

Stormwater

Activity Management Plan 2006

Stratford District Council

Appendix P of LTCCP

Stormwater Activity Management Plan

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1. Introduction

1.1 Background

Under the Local Government Act 1974 (2002 update) the purpose of local government is:

“To enable local decision making by and on behalf of citizens in their local communities to promote their social, economic, cultural and environmental well-being in the present and for the future.”

Where appropriate the Stratford District Council provides and manages a stormwater system under the provisions of:

- The Local Government Act 1974 and 2002.
- The Health Act 1956.
- The Building Act 1991.
- The Land Drainage Act 1908.
- Council Bylaws.

It provides this service to meet the community outcomes of:

- A built environment that is attractive, safe and healthy.
- Affordable high quality core service facilities.
- Sustainable development.

In undertaking its stormwater activity, Stratford District Council (here within ‘Council’) is seeking to meet the requirements for the sustainable provision and adequate management of urban stormwater systems that meets the needs of current and future communities and supports the desired Community Outcomes from the LTCCP. Rural stormwater and drainage is under the control of the Taranaki Regional Council.

The purpose of this plan is to provide for the long term management of Councils stormwater system. It considers Council’s stormwater strategy for the future, examines current practices and enables the community to be more informed about district stormwater issues.

The stormwater activity encompasses the management, maintenance and provision of catchment and drainage systems, and all associated infrastructure in the Stratford and Midhirst urban areas but excludes all culverts and sumps associated with roads within the road reserve boundaries.

1.2 LTCCP Community Outcomes

In preparing the first LTCCP Council has used both current and new information concerning community outcomes. To arrive at the Regional outcomes research was undertaken in conjunction with our two neighbouring Local Authorities, New Plymouth District Council and South Taranaki District Council and the Regional Authority, Taranaki Regional Council. The four Councils appointed AC Nielsen Ltd to identify community desired outcomes for the regional community; those desired outcomes that will add to or sustain the community’s well-being.

The community was actively engaged in the process to identify what they considered important and which five outcomes they thought required most attention over the next five years. While the primary focus was on outcomes common to the regional community each district was required to identify any local preferences.

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The Stratford community were also directly consulted on key outcomes for the district and these have formed the basis for Councils LTCCP.

The Stratford community outcomes to which Stormwater primarily contributes are addressed in Volume One, Chapter "Levels of Service/Performance Measures" of the LTCCP.

1.3 Stormwater Goal and Principal Objectives

The Stormwater activity goal is:

"To provide for the effective and efficient drainage of stormwater for all connected systems within the Stratford and Midhirst urban areas."

and the principal objectives are:

- (a) To plan for the future maintenance and provision of the stormwater system in perpetuity, and to anticipate growth and demand trends that may effect this level of investment;
- (b) To maintain management systems that monitor and assess the performance and compliance of various stormwater systems;
- (c) To minimise damage to property and inconvenience to residents during flood events; and
- (d) To provide for informed community consultation.

2. Levels of Service and Detailed Activities

The levels of service and performance measures are discussed in Volume One of the LTCCP under the chapter "Levels Of Service/Performance Measures".

2.1 System Performance

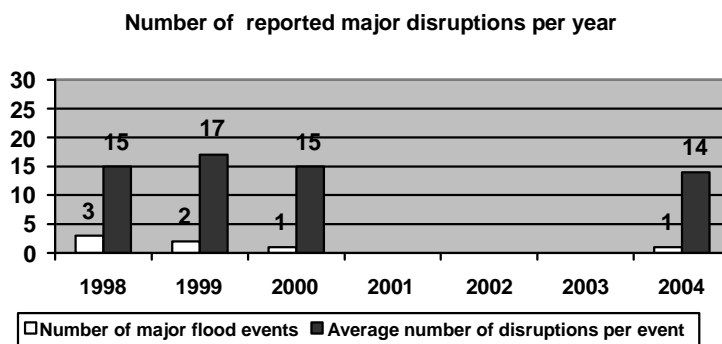
The performance standard for all new installations (capital and renewal) is a stormwater system with sufficient capacity for a "1 in 20 Year" return period. This will be incrementally achieved over the next 7 to 10 years. This measure should be annually reviewed according to the renewal and capital programme.

2.2 Health and Safety Issues

If stormwater is not effectively removed it could lead to health and safety issues. These can be due to the depth of water creating a hazard and specific health issues of sewage contamination.

2.3 Reliability

A measure of the number of times per year major flood events occur which result in disruptions such as damage to property, safety hazards due to ponding, road closures and/or sewerage contamination. Flood events are caused by heavy rainfall over a short period of time and disruptions are through faults which may include undersized pipes, blockages in the system and catchment overflows.



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2.4 Responsiveness

The time taken to respond to flooding stormwater issues is important for protection of property and personal safety. The contract for stormwater services (FMC) determines a set response time and actions to be taken for problems as shown below. These are measured through contract reporting and monitoring.

Event	Attend and Make Safe Time limit	Obstruction Removal Time limit
Blockage – inconvenience	1 hr	8 days
Blockage- significant inconvenience	1 hr	3 days
Blockage- risk to property or life	1 hr	12 hrs

2.5 Renewal and Capital Projects

Every Annual Plan lists renewal and capital works items that are targeted to be completed as part of the annual stormwater activity. This item measures the percentage completion of these projects so the community can see the result of its investment in identified works the stormwater area.

However due to the unpredictable nature of the stormwater system some of these planned works may be deferred and the funding directed to more urgent works. It is assumed due to the reactive nature of some of the works that carry-overs will occur from time to time.

3. The Existing Situation Described

3.1 The Stormwater System

The stormwater system presently owned and managed by the Stratford District Council is located in the Stratford and Midhirst urban area. Toko and other rural areas of the district are serviced by private systems or systems administered by the Taranaki Regional Council (TRC) or Horizons MW (Manawatu/Wanganui Regional Council).

There are approximately 20 kms of waterways within the Stratford urban area that Council administers. Within this system Council maintains approximately 6 kms of tunnels, and 14 kms open drains, natural watercourses and pipes (ranging from 1500 mm to 200 mm in diameter) in both public and private property.

The system includes any stormwater asset that Council has installed or designed (under certain criteria) whether on public or private land. The system administered within this activity does not include provision for roading culverts, sumps or associated reticulation but accounts for the stormwater management after roading stormwater enters the main system.

The general age of the asset is 80 Years. Renewals and capital replacements have been undertaken with in the last 10 Years.

The system generally copes with average to moderate rainfall event requirements however during high rainfall events there are some areas that are prone to flooding. These are identified in Appendix 2.

Council is progressively upgrading the existing pipes in these areas. However the outcome of removing a restriction or upgrading a section in one area may result in exacerbating a weakness further downstream. The current funding only permits treating isolated problems not the whole system. However the current level of service appears to be acceptable by the majority of ratepayers.

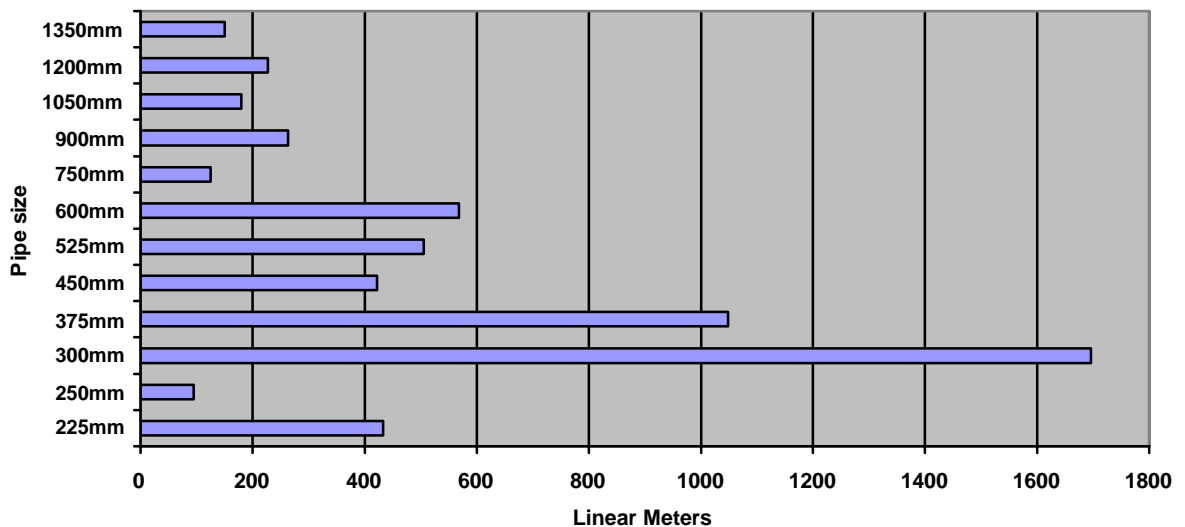
The District is framed by Mt Taranaki/Egmont on its eastern boundary and steep hill country leading to the Wanganui River on its eastern boundary. Its topography is volcanic radiating from the mountain resulting in an average 7% gradient across the district. It has predominantly free draining volcanic ash soils and numerous water courses which rapidly drain the high levels of rainfall the district is renowned for.

3.2 System Description

The summary of Councils Stormwater assets (as at 30 June 2004) is summarised in table below. (Note: 1 July 2003 valuation summary (Telfer Young Ltd)).

Item	Size (dia-mm)	Quantity (meters)	Age (yrs)	Expected Life (yrs)	Replacement Value	Depreciated Value
Pipes	1350-1499	150	60	80	\$155,250	\$42,694
	1200-1349	227	5-60	80	\$142,878	\$94,400
	1050-1199	180	60	80	\$124,054	\$71,503
	900-1049	263	5-60	80	\$188,768	\$52,224
	750-899	125	60	80	\$48,516	\$13,342
	600-749	568	2-60	80	\$184,939	\$59,758
	525-599	505	60	80	\$117,863	\$32,769
	450-524	422	2-60	80	\$146,205	\$74,497
	375-449	1048	2-60	50-80	\$154,402	\$87,511
	300-374	1696	2-60	80	\$540,751	\$124,618
	250-299	95	9	80	\$27,110	\$24,729
	225-249	433	0-60	80	\$65,058	\$40,639
Sub-total					\$1,895,784	\$718,682
Manholes	1050-1200	165	2-60	80	\$331,397	\$84,007
Sumps	Varies	302	7-60	80	\$265,760	\$78,056
Open Channel	Varies	295	60	80	\$6,107	\$1,679
Tunnels	Varies	825	60	80	\$704,447	\$193,723
Totals					\$1,307,710	\$357,465

Stormwater Pipe Asset



3.3 Issues

(a) **System Level of Service**

Council has adopted a '1 in 20 Year' return period design standard for its stormwater system. This is based on the national guidelines under the Land Development and Subdivision Engineering Standards NZS 4044:2004.

This rating means that the capacity of stormwater pipe system is aimed to manage storm rainfall volumes that statistically return once in every twenty years. Sections of the existing pipe system do not comply with the standard and will be incrementally upgraded as funding permits.

In the future Council may choose to adopt a the 'Annual Exceedence Probability' (AEP) as a better measure than Return Period as it avoids the "we had a 20 year storm last year so why did we get another this year?" question. With AEP the measure is the probability expressed as a percentage of having a storm of that intensity (or greater) in any one year.

(i) *System Model*

As part of a strategy to reach the "1 in 20 Year return period", Council is developing a desired model of the stormwater system that will achieve this desired standard. Until the model is developed no accurate predictions can be made on the required renewal or capital programme to reach the desired level of service.

The model will be developed over the next few years following the full capture of existing asset condition and structural information. It should be completed and ready for implementation by 2009/10.

(b) **Asset Information and Database**

Council has detailed information on just over 50% of its asset. The priority is to capture the rest of the information by 2007.

Part of this process is undertaking a specific catchment design analysis for each catchment. When it has completed the total system model to achieve the '1 in 20 Year' standard, it will be able to determine the required renewal and capital upgrade programme.

Council has adopted the "Biz-e-asset" asset management database system. All the Stormwater asset information will be entered and reporting structures set as the information is identified. In the future this will enable greater ease in reporting, analysis and management of asset information.

(c) **Flooding Events**

Stratford has the fortune of sitting on the volcanic ring plain of Mt Taranaki/Egmont. As a result it has a 7% grading across its urban area. The combination of the slope and well draining volcanic ash provides a well draining natural system.

Flooding events are therefore short lived but can result in water entering properties and closing some roads. Generally any damage from flood waters is of a minor nature and it rapidly disappears when the rain stops.

Flooding generally only results from large downpours over short period of time and although the current stormwater system struggles to cope with these events they are manageable as a result of the natural free draining nature of the area.

(d) **Climate Change**

Nationally and internationally climate change is affecting the level of rainfall throughout the world. Stratford has recorded over the last 20 Years, more frequent heavier downpours over short time periods.

It is predicted that in the future the ‘1 in 20 Year’ return period standard for stormwater systems will not be sufficient to cope with changing weather patterns.

However this standard will be kept and reviewed over time and it is assumed that due to the nature of Stratford (see 3.3(c)) the situation will have to get substantially worse to cause any significant effect to the district.

(e) **Secondary Stormwater Paths**

Council does not have formally identified secondary stormwater paths but it does base its stormwater management on local knowledge and historical events. This information is included in LIM’s (land Information Memorandum) reports.

In light of the future climate predictions and the development of a model for the stormwater system, further investigation will be undertaken to formally identify the paths, which will highlight the existing capacity and determine the needs for alternative paths.

(f) **Desired Population Increase**

The desire by Council to increase the population of the district is outlined further in Section 5. Unless the population more than doubles there should not be any significant effect on the existing stormwater system. However this would be dependant on where the added population would locate.

(g) **Environment Issues - Riparian Management**

The natural water quality of the streams is an issue due to run-off and stock contamination from the agricultural industry. No major concerns have been expressed regarding stormwater quality however this could be likely in the future.

TRC are leading a riparian management programme supported by the farming industry, NZ Fish and Game, the Department of Conservation and Council that will provide for future generations and “clean up” the current potential for contamination.

There may be future issues with natural stormwater drains/channels to be treated under the riparian management programme.

(h) **Public Knowledge of Ownership of System**

This continues to be a factor of confusion and tension with the community. Under law Council accepts liability for any stormwater drain that has been installed to its standards and under its supervision. All other stormwater drainage on private property is required to be maintained by the land owner. However Council does monitor these drains and offers advice and compliance requests for their management.

Council needs to provide the community with a clear understanding of liability regarding these issues to enable it to focus on key areas of its responsibility and make progress in improving the over-all system.

(i) *Storage Ponding Areas*

Of the eight stormwater ponds in the Stratford urban area, Council owns one (Victoria Lake), and the remaining are privately owned. They generally consist of small lakes or ponding areas on private property that act as holding and drainage areas for stormwater. Their value is in helping store large volumes of stormwater and releasing it gradually into the system.

Council is aware of its vulnerability if these private ponds were to disappear and along with the secondary stormwater paths issue is investigating strategies to address the current situation.

(j) **Drainage Act 1908**

It is likely that this Act will be reviewed some time in the near future. No major impacts are expected in terms of current practise however there could be impacts in terms of private/Council ownership issues of the asset. Council will address these issues if and when they arrive.

3.4 Financial Summary

(a) **The Current 10 Year Budget Projections**

The current 10 year budget projections are detailed in the financial sections of the LTCCP. Costs have been relatively flat lined due to a steady maintenance, renewal and capital programme incrementally aimed at maintaining and slowly improving the system, within the funding capabilities of the community.

4. Maintenance and Operating

4.1 Ownership

Council intends to continue to own, control and manage its stormwater system and associated infrastructure in the district.

J & L Taranaki Ltd has the current Stormwater Management contract until 30 June 2006, with a further period of three years until 30 June 2009 provided certain conditions are complied with. This contract is managed by the Services Operations Management unit of Council.

Design and development components are contracted out to specialists on an as needed basis.

4.2 Estimated Costs over next 10 Years

The estimated cost of operations and maintenance (including depreciation and other overheads), for the next ten years are shown in the financial sections of the LTCCP. Apart from inflation there is little increase in the overall costs.

4.3 Maintenance and Operating Issues

(a) **Contract Management**

The maintenance contract is operating satisfactorily but Council acknowledges the requirement to improve its monitoring and reporting of activities undertaken by the contractor.

The current system could be improved with more streamline analysis that will enable an improved level of monitoring and reporting on contractor and asset performance.

(b) **System Disruptions**

As the table in 2.3 illustrates there are a number of system disruptions experienced annually. They result from short high intensity rainfall events and any flooding generally clears within a 2-12 hour period.

As the drainage from areas are prone to repeated flooding are improved, the impacts on operation demands will be reduced.

4.4 Emergency Management

District wide emergency management is centrally coordinated by the Taranaki Regional Council. Stratford District Council has emergency response agreement under its facilities contract that addresses minor emergency responses as well as other stormwater flooding issues.

5. Future Demand

5.1 Future Demand Predictions

There are no significant issues of demand relating to the Stratford system.

As the system is upgraded to the '1in 20 Year' return period standard its performance will increase and the incidents and severity of flooding will be reduced. The existing system is not being compromised by the current rate of subdivision and commercial growth.

Any new areas that are developed will be required to meet the design specifications for the '1in 20 Year' return period standard.

(a) **Population**

Population growth in the district and demand on the stormwater system has remained reasonably consistent over the last 30 years. Statistics NZ predicts slight declines over the next decade and there are no indicators that signal any change in these trends for the future.

Stratford District Council has targeted the districts population to grow to 12,000. This desire is reflective of the outcomes from the LTCCP. There is no defining timeframe for this and no provision has been made for this possible growth. If a population increase is to occur it is anticipated that it will be a progressive trend happening over a number of years. When designing stormwater systems consideration is given to possible development in the upstream catchments. However Council will monitor any areas of growth and if these are outside predicted areas make appropriate changes and/or require the subdivider to make a contribution to flood mitigating measures. No provisions have been made for population impacts on stormwater in budget forecasts.

Any major increase in residential development in the western side of the urban area could have an impact on the existing system depending on which catchment it discharges into. However at present there is no indication that this development is likely to happen.

6. Capital Expenditure

6.1 Historic Capital Expenditure

In general capital works have been minimal over the last decade targeted in a reactive manner to specific problems issues. The next ten years is programmed for specific problems with the capital amount being the improved proportion of the renewal programme. Future Capital is generally funded directly from rates and on occasion loans or reserves.

6.2 Future Capital Works Programme

Council's current strategy is to raise the service levels of problems areas in its stormwater system. Much of this is known and planned however there is a level of reactionary works undertaken relating to the unknown condition and specific structural information of some sections of the asset.

The capital and renewal programmes are managed together to incrementally improve the service levels of the system. The renewal programme funds the replacement works value ie. replacing a pipe with a pipe of the same size, and as necessary, the capital programme funds the improvement value due to the increase in pipe sizes to achieve the 1 in 20 year return period.

The end target level of service is '1 in 20 Year' return period standard (see 3.3(a)) which is currently being achieved on any renewal and capital works.

Council aims to reach the "1 in 20 Year" target within the next 7 to 10 years. The first priority is to raise the standard of existing stormwater problem areas. This along with the renewal programme is prioritised according to the assessment process outlined in 7.4 and Appendix 4.

The problems areas are those with regular flooding instances. The repairs, renewals and/or capital works relate predominantly to pipe failures and also include inlet structures, manholes and some tunnel works.

Once all the current problems are addressed and the full condition of the asset is known, then an accurately planned capital and renewal programme will be determined to enable the '1 in 20 Year' return period standard.

The current list of outstanding works is shown in Appendix 2. The order in which these works are completed can vary from year to year depending on flooding events that occur and how they rank when the prioritisation assessment process in Appendix 4 is applied.

At present the level of capital works funding is \$39,000 per annum and is funded from rates.

7. Renewals and Depreciation

7.1 Future Renewals Needs

Over the next few years the renewal programme focuses on addressing problem areas of the system and is managed together with the capital works programme. The aim is to lift the performance of the majority of the system to a '1 in 20 Year' return period standard.

The problems areas are those with regular flooding instances. The renewals and/or capital works relate predominantly to pipe and tunnel failures and also includes the construction of inlet structures to prevent debris entering the system and causing blockages.

In most problem areas full renewal and improvement works are carried out and these are to the '1 in 20 Year' return period standard.

Details of renewal funding are contained in the financial sections of the LTCCP. At present the level of renewal funding is \$27,400 per annum.

Renewals are funded under annual depreciation provision as a transfer from reserves. Any depreciation balance each year will be used to repay the debt thereby reduce the annual loans' servicing requirements, as well as increasing the depreciation fund for future works. Conversely, when renewals costs exceed the amount of depreciation funds available, loan funding may be used.

7.2 Issues

(a) **Renewal Estimates**

The estimated cost of renewal works has been based on historic figures and do not accurately represent the inflationary increases of the actual true cost of the renewals. To date this has been managed by sufficient depreciation reserves. These figures are updated for inflation in the LTCCP.

(b) **Tunnels**

The age of the hand hewn tunnels in the system is between 70 and 90 Years and some are deteriorating and require progressive replacement with pipes.

It is expected that within 20 years some tunnels subject to heavy traffic loading will need replacing. These tunnels are inspected on a regular basis and any deterioration monitored. One disadvantage with tunnels is that they have a variation in cross section, are not straight and therefore can become blocked with debris and are difficult to clear.

7.3 Relationship Between Renewals Needs and the Ability of Depreciation to Fund

Council has to manage an unknown level of renewal demands and a low capacity to fund depreciation. This situation exists due to the incremental process of trying to depreciate the pipe asset 60 Years into their life with some parts of the system due for renewal works, whilst trying to minimise the effect on rates.

The unknown factor is the asset information and condition of some 50% of the system yet to be assessed.

7.4 Renewal Assessment Process (see Appendix 4)

This process helps determine the priorities for the capital and renewal programme according to the probability and level of outcomes of flooding events.

It has been in use a number of years and has driven both the annual programme and helps assess newly occurring problems that have required reactionary treatment.

Accordingly a ten year programme has been produced that outlines location and action required (see Appendix 2). This programme may vary depending on flooding events that occur during this period.

7.5 Future Depreciation Allocation

Depreciation is currently flat-lined and based on the valuation of the asset. The review of renewal costs (7.2(a)) should not have any significant impact on current projections.

Stormwater depreciation is rate funded through general rate.

8. Funding

8.1 10 Year Financial Plan

The 10 year financial plan is detailed in the LTCCP.

8.2 Funding Policy

Activity: Stormwater

Description of Activity:

“The provision of the efficient and safe catchment, passage and disposal of stormwater, for all connected systems in the Stratford Urban Area.”

Reason Why Activity is Engaged in: see Clause 1.1.

In the past Council had considered the disposal of stormwater as a private good to all sectors of the urban community and had a targeted rate on ratepayers in the Stratford urban area.

Council has now reviewed its Revenue and Financing Policy and concluded that targeted rates do not fairly represent the benefits to the targeted ratepayer and all ratepayers generally. Council has accepted the viewpoint that Stratford is one district and that stormwater should be funded from general rate using capital value rating.

9. Resource Consents

9.1 Resource Consents

Council has delegated authority for the discharge of stormwater into river and stream for culverts up to 1200mm diameter. The typical velocity from these pipes is up to 5m/sec maximum which does not cause any significant effects at the discharge point. However if there is a change in either the existing catchment source(s) or significant change in the volume discharged a consent is required.

Consents also are required that relate to the specific works for temporary changes to the system.

The Regional Council independently controls contaminants in the system. Council has no responsibility other than for its own actions.

10. Demand Management

10.1 Stormwater Demand Management Policies

Although there are no formal policies applicable to demand management, as this is not a significant issue for the Stratford District, localised catchment initiatives and considerations have been made by the Council. Development of the system model will further highlight opportunities and address demand management implications.

Demand management involves the implementing of asset and non-asset related solutions for a demand in service. Solutions currently used by Council include:

- Storage catchment facilities (private and public);
- Smaller pipes sizes;
- More efficient inlet screens; and
- Secondary flood paths.

11. Significant Negative Effects

11.1 Significant Negative Effects Caused by Stormwater

Health

The stormwater system has the potential to affect community health if it is inadequate and results in flooding house and property and causes overflows of sewerage systems.

Council is aware of the areas where surface flooding occurs and is progressively working towards eliminating these events by providing a system that has a 1 in 20 year return period. However, there will always be localised storm events that will exceed the capacity of any system and some surface flooding will occur. Council recognises this potential and endeavours to take all steps to ensure the risk is minimised.

Environment

Council operates under its resource consent requirements for stormwater discharge.

Monitoring of discharge points will be continued to ensure that there are no negative effects on rivers or streams at these locations.

12. Significant Forecasting Assumptions, Uncertainties, Risk Management

12.1 Assumptions and Uncertainties

General Assumptions and Uncertainties	
Asset Life	Based on industry and accounting standards.
Capital cost impact on operations	The community can assume that as it seeks improvements and additions to its assets, changes in operational costs may occur due to the additional of improved infrastructure that will exist.
Constraints of Council	The level of investment in planning, analysis and improvements is limited to what best suits the community both in practical and affordability terms.
Depreciation	Based on 2006 valuations.
Financial Values	All at 2006 values.
Funding allocations	All funding is based on expenditure predictions and as at 30 May 2006.
GST	Not included in financial forecasts.
Historic assumptions	Up to now Council has operated on historic assumptions and has managed the district according to the level the district can afford. The LTCCP process will determine its future approach to many areas of its asset management
Inflation	An allowance has been made for inflation in forecasts.
Interest on investments	5%
Interest rate on loans	9%
Knowledge	No commitment or contingencies that Council is aware of has been excluded.
Population Growth	Assumed constant at 9,000.
Service Levels	Unless stated are remaining constant.
Stratford Identity Project	The impact of the proposed "Stratford Identity" project has not been determined.
Valuations	Current valuations are based on 2003 figures.

Activity Assumptions and Uncertainties	
Activity management Plans (AMP)	This is the first AMP for Stormwater. As such it will be the subject of continual improvement as information and analysis develop.
Asset Information - Biz@asset management system.	The information provided has been developed from an existing asset register managed through an in house database. Over the next 12 months an asset management system will be adopted and this will permit more manageable and accurate control of asset information.
Levels of rainfall	Council assumes that over the next 10 Years a possible increased level of rainfall will not have significant impacts on stormwater systems.
Resource Consents	All current resource consents assumed to be permitted to continue.
Reticulation system asset knowledge	There is not an accurate measure of quality. Assumptions and estimated age are made for valuation and renewal purposes
Service Standard	The current capex programme is an affordable option for the district ratepayers ideally it should be accelerated to achieve the '1 in 20' return period standard of service.

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12.2 Risk Management

A high level risk assessment of Council activities has been undertaken and is considered within the next LTCCP. This covers the generic issues of governance and best practice and common issues in group activity areas.

The table below outlines some of the key asset risk issues and rates them according to the guidelines in Appendix 3.

Further more in depth analysis for risk for the storm water activity should be undertaken in the future.

Risk	Controls	Consequence	Likelihood	Accept Risk
Collapse of tunnels	<ul style="list-style-type: none"> • Inspection Regime • Renewal and capital programme • LAPP insurance 	Moderate	Unlikely	Yes
Failure or loss of storage ponding areas.	<ul style="list-style-type: none"> • Secondary flood path assessment • Capital and renewal programme • Catchment upgrade programme • System restriction methods • Inspection regime 	Major	Unlikely	Yes
Blocked pipes and tunnels	<ul style="list-style-type: none"> • Standard operating procedures • Public education • Maintenance regimes • Renewal programme 	Minor	Likely	Yes
Health and safety issues with exposed areas of the system.	<ul style="list-style-type: none"> • Community education • Screened inlets • Maintenance regimes • Standard operating procedures • Response times to problems 	Major	Unlikely	Yes

13. Plan Review / Public Consultation

13.1 Reference to the Public Consultation Undertaken

Council has consulted the community to establish funding levels and agreed community outcomes as discussed in the introduction of this plan.

In addition Council continues other practices such as:

- Specific project or issue consultation.
- Community surveys.
- Annual Plan submissions.

Council will continue to consult with the community as it further develops its LTCCP and undertakes its normal business practices.

13.2 When the Plan is Intended to be Next Reviewed

The plan will be reviewed on an annual basis from 30 June 2007. Any changes and development will be expressed through the Annual Plan and LTCCP process.

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14. Conclusion

This activity plan is the first for stormwater. As such it will be improved as more asset information, planning and analysis are developed. The improvement plan in Appendix 2 outlines some of the works required.

The stormwater activity over the next ten years is mainly focused on improving the existing performance of the system through addressing problem areas within the system.



APPENDIX 1

Resource Consents

Consent 6468-1



CHIEF EXECUTIVE
PRIVATE BAG 713
47 CLOTEN ROAD
STRATFORD
NEW ZEALAND
PHONE 06-765 7127
FAX 06-765 5097

Please quote our file number
on all correspondence

Land Use Consent
Pursuant to the Resource Management Act 1991
a resource consent is hereby granted by the
Taranaki Regional Council

Name of
Consent Holder: Stratford District Council
P O Box 320
STRATFORD

Consent Granted
Date: 20 October 2004

Conditions of Consent

Consent Granted: To erect, place and maintain a culvert in an unnamed tributary of the Kahouri Stream in the Patea catchment for flood control purposes at or about GR: Q20:210-073

Expiry Date: 1 June 2022

Review Date(s): June 2010, June 2016

Site Location: Cordelia Street, Stratford

Legal Description: Sec 1 Lot 2 DP 10761 Town of Stratford

Catchment: Patea

Tributary: Kahouri

*For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document
www.trc.govt.nz*

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APPENDIX 2

Capital Works

The following works are expected to be completed within the next 10 years . The order of works will be as demand requires.

STREET	LOCATION	DEPTH	PIPEWORK			STRUCTURES				
		D= Deep S= Shallow	Size	Length	\$	MH	\$	Inlet	\$	Total
Cordelia	Boons	D	1050	55	74,250	1	5,600	1	7,200	12,800
Hamlet	Ajax\Hamlet	S	450	80	28,000	2	5,000		0	5,000
Lear	cnr Ariel	S	375	30	8,400	1	2,500		0	2,500
Percy	Percy Ave	S	450	120	42,000	1	2,500	1	3,000	5,500
Miranda	Farmer	D	1050	50	67,500	1	5,600		0	5,600
Miranda	Road at Farmers	D	1050	25	33,750	2	11,200		0	11,200
Pembroke	Pembroke Reserve	D	1200	50	82,500	2	11,200	1	7,200	18,400
Brecon Rd	51 Brecon (O'Neil)	S	525	45	17,100	2	5,000	1	3,000	8,000
Broadway	No 421 (Potroz)	D	1051	56	75,600	2	11,200	2	14,400	25,600
Flint	Rear of sections	S	450	350	122,500	3	7,500		0	7,500
Miranda	5 to no 12	S	900	40	29,200	1	2,500	1	3,000	5,500
Miranda St	St Joseph's courts	S	600	30	12,300	1	2,500		0	2,500
Orlando	16 Orlando at rear	D	1050	90	121,500	1	5,600		0	5,600
Portia	39 Portia	D	900	40	43,800	2	8,000		0	8,000
Brecon	No 10 (Morling)	D	900	15	16,425	1	4,000		0	4,000
Juliet	Rear of Old folks	D	900	40	43,800	2	8,000		0	8,000
Portia	Warwick end	S	600	80	32,800	1	2,500		0	2,500
Miranda	Warwick end	S	600	80	32,800		0		0	0
Hamlet	Warwick end	S	600	80	32,800	1	2,500		0	2,500
Broadway	Caltex truck stop	D			0	1	4,000	0	0	4,000
Juliet	Stfd Club	S	900	40	29,200	1	2,500		0	2,500
Various	Various (approx 15)	S			0		0	10	30,000	30,000
Broadway	Gah Wah	D	750	50	37,500	1	4,000		0	4,000
Craig St	Bayleyman	D	600	60	36,900	2	8,000		0	8,000

Work has been completed

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Appendix 3

Improvement Plan

Note: SAM = Services Asset Manager, OP = Operations Manager, CE= Chief Executive

Item	Task	2006/07 Quarters				2007/08 Quarters				2008/09 Quarters				Responsibility
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	
Asset management	Complete asset information on all stormwater assets including condition assumptions.													SAM
	Finalise input and implement Biz-E-Asset asset management system.													SAM
Depreciation	Identify all assets currently not depreciated, access condition and determine a manageable deprecation and renewal programme.													SAM/OM
Emergency Response	Formalise local emergency response procedure for the districts wastewater network.													SAM/OM
Catchment model	Complete program of total catchment design and modelling for Stratford urban area.													SAM/OM
	Identify options for secondary flow paths.													SAM
Request monitoring	Review current systems of requests/complaints recording for monitoring, reporting and improvement purposes.													SAM/OM/CE
Risk assessment	Review current assessments to more accurately identify and mitigate significant risks.													SAM
Stratford identity	Determine a concept for this project and the impacts on stormwater.													SAM/OM/CE
Tunnels	Investigate options for renewal and upgrade of the tunnel system.													SAM
User Satisfaction	Consider and as appropriate determine a community consultation strategy for stormwater issues.													SAM/OM/CE

APPENDIX 4

Prioritisation assessment process for Stormwater Renewal and Capital Programme

HISTORIC EVENTS		PROBABILITY OF MAXIMUM EVENT		OUTCOME OF RECENT EVENT		OUTCOME OF MAXIMUM EVENT	
Maximum event has occurred 2-3 time in previous 24 months	10	The maximum event has occurred one than once in pass two Years	4	Flooding will occur in populated area with water depth and velocity High, and/or Likely to washout road and/or likely to washout dwelling	10	Flooding will occur in populated area with water depth and velocity High, and/or Likely to washout road and/or likely to washout dwelling	10
75% event has occurred 2-3 time in previous 24 months	8	The maximum event has not occurred but could at any time	3	Flooding will occur in populated area with deep water at low velocities and/or Likely to over top road in depth or high velocity and/or likely to overtop floor level of dwellings	8	Flooding will occur in populated area with deep water at low velocities and/or Likely to over top road in depth or high velocity and/or likely to overtop floor level of dwellings	8
50% event has occurred 2-3 time in previous 24 months	5	The maximum event has not occurred and is unlikely unless influenced by moderate condition	2	Flooding will occur in populated area with deep water at low velocities and/or Likely to over top road in shallow depth and medium velocity and/or likely to effect foundations of several dwellings	4	Flooding will occur in populated area with deep water at low velocities and/or Likely to over top road in shallow depth and medium velocity and/or likely to effect foundations of several dwellings	4
25% event has occurred 2-3 time in previous 24 months	3	The maximum event has not occurred and is unlikely unless influenced by severe condition	1	Flooding will occur in populated area with moderate deep water at low velocities and/or not likely to over top road and/or may effect foundations of a dwellings	3	Flooding will occur in populated area with moderate deep water at low velocities and/or not likely to over top road and/or may effect foundations of a dwellings	3
No problems have occurred but a threat exists	1	Max event will never occur	0	Flooding will occur in populated area with moderate depth water at low velocities and/or not likely to over top road or possibly effect foundations of a dwellings but mainly confined the garden \lawns	2	Flooding will occur in populated area with moderate depth water at low velocities and/or not likely to over top road or possibly effect foundations of a dwellings but mainly confined the garden \lawns	2
				Surface flooding roads unaffected confined the garden \lawns only	1	Surface flooding roads unaffected confined the garden \lawns	1
Score this project A		B		C		D	
PROJECT SCORE AFTER APPLICATION OF WEIGHTINGS (B X D) + A + C							

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APPENDIX 5

Risk Consequence / Impact Guidelines (Qualitative Measures)

Risk Score	Risk Rating	Risk Description	Description of Impacts in example activity areas			
			Financial risk management	Human resources	Political	Business risks
		Generic Impact Description	Revenue loss, Cost Increases & Financial or Budget Liability	Security incident, OH&S effect, Reduced performance, Key people/Resources unavailable	Adverse press, Reputation damage, Legal repercussions	Clients not served, Operations interrupted. Assets/Infrastructure unusable, Info Systems out
5	Catastrophic	Disaster with potential to lead to business failure	Huge financial loss. Significant over expenditure at Organisational and output level, where there is no capacity to adjust budget across the Portfolio or no means to seek additional funding. 100% loss of Business Unit funding.	Multiple staff or public affected, debilitating injuries and fatalities or widespread medical attention required. Loss of a significant number of key management level staff, impacting on skills, knowledge, and expertise needs. Severe staff morale problems.	Concentrated public and political interest and major loss of public support. Union involvement.	Major detrimental effects on clients. Consequences would threaten survival of the service, and also the organization. Long-term sustained loss of production capability.
4	Major	Critical event, which will be endured with proper management	Major financial loss. Significant overrun at Organisational and output level, where management response requires significant additional funding, or termination or reduction of other initiatives. Possible 75% loss of Business Unit funding.	Extensive effects, injuries, hospitalisation or single fatality. Loss of some key staff, resulting in skills, knowledge, and expertise deficits. Severe morale or other organisational problems affecting performance and productivity.	Short-term public and political interest. Constant media attention, major internal inquiry and some union resistance.	Loss of production capability. Consequences would threaten survival or continued effective function of the service. Requires top-level management intervention.
3	Moderate	Significant event, which can be managed under normal circumstances	Significant financial loss, up to 50% of budget funding. Business Unit impact only, with some redistribution of existing budget.	Significant effects needing management action. Medical treatment, but no fatalities. Short-term skills, knowledge, expertise deficits.	Isolated public interest. Some medial interest and/or industry complaints, small internal inquiry.	Consequences could mean that the service is subjected to a significant performance review or a changed way of operating. Senior management involvement.
2	Minor	Event with consequences, which can be readily absorbed, but which requires management effort to minimize the impact	Some financial loss contained within Unit, 25% loss of budget funding. Minor over expenditure requiring monitoring and corrective action within existing budget.	Minor effects – injuries, but no fatalities. Health impact or probability leads to lost time or potential of public liability claim. Little skills deficit.	Local issue, isolated concerns raised by interest groups, with little media interest.	Consequences affect efficiency or effectiveness of the service. Managed internally.
1	Insignificant	Not worth worrying about. Existing controls and procedures will cope with the event.	Little or no financial loss, <5% budget funding impact.	No injuries or fatalities, little supporter action required. No skills or knowledge loss occurring.	No investigation required. Minimal to no effect on public reputation.	Affects only a small group of clients. Negligible service impacts dealt with by routine operations.

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Risk Probability Guidelines

Risk Score	Risk Rating	Description of Event	Frequency
5	Almost Certain	The event is expected to occur in most circumstances High level of known incidences Strong likelihood of re-occurring with high opportunities / means to re-occur	Daily / Weekly
4	Likely	The event will probably occur in most circumstances. Regular incidences known (recorded / experienced) Considerable opportunity / means to occur	Monthly
3	Moderate	The event should occur at some time A few infrequent, random occurrences (recorded / experienced) Some opportunity or means to occur Council engineering projects usually designed to this level	Annually
2	Unlikely	The event could occur at some time No known incidences recorded or experienced Little opportunity, means or reason to occur Council engineering projects would require some compelling Capital risk justification to design to this level	Every 2-5 years
1	Rare	The event may occur only in exceptional circumstances Highly unheard of Almost no opportunity to occur Council Engineering would require very compelling Capital Risk justification to design to this level.	Every 10 years

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