

COUNCIL 27. 9. 2012

ENVIRONMENT AND INFRASTRUCTURE COMMITTEE
17. 9. 2012



A meeting of the Environment and Infrastructure Committee was held in the No. 1 Committee Room on Monday 17 September 2012 at 2pm.

PRESENT: Councillors Sally Buck, Jimmy Chen, Barry Corbett, and Sue Wells.

APOLOGIES: Councillors Claudia Reid and Aaron Keown.

The Committee reports that:

PART A - MATTERS REQUIRING A COUNCIL DECISION

1. NO.2 SUMNER ROAD LYTTELTON – BOUNDARY ROAD ADJUSTMENT/REALIGNMENT

| | |
|-------------------------------------|--|
| General Manager responsible: | General Manager City Environment, DDI 941-8608 |
| Officer responsible: | Unit Manager Transport and Greenspace |
| Author: | Lewis Burn, Property Consultant |

PURPOSE OF REPORT

1. The purpose of this report is to seek the Council’s approval to proceed with negotiations and the conclusion of a proposed sale and purchase of land by way of a boundary adjustment/realignment with the owner of the property at 2 Sumner Road Lyttelton (AM & BM Stanaway Family Trust) which adjoins Council’s land at 4 Sumner Road, the former site of the now demolished Lyttelton Plunket building.

EXECUTIVE SUMMARY

2. The property owner adjoining Council’s Lyttelton Plunket site (Lot 2 DP 307398) has requested consideration be given to having a small area of Council’s site, between 20-30 square metres, subject to survey, on which the former Municipal Electric Department substation and transformer pad existed, incorporated into their title. They have submitted that the amalgamation of this area would considerably ease and enhance the rebuilding of their residence which did not survive the 2010/2011 earthquakes and has been demolished.
3. Currently within the Council’s title are retaining walls along the north wall of the former substation site with Sumner Road and the east boundary of the applicant’s property including a disused toilet that is partly set back into this wall. In discussions with the owner it has been agreed, without prejudice to the Council approval, that the boundary realignment would draw a straight line along the eastern boundary from Sumner Road to include the former substation and transformer pad within the owner’s property (Lot 1 DP 51886). This would mean that the new boundary would dissect the disused toilet with that part falling into the Council’s title being incorporated within Lot 2 DP 307398. Refer **Attachment 1** (Topographical survey by Davie Lovell Smith). The proposed new boundary is shown marked red.

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4. The proposed boundary adjustment has raised the issue of responsibility for the existing retaining walls. Refer **Attachment 2** (Photographs showing the footprints of the transformer pad, substation and disused toilet). The owner has indicated he is agreeable to a new eastern boundary as described in paragraph three above and has instructed his engineers as to how he can take responsibility for and adequately retain both north and eastern boundaries. Staff consider that both these walls should, after the realignment, lie within the applicant's property.
5. The applicant's structural engineers (Structex Lyttelton) have advised that new primary retaining measures will be constructed while leaving the existing wall in place. It is proposed to backfill the disused toilet (which on realignment will be partly in the Council's title, an area of approximately five square metres) using well graded hard fill or flowable concrete and whichever material is used, suitable packing put in below existing toilet roof to ensure bearing on backfill material. The applicant's engineers also state that while the design of the engineering approach to the existing retaining walls as part of the applicant's new building is still in development, it is intended that retaining of the east wall with the Council's land and the north wall along Sumner Road be provided by new concrete walls adjacent to the new building and where not adjacent by the building on the east boundary, to have a new retaining wall constructed against existing (likely to be gabion basket construction). The work it is understood can largely be carried out from within the site and without significant excavation with minimal disruption to the public or property outside the site boundaries.
6. Mr and Mrs Stanaway purchased Lot 1 DP 51886 on subdivision in 1985 of the Plunket site from the Lyttelton Borough Council which contained the old Lyttelton library building and at that time carried out as part of the purchase agreement extensive seismic strengthening to the building. At the time of the purchase there existed in the north east corner a MED substation and transformer. They consider along with their architect and structural engineers that it would not be appropriate to undertake rebuilding on the site without obtaining ownership of the area on which the former MED substation and transformer pad was located.
7. The nature of the Council's small holding as will be evident by the photographs at **Attachment 2** could present a potential health and safety risk to the Council. The subject land has not been used for a community purpose for many years (if ever) and if disposed of (which could only be to the adjoining owner) will not restrict any future use of the Council's site for a community or other use.

FINANCIAL IMPLICATIONS

8. There are no financial implications of any significance for Council. The applicant has agreed to meet all costs associated with implementing the boundary realignment. A purchase price has yet to be negotiated. It is considered it would be reasonable to base this price on a value that reflects the added value to his property while having regard to the onerous nature/size of the Council's land, the area of the disused toilet the Council is to receive and the potential cost relief to the Council in terms of contribution to the redevelopment and maintenance of the retaining walls.

Do the Recommendations of this Report Align with 2009-19 LTCCP budgets?

9. Not applicable.

LEGAL CONSIDERATIONS

10. The Council holds the Lyttelton Plunket site (a total area of 3,359 square metres) in fee simple title without any trusts, restrictions and reservations. Section 138 of the Local Government Act 2002 (Restriction on Disposal of Parks) does apply as this area is part of a site that was originally acquired "upon trust as and for sites for public buildings for the use and benefit of the Inhabitants of the Borough of Lyttelton and upon trust to use and occupy the same when and so long as the same or any part thereof shall not be built upon for general municipal purposes".

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This notation on the title was removed on 12 December 1994 pursuant to an application under Section 14 of the Banks Peninsula District Council Rates Validation, Empowering and Trust Removal Act 1994.

11. Having established that consultation is required, the question that needs to be asked is whether there is any person or party apart from the adjoining owner who is the applicant, to consult with who could reasonably claim that they would be affected by or have an interest in the proposed sale of this area. Given that the area proposed to be sold is not and will not detract from any future Council use of the Plunket site, it is the view of staff that wider views of the community not be sought.
12. The Council's land has been in the name of the local authority since the first title was issued to the Lyttelton Borough Council on 9 March 1928. While ownership prior to the Council owning this site has not been investigated, the provisions of Section 40 (4) of the Public Works Act 1981 (Disposal to former owner of land not required for a public work) allow the disposal of land to a neighbour without the need to offer the land back to a person from whom the land was originally acquired or their successor. Section 40(4) of the Public Works Act states: "Where the Chief Executive of the department within the meaning of section 2 of the Survey Act 1986 or local authority believes on reasonable grounds that , because of the size, shape , or situation of the land he or it could not expect to sell the land to any person who did not own land adjacent to the land to be sold, the land may be sold to an owner of adjacent land at a price negotiated between the parties." Clearly this situation applies. The subject area is not a complying lot and cannot be sold as a separate title.
13. The Committee does not have a delegation to approve the proposed sale/purchase but does have a recommendatory power to Council as the decision maker.

Have you considered the legal implications of the issue under consideration?

14. Yes, as above.

ALIGNMENT WITH LTCCP AND ACTIVITY MANAGEMENT PLANS

Do the recommendations of this report support a level of service or project in the 2009-19 LTCCP?

15. Not applicable.

ALIGNMENT WITH STRATEGIES

Do the recommendations align with the Council's strategies?

16. Not applicable.

CONSULTATION FULFILMENT

17. Reference is made to consultation in paragraphs 10 and 11. Section 79 of the Local Government Act 2002 allows a local authority to tailor the level of consultation having regard to all relevant matters in proportion to its significance. In this situation it is considered that this matter is of low significance and extensive consultation is not required. Orion has confirmed it has no interest in terms of its network requirements for this former electricity substation site which has long been decommissioned and removed. The Council's controlling asset unit, Transport and Greenspace has no issue with this proposal.
18. The New Zealand Historic Places Trust advise that there still remains archaeological potential within this area of Lyttelton and that an Archaeological Authority would be required for any removal of foundations or earthworks which would cause ground disturbance.

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STAFF RECOMMENDATION

It is recommended:

1. That the Council approve the sale of land shown marked "A" and the purchase of land shown marked "B" on **Attachment 1** by way of a boundary alignment/adjustment subject to definition by survey between Lot 1 DP 51886 and Lot 2 DP 307398 delineated as a straight red line on **Attachment 1** subject to:
 - (a) The owner of Lot 1 DP 51886 taking ownership and responsibility for all structures and retaining walls on the north and eastern boundaries of Lot 1 DP 51886.
 - (b) Any demolition and construction of retaining walls next to the boundary not adversely compromising the support of the ground and buildings in Lot 2 DP 307398.
 - (c) The applicant obtaining all consents and approvals required including an for work on or associated with the retaining walls and construction on the area proposed for disposal.
 - (d) All costs in implementing the realignment be the responsibility of the applicant.
 - (e) The Corporate Support Manager being given a delegation to further negotiate the terms and conditions including the consideration between the parties, to conclude a contract that gives effect to the proposed boundary adjustment/realignment on terms and conditions acceptable to her.
2. That, given the situation as discussed in paragraphs 11 and 17, that no further consultation in terms of Section 138 of the Local Government Act 2002, be required.
3. That pursuant to Section 40 (4) of the Public Works Act 1981 the Council determine that the Councils land may be sold to the owner of the adjacent land (Lot 1 DP 51886)

BOARD CONSIDERATION

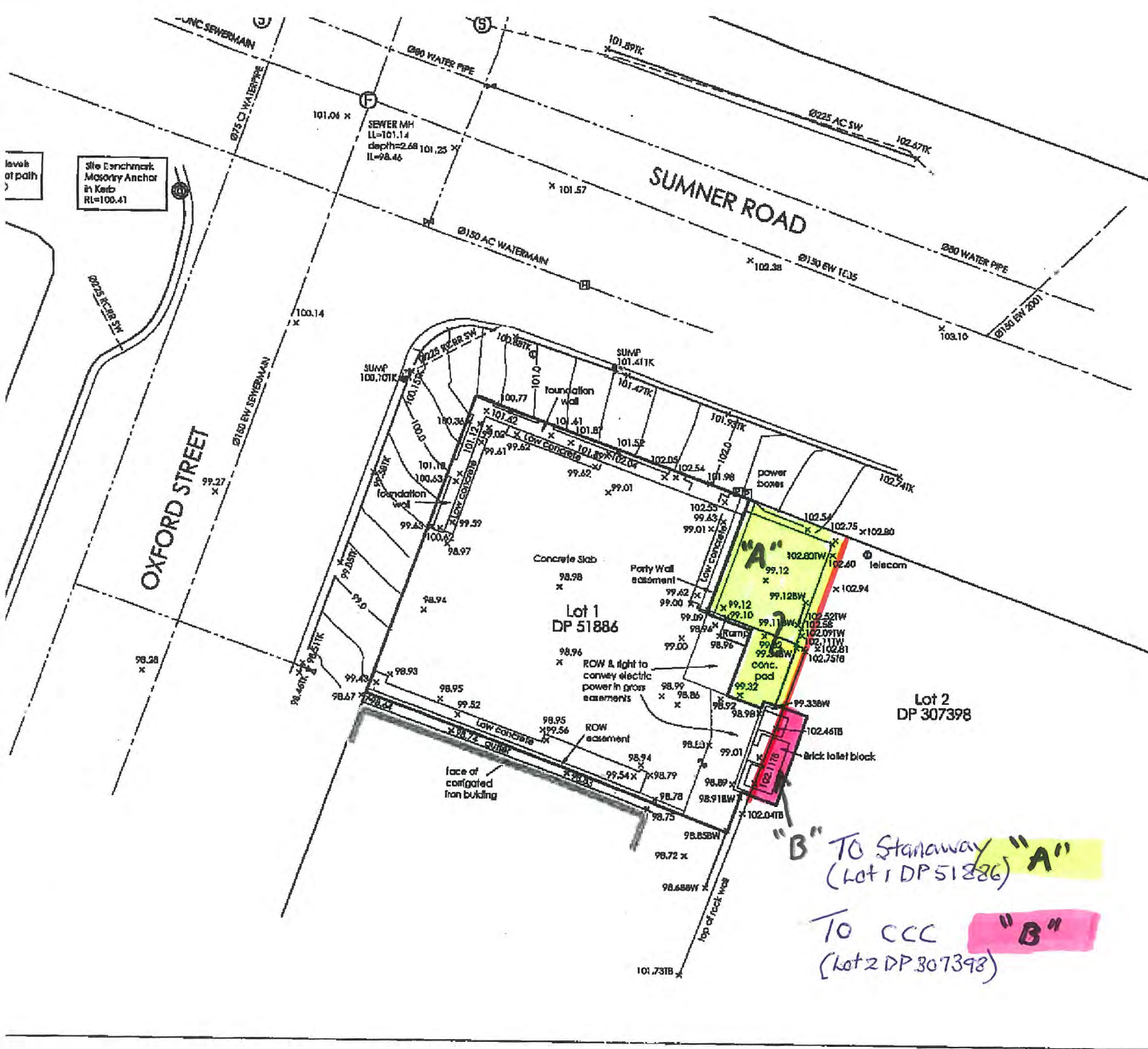
The Lyttelton Mt Herbert Board supported the proposed boundary adjustment, seeing it as a logical realignment of the current boundary. Members noted that the Board had a responsibility to support people as much as possible in their efforts to rebuild, especially on such important sites.

BOARD RECOMMENDATION

That the staff recommendation be adopted.

COMMITTEE RECOMMENDATION

That the staff recommendation be adopted subject to confirming there are no heritage items affected by this proposal.



Bench Mark:
 Nail in footpath R.L.100.00 Located corner of Oxford Street and Sumner Road.
 Levels in terms of an Assumed Datum.

Legend

BOUNDARY LINE ———
 EASEMENT LINE ———
 SANITARY SEWER ———
 STORMWATER ———
 WATER ———
 VEHI ———

x ground level
 x top of kerb level
 x top of wall level
 x top of bank level
 x bottom of wall
 sewer manhole
 stormwater manhole
 sump
 light pole
 valve

DAVIE LOVELL SMITH
 PLANNING SURVEYING ENGINEERING

| | |
|--|---------------------|
| 3rd Certificate of Survey P.O. Box 910 124-144th St. New Zealand Telephone: 08 226 0242 Fax: 08 278 4734 Email: dls@dlsm.co.nz | |
| JOB TITLE: | |
| A.S & B Standaway London Street, Lyttelton | |
| SHEET TITLE: | |
| Topographic Survey of Lot 1 DP 51886 | |
| DRAWING STATUS: | |
| Topographical Survey | |
| SCALE: 1:200@A3 | DATE: November 2011 |
| CAD FILE: J:\17799\117799_topo.dwg | REVISION: |
| DRAWING No: H17799 | SHEET No: 1 of 2 |

Attachment 1.

ATTACHMENT 1 AND 2 TO CLAUSE 1 ENVIRONMENT AND INFRASTRUCTURE COMMITTEE 17. 09. 2012

"A" TO Standaway (Lot 1 DP 51886)

"B" TO CCC (Lot 2 DP 307398)



FORMER
SUBSTATION

TRANSFORMER
PAD

Attachment 2.

Christchurch
City Council



Summer
20

PUNKET WALL



THE
OLD
LIBRARY

FORMER
SUBSTATION

oipr



Transformer Pad

Toilet block



2. DRAFT WASTEWATER STRATEGY

| | |
|-------------------------------------|---|
| General Manager responsible: | General Manager, Strategy and Planning Group, DDI 941-8281 |
| Officer responsible: | Healthy Environment Programme Manager, Strategy and Planning Group |
| Author: | Diane Shelander, Senior Policy Analyst, Strategy and Planning Group |

PURPOSE OF REPORT

1. The purpose of this report is to advise the Council of the preparation of a Draft Wastewater Strategy and to seek the Council's approval that the Draft Wastewater Strategy (refer **Attachment 1**) can be released for public consultation.
2. This report was presented to the Committee on 6 September 2012. The Committee recommended that this matter lay on the table pending the workshop on 7 September 2012 and further advice was sought from staff.
3. A Committee workshop was held with Environment Canterbury Commissioners to discuss the Council's submission to the Land and Water Regional Plan on 7 September 2012. A memo from staff was circulated to the Committee clarifying the alignment between the Draft Wastewater Strategy and the Proposed Land and Water Regional Plan (refer **Attachment 2**).

EXECUTIVE SUMMARY

3. Wastewater is used water collected from internal drains in homes, business and commercial/industrial properties.
4. The need for a Council Wastewater Strategy is driven primarily by:
 - the Independent Advisory Panel's suggestion that the plan to develop a Council Wastewater Strategy as the key instrument for managing Christchurch's wastewater system be accelerated due to the impact of the Christchurch earthquake sequence;
 - a lack of an overarching strategy. This strategy had been planned for development and delivery in 2010-2011 but earthquakes interrupted this work;
 - the need for updated analysis regarding the ability of the existing wastewater collection, treatment and disposal systems to meet future capacity in the medium and long term; and
 - a need to incorporate the learnings from the Christchurch earthquakes into a strategy for these services that recognises the heightened risks to the wastewater infrastructure that have eventuated in the Christchurch seismic environment.
5. A collaborative approach has been taken throughout the development of the Draft Wastewater Strategy (Draft Strategy) with the Stronger Christchurch Infrastructure Rebuild Team (SCIRT), Canterbury Earthquake Recovery Authority (CERA), Selwyn District Council (SDC), Waimakariri District Council (WDC), and Mahaanui Kurataiao Ltd (MKT). At each stage in the process, consensus among the parties has been critical to the development of the Draft Strategy.
6. The aim of the Draft Strategy is to establish the Council's strategic direction for sustainably managing wastewater over the next 10, 30 and 100 years.
7. The vision of the Draft Strategy is an affordable, reliable, culturally acceptable, sustainable and resilient wastewater system that protects public health and meets the needs of present and future communities.
8. The Draft Strategy's guiding principles can be summarised as follows:
 - delivering cost effective wastewater services;
 - minimising environmental effects;
 - working collaboratively;
 - planning and implementing affordable maintenance, renewals and expansion works;
 - optimising infrastructure resilience;

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- taking a flexible approach to new technologies;
 - supporting a sustainable economy.
9. The Draft Strategy identifies three primary goals, that the City's wastewater system:
- protects public health effectively;
 - is resilient and meets community needs for environmental, social and cultural sustainability;
 - supports the future growth and economic wellbeing of the City.
10. Five key issues have been identified, for which options are explored and actions recommended in the Draft Strategy:
- Wet weather overflows;
 - Sewer system resilience;
 - Long term wastewater treatment and disposal;
 - Banks Peninsula wastewater;
 - Treatment product reuse (water and biosolids).
11. The Draft Wastewater Strategy was produced in August 2012 following the preparation of a situational analysis report, an issues and options report, two external stakeholder workshops, two huis, a Combined Community Board seminar, a Water and Wastewater Committee seminar and a Council seminar between December 2011 and July 2012.

FINANCIAL IMPLICATIONS

12. As with any strategy, implementation of the Draft Strategy is dependent on balancing the goals against the ability to achieve the outcomes. The Draft Strategy builds on established principles and practices, but continues to develop these to address emerging standards, pressures and issues.
13. Implementation beyond current resources will need to be addressed as part of the 2013 - 22 and future Long Term Plans.

Do the Recommendations of this Report Align with 2009-19 LTCCP budgets?

14. Funding to support the development of the Wastewater Strategy aligns with the current LTCCP budget. However implementation of the strategy will require funding in the 2013 - 22 Long Term Plan.

LEGAL CONSIDERATIONS

15. The Draft Strategy provides policy guidance for the Council on wastewater matters pursuant to the Local Government Act 2002 (LGA 2002) and the Resource Management Act 1991 (RMA 1991).
16. LGA 2002 as amended requires that local authorities promote the social, economic, environmental and cultural well-being of current and future generations (Section 10b) and to consider the impact of their decisions on the four well-beings (Sections 11c and 14).
17. LGA 2002 also requires that local authorities have particular regard to the contribution that the core services, including network infrastructure, make to its communities (section 11A). RMA 1991 promotes the sustainable management of natural and physical resources, and requires the Council to manage the use, development and protection of these resources.

Have you considered the legal implications of the issue under consideration?

18. As above.

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ALIGNMENT WITH LTCCP AND ACTIVITY MANAGEMENT PLANS

19. Preparation of the Draft Strategy is in line with three activity management plans in the current 2009 – 19 Long Term Council Community Plan (09-19 LTCCP): Wastewater Collection, Wastewater Treatment and Disposal, and City and Community Long-term Policy and Planning Activities.
20. The actions in the Draft Strategy are anticipated to be considered in the Wastewater Collection and Wastewater Treatment and Disposal Activity Management Plans for the proposed 2013-22 Long Term Plan.

Do the recommendations of this report support a level of service or project in the 2009-19 LTCCP?

21. Yes. Activities 11.0 Wastewater Collection and 11.1 Wastewater Treatment and Disposal.

ALIGNMENT WITH STRATEGIES

22. The Draft Strategy aligns with other Council strategies and policies including the Greater Christchurch Urban Development Strategy, the Council Sustainability Policy, and other Healthy Environment Strategies:
 - Biodiversity Strategy, adopted in 2008;
 - Water Supply Strategy, adopted in 2009;
 - Surface Water Strategy, adopted in 2009;
 - Open Space Strategy, adopted in 2010;
 - Climate Smart Strategy, adopted in 2010.
23. The Draft Strategy also aligns with infrastructure recovery plans and strategies, such as the *Stronger Christchurch Infrastructure Rebuild Plan* (Stronger Christchurch Infrastructure Rebuild Team] and *Recovery Strategy for Greater Christchurch* (Canterbury Earthquake Recovery Authority).

Do the recommendations align with the Council's strategies?

24. As above.

CONSULTATION FULFILMENT

25. SCIRT, CERA, SDC, WDC, and MKT have been actively involved in the development of the Draft Strategy, with representation on the Wastewater Strategy project team and/or the Wastewater Strategy Advisory Group.
26. Consultation with key external stakeholders has been undertaken over the last seven months, and includes two external stakeholder workshops in March and June 2012, and two hui with local rūnanga in June and July 2012.
27. Consultation with the community as a whole will be undertaken on the Draft Strategy, once it has been approved for release by the Council.

STAFF RECOMMENDATION

It is recommended that the Council:

- (a) Approve that the Draft Wastewater Strategy is released for public consultation.

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- (b) That a public consultation period is over 30 calendar days starting no later than four weeks after the Council's approval. Indicative dates are 8 October through 4 November 2012. This will be a non-statutory process and not a special consultative procedure.
- (c) That a Hearings Panel is formed no earlier than two weeks following the close of the submission period to hear oral submissions and consider written submissions.

COMMITTEE RECOMMENDATION

That the staff recommendation be adopted.

BACKGROUND

- 28. The Wastewater Strategy will be the third of the water-related strategies to be developed as a part of the Healthy Environment Strategies programme, joining the Water Supply Strategy and the Surface Water Strategies that were adopted by the Council in 2009.
- 29. Wastewater is used water that is collected from internal drains in homes, businesses and commercial/industrial properties including sinks, basins, toilets, tubs, showers, washing machines and dishwashers. It also includes trade waste. Wastewater is also known as sewage. Wastewater is not stormwater, which is rainwater collected by external drains.
- 30. There were several drivers for the development of a Wastewater Strategy, including a request from the Independent Advisory Panel that the Council Wastewater Strategy, as a key instrument for managing Christchurch's wastewater system reconstruction post earthquakes, be accelerated.
- 31. Other drivers for a Wastewater Strategy were:
 - Lack of overarching strategy. Although various management plans have been developed for the wastewater system, the Council lacks an overarching wastewater management strategy. This strategy was about to start development just prior to the September 2010 earthquake.
 - Future capacity requirements. With anticipated future population growth and changes to the settlement patterns for the City, a strategic review was needed to consider the manner in which the wastewater system is able to meet medium and long term future collection treatment and disposal needs.
 - Risk profile. As a consequence of the 2010 and 2011 earthquakes, there was a need to incorporate the learnings from the Christchurch earthquakes into a strategy for these services that recognises the heightened risks to the wastewater infrastructure that have eventuated in the Christchurch seismic environment.
- 32. The development of the Draft Strategy has been informed throughout the process by a collaborative approach that included the active participation of representatives of Stronger Christchurch Infrastructure Rebuild Team (SCIRT), Canterbury Earthquake Recovery Authority (CERA), Selwyn District Council (SDC), Waimakariri District Council (WDC), and Mahaanui Kurataiao Ltd (MKT). At each stage in the process, consensus among the parties has been critical to the development of the Draft Strategy.
- 33. A project team comprised of Council staff from the City Water and Waste Unit, the Asset and Network Planning Unit and the Strategy and Planning Group plus a representative of MKT were involved in the development of the Draft Strategy.
- 34. A consultant was engaged to prepare a series of reports critical to the formation of the Draft Strategy: a situational analysis report, an issues and options report and a draft strategy report.

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35. An Advisory Group that provided overview and guidance during the development of the Draft Strategy included senior Council staff and representatives from SCIRT, CERA, SDC, WDC and MKT.
36. The development of the Draft Strategy began with the preparation of an analysis of the current state of the wastewater system. The *Christchurch City Council Wastewater Strategy: Situational Analysis* (CH2M Beca, 2012) was completed with input from:
 - an issues definition workshop and a situational analysis review in February 2012 by Council staff and representatives from SCIRT, CERA, SDC, WDC, and MKT; and
 - an external stakeholder wastewater issues workshop in March 2012 that included representatives from local community groups and professional organisations.
37. Five key wastewater issues emerged:
 - Wet weather overflows;
 - Sewer system resilience;
 - Long term wastewater treatment and disposal;
 - Banks Peninsula wastewater; and
 - Treatment product reuse (water and biosolids).
38. The next phase of the strategy development process was an examination of the key issues facing the wastewater system, approaches that are being taken or could be taken to address the issues and recommended actions for the future. The *Christchurch City Council Wastewater Strategy – Issues and Options* (CH2M Beca 2012) report was the product of:
 - a options development workshop in April 2012 and an options review workshop in June 2012 with Council staff and representatives from SCIRT, CERA, SDC, WDC and MKT;
 - a seminar for the Combined Community Board meeting in April 2012;
 - a seminar for the Water and Wastewater Committee in May 2012;
 - a Council workshop in May 2012;
 - a briefing to the MKT Board of Directors in May 2012;
 - a hui with Ngāi Tūāhuriri and Te Taumutu Rūnanga in June 2012; and
 - a wastewater options workshop with external stakeholders in June 2012.
39. The final phase in the development process was the completion of a Draft Strategy, which was based on the *Christchurch City Council - Draft Wastewater Strategy* report (CH2M Beca, 2012). The report was informed by:
 - a strategy review workshop in July 2012 with Council staff and representatives from SCIRT, CERA, SDC, WDC and MKT; and
 - a hui with Banks Peninsula rūnanga that was held in July 2012.
40. The Draft Strategy aims to establish the Council's strategic direction for sustainably managing wastewater over the next 10, 30 and 100 years.
41. The Draft Strategy establishes the Council's vision for sustainable management of the City's wastewater system: to provide an affordable, reliable, culturally acceptable, ecologically sustainable and resilient wastewater system that protects public health and meets the needs of present and future communities.
42. Seven guiding principles provide the framework for the Draft Strategy:
 - Wastewater services will be delivered cost effectively while balancing social, cultural and environmental effects.
 - Effects on the environment from wastewater systems will be minimised.

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- The Council will work collaboratively with communities, businesses and other stakeholders to achieve wastewater management goals and objectives.
 - Maintenance, renewals and expansion works will be planned and implemented so that costs are affordable and appropriately distributed over time.
 - Infrastructure resilience will be optimised using standardised risk assessment methods to categorise system risks and develop and implement risk management solutions that are efficient and represent best value.
 - The Council will take a flexible approach to new technologies for conveyance, treatment, reuse and disposal and will consider adoption of new technologies in future where the benefits and risk are well defined.
 - The Council will develop infrastructure that supports a sustainable economy.
43. To achieve this strategic vision, the Draft Strategy sets out three keys goals:
- The wastewater system manages public health risks effectively;
 - The wastewater system is resilient and meets community needs for environmental, social and cultural sustainability;
 - The wastewater system supports the future growth and economic wellbeing of Christchurch City.
44. Following the Council's approval for public release of the Draft Wastewater Strategy, a process of general public consultation will be undertaken. This process will encompass community and social organisations, environmental organisations, Government agencies, iwi, residents, business and commercial organisations, and other stakeholders.
45. It is recommended that consultation on the Draft Strategy will commence within 30 days of the Council decision to release the document for a period of 30 calendar days. Indicative dates are 8 October through 4 November 2012. This will be a non-statutory process and not a special consultation process.
46. A Hearing Panel is proposed to consider oral and written submissions on the Draft Strategy.
47. It is intended that the final draft of the Wastewater Strategy will be completed by early 2013.

Draft Wastewater Strategy

August 2012

DRAFT FOR ENVIRONMENT AND INFRASTRUCTURE COMMITTEE



Executive Summary

The Christchurch City Council's Wastewater Strategy (the strategy) will guide future asset management, planning and investment processes for the wastewater system.

The strategy applies to the public wastewater system within the jurisdictional boundaries of the Christchurch City Council, including urban Christchurch and Banks Peninsula.

The strategy's aim is to establish Council's strategic direction for sustainably managing wastewater over the next 10, 30 and 100 years. The Wastewater Strategy is one of the Healthy Environment Strategies developed by Council.

The strategy's vision is for the Council to provide an affordable, reliable, culturally acceptable, ecologically sustainable and resilient wastewater system that protects public health and meets the needs of present and future communities.

The three goals of the strategy are:

- The wastewater system manages public health risks effectively
- The wastewater system is resilient and meets community needs for environmental, social and cultural sustainability
- The wastewater system supports the future growth and economic wellbeing of Christchurch City.

The five key issues identified in the development of the strategy are:

- sewer system resilience
- wet weather overflows
- Christchurch urban area long-term wastewater treatment and disposal
- Banks Peninsula long-term wastewater treatment and disposal
- reuse of treatment products (e.g. treated wastewater, biosolids).

Each of these key issues is described in the strategy, along with the options considered and selected.

An Implementation Plan has also been developed, which sets out the action plan for implementing the strategy, including timeframes and indicative costs that will inform and guide future Long Term Plans.

The strategy will be formally reviewed on a five-yearly basis, with the first formal review scheduled for 2017. The Implementation Plan will be reviewed annually.

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1 Introduction

1.1 Background

1.1.1 What is wastewater?

Wastewater is all the used water collected in internal drains from homes, businesses and commercial and industrial properties, such as water from sinks, basins, tubs, toilets, washing machines and dishwashers, and also includes trade waste. It is also known as sewage. Wastewater is not stormwater, which is rainwater collected by external drains.

1.1.2 History

Christchurch's wastewater system has grown over time, beginning with the city's first permanent sewerage system in 1882 that served an area of approximately 200 acres including parts of St. Albans and Sydenham along with small portions of Addington and Linwood as shown in Figure 1.1. The sewerage system was devised to protect public health. By the mid-to-late 1800s Christchurch had the highest death rate of any New Zealand town, and water-borne diseases such as dysentery, typhoid and diphtheria were more prevalent than elsewhere in the country. A typhoid epidemic in 1875 was the impetus for the move to a permanent public sewerage system.

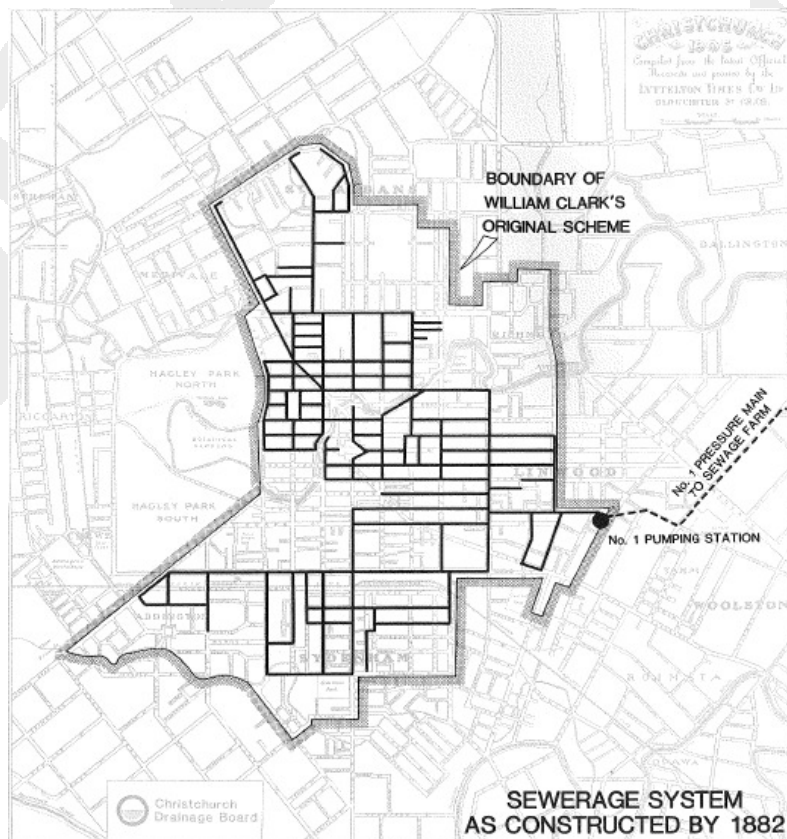


Figure 1.1 Sewerage system in 1882¹

¹ from *Christchurch Swamp to City – A Short History of the Christchurch Drainage Board 1875 – 1989*.

The Christchurch and Banks Peninsula wastewater systems now comprise of eight treatment plants, 120 pump stations, over 25,000 manholes and more than 2700 kilometres of piping.

1.2 Scope of strategy

The scope of the strategy is:

1.2.1 Direction

- a) To provide Council's vision, strategic direction and desired outcomes for sustainably managing the City's wastewater system over the next 10, 30 and 100 years. This work will be informed by stakeholder input.
- b) To establish the key steps and methods for implementing the strategy. This will recognise not only the Council's responsibilities and impact on the Council's resources, but also those of the community and private sector, to promote long-term integration of water resource management by taking into account the other Healthy Environment Strategies.
- c) To monitor, review and report progress towards achieving the strategy outcomes.
- d) To inform future Council Long Term Plans (LTPs) relating to capital and operational investment and expenditure.
- e) To form a component of the Council's future Three Waters Strategy. This will incorporate three separate but inter-related documents: the Water Supply Strategy, the Surface Water Strategy and the Wastewater Strategy.

1.2.2 Coverage

- a) To encompass within the Council's boundaries, the resources managed by the Council for wastewater reticulation, treatment and disposal purposes.
- b) To include all Council owned wastewater treatment systems within the Council's territorial boundaries.
- c) To include the continued sustainable management of biosolids and options for the use of this material, and potential re-use of treated effluent.
- d) To continue the management of trade waste entering the wastewater system.
- e) To cover 10, 30 and 100 year periods and be regularly reviewed to take into account the present and future social, economic, environmental and cultural aspirations of the community and to align outcomes with the Greater Christchurch Urban Development Strategy, relevant Council LTP outcomes and other key strategies as listed in Section 3.5. Consideration will need to be given to securing and/or identifying options for managing increased volumes of wastewater as the population grows or the industrial base of Christchurch changes or relocates.
- f) To include consideration of effects and mitigation of stormwater inflow and groundwater infiltration on the wastewater system, and the influence of wastewater discharge events on the water quality of the receiving environment.
- g) To develop a position on the extension of reticulated services in currently unserved areas.
- h) To consider a policy on the condition of private onsite septic systems and their impact on groundwater.

- i) To include wastewater system asset condition and the integrity of the system in the context of a life of the Long Term Plan (LTP) assets/renewals programme.

1.2.3 Alignment

- a) To recognise potential conflicts between wastewater management and the management of other water resources used by the Council, other key stakeholders, and the wider community.
- b) To gain community and private sector support and commitment for the integrated management of water and wastewater through participative and innovative approaches.

1.3 Timeframe

Allowances are normally made in a strategy for the growth and expansion of wastewater infrastructure but the development of this strategy has been confounded by the earthquake sequence following September 2010. There is the short-term need to address the effects of earthquake on the system and the long-term need to provide for future growth, without precluding technologies and opportunities that are not currently available.

The strategy is being developed based on three timeframes. The first timeframe will address the next 10 years as the operation of the existing wastewater system returns to “normal” and the city transitions to its new shape (its geography and demography).

The second timeframe is for 30 years, based on currently estimated population growth in the Greater Christchurch Urban Development Strategy. This timeframe assumes population distribution is non-uniform, reflecting the new red zones and expected areas of accelerating development in the south, west and north of the city.

The third timeframe reflects the long-life nature of wastewater assets – particularly gravity sewers and rising mains – which will be needed in response to the changed (post-quake) urban development patterns which will be decided in the first 10 years of the strategy. By forecasting what the 100 year wastewater system will look like, including treatment plants and receiving environments, the Council can determine if the 30 year system plan is compatible with the long-term vision, and is consistent with the major decisions made over the next 10 years. The Council’s LTP) and Annual Plan processes will be aligned with the wastewater strategy as they are progressively developed and implemented.

The strategy will be formally reviewed on a five-yearly basis, with the first formal review scheduled for 2017. The Implementation Plan will be reviewed annually to assess whether there are additional approaches that can be taken, or whether changes to current methods are required.



Oxidation pond at Bromley

1.4 Process of development

The Council has developed this draft Wastewater Strategy for Christchurch communities, as part of its Healthy Environment Strategies programme. This involved preparing a series of four documents:

- Situational Analysis report – this describes the current situation and defines the key issues
- Issues and Options report – this takes each of the key issues from the Situational Analysis report and explores options to address those issues, along with cost estimates and recommendations
- Wastewater Strategy – this describes the recommendations in more detail

Representatives from the Council, Stronger Christchurch Infrastructure Rebuild Team (SCIRT), Mahaanui Kurataiao Ltd (MKT), CH2M Beca Ltd, Canterbury Earthquake Recovery Authority (CERA), Waimakariri District Council (WDC), Selwyn District Council (SDC), MKT and CH2M Beca Ltd participated in the crafting of each report.

1.4.1 Consultation

As this draft strategy was being developed, informal consultation was conducted with community and interest groups. Two workshops were held with external stakeholders in March and June 2012 to examine wastewater issues and alternatives to address those issues. Two hui with urban Christchurch and Banks Peninsula iwi were held in June and July 2012.

There was also a workshop for the Combined Community Boards in April 2012 and a Council seminar in May 2012.

This draft strategy will be released for public consultation later in financial year 2012–13 pending the approval of the Council.

1.4.2 Project participants

A project team and an advisory group were established to assist with developing the Wastewater Strategy. The project team consisted of representatives from the Council, SCIRT, MKT and CH2M Beca Ltd. The advisory group consisted of representatives from Christchurch City Council, CERA, WDC, SDC, MKT and CH2M Beca Ltd.

1.5 Key Issues

Five key issues have been identified:

- sewer system resilience
- wet weather overflows
- Christchurch urban area long-term wastewater treatment and disposal
- Banks Peninsula long-term wastewater treatment and disposal
- reuse of treatment products (e.g. treated wastewater, biosolids).

These are described in more detail in section four, along with the options considered and recommended.

1.6 Relationship to other strategies and plans

A number of related plans and strategies were taken into account in the development of this wastewater strategy. Key strategies with links to this strategy are summarised below.

1.6.1 Healthy Environment Strategies

This strategy is one of the Council's suite of Healthy Environment Strategies, which include the Biodiversity, Water Supply, Public Open Space, Surface Water and Climate Smart strategies. The Council's Healthy Environment Strategies were developed to guide the sustainable management of the city's environmental resources, including water supply, surface water, open spaces and biodiversity, as well as wastewater management. These strategies overlap in various ways, particularly those related to water.

1.6.2 Relationship to other water strategies

Human activities (domestic, commercial and industrial) using water generates wastewater, which eventually returns to the wider environment, as illustrated in Figure 3.1. In an urban environment, this wastewater is collected and conveyed by a reticulation system to a treatment plant, which removes contaminants from the water before it is discharged to the environment. If this collection and treatment system fails, through overflows, leaks, damage or insufficient treatment, there may be uncontrolled wastewater discharges that introduce contaminants into the local environment. These contaminants can find their way into surface or groundwater either directly or through stormwater runoff. Contaminants from wastewater include pathogens, nutrients (which promote eutrophication of waterways) and toxins.

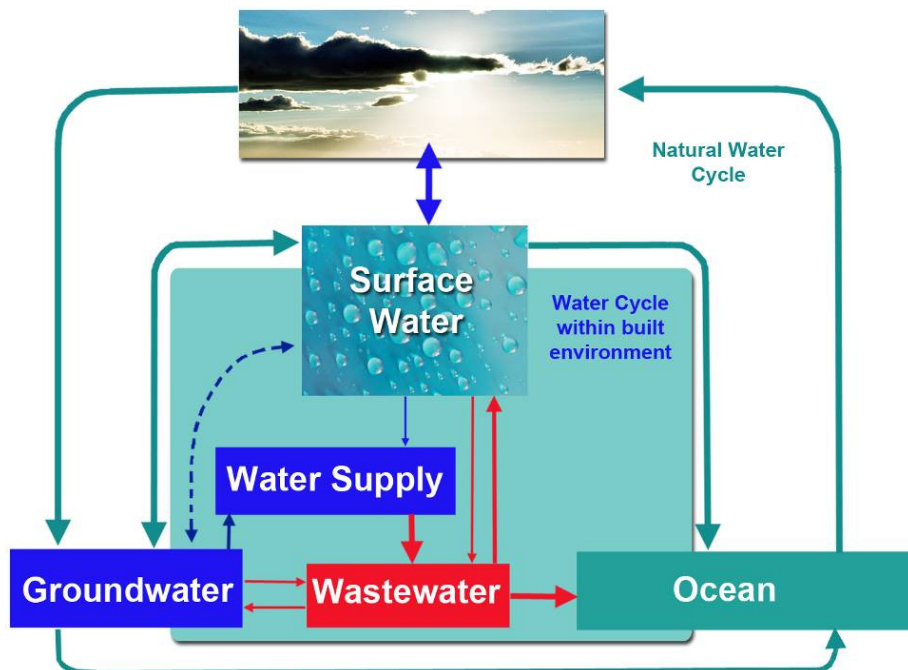


Figure 1.1 - Simplified water cycle relationships

It is important that this strategy recognises the impact of discharges on the quality of water bodies that may be used as a source for drinking water and for industrial, recreational or other use. In addition to coordinating the current strategies, opportunities to further integrate the Council’s role in the management of the ‘three waters’, i.e. surface water, drinking water and wastewater will be explored.

1.6.3 Relationship to other plans and strategies

While this report forms part of a wastewater strategy for the Council, the plans and strategies of the neighbouring Selwyn District Council and Waimakariri District Council were taken into account, as well as CERA’s Recovery Plans.

1.7 Policy framework

1.7.1 National legislation

The Resource Management Act 1991 (RMA) is the most relevant legislation for the management of wastewater discharges. The RMA’s purpose is to promote the sustainable management of natural and physical resources. It provides for the preparation of national policy statements and environmental standards, regional policy statements and plans and district plans. The control of specific activities is achieved through rules in regional and district plans and through resource consents. The RMA does not explicitly provide for the management of wastewater, rather it provides for the management of environmental effects, including those which arise from the discharge of wastewater to land or water.

Section 15 of the RMA provides for the discharge of contaminants (such as wastewater, biosolids, or odour) into the environment and stipulates that no person may discharge any contaminants into water, onto land where it may enter water, or from an industrial premises into air or onto land unless the discharge is expressly allowed by a national environmental standard (NES), a rule in a regional plan or a resource consent. Therefore, unless the relevant regional plan or NES specifies the

discharge as permitted, resource consent will be required for any discharge from a wastewater treatment facility.

The Canterbury Earthquake Recovery Act 2011 was enacted as a response to the Canterbury earthquakes. The purpose of the Act is wide ranging but is generally to provide appropriate measures to enable a focused, timely and expedited recovery of greater Christchurch from the impacts of the Canterbury earthquakes.

1.7.2 Recovery plans

The Canterbury Earthquake Recovery Act 2011 gives the Minister the power to direct a recovery plan to be prepared for a particular infrastructure. At the time of writing a recovery plan to cover the Council's wastewater infrastructure has not been initiated. If a recovery plan was implemented this would have precedence over other documents prepared under the RMA. The Council must not act inconsistently with a recovery plan including making decisions / recommendations on resource consent applications, notices of requirement, plans and policy statements. If a recovery plan directs, Council must amend a plan or policy statement to change (include or delete) and objectives, policies or methods. This must be undertaken as soon as practicable and without the RMA Schedule 1 process.

1.7.3 The Council's LTP

Section 130 of the Local Government Act 2002 requires Council to assess the provision of sanitary services within its district and most often this forms part of the Council's LTP. Based on input from the community, the LTP is a statement of how the Council plans to meet community needs and lists the activities it intends to undertake over a 10 year period. The plan sets out the cost of these activities and the standard of performance that is expected. A review is carried out every three years and in interim years the Council publishes an Annual Plan, focusing on year-to-year budgets and performance. The most recent LTP was adopted in June 2009.

The reason for the Council's wastewater collection and treatment activities is given in the LTP as: "the Council collects and treats wastewater to safeguard public health and protect the environment. Untreated wastewater would cause outbreaks of disease and environmental pollution."

The current LTP objectives for wastewater collection and treatment are to provide reliable and efficient wastewater collection, treatment and disposal services that:

- protect public health
- are environmentally sustainable
- are culturally acceptable
- meet the needs of present and future generations.

The key community outcomes for the Council's wastewater collection and treatment activities include:

- safety: provides a sanitary wastewater collection and treatment service
- community: provides equal access to wastewater services
- environment: protects the environment by treating wastewater
- governance: enables community participation in decision-making by consulting on wastewater plans and projects
- prosperity: provides wastewater services for commercial users, helping businesses to function smoothly
- health: provides a sanitary wastewater collection and treatment service

- knowledge: raises awareness of water conservation
- city development: beautifies the wastewater ponds and manages sewer overflows.

1.7.4 National policy statements

A national policy statement (NPS) enables central government to prescribe objectives and policies for resource management matters of national significance. Two NPS are relevant to wastewater; the New Zealand Coastal Policy Statement 2010 (NZCPS), and the National Policy Statement for Freshwater Management. These are discussed further below.

The purpose of the NZCPS is to achieve the purpose of the RMA in relation to the coastal environment of New Zealand. The NZCPS contains seven objectives and 29 policies.

The NZCPS recognises one of the key issues facing the coastal environment is poor and declining coastal water quality in many areas as a consequence of point and diffuse sources of contamination (such as wastewater discharges). A number of the objectives and policies contained in the NZCPS are relevant to wastewater discharges to the coastal environment and seek to maintain coastal water quality and enhance it where it has deteriorated due to discharges associated with human activity.

In managing discharges of human sewage, the NZCPS directs that a discharge directly to the coastal environment without treatment is not allowed. The discharge of treated sewage to water in the coastal environment is only allowed where there has been adequate consideration of alternative methods, sites and routes and the values of tangata whenua are taken into account.

The National Policy Statement for Freshwater Management (NPS Freshwater Management) sets out the objectives and policies that direct local government to manage water in an integrated and sustainable way. This NPS contains eight objectives and 15 policies. In particular, the NPS Freshwater Management seeks to safeguard the life-supporting capacity, ecosystem processes and indigenous species in sustainably managing the discharge of contaminants.

The NPS Freshwater Management directs regional councils to make rules requiring the adoption of the best practicable option to prevent or minimise adverse effects on the environment of any discharge of a contaminant into freshwater or onto land where it may enter freshwater. The NPS Freshwater Management also recognises the values of tangata whenua in relation to freshwater and seeks that they are involved and their interests are reflected in the management of freshwater.

1.7.5 Regional policy statements

Regional policy statements set out the resource management issues, objectives and policies for a particular region and must not be inconsistent with an NPS (section 62(3) of RMA). The relevant policy statements for Christchurch are the Operative Canterbury Regional Policy Statement 1998, and the Proposed Canterbury Regional Policy Statement 2011.

The Operative Canterbury Regional Policy Statement 1998 (Operative CRPS) provides an overview of Canterbury's resource management issues and sets out how natural and physical resources are to be managed in an integrated way, with the aim of sustainable management. The Operative CRPS recognises that in Canterbury the discharge of contaminants (such as wastewater) into water or onto land can adversely affect water bodies and coastal water, and may adversely affect the life supporting capacity of marine ecosystems, amenity, recreational and cultural values. It also contains objectives and policies and sets out the methods for addressing this issue.

In October 2011, CERA incorporated Proposed Change 1 into the Operative CRPS as Chapter 12A with minor amendments. This chapter addresses land use and urban growth management in greater Christchurch for the next 35 years. Chapter 12A promotes the intensification of land use

within existing urban areas and also identifies appropriate areas for greenfield developments to accommodate projected growth and population relocation. It requires consideration of environmental challenges (including liquefaction and rockfall) so as to avoid areas of risk. It sets urban limits and requires territorial authorities to provide for sequencing of urban development within those limits and to restrain urban activities locating outside these limits.

The Proposed Canterbury Regional Policy Statement 2011 (Proposed CRPS) will replace the Operative CRPS, as the RMA requires that regional policy statements be reviewed every ten years. Hearings on the Proposed CRPS have been held. Appeals have been lodged that will be dealt with through the High Court. The Proposed CRPS will not be made operative until the appeal process has been resolved.

The Proposed CRPS recognises patterns of development can impact on the efficiency and effectiveness of public sewerage (and other) infrastructure and requires these services to be designed, built, managed and upgraded to maximise their on-going effectiveness. Sewerage infrastructure should be designed, located, developed and used so adverse effects on significant natural and physical resources are avoided or mitigated and other adverse effects on the environment are appropriately controlled.

The Proposed CRPS also recognises the direct discharge of human sewage into the coastal marine area is highly undesirable, although it may be necessary and justified in some cases. The CRPS identifies that the discharge of contaminants, particularly treated and untreated sewage, is offensive to the values of Ngāi Tahu as tangata whenua.

In relation to odour, the Proposed CRPS notes that odour generated from waste treatment and disposal may cause localised health and nuisance effects on social, cultural and amenity values.

The Proposed CRPS states that waste management in the region could be more efficient and integrated to reduce the likelihood of adverse effects occurring on the environment and the social, economic and cultural wellbeing of people and communities.

1.7.6 Regional plans

Regional plans are intended to give effect to NPSs and the RPS. All Canterbury's regional plans must be consistent with each other (Sections 67(3) and (4) of RMA). Currently there are three regional plans that are relevant to the Council's wastewater services: the Natural Resources Regional Plan, the Regional Coastal Environment Plan and the Waimakariri River Regional Plan.

The Natural Resources Regional Plan (NRRP) contains objectives, policies and rules for the management of natural resources such as water, and consists of eight chapters which address sustainable management of natural resources in the Canterbury Region. Chapters 3 (Air Quality) and 4 (Water Quality) are the most relevant to wastewater management.

The rules which are relevant to the discharge of wastewater include WQL14 – WQL16 and WQL45 of Chapter 4. According to these rules, any new discharge of treated sewage to land or water will require resource consent. Any new discharge of untreated sewage is a prohibited activity, unless it is a spill or overflow, in which case resource consent is required. Rules AQL63 – AQL69 in Chapter 3 provide for discharges to air from waste management processes. Municipal sewage treatment facilities and land application of effluent are likely to require resource consent.

It is proposed to replace Chapters 1, 2 and 4 – 8 of the NRRP with a new Land and Water Regional Plan (LWRP) by 2013. The plan is likely to be publicly notified in August 2012. The Regional Coastal Environment Plan (Coastal Plan) sets out the issues, objectives, policies and rules relating to the protection, development and enhancement of Canterbury's coastal marine area, which is generally defined as the seaward side of mean highwater springs. This includes the control of the

discharge of contaminants to the coastal marine area. In particular Rules 7.3 and 7.6 require resource consent for the discharge of wastewater to the coastal marine area. The Waimakariri River Regional Plan controls point and non-point source discharges of contaminants to water bodies in the Waimakariri River catchment although currently the Council does not discharge any wastewater to the Waimakariri River or its tributaries.

1.7.7 Resource consents held

Christchurch City Council holds resource consents to authorise the discharge of wastewater from their treatment plants in Christchurch City (including Banks Peninsula) to the CMA. The Council also holds consents to authorise the discharge of sewage in the event of wet weather to water bodies such as the Avon and Heathcote Rivers. These consents require renewal periodically or when the nature of the activities changes.

1.7.8 District plans

District plans are generally concerned with land use and subdivision. The Council is responsible for both the Christchurch City Plan (City Plan) and the Banks Peninsula District Plan (BPDP).

The City Plan provides special provisions for utilities such as the pipe network and pumping stations in recognition that the on-going operation of utilities needs to be protected. Resource consent is generally not required for underground utilities but may be required for large scale utilities which could generate adverse effects on the environment.

The Christchurch Wastewater Treatment Plant (CWTP) is contained within the Conservation 1B (Bromley) Zone. This zone covers a large and strategically placed area adjacent to the Avon Heathcote Estuary and recognises both the sewage treatment facilities and the significant wildlife values. The Council's wastewater network/facilities (including the sewage treatment facilities) are not designated under the City Plan.

The BPDP recognises that basic services (including wastewater) are fundamental to the health and welfare of the residents and are a critical constraint upon future growth and development. The BPDP generally designates wastewater facilities rather than relying on a zoning/resource consent procedure.

1.7.9 Bylaws

A) Council Water Related Services Bylaw 2008

The purpose of this bylaw is to manage and regulate the Council's water supply, wastewater and stormwater drainage (excluding matters provided for under other Acts). Under this bylaw, approval is required from the Council to connect to the wastewater network for those activities that are generally not normal household or commercial activities.

B) Council Trade Waste Bylaw 2006

This bylaw regulates the discharge of trade waste to a sewerage system operated by the Council and requires approval from the Council to discharge trade waste to the sewerage system where this is not a permitted discharge. This normally applies to industrial discharges.

1.7.10 Canterbury Water Management Strategy

The Canterbury Water Management Strategy (CWMS) establishes a framework for addressing Canterbury's water resources issues to enable present and future generations to gain the greatest social, economic, recreational and cultural benefits from the water resources within an environmentally sustainable framework. The strategy sets out targets for water management in

Canterbury for the next 30 years. The strategy establishes 10 zone committees made of community members, council representatives and Rūnanga. The role of these committees is to make consensus-based decisions about water management within the applicable zone. Each committee will produce a set of water management recommendations that will be submitted to the relevant councils in the form of a Zone Implementation Programme (ZIP). This is a non-statutory² document that outlines actions, responsibilities and timeframes for activities to achieve the principles, targets, and goals set out in the CWMS. The ZIPs will primarily focus on water allocation but will address issues such as wastewater discharges.

The three zone committees which have been established for the greater Christchurch area are the Christchurch-West Melton Zone Committee, the Banks-Peninsula Zone Committee and the Selwyn-Waihora Zone Committee. The Selwyn-Waihora Zone Committee formally presented their ZIP to Environment Canterbury (ECan) in December 2011 and Selwyn District Council in early 2012. The Christchurch-West Melton and Banks-Peninsula Zone Committees are recently formed and have yet to prepare ZIPs.

1.7.11 Iwi management plans

Ngāi Tahu have prepared a freshwater policy statement which sets out tribal policies with respect to freshwater for the whole of the Ngāi Tahu takiwa. Ngāi Tahu consider this policy statement to be an iwi management plan. The policy statement describes Ngāi Tahu's association with freshwater resources, the ways in which Ngāi Tahu want to participate in freshwater management and the outcomes sought. In general, Ngāi Tahu seek to restore, maintain and protect the mauri of freshwater and protect, restore and enhance mahinga kai habitats and generally oppose wastewater discharges to water, preferring a discharge to land.

1.7.12 Cross-boundary options

During the development of the Wastewater Strategy, opportunities to connect to treatment and disposal schemes in neighbouring districts were considered in collaboration with representatives from Waimakariri District Council and Selwyn District Council.

1.7.13 Waimakariri District Council

The WDC completed a major upgrade to the Eastern District Sewage Scheme in 2005 with a 30 year design horizon, including upgrading four wastewater treatment plants and building a new ocean outfall for disposal from all four plants. Since then the population served by this wastewater infrastructure has grown faster than anticipated and the system is going to reach capacity significantly ahead of the original design horizon. As a result there is little obvious synergy between Christchurch wastewater treatment requirements and those of WDC. Furthermore, the separation distance between the two networks is significant, with the additional barrier of the Waimakariri River also needing to be addressed for any network cross connection. Taking these factors into account, provision of a cross connection between Christchurch City and Waimakariri District, for use as a contingency or other purpose, would be very costly to implement with limited potential benefits.

1.7.14 Selwyn District Council

The SDC operates the Pines wastewater treatment plant and land disposal scheme near Rolleston. This scheme is being progressively upgraded over time to reach an ultimate population equivalent

² Although ZIP's are non-statutory documents, options are being investigated to give ZIP's appropriate legal status under the Local Government Act 2002 and the Resource Management Act 1991.

of 60,000. Additional capacity is being phased in over time to meet the load requirements for the expanding population at Rolleston. Several of the Christchurch satellite treatment schemes identified in this report indicate that there could be the potential for a facility based on a one cubic metre per second satellite scheme to be located somewhere to the southwest or west of the city near Rolleston. This would typically be located separate from SDC's facility. However, if a one cubic metre per second treatment scheme in this area was to be investigated in the future, one option may include the opportunity to collaborate with SDC on the future management of such schemes to achieve operational efficiencies, provided that the strategic interests of both the Council and SDC can continue to be met, and a suitable operational and cost-sharing model can be put in place..

DRAFT
for
Committee

2 Aim, vision and principles

2.1 Aim

The aim of this strategy is to establish the Council's strategic direction for sustainably managing wastewater over the next 10, 30 and 100 years.

2.2 Vision

The strategic vision is an affordable, reliable, culturally acceptable, sustainable and resilient wastewater system that protects public health and meets the needs of present and future communities.

2.3 Guiding principles

The following guiding principles are taken into account in this strategy:

- Wastewater services will be delivered cost effectively while balancing social, cultural and environmental effects
- Effects on the environment from wastewater systems will be minimised
- The Council will work collaboratively with communities, businesses and other stakeholders to achieve wastewater management goals and objectives
- Maintenance, renewals and expansion works will be planned and implemented so costs are affordable and appropriately distributed over time
- Infrastructure resilience will be optimised using standardised risk assessment methods to categorise system risks and develop and implement risk management solutions that are efficient and represent best value
- The Council will take a flexible approach to new technologies for conveyance, treatment, reuse and disposal and will consider adopting new technologies in future where the benefits and risk are well defined
- The Council will develop infrastructure that supports a sustainable economy.

3 Goals and Objectives

To meet desired outcomes for the community, as defined in Council plans, strategies and bylaws³, the following set of goals and objectives were developed.

Goal 1: The wastewater system protects public health effectively

Objectives

- Conveyance, treatment and disposal facilities provide efficient and reliable service under normal operating conditions and are resilient to natural hazards.
- A loss of service from system failure and the impact of earthquakes or other natural hazards will be minimised as far as is practicable.
- A consistent risk management approach will be applied to decision making over system renewals and expansion, to ensure risks are properly identified and the optimal degree of risk reduction is achieved for the lowest cost.
- Where loss of service cannot be avoided during major adverse events due to inherent risks, business continuity plans will be regularly reviewed and tested, to manage potential public health risks.
- Sludge, biosolids and other treatment by-products are managed in an efficient and sustainable way.

Goal 2: The wastewater system is resilient and meets community needs for environmental, social and cultural sustainability

Objectives

- The Council will progressively improve the resilience of the wastewater system through renewals, maintenance and expansion activities implemented over the life of the system.
- An appropriate balance between economic costs and benefits, environmental, social and cultural effects of wastewater systems will be maintained.
- The Council will consult with community stakeholders about the level of service provided and future wastewater developments to make well informed decisions in economic, social, cultural and environmental terms.
- Wastewater conveyance, treatment and disposal facilities comply with their resource consents.
- The Council will monitor scientific evidence regarding emerging contaminants.

Goal 3: The wastewater system supports the future growth and economic wellbeing of Christchurch

Objectives

- The wastewater system will be developed to support the planned growth of the city, both in terms of location and timing.
- Trade waste policies and mechanisms will encourage cleaner production for the benefit of industry and the environment.
- Renewals, maintenance, and expansion of the wastewater system will be planned for and implemented so costs to the community are affordable and spread over time.

³ <http://www.ccc.govt.nz/thecouncil/policiesreportsstrategies/index.aspx>

- The Council will consider future alternative treatment, conveyance and disposal or reuse options and technologies on their merits, where the risks and benefits are well defined.
- Wastewater reuse by the Council or by others will be considered where the public health risks can be managed effectively, and where it is economically viable and environmentally sustainable.



Christchurch Wastewater Treatment Plant

4 Analysis of current situation

The Situational Analysis report described the current situation and summarised the key issues for Christchurch (including Banks Peninsula) wastewater. The Christchurch wastewater system, which incorporates a gravity sewer network, pumping stations, treatment and disposal facilities, has been severely affected by the Christchurch earthquake sequence in 2010 and 2011.

The Issues and Options report described the options to address each issue, and made recommendations. These are summarised below.

4.1 Sewer system resilience

4.1.1 Description of issue

The wastewater collection and conveyance system suffered significant damage due to earthquakes. Figures 4.1 and 4.2 show a schematic of the Christchurch wastewater system and the post-earthquake state of the wastewater system. Reconstructed infrastructure should be more resilient in future earthquakes and also to other natural hazards. Resilience is a significant consideration for all key issues.

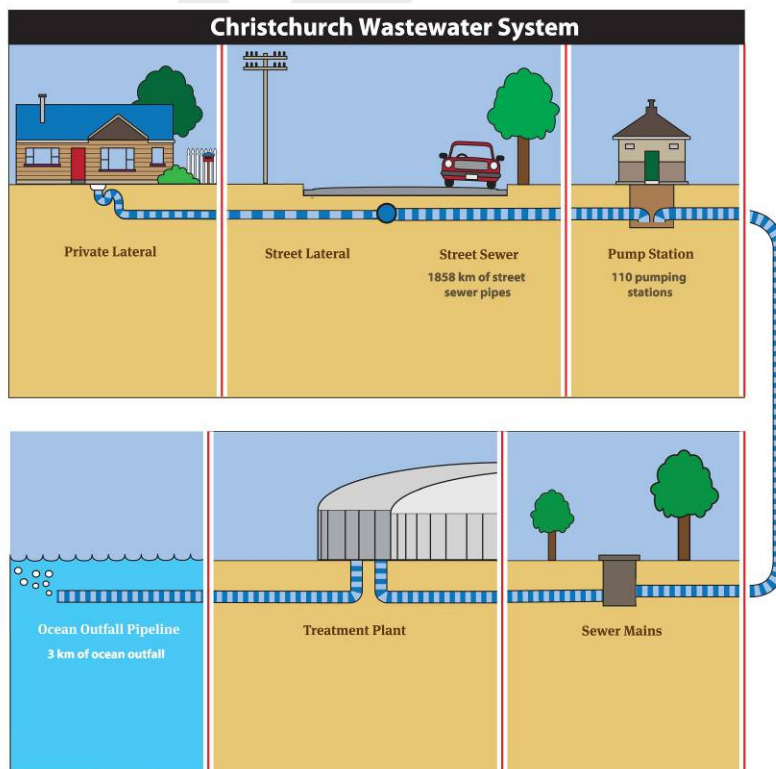


Figure 4.1 – Schematic of Christchurch wastewater system

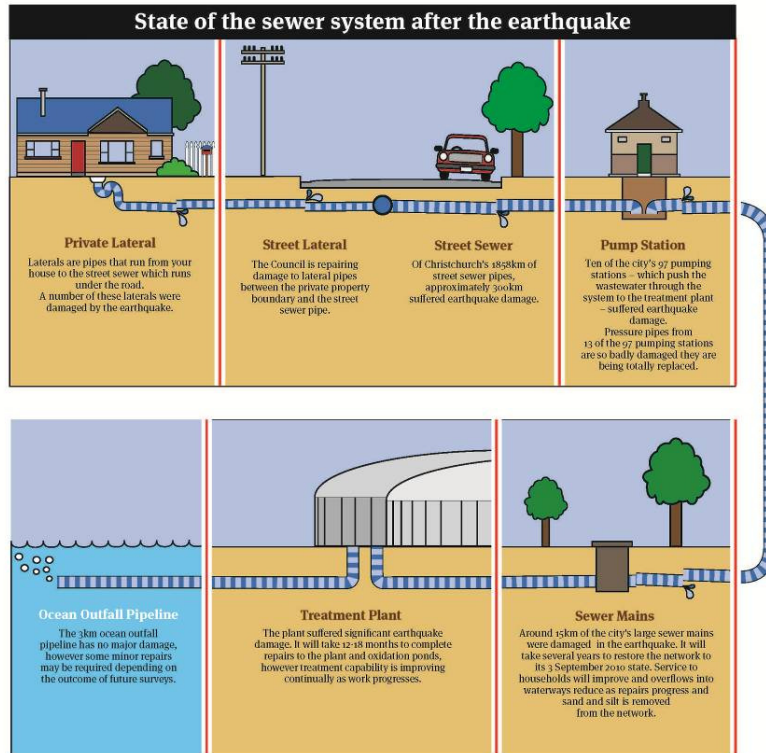


Figure 4.2 – State of Christchurch wastewater system after earthquakes

4.1.2 Options

SCIRT is developing options for repairing and rebuilding the earthquake-damaged wastewater network and is also responsible for implementing repairs once they have been approved by the Council. There are several ways the repair methods being employed will improve the resilience of the network:

- More ductile/flexible materials may be used for pipe repair or replacement (e.g. PVC and welded polyethylene pipes). Ductile materials are more resistant to earthquake damage.
- Pipeline and pump station design options are being developed to cope better with earthquakes, including more flexible connections at manholes and pump stations, which are a common failure point in earthquakes.
- Rebuilt pump stations in areas of significant land damage (e.g. alongside rivers) may be relocated to areas with improved ground conditions.
- Gravity sewers may be constructed at shallower depths, where this is practicable, so they would be easier to repair after an earthquake.
- Alternatives to traditional wastewater conveyance are being considered, including vacuum systems and pressure systems for areas where the ground conditions pose high risk of further infrastructure damage during ongoing aftershocks. As these are constructed using welded polyethylene, and can cope with level changes occurring due to earthquake-induced ground settlement, they may be more cost-effective for repairing damaged sewers in vulnerable areas than conventional gravity sewers.

4.1.3 Recommendations

- Alternative sewer options will be assessed on an area-by-area basis and specified for use as determined using whole-of-life or net present value (NPV) cost analysis. The NPV analysis should take into account the comparative cost of future earthquake damage repairs as well as comparative capital and operating costs over their operating life.
- Ductile pipe materials will be used for repairs or replacements providing they represent best value for the community in terms of balancing risk reduction and increased costs.
- Pump station relocation and redesign decisions will be based on a standardised risk assessment method to ensure that design and location options.
- An analysis of network asset criticality and seismic vulnerability will be undertaken and recorded in a Wastewater System Asset Risk Register. (Asset criticality in this instance is defined as the risk to the whole of wastewater system operation if a particular asset that is part of the system fails.) The risk register will inform decisions over renewals and maintenance work as well as for expansion or replacement works.

4.2 Wet weather overflows

4.2.1 Description of issue

Average dry weather wastewater flows in Christchurch are currently about 40 per cent higher than pre-earthquake, primarily due to damage to the wastewater conveyance systems resulting in increased inflow of groundwater through cracked pipes and damaged joints.⁴ With flows already relatively high during dry weather, when wet weather comes there are more frequent overflows into the Avon and Heathcote Rivers. These will require major remedial efforts to meet the currently consented two year average return interval overflow frequency within the next ten to twelve years

4.2.2 Options considered

The options considered for addressing wet weather overflows were:

- A compliance strategy has been negotiated with Environment Canterbury, which will give the Council five years' relief from compliance requirements with its current overflow discharge consent. This is on the basis that earthquake damage to the network is preventing the Council from achieving the required overflow standard. This gives the Council the opportunity to monitor the impact of SCIRT's rebuild on overflow compliance and to develop and implement a network upgrade programme to comply with the overflow containment standards at the end of the specified five year time frame.
- Improvements to the conveyance network due to earthquake repairs undertaken by SCIRT as described in Section 4.1.2 will reduce wastewater overflows by reducing the inflow of stormwater and the infiltration of groundwater. These options include using more ductile materials for repairs and replacements, using shallow gravity sewers and considering alternatives to traditional gravity sewers where these alternatives may be more cost-effective than conventional re sewerage on a whole-of-life cost basis, or where these are the most suitable option for greenfield subdivisions. The option available to the Council is to consider the benefits of repair and replacement options in terms of reduced wet weather overflows and take this into account in repair decisions.

⁴ Mike Bourke, Christchurch City Council, pers. comm. 2/7/12

- The Council is reviewing options to accelerate the construction of the Wairakei Diversion sewer line to allow the Northern Relief sewer line to be partially bypassed to allow earthquake-related investigation and repair works. This project provides for a new trunk sewer that will link the Northern Relief to the new Fendalton Duplication and Western Interceptor. This will allow part of the flow to be diverted away from the Northern Relief, which is expected to result in a reduction in overflows from the Northern Relief in the short to medium term, particularly at the Grassmere and River Road overflows.
- The Council is also developing a hydraulic computer model of the wastewater network. Once calibrated, the model will be able to predict the current frequency and scale of wet weather overflows from the wastewater network to check the current status against the two year annual recurrence interval (ARI) consent requirement. The model will also be able to predict future overflow performance as sewer repair and replacement works are put in place.
- The hydraulic model can be extended to consider further options for overflow mitigation such as interconnecting branches of the network or providing network storage. Adding storage tanks at overflow locations reduces overflow frequency by providing local wastewater storage during peak flow periods. Once peak flows have abated, the storage tank is emptied into the wastewater system.
- Other options to manage overflows involve reducing inflows and infiltration on private property sewers. This is a challenging area for the Council as they have no jurisdiction over the private lateral since it is owned by the private landowner and is located on private property. This could involve undertaking closed circuit television CCTV inspection or pressure testing of the private laterals.
- Work on options to reduce inflow and infiltration in Banks Peninsula has been focused on Diamond Harbour and Akaroa townships. Good progress has been made in reducing inflow and infiltration effects on the networks in these settlements. Inflow and infiltration are particularly high in Lyttelton and it is planned to address this area as work completes in Akaroa and Diamond Harbour.
- Areas prone to stormwater flooding that adds to stormwater inflow to the sewers in wet weather should be identified and addressed.

Overall, a considerable amount of further work is required to develop a comprehensive wet weather overflow strategy and agree on timelines and funding for its implementations. Long term objectives are described in this document and further computer modelling will be required as the SCIRT rebuild progresses to refine these.

4.2.3 Recommendations

- The Council will annually review the status of network overflows to confirm the position with respect to compliance or lack of compliance with the two year ARI network overflow standard. If necessary, prior to the expiry of the ECan compliance agreement, the Council will renegotiate the agreement to account for the actual progress made in reducing overflows and to incorporate revised and achievable standards and timelines.
- Sewer system repairs and replacement using alternative options (likely to include pressure and vacuum sewer systems for vulnerable parts of the network and greenfield areas) will contribute to reduced inflows of stormwater and infiltration of groundwater and will assist the Council in meeting the wet weather overflow standard. The Council will develop a process for incorporating potential benefits in reducing wet weather overflows into repair and replacement decisions. The purpose of this activity is to make the most cost-effective choices overall for repair and replacement works.
- The Council will implement the Wairakei Diversion commencing in 2013.
- The Council will carry out a performance assessment of the network in its current condition using the wastewater network hydraulic model to establish the current ARI for each overflow point.

The Council will also use the model to assess the effectiveness of the improvements in the wastewater network from the SCIRT rebuild and capital projects (e.g. Wairakei Diversion).

- Level and discharge volume data will be collected at each of the consented overflow locations, as required by the conditions of the overflow discharge consent.
- The hydraulic model will be updated and recalibrated as necessary during the next five years to confirm the status of overflows and progress towards the two year ARI performance standard.
- Once the SCIRT design programme is complete, the model will be re-run to establish the revised ARI for each overflow point, and will then be used as a basis to identify further works that may be required to reduce overflows to a two year ARI (e.g. network storage).

In addition, it is recommended the following programmes are put in place:

- undertake CCTV inspection or pressure testing of all laterals connecting to rebuilt pressure and vacuum sewer networks, and require the property owner to repair any damage on their property through their insurance cover
- encourage property owners with gravity laterals to CCTV their private lateral and repair under their insurance policy as required
- continue inflow and infiltration reduction on Banks Peninsula, particularly for Lyttelton once Akaroa is completed
- analyse the relative environmental benefits of improving stormwater discharge quality and reducing wastewater overflow frequency
- identify and mitigate areas prone to stormwater flooding that adds to stormwater inflow to the sewers in wet weather.

4.3 Long-term wastewater treatment and disposal

4.3.1 Description of issue

The CWTP has proven to be reasonably resilient through the 2010–11 earthquake sequence and provides cost-effective and reliable treatment of Christchurch wastewater on a day-to-day basis. Structures that were significantly damaged including the secondary clarifiers and oxidation pond embankments have been repaired and strengthened against further earthquake damage. Nevertheless, as the urban area expands increasingly to the north and southwest, the costs of reticulating wastewater from these peripheral areas to CWTP will increase and options to provide separate or satellite treatment facilities in these areas warrant consideration.



Oxidation pond at Bromley

As a baseline for comparison purposes, the strengths and weaknesses of CWTP are discussed below. The essential strengths of CWTP are as follows:

- The plant has existing capacity to treat forecast flows and loads to Year 2035.
- Network connections to the treatment plant have been strengthened post-earthquake.
- The treatment process is multi-layered with a number of treatment stages acting in series and a high level of redundancy provided within many of the individual treatment stages. If any stage

suffers partial failure the downstream stages are able to respond to mitigate the impact on treated wastewater quality.

- The site's infrastructure is robust.
- The CWTP oxidation pond system provides treatment backup as well as hydraulic buffering.

The essential weaknesses of CWTP are as follows:

- It is vulnerable to sand ingress following earthquakes, and this poses risks to treatment processes.
- Poor ground conditions enhance the risk of structural damage during future earthquakes. However, steps have been taken to reduce seismic risks by strengthening the clarifiers and oxidation ponds and associated structures that penetrate below groundwater level.
- The plant is located near the coastline but is still reasonably well elevated and therefore protected against coastal hazards including tsunami and sea level rise.

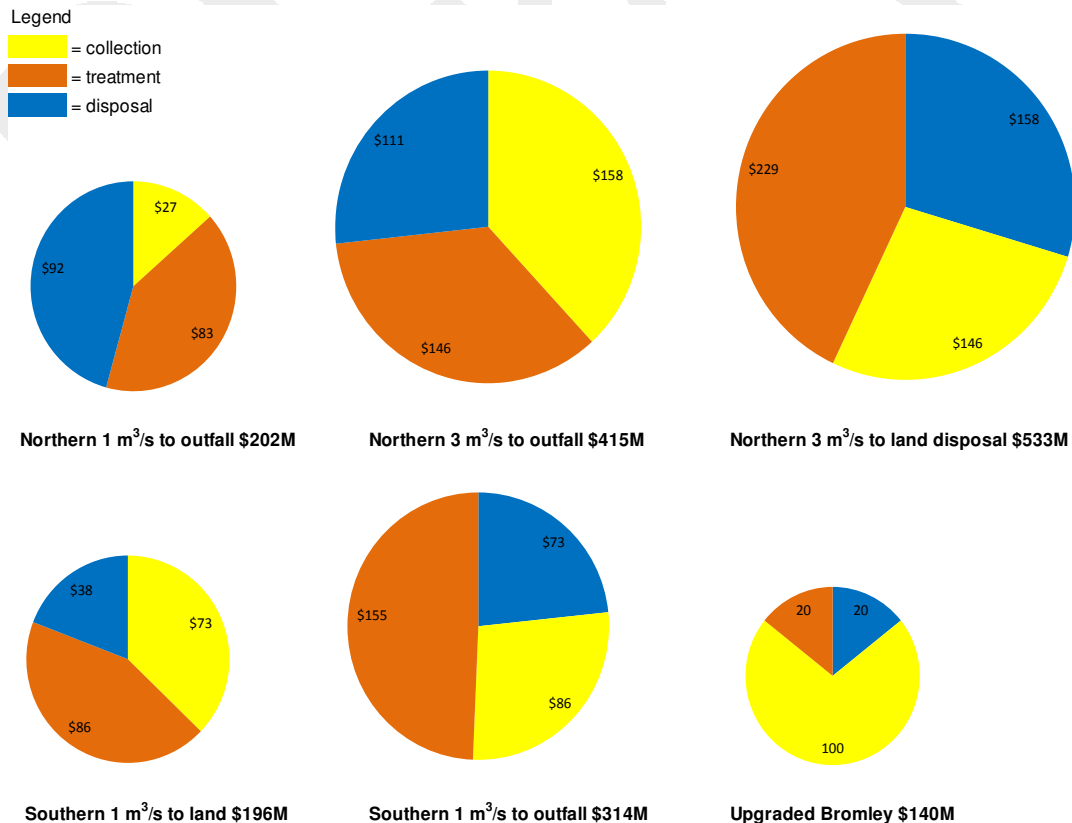
4.3.2 Options

A range of alternatives to the continued development of the CWTP treatment facility have been investigated in terms of resilience, whole of life or NPV cost, and social cultural and environmental performance. These options are:

- A satellite plant at Belfast treating one to three cubic metres per second with discharge to land or sea
- A satellite plant at Rolleston treating one cubic metre per second with discharge to land or sea.

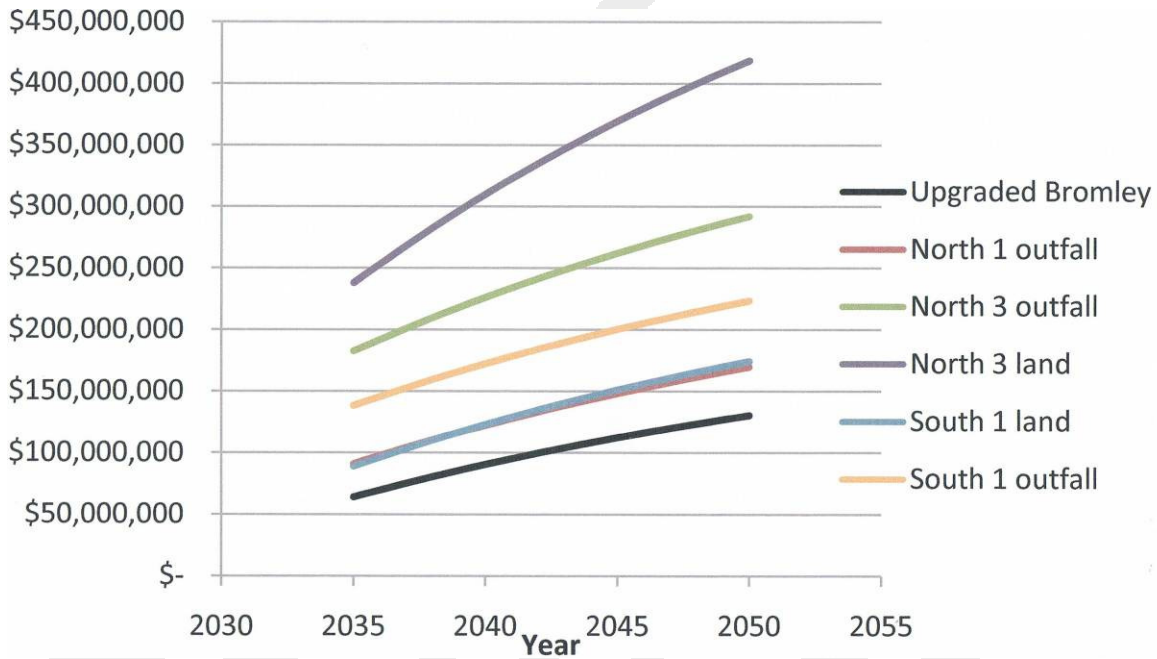
Capital costs for alternative treatment options are summarised in Figure 4.1.

Figure 4.1 - Indicative cost pie charts for wastewater treatment and disposal options



An NPV comparison of the alternative treatment schemes with the centralised and upgraded Bromley treatment facility is provided in Figure 4.2.

Figure 4.2 – Cumulative cash flow curves for treatment scheme options



The NPV comparison is based on the implementation of any chosen treatment scheme in 2035 to match the increase in demand for treatment and incorporates operating costs over 15 years to 2050. The upgraded Bromley treatment plant has the lowest NPV cost of all options analysed.

Treatment schemes have also been ranked overall against cultural, social environmental and economic and resilience parameters as shown in Table 4.1. Options are ranked from one as best to 5 as worst. Colour coding has also been used to indicate the ranking with green as best and red as worst.

The total score for each option was calculated by simply adding the scores together – in other words each attribute has equal weighting. This weighting is considered to represent a balanced assessment against the wastewater strategy goals and objectives. No sensitivity analysis has been conducted. The evaluation of options is summarised below. Schemes involving a satellite treatment plant are based on CWTP continuing to operate and treat residual flows and loads that are not diverted to a satellite treatment plant.

Table 4.1- Preliminary evaluation of wastewater treatment and disposal options

| Option | Item | Cultural | Social (including public health) | Environmental | Economic | Resilience | Total Score |
|--|------------|----------|--|---------------|----------|------------|-------------|
| Central wastewater treatment plant at Bromley to ocean | Conveyance | 3 | 2 | 3 | 1 | 3 | 31 |
| | Treatment | 1 | 2 | 2 | 1 | 2 | |
| | Disposal | 3 | 2 | 2 | 1 | 3 | |
| South wastewater treatment plant 1m ³ /s to land | Conveyance | 2 | 2 | 2 | 4 | 3 | 33 |
| | Treatment | 1 | 2 | 2 | 3 | 2 | |
| | Disposal | 2 | 2 | 2 | 2 | 2 | |
| North wastewater treatment plant 1m ³ /s to ocean | Conveyance | 2 | 1 | 2 | 1 | 3 | 37 |
| | Treatment | 1 | 3 | 3 | 3 | 2 | |
| | Disposal | 3 | 3 | 2 | 5 | 3 | |
| South wastewater treatment plant 1m ³ /s to ocean | Conveyance | 2 | 2 | 2 | 4 | 3 | 37 |
| | Treatment | 1 | 2 | 2 | 3 | 2 | |
| | Disposal | 3 | 1 | 2 | 5 | 3 | |
| North wastewater treatment plant 3m ³ /s to land | Conveyance | 1 | 1 | 1 | 5 | 2 | 38 |
| | Treatment | 1 | 4 | 4 | 5 | 2 | |
| | Disposal | 2 | 3 | 2 | 4 | 1 | |
| North wastewater treatment plant 3m ³ /s to ocean | Conveyance | 1 | 1 | 1 | 5 | 2 | 44 |
| | Treatment | 1 | 4 | 4 | 5 | 2 | |
| | Disposal | 3 | 4 | 3 | 5 | 3 | |

4.3.3 Centralised CWTP facility to ocean

A centralised and upgraded treatment facility at Bromley with continuing discharge to Pegasus Bay is ranked first overall. The main factors in this ranking are the lowest NPV cost, a moderate level of resilience and well defined and well managed cultural, social and environmental effects.

4.3.4 Southern treatment plant treating one cubic metre per second to land

A southern treatment plant treating one cubic metre per second combined with the Bromley treatment facility is ranked second overall. This scheme has similar resilience to the centralised CWTP option, with slightly higher costs and slightly improved performance on cultural and environmental effects.

4.3.5 Northern treatment plant treating one cubic metre per second to ocean

A northern treatment plant treating one cubic metre per second with disposal to sea is ranked third overall. Building a new treatment plant to the north as well as a new ocean outfall poses social, environmental and cultural risks. The resilience of this option is similar to the centralised CWTP option.

4.3.6 Southern treatment plant treating one cubic metre per second to ocean

A southern treatment plant treating one cubic metre per second with discharge to ocean, combined with the Bromley treatment facility is ranked fourth overall. The cost of a southern ocean outfall is substantial and this adversely affects the overall scheme's NPV. The resilience of this option is similar to the centralised CWTP option.

4.3.7 Northern treatment plant treating three cubic metre per second to ocean and land

The northern treatment plant schemes treating one cubic metre per second with the continued operation of the Bromley facility are ranked fifth and sixth respectively. These schemes suffer from high NPV costs while being marginally more resilient than the centralised Bromley option. The land disposal-based scheme generally scores lower (is more preferred) than the ocean disposal option in terms of cultural, social and environmental impacts.

4.3.8 Recommendation

The recommended option for future expansion of wastewater treatment facilities in Christchurch is the centralised and upgraded CWTP treatment plant option. A major expansion of the CWTP is likely to be required around 2035. Between 2012 and 2035 renewals and maintenance work should continue to address risks from natural hazards while maintaining the facility in accordance with asset management plan requirements.

This recommendation should be reviewed before the likely expansion of CWTP in 2035 is confirmed when growth factors and other considerations relevant to this decision are more clearly defined.

4.4 Banks Peninsula long-term wastewater treatment and disposal

4.4.1 Description of issue

The Council has conducted extensive consultation and scheme development on Banks Peninsula wastewater systems over the last six years. In summary, the Council proposes to:

- convey untreated wastewater that is currently treated at the Lyttelton, Governors Bay and Diamond Harbour wastewater treatment plants to CWTP
- expand the wastewater reticulation for Diamond Harbour to include Charteris Bay
- remove the Wainui wastewater treatment plant discharge from Akaroa Harbour, and dispose to land instead
- relocate the Akaroa wastewater treatment plant away from Takapuneke Reserve and construct a new mid-harbour outfall
- provide a reticulation and treatment scheme for Little River
- look at options for providing wastewater a scheme for Birdlings Flat.



Akaroa Wastewater Treatment Plant

A key issue for consideration is how overflows are managed in Lyttelton Harbour once the wastewater treatment plants are decommissioned.

4.4.2 Options

Nine options were considered for wastewater for Lyttelton Harbour, including land application and conveying wastewater to CWTP, against a base case option of improved treatment and continued discharge to Lyttelton Harbour (MWH, 2007). Five sub-options for conveying wastewater to CWTP were considered (Harrison Grierson, 2008), all of which involved piping wastewater across the floor of Lyttelton Harbour. Two further options were considered in the Issues and Options report (CH2M Beca, 2012):

- Providing peak flow storage at Diamond Harbour, Governors Bay and Lyttelton and pumping buffered flows from Diamond Harbour and Governors Bay to a pump station at Lyttelton wastewater treatment plant, and the combined flows through the rail tunnel to Pump Station 15 (which has sufficient capacity and is being repaired by SCIRT). This option would also include mothballing the Lyttelton wastewater treatment plant, which could be restarted in a couple of days to provide emergency treatment of the combined flows from Lyttelton, Governors Bay and Diamond Harbour.⁵ This is likely to have a similar cost to the preferred option in the Harrison Grierson (2008) report.
- As above, but instead of piping across the floor of Lyttelton Harbour, pipe in the road corridor from Diamond Harbour to Governors Bay, and from Governors Bay to Lyttelton wastewater treatment plant. While the pipelines are longer, this significantly reduces risks during construction and the risk of tsunami damage. This is likely to be slightly more expensive than the above option, due to the longer pipe lengths.

A preliminary evaluation of these two options was carried out, along with the other five sub-options for conveyance to CWTP, and the option of upgrading the Lyttelton Harbour wastewater treatment plants and continuing to discharge to Lyttelton Harbour. The evaluation took into account cultural, social, environmental, economic, and resilience factors.

The two preferred options are the two additional options described above. This is because these provide the greatest resilience (due to the provision of peak flow storage, and the ability to bring the mothballed Lyttelton wastewater treatment plant back online if the pipeline to CWTP is damaged), are among the lowest cost options (when compared on a like for like basis) and have the least environmental effects (with peak flow storage reducing the likelihood of overflows and all wastewater discharges being removed from Lyttelton Harbour).

4.4.3 Recommendation

It is recommended that the option of providing peak flow storage at Diamond Harbour, Governors Bay and Lyttelton is investigated in more detail. It is also recommended that the option of constructing the pipeline in the road corridor rather than across the harbour is further explored. The Council will investigate the options for Lyttelton Harbour in more detail closer to the planned time of implementation (2016 – 2019).

⁵ (Mike Bourke, Christchurch City Council, pers. comm. 11/6/12)

4.5 Reuse of treatment products

4.5.1 Water reuse

Description of issue

Very little water reuse is practiced in Christchurch due to abundant supply, the low cost, and high quality of fresh water available from aquifers beneath Christchurch. Water reuse is unlikely to be economically viable or widely supported by the community until the structure of supply costs or availability changes.

Options

The Issues and Options report (CH2M Beca, 2012) developed an option of reusing treated wastewater from CWTP to irrigate land in the residential red zone alongside the Avon River.

Given that the future status and use of this land is in doubt, and the widespread community desire to see the eastern suburbs redevelop on the back of a quality greenspace and aquatic environment, this option does not warrant further consideration.

A more acceptable and cost effective reuse option would involve expanding the wastewater reuse scheme at the CWTP to reduce groundwater extraction. This project is already listed in the Christchurch Long Term Plan for Years 2017–18 and 2018–19. Currently about 2,000m³/day of treated wastewater is reused for process cooling. This could be expanded to 5,000m³/day at a cost of about \$2M.

A preliminary evaluation of the two options was carried out, taking into account cultural, social, environmental, economic, and resilience factors. The preferred option is an expanded water reuse scheme at CWTP.

Recommendation

The preferred option is to implement the proposed expansion of the CWTP water reuse scheme in 2018 as this scheme optimises environmental and other benefits while minimising costs. This expansion involves further treatment of final wastewater at CWTP for onsite reuse within wastewater treatment processes (i.e. non-potable reuse).

4.5.2 Biosolids

Description of issue

Significant quantities of biosolids are produced continuously at the eight Christchurch and Banks Peninsula wastewater treatment plants and they require disposal. Dewatered biosolids are pathogen-laden. They are difficult to handle and the costs involved in safe and environmentally sustainable disposal can be significant. There are economies of scale in centrally treating biosolids. Small quantities of biosolids produced at Banks Peninsula treatment plants may optimally be processed at a central site such as CWTP.



Biosolids Drying Facility at Bromley

Options

The Council has developed an overall biosolids management strategy over the last seven years. This has included extensive public consultation specifically about the management of CWTP biosolids which amount to about 80 tonnes per day of material at 20 per cent dry solids. Options reviewed included landfilling, land spreading, biosolids composting, thermal and solar drying, and incineration. Decentralised biosolids processing has not been investigated in depth because the implementation costs are very high on a per-tonne-of-biosolids-processed basis compared with central processing at CWTP.

After extensive investigations a decision was taken to implement a thermal drying facility located at CWTP utilising 100 per cent renewable fuels to process dewatered biosolids into stabilised dried Class Ab biosolids suitable for reuse as a fertiliser or fuel. This facility was commissioned in 2010 and has capacity to process the biosolids from CWTP as well from the outlying treatment plants on Banks Peninsula.

The Council has also explored a range of options for disposing of the drier and stabilised biosolids that include landfilling, reuse in mine rehabilitation and use as fertiliser.

Recommendations

The recommendations for biosolids management are:

- Continue to dry CWTP biosolids at the biosolids drying facility using renewable fuels (landfill gas and wood) for the next 20 years
- In the short term, continue transporting biosolids to the Stockton mine for use in land rehabilitation as agreed under the current reuse contract with Solid Energy
- Continue to explore other reuse methods that can act as a second alternative to Solid Energy including use as a fertiliser and/or incineration over the next five years.

5 Monitoring, evaluation and review

The Implementation Plan should be reviewed annually to assess if there are additional approaches that can be taken, or whether changes to current methods are required. It is intended that this strategy is a living document that can be adjusted in the face of additional information.

The measures developed as part of the LTP process will be employed to review the progress of this strategy, particularly those measures developed for reducing wastewater overflows.

This strategy will be formally reviewed on a five-yearly basis, with the first formal review scheduled for 2017.

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6 Resources and capability

The Council is committed to providing an affordable, reliable, culturally acceptable, ecologically sustainable and resilient wastewater system that protects public health and meets the needs of present and future communities. To achieve this vision the Council will take the following steps:

- Through the Wastewater Strategy Implementation Plan the Council will adopt and prioritise specific tasks and actions required to put this strategy into force.
- The tasks and actions in this strategy will be incorporated into the LTP and Annual Plan using standard Council processes.
- Engagement with stakeholders will be ongoing involving normal consultative processes. Specific consultation activities may be used for particular elements of the programme as required.
- Resources will be allocated to implement the tasks and actions to meet programme and cost goals established by the Council.
- The progress of implementation will be monitored to ensure the goals and objectives of this strategy are achieved.
- This strategy and the Implementation Plan will be regularly reviewed as described in section five, and revised to bring them up to date with the rapidly changing circumstances that apply in Christchurch.

7 Implementation risks and tasks

7.1 Risks

Key risks to delivering this strategy include:

- failure of the Council to provide sufficient resources to address issues
- failure of stakeholders to accept their respective responsibilities
- deferral of actions to future councils and generations
- reliance on a single approach (silver bullet) to address issues
- failure of the community as a whole to recognise the impacts of individual actions
- failure of the Council to secure appropriate resource consents (e.g. for overflows)
- key assumptions about population growth (and associated wastewater flows and loads) are incorrect.

7.2 Tasks

This strategy will be delivered through an Implementation Plan. Resourcing will be determined through the LTP process. Key to this process will be the recognition that budgetary priorities must include not only business-as-usual infrastructure renewals and replacements, but also proactive capital and operational projects to ensure the long-term sustainability of the wastewater system.

List of Abbreviations

| | |
|-------------------|---|
| ADWF | Average Dry Weather Flow |
| ARI | Annual Recurrence Interval |
| BOD | Biochemical oxygen demand |
| BPDP | Banks Peninsula District Plan |
| CCTV | Closed circuit television |
| CERA | Canterbury Earthquake Recovery Authority |
| Council | Christchurch City Council |
| CRPS | Canterbury Regional Policy Statement |
| CWTP | Christchurch Wastewater Treatment Plant |
| DO | Dissolved oxygen |
| ECan | Environment Canterbury |
| GHG | Greenhouse gases |
| LTP | Long Term Plan |
| MKT | Mahaanui Kurataiao Ltd |
| MLWS | Mean low water springs |
| MHWS | Mean high water springs |
| NES | National Environmental Standard |
| NPS | National Policy Statement |
| NZCPS | National Coastal Policy Statement |
| m ³ | Cubic metres |
| m ³ /d | Cubic metres per day |
| m ³ /s | Cubic metres per second |
| NPV | Net Present Value |
| NZTA | New Zealand Transport Agency |
| PPCP | Pharmaceutical and personal care products |
| PVC | Poly Vinyl Chloride |
| RMA | Resource Management Act |
| SCADA | Supervisory Control And Data Acquisition system |
| SCIRT | Stronger Christchurch Infrastructure Rebuild Team |

| | |
|-----|-------------------------------|
| SDC | Selwyn District Council |
| UDS | Urban Development Strategy |
| UV | Ultraviolet |
| WDC | Waimakariri District Council |
| WEF | Water Environment Federation |
| ZIP | Zone Implementation Programme |

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Glossary

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|-------------------------|--|
| Biosolids | Sludge is solids separated by wastewater treatment processes; if the sludge is stabilised to reduce pathogens and pest-attraction it is classed as biosolids (which can be beneficially reused) |
| Conveyance/reticulation | A network of pipes and pumps that collects wastewater from houses, commercial and industrial properties, and conveys it to a wastewater treatment plant |
| Net Present Value | Today's value of a future amount, before interest earnings and/or charges |
| Raw sewage | Untreated wastewater |
| Sewage | Another name for wastewater |
| Sewer | A pipe which carries wastewater to a wastewater treatment plant |
| Sewerage system | Another name for wastewater reticulation |
| Stormwater | Water that originates from rainfall and either soaks into the land surface or results in surface runoff |
| Treated effluent | Wastewater which has been treated in a wastewater treatment plant to reduce contaminants |
| Untreated effluent | Another name for raw sewage or raw wastewater |
| Wastewater system | The whole of the wastewater system including the connections to individual private sewer pipes, sewer networks, pumping stations, rising mains to wastewater treatment plants and disposal facilities to a point where wastewater is released into the environment |



To: Environment and Infrastructure Committee
From: Mike Theelen, General Manager Strategy and Planning Group
Date: 14 September 2012
Re: Draft Wastewater Strategy and Proposed Land and Water Regional Plan

Background

1. At the 6 September meeting of the Environment and Infrastructure Committee a report on the draft Wastewater Strategy (draft strategy) was discussed. The report recommended that the Committee recommend to the Council that the draft strategy should be released for public consultation.
2. The Committee raised questions regarding the risk of mis-alignment of the draft Wastewater Strategy with the proposed Land and Water Regional Plan (PLWRP) with respect to the issues of wet weather overflows. The Committee resolved:

“That this matter lie on the table pending the workshop on 7 September and further advice from staff ahead of the September Council meeting.”

3. The Committee also received an overview of the PLWRP from Commissioner Skelton and Environment Canterbury advisor Peter Constantine on 7 September.

Draft Wastewater Strategy

4. The principal interface between the Draft Wastewater Strategy and the PLWRP is the issue of wastewater discharge overflows, as in general the wastewater system is a controlled system that does not, by design, interact with the natural environment apart from consented discharges.
5. The draft strategy outlines the issue associated with wet weather overflows and briefly discusses options that were considered to address this issue. The draft strategy makes a number of recommendations to mitigate wet weather overflows. Many of these activities are already being implemented or will be undertaken in the next year or two. These activities ensure compliance with the wet weather overflow consent.

Key PLWRP wastewater rules

6. At the 7 September workshop the Committee heard from Environment Canterbury Commissioner Skelton that the rules relevant to community wastewater systems are Rules 5.62 through 5.66.
7. The proposed rule that applies to wet weather overflows is Rule 5.65:

“The discharge of untreated sewage onto or into land in circumstances where a contaminant may enter water or into surface water, wetland or groundwater, as a result of a spill, overflow, or equipment failure, is a *non-complying* activity.” [emphasis added]

8. Later during the 7 September workshop the Committee heard from Mike Bourke that proposed rule 5.65 mirrors the existing rule in the operative Natural Resources Regional Plan (NRRP).
9. Rule WQL16 is the applicable rule in the operative NRRP with respect to overflows. The rule states that:

“The discharge of untreated sewage effluent onto land or into a river or artificial watercourse as a result of a spill or overflow from an existing sewerage pipeline network or an extension to an existing sewerage pipeline network, owned by a network utility operator, is a *non-complying* activity.” [emphasis added]

Summary and Recommendation

10. As the Committee itself raised with the Ecan Commissioners, there is an inherent tension regarding the extent to which it is practicable and affordable to ensure that there are no untreated wastewater overflows into water bodies in Christchurch at any time. The Committee and Commissioners recognised that the consent process provided a well tested and understood mechanism to address and resolve these matters. In many instances the issues lie less in the rules and standards and more about how they are applied and interpreted by individual staff.
11. The two discussions last week were timely and demonstrated, as did a review of the Draft Wastewater document that the aims and goals of the draft strategy are not in conflict with either proposed rule 5.65 in the PLWRP or Rule WQL16 in the operative NRRP.
12. It is useful to remind the Committee that the two documents are quite different in nature and purpose. The Regional Council document is a set of policies and rules with an ostensibly 10 year life. The Council’s Strategy in contrast, is a long term (30 year) vision that seeks a broad long term direction. Achieving that will be subject to capital and operational programmes within the LTP, and through consents that Council will need to review with Ecan from time to time. There will be, as noted above, differences of opinion about the timing, quality, frequency and acceptability of discharges, despite the fact that both documents are endeavouring to achieve the same outcome for the community and the environment.
13. It is therefore considered that the Committee should be assured that there is no significant difference between the two documents and that the Draft Wastewater Strategy is appropriate to be notified for public consultation.



Mike Theelen
GENERAL MANAGER
STRATEGY AND PLANNING GROUP



Jane Parfitt
GENERAL MANAGER
CITY ENVIRONMENT GROUP



3. HIGH ST/TUAM ST TRIANGLE APPLICATION BY C1 EXPRESSO FOR TABLE AND CHAIR LICENCE

| | |
|-------------------------------------|--|
| General Manager responsible: | General Manager City Environment Group, DDI 941-8608 |
| Officer responsible: | Unit Manager, Asset and Network Planning |
| Author: | John Allen, Policy and Leasing Administrator |

PURPOSE OF REPORT

1. The purpose of this report is to seek the Council's approval that:
 - (a) It considers granting a table and chair licence in accordance with the Public Streets Enclosures Policy for up to five years over part of the reserve triangle on the corner of High and Tuam Streets to C1 Espresso Company Ltd.
 - (b) It approves the application to use part of the garden in the raised planter for the production of vegetables and other produce to be used in their adjacent business.

EXECUTIVE SUMMARY

2. The parcel of land of approximately 285 square metres, which includes the raised garden bed on the Tuam High Street Corner, and the pedestrian area between this bed and the former post office building is vested in the Council pursuant to The Christchurch City (Reserves Empowering) Act No 8 1971. The land is held for the purposes of lawns, ornamental gardens, and ornamental buildings and is administered in accordance with the provisions of the Reserves Act 1977.
3. Before the earthquakes, C1 Espresso Company Limited (Company), operated their business out of premises on the east side of High Street near the corner with Tuam Street.
4. The Company had a tables and chairs licence with the Council which extended over the extended footpath area on that corner; this footpath being extended by the Council to redirect traffic from High Street into Tuam Street by way of a right angle tee intersection.
5. The Company has shifted its business to the ground floor of the former post office building located at 209 Tuam Street, because the former premises they operated out of have been demolished due to earthquake damage. It has applied for:
 - (a) A Tables and Chair Licence over some of the paved area east of building, see plan showing the area applied for in (refer **Attachment 1**).
 - (b) A licence over the adjacent triangle garden area to enable them to grow vegetables and other produce for their adjacent restaurant business, (refer **Attachment 1**).
6. The Council has previously approved a tramway easement corridor through the reserve, which includes an area for a tram stop building, (refer **Attachment 1**), which has been approved by the Minister of Conservation. The proposed Tables and Chairs licence that has been applied for, if granted, is to be conditioned that it be re-evaluated when work resumes on construction in the easement corridor over the paved area between Tuam and High Streets. This evaluation is required to ensure that there are safe clearances from the licensed area for both tram construction and subsequent operation, including the tram stop shelter, whilst ensuring that pedestrian use of the area is maintained.
7. The Company has made application to be granted a licence over the adjacent triangle garden area to use it for the production of vegetables and other produce to be used in the kitchens of the restaurant. The applicant is very environmental focused, and while this garden will only produce a token amount of the produce required by the restaurant, the Company wishes to

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ENVIRONMENT AND INFRASTRUCTURE COMMITTEE 17. 9. 2012

3 Cont'd

demonstrate to its customers the 'production route' the food takes from the garden to the table. Officers have discussed this proposal with the applicant and believe there is no reason why such a licence should not be granted subject to a number of conditions to ensure that the principal purpose that the reserve is held for is upheld.

8. The applicant has also applied for a licence over an area on the Tuam Street frontage. This area is not being considered as part of this report, the issue of whether or not to grant such a licence over legal street being further delegated to the Roading Corridor Operations Manager to decide upon.
9. This proposal is in alignment with the Canterbury Earthquake Recovery Authority (CERA) approved Central City Redevelopment Plan.
10. Officers recommend that a table and chairs licence, and a licence over the adjacent garden area be granted to the applicant for an initial period of up to five years subject to a number of conditions which are amplified upon below.

FINANCIAL IMPLICATIONS

11. There are no financial implications for the Council in approving this application, costs, (mainly staff time), required to gain Council approval to the granting of the licenses and putting them in place will be paid for from existing budgets. A commercial licence fee will be charged for the use of the table and chairs licensed area in accordance with the Public Streets Enclosure Policy. This revenue will more than offset the initial set up costs to the Council.

Do the Recommendations of this Report Align with 2009-19 LTCCP budgets?

12. No, but after paying for the initial approval and licence set up costs there will be an ongoing revenue flow back to the Council.

LEGAL CONSIDERATIONS

13. The subject land is vested in the Council pursuant to the Christchurch City (Reserves Empowering Act 1971, for the purposes of lawns, ornamental gardens, and ornamental buildings. Section 12 of that Act provides that all reserves subject to that Act are to be held and administered subject to the provisions of the Reserves Act 1977.
14. As a reserve held for "lawns, ornamental gardens, and ornamental buildings" it is considered, for Reserves Act 1977 purposes, to be held by the Council as a local purpose reserve for those particular purposes.
15. Section 61 of the Reserves Act empowers the Council to lease or licence local purpose reserve for activities consistent with its classification. It is the view of the Legal Services Unit that the proposed activity of the licensee is consistent with the reserves classification provided that the existing landscaping on the reserve is not altered. Under section 61(2) of the Reserves Act leases or licences of local purpose reserve may be granted for terms of less than five years without there being a requirement to publicly tender such arrangements.
16. Community Boards have been granted delegated authority to grant licences of reserve under section 61 of the Reserves Act; however the power to grant such licences within the central city area has been expressly reserved to the Council. Council staff have no delegated authority to grant leases or licences over Reserve Act land.
17. Whilst the land in question is held by the Council as reserve, it is currently formed and landscaped as a footpath and raised garden bed. Whilst strictly not applicable, as the land is not legal road, Council staff propose that it would be appropriate for any licence of the land to be administered in accordance with the Council's 'Public Street Enclosure Policy'.

3 Cont'd

18. Council staff when considering this application were aware of the ongoing changes that will occur to the central cities layout, as a result of the rebuild. Therefore to ensure that any changes not yet decided upon for this area, are not unreasonably held up from being implemented, officers are recommending that a clause be inserted in the licence documents allowing the Council to terminate the licences upon giving the licensee one months notice of such termination.

Have you considered the legal implications of the issue under consideration?

19. Yes – see above.

ALIGNMENT WITH LTCCP AND ACTIVITY MANAGEMENT PLANS

20. Aligns with Community Outcomes.

Do the recommendations of this report support a level of service or project in the 2009-19 LTCCP?

21. Supports central city revitalisation and recovery. Recommendations ensure that future construction of tram extension through the site will not be impeded.

ALIGNMENT WITH STRATEGIES

22. Relevant strategies - Central City Revitalisation Strategy, Draft Central City Recovery Plan.

Do the recommendations align with the Council's strategies?

23. Yes - re-establishing the business formerly across the road in High Street (building now demolished) will assist in the recovery of this part of the central city.

CONSULTATION FULFILMENT

24. There is no requirement under section 61 of the Reserves Act 1977 to undertake public consultation before the Council grants the licence. The Council however must ensure before the licence is granted that the public have free access through the reserve without encroaching upon the licensed area.
25. Council support of the application to re-establishing the business formerly across the road in High Street (building now demolished) will assist with the recovery of this part of the central city.

STAFF RECOMMENDATION

It is recommended that the Council approve the granting of the following licences pursuant to section 61(2) of the Reserves Act 1977 for a period of up to five years over the approximately shown areas on the plan attached the (refer **Attachment 1**):

- (a) A licence of approximately 72 square metres of the paved area between the raised triangle garden area and the former post office building for tables and chairs as shown in the (refer **Attachment 1**) to be administered in accordance with the requirements of the 'Public Streets Enclosure Policy' subject to the following conditions:
- (i) The tables, chairs and fences being stored within the adjacent restaurant building at the end of business each day.
 - (ii) Any planters which are left out at the end of each business each day are not to impede free public access into the licensed area(s) when the restaurant is closed for business.

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3 Cont'd

- (iii) The licence is to be conditioned that the area licensed is to be re-evaluated when work resumes on construction in the easement corridor over the paved area between Tuam and High Streets. This evaluation is required to ensure that there are safe
 - (iv) clearances from the licensed area for both tram construction and subsequent operation, including the tram stop shelter, whilst ensuring that pedestrian use of the area is maintained.
 - (iv) That contact is made with the Council's Contract's Manager Greenspace to ascertain the Council's requirements before the anchor bolts are inserted into the pavement.
 - (v) The applicant is to ensure that he keeps his infrastructure within the licensed area at all times.
- (b) A licence of approximately 95 square metres being the raised triangle plot for a produce garden for the growing of vegetables and other garden produce to supply the restaurant as shown on the plan (refer **Attachment 1**) subject to the following conditions:
- (i) A landscape plan is to be prepared by the Council in which ornamental plantings are to be present as well as vegetables to ensure that the purpose the reserve is held for, that being for lawns, ornamental gardens, and ornamental buildings is maintained.
 - (ii) The overseeing of the preparation of the plans and ongoing management of the area is to be undertaken by the Senior Contracts Manager (Greenspace) and his staff to ensure that the purpose for which the reserve is held is maintained.
- (c) That a clause be inserted in both licence documents which enables the Council to terminate the licences upon giving the licensee one month's notice of such termination to ensure that any changes not yet decided upon for this area, as part of the rebuild of the central city area, are not unreasonably held up from being implemented.
- (d) That the Corporate Support Unit Manager in consultation with the Transport and Greenspace Unit Manager, be delegated authority to negotiate and enter into such deeds of licence implementing the above on such terms and conditions as they shall consider appropriate.

COMMITTEE RECOMMENDATION

That the staff recommendation be adopted.

Background

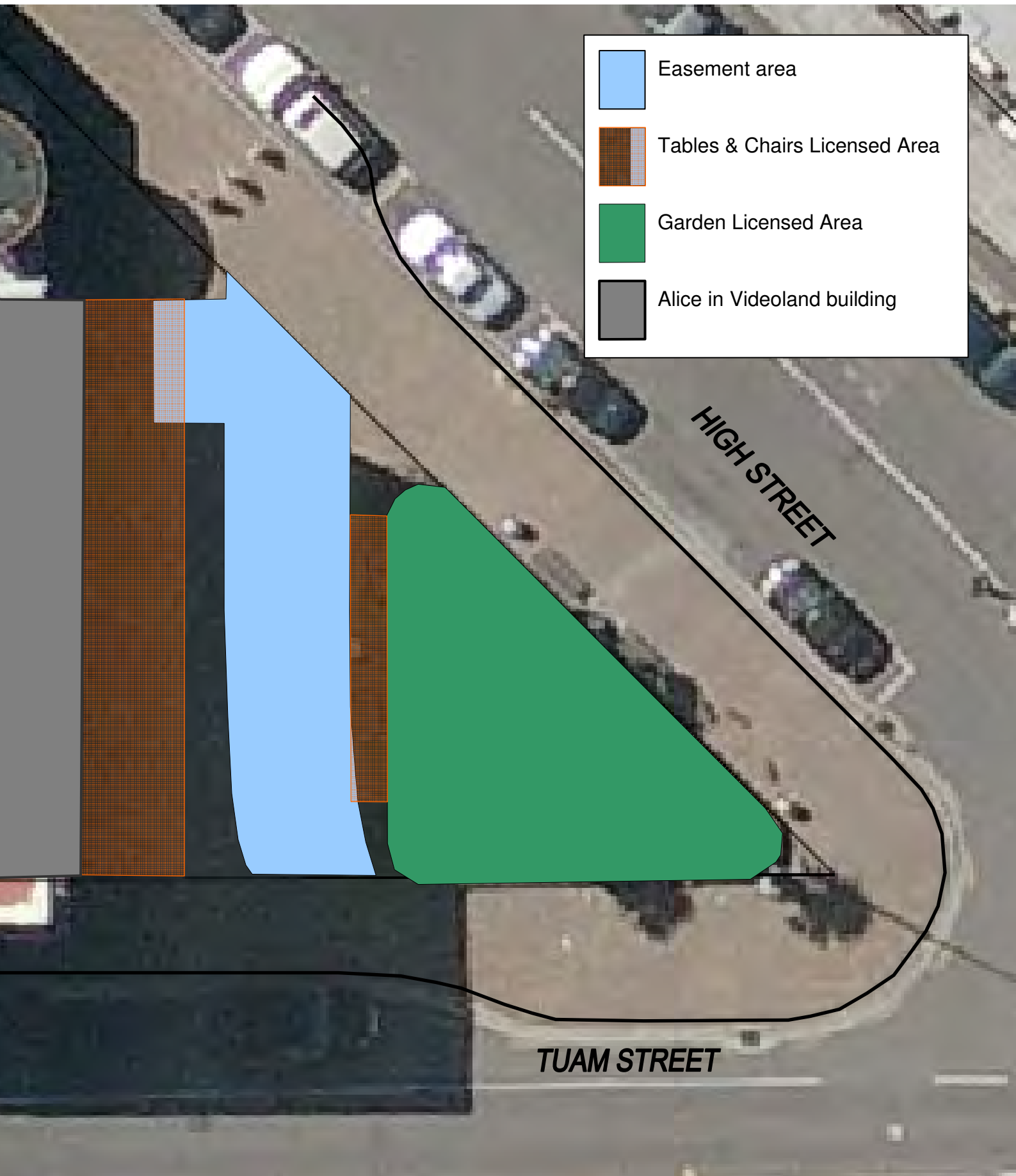
- 26. The proposed use of the licensed area for outdoor dining area will have no effect on the principal purpose for which the reserve is held. The effect of this dining within the licensed area will be to encourage the public to linger more in the reserve, and consequently enjoy its ambience.
- 27. A landscape plan is to be prepared by the Council's landscape architects for the garden area in which ornamental plantings are to be present as well as vegetables to ensure that the purpose for which the reserve is held (lawns, ornamental gardens and ornamental buildings), is maintained. The ongoing management of the gardens is to be undertaken in such a way that the purpose for which they are held is maintained.
- 28. The overseeing of the preparation of the landscape plans and ongoing maintenance of the garden is to be undertaken by the Transport and Greenspace Manager and his nominees to ensure that the area is kept tidy, and the purpose for which the reserve is held is maintained.





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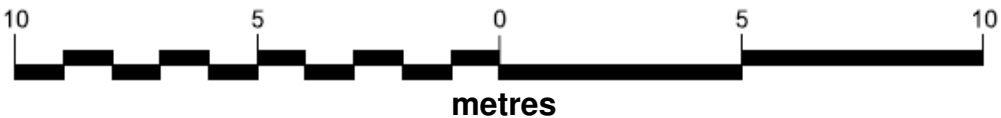
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3 Cont'd

29. It is important that pedestrian access through the reserve over the paved area by the former post office building is maintained past the areas it is proposed to license for tables and chairs, this access across the reserve is to be maintained clear of the tram easement area to allow for the future operation of the tram through this area.
30. The applicant will remove the table and chairs at the end of the business day, the restaurant intending to be open between the hours of 6 am and 11 pm, storing these in the adjacent restaurant at night. The applicant intends to place some movable planter boxes and anchor points, (to help anchor their windbreaks in bad weather), on the footpath, in accordance with the requirements set out in the 'Public Streets Enclosure Policy, the policy setting out the constructional requirements for these structures.
31. The applicant has indicated that from time to time they may wish to hold an exclusive function within their licensed area during which time the licensed area will be closed to the general public to use.
32. Officers are recommending that if the Council approves the officers recommendation, the putting in place of the required licences be delegated to the Transport and Greenspace Manager in association with the Corporate Support Manager, subject to them adhering to the conditions set out in the officer's recommendation, in accordance with the 'Public Streets Enclosure Policy', and the requirements of section 61 of the Reserves Act. It is proposed that the deeds of licence will provide the Council with a right of termination should the area be developed or required to support the redevelopment of the Central City.



-  Easement area
-  Tables & Chairs Licensed Area
-  Garden Licensed Area
-  Alice in Videoland building



PART B - REPORTS FOR INFORMATION

4. DEPUTATIONS BY APPOINTMENT

Nil.

PART C - DELEGATED DECISIONS

5. RESOLUTION TO APPOINT A CHAIRPERSON

As both the Chairperson and the Deputy Chairperson were absent the Committee **resolved** to appoint Councillor Sue Wells as the Acting Chairperson for this meeting.

The meeting concluded at 2.10pm.

CONSIDERED THIS 27TH DAY OF SEPTEMBER 2012

MAYOR