



christchurch city council

our community plan christchurch o-tautahi 2006 to 2016

The following pages contain a range of policies and assessments which are required under the provisions of the Local Government Act.

They are also potentially of interest to stakeholders seeking specific technical information.



Assessments of Various Services

The Local Government Act 2002 requires territorial local authorities to carry out an assessment for water and sanitary services in accordance with sections 123 to 129 of the Act by 30 June 2005. This is to ensure that future demand for services can be met and the public health is protected.

In the following section of the LTCCP there are assessments of the city's water supply, public conveniences, wastewater collection and treatment, stormwater and cemeteries and crematoria. It also includes the Council's waste-management plan.

Section 128 of the Local Government Act 2002 states that an assessment of sanitary services is not required if the Council considers public health matters have been adequately addressed in a waste-management plan. Consequently the Council's Waste Management Plan fulfils these requirements.

Cemeteries and crematoria

Cemeteries and Crematoria

This assessment considers the adequacy of the provision of cemeteries and crematoria in Christchurch City to meet future demands for disposal of the dead in a controlled, hygienic and dignified manner for the period 2004 to 2016.

Key findings are:

- There is sufficient capacity within existing cemeteries to meet predicted demand for the next 20 years.
- Current crematoria capacity is adequate to meet predicted demand well beyond a 20-year period.
- Because of community preference for locally accessible cemeteries, there is a requirement for a new cemetery site to service the northern part of the city and additional capacity is required at Avonhead Cemetery. (Sites have been acquired to meet this need but establishment as cemeteries is subject to resource consent and planning processes).
- A partnership with Selwyn District Council for the joint use of Shands Road Cemetery should be further explored, along with the establishment of a cemetery at Wigram to meet the future burial needs of the southern part of the city.
- Some form of limitation on the pre-purchase of cemetery plots is required to extend cemetery life spans and optimise cemetery use.
- Additional special areas will need to be set aside for Returned Services needs, for Russian Orthodox burials and to meet Pacific people's needs.
- Improved use of less popular cemeteries and ash areas is required.
- Current capacity at both cemeteries and crematoria is sufficient to deal with death rates from a civil emergency or pandemic. However, during the next 10 years, it would be prudent to investigate an area that could be used for both mass burial and as a future cemetery.
- No public health issues were identified by the Medical Officer of Health. The issues of groundwater contamination from cemeteries and air discharges from crematoria which were raised by other agencies are considered in the assessment.

Asset Description

There are 12 cemeteries located within the Christchurch district which are managed by the Christchurch City Council (CCC). Six of the 12 Council cemeteries are either closed or have reached capacity with the only burials being a second burial in an existing plot or burial in a reserved plot. In addition to the Council cemeteries, a number of churches have their own burial grounds for members of their denomination. There are about 18 burial grounds in the district. These are typically small and the extent of their operation minor.

Cemeteries and crematoria are provided for the community and the provision of this activity does not significantly alter, based on the geography or demographic profile of different parts of a community. However, the Christchurch district differs from most others around New Zealand in that most districts have only one or two operational cemeteries whereas in Christchurch there are six. The effect is that there tends to be a localised community around each cemetery. Analysis of cemetery requirements in the district have now therefore been based on the six Christchurch ward boundaries.

The Christchurch City Council does not own or operate any crematoria. Cremation services within the Christchurch district are provided by two private companies. The Cremation Society of Canterbury has two facilities, one located at Linwood and the other at Harewood. The Garden City Crematory also has a cremator, and it is located at Sockburn. No defined catchment could be determined for each of the crematoria; therefore, the assessment considers the entire district of Christchurch as a single community for cremation services.

Public Health Issues

Public health issues in cemeteries relate to work around graves, potential environmental effects such as contamination of ground water, and the ability of cemeteries and crematoria to cope with large numbers of dead following a natural disaster or pandemic. The few public health issues relating to cremation relate to air discharges, radiotherapy effects and devices, such as pacemakers.

Appropriate operating procedures are in place and documented for public health issues relating to both cemetery operations and cremations. The application of the procedures is audited as part of the ISO certification process.

Cemeteries and crematoria

Forecast of Deaths

The figure below shows that there will be a substantial increase in predicted deaths for the resident population over the next 20 years owing to a combination of an aging population and the large increase in population in the district.

Actual and predicted deaths

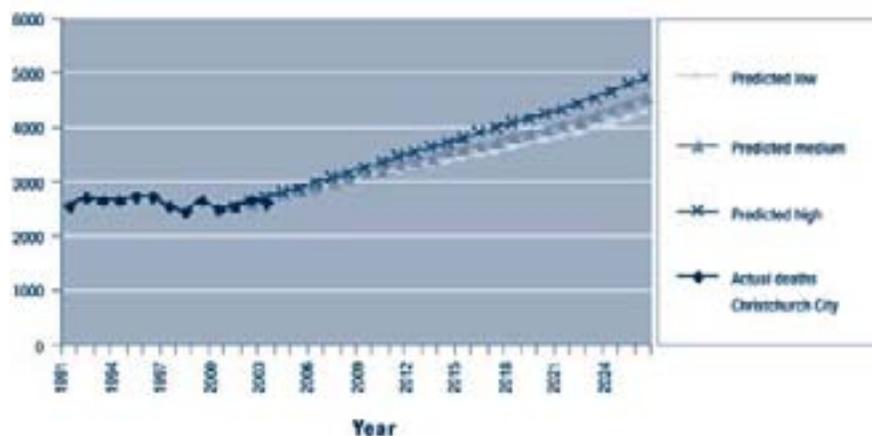


Figure: Actual (1991-2003) and Forecast (2001-2026) deaths for Christchurch City resident population

Low, medium and high projections for the number of grave and ash plots required are shown in the figure below. It should be noted that this only represents new plots – the calculations have taken into account second burials and trends for ashes to be buried in existing grave or ash plots.

Year	Total new grave plots			Total new ash plots		
	Low	Medium	High	Low	Medium	High
2001	401	402	403	96	97	98
2002	409	412	416	98	99	100
2003	418	423	429	100	101	103
2004	426	434	442	102	104	106
2005	435	445	456	104	107	110
2006	444	456	469	106	109	113
2007	454	469	484	108	112	116
2008	465	482	499	111	115	120
2009	476	495	515	114	118	124
2010	486	508	530	116	122	127
2011	497	521	545	119	125	131
2012	507	532	558	121	127	134
2013	516	544	572	123	130	137
2014	525	555	586	125	133	141
2015	534	567	600	128	136	144
2016	544	578	613	130	138	147
2017	553	589	627	132	141	151
2018	562	600	640	134	144	154
2019	571	611	653	136	146	157
2020	580	622	666	138	149	160
2021	589	633	680	141	152	163
2022	603	649	698	144	155	168
2023	617	665	716	147	159	172
2024	630	681	735	150	163	177
2025	644	697	753	154	167	181
2026	658	713	771	157	171	185
Total 2004 - 2026	12,316	13,049	13,808	2,939	3,124	3,318

Figure: Low, medium and high projections for grave and ash plots required



Cemeteries and crematoria

Current Capacity

The current capacity of cemeteries is calculated by considering both the current number of available plots both for burials and ashes and the future demand projections.

Burial Plots

Christchurch City records provide information on the number of burial plots available. This excludes plots that have been pre-sold.

Cemetery	Burial	Quarter Plot	Still Born
Avonhead	1,578	91	32
Belfast	74		
Memorial Park	7,883	148	
Ruru Lawn	750		
Ruru Lawn - Returned Services Assn plots	228		
Sydenham	320		
Yaldhurst	3,101		
Total	13,934	239	32

Figure: Plots available for all Christchurch cemeteries as at September 2004

The projection of burial requirements and capacity includes all special burial plots (RSA, ethnic and religious) in the overall calculation.

Based on the high demand forecast for new burial plots, district-wide cemetery capacity will be reached in 2026 (all available plots used). Analysis of the medium and low forecasts predicts that capacity will be reached in 2027 or 2028. It is important to note that this forecast considers the total city-wide plot availability and does not take into the strong preference in the community for residents to be buried in their local cemetery rather than elsewhere in the city. There are exceptions to this, one being the Yaldhurst Cemetery which appears to have limited appeal, even with the local community. Others are Memorial Park and Sydenham Cemeteries. If the reasons for

the lack of appeal could be identified and addressed, this may delay the requirement to develop new cemeteries.

No new plots are available at Bromley, Linwood and Waimairi cemeteries although there are a number of pre-sold plots still remaining at these cemeteries. The first operational cemetery predicted to reach capacity is Belfast which will have no new plots available beyond 2004/05. This creates a significant gap in the cemetery distribution across the district, there being no operational cemetery in the northern part of the district.

Ruru Lawn is forecast to reach capacity in 2007. This is earlier than originally forecast as burial plots are being sold as ash plots, there being no dedicated ashes area at this cemetery.

Avonhead is likely to reach capacity in 2015/16. However, this date could be affected by the mix of burial plots provided. Upright memorials are allowed only in some sections – about 300 remaining – the balance of plots being in the lawn cemetery with only in-ground memorials permitted. These areas are not popular with plot purchasers. Although a change to the layout would provide an increased number of cemetery sections with upright memorials, there is significant resistance to any change to the cemetery layout, particularly from families of those who have already purchased in ground plots. The calculation of remaining capacity does not include the proposed 1.6 ha extension which has a capacity of about 1,000 additional plots. Early development of this area may be necessary to provide additional plots allowing upright memorials.

Sydenham is forecast to reach capacity in 2017/18 and the two remaining cemeteries, Memorial Park and Yaldhurst, will have a combined capacity until around 2026/27. Memorial Park is likely to reach capacity first. The development of the Wigram cemetery is not likely to be required until at least 2016, following the closure of Sydenham Cemetery.

Capacity to meet future demand could be further enhanced by exploring the possibility of a partnership with Selwyn District Council for the joint use of Shands Road Cemetery, located on the southern boundary of the city.

There is a significant number of pre-purchased burial plots in the Christchurch cemeteries, representing about 3 to 5 years of total burial capacity for the City. At present there is no restriction on the pre-purchase of plots, accelerating the need for additional burial plots. The impact is

Cemeteries and crematoria

highlighted by the 457 plots sold but unoccupied at Belfast Cemetery. It now has only a few burial plots remaining and a new cemetery site for the northern part of the city is being sought.

Ash Plots

Ash plots are easily accommodated as they take up minimal area. At present there are about 3,500 plots available in CCC cemeteries. It is possible that additional ash plots could be created if required. It is noted that of the available ash plots, 75% of the capacity is at Yaldhurst and Sydenham cemeteries. During the period 2000 to 2003, however, these accommodated only 5% respectively of the total ash burials. Unless the appeal of these two cemeteries can be improved, additional capacity will need to be developed at the other cemeteries, particularly Ruru Lawn Cemetery. Alternative options for the provision of ash plots could be considered to meet demand requirements and conserve space.

Based on the continuation of the high demand forecast for new ash plots, district wide cemetery capacity is reached in 2027 (all available plots used). Analysis of the medium and low forecasts predicts that capacity will be reached in 2028 or 2029. It should be noted that Christchurch City Council provides for only a small proportion of ash burials in the district. The majority are held or scattered by friends and relatives, interred in an ash plot or columbarium at one of the churches, or in the memorial gardens at one of the crematoria.

Pre-purchased ash plots represent a small proportion of total ash plot capacity for the City, in the order of one to two years. Although allowing pre-purchase has no effect on the long term net capacity of the city's cemeteries, except where they remain unused, they accelerate the need for new areas and additional infrastructure.

Special Plots

Special burial plots available in CCC cemeteries include White Russian (35 plots, Belfast), Indian (13 plots, Sydenham), Muslim (6 plots, Ruru Lawn; 84 plots Memorial Park), non-local Maori (268 plots, Memorial Park) and Jewish (85 plots, Linwood). In addition, a request has been received through the consultation process for an area to be set aside at Memorial Park Cemetery for Russian Orthodox burials. It is recommended that this request receive further consideration

as required under Burial and Cremations Act 1964. Representatives of Pacific Island people have asked that a more culturally-sensitive approach be applied to their burial needs which could involve the designation of special areas to meet these requirements. It is recommended that this request is further investigated in consultation with Pacific Island representatives.

Returned Services Association Plots

Returned Services Association (RSA) plots are provided in the Ruru Lawn cemetery. Analysis of the actual burial records and plot availability indicates that the RSA ash plots section will reach capacity within the next 2 to 5 years. RSA burial plots can be expected to reach capacity within the next 4 to 9 years. It is therefore recommended that additional RSA areas are dedicated in another cemetery. The current capacity of 8,000 per annum compares with a predicted capacity of 4,216 per annum in 2026.



Cemeteries and crematoria

Crematoria

There was a lack of detailed information provided by the crematorium operators, perhaps relating to commercial sensitivities. It was therefore difficult to accurately assess the provision for cremation. However, from the cremation information available and the Christchurch City burial records, assumptions could be made about the expected average annual resident and out-of-district cremations. Analysis showed that the total capacity of the operating crematoria in the district was well in excess of forecast demand.

Options to Meet Demand

The assessment of cemeteries and crematoria has shown that the overall provision of land for cemeteries and total number of cremators is adequate to meet overall demand within the district for the 10-year planning period and beyond.

The assessment highlights a community preference for the provision of local cemeteries. In order to continue to meet this need the following actions are recommended:

- A new cemetery is provided in the northern part of the City as a replacement for Belfast Cemetery;
- Additional capacity for upright memorials is developed at Avonhead Cemetery;
- A denominational area for Russian Orthodox burials is developed at Memorial Park Cemetery;
- Investigate provision of designated burial areas to meet the needs of Pacific Island people;
- A new area is developed at Memorial Park Cemetery for RSA burials;
- A limitation on the pre-purchase of plots is established;
- Further explore the shared use of Shands Road Cemetery with Selwyn District Council and continue to investigate the provision of a new cemetery site at Wigram to meet the future needs of the southern part of the city;
- Options for improved use of plots are investigated, particularly ash plots;
- A public promotion plan for less popular cemetery sites is developed and implemented;

- Investigate future provision of an area that could be used for mass burial purposes and as a future cemetery site.

Role of CCC

28. The Council owns and operates all of the operational cemeteries in the city, excluding the church cemeteries, and has purchased land for new cemeteries and extensions to several of the existing cemeteries. It provides a service for interment by burial and of ashes. The management, design, development and maintenance of both operational and closed cemeteries are also provided by Christchurch City Council.
29. In order to meet future demand, the Council will plan for and develop new areas for cemeteries. It will provide funding for cemetery infrastructure, such as landscape treatment, roads, footpaths, water supply and drainage. Appropriate funding provision for cemetery infrastructure will be made in the Christchurch City Council Long Term Council Community Plan.

Identification of Issues

Discussions were held with the following persons/organisations in order to identify any issues relating to the provision of cemeteries and crematoria and/or any public health issues. It was considered important to ensure that any issues were identified and addressed through the assessment.

- The Medical Officer of Health did not identify any current public health concerns relating to cemeteries and crematoria in the Christchurch district.
- Environment Canterbury raised potential issues as being air discharges from crematoria and contamination of groundwater from cemeteries.
- Christchurch City Council Environmental Health raised a number of issues including high water tables in some cemeteries, potential hazards from unstable headstones and ensuring that burials are performed at correct depths. Measures have been taken to eliminate or manage all of these concerns to mitigate any public health risks.
- The Selwyn District Council raised the possibility of joint development with Christchurch City Council of the Shands Road cemetery, located close to the Christchurch City boundary. Further investigation into this option has been proposed.

Cemeteries and crematoria

Initial Consultation

Letters seeking identification of issues to be considered during the assessment were sent to religious denominations, ethnic groups, Maori and funeral directors. Discussions were held with specific agencies including the Medical Officer of Health, Environment Canterbury, Christchurch City Council Environmental Health, crematorium operators and Veterans Affairs. Comment from the general public was also sought by way of media release and public notice. A summary of responses from these other stakeholders has been included in the assessment report.

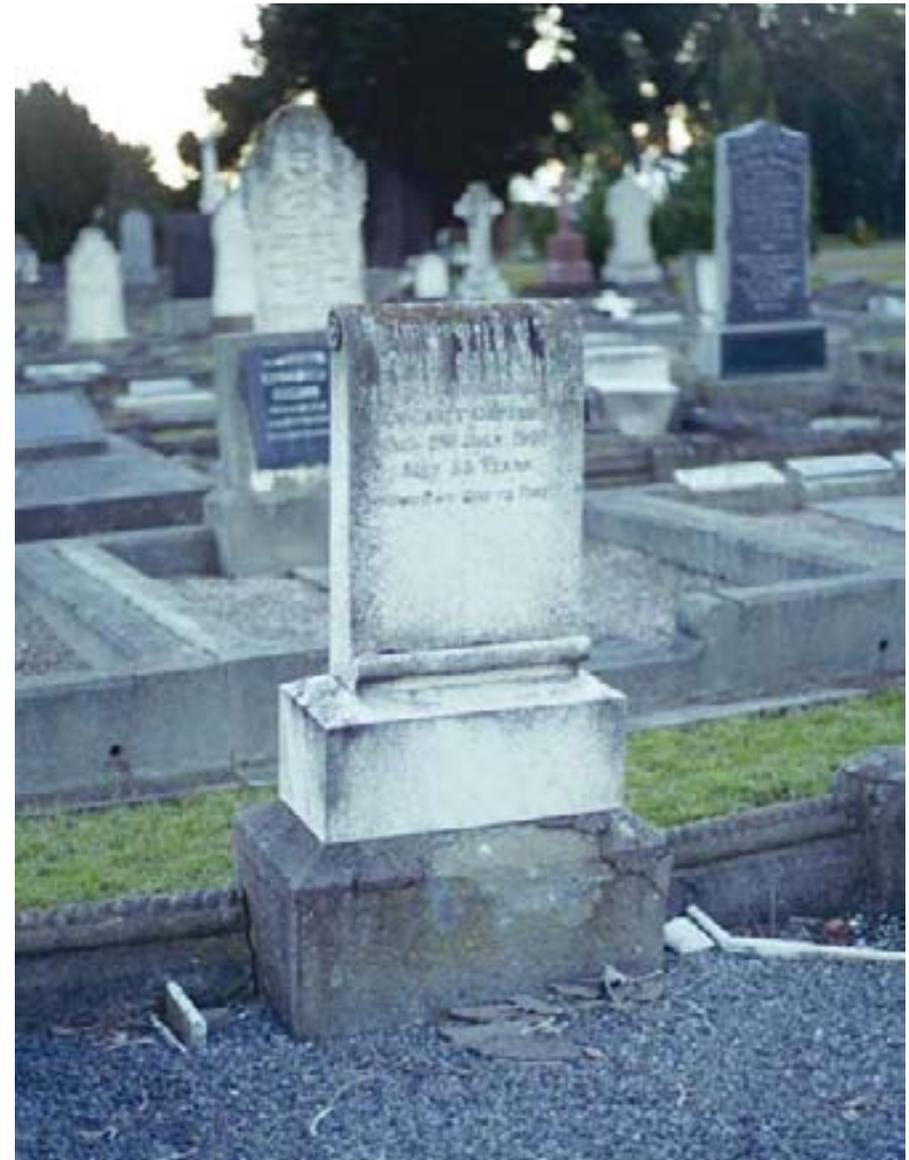
Adequacy of Assessment

The assessment is considered to fully meet the requirements for a sanitary services assessment as set out in Part 7 Sub-part 1 of the Local Government Act 2002.

The information used in the assessment is considered to be adequate to provide an informed view about the adequacy of cemetery services and facilities in the Christchurch district. In preparing the assessment, a number of assumptions have been made relating to death rates, the ratio of burials to cremations, and the number of out-of-district burials. The information used in calculating future demand is based on statistical information provided by the Department of Statistics and burial and cremation records held by the Christchurch City Council. This information has been extrapolated to provide a comprehensive view of capacity and future demand.

There was a lack of detailed information provided by the crematorium operators, perhaps relating to commercial sensitivities that made it difficult to accurately assess the provision for cremation. However, enough information was gathered to determine that neither operator is operating at anywhere near capacity. Therefore, this is unlikely to become an issue within the assessment period. If capacity were to become an issue, it is likely that one of the operators would install an additional cremator or one of the larger funeral directors would consider purchase of a cremator.

The assessment has not been compromised by a lack of information or by cost of obtaining information and is considered to be a full and balanced assessment of cemeteries and crematoria.



Public Conveniences Summary

This assessment focuses on non-residential toilets as a sanitary service provided in the City.

In delivering this assessment the report:

- Identifies the current and forecast metropolitan situation relative to the total supply and demand for public conveniences, as distinct from those provided in residential dwellings, in order to ensure that appropriate and adequate provision is made;
- Identifies Councils current response, both regulatory and through direct provision of services, to the demand and to the maintenance of appropriate health outcomes for the community;
- Identifies and presents options for ongoing and future provision – including options to reduce, maintain, change or enhance levels of service provided directly and / or indirectly to the public;
- Recommends Council preferred options to meet ongoing demand and maintain appropriate health outcomes for the community.

This assessment considers the public access to non-residential toilets in terms of the:

- Contribution to achieving public health outcomes through ensuring the public have adequate access to clean and safe toilet facilities, while away from home;
- Capacity to meet reasonable expectations of Christchurch residents visiting public places;
- Capacity to meet reasonable expectations of tourists visiting public places.

Identification of public health and other issues

The flowing perspectives and issues have been identified through consultation with stakeholders and interested parties, and also through complaints received by the Council about public toilets.

Public toilets need to be:

- Located in convenient places;
- Open at convenient times;
- Occur in sufficient quantities to reflect demand (e.g. at events);
- Hygienic, safe and secure (e.g. are clean at all times, have sufficient hand washing facilities, have sufficient lighting, have safe disposal for other wastes left by the public including sanitary items, condoms and syringes etc);
- Fully functioning and regularly maintained (e.g. all fixtures are fully operational, and septic tanks or composting toilets are emptied and cleaned appropriately).

Council's role and other service providers

Public access to toilets, other than those in residential homes, is currently provided by a wide range of businesses activities, educational institutions and other organisations - with toilets located either within or associated with their facilities. These businesses and organisations have an obligation to provide toilet facilities for their staff and in most cases for their customers (for the purposes of this report these toilets are referred to as in the "Public Domain").

The provision of public toilets is not the primary driver for most organisations, consequently the extent and quality of the toilets is driven by staff and/or customer expectations and regulatory compliance. However, some businesses do view the provision of toilets as part of a complementary service (e.g. service stations generically provide toilet facilities, in much the same way as they provide free air for tyres). In general, the presence of staff at these businesses and the requirements of customers result in reasonable levels of monitoring toilets in terms of cleanliness, supplies and condition.

Public conveniences

Council is also engaged in a number of activities such as libraries, community centres, parking buildings and services centres, providing toilets for staff and visitors at these locations (for the purposes of this report these toilets are referred to as “Secondary Council Sites”). Separate to these are “public toilets” provided by the City Council and hire companies. The latter generically provide portable toilets for specific events or work sites (in this report these toilets will be referred to as “Primary Public Toilets”).

Within the Christchurch district there are over 171 Council-owned public toilets:

- 158 are located in or associated with parks;
- 13 are located in predominantly retail areas (including Cathedral Square).

Assessment of the level of service

In this assessment of the sanitary services, a city-wide audit was made on the levels of service provided by Primary Council sites and a sample survey of both Secondary Council and Public Domain sites. In addition, a building condition assessment was completed on Primary Council sites to determine current maintenance issues and long term maintenance and renewal requirements.

The results of the Condition Assessment showed that on the whole the buildings were in relatively good condition – with some notable exceptions. Future maintenance and renewal requirements for surfaces, fixtures and fittings are planned based on the passing of time, industry standards and/or a decline in condition. It can also be triggered by other enhancement programmes associated with the facility.

The table below shows a comparative assessment of toilets available to the public throughout the city, on the basis of a Levels of Service audit of current provision. The audit graded sites on the basis of availability, location, cleanliness, and general amenity values. The level of service evident within the Primary Public Toilets varied considerably and the reference to Best Appropriate Practice relates to a selection of Council sites identified as “Best Appropriate Practice” to show what is achievable.

	Primary Public Toilets		Secondary Council Sites	Public Domain Toilet Sites			Comments
	All	BAP		Shopping Centres	Fast Food Outlets	Petrol Stations	
Availability	9.7	9.9	9.5+	9.5	9.6	9.0	
Location	8.7	9.2	9.5	9.9	9.9	9.9	
Cleanliness	7.0	8.4	8.0	9.0+	8.9	8.4	McDonalds cleaning exemplary
Amenities	9.0	9.3	9.0	9.5	9.5	9.0	



Public conveniences

Shopping centres and major fast food outlets perform well in terms of the provision of public conveniences due to their location at high usage points, availability during all normal shopping hours, high standard of amenity, and in particular, frequency and standard of cleaning. Petrol stations also performed well but with less consistency in terms of access for non-patrons, the standard of amenity and the level and frequency of cleaning.

As a large, diverse portfolio of properties, Council’s secondary sites scored better than petrol stations in terms of availability but inferior to other providers – with some facilities providing staff-only access. The general level of amenity was also inferior to shopping centres and fast food outlets as was the standard and frequency of cleaning. Location factors were however high. Within the secondary Council sites are several sub-groupings and their performance varied markedly. In general terms, for example, libraries performed very well on all criteria, whereas other community facilities such as parking buildings did not. Mostly this related to availability and cleanliness.

It is clear that the overall assessed performance of Private Domain toilets is at a consistently high level against the criteria used in the audit and that in general Council-owned facilities are inferior, in particular with regard to cleanliness.

While most of the Primary Council sites scored well, the cleanliness criterion was the poorest performing category by a significant factor and highlights the difficulty of keeping these sites clean with a lack of on-site monitoring by staff, and the open nature of the facilities.

The following details criteria used in the evaluation with the average scores for the 171 Primary site toilets.

Toilets are clean and hygienic with no build up of excessive litter	80%
Litter bins are installed internally and available adjacent externally to the site	57%
The site is free of unpleasant odour	84%
Sanitary bins are supplied and clean	46%
Automatic flush unit is operational and sufficient to dispose of waste	97%
Soap dispensers and automatic hand driers are fully functional	35%
Overall Average	66%

Particular issues that impact on the performance of cleaning at Primary and Secondary Council sites are:

- Only one public toilet staffed (Cathedral Square);
- Cleaning regimes only as good as the last person using the facility, therefore, frequency of cleaning is a crucial factor in maintaining standards and public perceptions;
- Some surfaces more difficult to clean and maintain hygiene standards than others;
- Toilet facilities managed and cleaned by a range of different parties / contractors with a lack of consistent standards;
- Audits of cleaning standards required;
- Accountability for public toilets as a service is managed by different parts of the Council.

Councils options, and proposed response to these issues, are detailed later in the report and in more detail within the Assessment.

Current and future demand

Demand for public conveniences is influenced and modified by compliance and customer expectations, however, in total capacity terms it is driven by population. This needs to account not only for the resident population, but also tourist numbers and those outside the immediate geographic area who frequent the city for work, leisure or other reasons.

In the context of a total city wide provision of toilets in public places by Primary, Secondary and Public Domain providers, the current supply is considered adequate. The standard of some facilities, however, is less than adequate and presents a modest degree of public health concerns. More detailed demand analysis is required to inform site specific requirements – with options to expand, maintain or contract (over time) the number and nature of facilities provided at individual sites.

While site specific provision falls outside the statutory requirements of this assessment, the Special Consultative Procedure provided a legitimate vehicle for individuals, groups and the wider community to express their desires for additional or different facilities at specific locations. No specific funding is available for such sites and initiatives, however, these are now being considered within the context of the 2006 to 2016 Long Term Council Community Plan.

Options to meet demand

Public Domain and Secondary Council toilets are subject to the Building Act and Building Code in terms of toilet design and capacity. Most of these sites take responsibility for the toilets on behalf of their staff and customers, based on user expectations and compliance. This also applies to parks and locations where Council encourages large numbers of residents and tourists to aggregate, such as in Cathedral Square or at Council-run events.

However, the Building Code fails to require retailers to provide facilities for their customers in the same way that a Shopping Centre must. While true for all retailers, this inconsistent approach is most noticeable with the larger retail outlets, such as supermarkets, large format warehouse-styled retailers and bulk retailers. Similar issues exist with the provision of toilet facilities within nightclubs and other late night venues. Anecdotal evidence suggests inadequate toilet facilities are provided, which in turn contributes to anti-social behaviour in adjacent public areas.

In light of these factors, the following options are available:

1. **Status Quo.** Provision by a mix of Council and non-Council providers is adequate to meet the overall demand. This does not address differences in the quality of the toilets provided.
2. **Improve level of service at existing Council-owned toilets.** Options to achieve this include:
 - Increase the frequency of cleaning;
 - Rationalise cleaning contracts and develop consistent cleaning standards for Council facilities;
 - Improve signage to encourage the reporting of damage or cleanliness problems to the Council;
 - A quick response cleaning service when notification of problems is received by the Council;
 - Greater auditing of the cleaning standards delivered by service providers;
 - Upgrading surfaces, fixtures and fittings to those more resistant to vandalism and easier to clean;
 - Staffing all or more Public Toilets*.
3. **Increase provision of Council-owned toilets in retail locations.** Council could choose to provide toilet facilities in retail areas to address the lack of services provided by the retailers linked to the limitations of the Building Code.
4. **Reduce provision of Council-owned toilets in retail locations.** Council could rely more fully on businesses to provide services for their customers.
5. **Lobby for changes to the Building Code.** Council could lobby central government for amendments to the Building Code that would require the retail sector, including nightclubs to provide (or enhance) sanitary facilities.
6. **Complete site specific monitoring of demand.** Commission monitoring to develop demand profile for specific groups of sites – identifying current demand on a seasonal basis and at peak demand periods, etc. This would enable services to be customised better to demand.

Public conveniences

7. **Improve community awareness of availability and standards.** Explore opportunities to improve awareness of the availability of public conveniences for residents and tourists, the standards they should expect and the options available for them to raise concerns.
8. **Charge for access to public toilets.** Some cities in other parts of the world charge for access to public toilets as a means to fund the service. The same could be implemented here.
9. **Options for sanitary waste disposal from vehicles.** Some provision for sanitary waste disposal from trailer homes and motor homes exists with camping ground facilities and truck stop facilities (ostensibly for livestock). However, the adequacy and appropriateness of these needs to be researched and alternate options considered (this is not covered within the existing document).



Council's Preferred Options.

The recommendation of the assessment is for adoption by Council of a combination of options included within 1, 2, 5, 6, 7 and 9 outlined above. Where there is no existing funding within Council's budgets, the initiatives should be considered within the context of the LTCCP.

Once detailed site specific demand profiles have been identified (and improved clarity exists around the private sectors provision of toilet facilities for public access), Council needs to indicate clearly and consistently its provision of service relating to options 3, 4 and 8, and options for additional onsite staff at some locations (part of option 2* above).

With regard to 24-hour, central city public conveniences, additional facilities are most likely to be safe and effective if staffed and delivered as part of a wider strategy for addressing behavioural problems within the central city. This wider strategy is outside the scope of this assessment and the role that public conveniences may or may not have in this strategy is yet to be determined.

Public conveniences



Stormwater Summary

Purpose and Scope

The objective of the stormwater assessment is to identify risks and show how these services will be managed by the Christchurch City Council to achieve community outcomes in a sustainable manner.

Stormwater Services in Christchurch City

The roles of Council with respect to stormwater drainage services in the city are to coordinate the setting of Community Outcomes and as a service provider. The key service functions of stormwater drainage infrastructure are the:

- protection of property, public safety and access
- protection of ecosystems
- creation of productive land

Adequacy of Stormwater Services

Council has invested heavily in flood relief works over the past 40 years in response to a series of destructive floods through the 1960s, 1970s and 1980s. A combination of historical investment in physical upgrading works and planning measures has effectively mitigated risks associated with the inundation of dwellings and buildings, and there are few urban development constraints in the city that are not mitigated by planning rules, proper subdivision design and building design.

In rural areas, stormwater is generally disposed of by ground soakage or to watercourses. There are unlikely to be any significant constraints on additional rural-type development related to drainage or disposal of stormwater.

Public Health Risks

Risks Associated With Stormwater Services

Potential health impacts associated with the stormwater drainage network are:

- Illness caused by contact with micro-biological or chemical contaminants in natural water resources, through the use of streams, rivers, estuaries and beaches for recreational purposes, or drinking potable water drawn from polluted water sources.
- Injury or death caused by falls from stormwater structures or drowning.
- Illness from mosquito bites.

The range of contaminants in stormwater and the extent of environmental impacts on the city's watercourses are:

- **Microbiological** concentrations, including bacteria, viruses and protozoa, generally exceeding contact recreation guidelines. The main source of contamination in dry weather is believed to be waterfowl. The impact of wet weather pollution is lessened by rain water dilution and the low level of recreational activity at these times.
- **Chemical** contaminants, including organic compounds, such as hydrocarbons, pesticides and organic wastes, and inorganic compounds, such as metals and metalloids.

The concentration of heavy metals in stormwater and river sediments exceeding the relevant water quality guidelines for the protection of aquatic organisms.

- **Nutrients**, including nitrogen and phosphorus, can cause algal blooms and prolific growth of aquatic plants when at elevated levels. There is extensive growth of algae, especially in the Avon River, likely to be linked to nutrient enrichment in the streams.

Although microbiological concentrations, at times, exceed contact recreation guidelines, neither the Council nor the Medical Officer of Health has any record of injury or illness that is attributable to deficiencies in the design, operation or maintenance of the stormwater network, and health risks are assessed as low.

Stormwater



Risks Associated With The Lack Of A Reticulated Stormwater Drainage System

There are less likely to be stormwater systems in rural areas. Because of the much larger allotments in rural areas and the higher proportion of permeable, vegetated areas, there are few problems when reticulated stormwater disposal is unavailable.

Risks To Stormwater Communities

Assessments of stormwater services were carried out at a “community” level to identify risks to particular communities.

Types of Communities	Community	Risk Assessment
Communities served by public drainage systems	Urban areas receiving waters - drained by street channels, street, sumps, pipes, open water courses and streams.	Quality of water in urban rivers and streams continues to degrade due to urban discharges. Increasing risk of land flooding due to inner urban intensification. Risk of flooding due to climate change. Risk of insect borne diseases if an exotic vector establishes in Christchurch.
	Rural areas serviced by Council maintained streams and drains.	Low levels of risk
	Brooklands – discharge to a controlled groundwater storage zone.	Low levels of risk
Communities served by private drainage systems	Rural areas discharging stormwater run-off by either direct soakage to ground or to open drains funded privately.	Low levels of risk
	Industrial areas discharging to ground via soakage basins.	Low levels of risk



Stormwater

Environmental Risks

Water-quality monitoring indicates that several of the environmental parameters monitored exceed minimum guideline levels. Ecosystems in the majority of streams are in a degraded condition, however the impact on waterway habitats appears to be accepted by the majority of the community and a rigorous debate on the community costs and benefits of markedly improving environmental outcomes is required.

Environment Canterbury has issued for comment a draft Natural Resources Plan which will, when adopted, set the rules and water-quality standards with which Council must comply for all existing point source discharges. It is likely that the standards will require additional planning, investigations and investment in land and treatment facilities.

Options To Address Risks

Options to address water-quality degradation.

- Prepare and implement integrated catchment management plans (ICMPs) as required by the Proposed Natural Resources Regional Plan (NRRP). This option will require the Council to be aware of land use activities in the catchment and control harmful discharges;
- Prepare and implement ICMPs; investigate operational measures such as street sweeping and sump cleaning that will improve discharge quality, and implement selected measures;
- As above, but improve stormwater treatment by construction of in-line treatment devices;
- Undertake a study of stormwater discharge quality in selected catchments and assess the impact of stormwater quality on the receiving waterways.

Options to address the risk of land flooding due to urban intensification:

- Continuous improvement of stormwater infrastructure, as proposed in the stormwater drainage asset management plan;
- An increase in stormwater capacity early in the development cycle.

Options to address the risk of insect-borne diseases:

- Minimise the potential habitat for insects by minimising the number of open water bodies in the city (i.e. eliminate ornamental and environmental water bodies);
- Limit the number of likely habitats while monitoring for insect nuisances and maintaining an awareness of potential problems. The Council currently implements this option;
- Control insect populations only if an exotic insect establishes in Canterbury.

Climate change and associated effects is a risk which should be dealt with through planning measures until the timing of effects is better understood.

The risk of groundwater contamination in industrial areas through private stormwater soakage is primarily controlled by Environment Canterbury which authorises these discharges via resource consents. Options available to the Christchurch City Council are:

- Advocate for appropriate levels of environmental protection;
- Construct additional stormwater infrastructure to provide services to at-risk areas.

Council's Role

The proposed role of Council is to continue as:

- Facilitator of community consultation to establish community outcomes and service standards for stormwater services;
- Owner of infrastructure delivering public stormwater services to the community;
- Partner to Environment Canterbury and the Ministry of Health in the achievement of regulatory outcomes, and advocate for the community in the setting of environmental standards;
- Monitoring city growth, water quality and the health of habitats, and the development of policies, infrastructure management and development plans, District Plan measures and public education programmes to ensure environmental and public health standards are achieved.

Stormwater



Wastewater Summary

Methods used to dispose of wastewater

For the purpose of making the assessment, the city has been broken up into two separate communities: the urban community and the urban fringe community. The urban community includes the Council-provided collection and disposal schemes for the city and Belfast. The urban fringe community includes the areas bordering the Christchurch metropolitan area and within the city boundaries but not served by the reticulated network.

Wastewater from Christchurch City is treated at the Christchurch Wastewater Treatment Plant (CWTP) and the treated effluent is discharged into the Avon-Heathcote Estuary. The Christchurch City Council plans to replace the estuary discharge with an ocean outfall by 2009.

Wastewater from the Belfast township is treated through oxidation ponds and the effluent is discharged into Otukaikino Creek, a tributary of the Waimakariri River. From the end of 2006, the discharge will be pumped to the CWTP.

The urban fringe area uses stand-alone schemes for wastewater treatment and disposal. These schemes consist mostly of single-chamber septic tanks with gravity disposal trenches. It is estimated that there are 800 to 1,300 such properties within the Christchurch boundary.

Risk assessment

The discharge of effluent from the Christchurch Wastewater Treatment Plant contributes to the health risk for users of the estuary. The risk zone is assessed as being small and centred around the point of discharge.

Wet weather overflows into the Avon and Heathcote Rivers significantly increase the levels of contaminants in the rivers during this time and for a period afterwards, presenting a public health risk to users of the rivers. A significant mitigating factor is the prevalence of low-contact water-related activities discouraged by the poor weather or high river flow conditions coinciding with the sewer overflows.

Effluent from the Belfast Oxidation Ponds is of an inconsistent quality and presents a public health risk to users of the receiving stream.

The main risks associated with septic tanks are summarised below:

- Treatment plant or disposal field poorly designed leading to a low level of treatment;
- Treatment plant or disposal field poorly maintained leading to uneven distribution of effluent;
- Shallow groundwater leading to contamination of groundwater;
- Poor quality or hydraulically limited soils leading to surface ponding or shallow groundwater contamination.

The higher risk area is Marshlands owing to its shallow groundwater and peaty soils.

There is a potential health risk for properties on night soil collection because of the untreated wastewater being held on-site for up to a week.

Wastewater collection and treatment

Quality and quantity of discharged wastewater

The Christchurch wastewater system collects about 55 million cubic metres of wastewater each year, transporting it through a series of sewers and pump stations to the treatment plant at Bromley. The advanced secondary treatment process produces a high-quality effluent which is discharged into the Avon-Heathcote Estuary. There are also 12 consented locations where diluted untreated effluent is discharged, during periods of high rainfall, into the Avon and Heathcote Rivers.

About 0.4 million cubic metres of wastewater annually are collected from the Belfast area, treated in oxidation ponds and discharged into a tributary of the Waimakariri River. The effluent from the Belfast Treatment Plant is of an inconsistent quality and has occasionally failed to comply with resource consent conditions.

There are about 800 to 1,300 domestic septic tank systems in operation on the fringe areas of Christchurch. These systems consist mainly of single chamber septic tanks with gravity disposal trenches. The estimated volume of effluent associated with this number of tanks is 500-800 cubic metres a day. The effluent quality of these systems is highly variable and dependent on design, construction and maintenance standards adopted by the owners.

There are currently 11 properties in the northeast fringe area served by a night soil collection. Untreated effluent is kept in a holding tank, emptied out and taken to the Christchurch Wastewater Treatment Plant. Four of these properties are being connected to the city reticulation, five collected on a weekly basis and two only occasionally.

While the Christchurch and Belfast wastewater collection and treatment systems are operated by appropriately trained and qualified staff, it is assumed the domestic tank systems are operated by property owners with limited knowledge of wastewater treatment systems.

Current and estimated future demands

Future demand for the Council-operated supplies are assessed in detail in the Wastewater Asset Management Plan. Wastewater flows are projected to increase as a result of:

- Increased population (about 7% in the next 10 years);
- Intensification of development in fringe areas meaning septic tank effluent disposal fields are less acceptable from a public health perspective;
- Increases in inflow and infiltration into the system. This has been estimated to increase by 10% over the next 40 years as the collection network ages;
- The connection of Belfast to the Christchurch Wastewater Treatment Plant (additional 0.4 million cubic metres in 2007).

Upgrades to the CWTP have been designed to provide sufficient system capacity for future planned demands up to the year 2050, as are reticulation upgrades.

Demands are also projected to increase as a result of environmental concerns relating to the wet weather overflows into the Heathcote and Avon Rivers, the discharge of treated effluent in to the estuary and the discharge of Belfast's effluent in to the Otukaikino Creek.

There is also demand to get properties served by night soil collection on to alternative methods of wastewater collection, treatment and disposal.

Options to meet the demands

Options to meet demand resulting from population growth:

- Construction of additional pumping stations and pipelines to increase capacity to help meet peak demands (major sewer upgrade project);
- Inflow and infiltration reduction programmes (ongoing maintenance programme);
- Increase capacity of treatment plant (CWTP upgrade project);
- Wastewater system modelling to identify operational changes to increase system efficiencies, monitor effectiveness of capital works and rehabilitation programmes, assist with pipe sizing and capacities required.

Wastewater collection and treatment

- Investigate alternative systems such as storage or decentralised treatment systems, to help cater for peak flows and cater for growth above the current CWTP upgrade.

Options to meet demand related to environmental issues:

- Inflow and infiltration reduction programmes;
- Capital works to reduce wet weather overflows;
- Diversion of Belfast's wastewater flow from the Otukaikino Creek;
- Construction of ocean outfall to replace the current estuary discharge.

Options to meet demand related to night soil collection:

- Investigate options to get properties off night cart collection;
- Investigate reticulated septic tank options (STEP/STEG systems);
- Extend city reticulation to service the properties.

Christchurch City Council's role in meeting the demands

In general, the Christchurch City Council will play the role of facilitator in meeting the demands for wastewater services. It is expected that any new infrastructure for growth will ultimately be funded by developers, the Council possibly assisting in setting up cost share areas to recover funds from future developments. The Council may also consider assistance with funding of the service where there are significant public health issues. This would be assessed on a case by case basis.

Proposals for meeting the demands

The Christchurch City Council is already implementing its plans to meet the future demands. This includes:

- Upgrade of CWTP to increase capacity and effluent quality.
- A major sewer upgrade programme for new sewers to cater for projected growth and pipeline rehabilitation; some of these works are also aimed at reducing the wet weather overflows to the rivers;
- Construction of an ocean outfall to divert all treated wastewater from the estuary and discharge offshore through a three kilometre pipeline;
- Construction of a pipeline to take wastewater from Belfast to the CWTP;
- Inflow and Infiltration reduction programmes;
- Capital works to reduce wet weather overflows;
- Diversion of Belfast's wastewater flow from the Otukaikino Creek;
- Construction of ocean outfall to replace estuary discharge.

The Christchurch City Council also proposes to investigate options to get the remaining properties off night cart collection.

Wastewater collection and treatment



Waste management strategy

Waste Management Plan 2005: Towards Zero Waste

Summary

How we manage our solid, liquid and gaseous wastes, impacts on each on each one of us. It also impacts upon our city and on our environment, both now and in the future. Waste minimisation and the efficient use of our natural resources is fundamental to a sustainable way of life and to the future wellbeing of our city and its residents.

This Waste Management Plan establishes a vision, goals and targets for waste in the city. It also provides actions that aim to advance on the targets. This plan is focused on solid waste, and updates the 2003 Solid and Hazardous Waste Management Plan and the 2004 Waste Action Plan. This 2005 Plan incorporates both strategy and action planning into a single document for ease of use.

Vision

A prosperous city, where each person and business takes responsibility for waste minimisation and actively works toward zero waste.

Goals

- Individuals and businesses take greater responsibility for waste minimisation.
- Council provides much enhanced reuse and recycling services at the kerbside.
- Council supports and incentivises waste reduction, reuse and recycling.
- Council ensures that environmentally-sound waste disposal services are provided.

The following targets have been set to move Christchurch towards the attainment of the solid waste vision and goals and include both domestic and commercial waste:

Type of Waste	No more than: (kg/person/year)	Target Year
Green and kitchen waste sent to landfill	30	2015
Paper and cardboard sent to landfill	90	2015
Plastic waste sent to landfill	60	2015
Kerbside waste collected by Council	25	2015
Wood waste sent to landfill	22	2015
Rubble received at refuse stations	10	2015
Minimum reduction of the waste stream overall	320	2020
All potentially hazardous waste sent to landfill is treated or otherwise meets landfill acceptance criteria		
All cleanfill sites in Christchurch are licensed under the Cleanfill Licensing Bylaw 2004		



Waste management strategy

Each year Christchurch disposes of approximately 263,000 tonnes to landfill. This means that every person produces an average of 764 kg of waste per year that ends up in the landfill (domestic and commercial waste combined). Actions taken to date to reduce solid waste to landfill include, but are not limited to:

- Operating and improving a kerbside recycling programme, with the addition of plastic supermarket bags in 2004;
- Operating a green-waste composting plant;
- Offering assistance to businesses to become more resource efficient;
- Providing free drop-off of domestic quantities of recyclable materials at the refuse stations;
- Offering a free drop-off of domestic quantities of household hazardous at each refuse station;
- Collection of unwanted and banned agricultural chemicals from farms in Christchurch;
- Working with the construction and demolition industry to identify methods to reduce waste from their activities;
- Facilitating recycling at public events; and
- Implementing opportunities within the Council to become more resource efficient, such as paper, cardboard, glass, plastic and metal recycling; kitchen waste recycling; reduced paper usage through duplex printing and photocopying, and the establishment of a sustainable supply chain policy.

Despite these actions, total waste to landfill has increased since 2002 reversing the downward trend achieved since 1994. More needs to be done to achieve the vision, goals and targets contained in this Plan.

Significant proposals in this Plan are aimed at reducing the amount of household and organic waste going to landfill.

In February 2006 the Council confirmed the vision, goals and targets contained in the Waste Plan. The Council then decided not to proceed with any of the three options previously consulted

on, and established a working party comprising councillors and officers to develop and recommend to the Council a solution to advance the vision, goals and targets within a budget allocation specified in the 2006 to 2016 LTCCP.

Each person in Christchurch can affect how successful we are in meeting our vision, goals and waste reduction targets. How each person and business responds to this challenge will determine our success in making Christchurch a more sustainable and waste free place to live.



Water Supply Summary

How Drinking Water is Obtained?

For the purpose of making this assessment, the city has been divided into two separate communities: the urban community, and the urban fringe community. The urban community includes the Christchurch City Council reticulated supply and several hospitals and schools which have independent supplies within the urban area. The urban fringe community includes supplies on the outskirts of the city. This is mostly made up of school supplies and also includes the Christchurch City Council Kainga and Brooklands supply.

All of the water supplies identified in the assessments source their water from wells into the aquifers, extending under the city and the Canterbury Plains. It is estimated that 1,300 properties or a population of 3,500 are not provided with a reticulated supply within the Council's boundaries. It is assumed that these properties all source their drinking water from private domestic wells.

Risk Assessment

The potential risks to each of the supplies are similar, as are the sources and methods of abstraction. Contamination can occur at any point in the water supply system, being at the source, during treatment, storage or reticulation. The supplies provide different levels of treatment or mitigation of these risks resulting in differing probabilities of a contamination event occurring. The main risks identified are summarised below:

- Unsecured well heads or access hatches leading to contamination of the source or stored water;
- No residual treatment provided, except for Paparua Prison, leading to increased risk of contamination of water during storage or reticulation;
- Salt water intrusion into aquifers that discharge into the sea;
- Loss of service due to lack of storage or backup electricity;
- Insufficient backflow protection leading to backflow of contaminants into reticulation.

These risks can all be treated in order to reduce the probability of a contamination event occurring. Christchurch City Council has a Public Health Risk Management Plan in place. Operators of other supplies have some preventative measures in place.

Two areas have been identified where contamination risk may present a higher potential threat to the community. There are two school supplies located in an area that is not serviced by a reticulated wastewater system and the soils are not free draining. There is, therefore, a higher risk of contamination of the water supplies from septic tanks in the area. Additional care needs to be taken in the location and operation of these bores to ensure contamination does not occur.

The second higher risk area is where surface or climatic effects have an influence over the characteristics of the groundwater (non-secure groundwater). The Paparua Prison supply and some pump stations in Christchurch's north-west pressure zone are areas where this may occur. Additional water quality testing may be necessary to monitor against any public health risks resulting from this.



Quality and Adequacy of Drinking Water

All of the water suppliers have sufficient water to meet their current demand. The Council currently abstracts just over 50 million cubic metres of water a year for its reticulated supply. This represents about half of the water taken annually within the city boundaries. The policies and rules set out in Chapter 4 and 5 of Environment Canterbury's proposed National Resources Regional Plan have been developed to ensure no significant long-term decline in groundwater levels as a result of abstraction, no significant long-term decline in water quality as a result of land-use activities, particularly the Christchurch aquifers source water, and in artesian aquifers, no contamination of groundwater as a result of abstraction. These rules will ensure that the long-term sustainability of the aquifers as a water source is protected. Provided these rules and policies are adhered to, there will be sufficient quantity of high-quality water to meet future demands.

Christchurch is well known for the high quality of its drinking water. As a result, the water does not need to be treated to meet current drinking water standards. Paparua Prison, in the Urban Fringe community, is the only supply which treats its water with a chlorine solution to provide residual treatment. There is no infection incidence data suggesting that any of the sources of drinking water in either the Urban or Urban Fringe Communities have been a cause of water-borne diseases.

The Christchurch City Council water supply is operated by adequately trained staff to ensure compliance with the New Zealand Drinking Water Standards 2000. The training and qualifications of the operators of non-council-operated supplies have not been established. Supplies to schools are generally operated by school caretakers with only a rudimentary understanding of their supply systems. It is believed that preventative maintenance is generally not practised on school supplies. The hospital, airport and prison supplies appear to be operated by personnel knowledgeable in the operation and maintenance of water-supply systems. They have preventative maintenance systems in place.

Current and Estimated Future Demands

The current total annual consumption from the Christchurch City Water Supply is about 50 million cubic metres per year. The Council has consented approvals with Environment Canterbury to draw in about 75 million cubic metres per annum from the aquifers serving the City. The peak demand for the whole City is about 21,000 cubic metres an hour. Accurate consumption figures are not available for the non-Council-operated supplies.

Future demand for the Council-operated supplies is assessed in detail in the Water Supply Asset Management Plan. The population served by the Christchurch City Water Supply is expected to increase by about 7% in the next 10 years. A large proportion of the peak water demands in Christchurch are for domestic irrigation. For new developments the peak demand will increase proportional to the number of households. Infill housing decreases the irrigable land area and therefore does not increase peak demand. Only a small increase in the total annual consumption is expected because of the demand management methods already in place. (Water Supply Activity Management Plan includes aim to reduce consumption from 420 litres/person/day (2001) to 380 litres/person/day in 2026.)

Future demands are not expected to increase for non-council urban suppliers. Of the urban fringe community, only the Christchurch Airport and Paparua Prison are predicting an increase in demand. The increase is expected to be in the order of 10% to 15%.

The Health (Drinking Water) Amendment Bill proposes greater responsibilities with regard to the quality of water supplied. This may become too onerous for many non-council suppliers and therefore increased demand for the council provided supply may result. If all non-Council water users were to be supplied from the Council system this would increase the aquifer draw-off by about 1.1 million m³ per annum.

Water supply

Options to Meet the Demands

Demand resulting from population growth can be met in the following ways:

- Construction of additional pumping stations, wells and other infrastructure to increase capacity to help meet peak demands up to the agreed maximum take levels as stipulated in Environment Canterbury consents;
- Implementation of demand management programmes, including public education to encourage efficient water use, water loss reduction programmes, water supply modelling to identify operational changes to increase system efficiencies.

Options to meet demand related to non-secure groundwater sources can be met by:

- Additional water quality testing;
- Introduction of treatment;
- Connection to Council reticulated supply, for non-council supplies;
- Drilling new wells into secure sources.

Options to meet demand related to wells in areas with septic tanks and insufficient drainage:

- Further investigation to establish if there is a public health risk;
- Ensure well heads are secure and operated correctly;
- Abandon existing supply and connect to Council reticulated supply.

Options to meet demand related to the Health (Drinking Water) Amendment Bill and the greater responsibilities with regard to the quality of water supplied:

- Continue to manage own supply ensuring staff are adequately trained and risk management procedures are in place;
- Employing external qualified staff to operate and maintain supply and manage risks;
- Abandon existing supply and connect to Council reticulated supply.

Christchurch City Council's Role in Meeting the Demands

Most of the responsibility for ensuring water supplies are appropriate rests with the local Medical Officer of Health (Community Public Health Unit of Christchurch District Health Board) who is charged with this responsibility through the Health Act and via administration arrangements with the Ministry of Health.

The Council's role will be to ensure its own public water supply system is managed in an appropriate manner to meet compliance and community needs.

It is expected that any new infrastructure for growth will be ultimately funded by developers and Council may assist in setting up cost-share areas to recover funds from future developments. The Council may also consider assistance with funding of the service where there are significant public health issues. This would be assessed on a case-by-case basis.

The Council may also have a future role to liaise with schemes owners and other agencies, such as Environment Canterbury and Community Public Health, to ensure appropriate water supply arrangements are in place to meet the total community's reasonable needs. This would be assessed on a case-by-case basis.



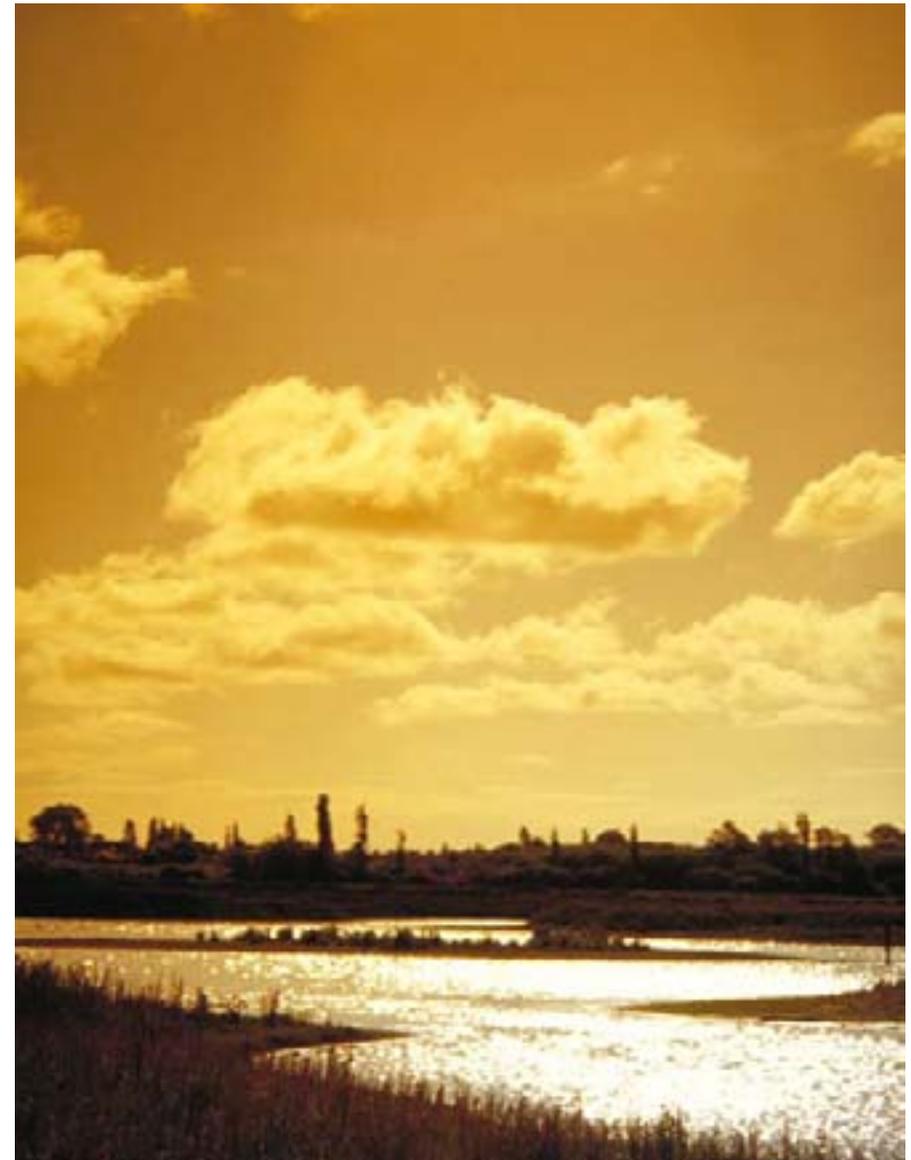
Proposals for Meeting the Demands

Pending legislation, the Health (Drinking Water) Amendment Act is likely to require water-supply owners to construct, manage and monitor the supplies in a manner that will ensure acceptable levels of risk are achieved.

The Christchurch City Council, for its own supply, is already implementing plans to meet the future demands. This includes:

- Capital works programmes to provide additional infrastructure for growth;
- Demand management programmes to reduce per capita consumption;
- Development of a Public Health Risk Management Plan;
- A projected increase in the operating budget to cover likely additional water-testing and compliance requirements.

The Council will accept applications to connect to the supply from non-council-operated supplies within the reticulated area, although there may be restrictions on the size of connection that can be made. Non-council supplies outside the city's reticulated area may also apply but permission to connect will be made on a case-by-case basis. Assistance with funding to connect, where there are public health issues, will also be assessed on a case-by-case basis.



Council-controlled organisations



Council-controlled organisations

Christchurch City Holdings Limited (CCHL)

Subsidiary companies

- Orion Group Ltd
- Christchurch International Airport Ltd
- Lyttelton Port Company Ltd
- Red Bus Ltd
- City Care Ltd

Associate Companies

- Selwyn Plantation Board Ltd

(please note there is a description of each of these subsidiaries in following pages)

Nature and scope of activities

CCHL manages the Council's portfolio of shares in key regional infrastructural trading companies.

Its activities include:

- Advising the Council on strategic issues relating to its investments;
- Monitoring the governance and performance procedures of its subsidiary companies and other council-controlled trading organizations owned by the Council; and
- Encouraging subsidiary companies to increase shareholder value through growth and investment.

Policies and objectives relating to ownership and control

This company was established to group the Council's interest in its trading activities under one umbrella, and to provide an interface between the Council and the commercial activities of its council-controlled trading organisations. CCHL also borrows in the capital markets to provide a cost-efficient source of funding for the Council.

Key performance targets

- Pay ordinary dividends to the Council totalling \$31.5 million for the 2006/07 fiscal year.
- Retain at least an "AA" credit rating from the international credit rating agency Standard and Poor's.



Orion Group Limited (subsidiary of Christchurch City Holdings Limited)

Subsidiary companies

- Connetics Ltd
- Energetics Pty Ltd
- Envinta (USA)
- 4rf Communications Ltd
- HumanWare Group
- Orion New Zealand Ltd
- Orion NZ Ventures Ltd
- Orion (Whisper Tech) Ltd
- WhisperGen Ltd
- WhisperGen (U.K.) Ltd
- WhisperTech JV
- WhisperTech Ltd

Nature and scope of activities

Orion plans, constructs and maintains a reliable and secure electricity distribution network in the Christchurch and Central Canterbury region. The network's capacity is matched as closely as possible to actual and forecast market demand for electricity.

Orion's network consists of approximately: 175,000 connections, 12,000 km of lines and cables, and 9,500 distribution substations and pole-mounted transformers.

Policies and objectives relating to ownership and control

As Orion is considered a regional strategic asset, the Council wants it to be operated in commercial manner, but also in a way that benefits the region as a whole.

Through a Statement of Intent, the Council establishes broad parameters reflecting the public nature of Orion Group without inhibiting proper commercial management. To continue to do this the Council has a policy of maintaining a controlling interest in this company.

Key performance targets

Achieve the following reliability measures for the Orion network overall:

- Duration of supply interruptions per connected customer (SAIDI): 64 minutes in any one year;
- Number of supply interruptions per connected customer (SAIFI): 0.8 interruptions in any one year.

(The above performance measures are based on averages for a five year period. Actual performance for an individual year may vary).

Council-controlled organisations

Christchurch International Airport Limited (subsidiary of Christchurch City Holdings Limited)

Nature and scope of activities

Christchurch International Airport Limited operates the airport for the benefit of commercial and non-commercial aviation users, and in accordance with its aerodrome licence.

The company arranges for the design, provision and maintenance of runways, taxiways, turnouts and aprons in co-operation with the Airways Corporation of New Zealand and other airport users. It also seeks to earn revenue by providing services and facilities meeting the needs of air travellers.

In addition to its primary business of serving the aviation industry and its customers, the company will actively market Christchurch, Canterbury and the South Island as a major destination for overseas visitors.

Policies and objectives relating to ownership and control

Christchurch International Airport Limited is considered a regional strategic asset, and as such the Council wants it to be operated in a commercial manner, but also in a way that benefits the region as a whole.

Through a Statement of Intent, the Council establishes broad parameters reflecting the public nature of this company without inhibiting proper commercial management. To continue to do this the Council has a policy of maintaining a controlling interest in this company.

Key performance targets

- Pay ordinary dividends to the Council totalling \$4.3 million for the 2006/07 fiscal year.
- Handle 4.4 million domestic and 1.7 million international passengers in the 2006/07 year.

Lyttelton Port Company Limited (subsidiary of Christchurch City Holdings Limited)

Nature and scope of activities

This company provides the land, facilities, plant and labour for receiving, delivering, stockpiling, stacking and shipping a wide range of products at the port in Lyttelton Harbour. Its activities also include providing facilities associated with the repair and servicing of vessels.

Policies and objectives relating to ownership and control

Lyttelton Port Company is considered a regional strategic asset and as such the Council wants it to be operated in commercial manner, but also in a way that benefits the region as a whole.

Through a Statement of Intent, the Council establishes broad parameters reflecting the public nature of this company without inhibiting proper commercial management. To continue to do this the Council has a policy of maintaining a controlling interest in this company.

Key performance targets

• Containers	TEUs	180,000
• Fuel – import	Tonnes	1,100,000
• Coal – export	Tonnes	2,400,000
• Cars – import	Units	50,000

(The above figures are based on 2005/06 forecasts and represent anticipated volumes)

Red Bus Limited (subsidiary of Christchurch City Holdings Limited)

Subsidiary company

CTL Properties Limited

Nature and scope of activities

Red Bus Limited provides scheduled urban public passenger transport services in Christchurch. It also operates bus charter and leasing services.

Policies and objectives relating to ownership and control

The Council is the sole shareholder of this company. While it does not regard Red Bus as a strategic asset it has no plans to sell down or relinquish control of this company. The company has an important role in the city as a provider of quality bus services. Through the negotiation of an annual Statement of Intent, the Council establishes broad parameters for this company without inhibiting proper commercial management.

Key performance targets

- Provide economic contributions to the community through taxes paid, dividends and payments to suppliers and employees.
- Operate over 50% of the current fleet with engines complying to Euro-2 emission standards or better.

City Care Limited (subsidiary of Christchurch City Holdings Limited)

Nature and scope of activities

City Care Limited is in the business of management, construction and maintenance of New Zealand's infrastructure and amenity assets. The company is mainly involved in roading and associated services, underground services such as water and sewerage systems, parks and waterways services, facilities maintenance, waste management services and providing miscellaneous services such as project management and plant hire.

City Care Limited operates a profitable, sustainable and innovative business. It maintains a strong market presence in all areas of construction and maintenance of the infrastructure and amenity assets owned by its shareholder, the Council.

City Care ensures that there is capacity in the market to meet the Council's emergency obligations. It is therefore an important contractor to the Council.

Policies and objectives relating to ownership and control

The Council is the sole shareholder of this company. While it does not regard City Care as a strategic asset it has no plans to sell down or relinquish control of this company. The company has an important role in the city as a quality contractor. Through the negotiation of an annual Statement of Intent, the Council establishes broad parameters for this company without inhibiting proper commercial management.

Key performance targets

- Provide a quality service as attested by maintaining accreditation to quality standards such as ISO 9000 and ISO 14001.
- Achieve a net operating profit after taxation of \$2.36 million for the 2006/07 fiscal year.

Council-controlled organisations

Selwyn Plantation Board Limited (associate of Christchurch City Holdings Limited)

Nature and scope of activities

The core business of the company is to manage its forests and lands on a commercial basis using environmentally and commercially sustainable methods.

Policies and objectives relating to ownership and control

The City Council has a minority interest in this company and holds it for investment purposes. It does not regard it as a strategic asset.

Key performance targets

Forest operations - harvest of 220,000 tonnes and thinning of 185,000 hectares in the 2006/07 fiscal year.



Transwaste Canterbury Limited

Nature and scope of activities

Transwaste is responsible for developing and operating a non-hazardous regional landfill, to at least the standard determined by regulatory authorities.

The company enters into contractual arrangements to ensure provision of a haulage fleet for hauling solid waste. This must be done economically and efficiently, and in compliance with relevant consents.

Transwaste will, in due course, invest in alternatives to landfilling for solid waste disposal, should these alternatives be more environmentally sustainable and cost effective.

Policies and objectives relating to ownership and control

It is critical that waste management achieves not only commercial requirements, but also wider social and economic objectives. Therefore the Council has a policy of maintaining a controlling interest in partnership with other local authorities in this trading activity.

Key performance targets

Operate the landfill with no breaches of its Resource Management Act consents.

Christchurch City Facilities Limited (CCFL)

Subsidiary company

Jet Engine Facility Limited
vBase Venue Management Group

Nature and scope of activities

CCFL is a property holding and operating company for certain specialist properties or companies that the Council owns. Its responsibilities include:

- The Westpac Trust Centre
- The Christchurch Town Hall
- The Christchurch Convention Centre
- Overseeing the contracted management of the above facilities
- Jet Engine Facility Limited

Policies and objectives relating to ownership and control

The Christchurch Convention Centre, the Christchurch Town Hall and the Westpac Trust Centre, are all managed by vBase Venue Management Group (of which the Council has a 50% shareholding). These facilities are important to the region in terms of economic development, culture and sport. The Council wants them to be managed on a commercial and co-ordinated basis, and to build profitability while maintaining affordable community access.

CCFL may also undertake other property-related projects that have a commercial focus and/or a regional development impact (eg. Jet Engine Facility Ltd).

Through a Statement of Intent, the Council establishes broad parameters reflecting the public nature of CCFL, without inhibiting its proper commercial management. To continue to do this the Council has a policy of maintaining a controlling interest in this company.

Key performance targets

Achieve a net operating profit before depreciation of and taxation of \$1,278,000 in the 2006/07 fiscal year.

Jade Stadium Limited

Nature and scope of activities

This company manages the affairs of Jade Stadium, a stadium with a fully-seated capacity of 36,000 and a wide range of world-class hospitality facilities. Its activities include active promotion of the stadium as well as its operation and maintenance.

Policies and objectives relating to ownership and control

The Council considers that Jade Stadium Limited is a regional strategic asset and as such wants it to be operated in commercial manner, but also in a way that benefits the region as a whole.

Through a Statement of Intent, the Council establishes broad parameters reflecting the public nature of this company without inhibiting proper commercial management. To continue to do this the Council has a policy of maintaining a controlling interest in this company.

Key performance targets

Achieve a net operating profit before depreciation and taxation of \$2,024,000 in the 2006/07 fiscal year.

Council-controlled organisations

Canterbury Museum Trust Board

Nature and scope of activities

The Museum undertakes to:

- Collect, preserve, act as a regional repository for, research, display and otherwise make available to the people of the present and future, material and information relating to the natural and cultural heritage of New Zealanders;
- To promote interest and education in the natural and cultural heritage of New Zealanders; and
- To place particular emphasis on those activities as they relate to the greater Canterbury region, the Antarctic and Subantarctic, and, where appropriate, their relationships in a wider global context.

Policies and objectives relating to ownership and control

The Council contributes to the operation of Canterbury Museum by providing annual operational funding towards an approved Canterbury Museum Trust Board Annual Plan; it also contributes capital funding to the museum's Revitalisation Project.

Key performance targets

Comply with the parameters of the Canterbury Museum Trust Board Act 1993.

Central Plains Water Trust

Nature and scope of activities

- To seek resource consents for the proposed Canterbury Plains Water Enhancement Scheme, and to hold these consents for the use of Central Plains Water Limited.

Policies and objectives relating to ownership and control

The Council recognises a major regional economic benefit in managing the water resource in the Central Canterbury Plains, including significant employment creation. The Council, through its involvement with the Trust, hopes to mitigate the adverse effects of any proposed scheme on its own water supply.

Key performance targets

Obtain resource consents for water use and irrigation by 2009

Other Council Controlled Organisations

Travis Finance Limited – non-operating