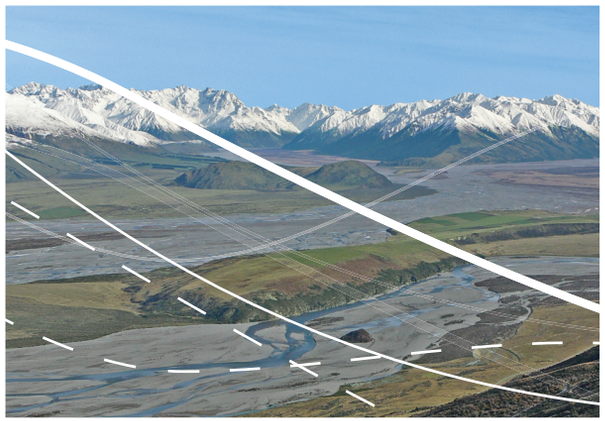
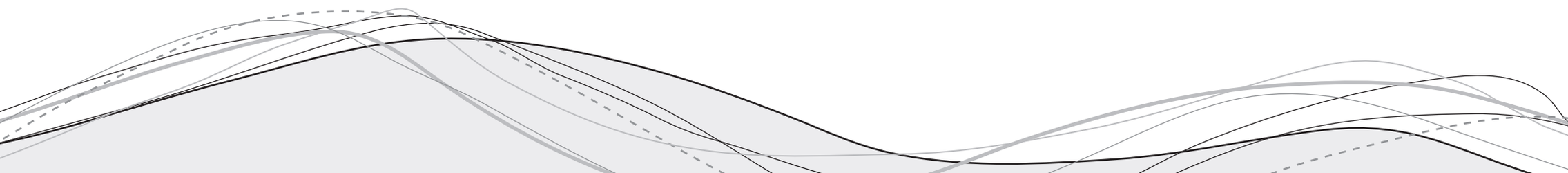
SUMMARY OF SOLID WASTE MANAGEMENT PLAN

WATER AND SANITARY SERVICES ASSESSMENT



SUMMARY OF SOLID WASTE MANAGEMENT PLAN

1. Introduction

The Local Government Act, Schedule 10, section 3 (1) (b) requires a Selwyn Community Plan to contain a summary of the waste management plan in force under section 539 of the Local Government Act 1974.

2. Background

Selwyn district Council adopted a Solid Waste Management Strategy in 1997 following public consultation.

This Strategy was used as the basis for preparation of a Solid Waste Management Plan that was adopted in 1998 following formal consideration using the Special Consultative Procedure of s716A, of the Local Government Act.

A further policy decision, consistent with the Solid Waste Management Plan, but providing greater detail, was the Council's adoption, in August 1999, of a policy of zero waste to landfill by 2015 with a review in 2010.

Implementation of these policies has progressed and the Council now has a kerbside recycling collection, and a resource recovery park, with an in-vessel composting plant. A kerbside organic waste collection has been approved introduced. User charging policies to encourage waste minimisation have been introduced.

The Kate Valley regional landfill's resource consent requires waste contributing councils to certify that they have a waste management plan and certify the plan is being regularly monitored. A monitoring report was presented to the Council's meeting of 11 May 2005.

Whilst Selwyn District Council was one of the first Councils to adopt a Solid Waste Management Plan, the current plan has now been in operation for ten years. Large steps have been taken towards waste minimisation over this period, and the time is approaching for the plan to be revised, to take account of accomplishments and re-focus on the zero waste objective. The current plan is therefore expected to be revised by 2012 under the Waste minimisation Act 2008.

3. Summary of the Council's solid waste management plan

The Solid Waste Management Plan is presented under three broad headings, namely:

1. introduction;
2. consideration of Methods;
3. waste management plan provisions and Implementation.

These sections may be summarised as follows:

Introduction

The introduction contains the objective of the plan together with general information concerning requirements for such plans in the context of the Local Government Act.

The plan notes that the Council's waste management objective is, 'to promote effective and efficient waste management within the district, whilst having regard to the environmental costs and benefits to the district and ensuring that the management of waste does not cause a nuisance or be injurious to health.'

Other information in the introduction section includes:

"Under LGA section XXXI, every territorial authority is required to adopt a waste management plan, and in doing so is required to give explicit consideration to the waste management hierarchy, starting with waste reduction as the highest priority.

A waste management plan is by definition, in the Interpretation (LGA s 537) "..... any plan for the management of waste in the district, being a plan developed after consideration, in the following order of priority, of the following methods (which methods are listed in their order of importance):

- *(a) Reduction;*
- *(b) Reuse;*
- *(c) Recycling;*
- *(d) Recovery;*
- *(e) Treatment;*
- *(f) Disposal."*

The 'methods' specified in the Act are usually described as the waste management hierarchy.

Waste management plans are required to be prepared in accordance with the special consultative procedures of the s.716A of the LG Act.

The LG Act also gives territorial authorities powers to:

- *undertake or contract out waste management activities,*
- *to make bylaws regulating disposal, collection, transportation, recycling, charges and landfill access,*
- *to make grants; and*
- *to allocate and recover costs".*

Consideration of methods

This section of the Solid Waste Management Plan discusses the 'methods' of Local Government Act 2002 s537, namely, reduction, reuse, recycling, recovery, treatment and disposal of waste. It also discusses other waste minimisation considerations, waste analysis surveys and perceptions concerning wheelie bins and waste minimisation. For further information please refer to Section 2 of the plan.

Waste management plan provisions and implementation

Whilst, as noted previously, a number of implementation details are dated, the base framework is still very pertinent to current provisions and future direction. This section, Section 3 of the plan is quoted in full below. Please note that:

1. the paragraph numbers are those of the Solid Waste Management Plan;
2. a progress monitoring report was presented to the Council's meeting of 11 May 2005.

3 Waste management plan provisions and implementation

3.1 Introduction

Section 539 of the Local Government Act (Amendment No.4) states:

(2) Every waste management plan shall-

(a) make provision for the collection and reduction, reuse, recycling, recovery, treatment, or disposal of waste in the district;

(b) Provide for its effective and efficient implementation or for activities considered appropriate for that purpose to be undertaken by, or under contract to, the territorial authority.

The provisions detailed below are based upon the various strategies in the Council's Waste Management Strategy document and the Consideration of Methods in this document. Implementation of these provisions is subject to the Council's annual plan process or other formal Council approval.

3.2 Management and service delivery

The Council will:

(a) Carry out the management of waste management functions in house, supplemented if necessary by specialist consultants.

(b) Carry out service delivery using private enterprise contractors under contract to the Council. (The contractors will be engaged in accordance with Council policy as detailed in the SDC Contract Administration Manual)

(c) Keep abreast of new waste management information and technology and utilise this knowledge to review and modify Selwyn's waste strategies, plan and procedures, as appropriate.

3.3 Types and levels of service

The Council will:

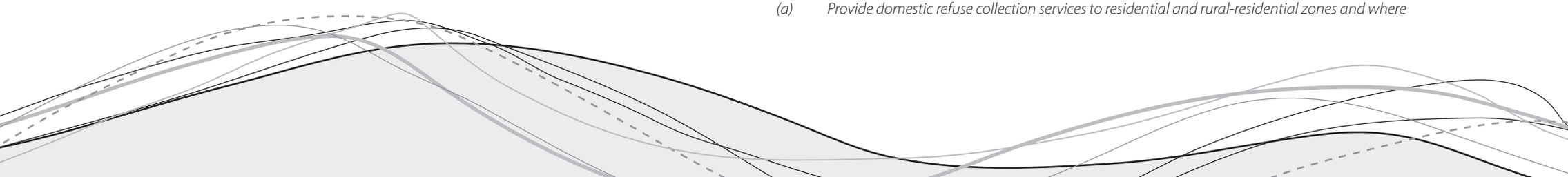
(a) Review the types and levels of service following receipt of notification of the landfill discharge consent conditions, and when other refuse disposal options become available.

(b) Review individual components of the refuse services, not singularly, but in relation to their place in the whole waste management system.

3.4 Refuse collections

The Council will:

(a) Provide domestic refuse collection services to residential and rural-residential zones and where



warranted to the settlement, commercial, industrial, semi-rural and the more populous rural zones.

(b) Provide public litter bins in townships, subject to confirmation of the service and the level of service, via the Annual Plan process.

(c) Maintain the present route coverage and extend this as it becomes viable or necessary to do so. The extent of the service coverage and the frequency and type of collections shall be confirmed from time to time by the Council. Special arrangements may apply in high country and hut areas. Also note that it is anticipated that the new district plan will include, as a condition of subdivision and residential development that all zones except the Rural Zone must be served by a refuse collection.

(d) Allow ratepayers outside of the serviced areas to use the services, subject to approval by the Manager Works and Services.

(e) Include provision of both refuse bag and MGB (wheelie-bin) collections from the same refuse collection vehicle. (Except for high country areas which have communal bins and/or other arrangements)

(f) Introduce a new system of charging for refuse collections to provide an incentive for waste minimisation. Under the proposed new system, the refuse collection charge shall be made up of two components, namely:

(1) A separate uniform annual charge for refuse collection, in respect of each separately inhabited portion of a property or building, along the refuse collection routes, (Rating Powers Act, s24, and Local Govt. Act Amendment (No. 4), s540, s543 and s544) and in addition to this charge,

(2) A refuse charge based upon the quantity of refuse collected. (Rating Powers Act s31, and Local Govt Act Amendment No. 4, s540, s543 and s544)

Note:

(i) The uniform annual charge component, (f) (1), above, shall broadly represent the costs of making the service available. The second component, (f) (2), shall broadly relate to the quantity of refuse collected. The total amount charged shall include allowance for overheads, administration, and disposal of the collected refuse, together with allowance for any grant or allocation of costs as provided under s543 and s544 of the Local Government Act. The proportion of cost attributed to the uniform charge as compared with the refuse charge shall also be subject to a transition over the introductory periods as well as any economic incentives or disincentives that that Council shall impose.

The quantity based charge component will be recovered either from sale proceeds from refuse bags or refuse stickers sold, or in the case of MGBs, the charges will be related to the size of the MGB, or the weight of refuse in the MGB.

(iii) Refuse charges in high country areas will be calculated as in (i) below.

(g) Consider methods of weighing refuse in MGBs, and basing the quantity based component of the refuse charge on a weight basis, when the technology improves and it becomes practicable to do so.

(h) Include provision for collection of paper, for recycling, by the refuse collection vehicle, provided that it is operationally feasible, and viable (as determined by the Council) to do so.

(i) Charge for refuse collections on the same basis, district-wide. Except that that high country areas which have communal refuse bins, and where the sale of refuse bags is not feasible, a refuse charge shall be levied, calculated on the same basis as in the other areas but including an allowance in lieu of the quantity based charge component.

(j) Allow sales of refuse bags and labels from retail outlets.

(k) Do away with the annual distribution of refuse bags.

3.5 Waste minimisation – general

The Council will:

(a) Adopt the Government's Waste Management Policy which, modified for Selwyn district, is:

(i) to ensure that as far as practicable Selwyn district's waste generators should meet the costs of the waste they produce; and

(ii) to encourage the implementation of the internationally recognised hierarchy of reduction, reuse, recycling, recovery and residual management by all involved in waste generation and management in Selwyn district.

(b) Allocate monies, through the annual plan process, to promote and effect waste minimisation. Also, where appropriate, utilise the provisions of the Local Government Act, s543, Grants, and s544, Allocation of Costs, to promote the objectives of the Waste Management Plan.

(c) Use policies, rules, economic instruments, and service delivery, where appropriate, to promote and effect waste minimisation.

(d) Allocate monies through the annual plan process to gather waste quantity and composition data to monitor the Selwyn waste stream.

(e) Keep abreast of new waste minimisation information and maintain links with other territorial and regional authorities and organisations concerned with waste minimisation.

3.6 Reduction

The Council will:

(a) Participate with other territorial authorities in lobbying the government to investigate and introduce legislation, regulations and taxes, as appropriate, to encourage manufacturers and producers to introduce clean production and reduce the amounts of waste generated.

(b) Continue with the policy of meeting full refuse collection costs from refuse collection charges. (Note that the implementation of funding of expenditure needs shall be subject to provisions of the Council's Funding Policy)

(c) Change the basis of charging for refuse collections to provide incentives for waste reduction. (Please refer to the refuse collection section for details.)

(d) Achieve the reduction in the volume of household refuse collected for disposal, specified the Strategic Plan. (10% fall by 2003 from 1996 levels)

3.7 Reuse and recycling

The Council will:

(a) Participate in regional, territorial and institutional forums, and gather and disseminate information to assist in the promotion of reuse and recycling.

(b) Monitor the opportunities for reuse and recycling in Selwyn district and encourage or participate in reuse and recycling when it is environmentally and economically beneficial to do so.

(c) Continue accepting car bodies and metals at landfill sites for crushing and recycling.

(d) Support Selwyn District Council in-house initiatives relating to waste and energy minimisation and environmentally friendly purchasing criteria where practicable.

(e) Include kerbside newspaper collection as a provisional item within the Selwyn Council's refuse collection contracts, in those areas that dispose of their waste into the Metro Refuse system. Implementation will depend on costs and Council approval.

(f) Investigate and facilitate reuse and recycling within the district.

3.8 Recovery

The Council will:

(a) Promote and encourage home composting through education, dissemination of information, and user charges policies for refuse collection and disposal, through the Annual Plan process.

(b) Investigate the feasibility of separating, stockpiling and shredding green waste at landfill sites.

(c) Investigate and facilitate recovery within the district.

3.9 Disposal

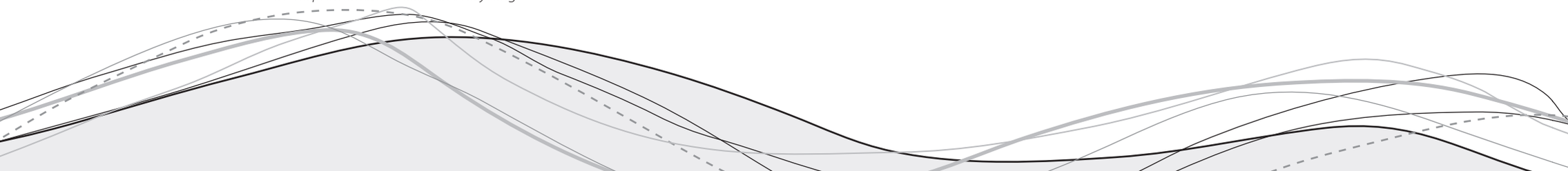
The Council will:

(a) Continue to support the concepts of a regional approach to solid and hazardous waste management and working together with other local authorities to investigate a regional solution for solid and hazardous waste disposal.

(b) Manage the Council's landfills in accordance with the conditions of the discharge consents, once these conditions are imposed by the Canterbury Regional Council.

(c) Programme Selwyn District Council's landfills to close, at or before the time that the proposed regional landfill becomes operational, except where the sites are required for inert fill disposal, green waste, and/or recycling and transfer facilities.

(d) Investigate options for the Springfield tip site.



(e) Investigate the feasibility of establishing a low-tech transfer station at the Springston landfill site.

(f) Develop hazardous waste strategies, policies, rules, facilities and procedures which satisfy Selwyn's obligations relating to prevention and mitigation of adverse effects of hazardous substances, based upon the findings of the Canterbury Waste Joint Committee's hazardous waste investigations, when these become available.

(g) Consider refuse disposal on a district-wide basis.

(h) Maintain the current policy that gate charges at all landfills are the same.

(i) Recover the direct costs of the disposal of refuse collection refuse from the refuse collection accounts, so that disposal of collected refuse is not subsidised from the general rate.

(j) Identify and assess closed landfills, and if necessary apply for discharge consents.

(k) Develop a strategy for farm refuse disposal pits, once the district plan is finalised.

(l) Develop a strategy for waste transfer and refuse disposal prior to closure of the existing Selwyn landfills and the establishment of the proposed regional landfill.

(m) Investigate the feasibility of including budgetary provision for enforcement, and clean up of illegally dumped refuse and abandoned vehicles, within the waste management budget rather than within the planning and regulatory budget.

3.10 Waste analysis

The Council will:

(a) Maintain waste quantity records.

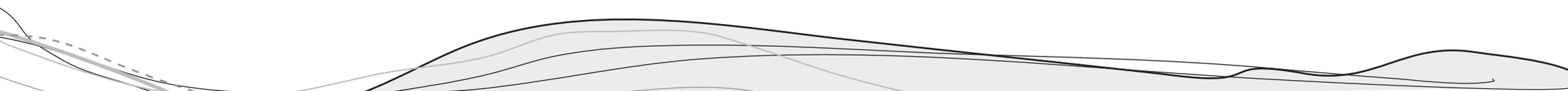
(b) Carry out waste quantity surveys on a nominal two yearly basis.

(c) Carry out waste composition surveys on an as necessary basis.

3.11 District plan provisions

The Council will:

(a) Subject to ratification in the district plan, require applicants for resource consents, for any development or activity which will result in the generation or storage of wastes, to submit a waste management plan, to the Council, with their consent application. The waste management plan shall be consistent with the Council's Waste Management Strategies and Waste Management Plan and shall detail: the alternatives considered with respect to minimisation, generation, storage, collection and disposal of waste; the quantities and categories of waste which the development or activities will generate; the proposed system of waste storage, collection and disposal; measures that will be taken to avoid, prevent and mitigate adverse effects."



WATER AND SANITARY SERVICES ASSESSMENT

The Council prepared and adopted its water and sanitary services assessment in 2005. It will be reviewed in time for the 2012/22 Selwyn Community Plan and has not been updated as part of the preparation of the 2009/19 Selwyn Community Plan.

1 Introduction to the water and sanitary services assessment

What is the water and sanitary services assessment?

The Water and Sanitary Services Assessment (WSSA) looks at all services relating to:

- water supply;
- sewerage and sewage disposal;
- stormwater disposal;
- public toilets; and
- cemeteries.

It looks at both the Council owned services and also at services that are privately owned. The aim is to assess the adequacy of these services both now and for the future. It looks at the risks that these services, or lack of these services, may pose to your health and well being.

Why does Council have to do an assessment?

The Council is required to carry out this assessment under the Local Government Act 2002. The legislation states that the Council has an obligation to assess water and sanitary services and it gives specific details as to the scope of the assessments and processes by which they must be done.

What does Council hope to achieve?

The aim of the WSSA is to enable the Council to gain an overview of the water and sanitary services within their district to help them plan and, if necessary, prioritise for an improved level of service. This is the first time that the Council has looked at ALL the services in the area, not just the ones they own.

This is the first issue of the WSSA and, as a result, the assessment may not address all the water supply, sewage and stormwater issues in the district. The WSSA review has tried to identify all of the communities and settlements that would benefit most from improved infrastructure, in order to start the improvement process.

How does it fit in with other Council documents?

The WSSA is an important input to the Selwyn Community Plan, in that it provides information on the infrastructure in the district and outlines the Council's plans for improvements.

Submission outcome

The Council adopted the WSSA in late 2005. As resolved by the Council, the next review of the WSSA will occur in time for the 2012/22 Selwyn Community Plan. It has included the effects of the assessment within its Activity Management Plans for water and sewerage in the Selwyn Community Plan 2009/19.

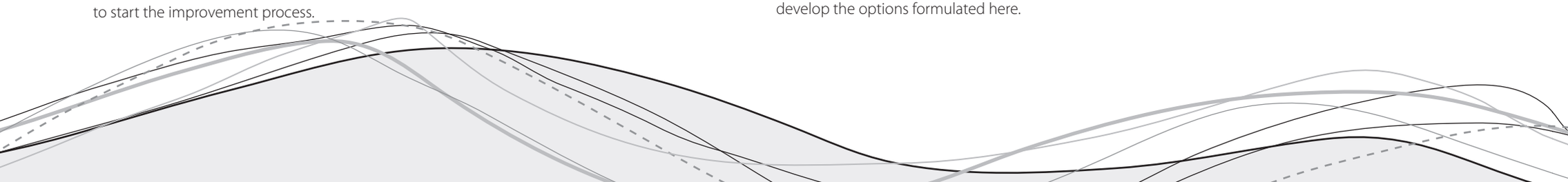
2 Background to the WSSA

2.1 Development of the first WSSA

The Council has developed an approach to achieving the aims of the WSSA that, as a first time undertaking such a task, encompasses a broad a range of the relevant community services as possible. Importance was placed on correctly identifying the communities and settlements that do not have water and sanitary services and may benefit from improved infrastructure, rather than possible solutions and options for improvement. The development of the best options for these improvements is a complex task and one that requires greater community consultation than can be achieved through the WSSA.

This is the first time that the Council has collated information for water, sewage, stormwater, public toilets and cemeteries in one report. It is also the first time that the Council has actively tried to locate and assess privately owned water and sanitary infrastructure and formally address the issues of areas not serviced by any infrastructure at all. It is possible that not all the relevant information has been included. It is also possible that not all of the information will be accurate. It is important to understand that the Council will periodically review and re-assess water and sanitary services and the information can be updated or added as required.

The Local Government Act 2002 states that WSSA's must be carried out periodically and so it is intended that this document will form a sound basis for future assessments. The issues identified in this report will be incorporated into the Council's ongoing infrastructure monitoring and improvement planning i.e. Activity Management Plans, thus enabling subsequent WSSA to develop the options formulated here.



2.2 The Local Government Act 2002

The requirement for the Council to carry out a WSSA comes from the Local Government Act 2002. The Local Government Act 2002 is broad ranging legislation that places many general and specific obligations on local authorities in terms of ensuring the social, economic, environmental and cultural wellbeing of their communities.

The requirement of the Local Government Act 2002 with regard to the WSSA is summarised below. The WSSA must include:

i) A description of the water and sanitary services provided within the district for each community in it.

ii) An assessment of the quality and adequacy of the services available within the district.

iii) A statement of the current and estimated future demand for services within the district.

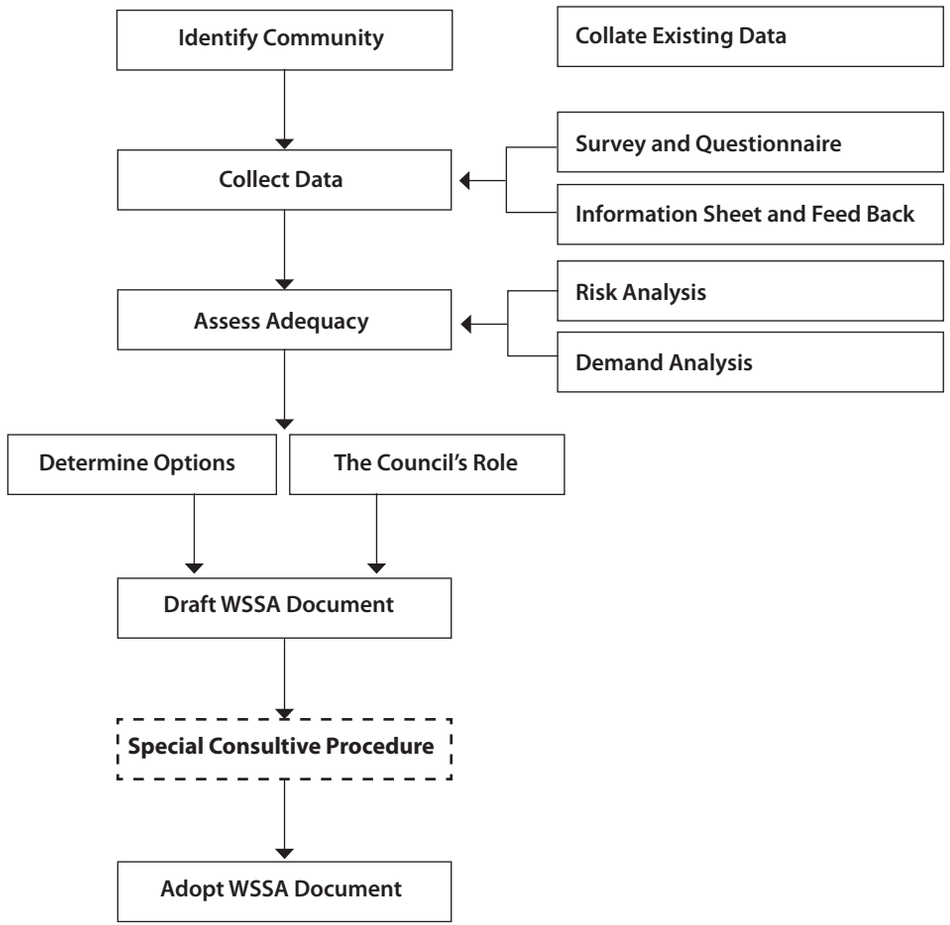
iv) A statement of the options available to meet the identified current and future demands and an assessment of the suitability of each option for the district.

v) A statement of the territorial authority's intended role in meeting the identified current and future demands.

2.3 Assessment process

The WSSA has taken place in several stages. The flow chart in Figure 2.3 shows the main stages and their components.

Figure 2.3 the assessment process



The initial stages identified which communities were to be included in the first assessment. This was followed by a period of data collection, which included an information sheet that was sent out to everyone in the community. The information sheet explained what the WSSA was and asked for comments and feedback, to help direct the early stages of the investigation. The next stage involved an assessment of the adequacy of the services and the development of options to address some of the issues raised.

The next step in the process is the Special Consultative Procedure to allow the communities affected by the options proposed in the Draft WSSA document to comment and provide feedback on the issues raised. These comments will be incorporated into the assessment, along with comments from the Ministry of Health, before the final document is produced.

2.4 Waste management

The Local Government Act 2002 states that WSSA must include a section on solid waste management. The Council carried out this part of the assessment previously as part of Part 31 of the Local Government Act, and so there was no need to repeat the assessment process. Information on solid waste can be found in the Solid Waste Management Plan, which is available from Selwyn District Council offices.

3 Selwyn district

Selwyn district is a predominantly rural district with no major towns or cities. It covers 6,492km2 and has a population of over 30,000.

The district is bounded by the Waimakariri River in the north, and the Rakaia River in the south. It can be considered as having two distinct areas: the Canterbury plains, characterised by flat expanses of farm land, and the Southern Alps, characterised by rolling foothills and steep glacial mountains.

The majority of the townships and settlements in the district lie on the plains, within a 40km radius of Christchurch City. Some of the townships have grown up around educational and research facilities, whilst others are over-spill residential areas for the city. In this area land use is predominantly agricultural with a mixture of dairy, cattle and sheep farms. There are a large number of smallholdings and lifestyle blocks in this area.

The three main industry groups in the district are farming, education and research, and tourism. The most significant is farming, varying through the area from small 'lifestyle' blocks to high country farms. Farming continues to have a significant impact on the district's economy, with a number of towns as service centres for the rural community.

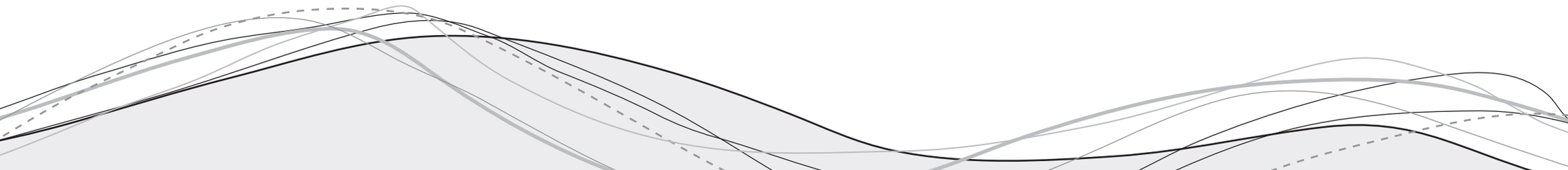
Tourism is another significant industry that the Council supports and encourages. A number of the small towns such as Rakaia, and Lake Coleridge are popular places for holiday homes and recreational facilities, with towns such as Springfield as tourism service centres on main tourist routes.

Education and research Institutes located around Lincoln also provide significant employment in the district.

Within the district there are 23 townships and over 32 small communities. Over 90% of the district's population live in the plains area, in close proximity to Christchurch. These residents enjoy a relatively cheap and plentiful water supply from the deep, secure aquifers. Water provision for the remainder of the residents is more difficult due to the dispersal and remoteness of many of the settlements, particularly in the Alps, combined with varying hydro-geology making water provision more expensive and harder to maintain. Conversely, wastewater disposal in the coastal plains areas is often difficult due to the high water-table that creates problems with on-site disposal systems. Towards the Alps, free draining soils allow continued use of on-site systems e.g. in Darfield.

Selwyn is a growing district. Between the 1991 and 2001 Censuses, the resident population increased by 28% from 21,300 to 27,300 and now numbers over 30,000 persons. The increased population growth that has occurred over the previous ten years is expected to continue in the short term.

This growth has a significant effect on the services that Selwyn District Council can provide. The demand on existing services is continually increasing and the Council must expand and upgrade systems as the population grows. This puts increasing strain on systems, parts of which are old and poorly designed for modern standards. In addition, the socio-economic make up of the district is changing. While upper income people are moving into lifestyle blocks and new urban subdivisions within 35 kilometres of the city, lower income people are moving into more affordable housing on farms or in towns beyond the 35km threshold. These changes and local



variations are likely to affect people's expectations and their use of and ability to pay for local facilities and services.

Tourism also affects the services that Council provides. For example, many of the toilet facilities in the district are predominately for tourist use and the townships of Castle Hill and Arthur's Pass predominately cater for a traveller and holiday population.

4 Water supply

4.1 General

Water supply services primarily refer to the ability to supply adequate volume and quality of water for drinking and domestic purposes. It also includes the water source, pipes, pumps and reservoirs that enable water to be supplied to each household.

The aim of the WSSA with regard to water services is to assess their adequacy with regard to public health. A good, clean and ample water supply is essential for our well being. As well as the obvious effects of drinking water that has been contaminated with pathogens (viruses, bacteria and protozoa), water is also essential to enable good hygiene practices in the home.

There are several pieces of legislation and standards in place to help ensure that good quality drinking water is provided. These include the Drinking Water Standards New Zealand (2000) (DWSNZ (2000)), The Health Act (1956) and the Building Act (2004). The Ministry of Health (MoH) also provides a register of drinking water systems and grading system to help monitor the quality of drinking water in New Zealand.

4.2 Overview

There are 28 Council-owned water supplies in Selwyn district. These are supplemented by numerous private water supply schemes and individual households that get their water from bores, streams, springs and rainwater systems.

It has not been possible or practical to assess everyone's water supply individually. Instead, we have limited the assessment to the Council owned supplies and private water supplies that provide water to more than 25 people for more than 60 days of the year. This is the definition of a community drinking water scheme used by the MoH. We have also included several other types of water supply where appropriate, such as tourist resorts and schools.

We have also tried to assess settlements where the lack of a water supply system is considered to be an issue, either from a public health perspective or from the expectations of the residents.

In order to assess the private supplies information was obtained via a questionnaire drafted to those known supplies and the MoH Register of Community Drinking Water Supplies.

The water supplies in Selwyn district are summarised in the tables below.

Table 4.2a Summary of Council owned water supplies in Selwyn district

Community	Population	Connections	Water source and treatment
Armack Drive	56	20	deep well
Arthur's Pass	90-300	137	surface water / filter and uv
Branthwaite Drive	67	24	deep well
Burnham	40	27	deep well
Castle Hill	20-250	122	surface water / chlorination
Darfield	1760	942	shallow well / chlorination
Dunsandel	390	171	deep well
Edendale	115	60	deep well
Johnsons Road	150	59	deep well
Jowers Road	50	18	deep well
Kirwee	490	294	deep well
Lake Coleridge	60-250	49	surface water / uv
Leeston	1240	608	deep well
Lincoln	1900	826	deep well
Malvern Hills	1080	519	shallow well / uv
Prebbleton	790	665	deep well
Rakaia Huts	160	114	deep well
Raven Drive	35	13	deep well
Rolleston	3200	1546	deep well
Selwyn Rural	Unknown	280	shallow well/surface water / chlorination
Selwyn Huts (Upper)	Unknown	114	deep well
Sheffield/Waddington	460	188	shallow well / uv
Southbridge	750	309	deep well
Springfield	230	166	shallow well/ chlorination
Springston	540	112	deep well
Tai Tapu	310	129	deep well
Taumutu	Unknown	11	deep well
Te Pirita	Unknown	12	deep well
West Melton	260	57	deep well

Table 4.2b Private water supplies in Selwyn district

Settlements		Institutions	
Lower Selwyn Huts		Lincoln University	Burnham Military Camp
Rocklands, Tai Tapu		Agriculture and Science Centre	Taumutu Marae
Irwell		Canesis Network Ltd	
Knocklynn, Tai Tapu		Rolleston Prison	
Schools		Community halls	
Broadfield School		Sedgemere Hall	Greenpark Hall
Greenpark School		Irwell Hall	Broadfield Hall
Weedons School		Lakeside Hall	Ladbrooks Hall
Ladbrooks School		Mead Hall	Springston South Hall
Halkett Playcentre		Killinchy Hall	
Tourists facilities*		Domains and reserves	
Grasmere Lodge	Ellesmere A & P Grounds	Courtenay Domain	Coes Ford Campground
Bealey Hotel	Motukarara Racecourse	Sudeley Park, Irwell	Weedons Reserve
Wilderness Lodge	Whitehouse Café	Lake Crichton	Doyleston Reserve
Flock Hill Lodge		Lakeside Domain	
* ski fields were also considered under this category but, due to the fact that the assessment was completed out of season, could not be included in time.			

Full details of each water supply, and the issues and options for each of these supplies, can be found in the WSSA water supply section.

4.3 Assessment of adequacy.

A water supply may be considered adequate if it is able to reliably provide sufficient amounts of safe, clean water to consumers for consumption and general domestic use.

The key questions in any assessment of adequacy are:

- Is there sufficient capacity to meet current and future water demands?
- Is the water safe for consumption?

Capacity is an important issue because it is essential when consumers turn on the tap that enough water is supplied to meet daily drinking water and household requirements. This can be a major issue in countries such as Australia, although is less of a problem in New Zealand where water is more often readily available. Limited water availability in New Zealand is generally a level of service issue, rather than a health issue and tends to affect the viability of water intensive activities such as garden watering.

Water quality is perhaps the most important public health issue relating to drinking water in New Zealand. Most consumers expect tap water to be safe and will consume it indiscriminately. Poor water quality can pose a severe threat to public health, particularly to vulnerable groups such as children and the elderly. Microbiological contamination can infect large numbers of people and chemical contamination can cause long-term chronic health problems. An assessment of the adequacy of the water quality has been based on whether the water complies with the DWSNZ 2000.

4.4 Current and future demand.

The initial assessment of adequacy has been made for the existing water supplies and the current demand on the system. This has been expanded to consider the adequacy of the water supply in the future. Current demand is relatively easy to assess and can include the communities expectations as well as the physical requirements of the system. Future demand is harder to predict. For communities that already have a water supply this is primarily a question of anticipating the population growth and expanding the system to meet the new requirements. For communities without a water supply (i.e. Doyleston) a judgement must be made as to the risk of not having a reticulated water supply, coupled with the community's desire to have a community based scheme. It is also possible that changes in legislation, such as the new Drinking Water Standards, or the recently announced subsidy scheme (details not available at the time of writing) will affect future demand for a community water supply.

4.5 Key issues.

Water quality

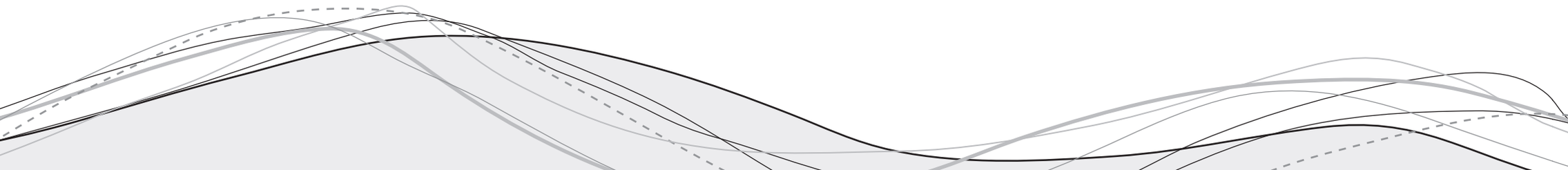
The majority of water supplies in Selwyn district enjoy excellent water quality, obtaining their water via secure groundwater, i.e. a good clean source that requires no treatment prior to reaching the tap. However, the water supplies in the upper plains and foothills of the Alps obtain their water from a non-secure source. These supplies are at risk from surface contamination, and although none of the supplies in these areas present an unacceptable risk to the communities they serve, they will need additional or improved treatment to meet the new drinking water standards. These sources are primarily at risk from contamination via faecal and organic matter and will need filtration and UV treatment to remove and kill potentially harmful bacteria and other bugs.

Another water quality issue for the Selwyn region is the detection of nitrates in some wells, although it should be noted that the amounts detected are below Drinking Water Standards guideline levels. The source of nitrates affecting the wells is not known. It may be due to dairy farming, fertilisers or other agriculture or from the cumulative effects of on-site wastewater disposal systems. The Council will continue to investigate possible chemical contamination of all wells.

If water quality is evaluated on the basis of compliance with DWSNZ (2000), five supplies complied fully, 19 supplies complied but failed to meet sampling requirements, and four failed on the basis that faecal contamination was detected in the reticulation network.

Well security

For many of the water supplies in the district water is supplied from what a secure well. This designation is given to wells that abstract water from a deep safe aquifer and meet standards of construction set by the MoH and the DWSNZ. At present some of the potentially secure wells in the district have not been verified as such by the MoH, primarily because of inadequate sampling and testing. This is indicated by the most recent MoH grading which replaced the B grade (Satisfactory, low risk) with a U grade (Ungraded). This is not a reflection of poor water quality but is a management issue. The Council is already addressing this via the appropriate monitoring programme.



Capacity

Selwyn district is experiencing rapid growth, particularly in the areas close to Christchurch. At present most Council supplies are able to cope with the daily demand without the need for water restriction measures. However, some supplies are now at full capacity and do not allow new connections, including Armack Drive, Branthwaite Drive, Burnham, Edendale, Johnsons Road, Jowers Road, Rakaia Huts, Raven Drive, Selwyn Huts, Taumutu and West Melton.

In the longer term many of these and other supplies will need to expand or supplement their existing water source. Fortunately, for many supplies, particularly those close to Christchurch, this is easily achieved by the addition of new wells into the underlying aquifer.

However, for some supplies, notably Darfield, there are no obvious sources of clean water in these communities. Detailed investigations will be required to determine the most economic solution for obtaining and treating water for community use.

A general issue for Selwyn district, and New Zealand as a whole, is that water resources are finite and, although Canterbury is fortunate to have large amounts of groundwater, the supply is not endless. Many rivers can no longer be used as a water source because the available water has already been allocated to the maximum number of water users. Similarly with groundwater, the ability of the resource to meet demands may be exceeded.

Water reticulation network

Overall, within Selwyn district the conditions of the water reticulation networks are good. The majority of networks operate well and have adequate capacity to meet both current and future demand. All of the Council owned schemes provide water at an adequate pressure and most are able to provide some fire fighting capacity, although many do not fully meet the New Zealand Fire Fighting standards, generally on pressure, flow or hydrant spacing.

Another issue to consider is that of water lost through the reticulation network and pumping mains and from illegal connections. Leakage is a complex issue and is not easily addressed. It is often reported as a percentage of the total volume of water used. Although this gives an indication of how much water is lost, it does not indicate whether this loss is economic to sustain. In the plains areas, where water is relatively plentiful and cheap to provide, a level of leakage around 10% of total leakage is considered sustainable. The cost of finding and repairing the leaks is generally more expensive than producing more water. Moving thorugh the upper plains and towards the Alps this approach changes as water becomes more difficult to obtain and costs much more to treat. In these areas repairing leaky pipes and conserving water becomes the cheaper option.

At present, the Council does not consider water losses and leakage to be an issue that requires attention in the short term. However, as the population of Selwyn district grows, and demands for water resources increases, from agricultural and commercial as well as domestic users, the acceptable levels of leakage will decrease. The need to conserve water will put pressure on the Council and other water providers to demonstrate that they are taking steps to make the best use of water resources. The Council is already addressing this issue with the introduction of water meters in some towns.

Water demand management

A common problem in the Selwyn district is high per capita water use in many towns and rural areas. This has a large impact on the sustainability of the water supply. High per capita use is considered to be more than 1,000l/property/day in rural residential areas, 2,000l/property/day in residential areas and 3,500l/property/day in rural areas.

High per capita water use is evident at several townships in the district, primarily in those areas without water meters and pricing policies. Based on local and national experience, it appears that water meters, or water restrictors are an effective means of controlling water use. For lifestyle subdivisions where there are water meters or a restricted flow, water use is maintained at a more sustainable level.

The key issues relating to the Council owned water supplies in Selwyn district are summarised in the table below.

Table 4.5 Summary of issues at Council owned water supplies

Community	Issues	DWSNZ compliance	MoH grade	Adequacy	
				Short term	Long term
Armack Drive	Closed scheme. Nitrates detected. Faecal contamination detected in reticulation.	✖	Bb	✔	✖
Arthur's Pass	Turbidity. Requires upgrade to meet new DWS. Occasional pipe freezing. Capacity of system will be exceeded in the future.	✔	Eb	✔	✖
Branthwaite Drive	Closed scheme.	✔s	Ba	✔	✖
Burnham	Closed scheme.	✔s	Bb	✔	✖
Castle Hill	Turbidity. Requires upgrade to meet new DWS.	✔s	Dd	✔	✖
Darfield	Turbidity and E Coli. Requires upgrade to meet new DWS. Capacity of system will be exceeded in the future.	✔s	Dc	✖	✖
Dunsandel	Faecal contamination detected in reticulation.	✖	Bb	✔	✔
Edendale	Closed scheme.	✔s	Dd	✔	✖
Johnsons Road	Closed scheme. Nitrates detected. High usage per capita.	✔s	Dd	✔	✖
Jowers Road	Closed scheme. Nitrates detected. High usage per capita.	✔s	Bb	✔	✖
Kirwee	Lack of capacity long term. High usage per capita. RC limit exceeded.	✔s	Ba	✔	✖
Lake Coleridge	Turbidity. Requires upgrade to meet new DWS.	✔s	Dd	✔	✖
Leeston	High leakage levels.	✔	Ba	✔	✔
Lincoln	Capacity of system will be exceeded in near future. High leakage levels.	✔	Ba	✔	✖
Malvern Hills	Turbidity and E. Coli. Requires upgrade to meet new DWS.	✖	Dd	✔	✖
Prebbleton	Capacity of system will be exceeded in the future.	✔	Ba	✔	✖
Rakaia Huts	Closed scheme.	✔s	Bb	✔	✖
Raven Drive	Closed scheme.	✔s	Bc	✔	✖
Rolleston	Capacity of system will be exceeded in near future. High leakage levels.	✔	Bb	✔	✔*
Selwyn Huts (Upper)	No major issues	-	Uu	✔	✔
Selwyn Rural	Turbidity. Requires upgrade to meet new DWS. RC to be reviewed.	✖	Dd	✔	✖
Sheffield/Waddington	Turbidity. Requires upgrade to meet new DWS.	✔s	Ed	✔	✔
Southbridge	Peak demand exceeds resource consent. High leakage levels.	✔s	Bd	✖	✖
Springfield	Turbidity. Requires upgrade to meet new DWS. Restrictions in dry summer.	✔s	Ed	✔	✖

Springston	Capacity of system will be exceeded in the future. Faecal contamination detected in reticulation. Upgrade planned for coming year.	✔	Bb	✔	✖
Tai Tapu	Capacity of system will be exceeded in the future.	✔s	Ba	✔	✖
Taumutu	Scheme closed. Peak demand exceeds resource consent.	✔s	Bc	✔	✖
Te Pirita	High usage per capita.	✔s	Bb	✔	✔
West Melton	Closed scheme.	✔s	Bb	✔	✖
✔*	Adequate if proposed water supply development occur				
✔s	Potentially complied with DWSNZ (2000) but failed through inadequate sampling				

Note: Adequacy in the longer term is assessed on the ability of a supply to meet DWS and to meet increased demand from population growth. Closed schemes are deemed NOT to able to meet increased demand, but it should be noted that in some cases there may be no scope for further development in that area and hence the supply may be adequate.

Private water supplies

In very general terms, the key issues identified by the WSSA for private water supplies are not so much problems associated with the water source or the distribution methods, but more problems associated with the knowledge and management of some of the systems. Some water supply owners are unaware of the details of the components and operation of their water supply. Few private supplies tested their water regularly and even fewer had considered the risks of contamination and had emergency procedures in place. That said, none of the water supplies that provided a response to the survey, pose any significant risk to public health that the Council were aware of. Indeed, some owners, particularly those at tourist facilities, have taken steps to ensure good quality water on their premises.

4.6 Options

Council owned water supplies

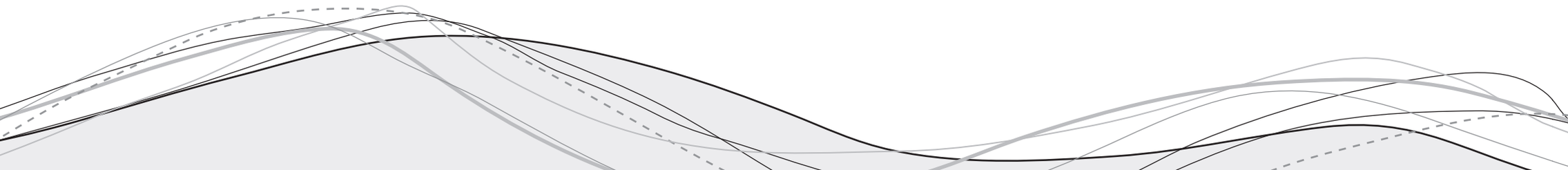
The Options relating to the Council owned water supply have been prioritised based on the following categories:

- Priority 1 – Water quality does not comply with DWSNZ and inadequate capacity to meet future demands;
- Priority 2 – Water quality does not comply with DWSNZ;
- Priority 3 – Inadequate capacity to meet future demands;
- Priority 4 – Minor or no issues.

The options are summarised in table 4.6 below.

Table 4.6 Options for Council owned water supplies in Selwyn district

Community	Options	Priority
Darfield	• Investigate options to upgrade WTP to meet DWS • Investigate options to increase scheme capacity	1
Arthur's Pass	• Investigate options to upgrade WTP to meet DWS • Investigate option to upgrade reticulation • Investigate options to increase scheme capacity	1
Springfield	• Investigate options to upgrade WTP to meet DWS • Investigate options to increase scheme capacity	1
Armack Drive	• Join with Rolleston Scheme or investigate options to increase scheme capacity • Eliminate contamination in reticulation	2
Castle Hill	• Investigate options to upgrade WTP to meet DWS	2
Dunsandel	• Eliminate contamination in reticulation	2
Lake Coleridge	• Investigate options to upgrade WTP to meet DWS	2
Malvern Hills	• Investigate options to upgrade WTP to meet DWS • Eliminate contamination	2
Selwyn Rural	• Investigate options to upgrade WTP to meet DWS	2
Sheffield/Waddington	• Investigate options to upgrade WTP to meet DWS •	2
Springston	• Eliminate contamination in reticulation • Investigate options to increase scheme capacity	2
Kirwee	• Investigate options to increase scheme capacity • Implement demand reduction strategy	2
Lincoln	• Investigate options to increase scheme capacity • Implement leak reduction strategy	3
Branthwaite Drive	• Join with Rolleston Scheme or investigate options to increase scheme capacity	3
Burnham	• Join with Rolleston Scheme or investigate options to increase scheme capacity	3



Edendale	•	Investigate options to increase scheme capacity	3
Johnsons Road	•	Join with West Melton scheme or investigate options to increase scheme capacity	3
	•	Implement demand reduction strategy	
Jowers Road	•	Join with West Melton scheme or investigate options to increase scheme capacity	3
	•	Implement demand reduction strategy	
Prebbleton	•	Investigate options to increase scheme capacity	3
Rolleston	•	Implement proposed supply improvements	3
Southbridge	•	Investigate options to increase scheme capacity	3
Taumutu	•	Investigate options to increase scheme capacity	3
Tai Tapu	•	Investigate options to increase scheme capacity	3
Rakaia Huts	•	Investigate options to increase scheme capacity	3
Raven Drive	•	Join with Springston scheme or investigate options to increase scheme capacity	3
West Melton	•	Investigate options to increase scheme capacity	3
Leeston	•	Implement leak reduction strategy	4
Selwyn Huts (Upper)	•	Investigate extent of reticulation system	4
Te Pirita	•	Implement demand reduction strategy	4

Private water supplies

For some of the settlements in the district the most feasible and safest option is to connect in to the Council supply. Limitations of this option come from the practicality of extending the Council reticulation system and the capacity of the existing wells and pipes. The Council is currently investigating this option for several settlements, halls and schools in the district. However, it should be noted that the majority of private supplies lie in the lower plains area where it is relatively cheap and safe for private supplies to obtain water. Connecting to a Council scheme becomes more desirable to private supplier as the system grows in size making management more difficult and the sampling requirements more onerous.

For the remaining settlements, the options available include the improvement of the individual supply (such as larger roof tanks or point or source treatment), and the amalgamation and improvement of the existing private supplies, or the installation of a completely new scheme, such as a new well.

Private community systems, although they may use the same methods and technology, require much better management than a single dwelling as often many people are relying on the system being operated correctly to provide them with safe clean water. This is particularly true for water supplies for schools and for tourist facilities, such as motor camps, where the water recipients are not aware of the risks that may be associated with the water supply.

Therefore, options for improving the knowledge and management of private supplies should be investigated. The Council has recently started to make the completion of public health risk management plans part of applicable private sub-division and water take resource consents. This could be extended to all known private water supplies over time, with the Council and the Ministry of Health providing guidance to help private water supply owners understand and manage their systems.

Details of the best way to improve the water supply to a single dwelling can be found in the Water Supply WSSA document.

4.7 The Council's role

The Council considers the provision of water supplies an essential activity and will continue to provide this service for the residents of Selwyn district. The Council already owns and operates many water supplies in the district, with over 8000 connections to the Council schemes.

For the existing Council owned schemes, the Council will continue to monitor their performance and maintain their water supplies to the level of service identified in the Council Asset Management Plans. They will aim to identify gaps and improve the service where required.

The Council will continue to monitor the quality of the water supplied to ensure that there is no risk to public health, and aim to achieve compliance with the appropriate quality standards. They will monitor changes in legislation that may impact upon the quality of the water supply.

Council will monitor community requirements to ensure that the service they provide meets community expectations.

The Council is actively seeking to improve the water supply service and currently has several projects underway, notably investigations for a new water supply scheme for Doyleston and scheme improvements at Darfield, Kirwee, Prebbleton and Rolleston.

The Council will also play a role in the development of water supplies for the areas not currently serviced by a Council scheme. They will monitor the public heath issues for these settlements and also monitor community requirements and expectations. They will provide advice and expertise, and act as a facilitator as required, to help these communities achieve their desired outcomes.

5 Wastewater disposal

5.1 General

Wastewater services refer to the wastewater collection networks and the wastewater treatment plants including the final disposal system.

The aim of the WSSA with regard to wastewater services is to assess their adequacy in terms of their effect on public health but also their impact on the environment.

The immediate health impacts of poor wastewater disposal are not immediately as obvious as for water supply. Health impacts are primarily due to the fact that lack of, or poorly performing, wastewater disposal facilities can lead to pollution of recreational waters and in some cases contamination of drinking water supplies which upon contact can lead to a variety of stomach upsets and even diseases such as hepatitis. For wastewater services it is also important to assess the impacts that wastewater disposal will have on the environment, although this has not been the main issue of the WSSA.

The primary legislative control for wastewater disposal is the Resource Management Act (RMA). The RMA sets the standards for the discharge of wastewater to help ensure that most of the harmful pathogens are removed and helps ensure that the discharge will not harm the environment.

5.2 Overview of wastewater disposal in the district.

There are 12 Council-owned wastewater disposal schemes in Selwyn district. These are supplemented by two private schemes with the remainder of the district relying on 'on-site' systems such as a septic tank for their wastewater disposal.

It has not been possible or practical to assess everyone's wastewater disposal individually. Instead we have limited the assessment to the Council owned systems and private systems that dispose of wastewater from a group of dwellings, such as the larger tourist facilities.

We have also tried to assess settlements where the lack of a community wastewater disposal system is considered to be an issue, either from a public health perspective or from the expectations of the residents.

The wastewater disposal schemes in Selwyn district are summarised in Table 5.2.

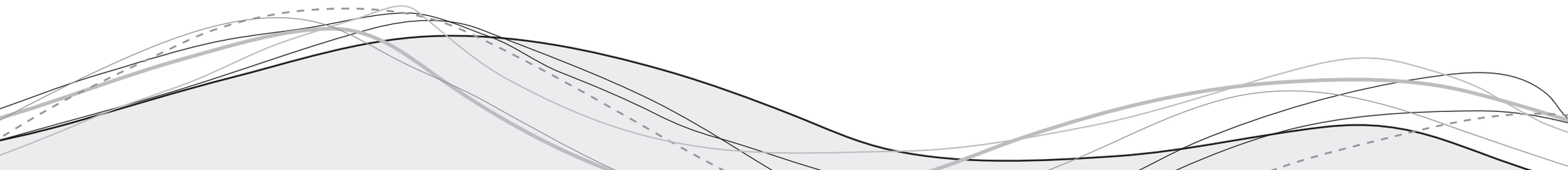


Table 5.2 Summary of wastewater disposal in Selwyn district

Community	Population	Connections	Ownership	Disposal Method
Arthur's Pass	90- 300	10	Selwyn District Council	Land
Burnham Military Camp	2500	-	NZ Armed Forces	Land
Castle Hill	20-250	122	Selwyn District Council	Land
Darfield	1,760	-	-	On-site
Doyleston	200	75	Selwyn District Council	Pump to Leeston
Dunsandel	390	-	-	On-site
Kirwee	490	-	-	On-site
Lake Coleridge	60-250	45	Selwyn District Council	Land
Leeston	1240	620	Selwyn District Council	Land
Lincoln	4700*	723	Selwyn District Council	Pump to Christchurch
Prebbleton	790	621	Selwyn District Council	Pump to Christchurch
Rolleston	3200	1454	Selwyn District Council	Land
Rolleston Prison	250	-	Department of Corrections	Land
Selwyn Huts (upper)	30-300	99	Selwyn District Council	Land/water
Southbridge	750	350	Selwyn District Council	Pump to Leeston
Springston	540	112	Selwyn District Council	Pump to Christchurch
Tai Tapu	310	125	Selwyn District Council	Pump to Christchurch
Springfield	230	-	-	On-site
Sheffield	230	-	-	On-site
Waddington	230	-	-	On-site
West Melton	260	-	-	On-site
* Include University and other Institutions.				

Full details of each wastewater disposal scheme and the issues and options for each of these schemes can be found in the WSSA wastewater section.

5.3 Assessment of adequacy

Adequacy of wastewater services is assessed on the basis of:

- the wastewater systems ability to remove wastewater from each property, and convey it to the place of disposal; and
- on the ability of the wastewater treatment system to remove harmful contaminants from the wastewater to reduce the risk to public health and to minimise the impact on the environment.

In order to be deemed adequate, an on-site system must be able to drain wastewater away from the property at all times without ponding or surface runoff. It must also treat the wastewater to reduce the number of harmful pathogens and to make it less offensive for release into the environment. For an on-site system, such as a septic tank, treatment occurs because much of the solid waste is removed in the tank and some of the organic matter decomposes. The remainder of the organics, bacteria and other contaminants are filtered out or die in the soil of the disposal trench.

For a community scheme the treatment process is more complex. Because much of the wastewater is disposed of in a relatively small area the treatment quality must be much higher as the potential for adverse effects on the environment are higher. The treatment processes are much the same as for an on-site system but are carried out much more efficiently, with some additional steps in the process such as disinfection of the bacteria using UV lamps.

The table below gives an indication of the improvements that a treatment system can make to the quality of the wastewater.

Table 5.3 Wastewater quality improvement with treatment

Parameter (g/m^3)	Standard domestic raw wastewater	Traditional septic tank	Wastewater treatment plant
BOD	200-300	120-150	<5
Suspended Solids	260-400	40-120	<5
Total Nitrogen	30-80	40-60	<10
Faecal coliforms	10^6-10^8	10^3-10^5	<1000

Information taken from the Ministry for the Environment Sustainable Wastewater Management Handbook.

The adequacy of the Council owned wastewater schemes have generally been assessed against the requirements of the systems Resource Consent, which have been determined to limit the public health and environmental impacts.

5.4 Current and future demand.

The provision of wastewater services within the district is far from comprehensive. Large areas within the district rely on private or on-site disposal methods rather than a community scheme. However, the major towns in the district have wastewater disposal systems and the relatively small size of the remaining settlements ensures that on-site disposal systems work well and provide a wastewater service that is generally meeting current demand.

The demand for wastewater services is expected to increase in the next 15 years. There are two reasons for this. Firstly, public expectations of the services they can obtain are continually increasing. The desire for a 'flush and forget' service is becoming more apparent as people become more aware of the options available to them. Government subsidies and improving technology have also made some community based schemes more affordable and therefore more attractive.

Secondly, increase in demand for improved wastewater services is likely to come from the need to reduce the impacts that wastewater disposal has on the environment. This can be considered from two aspects:

- housing densities are increasing making on-site disposal systems harder to operate and concentrating contaminate loadings.
- regional legislation has steadily been increasing standards and control over wastewater discharges in order to reduce environmental impacts.

It is quite difficult to anticipate a community's desire to improve its wastewater service. The demand is very much related to cost of the new system and the socio-economic profile of the community in question.

5.5 Key issues

Sewer networks

Due to their relatively recent installation, the majority of sewer networks are in good condition. None of the networks suffer frequent blockages, excessive leakage or breakages that would warrant immediate replacement.

Some of the older systems, such as Lake Coleridge, Lincoln and Leeston are known to have some infiltration problems. The Council is addressing this issue with a programme of CCTV surveys and inflow and infiltration investigations.

In general, the capacity of the sewer networks within the townships, now and in the longer term, is not thought to be a problem, although the Council is investigating improvements to the Lincoln sewer system. There are no problems associated with unauthorised sewerage overflows or spillages in to local waterways.

In Springston, Prebbleton and Tai Tapu the capacity of the whole sewer system is limited by the volume of wastewater that can be discharged to Christchurch City. The Council is therefore monitoring these sewer systems to ensure that inflow and infiltration are kept to a minimum to optimise the number of connections that can be made to the schemes.

Treatment plants

With wastewater from Springston, Tai Tapu and Prebbleton pumped to Christchurch City and Doyleston, Southbridge discharging to Leeston, only 7 of the 12 schemes have treatment plants.

These are:

- Leeston
- Lincoln
- Rolleston
- Arthur's Pass
- Castle Hill
- Lake Coleridge
- Selwyn Huts

The small treatment plants i.e. Arthur's Pass, Castle Hill, Lake Coleridge and Selwyn Huts, are relatively expensive to maintain due to their remoteness from the Contractor's base and the small rate base from which to fund repairs. At present these four treatment plants all operate well and all comply with their resource consent conditions. However, it should be noted that the Castle Hill scheme consent is under review and the Selwyn Huts scheme consent expires in 2010. This scheme partially discharges to the river and renewing this content may be difficult for cultural and environmental reasons.

Leeston treatment plant has undergone major upgrades in recent years to improve the wastewater quality and increase the capacity of the plant. These upgrades were completed in 2003.

The Rolleston treatment plant has also undergone upgrades in recent years to ensure that there is adequate capacity to cater for the continually growing population of the township. In the longer term, a new treatment plant is planned to cater for proposed growth, but in the meantime, the current plant operates well and complies with the conditions of the resource consent.

Sludge Disposal

At present the waste sludge generated at Council owned wastewater treatment plants is taken to Christchurch for disposal at Bromley wastewater treatment plant. This will continue in the foreseeable future and therefore does not present a problem to the Council. Septic tank waste, collected from households in Selwyn district is currently disposed of to sludge pits at Bleakhouse Road and Ardlui Road, at Bromley and at the new landfill at Kate Valley.

Increasing standards

There has been a trend over the past 30 years of increasing standards of wastewater treatment, driven by higher environmental expectations and made possible through technical advancements. Treated wastewater quality standards could increase further in the future, resulting in the need to upgrade the treatment process. Possible future enhancements are the removal of nutrients (nitrogen and phosphorus), filtration of the wastewater to remove fine solids, or a higher level of disinfection. These enhancements could be provided for by adding process units onto the existing treatment plant.

Disposal to Christchurch City

At present, four of Selwyn district's towns pump their wastewater to Christchurch, including Lincoln, Selwyn district's second largest town. This is a good solution to the problems of high water table in these areas and allows an affordable, low maintenance option for the Council and residents. However, the longer term viability of this option depends upon Christchurch City Council's willingness to continue receiving wastewater from outside its boundaries. There is no reason to believe that the agreements between Christchurch and Selwyn will not remain in place, and indeed be renewed when necessary. It should also be noted that reliance on pumping to Christchurch limits the growth of these townships. The growth of Prebbleton is already restricted by a limit of wastewater that can be pumped to Christchurch and similar problems may soon affect Springston and Tai Tapu.

Operational issues

All of the Council owned wastewater disposal systems operate well and comply with the conditions of their resource consents. It is acknowledged that not all of the systems are remotely monitored, which can cause system failures to go unchecked for sometime, only being addressed when the weekly check is carried out or a resident reports the failure. The Council is addressing this issue with a programme of works to install SCADA (remote monitoring) at the pump stations and plants that do not currently have such systems.

The following table summarises the adequacy of the Council owned wastewater services in Selwyn district for the present system and for anticipated future populations.

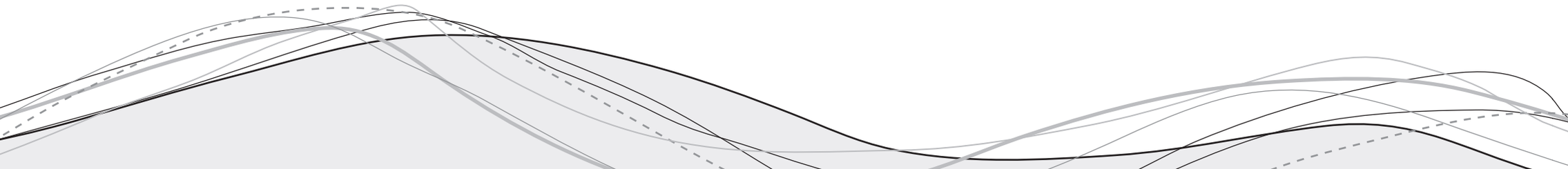


Table 5.5a Key issues for Council owned wastewater services

Township	Key issues	Resource Consent	Adequacy	
			Short Term	Long term
Arthur's Pass	Serves only part of the township. No SCADA.	✔ Expires 2007	✔	?
Castle Hill	Possible leakage of pond. Transitional Resource Consent.	? Expired 1999	✔	✔
Doyleston	No issues.	*	✔	✔
Lake Coleridge	Deterioration of the sewer network. Discharges to water. SCADA .	✔ Expires 2029	✔	✔
Leeston	Deterioration of the sewer network.	✔ Expires 2027	✔	✔
Lincoln	Deterioration and lack of capacity of the sewer network. Possible limited future capacity to pump to Christchurch.	*	✔	?
Prebbleton	Limited capacity to pump to Christchurch.	*	✔	?
Rolleston	No capacity for future growth – New WwTP planned.	✔ Expires 2030	✔	✔
Selwyn Huts	Partially discharges to water. No SCADA.	✔ Expires 2010	✔	✔
Southbridge	No issues.	*	✔	✔
Springston	Limited future capacity to pump to Christchurch.	*	✔	?
Tai Tapu	Limited future capacity to pump to Christchurch.	*	✔	?
* Complies with conditions set for pumping to Christchurch or Leeston treatment plants.				

Private schemes and communities without wastewater

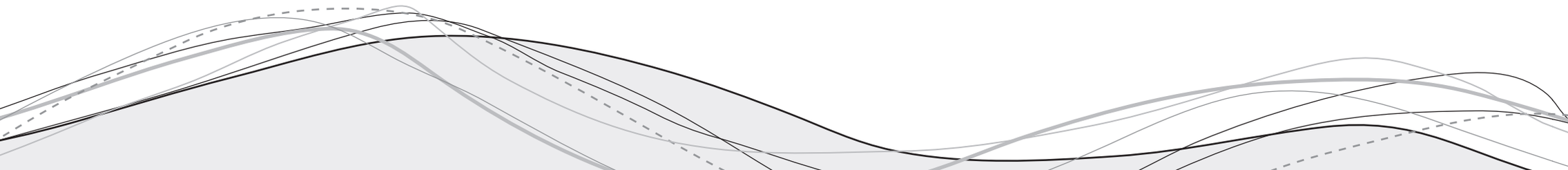
Within Selwyn there are numerous small settlements and individual households that utilise septic tanks or other on-site methods to dispose of their wastewater. A septic tank can remove over half of the harmful bacteria and three quarters of the solids from the wastewater. It does this by allowing solids to settle out from the liquid, oxidation of the organic material followed by further treatment in the soil.

In Selwyn the nature of the soil and topography may mean that unless on-site systems are carefully managed and operated, adequate soak-away capacity is not always achievable. In some cases, due to small section size and high water table, it is not possible to install an on-site system that will adequately dispose of the effluent within the section boundary. Dunsandel may be the only township in this category that does not have a community based wastewater disposal scheme. However, current investigations for subsidies may confirm the matter or otherwise.

Overall most on-site systems appear to be functioning adequately, with few reported problems on a settlement wide basis. However, the very free draining soils create a risk of groundwater contamination. On-site systems appear to operate well but local groundwater sources risk contamination from nitrates and possibly faecal bacteria. At present on-site systems are not thought to be causing groundwater contamination, although the Council is planning to monitor water quality at Darfield and Kirwee.

Table 5.5b Key issues for townships wastewater disposal

Township	Key issues	Adequacy	
		Short Term	Long term
Darfield	Large township with possible future groundwater contamination issues.	?	✔
Dunsandel	Minor existing on-site disposal problems. Community expectations.	✖	✖
Kirwee	Township with possible future groundwater contamination issues.	✖	?
Sheffield	Townships that may face future groundwater contamination issues.	?	✔
Springfield		?	✔
Waddington		?	✔
West Melton	Township with possible groundwater contamination issues. Sub-division development.	?	✔



5.6 Options

Council wastewater schemes

The options relating to the improvement of the Council wastewater treatment and disposal schemes may be prioritised in the short, medium and longer term.

Table 5.6 Summary of issues for Council owned wastewater systems

Short term options
• Improve remote monitoring by the installation of SCADA at Arthur's Pass, Castle Hill, and Lake Coleridge.
• Carry out inflow and infiltration investigation on the sewer networks for Lincoln, Leeston, Lake Coleridge, Prebbleton, Springston and Tai Tapu.
• Investigate possible oxidation pond leakage at Castle Hill.
• Investigate options for Septic tank waste disposal. i.e. Darfield and Kirwee.
Medium term options
• Replace Rolleston wastewater treatment plant with new larger plant at 'The Pines'.
• Extend the Arthur's Pass scheme to include more of the township.
• Investigate wastewater bylaws.
Long term options
• Monitor legislation wastewater treatment resource compliance.
• Investigate disposal of wastewater levels to Christchurch City Council.

Communities without wastewater disposal schemes

For the larger townships without a wastewater disposal scheme, such as Darfield, Kirwee and Dunsandel, the Council consider monitoring the environmental and groundwater effects to determine whether a fully reticulated scheme is required.

For all communities and individual households there are numerous options to improve the current wastewater disposal methods.

The simplest option is to improve the existing on-site system. Improvements of on-site systems involve:

1. reduction in volume and pollutant load of wastewater by reducing the amount of water used in the home and avoiding use of chemicals and harmful cleaning products;
2. improved treatment of wastewater.

There are now various improvements that can be made to a septic tank to improve the treatment process. One such improvement is to increase the number of chambers in the tank. The longer wastewater is in the tank, the more solids settle out. Another improvement is to add oxygen (air bubbles) to the wastewater to help the organic matter decompose. These methods can improve the quality of the wastewater by up to a factor of 10.

Another option is to drain the wastewater from several houses to one larger tank. This is known as a cluster system and can allow a much higher level of treatment to be employed by the addition of more or larger tanks and additional treatment processes such as aeration and UV.

For many in Selwyn district an improved on-site system will offer the best option both in terms of cost and environmental impacts. Well designed and adequately spaced septic tanks, in good soil conditions, will present minimal adverse effects on the environment. It is unlikely that a reticulated system will be economic or necessary in many areas.

5.7 The Council's role

The Council considers the collection and disposal of wastewater an essential activity and will continue to provide this service for the residents of Selwyn district. The Council already owns and operates many wastewater disposal schemes in the district with over 3,600 connections to Council schemes.

For the existing Council owned schemes the Council will continue to monitor scheme performance and maintain their schemes to the level of service identified. They will aim to identify gaps and improve the service where required.

Council will continue to monitor the quality of the wastewater discharge to ensure that there is no risk to public health and it continues to achieve compliance with resource consent standards. They will monitor changes in legislation that may impact upon the standards required for the wastewater discharge.

The Council will monitor community requirements to ensure that the service it provides meets community expectations.

The Council is actively seeking to improve its wastewater disposal service and currently has several projects underway. These include a major new treatment plant for Rolleston, possible extension of the Arthur's Pass scheme and proposed installation of SCADA at Castle Hill.

The Council will also play a role in the development of wastewater disposal schemes for the areas not currently serviced by a Council scheme. It will monitor the public heath issues for these settlements and also monitor community requirements and expectations. It will provide advice and expertise, and act as a facilitator as required, to help these communities achieve their desired outcomes. This is already happening at Dunsandel where the Council is investigating the feasibility of options for a new wastewater disposal scheme.

6 Stormwater disposal

6.1 General

Stormwater services refer to the collection and disposal of stormwater. It includes piped systems, land drainage and natural waterways.

For the purpose of the WSSA, Stormwater is defined as the runoff due to rainfall from surfaces such as roofs, roads, driveways, footpaths, gardens and pasture. Stormwater pipes or culverts collect this rainfall and carry it, generally untreated, to the nearest waterway, such as a stream, lake, estuary, beach or harbour.

The aim of the WSSA with regard to stormwater services is to assess their adequacy in terms of their effect on public health but also their impact on the environment.

The health impacts of poor stormwater disposal are due to pollution of recreational waters and, in some cases, contamination of drinking water supplies. The assessment has primarily focused on the impacts that stormwater disposal will have on the environment, as there are very few, if any, quantifiable impacts on health in the Selwyn district.

The Council has no statutory obligation to provide disposal for private stormwater runoff. This is clear in the Local Government Act 2002 where it states that Council does not have to take responsibility for stormwater systems which service only private properties.

Property owners are responsible for managing stormwater on their properties however, the Council does have a duty of care to ensure that it treats any runoff from land under its management, which includes impermeable road surfaces.

6.2 Overview of stormwater disposal in the district

The Council owns a variety of stormwater assets including dedicated stormwater collection networks, land drainage and some natural waterways.

Piped stormwater networks do not feature highly in Selwyn district, as the area for the most part is comprised of well drained soils over shallow gravel layers. There are several Council-owned stormwater networks in residential or commercially developed areas, i.e. Lincoln.

A notable exception to the general freedom from engineered stormwater systems in Selwyn is the lower, coastal flats around Lake Ellesmere, where land drains were installed in the latter half of the 19th century. These were built primarily to increase the agricultural productivity of the district, which at the time was comprised of large areas of flax swamp.

Today, without the land drains, rainfall would not run off, instead it would sit on, and eventually soak into, the ground - eventually returning the area to swamp. The land drains, having completed their initial purpose of lowering groundwater levels in the district, now serve to retain these low levels by facilitating more rapid removal of rain runoff. Therefore they are, by definition, a stormwater disposal system.

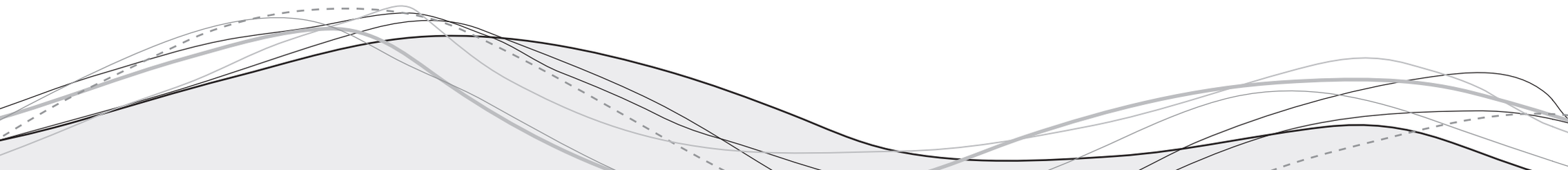


Table 6.2 The Council managed stormwater assets. Asset unit	Reticulation	Land drainage
Taumutu land drainage district	Large diameter piped coastal outlets	✔
Leeston drainage district	Land drainage channel	✔
Leeston township	Land drainage channel	✔
Ellesmere	Land drainage channel	✔
LII	Formed drainage channel	✔
Greenpark	Land drainage channel	✔
Osbornes	Formed drainage channel	✔
Wairiri drainage area	Formed drainage channel	✔
Hororata river land drainage	Formed drainage channel	✔

6.3 Assessment of adequacy

The adequacy of stormwater disposal has been assessed primarily on the ability to prevent flooding, both on a local and district-wide basis. It should be borne in mind that an emphasis has been placed on the effect of stormwater on public health and, to a lesser extent, the environment. The assessment does not consider flooding to individual households unless it occurs on a settlement wide basis on which there was evidence of.

6.4 Current and future demand

The demand for stormwater services is difficult to determine but can be linked to increases in settlement size and increases in impermeable surface area. It is clear from feedback from the residents of Selwyn, that there is some discontent with the disposal of stormwater in the district. However, often the dissatisfaction arises from flooding or surface water within the householders own property or from adjacent properties. The legislation relating to stormwater disposal is not well defined and there is some confusion over where the householder's and the Council's responsibilities lie. Since stormwater does not generally present a problem in Selwyn district, the Council does not have a detailed appreciation of the localised stormwater problems and therefore does not have full knowledge of the current demand for stormwater services. This is acknowledged by the Council and the area of stormwater disposal is being addressed with the production of a Stormwater Asset Management Plan.

6.5 Key issues

Geological and hydrological issues

Presently, Selwyn district has few issues with stormwater runoff, due to relatively low levels of development. However, the plains are exhibiting the effects of intensive human habitation and utilisation through the loss of their natural vegetative cover.

Erosive processes are accelerating, and as development continues stormwater issues will become more and more prominent. It is extremely important to understand the processes at work in order to mitigate them.

The landforms of Selwyn can be split into four distinct groups:

- High country and foothills;
- Inland basins and major river valleys;
- The Canterbury Plains;
- Banks Peninsula.

Each of these landforms has unique effects on the issues of stormwater formation and disposal, and must be managed effectively to ensure continued sustainable development. The geology and issues pertaining to each landform are discussed in the WSSA stormwater section.

Public health risk

Good stormwater management is beneficial to the safety and protection of the public, property and the environment. It is also economically advantageous in that it can minimise disruptions to businesses, schools, and the like. In areas vulnerable to stormwater ponding but lacking a stormwater network, there is an increased chance of stormwater disposal to sewer networks. This increased inflow can place an unnecessary strain on wastewater treatment plants. High stormwater inflows result directly in a greater frequency of sewage overflows, which may potentially present an increased public and environmental health risk.

The health risks of stormwater itself are not inconsiderable. Urban stormwater in particular contains a range of pollutants such as heavy metals, detergent, pesticides, herbicides, paint, fertiliser, etc. These can all pose significant risks to public health and the environment.

Localised flooding and subdivisions

It is an unfortunate but unavoidable fact that some properties in Selwyn will, from time to time, experience problems from surface waters, either from roads or other properties. Roads can be subject to later developments that, by their nature, could not be taken into account in the original road design. Localised flooding caused by inadequate road drainage is known to occur, although it is not a common problem. Often flooding is due to temporary blockages at grates and inlets, which subside once the blockage is removed. All new development in Selwyn must comply with ECan's Natural Resources Regional Plan (effective July 2004) requirements (WLQ5-7) and also with Part 4 of New Zealand Standard 4404:2004, which sets out the responsibilities of developers and authorities to mitigate the effects of subdivision stormwater.

Sedimentation

Sedimentation can have significant and lasting effects on the ecology of a water body. In extreme cases, sedimentation will lead to noticeable infilling and rises in the bed level of waterways, lakes, harbours, bays and beaches. Sediment transport occurs naturally but can be magnified by development, agriculture and waterway diversion.

Sediment may also carry other pollutants into water bodies. Nutrients and toxic chemicals such as heavy metals attach themselves to sediments. The pollutants may then settle with the sediment or detach and become soluble in the water.

6.6 Options

Sustaining open channel runoff networks

Sedimentation and the spread of contaminants can be reduced by stabilising open channels and introducing measures to trap sediments. The hard engineering solutions of the past are giving way to more ecologically and aesthetically sensitive soft engineering solutions, many of which are cheaper and more effective than hard solutions, with inherent benefits to the ecology and public amenity of a drainage system.

Suitable waterway improvements can help to reduce the erosive power of runoff water, trap sediments and, if well designed, can provide aesthetic and ecological improvements.

Piped systems should be avoided when dealing with natural runoff due to their susceptibility to sedimentation and blockages. Wherever possible, natural runoff should be kept in an open channel all the way to the sea. Where piped systems discharge to an open channel, measures should be taken to reduce scour potential at the discharge point.

Localised flooding

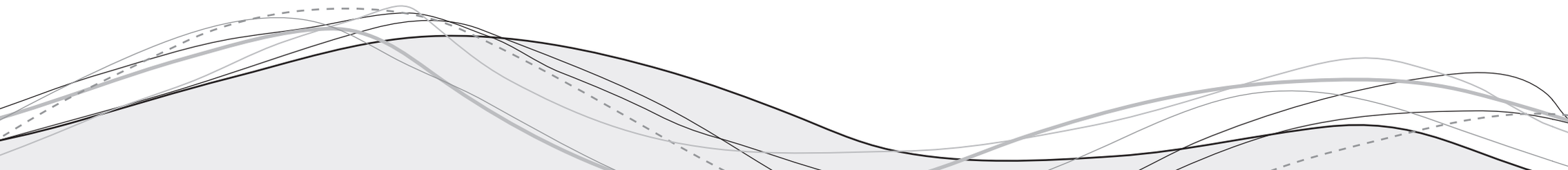
The options for preventing or mitigating localised flooding are numerous and complex. Responsibilities must be clearly defined and mechanisms put in place to ensure compliance with Part 17 of the Resource Management Act and other relevant legislation. It is already acknowledged that the Council lacks a definitive policy in this area. Options for improvements arising from the WSSA therefore include a possible investigation into this issue.

Subdivision

The options for stormwater management within new subdivisions are numerous. At present the Council applies stormwater controls on a case by case basis. All new developments must comply with the standard for stormwater in NZS 4404:2004. The Council is currently developing an engineering code of practice, which will build on the principles of relevant national and local standards.

6.7 The Council's role

The Council will play a central role in the provision of stormwater disposal in the district. The Council owns and operates many stormwater disposal networks within the district and will



continue to maintain these in a satisfactory condition to prevent stormwater nuisance in the district. The Council will continue to monitor the local community requirements and continue to enforce appropriate standards for new developments in the district, whilst endeavouring to mitigate stormwater problems as they occur.

The Council is also developing a land drainage operation and maintenance manual and Activity Management Plan for the land drainage schemes.

7 Public toilets

7.1 General

Public Toilet services refer to the provision of toilet facilities for residents and tourists in the district.

The aim of the WSSA with regard to public toilets is to assess the adequacy of the provision of toilets with regard to the protection of public health. This includes adequate protection from indiscriminate defecation that may present a risk to health, by providing adequate facilities, as well as ensuring that existing facilities are of a good standard and hygienic.

There is no specific legislation relating to the requirement of a territorial authority to provide public toilet facilities, other than the general obligations of the Health Act, which states that territorial authorities must take all proper steps to secure abatement or the removal of any condition that may be a nuisance or any condition that may be injurious to health or offensive.

7.2 Overview of toilet facilities

There are 16 Council-owned public toilets in the Selwyn district and 20 additional toilets available in reserves or domains. The Department of Conservation own numerous toilets that are available for public use.

The Public toilets in Selwyn district are summarised in the table below.

Table 7.2 Toilets in Selwyn district

Council owned toilets	
• Arthur's Pass	• Oakden Canal Camping Ground
• Castle Hill	• Leeston Exeloo
• Chamberlains Ford	• Leeston
• Coes Ford	• Rakaia Gorge
• Darfield	• Southbridge
• Dunsandel	• Springfield
• Lake Coleridge	• Tai Tapu Store
• Ryton Bay Camping Ground	• Waimakariri Gorge
Council owned toilets in reserves or domains	
• Courteney Domain	• Liffey Domain, Leeston
• Darfield Domain	• Pebbleton Domain
• Doyelston, Rhodes Park	• Rolleston Reserve
• Dunsandel Domain	• Selwyn Huts Domain
• Hororata	• Sheffield Domain
• Glentunnel	• Springston Domain
• Kirwee Reserve	• Tai Tapu Rhodes Park
• Lakeside Domain	• Weedons Reserve
• Leeston Park	• West Melton Reserve
• Lincoln Reserve	• Whitecliffs Domain
Department of conservation owned toilets	
• Cave Stream Reserve	
• Cragieburn Forest Park	
• Arthur's Pass	

Full details of the toilet facilities and the issues and options for each of these facilities can be found in the WSSA Public Toilets section.

7.3 Assessment of adequacy

The adequacy of public toilets in Selwyn has been assessed against several criteria. Firstly, the geographic location has been assessed to ensure that both residents and tourists have access to facilities when required. Secondly, the condition of the toilet facilities has been assessed to ensure that (a) the toilets do not pose a risk to public health and (b) they are of a standard that meets the expectations of the people using them.

7.4 Current and future demand

It is clear from feedback from the residents of Selwyn district, from both the response to the WSSA and previous satisfaction surveys, that there is some discontent with the toilet facilities in the district. This would indicate that the present facilities are not meeting current demand. At present the Council consider that the location of toilets provided in the district fulfils the basic requirements for provision of toilet facilities. However, it is acknowledged that in some locations the number of toilets and standard of facilities are inadequate.

Selwyn district is a popular tourist destination and, with its proximity to Christchurch, the numbers of visitors to the region is expected to increase over the coming years. This, combined with the steadily increasing number of permanent residents and holiday homes in the district, will lead to an inevitable increase in demand for toilet facilities. This demand is difficult to quantify as tourists trends vary and the popularity of individual areas and locations will depend on factors such as marketing and the development of tourist attractions and facilities. The Council will continue to monitor demand for toilet facilities and alter its longer term planning as necessary.

7.5 Key issues

Geographic location

When considering the geographic location of toilet facilities within the Selwyn district there appears to be good coverage, with very few areas more than 5km from a toilet facility of some kind. It has been noted that some of the toilets are difficult to find. If the public cannot find the toilet, they cannot use it, and it is effectively not available to them.

Facilities provided

Overall, the standard of toilets in Selwyn is good. Inspections of the toilet facilities in the district showed most to be clean and well maintained. The facilities provided at each toilet that is the number of cubicles, number of hand washing basins and the building itself, were deemed adequate in all but a few instances.

Risk to public health

The most significant risk to public health occurs where there is the possibility of direct contact with excrement, or indirect contact through flies, insects and contaminated surface water. Direct contact allows faeces to be transferred to people through touch, spreading diseases that can cause symptoms such as diarrhoea or spreading more serious diseases such as hepatitis. In order for this to become a hazard there needs to be a prolonged and concentrated use of a particular area. Contact with faeces may occur due to poor cleanliness or from lack of toilet facilities all together. Where there are no toilet facilities, the odour and litter from areas used for defecation or urination soon becomes unpleasant and deters the public from the area. Litter can cause environmental problems, especially plastics that do not readily biodegrade. Glass and metal litter can cause cuts that can become infected.

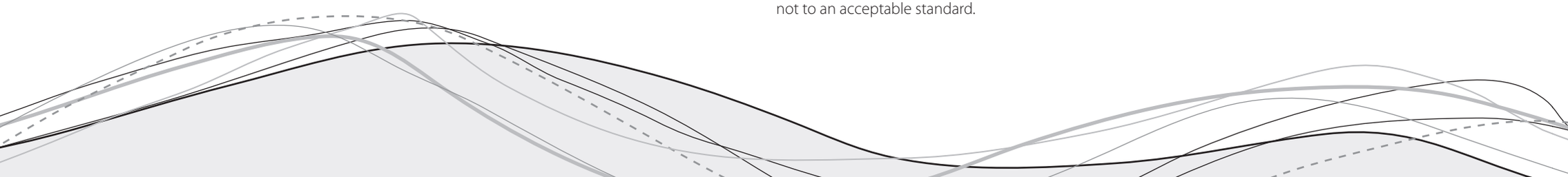
The Council uses a contractor or local caretaker to clean toilets on a regular basis and therefore reduce the risk of contamination to a minimum. On inspection, the majority of the Council toilets were of a cleanliness standard that would not pose any risk to health. Sometimes odours were present and occasionally facilities had been deliberately fouled. Those of a poorer standard were in domains and reserves or infrequently used.

There are several locations identified where the lack of toilet facilities may be considered an inconvenience. However, there have been no reported incidents of disease linked to contact with faeces. The Council knows of only a few areas where public defecation causes a nuisance to local residents due to unsanitary conditions or odours. Where this occurs, consideration will be given to temporary siting of Portaloos where the health risk is apparent.

Another risk to public health is associated with people using the toilet facilities and not washing their hands properly afterwards. The Council aims to address this by providing hand-washing facilities. The majority of toilet facilities do have hand-washing facilities, and any absence is generally due to a lack of water at the toilet site, which is not easily or cheaply addressed.

Tourism

Failure to maintain public toilet facilities in the district will have an economic impact on the area as the public, especially tour buses, moves away from an area where the provision does not exist or is not to an acceptable standard.



This is a significant factor for toilet facilities in the Selwyn district and the Council intends to address the standard of toilet facilities in the long term. However, the cost of improving toilet facilities is often prohibitive and improvements may take many years to implement. The Council has improved the toilets at Arthur's Pass to meet the current tourist demand.

Environmental concerns

The majority of public toilets in Selwyn district discharge to a sewer network and so have no immediate effect on the environment. Of those that do not discharge to a sewer they either utilise a septic tank or operate as a 'long drop'. In general, all of the septic tanks operate effectively, the exception being Arthur's Pass where the high volumes of wastewater produced means that the septic tank does not operate adequately. This will be addressed in the proposed upgrade. None of the long drop toilets gives rise to any environmental concerns.

7.6 Options

The assessment has highlighted several areas for improvements.

Table 7.6 Option for improvement to Council owned toilet facilities

Minor improvements	
Signage to public toilets to be improved	
Improvement to the existing toilet facilities	
Council intends to carry out improvements to the following toilets:	
• Darfield	• Lincoln Reserve
• Coes Ford	• Rolleston Reserve
Replacement of the existing toilet facilities	
Council intends to replace the following toilets in the short to medium term:	
• Arthur's Pass	• Glentunnel (As part of new Community Hall)
• Springfield	
New toilet facilities	
Council has considered facilities at several new locations on the request of local residents of facility users. Although toilet facilities at these locations may benefit the users, the remoteness and difficult access make a toilet facility unfeasible at this stage. The Council does not intend to build facilities at any new locations in the short to medium term, but will continue to monitor demand and will consider new sites as necessary especially where new tourist facilities are developed.	

7.7 The Council's role

The Council will play a central role in the provision of toilets in the district. The Council already owns and operates the majority of toilets in the district and fulfils requirements to provide adequate toilet facilities for the local communities in townships and recreational areas. The Council will continue to monitor the local community requirements and ensure that the existing facilities are maintained to the levels of service identified

Areas where the toilet facilities may be perceived as inadequate are predominately in tourist locations. There is considerable scope, therefore, for the Council to provide a facilitative or partnership role with local business or organisations that stand to benefit the most from the increased tourist numbers. The Council involvement in development of tourist facilities will ensure that the quality of any additional facilities is of a high standard and that the location of such facilities will best serve the local communities.

8 Cemeteries

8.1 General

Cemetery services primarily refer to the provision and maintenance of cemeteries and crematoria. The aim of the WSSA with regard to cemetery services is to assess the adequacy of cemeteries with regard to the continued protection of public health. Although historically the provision of cemeteries fell under the control of the church, the Council is now the main provider of cemetery services in the district.

The main piece of legislation relating to the provision of cemeteries is the Burial and Cremation Act 1964. This Act states that the local authority shall, where sufficient provision is not otherwise made, establish and maintain a suitable cemetery for the burial of those dying within its district.

8.2 Overview of cemetery facilities

There are 19 Council-owned cemeteries in the Selwyn district. The church owns and maintains 11 cemeteries.

The Cemeteries in Selwyn district are summarised in the table below and categorised by their ownership and management.

Table 8.2 Cemeteries in Selwyn district

Cemetery	Management
Bishops Corner (Leeston)*	Owned and Administered by Selwyn District Council
Brookside	
Dunsandel	
Ellesmere	
Ellesmere Catholic	
Greendale	
Hororata*	
Killinchy*	
Kimberley	
Kirwee	
Kowai Pass (Springfield)	
Lake Coleridge*	
Lincoln	
Prebbleton	
Shands Road (Prebbleton)	
South Malvern (Coalgate)	
Springston	
Waddington	
Weedons	

Cemetery	Management	
St Luke's	Ellesmere	Owned and administered by the Anglican Church
St Matthew's	Courtenay	
St John's	Hororata	
St George's	Kirwee	
St Stephen's	Lincoln	
All Saints	Prebbleton	
St Mark's	Sedgemere	
St Mary's	Springston	
St James'	Southbridge	
St Saviour's	West Melton	
St Joseph's	Darfield	Owned and administered by the Catholic Church

Full details of the cemeteries can be found in the WSSA Cemeteries section.

8.3 Assessment of adequacy

The adequacy of cemeteries in Selwyn has been assessed against several criteria. Firstly, the geographic location has been assessed to ensure that all residents have access to a cemetery without having to travel excessive distances. Secondly, the number of burial plots available has been determined to give an indication of the useful life span of the cemetery. Finally, the overall standard of the cemetery was evaluated to ensure that the cemeteries provide the appropriate environment.

8.4 Current and future demand

Demand for local cemeteries is closely linked to population trends and the age profile for the district. The number of people aged 65 years and over in New Zealand is projected to increase by about 70 percent during 2001–2021. In Selwyn district the population aged 65+ years is expected to rise 180 percent in this time period[1].

1 Statistic New Zealand Web site

At present annual deaths in the district are, on average, around 130 per year[2]. This number has remained fairly steady for the last 10 years. If a link between the population over 65 and the number of burial plots is assumed, the demand for burial plots may almost double in the next 20 years.

8.5 Key issues

Location

The distribution of cemeteries is fairly uniform across the plains area of Selwyn district, with all townships within 20km of a cemetery and most within 10km.

In the foothills of the Alps there are no cemeteries past the Kowai Pass cemetery at Springfield. This means that the residents of Arthur's Pass, and the surrounding farms and settlements, may have to travel up to 60km to reach the nearest cemetery[3]. The Council is not aware of this presenting a particular problem to residents but consideration should be given to locating a new cemetery in this area in the future.

Presentation and facilities

Inspection of all the Council and private cemetery facilities found them to be well landscaped and very well maintained. In all cases there was good access and the cemetery was well sign posted. The table below shows the availability and standard of facilities at the Council owned cemeteries.

2 Council Records

3 Note that the 1964 Burial and Cremation Act states that residents that are not within 32km of a cemetery may apply for permission to bury their dead in areas other than designated cemetery land.

Table 8.5 Availability of burial plots for Council owned cemeteries

Name	Landscaping	Water	Seating
Bishops Corner (Leeston)*	✔	✖	✖
Brookside	✔	✔	✖
Dunsandel	✔	✖	✖
Ellesmere	✔	✔	✖
Ellesmere Catholic	✔	✖	✖
Greendale	✔	✔	✖
Hororata*	✔	✖	✖
Killinchy*	✔	✖	✖
Kimberley	✔	✔	✖
Kirwee	✔	✔	✖
Kowai Pass (Springfield)	✔	✔	✔
Lake Coleridge*	✔	✔	✖
Lincoln	✔	✔	✔
Prebbleton	✔	✔	✖
Shands Road (Prebbleton)	✔	✔	✖
South Malvern (Coalgate)	✔	✔	✔
Springston	✔	✔	✖
Waddington	✔	✔	✖
Weedons	✔	✖	✖
* It is not intended to provide water and seating in these low use cemeteries			

Availability of plots

Of the 29 cemeteries in the district 4 are now closed to all but those with pre-purchased plots or relatives already buried there. Those remaining all have a significant number of plots remaining. The Council records regarding the area available for burials within the cemetery are not generally available. Although total plan areas can be calculated, not all of this land is suitable for graves and so the number of available plots and hence the life span of the cemetery could not be calculated. It is also possible that some of the older graves are not marked and therefore further investigation will be required to determine the land that will be available for new grave sites. The Council is currently undertaking a comprehensive survey of all the Council owned sites, including a radar survey to determine unmarked graves, in order to analyse the adequacy of their cemeteries in the long-term.

8.6 Options

At present Selwyn district have an adequate number of cemeteries that are well distributed throughout the region. On a district-wide basis there is no requirement to find new cemetery land or increase the number of additional plots for many years. On a local basis there may be a need to address the lack of cemeteries within some growing townships and to address the lack of a cemetery near Arthur's Pass.

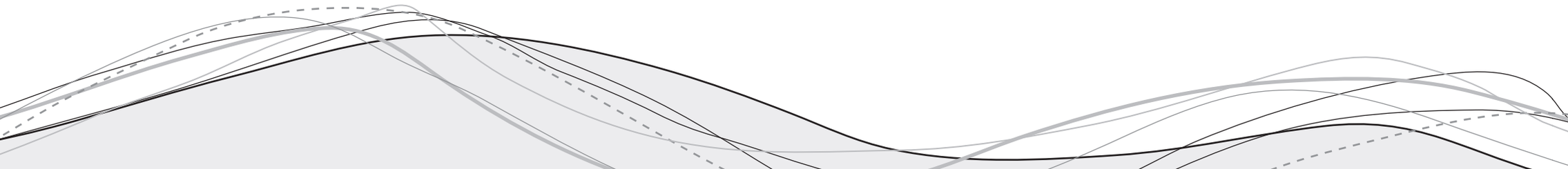
The Council has an ongoing programme to address the inadequate seating and lack of water at most of its cemeteries.

8.7 Crematoria

There are no crematoria in the Selwyn district. There are crematoria facilities within Christchurch City that serve the surrounding districts. Discussions with undertakers and information gained from Residents surveys indicate that the facilities in Christchurch meet current needs and so the Council does not intend to investigate the option for crematoria within the district.

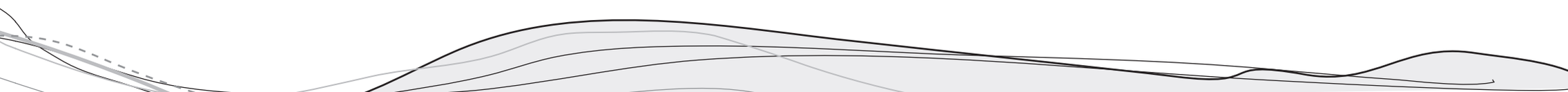
8.8 The Council's role

The Council consider the provision of cemeteries an essential activity and will continue to provide this service for the residents of Selwyn district. The Council will continue to monitor the local community requirements and ensure that the existing facilities are maintained to the levels of service identified.

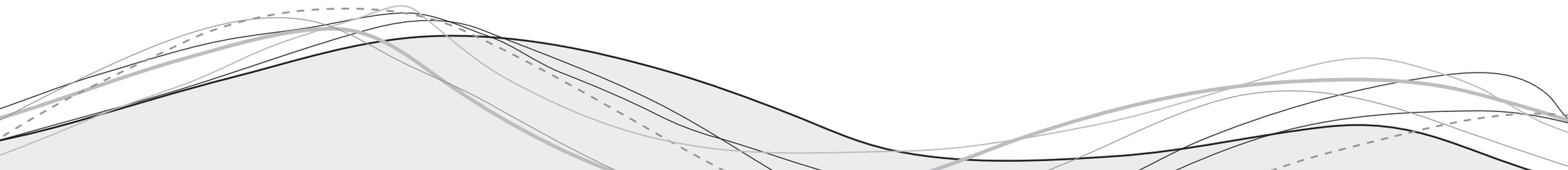


Appendix 1: Summary table of submissions

Submission By	Date	Comments
Te Taumutu Runanga	19/09/05	• Lack of adequate information provided. • Lack of prior consultation. • Cemeteries – Taumutu urupa – to be added to list of privately owned cemeteries. • Deletion of last sentence in 3.1. • More information to be provided about environmental impacts of the stormwater disposal system, via a hui. • Section 4 to be altered to include a summary of issues as raised in the Taumutu plan. • Amend relevant sections to recognise the complex nature of land drains. • Requests that more information is provided about environmental impacts of the wastewater disposal system(s). • 2.14, 3.2, 4.2 wastewater assessment be amended to include a summary of issues as raised in the Taumutu plan. • 2.15, 3.3, 4.3 wastewater assessment be amended to include options intended to resolve issues raised in the Taumutu plan. • Public toilet facilities are removed from areas only if environmental harm caused by inappropriate toileting will be insignificant. • Public toilet facilities in areas where food gathering occurs have hand washing facilities available separate to the food gathering area – even if it is only a tap. • Update section 3.7.6 to include the runanga comments regarding water supply.
Malvern Community Board	16/09/05	• Agrees with immediate protection of wells from contamination. • Supports a programme to identify leakage and correct. • Supports a programme to identify illegal connections and action against. • Requests that local communities have information on the limitations of the water supply and the design capacity.
Prebbleton Community Association	09/09/05	• Questioning the ratio of the population to the number of connections. • The availability of good clean water in the areas close to Christchurch with reference to recent experience in Prebbleton. • Water Demand Management – ratings questioned and variations to be explained. • Council to liaise with residents more and provide the level of service that they require. • Council's policies on water metering and charges should be stated.



		Wastewater • Ratio of population to the number of connections. • Disputes that the growth of Prebbleton is already restricted by the limit of wastewater that can be pumped to the City. Other options are available. • To consider all options for sewerage treatment for communities. • Council should review its policies, particularly in respect to sewage discharge from commercial properties.
Canterbury District Health Board	05/09/05	• Commends Council on production of the Water and Sanitary Services Assessments. • Table 'Compliant with DWSNZ2000' – should be an indication that it is only in relation to data gathered in 2003. • Gradings are several years old and supplies are hoped to be regraded this year and thereafter reviewed annually. • Not uniformly reporting reticulation at source. • Discrepancies between 'Performance' and 'Summary Table' Selwyn District Council's intention to undertake a district-wide survey to check the chemical composition of all the Council water supplies, Community and Public Health would be happy to advise on this. • UV disinfection is preferable under the new 2005 DWSNZ, is possibly misleading. • DWSNZ – assignment of log credit requirement for a drinking supply. • 'Possible use of grey water for garden irrigation' Community and Public Health would caution against this, grey water traditionally has a high pathogen loading and the risks of reuse are too great in the normal uncontrolled domestic situation. • Ministry of Health Guidelines which the Community and Public Health use for grading drinking water supplies, gives demerit points to supplies where leakage detection is over 15%. • Darfield – better management of the chlorination process could be put in place. • Community and Public Health believes that SDC has been proactive in its provision of wastewater services. • Possible inclusion of disposal from motor homes/caravans within the public toilet section. • There is no mention of waste disposal of effluent from stock trucks.
Springfield Township Committee	15/09/05	• STC have issues regarding Public Toilets and Water Supply within the SDC's WSSA and contact should be made. • It is encouraging to know that Springfield water supply system is regarded a Priority 1 for investigation and correction re quality and increased capacity in supply.
Sheffield Waddington TS Committee	16/09/05	• Well head security for water supply is an issue when it is close to grazing areas for cattle and their waste.
Alan Thomson	15/09/05	• Water reticulation (pg10). Having viewed many schemes in Selwyn – spreading fertiliser in a truck for 23 years, I have seen a huge waste of water through leakage, e.g. troughs and tanks. Many of these leakages were continuous for many years. • Te Pirita scheme: situation of many connections and amount of water used – unknown. • Illegal connections on some schemes which have never been checked. • Piped water from Selwyn via Hororata Road to Domain to feed pond? Also hydrant or reservoir in Hororata township for fire fighting. • Protect and fence headworks of shallow wells. • Sewer network at Lake Coleridge has not been functioning properly.



Appendix 2: Ministry of Health letter – dated 5 September 2005

050906012

Canterbury
District Health Board
Te Poari Hauora ō Waitaha

5th September 2005

File 33-0357

Water and Sanitary Services Assessments
Selwyn District Council
Private Bag 1
LEESTON

Dear Sir/Madam

Consultation with Medical Officer of Health
Local Government Act 2002: Draft Water and Sanitary Services Assessments

Thank you for the opportunity to comment on the draft Water and Sanitary Services Assessments (WSSA) for Selwyn District Council. Council is to be commended for the considerable time and resources that have been put into the preparation of this document, which will help form the basis for future directions.

This response is part of the ongoing consultation process under section 128 1(a) of The Local Government Act 2002.

Community and Public Health's submission is as follows:

General Water Comments
It is good to see an overview of the state of drinking water supplies in the district. The options table with its priorities is a good summary and in general we are in agreement with this ranking.

The table for each supply has a heading 'Compliant with DWSNZ2000' – There should be an indication that this is only in relation to data gathered in 2003, it could be updated to 2004. It should also be made clear that the gradings are several years old (mainly completed in 2001) and all supplies are hoped to be re-graded this year and there after reviewed annually.

Under each individual drinking water supply section there is a heading 'Performance'. Within this section testing in both reticulation and at source is not uniformly reported. In many cases under 'Performance' there is an indication that the supply is complying with the DWSNZ2000 while the 'Summary Table' says the supply is not. This may be confusing to people. Compliance with the DWSNZ2000 refers to compliance in its entirety. A supply may take the correct number of samples but does not 'comply' unless all the other criteria are also met.(e.g. protozoa compliance)
There is reference to the intention by SDC to undertake a district wide survey to check the chemical composition of all Council water supplies, Community and Public Health would be happy to advise in this. Chemical monitoring can be quite costly and it will be important to target the monitoring in relation to the supply and likely contaminants, Community and Public Health already have some data for supplies that have been through the Ministry of Health's Priority 2 chemical monitoring programme and access to advice from water quality scientists.

Comment made, with respect to several supplies that UV disinfection is preferable under the new 2005 DWSNZ, is possibly misleading. UV disinfection (as described in the new DWSNZ2005) does afford log credit removal with respect to treatment for protozoa but chlorination remains an important and effective disinfectant and the only one able to offer residual disinfection. Credit for residual disinfection is given through the grading of a water supply.

The criterion for demonstrating security of a groundwater supply under the DWSNZ2000 has three parts, where various SDC supplies are in respect to this is not necessarily given credit. The three parts of the criteria are:

a. E. Coli is absent from the groundwater – this requires monitoring at the frequency for unsecure groundwater for one year, with no failures.
b. The well head is secure
c. The groundwater is not directly affected by surface or climate influences

Age testing has been undertaken for all of SDC's groundwater supplies and for all of the supplies the indication was that less than 0.005percent of the water had been present in the aquifer for less than one year. This fulfills part 'c' of the criteria. All sites were visited with Andrew Iremonger and the wellheads inspected. A series of improvements were requested and it is understood that these were all completed, thereby fulfilling part 'b' of the criteria. For the following supplies part 'a' has also been completed and these supplies are now classified as secure under the DWSNZ2000:
Armack Drive, Burnham East, Lincoln – Kildare Terrace and Cole Street, Leeston – Lake Road, Rolleston – Moore Street, Southbridge – Taiaroa Place, Tai Tapu and West Melton.

Under the new DWSNZ2005, assignment of log credit requirement for a drinking water supply treatment system will depend on microbiological monitoring of the source water over at least a one-year period. A four log removal requirement will be the default if the supply chooses not to monitor their source. Targeted monitoring of the source may well be worthwhile for surface supplies in SDC before decisions regarding upgrading are made, as they may only require a three log credit removal treatment system to achieve protozoa control.

For several supplies where quantity of water is an issue, perhaps because of high water usage rates among consumers, the suggestion of using grey water for garden irrigation has been made. Community and Public Health would caution against this, greywater traditionally has a high pathogen loading and the risks of reuse are too great in the normal uncontrolled domestic situation.

Leakage is reasonably high in several of the supplies in SDC. It does not appear to be taken as a particularly serious problem. Leakage when coupled with changes in

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www.cph.co.nz

pressure in the water mains, particularly drops in pressure, can lead to contaminants being sucked into the water mains. The Ministry of Health Guidelines, which we use for grading drinking water supplies, give demerit points to supplies where leak detection is over 15%.

With respect to Darfield– (page 41), this supply has been through the P2 programme in 1997/1998. Unpleasant chlorine taste in the water could possibly be addressed partly by better management of the chlorination process. The guideline value for chlorine in the DWSNZ2000 with respect to taste and odour is 0.6mg/l and from the limited values for FAC gathered last year when monitoring samples were taken it appears to often be above this value (Food and Health Standards data). To be effective the chlorination process also needs to take account of the pH of the water and be responsive to changes in turbidity that arise from changes in the quality of the raw river water.

General Wastewater Comments
In general Community and Public Health believes that SDC has been proactive in its provision of wastewater services. Good long term planning has been made as evidenced by the agreements with CCC and the securing and consenting of The Pines site and currently the work that is being undertaken to assess the best long term solutions for settlements served by septic tanks.

The section of public toilets is comprehensive. Selwyn District is increasingly a tourist destination and SDC has responded to this demand with a wide cover of public toilets. A topic not covered by the assessment within the wastewater arena is waste disposal from motor homes/caravans. This should be included in the wastewater or public toilet sections.

Also no mention is made regarding disposal of effluent from stock trucks. The movement of stock by trucks can produce significant amounts of stock effluent that require disposal. Such discharges are a potential hazard to motorists, aesthetically unappealing and can reach waterways and degrade water quality.

Thank you for the opportunity to comment on the draft Water and Sanitary Services Assessments.

Yours faithfully

David Williams
Medical Officer of Health

pp
Dr M Brieseman
Medical Officer of Health
COMMUNITY AND PUBLIC HEALTH

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