slightly from MOTSAM and RT5.

The policy requires three marker posts to be visible on the outside of curves, and the requirement is relaxed elsewhere.

2.13.2 Lifecycle Management Plan

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**8C**	**Traffic Services – Edge Marker Posts**
How Do We Manage Edge Marker Posts?		
PURPOSE		
What is it?	8C.1.1	Edge Marker Posts (wooden or plastic)
Is it a core or support asset	8C.1.2	Support
What is its purpose?	8C.1.3	To ensure that traffic Services and furniture are suitably located and maintained to assist all road corridor users in using the transportation network safely and reliably, and enable clear navigation and enforcement of associated laws
GOAL		
What is our approach to Edge Marker Posts?	8C.2.1	Timaru District Council provides, operates and manages these assets to facilitate efficient and safe use and development of the Land Transportation Network as a whole
WHAT ARE OUR OBJECTIVES FOR EACH STAGE OF THE ASSET LIFECYCLE?		
Planning	8C.3.1	Traffic Facility Planning is undertaken in terms of the network as a whole, projected network demand, safety (SMS) and Level of Service requirements
Creation/ Acquisition	8C.3.2	Traffic Services are installed to accepted standards using quality materials
Operating & Maintaining	8C.3.3	Traffic Services are fit for purpose, safe and the overall lifecycle cost is optimised
Performance & Condition Monitoring	8C.3.4	Monitoring is undertaken to ensure Traffic Services meet performance standards and overall lifecycle cost is optimised. Performance is focused on safety and image
Renewal	8C.3.5	Traffic Services are renewed to ensure area meets performance standards and overall lifecycle cost is optimised. Safety and image standards affect renewal more than life expectancy
Disposal/ Rationalisation	8C.3.6	Traffic Services are removed or downgraded where disposal/rationalisation meets performance standards and the overall lifecycle cost is optimised

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**8C**	**Traffic Services – Edge Marker Posts**
What do we know about Edge Marker Posts?		
OVERVIEW		
Statistics	8C.4.1	Not recorded
Information System	8C.4.2	Not recorded – work in progress
HOW LONG WILL IT LAST?		
Base lives	8C.5.1	Timaru District Council's Road Asset Valuation (as at 1 July 2005, prepared by Maunsell Aecom) provides an outline of the useful Lives of Land Transport assets adopted by Council for the asset valuation and depreciation calculation[14]
Construction dates	8C.5.2	
Remarks	8C.5.3	
What other considerations are there?	8C.5.4	Regionally distributed funds are available for periodic road reconstruction activities (LTNZ July 2007)
WHAT ARE THE ISSUES WITH EDGE MARKER POSTS?		
Levels of Service and Road User Satisfaction	8C.6.1	Traffic growth , particularly heavy vehicles Increasing customer expectations for higher levels of service
Safety	8C.6.2	Traffic growth The South Canterbury SMS has highlighted a target that "all roads have appropriate delineation and kerb warning signs" The South Canterbury SMS has highlighted a target that "all road markings at intersections are to conform to Traffic control devices rule and MOTSAM, and are maintained to appropriate standards
Asset Preservation	8C.6.3	Traffic growth
Economic	8C.6.4	Cost Increases (e.g. oil prices and aggregate supplies) Continuity of financial assistance from LTNZ Changes in central, regional and local government policy Changes in land use patterns
Environmental	8C.6.5	
Social and Cultural	8C.6.6	

[14] *Timaru District Council – Roading Infrastructure Revaluation (As at 1 July 2005) Maunsell Aecom February 2006*

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**8C**	**Traffic Services – Edge Marker Posts**
What to do with Edge Marker Posts		
DECISION FRAMEWORK – CORE MANAGEMENT		
Key Result Area/Performance Targets 1. Road User Satisfaction (incorporates LTCCP measure	8C.7.1	Measured by number of complaints received Have any justified complaints regarding quality of Pavement Markings been received? What action was undertaken? LTCCP Road signage and marking provides clear guidance and efficient route destinations for road users 75% of people consider road marking, signage and traffic facilities are helpful and effective, increasing to 95% (Customer Survey) AMP Road signage and marking provides clear guidance and efficient route destinations for road users 85% of people consider road marking, signage and traffic facilities are helpful and effective, increasing to 95% , Response times 14 days normal and 7 days Urgent (Complaints and Maintenance Contract reports) All graffiti removed in accordance with requirements of maintenance contracts Resident and visitor satisfaction with CBD 75% people believe that Timaru is attractive and well maintained, increasing to 90%
Key Result Area/Performance Targets 2. Safety	8C.7.2	What does the Safety Management System say? Are safety targets met? LTCCP Adequate provision, reflectivity and visibility (including positioning) of signs, markings and delineation throughout the network for safe travel 80% of traffic signs to comply with LTNZ standards and MOTSAM** and Council's Signs Policy, increasing to 100% AMP Accidents at intersections reduced from previous year (Audits, statistics and surveys) 75% of users believe the network is safe, increasing to 85%. (Customer Survey) 70% of customers surveyed believe that Council is responsive to customers, increasing to 90% Reduction in accidents on TDC roads from previous year
Key Result Area/Performance Targets 3. Asset Preservation	8C.7.3	How old are the Edge Marker Posts? Has it been inspected and maintained correctly?

Key Result Area Prudent Financial Management & Affordability (Financial Considerations)	8C.7.4	What are the historic funding and expenditure characteristics? What are the future funding and expenditure characteristics? What financial assistance is available? LTNZ funding approval as per Project Evaluation Manual (do nothing/maintain/replace) LTCCP and AMP 65% ratepayers believe they get good value for money and costs are reasonable, increasing to 80% (Customer Survey) AMP 95% of projects commenced in current financial year +/-5% variance between planned and actual years expenditure on capital and maintenance		
Regulatory or Policy Framework	8C.7.5	What legislation or regulations apply? (e.g. LTNZ Policies & Guidelines, HASIE Act, RMA) Is there a TDC Policy? Do the regulations or policies form the absolute or minimum requirement?		
Asset Composition & Non-Asset Solutions	8C.7.6	What components of the Edge Marker Posts can be maintained/renewed individually? Is there a non-asset solution available?		
Evaluation Point	**8C.7.7**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	
DECISION FRAMEWORK – COMPREHENSIVE MANAGEMENT				
Asset Condition Data	8C.8.1	What Asset Condition data is available? Is it sufficient to assist decision making?		
Asset Performance Data	8C.8.2	What Asset Performance data is available? Is it sufficient to assist decision making?		
Interdependencies with TDC Land Transport Assets	8C.8.3	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Edge Marker Posts Lifecycle Management?		
Interdependencies with other Utility Assets	8C.8.4	Identify Interdependencies with other Utility Assets. Is there an impact on the approach to Edge Marker Posts Lifecycle Management?		
Interdependencies with TDC Land Transport Assets	8C.8.5	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Edge Marker Posts Lifecycle Management?		

Evaluation Point	**8C.8.6**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	
ASSUMPTIONS AND LIMITATIONS				
Legal and Regulatory Framework	8C.9.1	Assumption that no additional restrictions are placed on Edge Marker Posts		

2.14 Traffic Services (D) Subsidised (Street Furniture)

2.14.1 Introduction

There are a range of assets that do not strictly fit into another asset group. These assets are typically furniture and regarded as part of Traffic Services under LTNZ Work Categories.

The distinction between assets that are subject to financial assistance from LTNZ and other assets relates to the any Land Transport function the asset carries out.

These assets are part of the Land Transport function.

The inventory of these assets is typically poor with little asset performance or condition data.

The assets included are listed below:

- Barriers
- Bollards
- Cycle Rails and Stands
- Traffic Islands (and associated landscaping)
- Threshold Treatments and Kerb Extensions (and associated landscaping)
- Bus Shelters

2.14.2 Lifecycle Management Plan

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**8D**	**Traffic Facilities – Street Furniture**
How Do We Manage Street Furniture?		
PURPOSE		
What is it?	8D.1.1	Barriers Bollards Cycle rails and stands Traffic Islands (and associated landscaping) Threshold Treatments and Kerb Extensions (and associated landscaping) Bus Shelters Benches Planter Boxes Seating Areas (Stafford Street)
Is it a core or support asset	8D.1.2	Support
What is its purpose?	8D.1.3	To ensure that Traffic Services and furniture are suitably located and maintained to assist all road corridor users in using the transportation network safely and reliably, and enable clear navigation and enforcement of associated laws
GOAL		
What is our approach to Street Furniture?	8D.2.1	*Timaru District Council provides, operates and manages these assets to facilitate efficient and safe use and development of the Land Transportation Network as a whole*
WHAT ARE OUR OBJECTIVES FOR EACH STAGE OF THE ASSET LIFECYCLE?		
Planning	8D.3.1	Traffic Services Planning is undertaken in terms of the network as a whole, projected network demand, safety (SMS) and Level of Service requirements
Creation/ Acquisition	8D.3.2	Traffic Services are installed to accepted standards using quality materials
Operating & Maintaining	8D.3.3	Traffic Services are fit for purpose, safe and the overall lifecycle cost is optimised
Performance & Condition Monitoring	8D.3.4	Monitoring is undertaken to ensure Traffic Services meet performance standards and overall lifecycle cost is optimised. Performance is focused on safety and image
Renewal	8D.3.5	Traffic Services are renewed to ensure area meets performance standards and overall lifecycle cost is optimised. Safety and image standards affect renewal more than life expectancy
Disposal/ Rationalisation	8D.3.6	Traffic Services are removed or downgraded where disposal/rationalisation meets performance standards and the overall lifecycle cost is optimised

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**8D**	**Street Furniture**
What do we know about Street Furniture?		
OVERVIEW		
Statistics	8D.4.1	No formal records held
Information System	8D.4.2	No formal records held
HOW LONG WILL IT LAST?		
Base lives	8D.5.1	Timaru District Council's Road Asset Valuation (as at 1 July 2005, prepared by Maunsell Aecom) provides an outline of the useful Lives of Land Transport assets adopted by Council for the asset valuation and depreciation calculation[15]
Construction dates	8D.5.2	
Remarks	8D.5.3	
What other considerations are there?	8D.5.4	Many assets are constructed in a fashion to match in with the overall design theme of an area (e.g. Timaru CBD) Regionally distributed funds are available for periodic road reconstruction activities (LTNZ July 2007)
WHAT ARE THE ISSUES WITH STREET FURNITURE?		
Levels of Service and Road User Satisfaction	8D.6.1	Traffic growth , particularly heavy vehicles Increasing customer expectations for higher levels of service Developments in CBD areas
Safety	8D.6.2	
Asset Preservation	8D.6.3	
Economic	8D.6.4	Cost Increases (e.g. oil prices and aggregate supplies) Continuity of financial assistance from LTNZ Changes in central, regional and local government policy Changes in land use patterns
Environmental	8D.6.5	
Social and Cultural	8D.6.6	

[15] *Timaru District Council – Roading Infrastructure Revaluation (As at 1 July 2005) Maunsell Aecom February 2006*

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**8D**	**Street Furniture**
What to do with Street Furniture		
DECISION FRAMEWORK – CORE MANAGEMENT		
Key Result Area/Performance Targets 1. Road User Satisfaction (incorporates LTCCP measure	8D.7.1	Measured by number of complaints received Have any justified complaints regarding quality of Street Furniture been received? What action was undertaken? AMP Resident and visitor satisfaction with CBD 75% people believe that Timaru is attractive and well maintained, increasing to 90%
Key Result Area/Performance Targets 2. Safety	8D.7.2	What does the Safety Management System say? Are safety targets met? LTCCP & AMP 75% of users believe the network is safe, increasing to 85%. (Customer Survey) 70% of customers surveyed believe that Council is responsive to customers, increasing to 90% Reduction in accidents on TDC roads from previous year
Key Result Area/Performance Targets 3. Asset Preservation	8D.7.3	How old is the Street Furniture? Has it been inspected and maintained correctly?
Key Result Area Prudent Financial Management & Affordability (Financial Considerations)	8D.7.4	What are the historic funding and expenditure characteristics? What are the future funding and expenditure characteristics? What financial assistance is available? LTNZ funding approval as per Project Evaluation Manual (do nothing/maintain/replace) LTCCP and AMP 65% ratepayers believe they get good value for money and costs are reasonable, increasing to 80% (Customer Survey) AMP 95% of projects commenced in current financial year +/-5% variance between planned and actual years expenditure on capital and maintenance
Regulatory or Policy Framework	8D.7.5	What legislation or regulations apply? (e.g. LTNZ Policies & Guidelines, HASIE Act, RMA) Is there a TDC Policy? Do the regulations or policies form the absolute or minimum requirement?
Asset Composition & Non-Asset Solutions	8D.7.6	What components of the Street Furniture can be maintained/renewed individually? Is there a non-asset solution available?

Evaluation Point	**8D.7.7**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	
DECISION FRAMEWORK – COMPREHENSIVE MANAGEMENT				
Asset Condition Data	8D.8.1	What Asset Condition data is available? Is it sufficient to assist decision making?		
Asset Performance Data	8D.8.2	What Asset Performance data is available? Is it sufficient to assist decision making?		
Interdependencies with TDC Land Transport Assets	8D.8.3	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Street Furniture Lifecycle Management?		
Interdependencies with other Utility Assets	8D.8.4	Identify Interdependencies with other Utility Assets. Is there an impact on the approach to Street Furniture Lifecycle Management?		
Interdependencies with TDC Land Transport Assets	8D.8.5	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Street Furniture Lifecycle Management?		
Evaluation Point	**8D.8.6**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	
ASSUMPTIONS AND LIMITATIONS				
Legal and Regulatory Framework	8D.9.1	Assumption that no additional restrictions are placed on Street Furniture		

2.15 Operational Traffic Management (Traffic Signals)

2.15.1 Introduction

Land Transport Rule: Traffic Control Devices 2004.

The objective of this rule is to contribute to a safe and efficient roading environment for all road users by ensuring that traffic is controlled by means of traffic control devices that are safe, appropriate, effective, uniform and consistently applied.

A road controlling authority must:

(a) Authorize and, as appropriate, install or operate traffic control devices:

(i) if required by or under this rule or other enactment; or

(ii) to instruct road users of a prohibition or requirement that it has made concerning traffic on a road under its control; or

(iii) to warn road users of a hazard; and

(b) Remove a traffic control device if required by or under this rule or other enactment.

2.1(2) A road controlling authority may authorise and, as appropriate, install, operate or remove traffic control devices:

(a) If desirable for the guidance of traffic or to draw attention to a requirement that controls traffic; or

(b) to provide information to road users.

Section 3 General requirements for traffic control devices

3.1 General safety requirements for traffic control devices

Traffic control devices, whether used singly or in combination, must contribute to the safe and effective control of traffic, and must:

* (a) be safe and appropriate for the road, its environment or the use of the road; and

* (b) not dazzle, distract or mislead road users; and

* (c) convey a clear and consistent message to road users; and

* (d) be placed so as to:

o (i) be visible to road users; and

o (ii) be legible to road users, if of a type that includes written words or symbols; and

o (iii) allow adequate time for the intended response from road users; and

* (e) comply with the relevant requirements in Schedules 1, 2 and 3; and

* (f) be maintained in good repair.

3.2 Use of traffic control devices

3.2(1) Except as otherwise provided in this rule, a traffic control device that was authorised by or under any enactment and installed before the commencement of this rule may continue to be used for the purpose for which it was intended, only if it:

* (a) remains in good repair; and

* (b) is safe and adequate for its intended use.

2.15.2 Lifecycle Management Plan

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**9**	**Traffic Signals**
How Do We Manage Traffic Signals?		
PURPOSE		
What is it?	9.1.1	Traffic Signals Posts Controls Cabling
Is it a core or support asset	9.1.2	Support
What is its purpose?	9.1.3	To ensure that Traffic Signals and furniture are suitably located and maintained to assist all road corridor users in using the transportation network safely and reliably, and enable clear navigation and enforcement of associated laws
GOAL		
What is our approach to Traffic Signals?	9.2.1	*Timaru District Council provides, operates and manages these assets to facilitate efficient and safe use and development of the Land Transportation Network as a whole*
WHAT ARE OUR OBJECTIVES FOR EACH STAGE OF THE ASSET LIFECYCLE?		
Planning	9.3.1	Traffic Signals Planning is undertaken in terms of the network as a whole, projected network demand, safety (SMS) and Level of Service requirements
Creation/ Acquisition	9.3.2	Traffic Signals are installed to accepted standards using quality materials
Operating & Maintaining	9.3.3	Traffic Signals are fit for purpose, safe and the overall lifecycle cost is optimised
Performance & Condition Monitoring	9.3.4	Monitoring is undertaken to ensure Traffic Signals meet performance standards and overall lifecycle cost is optimised. Performance is focused on safety and image
Renewal	9.3.5	Traffic Signals are renewed to ensure area meets performance standards and overall lifecycle cost is optimised. Safety and image standards affect renewal more than life expectancy
Disposal/ Rationalisation	9.3.6	Traffic Signals are removed or downgraded where disposal/rationalisation meets performance standards and the overall lifecycle cost is optimised

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**9**	**Traffic Signals**
What do we know about Traffic Signals?		
OVERVIEW		
Statistics	9.4.1	
Information System	9.4.2	
HOW LONG WILL IT LAST?		
Base lives	9.5.1	Timaru District Council's Road Asset Valuation (as at 1 July 2005, prepared by Maunsell Aecom) provides an outline of the useful Lives of Land Transport assets adopted by Council for the asset valuation and depreciation calculation.[16] *This is a specialist area where new standards often require the replacement of assets and equipment that are still serviceable. The useful lives used are:* ***Traffic Signal Life: Sub-Asset*** — ***Life*** *Cabling, Poles* — *35* *Controller* — *25* *Detector Loops, Pedestrian Call boxes, Pedestrian Lanterns, Vehicle Lanterns* — *15* *SCATS Computer* — *12*
Construction dates	9.5.2	The construction dates used are all known.
Remarks	9.5.3	
What other considerations are there?	9.5.4	Regionally distributed funds are available for periodic road reconstruction activities (LTNZ July 2007)
	9.5.5	
WHAT ARE THE ISSUES WITH BRIDGES?		
Levels of Service and Road User Satisfaction	9.6.1	Traffic growth , particularly heavy vehicles Increasing customer expectations for higher levels of service Developments in CBD areas
Safety	9.6.2	
Asset Preservation	9.6.3	

[16] *Timaru District Council – Roading Infrastructure Revaluation (As at 1 July 2005) Maunsell Aecom February 2006*

Economic	9.6.4	Cost Increases (e.g. oil prices and aggregate supplies) Continuity of financial assistance from LTNZ Changes in central, regional and local government policy Changes in land use patterns
Environmental	9.6.5	
Social and Cultural	9.6.6	

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**9**	**Traffic Signals**
What to do with Traffic Signals		
DECISION FRAMEWORK – CORE MANAGEMENT		
Key Result Area/Performance Targets 1. Road User Satisfaction (incorporates LTCCP measure	9.7.1	Measured by number of complaints received Have any justified complaints regarding quality of Pavement Markings been received? What action was undertaken? LTCCP Road signage and marking provides clear guidance and efficient route destinations for road users 75% of people consider road marking, signage and traffic facilities are helpful and effective, increasing to 95% (Customer Survey) AMP Road signage and marking provides clear guidance and efficient route destinations for road users 85% of people consider road marking, signage and traffic facilities are helpful and effective, increasing to 95% , Response times 14 days normal and 7 days Urgent (Complaints and Maintenance Contract reports) All graffiti removed in accordance with requirements of maintenance contracts. Resident and visitor satisfaction with CBD 75% people believe that Timaru is attractive and well maintained, increasing to 90%
Key Result Area/Performance Targets 2. Safety	9.7.2	What does the Safety Management System say? Are safety targets met? LTCCP Adequate provision, reflectivity and visibility (including positioning) of signs, markings and delineation throughout the network for safe travel 80% of traffic signs to comply with LTNZ standards and MOTSAM** and Council's Signs Policy, increasing to 100% AMP Accidents at intersections reduced from previous year (Audits, statistics and surveys) 75% of users believe the network is safe, increasing to 85%. (Customer Survey) 70% of customers surveyed believe that Council is responsive to customers, increasing t to 90% Reduction in accidents on TDC roads from previous year
Key Result Area/Performance Targets 3. Asset Preservation	9.7.3	How old are the Traffic Signals? Has it been inspected and maintained correctly?

Key Result Area Prudent Financial Management & Affordability (Financial Considerations)	9.7.4	What are the historic funding and expenditure characteristics? What are the future funding and expenditure characteristics? What financial assistance is available? LTNZ funding approval as per Project Evaluation Manual (do nothing/maintain/replace) LTCCP and AMP 65% ratepayers believe they get good value for money and costs are reasonable, increasing to 80% (Customer Survey) AMP 95% of projects commenced in current financial year +/-5% variance between planned and actual years expenditure on capital and maintenance		
Regulatory or Policy Framework	9.7.5	What legislation or regulations apply? (e.g. LTNZ Policies & Guidelines, HASIE Act, RMA) Is there a TDC Policy? Do the regulations or policies form the absolute or minimum requirement?		
Asset Composition & Non-Asset Solutions	9.7.6	What components of the Traffic Signals can be maintained/renewed individually? Is there a non-asset solution available?		
Evaluation Point	**9.7.7**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	
DECISION FRAMEWORK – COMPREHENSIVE MANAGEMENT				
Asset Condition Data	9.8.1	What Asset Condition data is available? Is it sufficient to assist decision making?		
Asset Performance Data	9.8.2	What Asset Performance data is available? Is it sufficient to assist decision making?		
Interdependencies with TDC Land Transport Assets	9.8.3	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Traffic Signals Lifecycle Management?		
Interdependencies with other Utility Assets	9.8.4	Identify Interdependencies with other Utility Assets. Is there an impact on the approach to Traffic Signals Lifecycle Management?		
Interdependencies with TDC Land Transport Assets	9.8.5	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Traffic Signals Lifecycle Management?		

Evaluation Point	**9.8.6**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	
ASSUMPTIONS AND LIMITATIONS				
Legal and Regulatory Framework	9.9.1	Assumption that no additional restrictions are placed on Traffic Signals		

2.16 Streetlights and Amenity Lights

2.16.1 Introduction

Streetlighting is a major contributor to safety of road and footpath users. The existing asset stock is considerable and the conversion of older lanterns with modern fitting improves performance and energy efficiency.

Amenity lighting does not receive any financial assistance from LTNZ, and includes lighting of:

- Buildings
- Property and Reserves
- Under veranda lighting
- Festive Lighting

There is currently no formal contract for the maintenance or Street Lights or Amenity Lights (To be confirmed). The inventory requires some development and the condition of the aging Lighting asset group is typically unknown.

There is a close relationship with Alpine Energy who holds information about the assets, are owners of power poles to which streetlights maybe fixed, and undertake much of the maintenance.

2.16.2 Lifecycle Management Plan – Street Lights

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**10A**	**Street Lights**
How Do We Manage Street Lights?		
PURPOSE		
What is it?	10A.1.1	Overhead street lighting
Is it a core or support asset	10A1.2	Support
What is its purpose?	10A.1.3	To ensure street lighting is suitably located for necessary safety and security issues, and effectively maintained
GOAL		
What is our approach to Street Lights?	10A.2.1	*Timaru District Council provides, operates and manages quality Amenity lighting assets that enhance residents and visitors enjoyment of the district*
WHAT ARE OUR OBJECTIVES FOR EACH STAGE OF THE ASSET LIFECYCLE?		
Planning	10A.3.1	Street Light Planning is undertaken in terms of the network as a whole, the needs of the community and projected future demand
Creation/ Acquisition	10A.3.2	Street Lights are built to accepted standards using quality materials
Operating & Maintaining	10A.3.3	Street Lights are fit for purpose, safe and the overall lifecycle cost is optimised
Performance & Condition Monitoring	10A.3.4	Monitoring is undertaken to ensure Street Lights meet performance standards and overall lifecycle cost is optimised
Renewal	10A.3.5	Street Lights are renewed to ensure area meets performance standards and overall lifecycle cost is optimised
Disposal/ Rationalisation	10A.3.6	Street Lights are removed or downgraded where disposal/rationalisation meets performance standards and the overall lifecycle cost is optimised

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**10A**	**Street Lights**
What do we know about Street Lights?		
OVERVIEW		
Statistics	10A.4.1	Not recorded
Information System	10A.4.2	Not recorded – work in progress
HOW LONG WILL IT LAST?		
Base lives	10A.5.1	Timaru District Council's Road Asset Valuation (as at 1 July 2005, prepared by Maunsell Aecom) provides an outline of the useful Lives of Land Transport assets adopted by Council for the asset valuation and depreciation calculation[17] *The average useful life is assessed as being 30 years for lanterns and poles*
Construction dates	10A.5.2	*No specific age data was available, the average ranges from 5 years (100W HP Sodium) to 43 years (400W Mercury Vapour)*
Remarks	10A.5.3	It is intended to maintain the lighting standard to AS/NZS1158:1977 Urban P3
What other considerations are there?	10A.5.4	Some technology used out of data and not energy efficient Vested assets from developers differ in style Regionally distributed funds are available for periodic road reconstruction activities (LTNZ July 2007)
	10A.5.5	
WHAT ARE THE ISSUES WITH STREET LIGHTS?		
Levels of Service and Road User Satisfaction	10A.6.1	Traffic growth , particularly heavy vehicles Increasing customer expectations for higher levels of service Developments in CBD areas
Safety	10A.6.2	Adequate lighting at intersections for pedestrians, including flag lighting Poor performance Belisha beacons may drive a change to other alternatives
Asset Preservation	10A.6.3	
Economic	10A.6.4	Cost Increases (e.g. oil prices and aggregate supplies) Continuity of financial assistance from LTNZ Changes in central, regional and local government policy Changes in land use patterns
Environmental	10A.6.5	
Social and Cultural	10A.6.6	Consideration should be given to crime rates and patterns

[17] *Timaru District Council – Roading Infrastructure Revaluation (As at 1 July 2005) Maunsell Aecom February 2006*

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**10A**	**Street Lights**
What to do with Street Lights		
DECISION FRAMEWORK – CORE MANAGEMENT		
Key Result Area/Performance Targets 1. Road User Satisfaction (incorporates LTCCP measure	10A.7.1	Measured by number of complaints received Have any justified complaints regarding quality of Street Lights been received? What action was undertaken? LTCCP and AMP Adequate street lighting provided that enables people to move around safely and efficiently 75% of people believe access to the network is not inhibited by lack of street lighting in urban areas and intersections, increasing to 95% (Customer Survey) All urban street lighting issues responded to within 5 days AMP Number of streetlights per km as per the NZ standard All urban street lighting issues responded to within 5 days Pedestrian crossing adequately signalled by Belisha beacons. All pedestrian crossings to be adequately lit and signalled.(Inspection and complaints) Resident and visitor satisfaction with CBD 75% people believe that Timaru is attractive and well maintained, increasing to 90%
Key Result Area/Performance Targets 2. Safety	10A.7.2	What does the Safety Management System say? Are safety targets met? Compliance with AS/NZS 1158:2005 LTCCP and AMP 75% of users believe the network is safe, increasing to 85%. (Customer Survey) 70% of customers surveyed believe that Council is responsive to customers, increasing t to 90% Reduction in accidents on TDC roads from previous year
Key Result Area/Performance Targets 3. Asset Preservation	10A.7.3	How old is the Street Lights? Has it been inspected and maintained correctly?
Key Result Area Prudent Financial Management & Affordability (Financial Considerations)	10A.7.4	What are the historic funding and expenditure characteristics? What are the future funding and expenditure characteristics? What financial assistance is available? LTNZ funding approval as per Project Evaluation Manual (do nothing/maintain/replace) LTCCP and AMP 65% ratepayers believe they get good value for money and costs are reasonable, increasing to 80% (Customer Survey) AMP 95% of projects commenced in current financial year +/-5% variance between planned and actual years expenditure on capital and maintenance

Regulatory or Policy Framework	10A.7.5	What legislation or regulations apply? (e.g. LTNZ Policies & Guidelines, HASIE Act, RMA) Is there a TDC Policy? Do the regulations or policies form the absolute or minimum requirement?		
Asset Composition & Non-Asset Solutions	10A.7.6	What components of the Street Lights can be maintained/renewed individually? Is there a non-asset solution available?		
Evaluation Point	**10A.7.7**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	
DECISION FRAMEWORK – COMPREHENSIVE MANAGEMENT				
Asset Condition Data	10A.8.1	What Asset Condition data is available? Is it sufficient to assist decision making?		
Asset Performance Data	10A.8.2	What Asset Performance data is available? Is it sufficient to assist decision making?		
Interdependencies with TDC Land Transport Assets	10A.8.3	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Street Lights Lifecycle Management?		
Interdependencies with other Utility Assets	10A.8.4	Identify Interdependencies with other Utility Assets. Is there an impact on the approach to Street Lights Lifecycle Management?		
Interdependencies with TDC Land Transport Assets	10A.8.5	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Street Lights Lifecycle Management?		

Evaluation Point	10A.**8.6**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	
ASSUMPTIONS AND LIMITATIONS				
Legal and Regulatory Framework	10A.9.1	Assumption that no additional restrictions are placed on Street Lights		

2.16.3 Lifecycle Management Plan – Amenity Lights

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**10B**	**Amenity Lights**
How Do We Manage Amenity Lights?		
PURPOSE		
What is it?	10B.1.1	Put into Buildings, Property and Reserves, Under veranda lighting, Festive lighting
Is it a core or support asset	10B.1.2	Support
What is its purpose?	10B.1.3	To ensure street lighting is suitably located for necessary safety and security issues, and effectively maintained
GOAL		
What is our approach to Amenity Lights?	10B.2.1	*Timaru District Council provides, operates and manages quality Amenity lighting assets that enhance residents and visitors enjoyment of the district*
WHAT ARE OUR OBJECTIVES FOR EACH STAGE OF THE ASSET LIFECYCLE?		
Planning	10B.3.1	Amenity Light Planning is undertaken in terms of Community expectations and integration with the network
Creation/ Acquisition	10B.3.2	Amenity Lights are built to accepted standards using quality materials
Operating & Maintaining	10B.3.3	Amenity Lights are fit for purpose, safe and the overall lifecycle cost is optimised
Performance & Condition Monitoring	10B.3.4	Monitoring is undertaken to ensure Amenity Lights meet performance standards and overall lifecycle cost is optimised
Renewal	10B.3.5	Amenity Lights are renewed to ensure area meets performance standards and overall lifecycle cost is optimised
Disposal/ Rationalisation	10B.3.6	Amenity Lights are removed or downgraded where disposal/rationalisation meets performance standards and the overall lifecycle cost is optimised

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**10B**	**Amenity Lights**
What do we know about Amenity Lights?		
OVERVIEW		
Statistics	10B.4.1	
Information System	10B.4.2	
HOW LONG WILL IT LAST?		
Base lives	10B.5.1	Timaru District Council's Road Asset Valuation (as at 1 July 2005, prepared by Maunsell Aecom) provides an outline of the useful Lives of Land Transport assets adopted by Council for the asset valuation and depreciation calculation[18] *The average useful life is assessed as being 30 years for lanterns and poles*
Construction dates	10B.5.2	*No specific age data was available, the average ranges from 5 years (100W HP Sodium) to 43 years (400W Mercury Vapour)*
Remarks	10B.5.3	It is intended to maintain the lighting standard to AS/NZS1158:1977 Urban P3
What other considerations are there?	10B.5.4	Regionally distributed funds are available for periodic road reconstruction activities (LTNZ July 2007)
	10B.5.5	
WHAT ARE THE ISSUES WITH AMENITY LIGHTS?		
Levels of Service and Road User Satisfaction	10B.6.1	
Safety	10B.6.2	Adequate lighting at intersections for pedestrians, including flag lighting Poor performance Belisha beacons may drive a change to other alternatives
Asset Preservation	10B.6.3	
Economic	10B.6.4	
Environmental	10B.6.5	
Social and Cultural	10B.6.6	Consideration should be given to crime rates and patterns

[18] *Timaru District Council – Roading Infrastructure Revaluation (As at 1 July 2005) Maunsell Aecom February 2006*

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**10B**	**Amenity Lights**
What to do with Amenity Lights		
DECISION FRAMEWORK – CORE MANAGEMENT		
Key Result Area/Performance Targets 1. Road User Satisfaction (incorporates LTCCP measure	10B.7.1	Measured by number of complaints received Have any justified complaints regarding quality of Amenity Lights been received? What action was undertaken? AMP Resident and visitor satisfaction with CBD 75% people believe that Timaru is attractive and well maintained, increasing to 90%
Key Result Area/Performance Targets 2. Safety	10B.7.2	What does the Safety Management System say? Are safety targets met? Compliance with AS/NZS 1158:2005 LTCCP and AMP 75% of users believe the network is safe, increasing to 85%. (Customer Survey) 70% of customers surveyed believe that Council is responsive to customers, increasing t to 90% Reduction in accidents on TDC roads from previous year
Key Result Area/Performance Targets 3. Asset Preservation	10B.7.3	How old are the Amenity Lights? Has it been inspected and maintained correctly?
Key Result Area Prudent Financial Management & Affordability (Financial Considerations)	10B.7.4	What are the historic funding and expenditure characteristics? What are the future funding and expenditure characteristics? What financial assistance is available? LTNZ funding approval as per Project Evaluation Manual (do nothing/maintain/replace) LTCCP and AMP 65% ratepayers believe they get good value for money and costs are reasonable, increasing to 80% (Customer Survey) AMP 95% of projects commenced in current financial year +/-5% variance between planned and actual years expenditure on capital and maintenance
Regulatory or Policy Framework	10B.7.5	What legislation or regulations apply? (e.g. LTNZ Policies & Guidelines, HASIE Act, RMA) Is there a TDC Policy? Do the regulations or policies form the absolute or minimum requirement?
Asset Composition & Non-Asset Solutions	10B.7.6	What components of the Amenity Lights can be maintained/renewed individually? Is there a non-asset solution available?

Evaluation Point	**10B.7.7**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	
DECISION FRAMEWORK – COMPREHENSIVE MANAGEMENT				
Asset Condition Data	10B.8.1	What Asset Condition data is available? Is it sufficient to assist decision making?		
Asset Performance Data	10B.8.2	What Asset Performance data is available? Is it sufficient to assist decision making?		
Interdependencies with TDC Land Transport Assets	10B.8.3	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Amenity Lights Lifecycle Management?		
Interdependencies with other Utility Assets	10B.8.4	Identify Interdependencies with other Utility Assets. Is there an impact on the approach to Amenity Lights Lifecycle Management?		
Interdependencies with TDC Land Transport Assets	10B.8.5	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Amenity Lights Lifecycle Management?		
Evaluation Point	**10B.8.6**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	
ASSUMPTIONS AND LIMITATIONS				
Legal and Regulatory Framework	10B.9.1	Assumption that no additional restrictions are placed on Amenity Lights		

2.17 Gravel Pits

2.17.1 Introduction

Gravel Pits are strategic assets that are operated effectively to support the Land Transport sector and other activities. Lifecycle management is very limited in terms of maintained and renewal activities and planning is focussed around demand and supply as well as safety and resource consenting.

2.17.2 Lifecycle Management Plan

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**11**	**Gravel Pits**
How Do We Manage Quarries and Gravel Pits?		
PURPOSE		
What is it?	11.1.1	Gravel Pits
Is it a core or support asset	11.1.2	Support
What is its purpose?	11.1.3	To safely maintain Council Gravel Pits
GOAL		
What is our approach to Gravel Pits?	11.2.1	*Timaru District Council provides, operates and manages these assets to facilitate efficient and safe use and development of the Land Transportation Network as a whole*
WHAT ARE OUR OBJECTIVES FOR EACH STAGE OF THE ASSET LIFECYCLE?		
Planning	11.3.1	Gravel Pit Planning is undertaken in terms of the network as a whole, projected network demand, as well as site and resource availability
Creation/ Acquisition	11.3.2	Gravel Pits are developed to accepted standards and compliance with licences and resource consent
Operating & Maintaining	11.3.3	Gravel Pits are fit for purpose, safe, operated in terms of Quarry Management Plans and the overall lifecycle cost is optimised
Performance & Condition Monitoring	11.3.4	Monitoring is undertaken to ensure Gravel Pits meet performance standards, consent conditions and the overall lifecycle cost is optimised
Renewal	11.3.5	
Disposal/ Rationalisation	11.3.6	Gravel Pits are retired or downgraded where the gravel resource can no longer be extracted due to resource consent or economic factors. Aftercare Plans are prepared and implemented

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**11**	**Gravel Pits**
What do we know about Gravel Pits?		
OVERVIEW		
Statistics	11.4.1	Langs – Guild Road Beck's Pit
Information System	11.4.2	
HOW LONG WILL IT LAST?		
Base lives	11.5.1	Timaru District Council's Road Asset Valuation (as at 1 July 2005, prepared by Maunsell Aecom) provides an outline of the useful Lives of Land Transport assets adopted by Council for the asset valuation and depreciation calculation[19]
Construction dates	11.5.2	
Remarks	11.5.3	
What other considerations are there?	11.5.4	Regionally distributed funds are available for periodic road reconstruction activities (LTNZ July 2007)
WHAT ARE THE ISSUES WITH GRAVEL PITS?		
Levels of Service and Road User Satisfaction	11.6.1	Traffic growth , particularly heavy vehicles Increasing customer expectations for higher levels of service Developments in CBD areas
Safety	11.6.2	
Asset Preservation	11.6.3	
Economic	11.6.4	Cost Increases (e.g. oil prices and aggregate supplies) Continuity of financial assistance from LTNZ Changes in central, regional and local government policy Changes in land use patterns
Environmental	11.6.5	
Social and Cultural	11.6.6	

[19] *Timaru District Council – Roading Infrastructure Revaluation (As at 1 July 2005) Maunsell Aecom February 2006*

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**11**	**Gravel Pits**
What to do with Gravel Pits		
DECISION FRAMEWORK – CORE MANAGEMENT		
Key Result Area/Performance Targets 1. Road User Satisfaction (incorporates LTCCP measure	11.7.1	Measured by number of complaints received Have any justified complaints regarding quality of Gravel Pits been received? What action was undertaken? AMP All quarries are managed and operated in accordance with management plans, Development Quarry Management Plans Resident and visitor satisfaction with CBD 75% people believe that Timaru is attractive and well maintained, increasing to 90%
Key Result Area/Performance Targets 2. Safety	11.7.2	What does the Safety Management System say? Are safety targets met? AMP All quarries are safely managed, All quarries are fenced with appropriate signage in place to identify hazards, All quarries maintained by the Contractor are maintained in a safe tidy condition at all times 75% of users believe the network is safe, increasing to 85%. (Customer Survey) 70% of customers surveyed believe that Council is responsive to customers, increasing to 90% Reduction in accidents on TDC roads from previous year
Key Result Area/Performance Targets 3. Asset Preservation	11.7.3	How old is the Gravel Pit? Has it been inspected and maintained correctly? AMP Consistent supply of aggregate for use of Councils roads, All quarries are operated at a level that ensures a reliable source of aggregate source is produced to meet current and future needs. The contractor maintains a record of dates and hours of operation and volume type and date of removal of any aggregate
Key Result Area Prudent Financial Management & Affordability (Financial Considerations)	11.7.4	What are the historic funding and expenditure characteristics? What are the future funding and expenditure characteristics? What financial assistance is available? LTNZ funding approval as per Project Evaluation Manual (do nothing/maintain/replace) LTCCP and AMP 65% ratepayers believe they get good value for money and costs are reasonable, increasing to 80% (Customer Survey) AMP 95% of projects commenced in current financial year +/-5% variance between planned and actual years expenditure on capital and maintenance

Regulatory or Policy Framework	11.7.5	What legislation or regulations apply? (e.g. LTNZ Policies & Guidelines, HASIE Act, RMA) Is there a TDC Policy? Do the regulations or policies form the absolute or minimum requirement?		
Asset Composition & Non-Asset Solutions	11.7.6	What components of the Gravel Pit can be maintained/renewed individually? Is there a non-asset solution available?		
Evaluation Point	**11.7.7**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	
DECISION FRAMEWORK – COMPREHENSIVE MANAGEMENT				
Asset Condition Data	11.8.1	What Asset Condition data is available? Is it sufficient to assist decision making?		
Asset Performance Data	11.8.2	What Asset Performance data is available? Is it sufficient to assist decision making?		
Interdependencies with TDC Land Transport Assets	11.8.3	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Gravel Pit Lifecycle Management?		
Interdependencies with other Utility Assets	11.8.4	Identify Interdependencies with other Utility Assets. Is there an impact on the approach to Gravel Pit Lifecycle Management?		
Interdependencies with TDC Land Transport Assets	11.8.5	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Gravel Pit Lifecycle Management?		
Evaluation Point	**11.8.6**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	

ASSUMPTIONS AND LIMITATIONS		
Legal and Regulatory Framework	11.9.1	Assumption that no additional restrictions are placed on Gravel Pits

2.18 Miscellaneous Assets – Non Subsidised

2.18.1 Introduction

There are a range of assets that do not strictly fit into another asset group. These assets are typically furniture and regarded as part of Traffic Services under LTNZ Work Categories.

The distinction between assets that are subject to financial assistance from LTNZ and other assets relates to the any Land Transport function the asset carries out.

These assets do not form part of the Land Transport function.

The inventory of these assets is typically poor with little asset performance or condition data.

The assets included are listed below:

- Banner Poles
- Bike Stands
- Bus Seats (24)
- Christmas Decorations (excluding amenity lighting)
- Flag Poles
- Glazed Screens
- Litter Bins
- Map Kiosk
- Masts
- Off Street Paved Area
- Off Street Paved Areas
- Poster Bollards
- Protection Rails
- Seats
- Stairs/Heritage Place
- Stools
- Tables
- Tree Grates
- Tree Grills
- Tree Protectors
- Trellis

- Trellis/Heritage Place
- The Piazza - includes lift, structure and fountain
- Royal Arcade - superstructure and walkway
- Litter Bins – located within the road reserve (75)
- Street Gardens - located in Geraldine Temuka Timaru
- Surveillance Cameras
- Public Art and Sculpture (Bob Fitzsimons, Edwardian Paper Boy, Captain Cain, Fountain, ~~Tranquility~~, Piazza Wishing Well, ~~Seafarers Monument~~)

2.18.2 Lifecycle Management Plan

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**12**	**Miscellaneous Assets – Non Subsidised**
How Do We Manage Miscellaneous Assets?		
PURPOSE		
What is it?	12.1.1	Refer 2.17.1
Is it a core or support asset	12.1.2	Support
What is it's purpose?	12.1.3	To ensure that Miscellaneous Assets – Non Subsidised are suitably located and maintained to assist all road corridor users in using the transportation network safely and reliably, and enable clear navigation and enforcement of associated laws
GOAL		
What is our approach to Miscellaneous Assets -?	12.2.1	*Timaru District Council provides, operates and manages these assets to facilitate efficient and safe use and development of the Land Transportation Network as a whole*
WHAT ARE OUR OBJECTIVES FOR EACH STAGE OF THE ASSET LIFECYCLE?		
Planning	12.3.1	Miscellaneous Assets – Non Subsidised Planning is undertaken in terms of the network as a whole and the projected network demand
Creation/ Acquisition	12.3.2	Miscellaneous Assets – Non Subsidised are built to accepted standards using quality materials
Operating & Maintaining	12.3.3	Miscellaneous Assets – Non Subsidised are fit for purpose, safe and the overall lifecycle cost is optimised
Performance & Condition Monitoring	12.3.4	Monitoring is undertaken to ensure Miscellaneous Assets – Non Subsidised meet performance standards and overall lifecycle cost is optimised
Renewal	12.3.5	Miscellaneous Assets – Non Subsidised are renewed to ensure area meets performance standards and overall lifecycle cost is optimised
Disposal/ Rationalisation	12.3.6	Miscellaneous Assets – Non Subsidised are removed or downgraded where disposal/rationalisation meets performance standards and the overall lifecycle cost is optimised

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**12**	**Miscellaneous Assets - Non Subsidised**
What do we know about Miscellaneous Assets?		
OVERVIEW		
Statistics	12.4.1	No formal records held
Information System	12.4.2	No formal records held
HOW LONG WILL IT LAST?		
Base lives	12.5.1	Timaru District Council's Road Asset Valuation (as at 1 July 2005, prepared by Maunsell Aecom) provides an outline of the useful Lives of Land Transport assets adopted by Council for the asset valuation and depreciation calculation[20]
Construction dates	12.5.2	
Remarks	12.5.3	
What other considerations are there?	12.5.4	Many assets are constructed in a fashion to match in with the overall design theme of an area (e.g. Timaru CBD) Regionally distributed funds are available for periodic road reconstruction activities (LTNZ July 2007)
WHAT ARE THE ISSUES WITH MISCELLANEOUS ASSETS?		
Levels of Service and Road User Satisfaction	12.6.1	Traffic growth , particularly heavy vehicles Increasing customer expectations for higher levels of service Developments in CBD areas
Safety	12.6.2	
Asset Preservation	12.6.3	
Economic	12.6.4	Cost Increases (e.g. oil prices and aggregate supplies) Continuity of financial assistance from LTNZ Changes in central, regional and local government policy Changes in land use patterns
Environmental	12.6.5	
Social and Cultural	12.6.6	

[20] *Timaru District Council – Roading Infrastructure Revaluation (As at 1 July 2005) Maunsell Aecom February 2006*

Timaru District Council Land Transport Lifecycle Management Plan		
Asset Group	**12**	**Miscellaneous Assets - Non Subsidised**
What to do with Miscellaneous Assets?		
DECISION FRAMEWORK – CORE MANAGEMENT		
Key Result Area/Performance Targets 1. Road User Satisfaction (incorporates LTCCP measure	12.7.1	Measured by number of complaints received Have any justified complaints regarding quality of Miscellaneous Assets - been received? What action was undertaken? AMP Structures are reliable as far as practical 75% of people believe that minor structures are reliable. Increasing 95% 2014 Minor structures support a safe and reliable network 80% of people believe minor structures enhance the safety of the network. Increasing to 100% 2014 Resident and visitor satisfaction with CBD 75% people believe that Timaru is attractive and well maintained, increasing to 90%
Key Result Area/Performance Targets 2. Safety	12.7.2	What does the Safety Management System say? Are safety targets met? LTCCP & AMP 75% of users believe the network is safe, increasing to 85%. (Customer Survey) 70% of customers surveyed believe that Council is responsive to customers, increasing to 90% Reduction in accidents on TDC roads from previous year
Key Result Area/Performance Targets 3. Asset Preservation	12.7.3	How old is the Miscellaneous Assets -? Has it been inspected and maintained correctly?
Key Result Area Prudent Financial Management & Affordability (Financial Considerations)	12.7.4	What are the historic funding and expenditure characteristics? What are the future funding and expenditure characteristics? What financial assistance is available? LTNZ funding approval as per Project Evaluation Manual (do nothing/maintain/replace) LTCCP and AMP 65% ratepayers believe they get good value for money and costs are reasonable, increasing to 80% (Customer Survey) AMP 95% of projects commenced in current financial year +/-5% variance between planned and actual years expenditure on capital and maintenance

Regulatory or Policy Framework	12.7.5	What legislation or regulations apply? (e.g. LTNZ Policies & Guidelines, HASIE Act, RMA) Is there a TDC Policy? Do the regulations or policies form the absolute or minimum requirement?		
Asset Composition & Non-Asset Solutions	12.7.6	What components of the Miscellaneous Assets - can be maintained/renewed individually? Is there a non-asset solution available?		
Evaluation Point	**12.7.7**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	
DECISION FRAMEWORK – COMPREHENSIVE MANAGEMENT				
Asset Condition Data	12.8.1	What Asset Condition data is available? Is it sufficient to assist decision making?		
Asset Performance Data	12.8.2	What Asset Performance data is available? Is it sufficient to assist decision making?		
Interdependencies with TDC Land Transport Assets	12.8.3	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Miscellaneous Assets - Lifecycle Management?		
Interdependencies with other Utility Assets	12.8.4	Identify Interdependencies with other Utility Assets. Is there an impact on the approach to Miscellaneous Assets - Lifecycle Management?		
Interdependencies with TDC Land Transport Assets	12.8.5	Identify Interdependencies with TDC Land Transport Assets. Is there an impact on the approach to Miscellaneous Assets - Lifecycle Management?		
Evaluation Point	**12.8.6**	**Are targets exceeded?**	**Consider a reduced Maintenance Regime**	
		Are targets achieved?	**Continue Maintenance Regime**	
		Are targets not achieved?	**Consider amending the Maintenance Regime** **Consider Renewal** **If there is a Level of Service Gap consider a CAPEX Project**	

ASSUMPTIONS AND LIMITATIONS		
Legal and Regulatory Framework	12.9.1	Assumption that no additional restrictions are placed on Miscellaneous Assets -

3.0 HOW WILL THE LIFECYCLE MANAGEMENT PLAN BE ACHIEVED

This plan provides a linkage between Timaru District Councils approach and objectives for Land Transport Lifecycle Management (as contained in the Lifecycle Management strategy), and the tools used to implement service delivery (operational documents).

This document resides alongside, and will integrate with the Land Transport Activity Management Plan, which is the key tactical document and forms the basis of the decision-making in and financial forecasting included in the Long Term Council Community Plan.

The framework adopted by Timaru District Council's Land Transport department is illustrated in Appendix 8.1. The classification used within the framework is as follows:

Strategic Planning Document	Strategy
Tactical Planning Document	Plan
Operational Document	System, Contract, Code, Bylaw, Manual

3.1 Tactical

This Lifecycle Management Plan provides a framework for the range of asset groups that comprise the Land Transport Activity. The Plan provides a framework for the transfer Timaru District Council's vision and strategic goals through into maintenance and renewal management.

The Transportation Activity Management Plan is the key tactical planning tool for Land Transport in Timaru District. The AMP combines the strategic approach desired with the operation and management of both assets and activities. The AMP is used to develop the approach as well as how it will be achieved and funded. This in turn provides the basis for the LTCCP.

3.2 Operational

At the operations level, the Land Transport Activity is provided through Contracts and Service Delivery mechanisms, and is supported through Information Systems, Codes of Practice and other various rules.

Mechanism	**Key Role**
Maintenance Contracts	Standards and outcomes for day to day operation of the Land Transport System
Design Services (Renewal and New Capital Projects)	To produce optimal designs for projects
Construction Contracts	Standards and outcomes for construction or renewal of components within the Land Transport System
Safety Management System	Identification and implementation of safety throughout the Land Transport Activity
Bylaws	Identification of rules and enforcement systems

Mechanism	Key Role
Code of Practice	Identifies standards and processes for construction of Land Transportation assets or assets that affect the Land Transport System
RAMM	Asset Information System
Network Hierarchy	Provides a basis for prioritisation and standards across the Roading network. Recorded within the Timaru District Plan and RAMM

The development or review of these documents is triggered by the documents themselves, such as the term of a maintenance contract; or as a result of the development or review of a tactical plan. This process is managed through a quality system to ensure consistency of approach across operational documentation as well as with the tactical plans above.

3.3 Sustainability

Sustainability is a key issue for Land Transport. While Environmental Sustainability is a criterion under Section 12 of the Land Transport Management Act 2003, sustainability should be considered more broadly in terms of the four well-beings – Economic, Environmental, Social and Cultural. This Lifecycle Management Strategy has been prepared with this broader view of sustainability.

Financial sustainability is also a key issue for the district with continuously increasing pressures in terms of revenue and expenditure across Council's activities. The Financial Assistance Rate (FAR) from LTNZ is subject to review from year to year and the role of the Regional Land Transport Committees in determining the distribution of funds for capital and Renewal works is increasing. There may be a greater need to lobby for funds at the Regional level to obtain funds to complement funds from district ratepayers.

3.4 Measurement

Achievement of this Lifecycle Management Plan will be ascertained in terms of Timaru District Councils' Performance Measurement Framework. Council is required to report under both the LGA 2002 and the LTMA 2003.

LGA 2002	LTMA 2003 Land Transport Programme
Achievement of Community Outcomes	Road User Satisfaction (Fit for purpose)
Achievement of Well beings	Safety
Achievement of Levels of Service	Asset Preservation
Completion of works completed against works proposed	Financial

4.0 MONITORING THE LIFECYCLE MANAGEMENT PLAN

4.1 Review Period

This Plan has been prepared with long term view in mind and the management of those assets in terms of the life of the assets themselves. This view maybe greater than the ten-year horizon covered in the Long Term Council Community Plan or the Activity Management plan, depending upon the asset group being discussed. The LTCCP requires review every three years, while the Community Outcomes are to be ascertained by consultation every six years.

This Plan will require review if there are significant changes in either the Land Transport Management Act 2003 or the Local Government Act 2002, otherwise regular reviews synchronised with the Community Outcomes process or reviews of the is desirable. Reviews in the mid-LTCCP period (every six years) is advantageous, enabling a response to the reviewed Outcomes and to provide direction for the next set of tactical plans that will support the subsequent LTCCP. Any changes to the Lifecycle Management Strategy would need to be incorporated into this plan through a review process.

4.2 Review Mechanism

As this plan is part of a suite of documents within the wider planning framework, the impact of the review of this document needs to be managed. Similarly a change to the legislative environment or Timaru District Council's planning framework may affect this strategy and reflected accordingly.

4.3 Gap Analysis and Improvement Plan

At the time of writing, a number of documents within the Land Transport Planning Framework were incomplete. To achieve a comprehensive and fully integrated approach to planning and delivery of Land Transportation, the following issues should be considered. The items are listed the recommended order of attention.

	Current Practice	Desirable Practice	Action Required
1	Walking & Cycling and Public Transport Strategy – Complete Lifecycle Management and Road Safety Strategies – Partially Complete Sustainability and Road Development Strategies – Not Started	Fully Integrated Strategy adopted by Council	1.1 Complete Strategies 1.2 Align format of Strategies 1.3 Produce Integrated Transport Strategy from Executive Summaries of each Strategy and seek adoption by Council
2	Incomplete documentation in both Strategic and Tactical areas. Transportation AMP does not reflect Transport Strategy	Tactical Planning is consistent with the Strategic approach	2.1 Complete Tactical Plans 2.2 Review and update AMP prior to 2009-2019 LTCCP
3	Incomplete documentation in both Strategic, Tactical and Operational areas. Operation documents incomplete and may not be consistent with each other or with Tactical Planning	Operational documents reflect the Tactical Planning undertaken	3.1 Complete draft documentation 3.2 Align documentation across Operational level and with Tactical Plans
4	No Quality System established	All planning and documentation is controlled in terms of the Quality System	4.1 Quality System is developed and processes established

	Current Practice	Desirable Practice	Action Required
5	No effective consistency mechanism between Land Transportation Planning and Management and Resource Management (District Plan)	Land Transport Management and Resource Management (District Plan) are consistent in approach	5.1 Align District Plan provisions and Land Transport Planning Framework

5.0 WHAT IS LIFECYCLE MANAGEMENT

5.1 Operations and Maintenance

The focus of this Lifecycle Management Plan is the Operations, Maintenance and Renewal of assets as part of the wider Land Transport system.

Operations and maintenance are described in the International Infrastructure Management Manual as:

> ***Operation:*** ***The active process of utilising an asset which will consume resources such as manpower, energy, chemicals and materials.***
>
> ***Maintenance:*** ***All actions necessary for the as near as practicable to its original condition, but excluding rehabilitation and renewal.*** [21]

Maintenance may be proactive, (programmed or routine) or reactive (unplanned).

5.2 Renewal

Renewal is described in the International Infrastructure Management Manual as:

> ***Renewal:*** ***Works to upgrade, refurbish or replace existing facilities with facilities of equivalent capacity or performance capability.*** [22]

Renewal works include the replacement of an asset but exclude any increase in the Level of Service offered by the asset, such improvements would constitute Capital Works.

Rehabilitation is described in the International Infrastructure Management Manual as:

> ***Rehabilitation*** ***Works to rebuild or replace parts or components of an asset, to restore it to a functional condition and extend its life, which may incorporate some modification.*** [23]

Timaru District Council and LTNZ recognise rehabilitation within the Land Transport sector as a renewal activity.

5.3 Land Transport NZ Work Categories

All works undertaken that are eligible for financial assistance from Central Government are subject to the rules of the Land Transport Programme (LTP). The work categories defined for use within the LTP are illustrated below.

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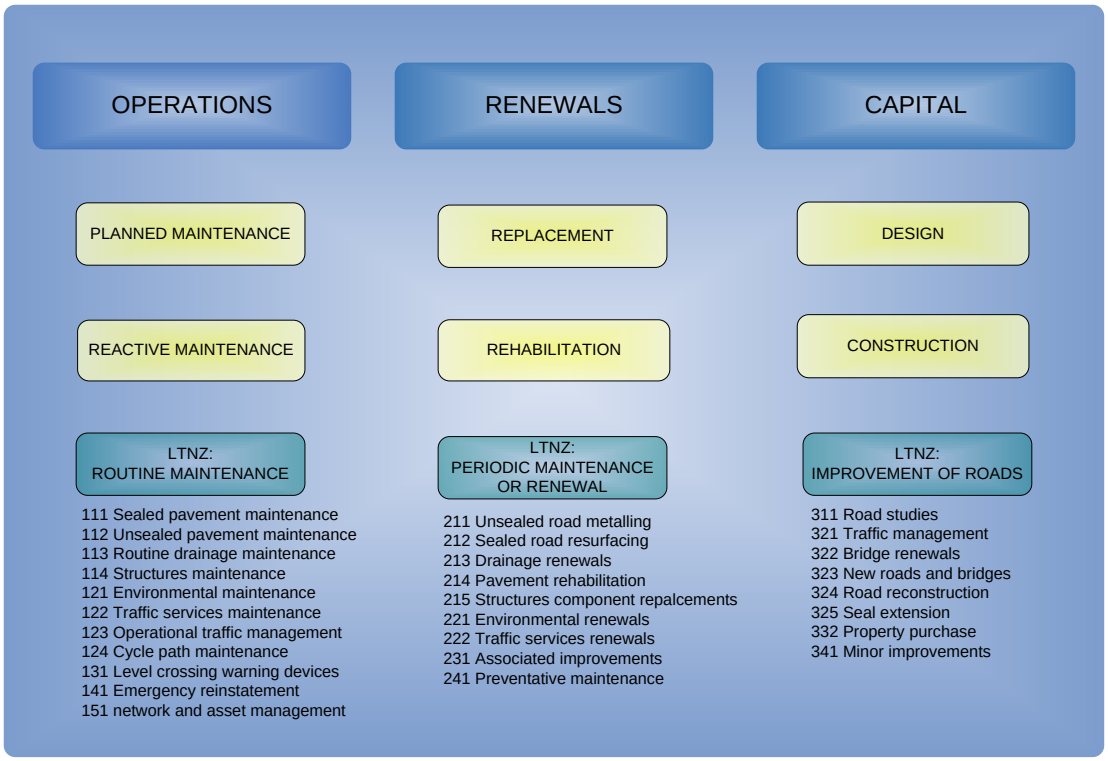
[21] International infrastructure Management Manual Version 3.0 2006

[22] International infrastructure Management Manual Version 3.0 2006

[23] International infrastructure Management Manual Version 3.0 2006



Generally the differentiation between Operations and Renewal is the test – 'has there been work done on the asset or has the asset been replaced?' While this maybe affected by the definition of asset components this is minimal within the Land Transport sector as the definition of asset components is consistent.

5.4 The TDC Lifecycle Management Strategy

Core assets are fundamental to the purpose of Land Transport and to the achievement of Timaru District's Transportation Vision, while other assets effectively support the achievement of those goals. The support assets serve no purpose without the core assets.

These grouping can be used to simplify the strategy and identify delivery mechanisms.

Core Assets	Pavements Bridges Footpaths & Cycleways
Support Assets	Corridors Drainage Traffic Services & Operational Traffic Management Sea Walls, Retaining Walls, and Facing Walls Street Lights*
	*Amenity Lights are included with Street Lights but are not an intrinsic component of the Land Transport system

5.5 Other TDC Strategies

Timaru District Council is involved in the preparation of Land Transport Strategies as required by legislation, as well as where it is determined that a strategic approach is beneficial. It is envisaged that a suite of strategy documents will comprise the Timaru District Council Transport Strategy including:

Sustainability Strategy	To be prepared	
Walking and Cycling Strategy	Adopted	
Road Development Strategy	To be prepared	
Public Transport Strategy	Adopted	(Combined with Environment Canterbury)
Lifecycle Management Strategy	This document	
Road Safety Strategy	Being prepared	(South Canterbury Region)
Timaru Transport Strategy	Being prepared	
Clandeboye Transport Strategy	Being prepared	

5.6 Other TDC Management Plans and Policies

Details of the assets that comprise the Land Transport System are not included in this plan. Details are available in the Land Transport Activity Management Plan, the Infrastructure Valuation or the Asset Information System.

There are Policies that affect the decision making process for Lifecycle Management.

The Policy for asset treatment selection includes:

- Smoother surfacing options shall be used in Central Business areas within the urban areas of Timaru, Temuka and Geraldine. The surfacing maybe Asphaltic Concrete, Slurry Seal or a fine chip subject to aesthetic, noise and smoothness parameters being met. The pavements requiring specific treatments are identified in RAMM

Such policies are considered in a multi-criteria analysis of the options available to an Asset Manager as illustrated in section 2.3(C).

5.7 Linkages to the National and Regional Land Transport Strategies

These linkages are examined the TDC Lifecycle Management Strategy and the importance of sound implementation of National, Regional and Local Strategies is acknowledged, as identified in Next Steps in the Land Transport Sector Review - Report to the Minister of State Services, 30 April 2007.

Refer http://www.ssc.govt.nz/display/document.asp?docid=5917&PageType=content&displaytype=pf

These links needs to be robust to support requests for funding and reporting in terms of the required performance reporting frameworks.

5.8 Impact of Differing Asset Lives and Asset Interdependency

There are a number of interdependent assets that comprise the Land Transportation network. The Urban streetscape in particular is made up of variety of assets with differing lifecycles. Understanding the impact of one asset lifecycle on another is essential to obtaining an optimal result.

In Figure 1 the assets range from short lifecycle such as signs (10 years) through to long lifecycle including concrete kerb and channel (50-100 years) and pavements structure (100 years). An integrated approach to infrastructure planning therefore needs to be undertaken in terms of the longest asset lifecycle.

Figure 2: Asset Interdependency *(Source: Unknown)*

Activities associated with other assets can have a significant impact on Land Transport Assets. The installation, maintenance or renewal of piped utility assets buried beneath pavements may affect the integrity of those pavements, increasing the maintenance requirements and effectively shortening the life of pavement. Processes that ensure the costs of increased maintenance or premature renewal are met include Road Opening Approval and appropriate allocation of costs. The Utility Advisory Group (NZUAG) provides a useful collaboration framework for these issues.

6.0 LIFECYCLE MANAGEMENT PLANNING

6.1 Asset Lives

Timaru District Council's Road Asset Valuation (as at 1 July 2005, prepared by Maunsell Aecom) provides an outline of the useful Lives of Land Transport assets adopted by Council for the asset valuation and depreciation calculation.[24]

Asset Group	Component	NZ Valuation Guidelines	Adopted Useful Life
Land Under Roads		Non Dep	Non Dep
Pavement	Surface – Unsealed	2-20	8
	Surface - Sealed	2-20	3 - 35
	Base	35-100	72 -100
	Sub-base	35-100 + Non Dep	72-100 + Non Dep
	Formation	Non Dep	Non Dep
Footpath	Surface	20-75	15 - 75
	Base	20-50	75
	Crossing		75
Structures	Bridges	70-150	80 - 120
	Major Culverts	70-100	80 - 120
	Retaining Walls	70-0100	90
Drainage	Culverts	50-100	100
	Sumps etc	50-100	75
	Kerb & Channel	50-100	75
Pavement Markings			Non Dep
Signs		10-15	5 - 20
Berms			75
Traffic Signals	Pole	15-30	50
	Controller	15-30	15
	Aspects	8-15	15
	Cable	30-60	50
Lights		10-50	30

[24] *Timaru District Council – Roading Infrastructure Revaluation (As at 1 July 2005) Maunsell Aecom February 2006*

Details of the asset lives and the factors affecting the Infrastructure valuation for those assets is included in the Lifecycle Management Plan for each asset group (sections 2.1 – 2.17).

Currently there is no optimisation of assets in terms of the Urban Design Protocol; however this does not preclude the opportunity to renew assets in a more appropriate manner to include improvements to the streetscape or Stormwater management.

6.2 Appropriate Standards and Meeting Levels of Service

There are a range of standards and Levels of Service that can be applied to the provision of Land Transport in Timaru District. It is important to recognise the standards and Levels of Service that have been consulted with the community and are agreed with other stakeholders including LTNZ. Any standards and Levels of Service that have been communicated are included in the decision framework included in section 2.

There are different levels within the roading network that provide a basis for prioritisation and standards. These levels are shown through the Network hierarchy which is recorded within the Timaru District Plan and RAMM. There are also Road Groups in the LTNZ framework (based on ADT) which are used as a management tool. The Network hierarchy is not used as much as LTNZ Road Groups from a management perspective.

The standards for renewal of Land Transport assets should be considered alongside the standards for new assets, especially those to be vested in Council as part of a subdivision or development. Accordingly the new or renewed assets are fit for purpose and Council is seen to act in an equitable manner.

6.3 Condition Assessment

Condition assessment is a core component of seeking the 'best value' option to Asset Management. The assessment of the condition of an asset enables Asset Managers to ascertain the performance of the Land Transport System as a whole or as individual components.

Condition assessments are undertaken to ascertain:

- If defined Levels of Service are being met
- The rate of deterioration of the asset

Condition monitoring maybe undertaken as a proxy for performance assessment where there is no appropriate method for ascertaining performance.

6.4 Performance Monitoring

Performance monitoring provides an indication of Road Users Satisfaction levels.

Monitoring is undertaken in terms of the Performance Measurement Framework (refer section 3.4), and as a management tool using RAMM and dTIMS or another Asset Information System. The use of these systems is discussed under section 6.5.

6.5 Deterioration Modelling[25]

The following extract from the Land Transport Activity Management Plan outlines the use of deterioration modelling on the Timaru District Council Roading Network.

Deterioration Modelling

Timaru District Council commissioned MWH Consultants to undertake a pavement deterioration modelling exercise of the districts sealed roads. This year was the first year that the deterioration modelling has used the new advanced version the software dTIMS CT. A report by MWH on the 2005 analysis is dated November 2005.

This report summarises the pavement deterioration modelling and describes the related tasks that have been completed as part of this exercise.

The focus of this year's analysis has been:

- *Utilise the model predictions to balance the Forward Work Programme*
- *Demonstrate the likely effect of the proposed FWP on network condition*
- *Predict annual maintenance quantities to maintain the level of service on the network*
- *Continue to refine the modelling setup for this network*

The analysis is based on data held within the RAMM database and data provided by Timaru District Council.

The deterioration modeling tool aims to assist with providing recommendations of:

- *The appropriateness of current funding levels for pavement maintenance*
- *The optimal work quantities to maintain or improve levels of service*
- *The timing and quantity of work in the Forward works Programme*
- *Future improvements to the modelling process*

The model analysis used two types of scenarios

Analysis Scenario	
Performance	*The treatments are triggered once certain condition parameters reach a defined level*
Economic	*Rather than treatments triggered by defined levels, the system selects the optimum strategy for each section in order in to optimise the performance for a given budget scenario*

The analyses focussed on the two main questions in asset management, being:

- *Determination of a cost effective life-cycle strategy for the network – (i.e. are we targeting the optimal maintenance quantities for the Network)*

[25] Timaru District Council – Land Transport Activity Management Plan, November 2005 (GHD Consultants)

- *Investigation of the implication of the strategies on the long-term level of service of the network – (i.e. are we achieving the desired outcome from the strategy in terms of network condition?)*

- *The predicted resurfacing quantities vary between 7.1 and 8.2% of the network length, which is not representative of the current quantities of work undertaken on the network annually. The recent historic quantity of resurfacing is lower and this has resulted in the backlog of required work that has now appeared. This is represented as follows:*

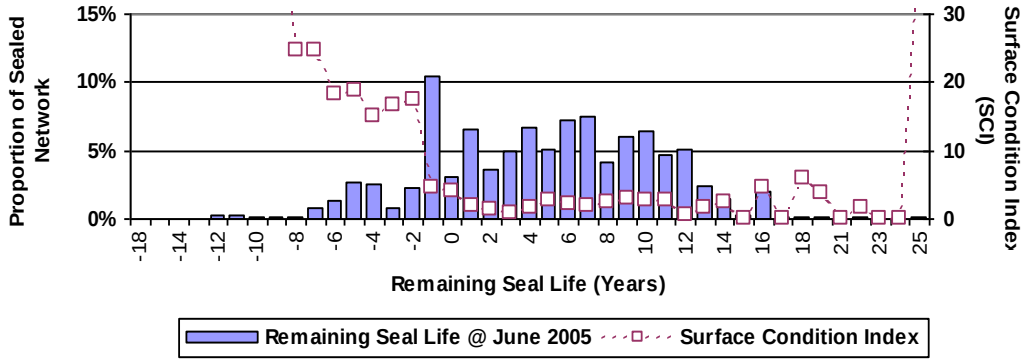


Figure: Remaining Seal Life

The development of dTIMS is dependant upon a structured data collection and data management programme. The completeness and accuracy of data used in the model directly affects the confidence levels which are based. The outputs are likely to be carefully evaluated by LTNZ in terms of requests for additional funding.

The use of dTIMS is limited to sealed pavements and is difficult to provide useful forecasts for unsealed pavements.

Falling Weight Deflectometer samples (including Oct 2006) have been used to produce the Pavement Structural Number (SNP) and other parameters used in dTIMS modelling. The sample data has been extrapolated across network to produce an indication of the maintenance and renewal needs. The deterioration pattern is closely linked to road use by both light traffic and heavies (ADT and %HCV), and the results show considerable differences between District Arterials and other routes. While much of the geology of the District is similar, the next most critical factor after traffic numbers is location next factor (e.g. Clandeboye area).

Benkelman beam testing is used to confirm satisfactory structure prior to resealing urban areas with special treatments (e.g. AC in CBD)

Generally NAASRA counts are very low and this is an accurate reflection of TDC roads. This may produce a Level of Service issue as residents as residents expectations are high, while LTNZ's funding criteria may relate to a lower LOS.

6.6 Managing Risk

There is a range of risks that affect the management of Land Transport in Timaru District. The Land Transport Activity Management Plan provides a compressive analysis of the risks to the activity as a whole. In terms of managing the lifecycle of Land Transport assets, the total use and composition of use poses the largest risk to the Land Transport System. This risk

can be monitored through Traffic Counts, %HCVs, and trends. As noted elsewhere the impacts of traffic is mostly seen on Arterial and Principal Roads.

In line with this risk, any changes in legislation permitting heavy vehicles would impact on a range of assets. While an increase in axle requirements would mitigate the impact on pavements, bridges that carry an entire vehicle would be affected.

An analysis on the expected impact of permitting heavy vehicles is available "Effect on Pavement Wear of Increased Mass Limits for Heavy Vehicles – Concluding Report" LTNZ (2005). http://www.landtransport.govt.nz/research/reports/281.pdf

Another associated risk is changes in trafficked routes, typically brought about by land use changes. Accordingly it is important for the Land Transport Manager to be aware of changes that maybe occurring, and to what degree the District Plan permits changes in Land Use. The impact of changes due to Development should be compensated through the Development Contribution process adopted by Council.

Possibly the greatest business risks relate to changes in funding models and LTNZ Financial Assistance rate.

6.7 Managing Infrastructure Interdependencies

The complexity of various utility providers and Land Transport assets sharing the same space is discussed in section 5.8. It is recognised that an optimal lifecycle approach for each group of assets cannot be considered in isolation from another group and that the lifecycle of one asset maybe severely compromised by another.

This is most clearly illustrated in sealed pavements, where both the pavement structure and the pavement surfacing are disturbed by utility trenching activities.

The layout of the urban streetscape and approach to Stormwater management is directly associated with kerb and channel, or lack of it. Kerb and channel and any associated Stormwater reticulation are very long life assets and premature replacement of those assets to achieve a change in the streetscape is expensive and the project outcomes would need to be clearly achievable to justify the expense. However, a change to the streetscape at the start or end of the kerb and channel/stormwater lifecycle is opportune.

There are other issues to be considered as infrastructure interdependencies are considered, including:

- Lifelines and scenario planning
- Undergrounding of electricity supplies
- Partnerships with other utility operators (Alpine Energy, Telecom, On-Track)

The Utility Advisory Group (NZUAG) provides a useful collaboration framework for these issues.

6.8 Optimised Decision Making

A scenario based approach is applied to facilitate decision making. Traditionally a multi-criteria analysis would be undertaken by experienced Roading Engineers and Works Foremen in an informal manner as they would seek to make wise decisions about maintenance and renewal needs. The approach is documented as follows as decisions are sought that provide the 'best value' option for Asset Managers.

While the use of dTIMS assists with the selection of treatment options for sealed pavements, there are broader issues that should be included in a decision algorithm.

Some considerations in the decision making process may be more remote from the management of Land transport. Currently AC resealing undertaken totals around 10% of the asset stock per annum; given there is only one AC plant in region, there are commercial realities and sustainability issues to consider.

There is a requirement for Local Authorities to consider the use of non-asset solutions and this has been included in the decision framework. Posting weight limits on bridges may be considered as a non-asset solution.

A decision framework is provided for each asset group in Section 2 of this plan in terms of core and comprehensive management approaches. The complexity of the interactions in decision making is acknowledged and the unique situations that will be encountered. The framework provides guidance for decision-making, which coupled with the experience of Council staff, Consultants and Contractors will provide the opportunity to optimise decisions made in the management of land transport asset lifecycles.

6.9 Information Management

A robust approach to the management of asset data and performance reporting is essential to the efficient management of the Land Transport sector.

A separate strategy and implementation plan for the collection, management and use of data would benefit Council in both the short and long term.

Such a document would include:

- What reporting is required?
- What data is needed?
- What data do we have?
- How do we collect data?
- Managing data
- What data analysis is required? – including dTIMS
- How can we contribute to corporate reporting requirements?

7.0 CONSULTATION FRAMEWORK

As a tactical planning document, this plan is a tool to assist Timaru District Council achieve Strategic Goals and Implement the Transport Vision. The plan is closely linked with the Land Transport Asset Management Plan and the Activity Management Plan and effectively supports those plans.

Given the Activity Management Plan is the most closely associated with the Long Term Community Plan a high degree of consultation is expected with community through the LTCCP and the Activity Management Plan contribution to the TCCP.

A separate consultation process for this Plan is not envisaged.

8.0 BIBLIOGRAPHY & REFERENCES

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Land Transport Management Act 2003 and Amendments		
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NZ Infrastructure Asset Valuation & Depreciation Guidelines	NAMs Group	2006
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Timaru District Plan	Timaru District Council	
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Timaru District Council 2006/07 Pavement Deterioration Model	MWH	Feb 2007

9.0 GLOSSARY OF TERMS

AMP	Activity Management Plan
LGA 2002	Local Government Act 2002 and amendments
LTCCP	Timaru District Council's Long Term Council Community Plan 2006-2016 as adopted 30 June 2006.
LTMA 2003	Land Transport Management Act 2003 and amendments
LTP	Land Transport Programme as defined in the LTMA 2003
RCA	Road Controlling Authorities
TDC	Timaru District Council

10.0 APPENDICES

10.1 Timaru District Council - Roading Hierarchy

PRIMARY ROADS – NATIONAL ROUTES	
Road	**Section**
State Highway Number Eight	From its intersection with State Highway Number One at Washdyke, through Pleasant Point to Cave
State Highway Number One	From Rangitata Bridge, through Rangitata, Orari, Winchester, Temuka and Timaru to Pareora Bridge
PRIMARY ROADS- REGIONAL ARTERIALS	
Geraldine-Arundel Road	Full length
Hayes Street, Timaru	Full length
Heaton Street, Timaru	Main South Railway – Stafford Street
King Street, Timaru	Craigie Avenue, Browne Street
Port Loop Road, Timaru	Full length
Stafford Street	Browne Street- Heaton Street
State Highway Number Seventy Nine	From its intersection with State Highway Number One at Rangitata, through Orari Bridge, Geraldine, Gapes Valley and Beautiful Valley to Skiptons Bridge
Talbot Street, Geraldine	Full length south of Cox Street
PRIMARY ROADS- DISTRICT ARTERIALS	
Road	**Section**
Church Street, Timaru	Full length
Otipua Road, Timaru	Wai-iti Road – Church Street
Wait-iti Road, Timaru	Morgans Road – Otipua Road

PRIMARY ROADS- PRINCIPAL ROADS	
Road	**Section**
Arowhenua Road	Full length
Canal Road	Farm Road – Milford Clandeboye Road/Rolleston Road
Cartwrights Road	Full length
Coonoor Road, Timaru	Full length
Peel Forest Road	Full length
Domain Avenue, Temuka	Full length
Earl Road	Full length
Fairview Road	Coonoor Road – Holme Station Road
Farm Road	Full length
Gleniti Road, Timaru	Wai-iti Road – Pages Road,
Halstead Road, Pleasant Point	Full length
Holme Station Road	Full length
Kellands Hill Road	Full length
King Street, Temuka	Fraser Street – Dyson Street,
Latter Street, Timaru	Full length
McKenzie Street, Geraldine,	State Highway 79 – Orari Station Road
Milford Clandeboye Road	Full length
Mountain View Road	Full length
Morgans Road, Timaru	Full length
North Street, Timaru,	Otipua Road – Stafford Street
Old North Road, Timaru	Full length
Orari Station Road	Full length
Otipua Road, Timaru	Church Street – King Street
Pages Road, Timaru	Full length
Perth Street, Timaru	Full length
Raincliff Road	Full length
Rangitata Gorge Road	Peel Forest Camp – Blandswood Road
Rosewill Valley Road	Cartwrights Road – Kellands Hill Road
Selwyn Street, Timaru	Full length
Sophia Street, Timaru	Perth Street- Theodosia Street
Stafford Street, Timaru	North Street – Heaton Street
Te Ngawai Road	Full length
Totara Valley Road	Full length
Wai-iti Road, Timaru	Evans Street – Otipua Road and Morgans Road – Gleniti Road
Waitohi Pleasant Point Road	Full length
Washdyke Flat Road	Full length
Wilson Street, Timaru	Full length
Woodbury Road	State Highway 79 – McKeown Road

SECONDARY ROADS – COLLECTOR ROADS	
Road	**Section**
Arthur Street, Timaru	Latter Street – Theodosia Street
Badham Road,	Rangitata Island Road – Factory Road
Bain Road	Full length
Barnes Street, Timaru	Wai-iti Road – Pukatea Street
Barton Road,	Full length
Basset Road	Rolling Ridges Road – Rosewill Valley Road
Beaconsfield Road	Full length
Boiling Down Road	Full length
Bouverie Street, Timaru	Full length
Brasell Road	Full length
Brenton Road	Full length
Bridge Street, Timaru	Full length
Bristol Road	Full length
Brockley Road	Fraser Road – Rosewill Valley Road
Brosnan Road	State Highway 1 – Falvey Road
Burdon Road	Lysaght Road – Woodbury Road
Cain Street, Timaru	North Street – Hassall Street
Claremont Road	Full length
Cleland Road	Full length
Coach Road	Full length
College Road	Full length
Darby Street, Geraldine	Full length
Davison Road	Taiko Road – State Highway 8
Denmark Street, Temuka	Hally Terrace- Gammack Street
Doake Road	Full length
Domain Avenue, Timaru	Full length
Douglas Street, Timaru	Selwyn Street – Lindus Street
Downs Road, Geraldine	Pye Road – Darby Street
Edgar Road	Full length
Ewen Road, Temuka	State Highway 1 – Main South Railway
Factory Road	Full length
Fairview Road	Taiko Road – Holme Station Road
Falvey Road	Brosnan Road – Levels Plain Road
Fraser Road	Basset Road – Brockley Road
Gammack Street, Temuka	Full length
George Street, Timaru	Full length
Glen Street, Timaru	Selwyn Street, - Kent Street
Gleniti Road	Rosebrook Road – Pages Road

Goodwin Road	Winchester Hanging Rock Road – Seven Sisters Road
Grants Road	Full length
Grey Road, Timaru	Full length
Grey Road, Timaru	Church Street – North Street
Guinness Street, Timaru	Full length
Hally Terrace, Temuka	Full length
Hassall Street, Timaru	Full length
Hedley Road	Full length
High Street, Timaru	King Street- Queen Street
Hillview Cres, Timaru	Wai-iti Road, Kauri Street
Hislop Street, Geraldine	Talbot Street – Wilson Street
Huffey Street, Geraldine	Darby Street – Talbot Street
Jellicoe Street, Timaru	Full length
Jollie Street, Geraldine	Pine Street- Totara Street
Kauri Street, Timaru	Hillview Cres – Puriri Street
Kent Street, Timaru	Full length
King George Place, Timaru	Full length
Le Cren Street, Timaru	Full length
Levels Plain Road	Falvey Road – State Highway 8
Levels Valley Road	Rolling Ridges Road – Doake Road
Lindus Street, Timaru	Full length
Lysaght Road	Tripp Settlement Road- Burdon Road
Marine Parade, Timaru	Full length
McKeown Road	Full length
Meadows Road, Timaru	Full length
Milford Lagoon Road	Full length
~~Mountainview Road~~	~~Full length~~
Muff Road	Full length
Mulvihill Road	Full length
Newman Street	Full length
North Town Belt, Temuka	Full length
Old Main South Road,	Edgar Road- State Highway 1
Opihi Road	Full length
Orbell Street, Timaru	Morgans Road- Guiness Street
Orton Rangitata Mouth Road	Old Main South Road – Chalmers Road and Badham Road – Rangitata Huts
Pareora Avenue, Pareora	Full length
Park Lane, Timaru	Full length
Pine Street, Geraldine	Full length
Pleasant Valley Road	State Highway 79 – McKeown Road
Preston Street, Timaru	Full length

Pye Road, Geraldine	Full length
Rangitata Gorge Road	Mesopotamia – Peel Forest Camp
Rangitata Island Road	State Highway 1 – Badham Road
Richard Pearse Drive, Temuka	Full length
Rise Road	Full length
Rolleston Road	Orton Rangitata Mouth Road – Canal Road
Rolling Ridges Road	State Highway 8 – Doake Road
Rosebrook Road	Brockley Road – Gleniti Road
Rosewill Valley Road	Cartwrights Road – Basset Road
School Road	Full length
Seadown Road	Full length
Seven Sisters Road	Full length
Shaw Street, Timaru	State Highway 1 – Redruth Street
Smart Munro Road	Full length
Spring Road, Timaru	Full length
Stafford Street, Timaru	North Street – George Street
Station Street, Timaru	Full length
Strathallan Street, Timaru	Full length
Sutherlands Road	State Highway 8 – Smart Munro Road
Taiko Road	Full length
Te Moana Road	Carrig Road – State Highway 79
Te Weka Timaru	State Highway 1 – Benvenue Avenue
Tiplady Road	Full length
Totara Street, Geraldine	Full length
Tripp Settlement Road	State Highway 79 – Lysaght Road
Unwin Road, Timaru	Full length
Usk Street, Timaru	Full length
Victoria Street, Timaru	North Street – Browne Street
Virtue Avenue, Timaru	Full length
Waimataitai Street, Timaru	Full length
Waipopo Road	Full length
Westcott Street, Timaru	Full length
Wigley Road	Full length
Wilkin Street, Temuka	Full length
Wilson Street, Geraldine	Hislop Street – Talbot Street
Winchester Hanging Rock Road	Full length
Woodlands Road, Timaru	Full length
SECONDARY ROADS – LOCAL ROADS	
All other Roads are local Roads	

10.2 Linkage Diagrams for Land Transport Asset Types