ROADING

ASSET MANAGEMENT PLAN

1 EXECUTIVE SUMMARY

1.1 Overview

This Roading Asset Management Plan (RAMP) follows the format recommended by the National Asset Management Steering Group (NAMS) and is largely compiled from historic records and personal knowledge of Carterton District Council staff. It specifically sets out to;

- Demonstrate Responsible Management of the Roading Activities of Council
- Communicate and Justify Funding Requirements for the Roading Activity and
- Comply with Regulatory Requirements

It puts in place systems that will improve documentation, maintain an asset register, advance asset condition assessment, and require cost monitoring and control. This asset plan will be reviewed annually and updated by 30 November 2007, and revised every three years thereafter.

1.2 The Purpose of the Plan

The ultimate purpose of an asset management plan is to ensure that assets are operated and maintained in a sustainable and cost effective manner, so that they provide the required level of service for present and future customers. The Road Asset Management Plan for Carterton District achieves eight major purposes, and these are described as follows:

1. It meets the Council's legal obligations under the Local Government Act 2002 to define levels of service and how these levels of service will be provided with the supporting accounting and financial management requirements.
2. It provides a detailed description of all components of the road infrastructure assets and the assumed condition of each component where data is lacking. Methods of assessing and monitoring and forecasting condition are developed.
3. It provides a valuation of the complete road network as well as individual components.
4. It provides the linkage between the LTCCP Community Outcomes and Council's strategic goals for road infrastructure and the levels of service, which are targeted performance objectives for the roading activity.
5. It defines the level of service the Carterton community requires from the road infrastructure. It defines performance measures and provides performance data, where available, to compare actual service provided with target levels of service.
6. It identifies risks, which may cause failure of part of the road infrastructure and sets up a framework with which to manage risks for the future.
7. It provides financial forecasts of expenditure based on the assessed condition and estimated future life of components, and includes maintenance, renewal, and capital expenditure.
8. It identifies opportunities for improvements that will ensure financial resources are used wisely.

1.3 Asset Description

1.3.1 General

Carterton District Council owns and operates roading systems that include sealed and unsealed pavements, surface water channels, bridges and culverts, retaining walls, marker posts, signs, pedestrian facilities, street furniture and street lighting. The Plan is primarily a maintenance-based document due to the nature of the roading network and its needs. This on-going maintenance will result in a continually changing asset, and as such will require the Roading Asset Management Plan (RAMP) to adapt to reflect these changes. The RAMP will therefore be a "**living document**".

1.3.2 The Asset Components

The inventory of the existing roading network, which is maintained by Council, is held within the Road Asset Maintenance Management (RAMM) database. This is an inventory which provides a detailed description of components that form councils Roading Infrastructure. In summary the Council maintains the following road infrastructure components:

Roading Component	Quantity	Units	Comment
Pavement – Sealed	Urban – 26 Rural - 251	Km Km	Sealed Pavement area 1,653,104 m2
Pavement – Unsealed	Rural - 152	Km	Unsealed pavement area 592,987m2
Bridges	51	No	24 two lane bridges 27 single lane bridges
Culverts > 600mm dia.	102	No	
Culverts < 600mm dia.	1488	No	
Kerb & Channel	37.8	Km	
Catchpits	295	No	
Stormwater Channel	189.3	Km	
Guard Rails	148	M	
Sight Rails	291	M	
Footpaths	39.97	Km	
Street Lighting	417	No	
Signs	1194	No	

Figure 1.1 Road Infrastructure Components

1.4 Asset Valuation

Valuation of the road infrastructural assets was undertaken by Opus International Consultants Limited as at 30 June 2005.

The valuation basis is depreciated replacement cost, which is in accordance with generally accepted accounting practice.

Replacement cost is the cost of building anew the existing infrastructure using present day technology, but maintaining the originally designed level of service. Assuming present technology ensures that any additional costs of outdated and expensive methods of construction are not reflected in the valuation.

The value of the assets has been depreciated on a straight-line basis over their nominal/economic working life.

The optimised replacement value of the Carterton District Council road infrastructure assets is estimated to be $100.5 Million (refer Figure 1.2).

Figure 1.2 Road Asset Valuation 2005

Roading Component	Optimised RC 2005	PA Depreciation
Formation	$34,978,286	$0
Pavement	$33,828,924	$481,528
Drainage	$10,871,128	$178,959
Footpaths	$4,494,118	$78,176
Signs & Markings	$375,126	$15,652
Traffic Facilities	$65,917	$1,911
Bridges / Culverts	$15,663,825	$132,258
Street Lighting	$229,187	$3,432
Total	**$100,506,511**	**$891,916**

1.5 Life Cycle Management

Assets have a life cycle as they move through from the initial concept to the final disposal. Depending on the type of asset, the lifecycle of individual components may vary from 10 years to over 100 years.

Life cycle management takes into consideration the following aspects:

- Assumptions and Uncertainties associated with the Activity
- Target levels of service,
- Risk management,

- Demand management,
- Operations and maintenance requirements
- Asset replacement,
- Capital Development needs.

1.6 Assumptions and Uncertainties

Significant assumptions and uncertainties in the preparation of the Asset Management Plan are:

- The knowledge of the practitioners directly providing this activity, both on a day-to-day basis and historically, has been relied upon. These practitioners include Council's Support Services Department staff, Council's roading network consultants, Land Transport New Zealand staff, and staff of the various physical works contractors.
- There will be an ongoing requirement for the provision of this activity.
- The demand for this activity will remain however there is some uncertainty about how the service will change due to changing Government requirements.
- Funding will be available to provide this activity as described in this Activity Management Plan.
- The financial assistance Base Rate from Land Transport NZ (LTNZ) will remain at 52%.
- The dollar values shown in this Plan are June 2007 dollars. It is assumed that each year following 2007 the dollar amounts will be adjusted for, at least, the rate of inflation applicable to this Activity.
- Renewal and Capital costs are preliminary cost estimates that will need to be further researched and refined

Key assumptions made in the financial forecasts are as follows:

- LTNZ will continue to provide subsidised funding to Council for the roading network
- Council will continue to fund the level of service currently set out in the plan
- No account has been made of the impacts related to the acceptance and implementation of the Risk Management Plan
- Assumptions made on Total Useful Life and Residual Useful Lives of the assets in relation to the asset valuation.
- The asset data is considered to be reliable and fit for the purpose of developing the long term financial forecasts.

1.7 Levels of Service

The levels of service determine the amount of funding that is required to maintain, renew and upgrade the road infrastructure in order to provide the customers with the levels of service specified. Changes to the levels of service will impact on funding requirements.

The asset management plan has considered a range of levels of service that the Council could set for the road network. The Road Activity Goals and Target Levels of Service Council has chosen to meet are presented in Figure 1.3 and Figure 1.4.

1.8 LTCCP Community Outcomes

1. Access to transport and communication systems that best meet the diverse needs of the District
2. A safe, healthy and educated community

1.9 Road Activity Goals

Figure 1.3 Road Activity Goals

No	Delivery Goals	Community Outcomes
1.	A cost effective district wide road network.	1
2.	Safe, comfortable and reliable road conditions.	2
3.	Effective road signs and markings.	1, 2
4.	Sustainable road transport services with flexibility for change and growth.	1
No	**Advocacy Goals**	**Community Outcomes**
5.	Safe and accessible regional road links.	2
6.	Improved public transport services.	1, 2

1.10 Levels of Service

Figure 1.4 Target Levels of Service

1.	A Cost Effective District-wide Road Network	Operational Level of Service Statements	Performance Measures
(i)	Optimise District roading costs and benefits with Transit and neighbouring Councils.	Liaise with Transit and neighbouring Councils in regard to cost or services benefit for projects.	Council records.
(ii)	Review maintenance standards and priorities to align with road conditions, usage and District development to optimise costs.	Review maintenance standards and priorities three yearly in association with AMP updates.	Updated Routine Maintenance Plan in AMP document.
(iii)	Control expenditure to complete all programmed works within allocated budgets.	Apply for LTNZ funding. Expenditure is within budgets agreed with Council Expenditure on footpath renewals is within agreed budget.	Annual Financial Report

2.	Safe, Comfortable and Reliable Roads and Footpaths.	Operational Level of Service Statements	Performance Measures
(i)	Ensure road works are completed in accordance with relevant Standards, Manuals & Guidelines.	100% compliance with LTNZ requirements for subsidised road works. 100% compliance with relevant NZ Standards for Subdivision and Development works.	No unresolved non-compliance issues on record.
(ii)	Monitor customer satisfaction with the standard of District roads.	75% residents' satisfaction level achieved for District roads and footpaths.	Triennial customer survey.
(iii)	Prioritise and complete works to improve road safety.	Achieve a reducing trend in number of accidents on District roads attributable to road conditions.	Accident Records.
(iv)	Prioritise and complete works to improve road surface quality.	Achieve an average road roughness index on sealed roads of 80 or less in 2 yearly surveys.	Survey Results.
(v)	Maintain current standard of District roads, including bridges, streetlights, kerbs and drainage facilities.	100% compliance with completion of programmed works. 90% compliance with Maintenance Contract response times. Complete monthly audit inspections of a minimum of 30% of the District roads, but such that all roads are inspected within a 4 month period	Annual Report Monthly Contract Reports. Contract File.

(vi)	Maintain safe and adequate footpaths within the District.	100% compliance with completion of programmed works. Respond to fault reports and public complaints in a timely manner.	Annual Report No unresolved non-compliance issues.
(vii)	Identify, prioritise and action upgrade strategies to maintain safe road conditions.	Annually review and prioritise upgrade strategies for road safety works to be included in Forward Work Programme. 100% compliance with completion of programmed safety works.	Forward Work Programme. Annual Report

3.	**Effective road signs and markings.**	**Operational Level of Service Statements**	**Performance Measures**
(i)	Ensure District road signs are effective.	100% compliance with LTNZ requirements for regulatory and safety advisory signage. Complete 3 yearly audit of safety signage.	No unresolved non-compliance issues. Project File.
(ii)	Ensure District road signs are well maintained.	95% of regulatory signs are repaired/replaced within 3 days of advice of a fault. 100% compliance with completion of programmed works.	Monthly Contract Reports. Annual Report.

(iii)	Ensure District road markings are well maintained.	Re-paint 100% of road markings annually.	Contract File.
(iv)	Ensure speed and hazard signs and associated road markings are clearly visible to road users.	Complete 6 monthly inspections of District signs and markings.	Contract Reports.
(v)	Provide directional signage to civic amenities and tourist facilities.	100% compliance with completion of approved new signs.	Annual Report.

4.	**Sustainable road transport services with flexibility for change and growth.**	**Operational Level of Service Statements**	**Performance Measures**
(i)	Manage Subdivision and Development works to provide for future growth.	Applications for Subdivision and Development works are approved in accordance with District Plan provisions.	Consent Application records.
(ii)	Plan for and provide road and footpath infrastructure to meet managed urban residential development	Annually review development works for Forward Work Programme. Include development works in Forward Work Programme and budgets.	Forward Work Programme

5.	Safe and accessible Regional road links.	Operational Level of Service Statements	Performance Measures
(i)	Ensure Council is represented at Regional Land Transport Committee meetings.	100% compliance with attendance at Regional Land Transport Committee meetings.	Meeting Minutes
(ii)	Maintain regular liaison with Transit NZ on District road issues.	Meet with Transit NZ personnel at least quarterly to discuss District road issues.	Meeting Minutes
(iii)	Provide support to the Wairarapa Road Safety Council.	100% compliance with attendance at Wairarapa Road Safety Council meetings. Apply for LTNZ funding in conjunction with cluster organisations. Provide agreed funding contribution to the Wairarapa Road Safety Council	Meeting Minutes Annual Financial Report Financial accounts
(iv)	Continue to advocate for improvements to Rimutaka Hill Road.	100% compliance with attendance at Rimutaka Hill Road committee meetings.	Meeting Minutes

6.	Improved public Transport services.	Operational Level of Service Statements	Performance Measures
(i)	Advocate for improved rail service to the District.	Meet with Regional Council personnel annually to discuss District rail service issues.	Meeting Minutes
(ii)	Encourage that rail safety issues are urgently addressed.	100% of rail safety issues are advised to relevant authorities within 3 days of advice of a fault.	Correspondence Records

1.11 Risk Management

The risk management process is defined[1] as

"the systematic application of management policies, procedures and practices to the tasks of identifying, evaluating, treating and monitoring those risks that could prevent a Local Authority from achieving its strategic or operational objectives or Plans or from complying with its legal obligations".

A process has been established that will, once completed, ensure risk management is an integral part of the culture of all parties associated with the management and operation of Council's road infrastructure assets.

Council will formulate a risk management strategy and framework that is consistent with SNZ HB 4360:2000 Risk Management for Local Government and AS/NZS 4360:1999 Risk Management, to ensure risks are managed on a consistent basis.

1.11.1 Identified Risks

Critical Risks

The most critical risks are:

- The possible lack of direction on Risk Management Context set out in this plan. Leading to the possibility of an extensive number of high to very high risks requiring funding to mitigate, or fix
- The changing environment of legislative requirements
- Incomplete management and supervision of this Activity due to limited staff resources. However, this has been mitigated in part by the engagement of Roading Management Consultants

Considered Risks

Operations Procedures

- The various contracts for the operations and maintenance of this activity require the contractors to provide Quality Plans for the execution of the contract requirements. The Quality Plans include procedures for work to be carried out. The risk is that the procedures are not followed, and there is uncertainty because Council does not have enough staff resources to fully monitor the implementation of the contract requirements by the contractors. This has been mitigated by the use of Consultants.

[1] SNZ HB 4360:2000 Risk Management for Local Government

Health and Safety

- Council has a comprehensive Health and Safety Programme for its operations. Internally there is no risk in the implementation of this Programme.
- The various contractors involved in this Activity have Health and Safety Programmes in operation. Reports are received from the contractors about any incidents relating to health and safety. Council's risk is that no inspection of work sites is undertaken by Council staff to ensure that the requirements of the Council's and the contractors' Health and Safety Programmes are being carried out on site. However, this has been mitigated by the use of Consultants.

General Management Issues

- Contract Supervision - The various contractors are not being supervised fully enough to ensure that all aspects of the contracts are being carried out or met. The limited Council staff resource means that there are not enough people available to supervise the contracts fully. However, this has been mitigated by the use of Consultants.
- Legislative Compliance - Council staff practitioners and Council's Roading Consultant, from their experience, training and courses attended, believe that all legislative requirements that impact on this activity are being complied with.
- Resources - The financial provisions shown in this Plan should be sufficient to provide the service required from this Activity. There is a risk that all works, particularly the supervision of works, cannot be carried out fully due to limitations on the number of Council staff employed or on funding available to employ consultants to do that work on Council's behalf.
- Service Agreements - There are no specific service agreements in place between each department to ensure everyone is aware of there roles in this Activity. However being a small Council with a small staffing level, interdepartmental discussion in relation to any facets of this Activity is normal practice.
- Council Policies Clear – All Council policies should be held in the one Policy location. It is recommended that existing policies be reviewed for compliance with legislation in 2007/2008. The relevant policies for land transport are:
    - Stock Movement By-Law
    - Cattlestop Policy
    - Parking By-Law 2006
    - Speed Limits By-Law 2006

Financial

- Cost 'Blowouts' - Council staff manage expenditure by ordering work only if finance is available and approved, and by reviewing expenditure monthly and reporting exceptions.
- True Costs – Costs Not 'Fudged' - The financial forecasts that have been made in this Plan portray the true cost of this activity, given the assumptions made in making those forecasts.

- Financial Assistance for this Activity is received from LTNZ in accordance with their policies. The present financial assistance base rate is 52% for maintenance, and 57% for construction and minor safety.

1.12 Demand Management

To understand current and future demand on the network, research needs to be undertaken to identify the type of 'use' change that can be expected and to focus on the impact of this change. The output of such a study will need to consider the following aspects and will then need to be aligned with current network practice and service level funding.

- Current use
- Identify expected change in use
- Research future use in terms of Vehicle Loading and Year of Impact
- Impact on asset
  - ⇒ On which parts of the District will use impact
  - ⇒ Critical components identified
  - ⇒ Possible mode of failure
- Are non-asset based solutions available

An initial assessment of change in demand indicates that forestry and agricultural development in the District will result in increases in the number of heavy vehicles using District roads, and the relatively static population growth trend indicates that the number of light vehicles may not dramatically increase over the next 10 years. The likely impact of this is an increased demand for wider more robust roads particularly in the areas of the network affected by forestry. The current financial forecast reflects this with expenditure allowances for seal widening, minor safety and some seal extension works identified.

1.13 Routine Maintenance Plan

Routine and programmed maintenance is the regular on going day-to-day work necessary to keep assets operating, including instances where portions of the asset fail and need immediate repair to make the asset operational again. Routine maintenance is currently carried out by Fulton Hogan Contractors under contract to CDC, and the standards of work are controlled by that contract.

From the initial assessment of future demand, it is expected that the impacts of demand change will be mitigated by the allowances for renewal and capital expenditure works. Therefore the required maintenance and operational costs associated with the Roading Activity are not expected to significantly change over the next 10 years.

It is also assessed at this stage that current funding levels will be adequate to maintain the required levels of service throughout this forward planning period. However, further analysis of condition and performance criteria for the road infrastructure assets is recommended to be undertaken before the next review of the RAMP by November 2007 to verify this assumption.

The projected operations and maintenance costs are summarised in Figure 1.5.

1.14 Renewal Plan

Renewal expenditure is work that does not increase the assets design capacity but restores, rehabilitates or renews an existing asset to its original capacity. Not all capital work in the past has been differentiated as either renewal or true capital. This is more so in the smaller maintenance type activities. The review of the account system codes has ensured that the accounts identify separately for renewals in a more apparent manner.

These systems along with increased data capture will allow enhanced decision making and future renewal programmes to be determined.

The current level of expenditure on renewal works is $1,130,000 and compares favourably with the per annum depreciation value for road asset components of $891,916. The initial assessment therefore is that funding levels are adequate to maintain these assets over the next 10 years and provide the required levels of service for the roading activity. The analysis of condition and performance criteria recommended for verification of appropriate funding levels for routine maintenance activities should also be reviewed in the context of renewals works to provide increased confidence that funding levels are adequate before the next review of the RAMP by November 2008.

Projected renewal costs are summarised in Figure 1.6.

1.15 Capital Plan

Capital works are those works that create a new asset that did not previously exist, or works that upgrade or improve an existing capacity. They may result from growth, social or environmental needs.

The initial assessment of future demand has indicated that the primary drivers for new works or upgrades to the roading infrastructure are likely to be from forestry or agricultural development, and residential or industrial development. Therefore the types of capital works appropriate to manage this demand have been allowed for in the financial forecast with allowances for future seal widening, minor safety and some seal extension works.

Projected capital costs are summarised in Figure 1.7

Figure 1.5 Projected Operations Costs

OPERATIONAL COSTS	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
SUBSIDISED ROADING	1835919	1046800	976000	1001376	1026410	1052071	1077320	1102099	1126345	1149998	1174148	1197631
UNSUBSIDISED ROADING	219591	126300	106700	109474	112211	115016	117777	120486	123136	125722	128362	130930
TOTAL	2055510	1173100	**1082700**	**1110850**	**1138621**	**1167087**	**1195097**	**1222584**	**1249481**	**1275720**	**1302510**	**1328561**
SUBSIDY INCOME			514240	527610	540800	554321	567624	580680	593455	605917	618641	631014

Figure 1.6 Projected Renewal Costs

RENEWAL COSTS	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
SUBSIDISED ROADING	820787	1130000	1434300	1394642	1429508	1465246	1500411	1534921	1568689	1601632	1635266	1667971
UNSUBSIDISED ROADING	70470	80000	140000	82080	84132	86235	88305	90336	92323	94262	96242	98166
TOTAL	1017698	1210000	**1574300**	**1476722**	**1513640**	**1551481**	**1588716**	**1625257**	**1661013**	**1695894**	**1731508**	**1766138**
SUBSIDY INCOME			745836	725214	743344	761928	780214	798159	815718	832848	850338	867345

Figure 1.7 Projected Capital Costs

CAPITAL COSTS	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
SUBSIDISED ROADING	126441	130000	146000	149796	290781	330928	416137	363038	371024	378816	175641	179154
UNSUBSIDISED ROADING	20819	5000		15390	15775	43118						
TOTAL	147260	135000	**146000**	**165186**	**306556**	**374046**	**416137**	**363038**	**371024**	**378816**	**175641**	**179154**
SUBSIDY INCOME			90520	92874	180284	205175	258005	225083	230035	234866	108897	111075

TOTAL COSTS	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
SUBSIDISED ROADING	2783147	2306800	2556300	2545814	2746699	2848244	2993869	3000057	3066059	3130446	2985055	3044756
UNSUBSIDISED ROADING	317880	211300	246700	206944	212118	244369	206082	210822	215460	219984	224604	229096
TOTAL	3101027	2518100	**2803000**	**2752758**	**2958817**	**3092613**	**3199951**	**3210879**	**3281518**	**3350430**	**3209659**	**3273852**
SUBSIDY INCOME (total plus administration)			1380984	1375976	1497379	1555656	1641975	1640010	1676090	1711288	1613379	1645647

Notes:
1. Costs have been escalated at rates shown in the accounts
2. Subsidy is based on rates current at 2007/08.

1.16 Disposal Plan

Council owned road sections that may no longer be required for public use may be reclassified as private accessways or divested. If continued in CDC ownership, the levels of service and maintenance attendance for such roads may be significantly reduced.

The 2005 valuation report for road assets has identified 9 road sections and 4 bridges that will not be replaced at the end of their useful lives and are no longer maintained by Council. Although it is expected that some cost may be involved with abandonment, particularly of the bridge assets, at the end of their useful lives, it is not expected that these costs will be incurred within the 10year financial forecast period. Therefore no funding allocation has been made in the forward work programme at this time for disposal costs. It is however recommended that this situation be reviewed with each future update of the RAMP.

1.17 Funding

Roading operational costs will be met by way of LTNZ subsidy, rates, and recovery of costs from Transit NZ. Renewal and capital costs will be met by way of LTNZ subsidy, depreciation, or loans. The expected level of subsidy income is shown in the financial tables.

1.18 Asset Management Systems

An asset management system is a combination of processes, data and software applied to provide the essential outputs for effective asset management. Carterton District Council utilise a number of these aspects for the effective management of their assets.

The primary asset management tools and data repository used by Council for road infrastructure assets is the Road Asset Maintenance Management (RAMM) database combined with some spreadsheet data (MS Excel) and their Geographical Information System (GIS) – ArcView.

The level of confidence in the accuracy of the inventory data is relatively high. The following table of accuracy ratings was determined during the 2005 valuation of road assets and provided in that report.

Asset	Quantity	Unit Cost	ORC Value	Life	Remaining Life	DRC Value
Formation	C	C	C	N/A	N/A	C
Pavement	C	B	B	C	C	C
Surfacing	A	B	B	B	B	B
Drainage	B	B	B	B	B	B
Footpaths	A	B	B	B	B	B
Signs & Markings	B	B	B	B	B	B

Asset	Quantity	Unit Cost	ORC Value	Life	Remaining Life	DRC Value
Traffic Facilities	B	B	B	B	B	B
Bridges/Culverts	B	B	B	B	B	B
Street Lighting	A	B	B	B	B	B

Note: 'A' = Accurate; 'B' = Minor Inaccuracies; 'C' = Significant data Estimated and 'D' = All data Estimated

The main area for improvement for Asset Management Systems for road infrastructure is in the collation of information into one data repository with the inclusion of Streetlights (which are typically recorded in SLIMMS), bridges (BRIMMS), and footpaths.

It is recommended that a review is undertaken before the next update of the RAMP, to assess the cost to populate the RAMM database with the additional asset information currently stored in spreadsheets and that funding to complete this task be provided.

1.19 Monitoring and Improvement

The effectiveness of the asset management plan will be monitored in various ways, including statutory audit, external and internal audit, and conformance with the performance measures. Customer surveys will be carried out to monitor the performance of service delivery and the customers' perception of the service being provided.

Methods of improvement in asset data collection and management have been presented in the asset management plan which will provide a basis for improved asset management planning of the road infrastructure assets in the future.

Key areas of improvement include (in priority order);

- Collation of all inventory data into a single repository
- Develop protocols for categorisation of types of expenditure
- Risk Management Plan preparation
- Track maintenance costs
- Attribute data collection, validation and recording
- Review Levels of Service performance measures
- Asset condition assessment and performance monitoring
- Asset capacity and utilisation assessment
- Pavement Performance modelling
- Industry / subdivision development demand research

Appendix A – Improvement Plan Programme

ROADING IMPROVEMENT PLAN													
Description	**Priority**	**Cost**	**Notes**	**Year**									
				1	2	3	4	5	6	7	8	9	10
Collate all inventory data to a single repository	1 =	$6000	At present roading data is held in different formats by various organisations including non Council. There is a danger that the information will be lost and time & expense incurred retrieving/replacing the data. Proposal is to amalgamate this into RAMM. Ultimately this could be used to carry out annual reviews of the asset depreciation.										
Develop protocols for categorisation of types of expenditure	1 =	$500	This has partially been completed. Some further work is required to confirm expenditure type and relation to LTNZ categories.										
Risk Management Plan	3	$2500	Prepare a risk management plan. Required as part of the AMP, but will be useful for recording locations of risk for future contractors/staff etc. Plan would also confirm funding requirements to be held in advance of emergencies.										
Maintenance costs	2 =	$3000	A record is held of historical maintenance costs. Task would hold data in RAMM to make them accessible against sections of road. LTNZ are requiring this information as part of project justifications. Will identify 'expensive' sections of the network, and where remedial $ are best spent to reduce future costs.										
Inventory data collection, validation, recording.	2 =	$10000+	Primary data is updated annually. Other data has never been validated since originally entered. Signs inventory has been re-surveyed 2007 due to known inaccuracies. All data needs to be verified, but can be carried out as a small annual project.										

ROADING IMPROVEMENT PLAN													
Description	**Priority**	**Cost**	**Notes**	**Year**									
				1	2	3	4	5	6	7	8	9	10
Asset condition assessment	4 =	$15000	Collect detailed pavement condition data on arterial and collector roads only. Will allow better assessment of skid resistance and other failures to target maintenance work. Due to low traffic volumes, would not be required annually, but say every 5 years										
Asset capacity and utilisation.	4 =	$5000	Consider current utilisation of the network and its capability to enable effects of subdivision and other traffic generators to be assessed. Will help target and justify improvement works on the network such as widening, and the seeking of LTNZ subsidies.										
Pavement performance modelling	6	$30000	LTNZ is currently encouraging the use of dTIMs to better predict the deterioration of the sealed road network. It is only a matter of time before this is compulsory and a requirement to get subsidies. Could be done in conjunction with adjoining councils. But saving s would be moderate. The programme allows the effects of any funding reduction or increase to be seen as changes in network performance/LOS.										
Industry/subdivision demand research	5	$5000	Research to assess likely impacts from future development. Could be done in conjunction with adjoining councils. Would allow improvement needs to be identified, help justify LTNZ subsidies.										