

Solid Waste Services Activity Management Plan 2021

Solid Waste | October 2020



Prepared by

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1. Executive Summary

The following table provides a summary of the key asset management components that have been assessed for Solid Waste Services. These have been identified through consideration of the levels of service, consents, asset condition, risk analysis, disaster resilience, growth projections, and capacity assessment:

Resource Consents	There have been some minor non-compliances around reporting within stipulated timeframes, and new processes will be developed to ensure sampling and reporting is completed in accordance with consent conditions.
	Kerbside bin and bag collections are provided on a weekly/fortnightly basis. Any confirmed missed collections are returned for on the following working day. There is flexibility within the contract to extend collections into new developments on the fringes of towns, and also into new areas if there is sufficient demand.
Levels of Service	Southbrook resource recovery park is open 7 days a week, and Oxford transfer station is open 2 part-days per week. Future upgrades are planned and budgeted for, to enable additional growth demand to be met. Council will be considering provision of recycling drop off facilities for rural residents.
	The cleanfill pits are available for use by registered contractors, 6 days a week.
Capacity & Performance	Capacity of waste transfer and cleanfill disposal facilities have been assessed as being capable of meeting current demand. Future upgrades are programmed to facilities to continue to be able to meet demand.
Asset Condition	The majority of the assets are in good condition, but an ongoing annual renewals programme is required to maintain the current standard of infrastructure.
Risk Assessment	No extreme or high risks have been identified.
Disaster Resilience	Southbrook RRP appears vulnerable to a major loss of power from a natural disaster. Rangiora closed landill appears vulnerable to flooding from an Ashley River breakout, and Kaiapoi closed landfill is potentially vulnerable to a rise in groundwater levels from sea level rise.
	Further assessments are required to address these issues. Solid Waste services rely on roading infrastructure to allow transportation of materials to final disposal or processing facilities, all of which are outside this District.
Growth Projections	The number of properties provided kerbside collection are predicted to increase by 185% and the District's population is predicted to increase by 277% over the next 50 years. Upgrades of waste transfer facilities will be required to accommodate this growth.

2. Introduction

The purpose of this Activity Management Plan (AMP) is to outline the significant issues associated with the Council's assets and to show how the Council proposes to manage solid waste services and assets in the future.

This plan describes the solid waste activities and summarises the various assets, their condition and performance, and identifies future funding requirements including upgrades where necessary. It has been prepared by the Council's Solid Waste Asset Manager.

This AMP should be read in conjunction with the Council's 2018 Waste Management & Minimisation Plan and the Council's Long Term Plan 2021-31.

All figures within this AMP exclude inflation.

3. Related Documents

The following related documents have been used as reference documents or for guidance in the development of some of the sections in this Activity Management Plan

- Waimakariri District Plan
- Population in the Waimakariri District (TRIM 170328030077)
- New Projections for LTP 2021-2031 (TRIM 200908117997)
- WDC Asset Management Policy (TRIM 180605062091)
- 2019 Customer satisfaction Survey (TRIM 200313034937)
- Waste Management & Minimisation Plan 2018 (TRIM 180710076343)

4. Activity Description (What Do We Have and Do?)

Solid waste services are provided across the District either directly by the Council or by private enterprise. The Council's Solid Waste Services Contracts were retendered in 2018, awarded to Waste Management NZ Ltd in December 2018, and the new contract commenced on 1 July 2019. The separable portions of the Solid Waste contracts each have 7 year contract terms with 3, one year renewal periods. The Council's Solid Waste Services Activity incorporates the following sub-activities:

Waste Transfer Facilities

The Council provides facilities for the diversion and transfer of primarily solid wastes, for the whole district. The Council's Solid Waste Asset Manager is responsible for overall management of these sites and the Solid Waste Officer is responsible for day to day operations of these sites.

The Facilities Operations & Maintenance contract covers the operations and maintenance of both waste transfer facilities described below. A rural recycling drop-off for residents in the Summerhill and Cust areas has been trialled in Cust from August 2019 under this contract. The outcomes of this trial will inform future decisions about the provision of rural recycling drop-off facilities in Cust and other rural areas.

Southbrook Resource Recovery Park

The Council holds land use consents for Southbrook transfer station from the Waimakariri District Council, RC960442 originally issued on 7 July 1997, RC055171 issued on 13 May 2005 and RC105086 for the expanded site which was awarded on 2 June 2010, and also holds discharge consents from Environment Canterbury (CRC971142.3 and CRC971143) which expire on 7 July 2032. The property on which the transfer station and resource recovery park is situated is classified as a HAIL site owing to its activities.

Southbrook Resource Recovery Park (RRP) includes separate waste transfer and recycling & recovery facilities, and is located at 284 Flaxton Road in Southbrook, Rangiora. The site is fenced, landscaped and vegetated and has a roading and parking network, together with various signs and utility services.

The RRP houses facilities that contribute to the achievement of effective, efficient reduction, reuse, recycling, recovery and disposal of Waimakariri District's solid waste. Under the new contract, Waste Management retrieve a range of materials and items from the rubbish pit in order to divert these from landfill. These include scrap metal, timber, reusable items, cardboard, clean fill / hard fill, and tyres.

The Council owns the fixed infrastructure and is also responsible for supply of the internet service for the weighbridge computers. The Weightrax weighbridge computer and software is provided under an Infrastructure as a Service (IaaS) contract to Atrax Group NZ Ltd.

Waste Management owns the two waste compactors and hoppers, the containers, skips and bins used for accepting and transporting waste materials (excluding the cardboard milk carton container which is supplied by Trees 4 Canterbury), plant, tools and office equipment. Waste Management also supplies the telephone lines at the kiosk and shop.

Waste Management is responsible for minor maintenance works at the site such as landscape and minor building and fence maintenance, and Council is responsible for more major maintenance works such as repair of pavements and damage to fences and buildings, and repainting road markings.

Oxford transfer station

Oxford transfer station (TS) is located in High St in Oxford, and holds land use consents from Waimakariri District Council (RC940213 and RC045185) and discharge consents from Environment Canterbury CRC952151.1 which expires on 12 July 2030 and CRC952152 which expires on 21 June 2030. The property on which the transfer station is situated is a HAIL site owing to its activities and proximity to a closed landfill.

The site opened in 1997, is fully fenced, landscaped and vegetated, and has a roading and parking network, together with various signs and utility services. Oxford TS is currently operated and maintained under contract to Waste Management NZ Ltd, under the new waste facilities operations and maintenance contract.

The Council owns the fixed infrastructure, and is responsible for provision of electricity to the site and also for the EFTPOS machine at the kiosk.

Waste Management owns the skips and containers used for accepting and transporting waste materials, the plant, tools and office equipment, including the telephone and telephone lines.

Cust rural recycling facility

The Cust rural recycling facility trial site is in the carpark of the Cust Hotel, a privately owned property. This site had to be consented prior to operations beginning, and the initial year trial period has been extended to work through several servicing and behavioural issues. The trial will be assessed for use, diversion and cost before any decision is made about whether or not to continue providing the service and, if so, if a Council-owned site would be a better option than the current leased area. If the latter is approved, we would need to seek a resource consent for the activity on an alternative site.

The outcomes of the trial may see similar levels of service being offered to more remote rural communities, dependent on cost effectiveness, demand and funding considerations.

Residual Waste Disposal Facilities

The Council ensures that a landfill is provided for the disposal of the district's residual waste (rubbish).

The Regional Landfill, located at Kate Valley in the Hurunui District, is owned by Transwaste Canterbury Ltd, which is a public-private joint venture company between five shareholding Canterbury Councils and Canterbury Waste Services Ltd. CWS is subsidiary of Waste Management NZ Ltd. Waimakariri, Hurunui, Ashburton and Selwyn District Councils, and Christchurch City Council are the shareholding Councils. The landfill is consented to 22 March 2039.

Operation of the landfill is contracted to CWS. The Council has a contract with Transwaste for the transport of rubbish to, and disposal at, Kate Valley Landfill: the District's rubbish is transferred into large hook-bin containers at Southbrook RRP and dispatched for disposal at the landfill. These bins are removed by Canterbury Waste Services.

Transwaste also owns a demolition-waste recovery park at the site of the closed Burwood Landfill in Christchurch. Burwood RRP was set up in order to ensure demolition waste arising from the Canterbury Earthquakes is sorted, recyclable materials were recycled, and that disposal of residual waste was carried out appropriately. This site will close in late 2020.

Cleanfill Disposal Facilities

Council operates two sites for the disposal of cleanfill and clean hardfill, for the whole district. Access onto the sites is only available to contractors who are registered with the Council: this registration involves signing a waste acceptance agreement that is valid for three years, and which can be extended for a further three years. Once registered, contractors can obtain a key from the Southbrook RRP kiosk, and they are required to return the key within one day unless the contractor separately negotiates for a longer retention time.

The cleanfill disposal sites are operated under an "honesty" system, and is monitored by use of 'game' cameras and regular audits. There are a limited number of keys available, and this limits the number of users accessing the site on any one day.

Sutherlands Pit cleanfill site is located at 769 Oxford Road, approximately 7.5 kilometres east of Rangiora. The site has a land use consent for commercial cleanfill and gravel extraction & crushing activities, and has discharge consents for its current activities (CRC040682 and CRC040683). The Council is monitoring ground-water quality in the vicinity of the cleanfill in accordance with discharge consent CRC040683.

Garterys Pit is located at 2042 Tram Road (at the corner of Tram Rd and Chapmans Boundary Road) and is 16.4km from Rangiora; 23.5km from Kaiapoi and 19.5km from Oxford. The site has a land use consent for commercial cleanfill and gravel extraction & crushing activities, and has discharge consents for its current activities. The Council is monitoring ground-water quality in the vicinity of the gravel extraction pit in accordance with discharge consent CRC061131.1.

Consenting Garterys Pit as a cleanfill disposal site has doubled the amount of capacity for cleanfill and hard fill disposal, and in the last 2 years there has been a significant drop in demand for use of the cleanfill disposal. As yet, no further sites in the district have been identified as suitable for this use.

The changes that have been proposed to the waste levy and an upcoming review of the Waste Minimisation Act will require an increased level of reporting about materials received at the transfer stations and cleanfill pits.

The current "honesty" reporting system at the cleanfill pits is likely to be insufficient to meet reporting requirements. Council will need to determine if it would be cost-effective to install weighbridge and data tracking systems at these sites given the increase in operational costs for these systems, even if the sites continue to operate on an unmanned basis.

It is uncertain if the proposed changes to the waste levy and WMA will require the Council to install weighbridges at these sites or if a per-volume conversion could be used. The current honesty system may be incompatible with the anticipated Levy reporting requirements, and the costs to install and operate weighbridges may increase cleanfill disposal costs to unacceptable levels for commercial users.

Closed Landfill Aftercare

The Council has five closed landfills, which were formally closed in 1999 and were granted discharge consents on 14 October 1999. These consents expire on 14 October 2034. All closed landfill sites are HAIL sites. There are a number of old, small community landfills that have not been officially closed. These are identified as HAIL sites and are being managed by the Council's Property department.

The Post Closure Landfill Management Plans for the five consented closed landfills have been implemented by covering and landscaping the sites, and the Council is monitoring ground-water quality in the vicinity of four of the five closed landfills in accordance with the discharge consent conditions.

The closed landfill sites are:

• Rangiora, located at 236 East Belt in Rangiora. Groundwater quality is monitored at three bores in accordance with discharge consent CRC971344. This consent expires on

14 October 2034. The bores are all on adjacent land owned by the Council and Environment Canterbury.

- Kaiapoi, located at 610 Main North Road in Kaiapoi. Groundwater quality is monitored at four bores and from the Kaiapoi Lakes in accordance with discharge consents CRC971356 and CRC152074, both of which expire on 14 October 2034. The consent conditions have been varied to reduce the number of sampling points when urban residential subdivisions surrounded the closed landfill site. All of the pre-existing monitoring bores that were located on rural farm land were removed, and new bores have been installed on Council-owned reserve land.
- Oxford, located at 46 High Street in Oxford. Groundwater quality is monitored at one bore in accordance with discharge consent CRC971353, which expires on 14 October 2034. The bore is within Council-owned that houses the closed landfill, transfer station and wastewater treatment plant.
- Mandeville, located at 292 No 10 Road, Mandeville North. Groundwater quality is monitored at one bore in accordance with discharge consent CRC971350, which expires on 14 October 2034. The bore is located on the road reserve downstream of the closed landfill.
- Cust, located at 106 O'Farrells Road, Cust. Groundwater quality is not monitored at this site, in accordance with discharge consent CRC971347, which expires on 14 October 2034.

Kerbside Collection Service

The kerbside collection contract covers the collection of recyclable materials, rubbish from bags and bins, and mixed organic waste from bins, and the transportation of these materials to the recycling processing plant, Southbrook RRP, and the composting plant.

Solid waste kerbside collection services include a weekly organics collections, and fortnightly rubbish bag & bin and recycling collections to around 75% of the population. Organics and rubbish bins are an opt-in service, with three bin sizes available for the organics service and two bin sizes for rubbish. Targeted rates for recycling are a flat rate independent of bin size, but the optional services rates vary dependent on waste stream and bin size. The contractor owns and maintains the bins.

Ratepayers can choose to swap their bin size, or have organics & rubbish bins removed from their property. The removals and swaps come at a cost, including part-charges for larger bins, and rates are not adjusted during the year to reflect the change in service but are changed as from 1 July in the following financial year.

The extent of the area currently serviced by the kerbside collection contracts is presented in Appendix A.

WDC-branded rubbish bags are user-pays with the Council recovering all of the collection and disposal costs of the rubbish from bag sales. The Council has a supply agreement with Transcontinental New Zealand Ltd in Christchurch for the manufacture and delivery of WDC-branded rubbish bags. The Council sells the bags to residents at a set retail price at its service

centres and waste transfer facilities, and also sells the bags at a reduced (wholesale) price to supermarkets and some smaller retail outlets.

The wheelie bins are estimated to have a life of 15 years, and will remain the property of Waste Management for the duration of the contract. The contact allows for the Council to purchase the bins for their residual value on contract completion and to sell the bins to the new contractor at commencement of a new contract, unless a change is made to their policy around ownership of the kerbside collection bins on an on-going basis.

Introduction of a mixed organics bin collection service has impacted on the waste flows through the Council's disposal sites, and on landfill and diversion tonnages.

The various COVID-19 Alert Levels impacted on the provision of Council's solid waste services: kerbside recycling was sent to landfill from 3 April to 4 May 2020 when the MRF was closed owing to high levels of contaminated materials and the H&S risks posed to their staff from manually sorting through the materials to remove unacceptable items. Audits, bin removals and bin-swaps ceased during Levels 3 and 4.

Waste Minimisation & Education

The Council funds, provides and participates in a number of waste minimisation initiatives, e.g. Waste Minimisation/Sustainability education programmes, and other recycling services in addition to services provided at our waste transfer stations and the trial Cust rural recycling facility.

The Council has an ongoing arrangement with Full Circle to supply and service one 'public' cardboard cage in Rangiora which is located at the Caltex service station. This is overseen by the staff at Caltex.

The Council has contracted delivery of a Waste Minimisation and Water Conservation Education Programme to EcoEducate Ltd. This education service commenced in July 2016, and has been extended to December 2020 pending a review of Council educational needs. This programme, which is available to early childhood education centres, to primary, area and secondary schools, and to community groups and organisations, is funded out of the Solid Waste and Water Supply budgets. A 'consultancy' service to provide advice to businesses about more sustainable practices is also funded out of the Solid Waste budget, and is delivered by the current educator.

Enviroschools Canterbury is solely funded from the Council's Solid Waste budget, and is a wholeschool approach to sustainability which is wider than just waste minimisation. The number of schools participating in the Enviroschools programme is limited by a number of factors. A significant level of commitment is required from school communities to sign up to the programme and to work toward achieving bronze, silver and green-gold status: a number of schools that could achieve Enviroschools status have not signed up to the programme. The Enviroschools facilitator's time to help guide schools through their journeys is limited by the funding, therefore Enviroschools cannot be extended to more schools unless additional funding is provided.

Paper4trees, the Sustainable Living Programme and Kate Meads' Waste Free Living workshops are also subsidised by the Council to further encourage our District's residents to up-take sustainable behaviours.

Key Statistics

Key statistics from solid waste services during the 19/20 financial year are itemised in Table 1

Waste Transfer Facilities	19/20	16/17	
Number of transfer stations	2	2	
Number of cardboard recycling drop-off points	1	1	
Number of permanent hazardous waste drop-off points	2	2	
Quantity of rubbish taken to landfill (includes rubbish from kerbside collection) (tonnes per annum)	16,444	17,258	
kg per capita per annum (population base 62,800)	262.2	298.6	
Quantity of recycling (excludes recycling from kerbside collection) (tonnes per annum)	2,105	2,463 42.6	
Quantity of other diverted materials (green waste tures, window	2.400	3.728	
glass, timber) (tonnes per annum) kg per capita per annum (population base 62,800)	38.2	64.5	
Quantity of waste oil (litres)	37,200	37,200	
Quantity of hazardous wastes (paint, household & garden chemicals) (tonnes per annum)	11	18	
Quantity of electronic wastes recycled (tonnes per annum)	0	0	
Total Replacement Value of Assets	\$5.65 Million	\$4.94 Million	
Depreciated Replacement Value of Assets	\$4.19 Million	\$3.86 Million	
Residual Waste Disposal Facilities	19/20	16/17	
Number of operating landfills in district	0	0	
Number of operating landfills in Region, available for use by WDC	1	1	
Cleanfill Disposal Facilities	19/20	16/17	
Number of Council-owned Cleanfill Sites	2	1	
Volume of cleanfill (cubic metres per annum)	1,336	4,295	
Number of groundwater sites sampled	4	4	
Total Replacement Value of Assets	\$313,503	\$138,148	
Depreciated Replacement Value of Assets	\$216,312	\$102,475	
Closed Landfill Aftercare	19/20	16/17	
Number of consented closed landfills	5	5	
Number of groundwater sites sampled (excludes 1 surface water site)	9	9	
Total Replacement Value of Assets	\$264,817	\$232,820	
Depreciated Replacement Value of Assets	\$82,585	\$82,429	
Kerbside Collection Service	19/20	16/17	

Number of properties rated for recycling service Start / End of year Number of rating units Start / End of year	17,632 / 18,137 18,766 / 19,379	16,505 17,503
Number of properties eligible for rubbish bag collection services Start / End of year Number of rating units Start / End of year	16,747 / 17,236 17,845 / 18,423	15,721 16,700
Number of properties rated for rubbish bin service Start / End of year Number of bin rating units Start / End of year	10,635 / 12,122 10,713 / 12,232	10,700
Number of properties rated for organics bin service Start / End of year Number of rating units Start / End of year	8,396 / 9,743 8,438 / 9,796	N/A
Quantity of recycling collected (tonnes per annum) Quantity of recycling processed for recycling (tonnes per annum) Quantity of recycling landfilled post-March 2020 (tonnes per annum)	4,335 3,381 953	3,998
Quantity of rubbish collected (tonnes per annum)	3,808	2,454
Quantity of organics collected (tonnes per annum)	4,342	N/A
Quantity of recycling collected per property & per rating unit kg per property per annum kg per rating unit per annum	242.4 227.3	242.2 228.4
Quantity of rubbish collected per property & per rating unit1 kg per property per annum kg per rating unit per annum	263.8 210.0	157.0 146.9
Quantity of organics collected per property & per rating unit kg per property per annum kg per rating unit per annum	478.7 496.3	N/A
Value of Recycling Collection Contracts plus costs for processing & disposal of contaminated materials (\$ per annum)	\$1.06 Million	\$553,380
Value of Rubbish Collection Contracts plus rubbish disposal costs (\$ per annum)	\$1.34 Million	\$821,158
Value of Organics Collection Contracts plus disposal costs (\$ per annum)	\$1.06 Million	N/A
Total Replacement Value of Assets	\$0	\$0
Depreciated Replacement Value of Assets	\$0	\$0
Waste Minimisation/Education	19/20	
EcoEducate		
Number of schools visited for waste minimisation education	53	60
Total number of classroom hours	272	38
Total number of children attending classroom sessions	5,455	3,303
Number of community engagements	32	35
Total number of hours Compass FM (0.5hr interviews)	203.25 5	50.75 -

¹ Note this is not the average weight per bin, as the total weight of rubbish is that collected from both bags and bins. Weights are calculated by dividing total waste collected by all properties inside the serviced kerbside collection area.

Total number of attendees / conversations Estimated radio audience	3,873 1,000	1,169 -
Value of Waste Minimisation Education Contract	\$48,361	\$38,293
Enviroschools Canterbury		
Number of schools/early childhood centres participating in Enviroschools programme	19	17
Funding for Enviroschools programme	\$25,000	\$25,000
Waste Free Living / Waste Free Parenting Workshops		
Number of Waste Free Parenting Workshops	2	2
Number of Attendees	68	36
Funding for Waste Free Workshops	\$6,480	\$4,383

5. Service Management Issues (What Do We Need to Consider?)

There are a number of key aspects to consider when managing solid waste services and assets; these include:

- Target & actual Levels of Service
- Asset condition & Criticality
- Capacity & performance of the assets
- Risks associated with the assets and services
- Growth predictions for the service

These issues have been assessed and are explained in the following sections.

Levels of Service

Levels of service (LoS) are a measure of the standard of service being provided. The target levels of service are a factor in determining the kind of kerbside collection services provided, the type of facilities at Council waste transfer facilities, and the facility operating hours.

The LoS detailed for Councils solid waste services and facilities are motivated by either legislative requirements (for example, compliance with resource consent conditions) or by Council outcomes. They have been developed over time, and are guided by a number of factors, including:

- Customer Expectations
- Affordability
- Council Community Outcomes (Strategic goals and objectives)
- Legislative Requirements
- Growth

There are a number of other key aspects to consider when managing solid waste services; these include desired and actual levels of service, the level of waste diversion and risks. These issues have been assessed in detail and are summarised in the following sections.

The Council outcomes that are relevant to solid waste services are:

- Core utility services are sustainable, resilient, affordable and provided in a timely manner
- Waste recycling and re-use of solid waste is encouraged, and residues are managed so that they minimise harm to the environment
- Council sewerage and water supply schemes, and drainage and waste collection services are provided to a high standard.

Primary customers are households that are inside the kerbside collection area boundaries, with key stakeholders being Community Boards, Councillors and private waste collection service providers.

The principal method of communicating proposed the LoS to customers has been via the Long Term Plan (LTP) process. Performance measures form part of the LTP documentation that goes out for public consultation, during preparation for the LTP. The Council's Solid Waste AMP, which is updated concurrently with preparation for the LTP, is made available on Council's website, when completed, which allows a channel for feedback from customers who may be interested.

More specific consultation is carried out when the Waste Management & Minimisation Plan (WMMP) review proposes significant changes to Councils solid waste services, such as occurred with the 2017 review.

The performance measures around operational hours for facilities are set in the LTP. Those performance measures relating to per-capita targets for landfill reduction and diversion are taken from the 2018 WMMP targets.

The kerbside collection Levels of Service in the adopted 2018 WMMP are:

- Fortnightly collection of recyclable materials from wheelie bins. Ratepayers have a choice of 80L, 140L or 240L bin capacity. A targeted rate for this service is charged to all rateable properties within the collection areas.
- Weekly collection of organic waste from wheelie bins. This is an optional service, and ratepayers have a choice of 80L, 140L or 240L bin capacity which is charged at a differential rate.
- Fortnightly collection of rubbish from wheelie bins and WDC-branded bags. The rubbish bin service is optional, ratepayers have a choice of 80L or 140L bin capacity, which is charged at a differential rate.
- The rubbish bin collection service is available to properties in the Ohoka and extended Ohoka Rural recycling collection area. Rubbish bag and organic collection services are not offered in this area.

The various COVID-19 Alert Levels temporarily impacted on the provision of Council's solid waste services. **Table 2** shows the temporary changes that were made to levels of service under the

various COVID-19 Alert Levels in 2020 to mitigate the risk of providing waste collection and transfer services in a pandemic situation.

COVID-19 Alert Level	SRRP	OTS	Kerbside Collections
Level 1	All services open	All services open	All collection and bin services provided.
Level 2	Open to public and account holders for all charged disposal. All recycling services & WDC bag drop-off at recycling area. ReSale Store closed.	All services open	All collection and bin services provided.
Level 3	Open to public and account holders for refuse & greenwaste disposal. Limited recycling, WDC bag drop-off only at recycling area. ReSale Store closed.	No access to pit or green waste disposal. Minimal recycling, WDC bag drop-off only.	Collection and new bin delivery services provided. No bin swaps, removals or repairs. No bin audits.
Level 4	Open only to account holders for refuse disposal, and to Council collection vehicles. Minimal recycling, WDC bag drop-off only. ReSale Store closed.	No access to pit or green waste disposal. Minimal recycling, WDC bag drop-off only	Collection and new bin delivery services provided. No bin swaps, removals or repairs. No bin audits.

 Table 2: Service Levels under COVID-19 Alert Levels in 2020

2019/20 Levels of Service Performance

Table 3 shows the levels of service achievement for solid waste services in the 2019/20 year, and the previous LoS achievements recorded as from 2008. Note that some of the current performance measures have changed from those reported on in 2008 and 2011.

	2018 – 2021 Performance Measure	2018 – 2021 Target	2019/20				Previous Results#			
Level of Service			Result	Commentary	Status	Action to Address	2017	2014	2011	2008
Transfer facilities open to the public	Southbrook Resource Recovery Park open for 56 hours per week	At least 360 days of the financial year	100%	Refer to Table 2 for COVID-19 restrictions	Achieved	N/A	100	99.7	KPI Not meas- ured	KPI Not meas- ured
Transfer facilities open to the public	Oxford Transfer Station open 8.5 hours per week	At least 98 days per calendar year	100%	Refer to Table 2 for COVID-19 restrictions	Achieved	N/A	100	100	KPI Not meas- ured	KPI Not meas- ured
Providing a kerbside waste and recycling collection service	Kerbside collection service provided as scheduled.	100%	100%	All but 17 compliant & correctly presented bins & bags were collected	Achieved	N/A	100	100	KPI Not meas- ured	KPI Not meas- ured
Education and waste diversion facilities	Reduction in annual quantity of waste per capita to landfill	Reduction from 294 kg per capita	262.2	Result of kerbside organics collection and diversion from pit	Achieved	N/A	298.6	321.2	330.7	405
Education and waste diversion facilities	Increase in annual quantity of materials per capita diverted from landfill	Increase from 170 kg per capita	205.1	Result of kerbside organics collection and diversion from pit	Achieved	N/A	178.5	178.3	124.8	116

Table 3: 19/20 target levels of service and levels of achievement

6. Asset Condition

The current assessment of asset condition is based on theoretical remaining useful life derived from component age. Adjustments to the remaining life are made to individual components where information is available to suggest the theoretical remaining life is inappropriate.

The solid waste assets are revalued on a three yearly valuation cycle. The most recent internal asset valuations are current as at 30 June 2017, and the next date of internal valuation will be 30 June 2020. These valuations provide an overview of the assumptions about useful lives of assets. No specific condition assessment of the original transfer station assets has been undertaken, but the condition of more recently installed individual components at these sites, and the individual components relating to closed landfills and cleanfill pits, have been estimated based on the component age in relation to the typical design life.

Graphical representations of the system conditions of the combined solid waste assets, based on percentage of life elapsed are presented in **Figure 1** and **Table 4**.



Figure 1: Solid Waste Asset Condition

Table 4: Condition Grade and Asset Value

Condition Grade	Definition		Total Val	ue
1	Very Good	More than 80% of life remaining	\$ 1,399,000	22%
2	Good	Between 50% and 80% of life remaining	\$ 4,115,000	66%
3	Adequate	Between 20% and 50% of life remaining	\$ 156,000	3%
4	Poor	Between 10% and 20% of life remaining	\$ -	0%
5	Very Poor	Less than 10% of life remaining	\$ 556,000	9%
Total			\$ 6,	226,000

Transfer Stations and Resource Recovery Park

The ages of the original Southbrook and Oxford transfer stations, the main assets for the Solid Waste service are both approximately 22 years, or 22% of a 100 year base life. The Southbrook transfer station site was upgraded in 2011/12, and incorporates new recycling and reuse/re-sale facilities as well as a large hardstand and retaining wall for bulk disposal of green waste and clean fill: the entire site operates as a Resource Recovery Park.

It should be noted that the compactors at Southbrook RRP are not Council-owned assets, but are owned and maintained by Waste Management.

Closed Landfills

The five landfills – Rangiora, Kaiapoi, Oxford, Mandeville and Cust – were closed in 1999. The main infrastructure for these sites consists of the original landfill boundary fences, plus monitoring bores that were installed after closure of the landfills (where required under the relevant resource consent conditions). Separate resource consents are associated with each closed landfill.

All five of the monitoring bores at Kaiapoi closed landfill were removed during subdivision earthworks to the south and south-east of the closed landfill site. The Council has installed and obtained consents to monitor four replacement groundwater monitoring bores.

Cleanfill Disposal Sites

The Sutherlands Pit cleanfill site was consented in 2005 and began operating in mid–2005. It operates adjacent to an active gravel extraction and crushing operation on the same property. Garterys Pit cleanfill site began operating in 2019, and also operates adjacent to an active gravel extraction and crushing operation. The main infrastructure for these sites consist of boundary fences, access roads, vehicle crossings, and monitoring bores.

Kerbside Collections

The recycling, rubbish and organics wheelie bins are owned and maintained by Waste Management, the Council's kerbside collection contractor. The contractor is responsible for ordering, storing, delivering and maintaining (i.e. repair and replacement of) the bins. Kerbside recycling bins have been assessed to be in good condition, and are at approximately 50% of their 15-year life. The refuse and organics bins were new at the commencement of the new collection contract in July 2019. Rubbish bags are manufactured/imported and stored by Transcontinental NZ Ltd on behalf of the Council, and the company delivers the bags to Council service centres and retail outlets as required.

7. Asset Criticality

Asset criticality provides an indication of the importance of an individual asset and the corresponding impact on the service delivery should the asset fail for any reason.

Criticality is a measure of the importance of a given asset to the overall scheme and is determined by the consequence of failure. Assets for which the financial, business, or service level consequences of failure are sufficiently severe to justify proactive inspection and rehabilitation are considered more highly critical. Critical assets have a lower threshold for action than non-critical assets. Criticality is used as a means to:

- Identify the most important assets in the overall network
- Prioritise assets that warrant specific condition assessment
- Prioritise assets for repair following multiple failures, e.g. following an earthquake or events triggering major power failures
- Quantify the relative consequence of failure, which can then be used to assess the risk of failure and prioritise renewals.

There has not been a criticality assessment undertaken for solid waste assets and services. This is included in the improvement plan, and a budgetary allowance for the improvements has been made in the LTP.

8. Risk Assessment

The purpose of carrying out risk assessments is to identify any risks to the solid waste services and facilities which need to be mitigated, and to prioritise implementation of any mitigation plans.

A number of different risk assessment have been carried out, each one with a specific focus, although there is some overlap. A description, and the purpose of each assessment is provided below.

i. *Operational Risk Assessment*: This is the broadest scope assessment. Possible causes of failure of solid waste services and infrastructure are examined, together with the consequences of that failure. Failure includes non-collection of bags or bins at kerbside, power failure at transfer station, accidents causing injury to collector or customer, or damage to property, as well as failure caused by natural disasters. This assessment was last carried out for the 2009 AMP review.

When next reviewed the methodology will also be reviewed, to align with ISO 31000.

- ii. *Vulnerability Assessment* Solid Waste vulnerability (particularly recycling) should have reference to market forces such as economic upturns, down-turns or recycling marker prices. See section 12.
- iii. *Corporate Risk*: High level risk assessment carried out corporately in association with the development of the LTP and Infrastructure Strategy. Covers Environmental,

Economic, and Social risks. There is no strong linkage between the corporate risk assessment and the other risk assessments noted above.

Operational Risk Assessment

Recent risk assessments have been undertaken by the service provider for facilities operations and kerbside collections, but a high-level risk assessment has not been undertaken for Solid Waste Services since 2009. A total of 51 possible events were initially considered in the 2009 AMP review (see Risk Matrix section below table 5). The risk analysis found that the Solid Waste Services had 0 Extreme, 7 High, 32 Medium, and 12 Low Risks. Table 5 summarises the extreme and high risks for solid waste services.

Process	Event	Cause	Risk Rating	Possible Mitigation Measures	
Collection	Non-collection of rubbish bags or waste bins	Adverse weather event or other emergency (i.e. flooding, snow)	Н	Advise public to hold waste until next collected or to self-deliver to transfer station	
	Accident causing injury to collector	Sharp object in bag or heavy bag	Η	Advise public to wrap sharp /broken items before placing in bag; Collector wears protective gloves; weight limits placed on bags.	
Collection / Facilities Operations	Accident causing injury, or damage to property	Customer falling into pit; staff cut by sharp object	Н	WDC to audit contractors H&S policies and practices to confirm that the risk is addressed adequately	
		Customer vehicle damaged in collision with other customer; damage to WDC property by customer vehicle	Η	WDC to audit contractors H&S policies and practices to confirm that the risk is addressed adequately	
	Discharge of Hazardous Waste	Inappropriate handling of hazardous waste	Н	WDC to ensure contractors are properly trained and that the correct equipment, procedures and signage are in place	
Disposal	Groundwater contaminated by leachate from Rangiora Closed Landfill	Leachate contaminating private wells used for potable water	Η	Bi-annual monitoring in place to detect leachate; potential to extend reticulated water supply to affected properties	
General	Failure to meet waste reduction targets	Waste reduction initiatives not effective or targets too optimistic	Н	Increase education and auditing Re-evaluate targets and/or waste reduction measures	

Table 5: Summary of Extreme and High Risks for Solid Waste Services

Risk Matrix

Each of the 51 possible causes identified in 2009 were rated for consequence (1 to 5) and likelihood (A to E) and then combined to give a risk score using the matrix as Figure 2. The three cells highlighted by a black frame show where the WDC matrix differs from the standard AS/NZ 4360 risk matrix. These changes were made as they better reflect the level of risk accepted by WDC on their 3 waters and other assets.

Risk Matrix		Consequences					
		Insignificant	Minor	Moderate	Major	Catastrophic	
		1	2	3	4	5	
q	A Almost certain	М	Н	Н	E	E	
Õ	B Likely	М	Н	Н	E	E	
lih	C Possible	L	М	Н	Н	Е	
.ik	D Unlikely	L	L	М	Н	E	
	E Rare	L	L	М	Н	Н	

Figure 2: WDC Risk Matrix

Improvement projects will need to be assigned to each risk event. In some cases multiple projects are required to address a wide ranging risk. Improvement projects take the form of either capital works (ref AMP) or process improvement (ref IP) projects.

Overview – Risk Update

Although no formal risk assessment has been undertaken for this AMP review, there has been an ongoing assessment of operational risks by the contractors. A number of changes have been made to site management, infrastructure and operational practices at Southbrook RRP and Oxford transfer station to mitigate some of the above high-risk events, and to address new risks that had arisen since the completion of the new RRP.

9. Climate Change

No specific studies have yet been carried out considering the potential effect of climate change on solid waste services. More intense rain falling less frequently, and changes in the amount of snowfall and spring-melt periods, will cause more severe flooding events. This would increase risk to the transport network that crosses major rivers, impact on the kerbside collections into properties that are susceptible to flooding, and result in a greater amount of waste from storm-damaged homes. The Rangiora closed landfill is the only monitored site that is at risk of damage by flooding, as it lies adjacent to the Ashley River.

The increase of extremely windy days and in wind directions in Canterbury could also affect rainfall, and result in a greater amount of waste from wind-damage. Sea level rise could impact on the Kaiapoi closed landfill as raising groundwater levels may accelerate the generation of leachate, and impact on the provision of kerbside collection services into lower-lying coastal properties.

10. Growth projections

Situation

The overall district population growth scenario used for the 2018 AMP update was supplied by Council's Development Planning Unit, broken into towns and rural areas. Growth projections were calculated using the Waimakariri Interim Growth Scenario 3 (TRIM 170322027775), which was the basis for infrastructure planning. The basis of the projections was the Stats NZ 2013 census.

Due to issues that have occurred with the Census 2018, the population projections that would normally be used as a basis for updating the work previously developed by the Council's Development Planning Unit have not been released by Stats NZ in time for the development of this assessment.

However, based on the historical growth patterns of new dwelling Building Consents over the last three years (636 in 2017/18, 661 in 2018/19 and 615 in 2019/20), the projections used for the previous LTP/infrastructure strategy remain valid to be used for infrastructure planning. As the timeframe for this infrastructure planning is for the thirty years between 2021 to 2051, the previous population projections have been extended out a further three years, as documented in New Projections for LTP 2021-2031 (TRIM200908117997).

It is important to provide a brief comment on COVID-19 and the impact it could have on population projections. While international migration is currently low arising from the COVID-19 travel restrictions, a significant number of New Zealanders are returning home due to the impact of COVID-19 on overseas countries. This has contributed to a high level of population growth nationally over the last six months, which has had a flow on effect to growth in the Greater Christchurch and Waimakariri Districts. How long this might continue for and when international migration (from other countries) might return to pre COVID levels is still to be determined. However the existing population projections remained the most appropriate to use for infrastructure planning at this time.

It is anticipated that there will be minor extensions of the kerbside collection areas beyond the existing collection area boundaries in response to urban and rural residential development. The growth is expected to continue in the areas identified in the urban development strategy, and occur as infill within the collection boundary.

Demand

There are a number of factors that may influence future demand for solid waste in the District:

- Population trends or increases in population
- Changes in demogaraphics
- Changes in population density
- Changes in legislation
- Advancements in technology
- Increased concern over waste of resources and effects of litter and illegal dumping on the environment

To date only growth has been considered in establishing the districts future demand for solid waste.

The number of properties eligible for kerbside recycling collections would be increased by an average of 402 per year during the 2021-31 LTP period to accommodate this growth. (Table 6)

	Rates Strike July 2019	Years 1 - 3	Years 4 - 10	Years 11 - 20	Years 21 - 30	Years 31 - 50
Rangiora	2019/20	2021/22 to 2023/24	2024/25 to 2030/31	2031/32 to 2040/41	2041-42 to 2050/51	2051/52 to 2070/71
Projected Properties						
Recycling & Refuse	16,747	19,420	22,076	25,420	28,382	32,343
Organics	8,396	11,024	14,065	18,744	21,795	25,874
Projected Rating Units						
Recycling & Refuse	17,845	20,791	23,716	27,401	30,665	36,299
Organics	8,438	11,024	14,065	18,744	21,795	25,874
Projected increase in Properties						
Recycling & Refuse	-	16%	32%	52%	69%	93%
Organics	-	31%	67%	123%	160%	208%
Projected Annual Recycling Weight	3,382	4,574	5,217	6,028	6,746	8,009
Projected Annual Rubbish Weight	3,808	5,336	6,321	7,455	8,466	10,035
Projected Annual Organics Weight	4,342	5,330	6,842	9,132	10,696	12,718

Table 6: Growth Projections

Longer term growth over the next 50 years is projected to increase by 93%. This is a significant increase from the growth of 57% over 50 years forecast in the 2017 Activity Management Plan. This is accounted for by the higher projections provided in the Stats NZ 2013 census, and the choice of the medium-high scenario rather than the medium scenario used prior to 2017.

Managing Uncertainty

The growth model developed by the Council for assessing growth related works is by its nature uncertain as it relies on population projections that are highly dependent on changing economic and social factors.

A key means of managing this uncertainly has been to use the best available data and consult widely with Council staff in the policy and planning fields for the best information.

The projections are seen to align well with the recent flattening of growth that has occurred, following the rapid rise in growth that occurred post-earthquake, which informed the 2015 AMP growth projections

Long term, the 2021 projections are higher than for the 2017 AMP projections, which will introduce some conservatism in to the capital programme catering for growth. This is a preferable methodology, that will flow into the picture shown by the IS of long term expenditure.

To further reduce the uncertainties from the model it is proposed that the model will be updated annually to align with the Annual Plan Process. Managing growth related capital expenditure to match actual demand from growth always presents its challenges due to the possibility of the market increasing or decreasing demand at short notice.

District Overview – Growth Forecasts

The serviced kerbside collection properties are predicted to grow by approximately 57% over the 30 year projection period. Solid waste services are not provided until the homeowner occupies the dwelling and requests a recycling bin, at which point rates are charged. At present there is a significant supply of sections that have not yet been built upon and which will be eligible for collection services once the buildings are occupied.

Over the first 10 year projection period properties serviced for kerbside collections in the Waimakariri District are expected to increase by approximately 394 properties in the urbanserviced area and 9 properties in the rural-serviced area annually. Over the remainder of the 30 year period the rate of additional properties is predicted to reduce to approximately 315 'urban' and 7 'rural' annually.

The projected population trends for the District and the kerbside rubbish, recycling and organics collection services are presented in Figure 3, Figure 4 and Figure 5.



Figure 3: Population Projections for District and Rubbish Collection Services





Figure 5: Population Projections for Organics Collection Services



Waste Management & Minimisation Plan

The Council completed its Waste Assessment and reviewed their 2012 Waste Management Plan in 2017. The draft Waste Management & Minimisation Plan (WMMP) was consulted on from June to August 2017. The final draft document was presented to the Council for approval in December 2017.

Council approved the inclusion of optional weekly mixed organics bin and an optional fortnightly rubbish bin or user-pays bag collection in addition to the current fortnightly recycling collection service in the draft WMMP and the 2018-28 Long Term Plan consultation round. Subsequently the Council approved inclusion of the "your choice" kerbside collection service in the 2018-28 Long Term Plan and in the 2018 WMMP.

Kerbside collection

Approximately 90% of the properties eligible for kerbside rubbish and recycling collection services as of 30 June 2019 are 'urban' and are located within the main towns and townships of the District, with the remainder being in rural areas. Around 10% of the properties that are identified as 'urban' are outside the regional Urban Development Strategy (UDS) area. Residential growth is expected to occur within the UDS boundaries as modified by the post earthquake Land Use Recovery Plan (LURP), including Pegasus and Ravenswood, and through expansion of the residential zones around the current town boundaries and collection areas.

The Ohoka Recycling Collection Area, which covers 885 properties, receives recycling and rubbish bin collection services, and includes the properties in Ohoka that are on the water supply scheme plus a proportion of rural Ohoka, Clarkville, Mandeville and Swannanoa.

It is anticipated that the Council's kerbside collection services will be extended beyond the existing boundaries to include the closer rural environs around the urban centres such as Rangiora and Kaiapoi, in particular as residential subdivisions extend into those areas, and that a kerbside service could be extended out to higher-density rural areas, for example Ashley, Loburn, and Fernside dependent on demand.

Extensions into the higher-density rural areas beyond the current serviced areas have not been modelled in the growth tables at this stage as there is little consensus among rural residents about wanting a kerbside collection service from the Council. Ongoing investigations and consultation on rural recycling services and facilities will provide more certainty on any such expansion: the growth tables will be amended to reflect the findings of those investigations once there is a better understanding of demand from the rural sector.

Demand projections around increases in services have been based on the following assumptions:

- That all future dwellings in Urban, Rural and Commercially rated and serviced areas will receive a recycling collection and will be eligible for rubbish bag or bin and organics bin. Collections.
- That subdivisions neighbouring on urban limits will receive a recycling collection and will be eligible for rubbish bag or bin and organics bin collections.

- That all future dwellings within the Ohoka Recycling Area limits will receive a recycling collection and will be eligible for a rubbish bin collection.
- That 20% of households eligible for Council rubbish collection services currently use bags to dispose of their rubbish at kerbside.
- That the 67% uptake in rubbish bins at the end of 19/20 will increase to 80% by 29/30.
- That the estimated 20% of properties using bags at the end of 19/20, and numbers will decrease to 10% by 30/31.
- That the 57% uptake in organics bins at the end of 19/20 will increase to 80% by 39/40.

Waste Disposal and Diversion Facilities

Southbrook resource recovery park (RRP) is the Council's main waste handling facility and is located centrally in the Eastern end of the District, is open 7 days a week from 8:30am to 4:30pm, and services the Eastern portion of the District. Southbrook RRP was upgraded in 2011 with the recycling and reuse area officially opened in September 2011.

Oxford transfer station services the Western portion of the District, and draws custom from the Waimakariri Gorge area to Horrellville and West Eyreton. The site is open two half-days per week (Friday and Sunday afternoons).

Council's intention is to retain Southbrook RRP and Oxford transfer station and to modify these sites where necessary to cope with growth in the district, to meet new requirements, and where practicable alter the overall level of service the assets are operating under or were designed for.

Almost all chargeable materials and commercial loads of recyclables that are deposited at the RRP are weighed, with a small number of loads recorded by load type (bag and wheelie bin). The number of customers entering Southbrook RRP and Oxford transfer station to only access the recycling and recovery facilities is not recorded.

The projected level of growth and development in the district will meant that the total weight of rubbish and hardfill will increase in the short term. The projected landfilled and diverted waste tonnage increases in Figure 9 indicate that the rubbish pit will not reach capacity until 2038 when another upgrade has been scheduled for the RRP site.

Since the introduction of a multiple bin & bag collection service, we have experienced a change in waste flows, reducing rubbish and green waste tonnages at Southbrook RRP and changes in how rubbish gets to the site. This is discussed in the below section on Waste Generation and Disposal Trends.

Customer satisfaction surveys

The 2019 Customer Satisfaction Survey asked a number of questions around waste disposal patterns for recycling, rubbish and organic waste, as well as satisfaction levels with Council's solid waste services.

Satisfaction levels among those people who responded were high for all solid waste services, and there was an improvement in satisfaction levels for rubbish collections over the 2016 survey results. The satisfaction levels (very satisfied and satisfied) are shown in Table 7.

Service	2016 results	2019 results	Change	Comments
Recycling Collection	94.8%	97.3%	+2.5%	Not statistically significant
Refuse Collection	74.4%	91.7%	+17.3%	New bin service provided in addition to bags, reduced to a fortnightly frequency
Organics Collection		94.5%		New bin service provided
Location of waste facilities	98.4%	99.4%	+1.0%	Not statistically significant
Refuse Disposal	98.3%	97.6%	-0.7%	Not statistically significant
Recycling Services	96.9%	96.8%	-0.1%	Not statistically significant
Greenwaste Disposal		97.8%		
Hazardous Waste Disposal		96.5%		
Opening Hours	89.1%	95.7%	+6.6%	Still some dissatisfaction at limited services at Oxford TS
Range of Services		97.6%		
Services Provided by Staff	95.3%	98.8%	+3.5%	Not statistically significant

There has been a significant increase in satisfaction levels from the new optional kerbside rubbish collection service, and a high level of satisfaction with the new optional kerbside organics collection service. There appears to be a slight increase in satisfaction levels with facilities opening hours, but the comments indicate that residents that use the Oxford transfer station have a lower level of satisfaction with hours than those using Southbrook.

Waste Generation and Disposal Trends

Economic Trends

Per-Capita waste generation has been observed to increase annually when the economy is strong, and to decrease when the economy weakens. With the expected continuing development in the district we have allowed for a 0.4% increase per annum in waste generation when making our demand projections, as this follows the trend expected from the forecast growth in the district.

Historical Waste Generation and Diversion Figures

The per-capita waste figures and annual waste tonnages are shown in **Figures 6 and 7**. Note that the "Total" line is the sum of landfilled, recycled and diverted waste. Per-capita total waste generation has been reasonably static, and per-capita landfilled waste has been steadily decreasing since 2007/08. Increases are generally caused by improving economic conditions and district growth.



Figure 6: Annual Per Capita Waste Figures





Waste diversion figures have generally been increasing as facilities and services improve. The marked increase in diversion levels measured in 2019/20 is a result of the new kerbside organics collection service and is unsustainable in the long term. It would require considerable improvements to diversion services to maintain this increase. The drop in recycling in 2019/20 was a result of COVID-19 site restrictions during the last quarter the year, and in increase in contamination in kerbside recycling that resulted in approximately 90% of kerbside recycling being landfilled during that same period.

Continuing initiatives such as providing resources for school and adult education and facilitating a sustainability programme for businesses only indirectly affects the quantity of waste taken to landfill. The planned facility upgrades at Southbrook RRP which will enable better diversion for materials such as dry waste (paper & cardboard, construction & demolition waste) in the disposal pit, and increasing the capacity of the reuse and recycling facilities, will directly impact landfill quantities.

Other initiatives that would also directly impact on landfill quantities include further expanding the kerbside recycling collection service to other higher-density rural areas or providing better access to for recycling for more remote rural residents.

Demand Projections

The "demand projection" around waste generation, disposal and diversion has been modelled for the AMP. This is set against a 0.4% p.a. increase in waste generation to indicate the anticipated gains from recent and planned changes to waste services.

Figures 8 and 9 present the demand trends for per-Capita district-sourced waste quantities, and total district-sourced waste quantities (total waste generated, landfilled waste, and diverted waste), with the 3-bin collection service and planned and future site upgrades taken into account.



Figure 8: Projected Annual Per Capita Waste Figures

Figure 9: Projected Annual Waste Quantities



Note that the Forecast Quantities in **Figure 9** are based on the per-Capita rates (measured in kg per person per annum) multiplied by the projected district population.

Confidence ratings for waste generation and diversion forecasts are Low, given the observed variances in waste quantities over the past 10 years and the fact that external forces such as landfill disposal charges and economic conditions influence 'waste behaviours' to a large extent and these are unpredictable in nature.

Council's services still only address increasing diversion from landfill of ever-increasing amounts of products (including packaging and electronic goods) that are being created and thrown away, and do not deal with reducing the overall quantity of waste that is being produced.

It is essential that Central Government target waste generation, rather than relying on Local Government providing diversion services, in order to actually reduce the quantity of waste being produced and sent to landfill. They have started to address this with the proposed increases to landfill levy, bans and phasing out of problem plastics and single-use items, and the declaration of 6 priority products which will be addressed by mandatory product stewardship schemes.

The Council will continue to lobby Government to ensure that Extended Producer Responsibility continues to be high on their agenda with regard to waste minimisation. Businesses and householders must also be made aware of the consequences of their own purchasing practices, and it would be appropriate for a public education campaign to be developed and rolled out at a National level, with Councils providing support for such a campaign.

11. Capacity & Performance

There are capacity issues relating to the regional landfill, Resource Recovery Park & transfer stations, cleanfill site, hazardous waste services and the kerbside collection service.

Landfill

The Regional Landfill was constructed at Kate Valley in the Hurunui District, and this began accepting municipal and special wastes in June 2005. The landfill is owned by a private-public partnership (Transwaste Canterbury Ltd) between five contributing Councils (Christchurch City and Ashburton, Hurunui, Selwyn and Waimakariri Districts) and Waste Management NZ Ltd.

The landfill site and transportation of residual waste is managed under contract by Canterbury Waste Services, a wholly-owned subsidiary of Waste Management NZ Ltd.

The consented life of Kate Valley Landfill is 35 years (2037), and an upper bound figure of 7.72 Million tonnes of waste was forecast for this period. This forecast was based on historical waste volumes, which at the time of the initial landfill design showed a very slow growth owing to the introduction of kerbside recycling and composting initiatives in Canterbury, and in Christchurch in particular. To date 3.39 Million tonnes of waste has been disposed of at Kate Valley from the five contributing Councils' facilities.





Figure 10: Combined Councils Waste to Landfill

HAIL sites around Canterbury have also being disturbed post-earthquake during the recovery and rebuild phases. These contaminated sites trigger the need to manage contaminated soils in accordance with the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NESCS).

There are no managed fills consented to accept contaminated high density fill (e.g. soils contaminated with detectable levels of asbestos, or that meet residential, commercial or recreational standards levels of contamination) and as a consequence these materials are being transported for disposal at Kate Valley Landfill.

Waste Disposal Levy

The Government passed the Waste Minimisation Act in 2008: this Act imposes a national waste disposal levy of \$10/tonne (plus GST) on all waste sent to landfill. The levy has resulted in an increase in disposal costs, and the Council recovers those costs through its own disposal charges. The purpose of the levy is two-fold:

- To raise revenue for promoting and achieving waste minimisation; and
- To increase the cost of waste disposal to recognise that disposal imposes costs in the environment, society and the economy.

The Government identified that, as annual levied waste is increasing and there is a significant gap in infrastructure on-shore for processing and/or recycling materials, the \$10/tonne levy is not currently achieving its objective. The Ministry for the Environment undertook public consultation around a proposal to increase and expand the landfill levy, and early in 2020 announced that this would proceed. The timing and extent of the increase will be confirmed later in 2020. This will impact on the cost for disposal at landfill, but will also result in an increase in levy funding back to Councils, and to the contestable Waste Minimisation Fund.

Weighbridges may need to be installed at Oxford transfer station and the cleanfill sites to allow for more accurate measurement of materials entering the site, as we will be required to report on the tonnage of materials received at all of our facilities as part of the planned legislative changes.

Oxford TS operates only part-time, has reasonably low usage and receives a significant level of rates funding in addition to gate income in order to fund all operational costs. The cleanfill sites are unmanned, and current charges are low as operational costs are relatively minor. Council will need to determine if it would be cost-effective to install weighbridge and data tracking system at these sites given the anticipated increases in operational costs from this additional reporting requirement.

The Council will need to consider how best to utilise the increase in levy funding, which can only be used for waste minimisation and diversion and in accordance with Councils' WMMPs. Reporting structures have yet to be confirmed, and allowance needs to be made as to whether the infrastructure at our waste handling and disposal facilities are appropriate to capture the level of detail about managed wastes that will be necessary.

Investment and business plans will need to be prepared in order to determine the best use of anticipated increases in levy funding from the increased landfill levy, and the Council proposes to work more closely with other Canterbury Councils to determine whether regional waste processing facilities could be funded from combined levy funds.

Emissions Trading Scheme

As from 1 January 2013 the Emissions Trading Scheme (ETS) applied to landfills, and disposal charges were increased, although not to the extent originally forecast. Any changes to the costs associated with landfill gas emissions and the ETS will be passed on to transfer station users. A modest increase in ETS charges occurred in 2016, which was passed on by Council to its customers through gate charge increases. To date there has been little movement on RTS charges, but this may change with the Government's commitment to Carbon Neutrality by 2050.

Resource Recovery Park and Transfer Stations

Two of the Waste Management & Minimisation Plan action plans are to "improve RRP and Transfer Station facilities (Oxford TS and Southbrook RRP) to expand associated services for diverted material", and "to optimise the separation of diverted material at the RRP and TS facilities through procurement processes and contractual agreements".

Southbrook Resource Recovery Park and transfer station

The annual quantity of landfilled and diverted waste transferred through Southbrook RRP is shown in **Figure 11**. This includes waste and recycling from Oxford transfer station and the Cust rural recycling facility during its trial period.





The estimated annual capacity of the Southbrook RRP site is estimated to be between 30,000 and 35,000 tonnes. The rubbish pit capacity is estimated at 20,000 tonnes. Facilities for diverted materials such as green-waste, clean-fill, hazardous waste and recycling is estimated to be 15,000 tonnes (2,500 t public recycling, 5,000 comingled recycling from kerbside, and 7,500 t other diverted materials). This does not include the weight of goods sold through the second-hand shop: this is not easily quantifiable but is estimated to be lower than 300 tonnes per annum.

The Southbrook transfer station site still has a number of pinch points in high-demand times that impact on its capacity: principally the kiosk (where customers weigh in and weigh out across two weighbridges), rubbish pit & compactor unit capacity, recycling consolidator capacity, rubbish pit parking, and the container storage and loading/unloading area behind the refuse pit.

The site is open from 8:30am to 4:30pm from Monday to Sunday.

The recycling and recovery centre also has capacity issues around car-parking for people dropping off recycling and for visiting the second-hand shop, the size and number of bins used for accepting recycling (which results in an increase in the frequency of service vehicle trips to empty the bins), plus the size of the shop itself limits the range and volume of reusable goods that can be accepted for resale.

Figure 9 on page 32 (forecast annual waste quantities) indicates that Southbrook RRP would reach capacity (35,000 t.p.a.) by 2025 without the proposed upgrades, and the rubbish pit would reach capacity (20,000 t.p.a.) by 2035 if waste minimisation targets are met.

There is limited space available along the south and east of the site for expansion, although the presence of the sewer pump station limits how the site can be reconfigured. It may be necessary to purchase land from the neighbouring property to the south to allow for future expansion, and this is currently being explored. A funding allowance has been made in 2022/23 to purchase a buffer strip along the southern boundary, but there is no budget provision for a larger land purchase to enable future site expansion.

The funding for 2020/21 in the LTP is proposed to upgrade the pit area to increase capacity for domestic use, enable better separation of dry-waste materials (for example C&D and commercial paper and cardboard), and to realign the internal access road to reduce traffic conflicts between customer and service vehicles. A site development plan is being prepared in 2020/21, design is planned for 2021/22, and constriction proposed in 2022/23.

The funding allowance proposed for 2039/40 would be used to expand the site capacity further, to provide additional diversion facilities and upgrade the 'pit' to reduce customer waiting times. This may have to be brought forward dependent on waste volumes and site usage.

Oxford transfer station

The Oxford transfer station is currently operating well within its capacity with regard to refuse, although consideration needs to be given to recycling capacity: resourcing is set for current levels of rubbish disposal, which is only adequate for current recycling levels. There are a number of pinch points that will impact on this transfer station's capacity: principally the kiosk, rubbish pit parking, roading layout and storage capacity of rubbish skips and recycling containers.

Allowances have been made in the Long Term Plan budgets to address recycling capacity issues and for the installation of a weighbridge to enable better data recording and charging by weight. No allowance has been made to change operating hours: the site is currently open only on Friday and Sunday afternoons.

A budgetary allowance has been included in 2033/34 for construction of new facilities at Oxford transfer station. Outcomes from any investigations, associated stakeholder discussions and negotiations would be included in an Annual Plan or Long Term Plan budget for final consultation.

Cleanfill

The Sutherlands Pit cleanfill site on Oxford Road began operations in August 2005 and is consented until the end of January 2040: if there is still sufficient capacity in the pit to continue operations at this date, the Council could seek an extension to the period of the consents. Sutherlands Pit was originally projected to have a long life (approximately 32 years), as it is situated in an operating gravel extraction pit, and it was expected filling operations would continue after the extraction operations cease.

A capacity assessment in 2014 estimated the remaining site life to be from 2.5 to 11 years dependent on airspace and site usage, with capacity being reached between 2018 and 2026.
Based on this assessment, and dependent on the level of disposal activity at the site, an alternative clean fill site – Garterys Pit, located at the corner of Tram and Chapmans Boundary Roads – was consented and is operational. Garterys Pit has a similar airspace and potential lifespan to Sutherlands Pit and is in a reasonably central location.

The Council owns a limited number of properties with pits, however none would be suitable for use for clean fill disposal. The Council will have to determine if it should be providing low-cost hardfill and cleanfill disposal for all civil contractors, for only civil contractors working on Council contracts, or if it should cease providing such a service.

Allowances have been made in the Long Term Plan budgets for the installation of weighbridges to enable data recording for reporting purposes, and which will allow charging by weight.

Rubbish, Organics and Recycling Kerbside Collection

The collection of rubbish, organics and recycling is contracted out to Waste Management NZ Ltd. The contract was retendered in 2018 and commenced on 1 July 2019, and has a term of 7 years, plus 3 one-year rights of renewal. The Council approved limiting the upper size of rubbish bins to 140L in order to encourage waste diversion: this decision will be reviewed if there is sufficient demand for a larger bin for rubbish.

12. Key Issues

By considering the levels of service, asset condition, risk analysis, growth projections, and capacity assessment, the following key points are noted about the solid waste assets:

- The proposed changes to the waste levy and an upcoming review of the Waste Minimisation Act 2008 will require an increased level of reporting about materials received at the transfer stations and cleanfill pits. This could have significant cost implications for our smaller facilities.
- National and international influences impact on the Council's waste minimisation initiatives, costs and revenue streams. These include:
 - Continuing low recycling market prices, tighter acceptance criteria and changes to the BASEL convention have impacted on the financial viability of recycling, although it is still more cost effective to continue to provide kerbside recycling services than take all materials to the landfill. Consideration may need to be given to either more source separation or better sorting of recyclables at the MRF, and this will continue to be monitored. Both of these options will increase collection and/or processing costs and would impact on rates.
 - Implementation of Extended Producer Responsibility schemes, potential container deposit legislation and other Government initiatives around problem and single-use plastics. These will impact on the material type of packaging products being produced, and on recycling quantities, collection and processing costs;
 - Changes to fuel costs and carbon emissions charges will affect the cost to collect and transport recycling, greenwaste and mixed organics.
- District growth has put pressure on facilities and services. Facility upgrades are necessary to manage the increased demand, provide a safe environment for customers

to dispose of waste and other materials, and to facilitate the diversion of more materials from landfill.

- Issues in this district include ensuring consideration of waste management (both on-site and providing access to services) at an early stage during the design of residential and commercial developments; issuing bins to new properties as subdivisions and buildings are completed and continuing uptake of rubbish and organics bins to existing properties; re-routing of the collection vehicles as new developments are occupied in order to maintain collection efficiencies; management of construction waste from ongoing developments and infrastructure repairs and renewals; and management, including appropriate disposal, of contaminated material from HAIL and other contaminated sites.
- There is an increasing demand for provision of recycling services to a greater proportion of the district's population, particularly in the rural areas, but it could prove to be difficult to provide affordable and convenient collection and disposal services for the whole district. The outcomes of the trialled rural recycling drop-off facility in Cust will need to be considered to determine if this can be provided to other rural areas that don't have access to kerbside services.
- There continues to be a high number of incidents of dumped garden waste, rubbish and cars around rural areas and river beds, and dumped household rubbish in litter bins, which is generally attributed to some people's reluctance to pay for waste disposal. This will be further exacerbated by increases in disposal charges.
- A number of cross boundary issues will impact on waste quantities, for example where there is a differential in disposal charges, or different bylaws, between neighbouring Councils. TLA's will need to coordinate around regional and national waste minimisation initiatives and common waste minimisation messages, in order to achieve economies of scale.
- Although there is an increased public awareness that "recycling is good to do", we have experienced difficulty in increasing the public's awareness about all aspects of waste minimisation, using the more traditional methods for informing and educating school children, householders and businesses. It is difficult to quantify the success of waste minimisation initiatives, when there is only an indirect link between expenditure on some initiatives (i.e. education, advertising, etc.) and actual waste reduction achieved by those methods.
- Landfill sites have the potential for environmental harm, and harm to health, from gas and leachate if not managed properly.
- Climate change impacts are not expected to be significant, however it could cause increased leachate from Kaiapoi closed landfill which is at risk from sea level rise increasing groundwater levels, and the Rangiora landfill is potentially at risk from damage by a severe flood event.

13. Future Works & Financial Projections

Operation & Maintenance

The age and increased usage of the transfer station sites, and increased use of the cleanfill pit, will result in an increased level of funding for operations and maintenance at these sites. An increased level of service with the introduction of a multiple bin collection service in addition to projected population growth inside the serviced kerbside collection areas has resulted in higher operational costs. The operations and maintenance budgets have been adjusted to reflect these increasing demands on kerbside collection services, transfer stations and the cleanfill pit.

Previous levels of input into operating the kerbside collection contracts, and into operating and maintaining the transfer stations and cleanfill site have recently been sufficient to limit percapita landfilled waste to below previous levels, as waste quantities tend to rise and fall in relation to economic growth. The rebuild and rapid development in recent years has increased the per-Capita waste quantities, but this is expected to drop again once development levels fall to more normal levels.

Higher levels of management and operations input are required now that additional waste minimisation & waste diversion initiatives have been embedded, and this input will have to continue to increase, in order to achieve a greater level of waste diversion from landfill than current ratios.

The operations and maintenance budgets have been adjusted in the short to medium term to reflect the work programme in the draft Waste Management & Minimisation Plan. However consideration still needs to be made over the next AMP review period to ensure the development of, and budgeting for, a longer term waste minimisation programme.

Improvements to recycling services for specific "customers" (businesses, schools, etc.) within the currently serviced area, and provision of recycling facilities for more remote rural residents have yet to be addressed. It should be noted that these were seen as a priority in the previous AMP: while some progress has been made in investigating these initiatives, this is insufficient to introduce any new programmes at this stage.

Other waste diversion initiatives will be considered as new technologies and services become available to the Council, and these will be included in future AMP's and LTP's for public consideration. The projected 30-year operations & maintenance expenditure is presented in **Figure 12**. The figures are not adjusted for inflation.



Figure 12: Projected Operation & Maintenance Expenditure

14. Renewals Programme

Renewal expenditure is work that does not increase the capacity of the existing asset, rather it restores the system to its original capacity. The renewals programme is determined in two stages. The first ten years of the programme are based on assessments by the Asset Manager: given that the average condition of the major assets – the transfer stations – is still reasonably good, the amount of renewals required over the next 10 years (the LTP period) remains relatively low.

From year 11 forward expenditure is taken directly from the valuations tables, using the remaining life of each asset as a guide. This model provides a long term view of the funding required to ensure that a renewals fund is sufficient to enable future asset renewals, without needing to borrow.

Figure 10 below only shows the output from the model. The final renewals budget put forward into the draft LTP, is included in the capital works graph, Figure 13.



Figure 13: Projected Renewals Expenditure

Figure 13 also shows the difference between the annual funding required for the renewal of assets at the end of their life, as determined by the renewals model, and the budgeted depreciation funding. This indicates that renewals are somewhat overfunded. Given the relatively poor understanding of asset condition and therefore remaining life at his stage, this is not an inappropriate outcome. The planned asset stocktake, should enable these funding lines to be better matched at the next AMP review

15. New Works and Waste Minimisation Initiatives

Despite an increase in housing development and ongoing recovery work in the district, the district's landfill disposal levels have decreased by 4.7% since 2016/17: from 17,258 to 16,464 tonnes per year. Taking into account population growth, the per-capita landfill disposal has dropped from 298.6 kg per person per year in 2016/17 to 262.2 kg per person per year in 2019/20. Landfill disposal quantities are primarily affected by a slowing economy, rising landfill costs, increases in levels of service and an increase in our community's awareness about sustainability.

The new levels of service for kerbside collections have been used to forecast waste volumes and financial forecasts for the LTP budgets. Two significant work items have been programmed within the next 10 years to accommodate growth and increase the rubbish pit capacity, and to further divert reusable and recyclable resources from being landfilled.

While it is generally acknowledged that waste reduction initiatives become more expensive once the easier and more cost effective options are completed, future technologies may in fact reduce costs for initiatives that are currently prohibitively expensive. The Government has recently consulted on increasing and extending the waste disposal levy: this requires a future review of the NZ Waste Strategy, the Waste Minimisation Act and the Litter act. This would provide Council with additional waste minimisation funding, although the exact funding split has not as yet been advised. The levy increase would also provide an incentive for some recovery or recycling initiatives by incrementally increasing the landfill charge for residual waste, making it economically feasible to divert certain material types from landfill.

Figure 14 shows the 50 year budget for all capital works, including projects driven by growth and levels of service. The budgets are not adjusted for inflation.



Figure 14: Projected Capital Works Expenditure

Table 9 summarises the major projected capital works for the next 10 years (2021/22 to2030/31), and for the subsequent 20 years (2031/32 to 2050/51).

The level of confidence for the works (High / Medium / Low) is presented in the following table. For a more complete discussion on the level of optimisation, refer to the District Overview section of the AMP.

Year	Project ID	Project Name	Level of Confidence	Project Value	LOS Component	Renewals Component	Growth Component
Year 1 - 10							
2022	URU0002	Marsh Road Storage	3 - Low	\$ 39,138	\$ -	\$ 14,138	\$ -
2022	URU0003	Southbrook Pit and Road Upgrades	3 - Low	\$ 111,000	\$ 111,000	\$ -	\$
2022	URU0005	Oxford Transfer Station Infrastructure	3 - Low	\$ 61,500	\$ 61,500	\$ -	\$ -
2022	URU0006	Cleanfill Pit Infrastructure	3 - Low	\$ 310,400	\$ 310,400	\$ -	\$ -
2022	URU0007	Rural Recycling Infrastructure	3 - Low	\$ 110,800	\$ 110,800	\$ -	\$ -
2022	URU0011	Southbrook Transfer Station Replacement Sundries	3 - Low	\$ 312,862	\$ -	\$ 312,862	\$ -
2022	URU0013	Southbrook Transfer Station Site Storage Building	3 - Low	\$ 66,000	\$ 66,000	\$ -	\$ -
2022	URU0014	Southbrook Transfer Station Weighbridge SRRP Rec Compactor Efficiencies	3 - Low	\$ 68,000	\$ 68,000	\$ -	\$ -
2022	URU0015	Southbrook Transfer Station Disposal Pit Upgrade and Road Realignment	3 - Low	\$ 1,812,750	\$ 1,812,750	\$ -	\$ -
2022	URU0016	Southbrook Transfer Station Minor Improvements	3 - Low	\$ 40,000	\$ 40,000	\$ -	\$ -
2022	URU0020	Oxford Transfer Station Fencing	3 - Low	\$ 60,633	\$ -	\$ 60,633	\$ -
2022	URU0023	Oxford Transfer Station Replacement Sundries	3 - Low	\$ 79,805	\$ -	\$ 79 <i>,</i> 805	\$ -
2022	URU0025	Oxford Transfer Station Pit Wall Alterations	3 - Low	\$ 12,000	\$ 12,000	\$ -	\$ -

Table 9: Summary of Capital Works (Includes Renewals and Replacements) 2021-30

2022				\$	\$	\$	\$
2022	URU0027	Oxford Transfer Station Minor Improvements	3 - Low	28,000	28,000	-	-
2022				\$	\$	\$	Ş
2022	URU0030	Flood Protection Rangiora Landfill	3 - Low	150,000	150,000	-	-
2022				\$	\$	\$	\$
2022	URU0031	Cleanfill Site Fencing	3 - Low	9,606	-	9,606	-
				\$	\$	\$	\$
2023	URU0001	Waste Minimisation Future Replacements	3 - Low	206,459	-	212,925	-
				\$	\$	\$	\$
2023	URU0004	Southbrook New Shop and Education Centre	3 - Low	1,493,500	1,493,500	-	-
				\$	\$	\$	\$
2023	URU0009	Southbrook Transfer Station Inwards Weighbridge Pit Replacement	3 - Low	108,900	-	108,900	-
				\$	\$	\$	\$
2023	URU0018	Southbrook Transfer Station Land Purchase	3 - Low	380,000	380,000	-	-
				\$	\$	\$	\$
2024	URU0012	Southbrook Transfer Station Access Roads	3 - Low	344,678	_	344,678	-
				\$	\$	\$	\$
2024	URU0017	Southbrook Transfer Station Landscaping and Shelter Belts	3 - Low	21,370	21,370	-	-
				Ś	\$	\$	\$
2024	URU0021	Oxford Transfer Station Pump station Renewals	3 - Low	12,060	-	12,060	-
				\$	\$	\$	\$
2024	URU0033	Cleanfill Site Cameras	3 - Low	20,000	20,000	-	-
				\$	\$	\$	\$
2026	URU0038	Oxford Transfer Station New Hardstand Area	3 - Low	98,400	98,400	-	-
				Ś	Ś	Ś	\$
2027	URU0008	Southbrook Transfer Station Fencing Replacements	3 - Low	205,120	-	205,120	-
				Ś	Ś	Ś	\$
2027	URU0019	Oxford Transfer Station Access Roads	3 - Low	43,421	-	43,421	-
				Ś	Ś	Ś	\$
2028	URU0028	Closed Landfills Fencing	3 - Low	102,757	-	102,757	-
Year 11 - 20							
				Ś	\$	Ś	\$
2032	URU0029	Closed Landfills Discharge Consent	3 - Low	85,000	-	85,000	-

2022				\$	\$	\$	\$
2032	URU0034	Cleanfill Site Fencing, Access Road and Signage Improvements	3 - Low	77,284	77,284	-	-
				\$	\$	\$	\$
2033	URU0022	Oxford Recycling Bottle Bank	3 - Low	7,858	-	7,858	-
				Ś	Ś	Ś	\$
2033	URU0024	Oxford Transfer Station Weighbridge and Civil Works	3 - Low	236,000	236,000	-	-
				Ś	Ś	Ś	\$
2035	URU0036	HHW Area Improvements	3 - Low	78,430	78,430	-	-
				Ś	Ś	Ś	\$
2038	URU0010	Southbrook Recycling Bottle Bank	3 - Low	11,760	-	11,760	-
				\$	\$	\$	\$
2038	URU0032	Cleanfill Sites Resource Consents	3 - Low	60,000	-	60,000	-
				Ś	Ś	Ś	\$
2038	URU0037	Future Material Recoveries Facility	3 - Low	5,955,450	5,955,450	-	-
Year 31 - 50							
				Ś	Ś	Ś	\$
2057	URU0035	Cleanfill Site Monitoring Bores	3 - Low	88,040	-	88,040	-
Grand							ć
Total				Ş	Ş	Ş	Ş
Total				12,908,981	11,130,884	1,759,563	-

16. Financial Projections

Projected Expenditure

Figure 15 shows budgeted expenditure on routine operations and maintenance, renewals, and capital expenditure for Solid Waste Services, to 2047/48.

Note that there is a large fixed-price component to the operational and maintenance costs for Solid Waste. Only the quantity-dependent costs such as disposal and transportation charges would be affected if waste (particularly residual waste) quantities vary from predicted levels, whereas income is entirely dependent on quantities.

While the projected waste quantities have a Low confidence rating, projected expenditure has a Medium confidence rating owing to the fixed-price operational and maintenance component of these costs.

In the graph, operational costs include operations and maintenance, and indirect expenditure.

Indirect expenditure includes interest, rating collection costs, costs associated with maintaining the Asset Register, interest and internal overhead costs.

Capital includes expenditure for growth, levels of service and renewals, but excludes carry forwards.



Figure 15: Projected Expenditure

17. Projected Income from Rates and Gate Charges

It is difficult to project rates and gate charges for waste services, given the uncertainties involved with future waste minimisation initiatives, their costs and their effectiveness at reducing the quantity of waste being sent to landfill.

Figure 16 presents the projected general and targeted kerbside collection rates and income from sale of rubbish bags, transfer station charges, waste minimisation charges and landfill levy. Note that these rates and charges have been set as required to fund the above operational and maintenance costs and the capital works.

If waste (particularly residual waste) quantities were to vary from predicted levels income would be affected as there is a direct correlation between the quantity of waste being disposed of at the RRP and transfer station and the income at these sites.



Figure 16: Projected Income

18. Improvement Plan

Table 9 details activity specific improvements recommended to address a number ofmanagement issues identified in this AMP. Each improvement item has been tagged to eithera capital project or, a process improvement project to help manage and track Councilsresponse.

Projects have been given a priority in Table 9. High priority projects are where budgets have been allowed for, and it is expected that the work will be completed within the first three years of the 2021/31 LTP. The medium priority category indicates that the project is programmed for the years 4 to 10 of the 2021/31 LTP.

Table 9: 2021 AMP Improvement Plan

Project Ref	AMP Section	Project Description	Priority	Status	Estimated Cost
SWIP01	Risk Assessment / Climate Change	Undertake a lifelines assessment to better identify key risks and required mitigation measures for a natural disaster	High	Planned for 2021-2023	N/A
SWIP02	Risk Assessment	Update Risk Assessment using common risk approach. Develop high level framework, seek update of hazard information.	High	Planned for 2021-2023	N/A
SWIP03	Asset Criticality	Assess the criticality of assets at a component level	Medium	Planned for 2024/25 onwards	\$15,000
SWIP04	Asset Condition	Prepare a condition assessment programme and carry out a condition assessment for all facilities	Medium	Planned for 2024/25 onwards	\$15,000
SWIP05	Capacity & Performance	Undertake a capacity assessment of Southbrook RRP, Oxford TS, and cleanfill disposal sites	High	Planned for 2021-2023	\$10,000
SWIP06	Valuation Improvements	Undertake a detailed valuation at component level of the Southbrook Resource Recovery Park and Oxford transfer station	High	Planned for 2021-2023	\$5,000
SWIP07	Service Management	Review the effectiveness of waste minimisation action plans in the current Waste Management & Minimisation Plan, as part of legislated 6-yearly Waste Assessment and WMMP review	High	Planned for 2022	N/A
SWIP08	Risk Assessment / Climate Change	Confirm natural hazard information at facilities and closed landfill sites	Medium	Planned for 2024/25 onwards	\$10,000
SWIP09	Asset Condition	Define asset data and spatial accuracy requirements for all Solid Waste assets	High	Planned for 2021-2023	N/A
SWIP10	Asset Condition	Carry out asset inventory check at all facility sites. Record key attributes and condition, and functional descriptions	High	Planned for 2021-2023	\$10,000
SWIP11	Asset Condition	Establish documentation that specifies asset data that must be included in As Built information supplied to AIM team	High	Planned for 2021-2023	\$5,000
SWIP12	Growth Projections	Modelling improvements for waste & population forecasts, renewals model	High	Planned for 2021-2023	N/A

SWIP13	Develop system to store and manage consent information	High	Planned for 2021-2023	\$7,500
SWIP14	Undertake/update Asset Management Maturity Assessment	High	Planned for 2021-2023	\$5,000
SWIP15	Review Improvement Plan on 3-year cycle	High	Planned for 2021-2023	\$2,500

As an adjunct to this section the 10 key questions that Audit NZ have advised should be responded to, as a high level check on the adequacy of Asset Management Plans, has been reproduced below in Table 10 with responses. Additional improvement projects are included in Table 9 that fill gaps identified through this process.

Audit NZ Question	Response
1. Have you got a strategy for the long-term sustainability of your assets?	Council has Activity Management Plans that are reviewed in house, at three yearly intervals, that contain a renewals assessment and funding model that ensures the long term sustainability of its solid waste assets.
	Solid Waste Asset Management processes do need improving, and this has been recognised with the planned stage 2 of the Asset Management Information System project that will be extended to include Solid Waste assets.
2. Have you set an asset management policy?	Yes. TRIM link to policy
3. Do you have good quality up-to-date asset management plans for achieving your strategy?	Yes. These are comprehensively reviewed every three years and submitted for peer review.
4. Does your organisation have appropriate asset management skills and experience?	Yes. A dedicated asset manager is responsible for the management of the relevant assets.
5. Do you know the reliability of your asset information?	Yes. Facility asset data is not reliable, and the need for a comprehensive assessment of all facility assets has been recognised and planned for in the improvement programme.
6. Do you have a structured approach to assessing the condition and performance of your assets?	Not currently for Solid Waste. The average age of its assets is relatively young, and the condition of solid waste assets has not as yet been undertaken. This has been recognised and planned for in the improvement programme.
7. Have you defined a clear and comprehensive set of service levels to be delivered or supported by the assets?	Yes. These are reviewed and approved by Council in conjunction with the three yearly AMP review.
8. How well do you forecast future demand for the services that are delivered or supported by your assets?	Demand forecast is largely based on growth projections and past trends. Improvements could be made by considering other factors such as for example demographic changes, and changing technologies.
9. Do you report, and get reports, on achievement of your asset management plan(s)?	Key Levels of Service are reported quarterly to Council, and other LOS are reported annually to Council.
	Asset Management Plans themselves are peer reviewed.

Table 10: Au	dit NZ Questions	and Resnanses
TUDIC IU. AU		and hesponses

10. Do you have a backlog of repairs, maintenance, and asset renewals? And what are you doing about it?	No. The Asset Management Plan process delivers approved budgets that to date have been sufficient to ensure that there is no appreciable maintenance backlog, and that fully funds future renewals
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APPENDIX A: KERBSIDE COLLECTION AREA PLANS

A.1 District Map showing Location & Extent of Kerbside Collection Areas

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A.1 District Map showing Location & Extent of Kerbside Collection Areas





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APPENDIX B: DISPOSAL FACILITY LAYOUT PLANS

- B.1 Southbrook RRP and Transfer Station
- B.2 Oxford Transfer Station
- B.3 Sutherlands Pit Cleanfill Site
- B4 Garterys Pit Cleanfill Site

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B1.1 Southbrook RRP Design Layout

B1.2 Southbrook RRP Aerial Photo



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B2.1 Oxford Transfer Station Design Layout

B2.2 Oxford Transfer Station Aerial Photo



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B.3.1 Sutherlands Pit Cleanfill Site Capacity Plan

	DESCRIPTION	AVERAGE	CURRENT AREA (AT_2-11-12)	(AS_AT_2-11-12)	
	UNEXCAVATED GROUND	72.5m	17,500m ²	114,000m ³	X X X X X X
	CLEAN FILL	74m	14,250m ²	92,600m ³	A STATE AND A STAT
	UNEXCAVATED GROUND	69m	3,000m ²	-9,000m ³	
	CLEAN FILL	68m	3,750m ²	7,500m ³	A
	GRAVEL STOCK PILES	71m	7,750m ²	38,750m ³	
	EMPTY/SPACE	66m	8,250m ²	0.0m	X X X
				138,850m ³	
DRIGINAL PI AMOUNT OF PERCENTAGE AMOUNT YE REMAINING	T VOLUME = 345,0 CLEAN FILL DUMPI E OF PIT FILLED = T TO BE REMOVED SPACE (WITHOUT RE SPACE (WITHOUT READ VING FOR CLEAN F EARS) = 10 00007 (000m ³ ED = 131,350 131,350 /345, = A (FUTU E (GRAV EMOVAL/EXCAVATI IVAL/EXCAVATI SILL DUMPING YEAB	0m ³ 800 = 3856 80 MATERIAL) 114, EL STOCK PILES) 7.1 121, (ATION) = 213,650m ³ ON) = 335,150m ³	000m ³ 50m ³ 500m ⁹	$ \begin{array}{c} & & & & & & & & & & & & & & & & & & &$

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B4 Garterys Pit Aerial



APPENDIX C: ADDENDUM TO 2021 SOLID WASTE ACTIVITY MANAGEMENT PLAN

C.1 Changes to Solid Waste Budgets as at 14 May 2021

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A number of changes have been made to the Solid Waste Budgets since the draft AMP was finalised for the 2021-31 Long Term Plan consultation. This memo summarises the proposed changes to operational and capital works budgets in Solid Waste Staff Submission Report 210427066352.

Staff have updated the rated bin numbers for the Collection Account, based on future rates as at 30 April 2021. This impacts on a number of revenue and operational budgets in both the Collection and Disposal Accounts. **Table 6** below replaces the table on Page 24 in Section 10 of this 2021 AMP.

	Rates Strike July 2019	Years 1 - 3	Years 4 - 10	Years 11 - 20	Years 21 - 30	Years 31 - 50
Rangiora	2019/20	2021/2 2 to 2023/2 4	2024/2 5 to 2030/3 1	2031/3 2 to 2040/4 1	2041- 42 to 2050/5 1	2051/ 52 to 2070/ 71
Projected Properties						
Recycling & Refuse	16,747	19,135	21,050	24,430	27,490	32,343
Organics	8,396	11,775	14,835	19,470	22,264	25,745
Projected Rating Units						
Recycling & Refuse	17,845	20,390	22,429	26,032	29,293	36,299
Organics	8,438	11,832	14,911	19,565	22,375	25,874
Projected increase in Properties						
Recycling & Refuse	-	14%	26%	46%	64%	87%
Organics	-	40%	77%	132%	160%	207%
Projected Annual Recycling Weight	3,382	4,583	5,278	6,097	6,746	8,009
Projected Annual Rubbish Weight	3,808	5,454	6,438	7,662	8,466	10,035
Projected Annual Organics Weight	4,342	5,615	7,355	9,588	10,696	12,718

Table 6: Growth Projections

Eco Central Ltd advised Council that their processing costs have reduced, which will result in a reduction of processing costs: this will reduce recycling-related operational expenditure in the

Collection, Disposal and Waste Minimisation Accounts, and recycling revenue in the Disposal Account, as from 1 July 2021.

The relevant recommendations in Report 210427066352 that impact on the operational and capital budgets in the 2021 Solid Waste AMP are:

That the Council:

- Draft LTP Proposed LTP Difference Description 21/22 budget 21/22 budget (\$,000) (\$,000) (\$,000) Revenue **Recycling Bin Rate** 1,803.4 1,799.8 -3.6 +55.0 **Refuse Collection Rates** 1,365.6 1,420.6 **Organics Collection Rates** 1,037.3 1,115.1 +77.7 **Refuse Bag Revenue** 460.6 456.2 -4.4 Wheelie Bin Fees 81.1 80.0 -1.1 **Rates Penalties** 11.7 12.3 +0.7 **Operational Expenditure Kerbside Collection** 138.0 153.6 +15.6 management & promotions -0.5 Overhead recovery 3 Waters 257.0 256.5 and roading Collection 684.9 686.2 +1.4 **Disposal Charges Refuse** 1,092.8 1,124.9 +32.1**Disposal Charges Organics** 552.5 504.9 +47.6 98.6 +2.9 Landfill Levy 101.5 Contract Payments – Refuse 449.1 452.5 +3.4 Collection Contract Payments Recycling 558.4 593.7 +35.3 577.5 620.0 Contract Payment Organics +42.5
- (f) **Approves** the following changes to Collection Account budgets:

- (g) Notes that staff do not propose to change the individual targeted rates for Recycling, Refuse and Organics collection services or the refuse bag charges from the figures presented in the draft Long Term Plan 2021-31.
- (h) **Notes** that the changes to income are as a result of updated bin numbers and the changes to expenditure result from the continuation of bin audits, and a decrease in recycling processing charges.

Description	Draft LTP 21/22 budget (\$,000)	Proposed LTP 21/22 budget (\$,000)	Difference (\$,000)
Revenue			
Gate sales	2,892.5	2,828.8	-63.7
Hardfill Pit	59.3	59.9	+0.5
Refuse Collection Charges	1,092.8	1,124.9	+32.1
Recyclables	77.4	73.3	-4.2
Operational Expenditure			
Overhead recovery 3 Waters and roading	141.9	141.6	-0.3
Recycling	338.9	318.1	-20.8
Refuse to Landfill	1,793.3	1,783.9	-9.4
Greenwaste	237.9	226.5	-11.5
Transportation	588.9	583.5	-5.4
Depreciation	127.6	128.6	+1.0

(i) **Approves** the following changes to Disposal Account budgets:

- (j) **Notes** that the changes to income and expenditure are as a result of the impact of updated kerbside bin numbers which alter waste flows into the transfer station facilities, amended Fees & Charges, and a decrease in recycling processing charges.
- (k) Approves the deferral of the budget for Rangiora Closed Landfill flood protection works until 23/24, and new budgets to design and install a stormwater management system to ensure ongoing consent compliance at Southbrook RRP as per 2(I).
- (I) **Approves** the following changes to Disposal Account capital works budget for 21/22:

Description	Draft LTP 21/22 budget (\$,000)	Proposed LTP 21/22 budget (\$,000)	Difference (\$,000)				
Capital Expenditure							
New Works	385.1	327.6	-57.5				
 Southbrook – Disposal Pit Upgrade & Rd Realignment 	146.1	154.6	+8.5				
• Minor Upgrades	40.0	124.0	+84.0				

• Closed Landfill flood	150.0	0.0	-150.0
protection			

- (m) **Approves** continuing to provide the Cust rural recycling drop-off facility for the benefit of rural residents from the greater Cust area.
- (n) **Approves** the following changes to Waste Minimisation Account budgets:

Description	Draft LTP 21/22 budget (\$,000)	Proposed LTP 21/22 budget (\$,000)	Difference (\$,000)	
Direct Expenditure				
Waste Minimisation Implementation	114.7	120.1	+5.4	
Depreciation	23.7	25.3	+1.6	
Capital Expenditure				
Southbrook – Resource & Recovery Area Upgrades	138.0	380.0	+242.0	

- (o) **Notes** that the increase in the Waste Minimisation Implementation budget is the result of updated tonnage figures owing to increased use of the Cust rural recycling drop-off facility, which is partially offset by reduced recycling processing charges.
- (p) Notes that the design and consenting costs for the Southbrook Resource & Recovery Area Upgrades project has been increased owing an overall increase in the site footprint which will increase total project costs.
- (q) Notes that staff propose to finalise the Southbrook RRP site development plans in consultation with the Solid & Hazardous Waste Working Party, and will provide further information to Council about the extent and cost of the proposed upgrades prior to their inclusion in the 22/23 Annual Plan Budgets for public consultation.

Note that the graphs in Sections 15 and 16 (new works, projected expenditure and projected income) have not been updated.