CARTERTON
DISTRICT COUNCIL

CARTERTON COMMUNITY STORMWATER
Asset Management Plan

MARCH 2009

Contents

1 INTRODUCTION

This asset management plan describes the strategies and programmes for the community wastewater system to meet the required level of service to existing and future users in the most cost effective way.

The plan informs the Councils Long term Community Plan (LTCCP) and contributes to meeting the identified community outcomes,

The plan covers:

- A description of the activity
- The strategic environment
- A statement of the intended service levels,, compliance and performance targets
- Information on the asset scope and statements on the estimated expense for achieving and maintaining the target levels of service.
- How maintenance of the assets will be undertaken and how they will be funded
- How capital expenditure resulting in a additional asset capacity and increased levels of service will be delivered and funded

It puts in place systems and processes that will improve documentation, the creation and maintenance of an asset register, regular asset condition assessment, and cost monitoring and control and risk management. This asset plan will be reviewed and updated by 30 November 2008, and revised every three years thereafter.

2 THE ACTIVITY

2.1 Description

The stormwater asset, owned by Carterton District Council consists of a system of underground pipes and open channels that collect stormwater from the urban residential area and directs it to outlets in the Mangatarere and Waiohine Rivers west and south of the town.

2.2 Rationale

The stormwater activity exists to provide effective collection and disposal. of surface water from the various areas that are serviced within the Carterton Community.

The stormwater system does not service the whole of the town and exists mainly to collect surface water from the roading network and some private property. Some stormwater collection and disposal systems exist in the rural area and interface with the rural water race system to the east of Carterton.

In the case of new development reliance is placed upon engineered stormwater soakage systems to ground. Soakage system designs are undertaken in accordance with NZS 4404:

2004 Part 4 “Stormwater Drainage” and are required to cater for the five year frequency event. Overflow beyond that is directed to the network where capacity and a connection is available.
If a formal overflow connection is not available, new development must provide adequate secondary flow path protection. If this is not available as per the code, primary systems must be able to cater for a one hundred (100) year return frequency event.

The possibility of cross-connections, stormwater to sewer is mitigated by appropriate application of the building code requirements and local knowledge in respect of flood prone residential areas.

The services provided by the activity contribute positively to certain of the community outcomes adopted by Council as follows:

Community Outcome	**Contribution**
A safe District	Infrastructure capable of reducing the impacts of flooding to people and property
A District which promotes sustainable infrastructure and services	A network(piped and open channel) that can cater for a 5 year return period rainfall event with available flow paths for flood events in excess of this
A District which values and protects its natural environment	A network which is appropriate to community needs and mitigates any negative impacts of stormwater discharge to natural watercourses. Full compliance with resource consents

In order to achieve a balanced focus toward activity effects rather than attempting to influence outcomes, Council acknowledges that it needs to manage all effects both positive and negative whether planned, forecasted or otherwise.

By adopting a precautionary approach, commonly associated with sustainable development and asset delivery, the significant effects of the activity both positive and negative in terms of the four well beings can be summarized as follows:

Well Being	Positive	Negative
Social	Community benefits arising from a network that minimises the effects of surface flooding	Health and Safety Risks associated with asset operations and flooding incidents
Environmental	Reduction in the no. of flood events within the urban and rural areas compromising access and natural values	The effects of contaminated stormwater upon the surface receiving waters and groundwater values
Economic	Affordable cost of infrastructure participation promoting an appropriate environment for residential and commercial development	Possible loss of income and business in the event of excessive participation costs and infrastructure failure
Cultural	Stormwater collection and disposal services are non discriminatory in benefit for all community and ethnic groupings	Potential community and Iwi concerns in regard to waterway health and associated values arising from the disposal of stormwater containing contaminants

Council is not considering any significant changes to the activity that may be inconsistent with the intentions of this plan.

3 STRATEGIC ENVIRONMENT

Council vision is described as" *A safe, attractive and vibrant community within a healthy and sustainable environment.*"

The Council in addition has an expectation for Carterton that infill and development as determined by finalized draft structure plans and the Combined District plan whilst at variance to population projections, generally will result in growth over the timeframe of the new LTCCP to be adopted in 2009.

If this occurs and imposes some pressure on infrastructure Council will need to forward budget beyond the three year time frame of this plan to provide additional stormwater disposal infrastructure.

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Earlier reporting to Council in the early nineties and a subsequently developed Catchment Management Plan (1992), recommended a range of stormwater improvement works within the urban area and on the Waihakeke Drain to the east. Only small portions of the recommended urban works have been completed with additional funding required over the timeframe of the new LTCCP to complete the outstanding work.

The Waihakeke Drainage Upgrade works specifically required implementation within the current operative discharge consent issued in May 1995 and has been substantially completed.

As referenced earlier recent new development as a consequence of Council's engineering requirements has generally aimed to cater for the 5 year frequency storm event by providing ground soakage and associated overflow/secondary drainage paths to either existing storm-water systems or where these are not available non- impacted areas e.g. public roadways, public reserve.

In addition and alternatively the Council, in the future can expect to be required to consider alternative practices in regard of stormwater disposal infrastructure such as swaling, rain gardens and other flood attenuation measures.

Other important factors requiring consideration include:

3.1 Asset Stewardship

That investment is required to upgrade stormwater collection and disposal systems in selected areas needs to be recognized as appropriate in current and forward capital works programmes.

The current capital works programme is scheduled to be completed by June 2010.

3.2 Environmental

Consents for the stormwater discharges expire in 2018.The purpose for which the consent was granted was to discharge contaminants contained in the stormwater to water. The consent was issued under delegated authority in 1995.

The consent in addition specifically required Council to undertake upgrading works on the Waihakeke Drain and authorised other stormwater reticulation improvements within the urban area. These improvements are referenced within the recommendations of the Catchment Management Plan (1992) and the subsequent 1995 Worley Consultants Assessment of Environmental Effects (AEE) which underpinned the consent application.

The Catchment Management Plan is appended to this plan as **Appendix 5**

Stormwater contamination removal or treatment does not form part of the infrastructure presently. Based on current practice this is anticipated to be a requirement when the consent is renewed.

3.3 Economic

Reliable effective and stormwater reticulation and disposal infrastructure supports successful economic activity by alleviating flooding risk to all serviced property.

Council acknowledges that the activity imposes some cost upon the ratepayers. However strategies and funding policies for asset maintenance and improvements continue to focus on cost minimisation and equitable allocation of costs to users.

3.4 Other

Asset management strategy and other relevant comments are referenced in **Appendix 1**

4 LEVELS OF SERVICE

A level of service is described as the quality of the service that Council intends to deliver and the performance measures that will be used to monitor this. The adopted levels of service will support Council strategic goals and are based on user expectations, statutory requirements and tailored to the scale and relative simplicity of Council's asset.

Levels of Service have been based on:

- User Consultation and Survey
- Strategic and Corporate Goals
- Statutory requirements and Environmental Standards
- Community Outcomes

The community outcomes as below where they apply drive the delivery goals and assist with the detailing of the activity performance measures which are contained in Appendix 2

4.1 Community Outcomes

A safe district
A district which promotes sustainable infrastructure and services
A district which values and protects its natural environment

These community outcomes assist with the detailing of the activity key performance indicators and technical performance measures (LOS) which are contained in **Appendix 2.**

The levels of service for the stormwater asset has been developed taking into account the following general considerations:

a) Community expectations and Council's response to customer feedback
b) Consent requirements
c) Sustainable health and environmental matters embodied in the community outcomes
d) Community affordability

5 ASSETS

Re-valuation of the infrastructural assets relevant to this activity was undertaken in July 2008.

Replacement cost is the cost of re-building the existing asset to an equivalent level of service. The assets have been depreciated on a straight line basis and provide a reasonable basis for the “return of capital” over the economic life of the asset.

The broad asset sub groupings and respective values are shown in the table below valuation is some 57% more since the previous assessment undertaken in 2005.

This has come about to the increase in the quantity of assets due to new construction arising from land development during the period.

Asset Category	Optimised Replacement Cost	Optimised Depreciated Replacement Cost	Annual Depreciation
Reticulation and hardware			
Open Drain			
TOTALS	**4,022,000**	**2,687,000**	**41,000**

Additional detail in regard to asset valuation and inventory is contained in **Appendix 3**

5.1 Asset Description, Condition and Performance

- Reticulation

The age of the piped reticulation ranges from some 40 years old to current and hence condition varies throughout the network. Condition issues has not been considered to be generally critical to asset performance as the asset at its oldest is not quite halfway through its life cycle given that concrete pipeline assets are considered to have an economic life of 100 years..

- Open Drains.

The open drain network generally pre-dated the piped systems. They are maintained regularly with an annual budget of $ ….. Required to maintain the required level of service.

- Manholes, Cesspits etc

The age of these asset ranges from 40 years to current. These assets are maintained on a cyclical basis and according to need i.e. reported blockages Cesspits associated with the roading network are maintained within the Land Transport programme and budgets.

- Operations and Maintenance

The O&M strategy aims to generally retain the current levels of service by implementing a balanced programme of planned and reactive maintenance works

- Asset Renewal Reticulation and Other

No renewal work is planned within the timeframe of this asset management plan

- Asset Development

Council cannot rule out capacity improvements that might be required as a consequence of infill residential development in the area of reticulation. Such matters will be assessed on a case by case basis within the framework of the combined District Plan

6 KEY ASSET MANAGEMENT PLAN ASSUMPTIONS

Assumptions in the preparation of the Stormwater water Asset Management Plan include:

- That stormwater assets will remain in Council ownership through out the planning period and that there will be an ongoing requirement for this activity

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- All new subdivision applications are assessed in accordance with the current District Plan and the New Zealand Standard NZS 4404:2004, “Land Development and Subdivision Engineering”. All stormwater disposal designs are checked and agreed to by Council’s engineers before construction commences and are inspected during construction, including witnessing of the relevant tests where necessary. The developer is expected to meet all costs of the works including the connection to Council’s existing network where this is permitted.

- The demand upon this activity is not expected to significantly increase over time.

- The operational requirements for this activity will remain at a similar level for the next ten years.

- Maintenance works will continue to be delivered by Council’s Operations department staff, while renewal, upgrade and new works will normally be completed by contractors selected by competitive tender or day work rates.

- Funding will be required to provide this activity as described elsewhere in this Asset Management Plan **(Appendix 4).** That funding of maintenance and renewal works will be by annual rates charges, while funding for all capital works will be from depreciation funds, loans and development contributions as appropriate.

- The dollar values shown in this Plan are as at 1 July 2008 dollars. It is assumed that each year following 2008 the dollar amounts for expenditure will be adjusted for, at least, the rate of inflation applicable to this activity.

- Financial and future work forecasts are based on the currently available knowledge of asset condition and performance, to the levels of service that have been undertaken to be delivered. There are no renewals programmed within the planning period

7 IMPROVEMENTS TO ASSET MANAGEMENT PLANNING

The following are seen as priority actions to achieve improved future asset management planning:

- Improved data collection and recording processes for new and existing infrastructure for incorporation into Council's GIS data base
- Strengthening of performance monitoring and risk assessment processes relevant to asset criticality to identify and prioritise future renewal programme needs
- Level of Service review via stakeholder consultation to be undertaken regularly to best understand customer need and expectation
- Self Review on a regular basis the operation and maintenance activities to ensure services are delivered in a reliable and cost effective manner
- Prioritisation of renewal works based on age, condition and repair occurrence

8 FINANCIAL PROJECTIONS AND TRENDS

8.1 Financial Forecast

Appendix 4 contains information in tabular form which sets out the anticipated operations, renewals and capital expenditure for the 10 year period of the LTCCP once adopted in 2009. In addition source funding is identified for these activities.

8.2 Trends

Of significance in the 10 year forecast is:

- The front end capital requirement only to provided capital infrastructure over years 1, and 2, beyond which capital funding levels are not identified.
- That maintenance activity expenditure is expected to increase annually in line with asset growth and inflation
- The levels of funded depreciation due to an increase in asset value and increase in asset acquisition will not have a negative effect on funding ability over the next three years. An additional allowance for funded depreciation can be anticipated in 2011 when the asset base will be revalued

9 APPENDICES

1. Strategic Future Demand drivers and population trends/ projection indicators. Risk Identification and Management.

2. Detailed Levels of Service, Community Outcomes and resident satisfaction survey summaries

3. Asset Description, Planned Improvements, Valuation and Inventory Information

4. Expenditure Analysis and Funding Model

5. Carterton District Council Catchment Management Plan

9.1 Appendix 1

9.1.1 Strategic Environment

This section sets out the framework from which stormwater disposal assets are managed in terms of:

- Council's Vision
- Statutory Requirements
- Asset Management Plan Strategy
- Future Demand Drivers
- Risk Issues

9.1.2 Council's Vision

Council's vision for the future is stated as "A safe attractive and vibrant community providing and encouraging a healthy and sustainable environment."

9.1.3 Strategic and Corporate Goals

The Local Government Act 2002 requires local authorities to identify *Community Outcomes* for their districts. For Carterton these outcomes are images of the type of community people want to live in over the next 10 to 15 years. The whole community has ownership of these outcomes which were developed through a consultation process

The community outcomes that are supported by the stormwater activity are as follows:

Community Outcome	Contribution
A safe District	Infrastructure capable of reducing the impacts of flooding to people and property
A district which promotes sustainable infrastructure and services	Manage development to ensure appropriate provision of asset.
A District which values and protects its natural environment	Functional stormwater infrastructure capable of meeting consent requirements

9.1.4 Statutory Requirements and Other

Key legislation relating to the management of water supply assets is listed below:

- *Local Government Act 2002*. This act defines the purpose of local authorities as enabling local decision making by and ion behalf of the community and allows local authorities the power of general competence. To assist exercising this power of general competence, the Act requires that significant consultation takes place with the community including:

  - Council must every six years carry out a process to identify community outcomes for its district

  - Council is required to consult with the community on a range of specific issues including changes to service delivery and transfer to or from Councils assets
  - Arising from the above Council must prepare an Asset Management policy that is likely to outline how the asset management implications of changes to levels of service and standards are to be assessed and managed

- *Resource Management Act 1991* requires Council to:

  - Sustain the potential of natural and physical resources to meet the reasonable foreseeable needs of the next generation
  - Comply with the Combined District and Regional Plans
  - To avoid , remedy or mitigate any adverse effect on the environment
  - Comply with resource consents issued by Greater Wellington Regional Council.
  - Take into account the principles of the Treaty of Waitangi in exercising functions and powers under the act relating to the use, development and protection of natural and physical resources

- *Health and Safety in Employment Act 1992*

- *Construction Contracts Act 2002*

- *The Local Government Official Information and Meetings Act 1987*

Locally adopted documents and reports produced for Council include:

- The 1992 Stormwater Management Plan, Worley Consultants
- Consent Applications and AEE ,Stormwater Upgrading proposals, Worley Consultants 1995
- Resource Consent No: 950011(02) "To discharge contaminants contained in stormwater to water" operative ay 1996
- Waikakariki Stream Diversion Good Earth Matters Consultants 2000
- GWRC " Stormwater Action Plan" 2007

These reports and policy statements have provided the general direction to Council in respect of stormwater management.

9.1.5 Asset Management Strategy

Asset Management policy and strategy provide a framework for guiding and integrating asset management practice within the Council consistent with Councils vision and community outcomes and capable of meeting the adopted levels of service.

Asset Management Policy intentions are as follows:

- The discipline of the AM plan will be directed to the achievement of Council's Community Outcomes and strategic goals as stated in the Long Term Council Community Plan
- Applicable legislation, regulatory and statutory requirements will be complied with
- The outputs of the Asset Management Plan process will be communicated to all relevant employees, third parties to ensure that they are aware of their asset management responsibilities. It will also be available to all other stake holders
- The Asset Management Plan will be reviewed regularly to ensure it remains relevant and consistent with Council's LTCCP

To deliver Asset Management Policy and Objectives, the input elements are as follows:

- Levels of Service. Three yearly reviews of Levels of Service following community engagement seeking satisfaction levels and desired improvements. The level of service review will define the levels of service adopted by Council
- Demand Forecasting and Planning. To invest in capacity enhancement works in a timely manner based on actual and predicted changes to catchment characteristics
- Risk Management (RM). Manage exposure to risk and implement measures where exposure is in-compatible with Councils risk profile
- Operational. Ongoing self review of operations management methodology to ensure activity performance measures achieve alignment from the operational level to the LTCCP
- Track achievement of service targets for reporting purposes

The asset management plan will remain as a "living" document, subject to regular review, ensuring alignment with current Council and organizational policy. This plan will be adopted by Council before inclusion into Councils LTCCP

9.1.6 Future Demand Drivers

These are driven by:

- Growth
- Legislative Change
- Long term climate change

9.1.7 Growth Trends.

Areas available for uptake of residential development within the urban area (In terms of the Proposed Combined District Plan rules) can potentially provide in the range some 870 to 1600 serviceable parcels (et al Boffa Miskell 2007).

The extent of future development will depend on the outcome of certain statutory structure planning processes currently under way and associated confirmation of minimum lot sizes.

Growth forecasts generally are based on the following trends and assumptions:

- Population Growth. medium growth scenarios produced by Statistics NZ
- Household growth

Area Population projections for low, medium and high growth are appended and based upon the recommended "medium series" analysis, projections indicate negative growth from 2011 through to 2031 of some 10% over the period commencing from 2011.

Refer to the Population Projection table contained in the Water Supply Asset Management Plan

However the Carterton community has been noted in recent times for an increase in rateable assessments with little change in census night population and any increase in property numbers over time and as the properties are developed will result in additional stormwater runoff imposing additional load on existing stormwater disposal systems.

9.1.8 Legislative Change

Legislative Change can significantly affect Council's ability to meet minimum levels of service with changes likely to require improvements to infrastructure. This is not forecasted to occur in the short/ medium term

9.1.9 Long Term Climate Change

Climate Change predictions contemplate increases in weather extremes in the future. Increases in the frequency and extent of high intensity rainfall events may result in additional inundation due to flooding.

Existing stormwater systems may not cater adequately for these events. Given these predictions, consideration may need to be given to additional or alternative disposal/ retention systems capable of delivering the required levels of service to the community. The Council will consider adopting a policy position in regard to climate change and its impacts during the currency of this plan.

9.1.10 Risk Issues

Risk Management processes aim to be generally consistent with the intentions of AS/NZS 4360: 2004 “Risk Management” Standard however of a scale appropriate to the asset.

In the context of this, Carterton’s risk management criteria are:

- The fulfilment of legal and statutory obligations
- Identification of Critical Assets where this is appropriate (in Council’s case all assets for this activity are equally critical to the function of each other)
- The safeguarding of public and employee’s Health and Safety requirements
- 3rd Party Property Damage &Losses
- Loss of Service-Extent and Duration, impacts of natural disasters
- Contingency Planning for foreseeable emergency situations

Hence to the scale of Carterton’s activity, probability, impact and management of risk is tabulated as follows:

Risk Type	Typical Events	Risk Probability	Impact	How Managed
Legal and Statutory	Consent breach Environmental Damage	Moderate Low	Med Med	Regular monitoring and reporting
Health and Safety	Injury to employee or member of the public	Low	Med	Maintain an operative H&S policy. Notification of incident(s)to relevant authorities
3rd Party Property Damage Liability	Inundation, damage from blocked pipelines and drains	Low	Med	Routine recovery and remedial procedures and insurance cover
Service Delivery Failure	Service Restoration, failure to meet KPI’s Asset condition failure	Moderate Low	Low/Med Low	Manage by routine procedures Active renewal Programme based on acquired

	Unforeseen natural disaster resulting in loss of infrastructure	Low	High	knowledge Regional Civil Defence and in house emergency management plans
Financial	Un-planned loss or cost to reinstate infrastructure	Low	High	Adequate Disaster Insurance in place

9.1.11 Current Design Standards

Current design standards for new stormwater infrastructure are contained within NZS 4404: 2005 Part 4 Stormwater Drainage and related documents viz Clause E1 of the New Zealand Building Code. Design calculations shall take account of the required level of protection and relevant HIRDs (High Intensity Rainfall Data) information when undertaking runoff assessments prior to sizing infrastructure.

Some allowance should be made for the effects of climate change and in terms of the current practice for this eventuality.

9.1.12 Flood Hazard Areas

The Combined District Planning Maps indicate Flood Hazard zones mainly in the rural areas with some indicative minor overlap into the north western portions of Carterton. These where identified in addition to local knowledge assist with engineering decisions and building consent requirements.

9.2 Appendix 2

9.2.1 Levels of Service

This section defines the Levels of Service or the qualities of the service that Council intends to deliver and the measures to monitor this. The levels of service provided by the asset support Councils' community outcomes and are based on user expectations and goals

The adopted levels of service also reflect the level of funding that has been required to maintain the stormwater infrastructure.

9.2.2 Introduction

Levels of Service for this activity were adopted by Council in November 2008 and are based upon:

- Community Outcomes and the four well beings i.e. Social, Environmental, Economic and Cultural
- User Consultation and Survey
- Statutory requirements and Environmental Standards

9.2.3 User Consultation and Survey

In June 2008 Council commissioned a NRB Communitrak Survey seeking public opinion in respect of the services offered to the community.

In the stormwater services category, some 61% of those polled were satisfied with the system, whilst 30% are not very satisfied. This might suggest that the agreed levels of service are not being met.

The reasons given for non satisfaction are:

- System is overloaded/doesn't cope/needs upgrading
- Flooding and ponding occurs
- Drains Blocked / need better cleaning

In response to the survey feedback the levels of service in this section have taken account of these concerns by adopting the relevant and achievable performance measures noting that the survey was conducted during the month of June 2008 Customer Complaints in respect of received during 2008 do NOT support the findings of the survey as only one service request complaint was received during the whole of 2008 in respect of surface flooding within the urban area.

9.2.4 Target Levels of Service

a. Community Outcomes

Council's relevant community outcomes to the activity are tabulated as below and were identified earlier in Section 2 "The Activity" of the plan. These outcomes drive the delivery goals and subsequent detailed levels of service and performance measures.

Community Outcome	Contribution
1. A safe District	Infrastructure capable of reducing the impacts of flooding to people and property
5 A District which promotes sustainable infrastructure and services	A network(piped and open channel) that can cater for a 5 year return period rainfall event with available flow paths for more intense flood events
6 A District which values and protects its natural environment	A network which is appropriate to community needs and mitigates any negative impacts of stormwater discharge to natural watercourses. Full compliance with resource consents

The water activity delivery goals in the following table link to the prescribed community outcomes as shown below. These are measures of the overall activity covering the aspects of service that are of most interest to the community and community survey satisfaction indicators at a level appropriate enabling external survey and internal feed back for reporting purposes.

No	Delivery Goals	Community Outcomes
1.	Cost effective District wide stormwater services.	5
2.	Effective and efficient urban stormwater systems	1,5,6
3.	Sustainable stormwater services with a programmed flexibility to cater for change and growth.	1,5,6

b. Detailed Target Levels of Service(LOS)

These detailed target levels of service and performance measures are enumerated as below and when achieved contribute to the successful delivery of the higher level outcomes. They remain current for the term of the LTCCP however are subject to review every three years to reflect as required any changes to service levels.

These technical performance measures require a strong operational focus for successful achievement.

1.	Potential Service Area	LOS Description	Measuring System	Performance Measures	Linkage to Community Outcomes
(i)	Operational efficiency	Final capex and opex is within approved budgets and on time for programmed works.	Regular financial and programme reporting to Council	Annual Report	5
(ii)	Operational Efficiency	Review maintenance standards and priorities three yearly in association with AMP updates.	Operational Records	Internal Assessment	5
2.	**Potential Service Area**	**LOS Description**	**Measuring System**	**Performance Measures**	
(i)	Responsiveness	90% compliance with clearing reticulation blockages within 4 hours during storm events	Internal Assessment	Operational Records	1,6
(ii)	Timeliness	100% compliance with completion of programmed capital/renewal works. 95% compliance with agreed Maintenance response times.	.Internal Assessment	Operational Records	5,6
(iii)	Acceptance	79% residents' satisfaction level achieved for District Stormwater Services (Peer Group National Average)	No. of customer survey complaints.	Annual Report	1,

	Potential Service Area	LOS Description	Measuring System	Performance Measures	Linkage to Community Outcomes
(i)	Effective Management of all relevant consents	100% compliance with discharge requirements	No unresolved non-compliance issues.	Annual Report	5,6
(ii)	Funding for New Development due to growth	Ensure equitable implementation of the Infrastructure Contribution(DC) Policy	Proposed Wairarapa Combined District Plan and Council Policies	Consent record	5

9.3 Appendix 3

This section presents a summary of asset information, general condition, performance valuation and inventory information.

9.3.1 Asset Overview and Attributes

The stormwater asset consists of pipe reticulation and open drains. The urban area is partly serviced by this asset and in particular more recent subdivisions where infrastructure has been provided.

To be noted is the requirement that new development provides primary systems for stormwater disposal on site within the development. This requirement will over time result in more ground soakage infrastructure being acquired by Council

There is 10.6 kilometres of piped stormwater reticulation in the urban area ranging in size from 150mm to 1200mm. Pipe types are reinforced concrete and uPVC.

Asset Pipeline Inventory extracts are tabled below:

Description	Size	Length	Construction Date	Age
Concrete	1200	520	1970	38
Concrete	1200	33	2007	1
Concrete	1000	5	1999	9
Concrete	1050	104	1970	38
Concrete	900	232	1970	38
Concrete	900	17	1999	9
Concrete	825	552	1970	38
Concrete	750	340	1970	38
Concrete	600	840	1970	38
Concrete	530	36.5	1999	9
Concrete	525	212	1970	38
Concrete	525	135	1999	9
Concrete	525	67	2007	1
Concrete	450	1230	1970	38
Concrete	450	46	2007	1
Concrete	380	416	1970	38
Concrete	375	120	1970	38
Concrete	375	24	2006	2
Concrete	375	310	2007	1
Concrete	375	22	2007	1

Concrete	350	368	1970	38
Concrete	300	3083	1970	38
Concrete	300	63.5	1999	9
Concrete	300	166	2007	1
Concrete	300	115	2007	1
Concrete	230	504	1970	38
Concrete	225	168	1970	38
Concrete	225	100	2003	5
PVC	550	30	1999	9
PVC	450	147	1999	9
PVC	300	113	1992	16
PVC	250	236	1992	16
PVC	160	105	2007	1
PVC	150	28.5	1999	9
PVC	135	21	1999	9
PVC	375	100	2006	2

There is approximately 6.5 km of open drain in the urban area and some 20 km in the rural area; the rural component to some extent has a dual role being part of the water race network as well.

The rural component is not included in the asset register.

a) Asset Performance and Capacity

The asset as it exists is adequate to cater most rainfall events. When localised flooding due to system overload occurs it is generally of short term duration with only minimal impact to the urban community as evidenced by the minimal number of service requests/complaints received in relation to this activity.

b) Asset Condition

The asset register records indicate the oldest pipeline to be some 40 years old. The condition of such is reflected by age but generally the asset is in average condition overall.

Open channel condition is a measure of the maintenance effort that is applied. In all cases open channels are maintained on at least an annual basis or according to need.

c) Planned Improvements and Initiatives

For the current year and following year it is planned to:

Continue and complete the East side upgrading works in the vicinity of Park/ Richmond/Waihakeke Roads. This work focuses on culvert replacement across road reserve in various locations with additional capacity benefit to accrue to the stormwater asset in eastern portions of the urban area. This work has been ongoing

over a period and is a special requirement of the operative GWRC consent. The balance work required to complete is estimated to cost $135,000

Provide additional open channel capacity at the Clareville cemetery. This work is estimated to cost $31,000

Upgrade cross-over culverts, Frederick Street. This work is estimated to cost $20,000

To finalise land access arrangements for the proposed Waikakariki Stream Diversion. The current LTCCP forecasts expenditure of some $75,000 in the 09/10 year

To develop a capital works up grading plan within the urban area aimed at completing the balance of the recommended work contained within of the Carterton District Council Stormwater Management Plan (October 1992)

Detailed Asset Inventory ,Revaluation and Depreciation Information

This data is separately available in electronic form

9.4 Appendix 4

Expenditure and Funding Models

The attached tables and charts summarise the forecasted expenditure and funding costs relevant to the activity provisions of the proposed LTCCP