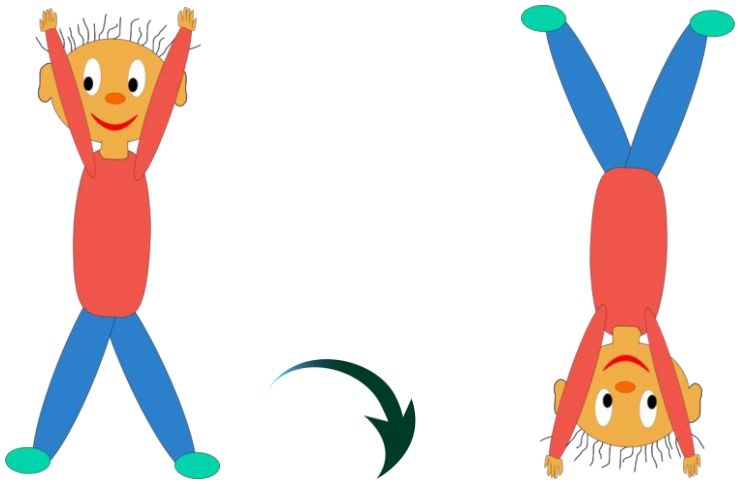
TIMARU DISTRICT COUNCIL
WASTE ASSESSMENT
JULY 2017

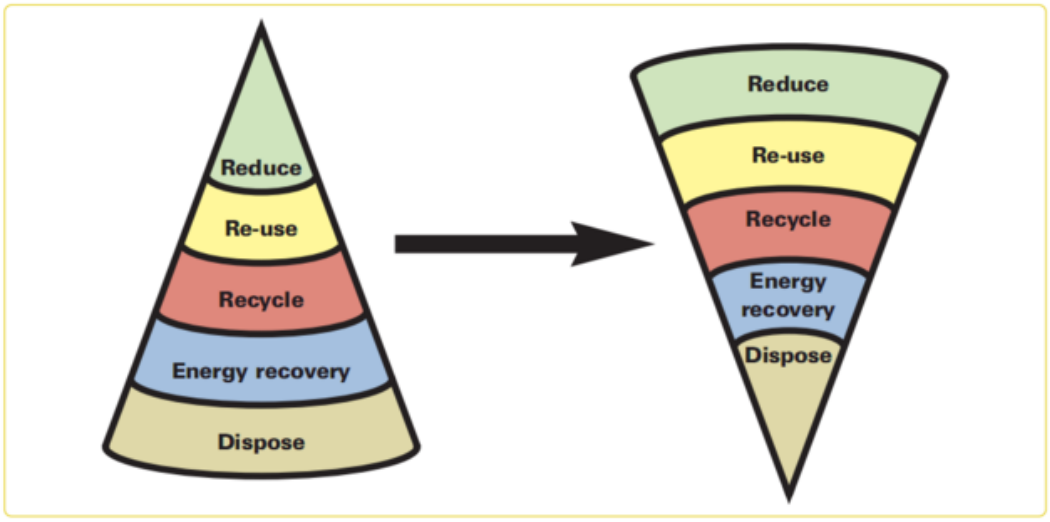
Waste Assessment #1002595 Revision History

Revision Nº	Reviewed By	Description	Date
01	Ruth Clarke	First Draft	17/1/2017
02	Bruce Middleton Waste Not Consulting		1-25/6/2017
03	Ruth Clarke	Second Draft	6/7/2017

1 EXECUTIVE SUMMARY



turning our thinking upside down



“A sustainable community that is able to reuse, recycle and recover discarded resources and minimise residual waste to landfill, while ensuring protection of human health and the environment.”

1.1 Introduction

The following sections summarise each chapter of the document. Refer to the table numbering for more detail. Options are flagged at each relevant section and a ranked summary is given in section 1.15.

1.2 Summary of Chapter 2 Background

2.1	Councils must adopt a WMMP by 1 July 2018. This is Council's guiding document to achieving effective and efficient waste management and minimisation. Targets must be measurable and achievable as they need to be reported against. Prior to this a Waste Assessment must be completed.
2.2	Timaru's Waste Assessment describes current services, forecasts future demand and puts forward options for the WMMP.
2.3	The NZWS underpins the Government's core policy and TAs must have regard to it. The two key goals are: - Reducing the harmful effects of waste. - Improving the Efficiency of Resource Use.
2.4	A number of Acts of Parliament provide the legislative framework and attention must be given to these in the Waste Assessment.
2.5	The purpose of the WMA is to "encourage waste minimisation and a decrease in waste disposal to protect the environment from harm; and to provide environmental, social and cultural benefits." A key provision is the waste levy of $10/tonne of waste to landfill. The cost of the levy plus ETS will incentivise diversion from landfill. Part 4 is fully dedicated to Council's responsibilities to "promote effective and efficient waste management and minimisation within their Districts".
OPTION	Lobby central government on waste issues.
2.6	Councils must consider the following methods in descending order of importance; reduction, reuse, recycling, recovery, treatment and disposal.
2.7	The WMA s51 outlines the requirements of the Waste Assessment.
2.8	The Climate Change Response Act (2002) set up the NZ ETS under which Emissions Units need to be surrendered. The transitional measure for one-for-two surrender is being phased out with increases in costs over the next three years.
2.9	The cost of the NZ ETS for New Zealand units is approximately $18 per tonne of waste disposed of to the Redruth landfill to meet greenhouse gas liabilities from methane generation if the default value is paid. Fuel costs (collection) will also be impacted by the NZ ETS.
2.10	Installing a landfill gas system and diverting organic waste will reduce the quantity of gas compared to the default and help to mitigate the cost if Council applies for a UEF. A UEF will reduce costs, but a cost benefit analysis would need to be completed. The Final Report – LFG Strategy 2016 concludes that a UEF based on composition is not applicable. Review of benefit will be ongoing.
2.11	The LGA must have regard to the provision of core services, including solid waste collection and disposal and outlines legislative requirements for decision making.
2.12	As part of the Waste Assessment, the local Medical Officer of Health must be consulted. The protection of public health will be considered in the provision of all services. The 2011 recommendations are noted with responses.

2.13	For the purposes of this assessment, readily available information has been compiled and there is less information regarding the private waste industry. This has not materially impacted on the completeness of this Waste Assessment, as the priority is on the solid waste and services that Councils are directly responsible for.
2.14	Definitions for this Waste Assessment will follow the MfE Waste Assessment check list with the exception that all collection services will be grouped under the collection heading and a new heading for public information will be included.
2.15	Council's intended role is to provide a range of solid waste minimisation services in compliance with legislative and regulatory requirements.
2.16	This document addresses district wide infrastructure first, followed by each of the areas of Council activity in order of the waste hierarchy.
OPTION	Review Solid Waste Contract 1635 in 2019 for end of Contract 1635. This will require a 17A review.
OPTION	Put out RFP in 2020 for new waste services contract.
2.17	Asset management plays a key role in providing effective and efficient services. Also, an asset register tracks waste minimisation assets including the transfer stations, MRF Building and other infrastructure.
OPTION	Review need for asset management planning to include condition rating, financial data etc.
OPTION	Undertake insurance revaluations six-yearly of Council built assets and buildings.

1.3 Summary of Chapter 3 Private Services

3.1.1	Council has achieved the objectives from the 2003 SWP, except for ensuring waste is separated into rubbish, organics and recyclables which is partially achieved.
3.1.2	There were no actions in the WMMP for this sector.
3.2	A number of commercial operators provide a range of waste collection services where quantities exceed the capacity, type or extent of service of the Council kerbside collection. Economic competition between operators ensures customers have a choice of service or cost.
3.3	Increasing landfill fees and monitoring of the bylaw have encouraged diversion of a wider range of goods. Conversely, for waste disposal the option of taking waste to other landfills becomes more viable. See 11.19 for the impact of waste flight.
3.4	Local waste management contractors offer dry waste collection services. This may include services for recyclable products including cardboard, polystyrene and flexible plastics.
3.5	Agricultural recycling is now established with two companies providing for baleage wrap and chemical containers. Chemical recovery for treatment and disposal is also available.
3.6	Currently, Council does not have a full understanding of waste quantities that are collected and not handled through Council facilities. Licensing of operators collecting waste will enable data to be collected. The reason Council could collect this information is to enable an overall mass balance of waste to be quantified, however, the significance in some cases is questionable, e.g. second hand clothing. This will help show data for benchmarking and measuring the effectiveness and efficiency of waste management and minimisation in the District, as well as providing data to support the calculation of the UEF for the ETS obligations.

3.7	All users accessing non-public areas of the site are permitted. There are currently 70 permits in place for commercial waste haulers, large companies disposing of their own waste to landfill and earth moving contractors as well as green waste.
OPTION	Refer to Timaru Reduction Options - add 0.5 FTE for business assistance to improve sorting and compliance through education and with a goal of introducing waste reduction at source initiatives.
3.8	Demand for commercial services is price driven, or due to lack of availability of Council services. Alternative waste minimisation and disposal options will likely become viable as price mechanisms allow in the future.

1.4 Summary of Chapter 4 Kerbside Collection

4.1	Kerbside Collection Services.
4.1.1.1	Council has achieved all the objectives from the 2003 SWP.
4.1.1.2	WMMP outlines options for kerbside collection. The actions for the 2012-15 period have been achieved. The actions for the 2015-2018 period are actioned, in progress or deferred.
4.1.2	The Council has contracted Waste Management NZ until 2021 to provide the three-bin kerbside collection service. Residents who are not provided the service, may take waste to a transfer station or engage a private waste collector.
4.1.3	Kerbside collections are undertaken Monday to Friday from 6 a.m.
4.1.4	The kerbside service collects organics, recyclables and rubbish.
4.1.5	The service area is compulsory in main urban areas. Other residents may use the service if they live on or near a collection route.
4.1.6	Residents who receive the service pay a targeted differential annual waste management charge. This is funded 100% as a private good by those who receive the service. A summary of the options and fees is shown in Appendix B. Costs compare favourably with private services.
4.1.7	As at 30 June 2016 there were 61,945 bins and 196 Eco-carts in service.
4.1.8	There has been about a 1.5% increase in bins issued each year. The existing collection fleet should be able to service this growth until the end of the contract. It is important to monitor the net quantity of bins in service not only for contract payment, but also to track the threshold number of bins to see if collection resources need to be re-assessed. The on-going demand for 240 litre rubbish bins needs to be monitored to assess if people are opting for an easier disposal option in residential and commercial situations. There is currently no price difference for the weekly CBD service compared to the residential standard services. Increasing the cost of the 240 litre rubbish bin and the weekly service for the CBD may be an option.
REFER	Increase business education staff resourcing by 0.5 FTE to assist businesses with recycling and recovery of waste with a goal of introducing waste reduction at source initiatives. (Refer Chapter 6 - Reduce)
4.1.9	Over 10 years, kerbside rubbish has increased 32% from 6,192 to 8,230 tonnes in 2015/16. The proportion of rubbish in the kerbside collection has also increased.
4.1.10	Increase in bins does not correlate directly to an increase in tonnes. Presentation rates and weight of waste affect average weight per bin and overall tonnes.
4.1.11	The presentation rate is the percentage of bins placed out for emptying against the total number of bins issued.

4.1.12	99.64% of bins are collected with the first pass of the collection trucks. As the kerbside collection is a service that is used on a regular basis, residents will be asked if they are satisfied as part of on-going surveys every three years.
4.1.13	The bins were ten years old in 2016 and have a guaranteed life expectancy of 12 to 15 years. It is expected that bins will still be in good condition past this date. With the termination of the collection contract in 2021, Council will need to review the collection methodology in 2019. Council will continue replacing bins as required and an increase in the budget for replacement bins has been allocated. Adding RFID tags to bins has a number of benefits.
OPTION	Schedule staggered implementation of RFID tags from 2018 on.
4.1.14	Collection audits (sort and weigh) were undertaken in 2007 & 2008. 41% of material in rubbish bins was identified as being compostable or recyclable.
4.1.15	A visual collection audit was undertaken in 2009 and again in May 2017. Major contamination in organic and recycling bins was less than 1%.
4.1.16	Council has a variety of information to support the bin collection. The collection services need ongoing monitoring to assess compliance by residents and to undertake any necessary enforcement. From May 2009 a staff member has undertaken physical bin monitoring, educating residents about contamination issues. Regular surveys of bins should be undertaken one year prior to WMMP reviews to assist in planning.
OPTION	Add 0.5 FTE for kerbside visual auditing.
OPTION	Every five years, prior to review of WMMP, undertake random visual sample of bins to determine composition and help with any planning for WMMP. The next visual audit will be undertaken in 2023.
OPTION	Undertake a sort-and-weigh audit of bins prior to the RFP in 2019. This is critical to determine composition of waste from kerbside collection.
4.1.17	Infrastructure determines range of recyclables able to be collected and any additional materials may require modifications in infrastructure.
4.1.18	While it will be easy to include the collection of soft plastics from residential properties for no extra cost, the MRF will require significant modification and staff resources to sort the soft plastics. Refer 5.5.3
4.1.19	The viability of another bin and possible separate collection of soft plastic for retail shops could be considered.
REFER	Investigate soft plastics collection via wheelie bins. (listed in Chapter 8:Recycling)
4.1.20	While some locations have introduced separate glass collections Council will need to review if it is viable to collect and sort glass. Refer 8.6
REFER	Review glass collection and processing. (listed in Chapter 8:Recycling)
OPTION	Consider support of Container Deposit Systems.
4.1.21	Promoting use of food containers for the kitchen will ensure a higher recovery of food waste. Currently, residents can provide their own container or purchase alternative containers and compostable bags from Council.
4.1.22	Annual Plan Performance measures are recorded.
4.2	Other collection services.
4.2.1	The Crow's Nest collect large second hand goods under contract. The scope of this contract has been extended to include picking up large goods and escrap from rural transfer stations.
4.2.2	Public Place Recycling is largely serviced by the kerbside collection.
4.3	Council provides Zero Waste Event infrastructure and assistance.

1.5 Summary of Chapter 5 Transfer Stations

5.1.1	Council has achieved all the objectives from the 2003 Solid Waste Plan except for ensuring people separate their waste into respective categories, which is partially achieved.
5.1.2	The WMMP outlines options for transfer stations. For the 2012-2015 period, the option to recycle polystyrene is still to be addressed. For the 2015-2018 period, waste sorting and the construction of the resource recovery park are still underway.
5.2	Transfer station operations at Redruth-Timaru, Geraldine, Pleasant Point and Temuka are contracted to Waste Management NZ until 2021.
5.3	100% of the public are happy with the current opening hours. Utilisation of the sites does not warrant any extension of hours especially with paying customer numbers going down.
5.4	Council provides a range of options for waste disposal and diversion of waste at transfer stations. It is likely that there will be an increased demand for a greater range of materials to be diverted from landfill in the future as product stewardship schemes are implemented. Recycling use of the sites is high, so free drop-off for recyclables, waste oil, hazardous waste (note increased costs), most escrap and the Crow's Nest should continue.
OPTION	Investigate options for receipt of smaller quantities of polystyrene with or without payment.
OPTION	Determine methodology for tyre collection, storage and end-use in consultation with stakeholders.
OPTION	Investigate options for separated glass recovery at rural transfer stations.
OPTION	Investigate and trial a collection point for confidential papers.
5.5	Waste comprised 51% of Redruth Transfer Station tonnes in 2010/11, and 48% in 2015/16.
5.6	Redruth transfer station waste is audited.
5.6.1	In 2009 a visual audit of Redruth Transfer Station waste showed the highest volume categories were timber – 37% and putrescible organics – 11%.
5.6.2	The waste sort trial diverted timber – 46%, scrap metal – 26% and putrescible organics – 16%.
5.7	Potential diversion of the materials is as follows: 46% can be directed for pyrolysis. 32% could be recycled. 16% could be composted. 1% of materials could be recycled as escrap.
5.8	There is scope for improved separation of materials and items before and at the transfer pit. The waste sort trial may largely overcome the fact that many mixed materials are dumped at the transfer station.
5.9	The waste sort trial observations are summarised and commented on to address the wide range of materials which could be recycled, composted or re-used.
5.10	Transfer station fees are set by Council to recover the costs of operating the transfer stations.
OPTION	Implement vehicle recognition software at Timaru Transfer Station
5.11	The Waste Minimisation Unit has some discretion to waive tipping fees for community groups.
5.12	Satisfaction with levels of service is measured via the two-yearly community survey. The latest survey shows 100% satisfaction amongst transfer station users.
5.13	A transfer station brochure listing hours, fees and recommendations for sorting is available along with website listings, newspapers and radio.
5.14	There is currently no auditing of the bylaw at transfer stations.

REFER	Refer to Timaru Reduction Options - add 0.5 FTE for business assistance to improve sorting and compliance through education and with a goal of introducing waste reduction at source initiatives.
5.15	The waste sort trial and the new Resource Recovery Park at Redruth should enable greater separation of materials. Crow's Nest staff can be incorporated into the new Resource Recovery area to educate the public and manage the flow of goods. Crow's Nest staff play a greater role in the receipt of goods than previously.
OPTION	Increase Crow's Nest contract funding to recognise increased role in drop-off area.
OPTION	Consider impact of relocating the Crow's Nest drop-off to the Crow's Nest retail area. Staffing at the transfer station would need to be put in place to handle customer enquiries/receive goods.
5.16	There may be demand for the collection of other items or materials. Any product stewardship programmes will need to be carefully worked through to see if kerbside collections are appropriate or whether residents take items and materials to transfer stations. While a container deposit is not imminent, the introduction would affect quantities of glass collected. Council should lobby for the placing of a levy on a range of products to pay for the collection and utilisation, e.g. waste oil, tyres, escrap, etc.
5.17	Seat Smart is a product stewardship programme that can be subsidised by Council.
OPTION	Subsidise Seat Smart by $5 to a maximum of $2,000 per annum.
5.18	The Redruth Resource Recovery Park design is complete and the south end is being built in 2017.
OPTION	Create service lane for emergency access to site and contractor use.

1.6 Summary of Chapter 6 Reduce

6.1.1	Council has achieved its objective from the 2003 SWP.
6.1.2	The WMMP outlines options for waste reduction. The 2012-2015 objectives have been achieved.
6.2	The Target Sustainability programme is offered to Timaru District businesses.
6.3	Zero Waste Advisors give talks and advise community groups and businesses on waste minimisation.
OPTION	Increase business education staff resourcing by 0.5 FTE to assist businesses with recycling and recovery of waste with a goal of introducing waste reduction at source initiatives.
6.4	The Sustainable Living Programme offers adults opportunities to participate in educational programmes related to waste minimisation and a range of other topics relevant to Council activity.
OPTION	Trial a funded pilot for Sustainable Living Programme for participants. Subsidise some participants each year for three years and follow changes in habits as a result of the programme.
6.5	Council supports the national Love Food Hate Waste programme.
6.6	Wheelie Bis specification requires manufacture to include 35% recycled content and Councillors use iPads to reduce paper. Council should consider a sustainability procurement policy which incorporates the concept of waste reduction and use of recycled materials.
6.7	Council has a role to advocate to central government on reduction as a first step for businesses.

1.7 Summary of Chapter 7 Reuse

7.1.1	Council has achieved its objective from the 2003 SWP.
7.1.2	The WMMP outlines options for reuse. For the 2015-2018 period, options are yet to be addressed.
7.2	Operation of the Crow's Nest Reuse Shop is contracted to Sustainable South Canterbury Trust until 2019. The Trust are also contracted to run the Large Goods Kerbside Collection Contract and the Escrap contract.
7.3	The Sustainable South Canterbury Trust is developing the Eco-Centre vision at their leased site and will build an Environmental Centre. This will help Council achieve their objective from the 2003 SWP of developing an Environmental Facility. Strategic direction needs to be confirmed to enable future activities and investment to be planned.
OPTION	Cover insurance costs for any buildings owned by the Trust.
OPTION	Add grounds maintenance costs into the overall contract for Redruth.
REFER	Refer – Transfer Stations - Consider impact of relocating the Crow's Nest drop-off to the Crow's Nest retail area. Staffing at the transfer station would need to be put in place to handle customer enquiries/receive goods.
7.4	There is a wide range of private activities reusing materials.
7.5	Due to lack of funding, there is currently no Council-supported waste exchange in Canterbury.

1.8 Summary of Chapter 8 Recycling

8.1.1	Council has achieved its objectives from the 2003 Solid Waste Plan.
8.1.2	The WMMP outlines options for recycling. For the 2012-15 period, the proposed option was achieved. For the 2015-2018 period, options are underway.
8.2	The existing MRF operation is contracted to Waste Management NZ until 2021. The MRF is close to 100% of operating capacity.
8.3	The MRF processes the following materials from kerbside collections: Glass jars and bottles. Steel and aluminium cans. Rigid plastic bottles and containers. Paper and cardboard. Other materials processed from commercial collections include polystyrene and shrinkwrap.
8.4	The collection methodology and the range of recyclables that a Council decides to collect will determine infrastructure and resources required at a MRF.
8.5	Initially, it was decided not to collect plastic bags. Infrastructure modifications and extra staff would be required to do so, however, the Soft Plastics Recycling Programme may offer an alternative. Further investigation required.
OPTION	Investigate soft plastics collection and processing.
8.6	Glass could be sent to O-I for recycling into bottles and jars. This could be achieved at a cost by hand sorting at the MRF, adding a separate glass collection or sending glass to a beneficiation plant.
OPTION	Investigate alternative glass collection and processing.
8.7	The 240-litre bin has higher contamination than an open crate, but results in a higher nett yield.
8.8	Newspaper, cardboard and plastic are processed by a local business.
8.9	Council offers a 24/7 scrap metal facility in Redruth Street. Scrap metal can also be dropped off at the transfer stations. Alternatively scrap metal dealers will receive materials directly or pick it up.

8.10	Recyclable facilities (local or domestic) enable onshore processing of product. There are two plastic processing facilities in Christchurch and others nationwide.
8.11	A special collection satchel for miscellaneous items may be able to be established via the kerbside collection
OPTION	Investigate collection of alternative items via a satchel in kerbside bins.
8.12	Escrap is currently sent away for dismantling, however, it may be more economic to establish a dismantling facility in Timaru.
OPTION	Investigate options for escrap dismantling to improve recycling activity.

1.9 Summary of Chapter 9 Recovery

9.1.1	Council has achieved its objectives from the 2003 Solid Waste Plan, except for maximising the amount of organic waste to be diverted which is partially achieved.
9.1.2	The WMMP outlines options for recovery. All the 2012-2015 plan objectives have been achieved. There is more scope for compliance. For the 2015-2018 period one option is achieved and the options for special waste composting have been assessed but are not to proceed.
9.2	Waste Management NZ are contracted until 2021 to operate the Gore Cover composting facility. Current quantities being processed are approximately 14,000 tonnes per annum.
9.3	Council and WMNZ in conjunction with other parties, have resourced compost trials to stimulate the growth of the compost market. Waste Management NZ manages the compost sales, and while good progress is being made, more marketing is needed.
9.4	Compost tonnages have grown at 4% per annum.
9.5	Two new pads at the compost facility will be built in July/August 2017 extending capacity.
9.6	New pads will cope with 4% growth until 2025/26.
OPTION	Review Functional Description Report in 2021/2022.
9.7	Existing pads are being monitored for subsidence, but will be managed operationally till end of life.
OPTION	Design 10+ new pads in 2024/2025.
OPTION	Build 10+ new pads in 2025/2026.
9.8	A special organics report was completed but the risk of odour is high and it was decided not to proceed with special wastes at Redruth.
9.9	Waste Oil is recovered by Oil Recovery South Island.
9.10	The pyrolysis facility is established and processes timber. There may be scope to reduce ETS costs by removing timber from landfill.

1.10 Summary of Chapter 10 Treatment

10.1.1	Council has achieved (3 of 4) or partially achieved (1 of 4) its objectives from the 2003 Solid Waste Plan.
10.1.2	The WMMP outlines options for treatment. The option proposed in 2012-2015 has been considered.
10.2	Council provides a free drop-off for small quantities of hazardous waste at transfer stations. This service costs $20,000 per annum. Introduction of a small charge for this service was considered. Signage is provided at all transfer stations to advertise the drop off facilities for hazardous waste. Media coverage is ongoing.
OPTION	Investigate the implementation of a system for discouraging commercial drop-off of hazardous waste.
a	Install a camera at the hazardous waste drop-off.

b	Staff hazardous waste drop-off, or change location of drop-off to RRP.
10.3	Council has conducted a district wide collection of agrichemicals. Farmers can take small domestic quantities (<20litres) to transfer stations or back to their supplier if this service is available. For larger amounts, waste companies can collect and dispose of the chemicals.
10.4	Medical waste is collected by Interwaste for incineration in Dunedin.
10.5	Hazardous waste requiring disposal at Redruth is permitted through a Waste Manifest system. Waste Acceptance Criteria guidelines were prepared in 2011, and are being reviewed in 2017.

1.11 Summary of Chapter 11 Disposal

11.1.1	Council has achieved 7 of 8 objectives and partially achieved one objective from the 2003 SWP.
11.1.2	The WMMP outlines options for disposal. For the 2012-2015 period the options have been achieved. For the 2015-2018 period options for emergency waste disposal are underway.
11.2	Council has contracted WMNZ until 2021 to operate the Council owned Redruth landfill.
11.3	A review of the 2013 bylaw is underway. Changes are expected to be minor.
11.3.1	The bylaw lists items banned from landfill.
11.3.2	The bylaw lists items prohibited from landfill.
REFER	Increase business education staff resourcing by 0.5 FTE to assist businesses with recycling and recovery of waste with a goal of introducing waste reduction at source initiatives. Refer to Chapter 6- Reduce
11.4	Waste to landfill has increased to 27,000 tonnes per annum.
11.5	The three main waste streams are kerbside waste (28%), transfer station waste (13%), and commercial waste (59%).
11.6	The landfill is consented until 2030 but landfill life projections will range from 25-35 years subject to variance in annual tonnages.
11.7	There may be some increase in waste tonnages due to proposed hydro electricity projects in South Canterbury.
11.8	In November 2009, a visual audit of the landfill waste, excluding sewage, was conducted. By weight, timber is the highest component at 19.6%; plastics ranks second at 21.4%; putrescibles is third at 18.8%; with paper and cardboard together being 17.5%.
11.9	Materials were diverted from the following waste streams as follows: Gantry / mini skip: 22.32% Public / builders: 8.35% Consolidated waste streams: 10.09%.
11.10	Of the waste disposed of at the landfill the following diversion of materials was achieved in the Waste Sort trial: Timber 46% Metal 26% Green waste and Gib board 16%.
11.11	There is scope for improved separation of materials and items before waste is disposed of to landfill. This will need improved public education, on-going monitoring and enforcement of the bylaw, improved resources (skips, bins and staff) and the addition of unloading areas for respective materials.
11.12	Limitations on diversion include receipt of mixed loads, lack of infrastructure, policy and incentives and people's choice to dump.
11.13	A solid waste analysis was conducted at the Redruth landfill in June 2011. The purpose of the analysis was to determine the composition of the waste being deposited at the Redruth landfill tipping area to calculate a UEF.
11.14	For this Waste Assessment a desktop audit has been used.

OPTION	Conduct a physical SWAP audit in 2022 required for next six-yearly review of the WMMP.
11.15	Council faces ETS obligations. A New Zealand Carbon Unit is estimated to cost $18.00 from 2017-2018, but a phase in of full costs will increase costs for Council.
11.16	The default UEF is 1.19 which will result in a carbon obligation of $589,000 for 27,500 tonnes at $18.00 per tonne of carbon. Benefits of diverting timber to reduce costs need to be reviewed.
11.17	Loads transported from one source have waste minimisation potential. Loads from mixed sources include the following wastes which have been identified as having waste minimisation potential. These include: Timber Green and putrescible waste Mixed loads
11.18	A range of fees are set by Council acting as either an incentive or disincentive. Differential charges act as an incentive for waste minimisation initiatives and as a disincentive for landfilling waste, so need to be maintained. Fees need to be flexible to take commercial conditions into account.
11.19	As disposal fees increase, waste will migrate to other disposal options and /or new waste minimisation initiatives that may become viable. Risk lies with commercial quantities which may be disposed of out of district.
11.20	Future landfill operations:
11.20.1	There are a range of fixed costs attributed to the landfill and if waste tonnes decrease the ability to recover fixed costs is reduced.
11.20.2	Options to reduce landfill operating costs include; reduce fixed operating costs, increased disposal fees, adjust funding policy and consider alternative daily cover to increase air space.
11.20.3	The use of landfill lids as alternative daily cover is being considered.
OPTION	Run an alternative daily cover trial.
11.20.4	Resource consent for Redruth landfill expires in 13 years. The expected life of the landfill exceeds the life of the consent, so the landfill will need to be re-consented.
OPTION	Apply for extension of consent in 2027/28.
11.21	Closed landfills.
11.21.1	The Council monitors seven closed landfill sites for compliance with resource consent conditions.
11.21.2	Monitoring shows compliance with most consent conditions.
11.21.3	The old landfills were closed with less than optimal profiling and capping. Council is working to improve these sites to reduce impacts and create usable spaces.
OPTION	Complete capping of Pleasant Point closed landfill
11.22	As part of the resource consent conditions, Council is required to monitor the Redruth landfill and other closed landfills for a range of conditions, and write an annual report.
11.23	This section contains the summary of analysis of results of the 2015-2016 Annual Report to Ecan.
11.24	Management Plans:
11.24.1	The WOL Plan provides a framework for overall site planning including cell development, capping, landfill gas, leachate, stormwater and long term use.
OPTION	Build Stage Two & Three landfill cells as per WOL programme (25 years life).
OPTION	Cap Stage Two & Three landfill cells as per WOL programme.

11.24.2	The SMP will enable the site to comply with the stormwater consent for the catchment to be applied for.
OPTION	Implement stormwater management projects as per SMP.
11.24.3	The Landfill Gas strategy outlines calculations, concept plans, implementation programme and cost estimates.
OPTION	Implement landfill gas strategy as per WOL programme.
11.24.4	The Redruth Landfill Stage One capping – preliminary design report provides a design framework for the capping of Stage One.
OPTION	Cap Stage One of landfill as per WOL programme over 25-35 years.
11.25	Council accepts cleanfill at transfer stations. Some private contractors own and operate cleanfill sites.
11.26	Illegal dumping may increase with if fees are increased. Enforcement and follow-up should be monitored.
11.27	Natural disasters generate significant amounts of waste and Council will need to ensure waste disposal is incorporated into emergency plans as part of being prepared for natural events so a reactive response is not necessary which may have follow on consequences.
OPTION	Ensure waste disposal options are included in emergency plans.
OPTION	Obtain consent for Pleasant Point pit as an alternative dumping site for emergency waste.
11.28	In the case of a significant spill or event, special waste may be disposed of at Redruth Landfill. Waste Acceptance Criteria and protocols will apply.

1.12 Summary of Chapter 12 Public Information

12.1.1	Council has achieved the objectives from the Council SWP except the development of facilities for environmental education.
12.1.2	The WMMP outlines actions for Public Information. The 2012-2015 actions were achieved. The 2015-2018 actions are achieved (lot 3) or future (lot 3)
12.2	Council employs 3 FTE staff in the Waste Minimisation Unit.
12.3	There is a steady demand for talks and tours on waste minimisation and assistance with zero waste events.
12.4	Council provides a range of information to the community.
12.5	Staff provide a school education programme, conducting talks, waste audits and advice on waste minimisatio. There is scope to increase the coverage to a wider audience through a dedicated programme.
OPTION	Evaluate cost of community education at SSCT Education Centre or internally.
12.6	Council works with businesses to minimise waste. A trophy can be awarded to businesses who work towards Zero Waste.
OPTION	Refer to Timaru Reduction Options - add 0.5 FTE for business assistance to improve sorting and compliance through education and with a goal of introducing waste reduction at source initiatives.
12.7	The SSCT is planning to develop an Eco Centre. Council should assist where possible.
OPTION	Subsidise building cost of Eco-Centre including any specific costs associated with protection against landfill gas.
REFER	Cap Stage One of landfill as per WOL programme over 25-35 years.

1.13 Summary of Chapter 13 Other Information

13.1	The Australian experience offers some insights into waste minimisation options.

13.2	The Waste Assessment will be sent to the local Medical Officer of Health and will be available online. Feedback will be sought via the Special Consultative Procedure for the WMMP.
13.3	A summary of contracts for Council and when they terminate.

1.14 Summary of Chapter 14 WMMP

14.1	Council must strive to achieve the outcomes of the WMA and the goals of the NZWS. While there are a number of options identified in this assessment, actual proposals or actions to be completed for the next 10 year period of Council's WMMP will be given strategic direction by the goals/targets and objectives to be set in the WMMP for the 2018-2028 period.
14.2	"Effective and efficient waste management and minimisation is achieved when less waste is going to landfill, when resources are used wisely, when the economic cost of managing waste is reduced and when societal costs and risks are minimised."
14.3	The following sections set out Council's preliminary vision, goals, objectives and targets for achieving waste reduction.
14.4	A sustainable community that is able to reuse, recycle and recover discarded resources and minimise residual waste to landfill, while ensuring protection of human health and the environment. The Ministry for the Environment definition of sustainability is ''about meeting the needs of today, without adversely impacting on the needs of tomorrow''.[1]
14.5	A goal of Zero Waste to landfill by 2015 was adopted by Timaru District Council in 1999.
14.6	The Zero Waste to landfill goal is aspirational but initiatives to further minimise waste and specifically achieve diversion of waste from landfill must be strongly considered. The costs of doing this needs to be set against the long term costs of failing to do so with a limited landfill life in sight.
14.7	A variety of considerations are important including planning, economic feasibility, diversion of waste, waste levy initiativesnand collaboration.
14.8	The goals of the Timaru WMMP are to : Protect public health. Protect the environment. Provide effective and efficient services in a sustainable manner.
14.9	Targets and performance measures will be set in the 2018 WMMP.
14.10	Council could lobby government to implement waste minimisation initiatives.

[1] http://www.mfe.govt.nz/issues/sustainable-industry/tools-services/definition.php

1.15 Summary of Waste Assessment Options

Options are categorised into one of five categories. Planning for change should include a balance across the five categories of Direct Action, Change the Rules, New Ideas, Communicate and Educate, Monitor and Feedback.

The options presented in the following table are identified as actions that are required in order to comply with legislative, environmental, contractual or asset management requirements, or to improve existing operation and maintain existing levels of service. The table shows the action, category and reason.

Option	Category	Reason
Create service lane for emergency access to site and contractor use.	Action	H&S
Review Solid Waste Contract 1635 in 2019 for end of Contract 1635. A 17A review will be required.	Ideas	Contract/ Legislative
Undertake a sort-and-weigh audit of wheelie bins prior to the RFP in 2019. This is critical to determine composition of waste from kerbside collection.	Monitor	Legislative
Put out RFP in 2020 for new waste services contract.	Action	Contract
Review need for asset management planning to include condition rating, financial data etc.	Monitor	Assets
Undertake insurance revaluations six-yearly of Council built assets and buildings.	Action	Assets
Schedule staggered implementation of RFID tags from 2018 on.	Monitor	Assets
Conduct a physical SWAP audit in 2022 required for the next six-yearly review of the WMMP.		Legislative
Every five years, prior to review of WMMP, undertake random visual sample of bins to determine composition and help with any planning for WMMP. The next visual audit will be undertaken in 2023.	Monitor	Planning
Review Functional Description Report in 2021/2022.	Monitor	LoS
Design 10+ new compost pads in 2024/2025.	Action	Assets
Build 10+ new compost pads in 2025/2026.	Action	Assets
Apply for extension of landfill consent in 2027/28.	Action	Environment
Cap Stage One & Three landfill cells as per WOL programme.	Action	Environment
Cap Stage One of landfill as per WOL programme over 25-35 years.	Action	Environment
Complete capping of Pleasant Point closed landfill.	Action	Environment
Implement stormwater management projects as per SMP.	Action	Environment
Implement landfill gas strategy as per WOL programme.	Action	NES
Ensure waste disposal options are included in emergency plans.		Planning
Obtain consent for Pleasant Point pit as an alternative dumping site for emergency waste.	Rules	Environment
Install a camera at the hazardous waste drop-off.	Monitor	Operational
Staff hazardous waste drop-off, or change location of drop-off to RRP.	Monitor	Operational
Lobby central government on waste issues.	Rules	Operational
Add vehicle recognition software at Timaru Transfer Station.	New Ideas	Operational

The options in the following table might be taken to reduce waste to landfill. Rankings are derived from document #1077296 where options have been assessed against a range of factors including environmental, social, economic and other.

Option	Category	Ranking
Increase Crow's Nest contract funding to recognise increased role in drop-off area.	Direct Action	86
Increase business education staff resourcing by 0.5 FTE to assist businesses with recycling and recovery of waste with a goal of introducing waste reduction at source initiatives.	Communicate	83
Add 0.5 FTE for kerbside visual auditing.	Communicate	82
Investigate soft plastics collection and processing.	New Ideas	82
Run an alternative daily cover trial.	Direct Action	81
Investigate options for separated glass recovery at rural transfer stations.	New Ideas	81
Consider support of Container Deposit Systems.	New Ideas	81
Add grounds maintenance costs into the overall contract for Redruth.	Direct Action	78
Determine methodology for tyre collection, storage and end-use in consultation with stakeholders.	New Ideas	75
Cover insurance costs for any buildings owned by the Trust.	Direct Action	74
Investigate options for escrap dismantling to improve recycling activity.	New Ideas	74
Investigate alternative glass (collection and) processing.	New Ideas	74
Investigate options for receipt of smaller quantities of polystyrene with or without payment.	New Ideas	70
Investigate alternative items for collection and processing.	New Ideas	69
Consider impact of relocating the Crow's Nest drop-off to the Crow's Nest retail area. Staffing at the transfer station would need to be put in place to handle customer enquiries/receive goods.	New Ideas	66
Subsidise Seat Smart by $5 to a maximum of $2,000 per annum.	Direct Action	65
Trial a funded pilot for Sustainable Living Programme for participants. Subsidise some participants each year for three years and follow changes in habits as a result of the programme.	Communicate	60
Subsidise building cost of Eco-Centre including any specific costs associated with protection against landfill gas.	Direct Action	59
Evaluate cost of community education at SSCT Education Centre or internally.	New Ideas	59
Investigate and trial a collection point for confidential papers.	New Ideas	43

CHAPTER 2

BACKGROUND

2 INTRODUCTION

2.1 Waste Management and Minimisation Plan

The Waste Management Act 2008 requires Councils to adopt a Waste Management and Minimisation Plan (WMMP) by 1 July 2018, as part of a six-yearly requirement from 2012, to enable them to influence, promote and implement measures to reduce and minimise waste.

The WMMP is intended to be the guiding document for Councils in directing their efforts toward achieving effective and efficient waste management and minimisation within their Districts. Councils should be cautious in setting targets and objectives in their WMMP as targets must be measurable and achievable. Resources must be set aside to implement them adequately, as Councils are now required to report on progress toward achieving their WMMPs.

Before the WMMP process can start a Waste Assessment must be completed. This Waste Assessment will precede the 2018 revision of the WMMP.

2.2 Waste Assessment

The Waste Assessment process has evaluated current waste minimisation services in the Timaru District. This includes both Territorial Authority (TA) managed and private services.

Operational data is used to help provide an overview of the services. The assessment then forecasts future demands for services and puts forward options to be considered when developing the WMMP.

2.3 The New Zealand Waste Strategy (NZWS)

Waste management and minimisation in New Zealand is underpinned by the Government's core policy "*The New Zealand Waste Strategy*".

2.3.1 Implications and Recommendations

The Waste Minimisation Act 2009 (WMA) s44 now requires that territorial authorities "have regard to" the NZWS or any government policy on waste management and minimisation when preparing a WMMP.

The NZWS has two key goals:
"Reducing the harmful effects of waste'' and
"Improving the efficiency of resource use"

These goals are flexible and allow for waste management and minimisation activities that are appropriate for local situations.

2.4 Key Legislation

A number of Acts of Parliament provide the legal framework for waste management and minimisation in NZ, with the primary legislation driving waste management and minimisation planning being the WMA, the Local Government Act (LGA) 2002, the Resource Management Act 1991 (RMA) and the Emissions Trading Amendment Act 2008.

Because the NZWS and legislation is cornerstone to waste management and minimisation, careful attention should be given to these in developing the Waste

Assessment. The following section will provide a brief summary of the NZWS and these key Acts, stating their relevance or implications to the regional TA's situation.

2.5 The Waste Minimisation Act 2008 (WMA)

The WMA recognises the need to focus efforts higher in the waste hierarchy in terms of reducing and recovering waste earlier in its life cycle, shifting focus away from treatment and disposal.

The WMA emphasises and promotes waste minimisation. The purpose of the Act (s3) is to "encourage waste minimisation and a decrease in waste disposal in order to protect the environment from harm; and to provide environmental, social, economic and cultural benefits".

The Act contains a mechanism for the accreditation and monitoring of product stewardship schemes to minimise waste from products. Product stewardship relates to a process through which those involved in the lifecycle of a product or service are involved in identifying and managing its health, safety and environmental impacts from the development and manufacture of a product through to its use and final disposal. Ideally, product stewardship schemes will be designed to promote reduction of waste at the source, as well as make recycling, treatment and disposal safer and more efficient.

Councils have the opportunity to benefit from some schemes as they may improve the recovery and diversion of products they currently manage and, in some cases, Councils may be directly or indirectly involved in a scheme either on a voluntary or statutory basis. Councils should take opportunities to lobby central government on waste issues in general and, in particular, on product stewardship schemes requiring Council participation.

OPTION	Lobby central government on waste issues.

Another key provision of the WMA is the imposition of a levy on each tonne of waste disposed of to landfill to be paid by landfill operators. The levy is used to fund waste minimisation projects with half distributed to Councils and the rest allocated to a contestable *Waste Minimisation Fund.* The levy was reviewed in 2011. Internationally levies have tended to increase steadily over time once introduced.

Council must report to the Ministry for the Environment on waste levy spending. The WMA states that TAs must spend levy money to promote or achieve waste minimisation in accordance with their WMMP. Waste levy spend activities must be classified according to the waste hierarchy and identified as to whether the activity is new/existing/expanded. The report must cite the WMMP reference to the activity. The waste levy activity will be audited.

At $10 per tonne, the waste levy does not provide a large economic incentive to reduce waste at a level that promotes a major behavioural shift. However, as the levy may be increased and when combined with the likely cost impact of the Emissions Trading Scheme (ETS) on waste to landfill, there will be an increasing economic incentive for waste generation to be avoided, and for Councils, customers and private operators to divert waste to beneficial use. However New Zealand's current waste levy is among the lowest in the Organisation for Economic Co-operation and Development.

Councils should also carefully consider their responsibilities under the WMA. Part 4 is fully dedicated to the responsibilities of Councils which "must promote effective and efficient waste management and minimisation within their Districts" (s42).

Neither the WMA nor the NZWS prescribe specific waste management and minimisation targets, structure or content for Council's WMMPs, thus allowing significant local flexibility. It is noted, however, that there is the scope within the WMA for the Minister to set performance standards for the implementation of WMMPs and for Councils, who are not making satisfactory progress on their plans, to receive Ministerial direction to alter their WMMPs.

2.6 WMA Methods

The WMA s44 (a) requires Councils to consider the following methods of waste management and minimisation (which are listed in descending order of importance.) Definitions of each are given as stated in the Act.

Reduction:

(a) lessening waste generation, including by using products more efficiently or by redesigning products; and

(b) in relation to a product, lessening waste generation in relation to the product.

Reuse:

(a) the further use of waste or diverted material in its existing form for the original purpose of the materials or products that constitute the waste or diverted material, or for a similar purpose.

Recycling:

(a) the reprocessing of waste from diverted material to produce new material.

Recovery:

a) the extraction of materials or energy from waste or diverted materials for further use or processing; and

b) includes making waste or diverted materials into compost.

Treatment:

(a) subjecting waste to any physical, biological or chemical process to change its volume or character so that it may be disposed of with no or reduced effect on the environment; but does not include dilution of waste.

Disposal:

(a) the final (or more than short term) deposit of waste into or onto land set apart for that purpose; or

(b) the incineration of waste.

2.7 Waste Assessment Requirements

A Waste Assessment as outlined in s51 of the WMA must contain:

(a) A description of solid waste services by the Council and other parties.
(b) A forecast of future demands.
(c) A statement of options to meet the demands.
(d) A statement of the Councils intended role in meeting the demands.
(e) A statement of the Council's proposals including new or replacement infrastructure.
(f) A statement how the proposals will –

- Ensure public health is adequately protected.
- Promote effective and efficient waste management and minimisation.

The details of s51 from the WMA are shown in appendix A.

The description of services in s51 includes collection, recycling, recovery, treatment and disposal for both Council and private operators.

The Waste Assessment is prepared in accordance with the Ministry for the Environment Checklist. http://www.mfe.govt.nz/sites/default/files/waste-assessment-checklist.pdf

2.8 Climate Change Response Act 2002

The Climate Change Response Act 2002 that set up NZ ETS requires that waste disposal facilities purchase emission trading units to cover methane emissions generated from the landfill. Should any future solid waste incineration plants be constructed, the Act would also require emission trading units to be purchased to cover carbon dioxide, methane and nitrous oxide emissions from the incineration of household wastes.

The waste sector was part of a transitional phase in of the ETS. The transitional one-for-two surrender obligation for the NZ ETS allowed non-forestry participants in the NZ ETS to surrender one unit for every two tonnes of carbon dioxide emissions (a 50% surrender obligation).

One-for-two surrender will be phased out in three equal steps, beginning in January 2017, until a full obligation (one unit for every one whole tonne of carbon dioxide emission) applies from 1 January 2019.

This will increase costs as shown below over the next three years based on future waste rates estimated at 28,000 tonnes per annum; kerbside = 8,276 tonnes, transfer station = 3,596 tonnes, commercial = 16,396 tonnes.

	2016	2017	2018	2019
Surrender obligation	50%	67%	83%	100%

The ETS works on calendar years, so the increase is spread across financial years at each stage.

	2016/17	2017/18	2018/19	2019/20
Kerbside	$66,747	$131,693	$154,471	$168,821
T/S & commercial	$159,420	$318,126	$$394,308	$430,938

2.9 Impact of the Climate Change Response Act 2002

The method to calculate greenhouse gas emissions from landfills (methane) has been regulated and it is expected that waste sector reporting requirements under the ETS would build upon those developed to support the WMA. New Zealand units must now be purchased and the current cost is about $18 per tonne of waste.

Another impact from the ETS will be increases in fuel costs impacting on collection costs.

2.10 Mitigation of the Impact of the ETS

The Climate Change (Unique Emissions Factors) Regulations 2009 allow for mitigation methods to reduce paying the full (default) ETS amount. These include diversion of waste to change the waste composition or flaring of gas. Landfill owners may apply for a special dispensation in the form of a Unique Emissions Factor (UEF) in relation to composition or emissions factors that vary from the default. If a UEF applies, costs will

be reduced with further benefits as the waste composition changes further or gas capture factor improves.

In the Landfill Gas Strategy (LFG) Report for Redruth Landfill (commissioned 2016, #1069126), Section 6 calculates the reduced carbon obligation of applying for a UEF based on :

a) The composition of the waste stream, i.e. when there is a lower biodegradable content than the ETS default, or
b) Operating a collection system and destroying the LFG, or
c) Both a and b

The report concludes that the waste composition, even with timber diversion, has a factor of 1.26 which is greater than the default of 1.19 so a composition-based UEF is not applicable. To apply for a UEF, detailed waste audits with monitoring by specified auditors are required. This application process is expensive, and cost prohibitive. Furthermore, the benefit of applying for a UEF for LFG collection is dependant on several factors including the efficiency of the gas collection system (CE) and the price of carbon. In the initial years the carbon efficiency could be as low as 20 to 30%. The higher the CE is and the higher carbon prices rise, a beneficial reduction in carbon could be viable. As a gas collection system would likely be implemented in a staged approach in line with the capping programme, there may be little gain in applying for a UEF.

The Whole of Life (WOL) plan will enable regular review of the costs and benefits for making a UEF application.

Council should consider conducting a carbon footprint of its solid waste activities as a benchmark. This could include direct activities such as collection vehicles, and operations at transfer stations, the landfill, Materials Recovery Facility (MRF) and composting operations. Indirect benefits/costs can be determined from markets recyclables are sent to for processing. Council should be aiming to have a low carbon footprint.

Council may benefit financially through *avoided costs* if methods of diverting materials from landfill to beneficial use can be found after the materials are paid for as waste, as the costs of the waste levy and ETS liabilities are avoided. This is one of the benefits of the waste sort facility.

Another benefit is through changing waste composition by, for example, encouraging composting as the relatively minor emissions from organics composting are exempt from the ETS. This provides another economic incentive to divert materials, particularly methane-generating organic waste. It is, therefore, recommended that the potential ETS costs be considered when scoping options, particularly in relation to organic waste diversion.

Another example of diversion changing waste composition is the collaboration with Waste Transformation Ltd to divert timber for the pyrolysis facility.

With more waste diverted the disposal cost per tonne for the Redruth landfill will most likely increase as there are still fixed costs to recover. As the cost of landfilling increases over time, this will improve the economic viability of alternatives to landfill such as waste minimisation services.

2.11 The Local Government Act 2002 (LGA)

In performing its role to the community, a local authority must have particular regard to the contribution of core services which includes solid waste collection and disposal, Part 2, s11A.

Part 6, s77 refers to legislative requirements for decision-making, including consideration of benefits and costs of different options in terms of the present and future social, economic, environmental, and cultural well being of the District. A Waste Assessment and WMMP should refer to these requirements.

2.12 Public Health

A territorial authority which provides a service that collects waste, or any person who provides a service that collects waste on behalf of a territorial authority, must do so promptly, efficiently and at regular intervals (WMA s54). As part of the Waste Assessment the local Medical Officer of Health must be consulted (WMA s51) to ensure the protection of the community's health.

The protection of public health will be considered in the provision of all services through provision of information, site rules and enforcement and comprehensive health and safety management systems.

A letter was received from the Medical Officer of Health regarding the 2011 Waste Assessment. It noted that the report was detailed and comprehensive and included four recommendations as follows:

1. A number of "Options" are included throughout the document, most of which would enhance the aims of the Act. These "Options" are supported and Council should commit to act on them if possible. (Appendix E which was referred to was not included in the draft).

   Response: Waste Assessment options are summarised in section 1.15 of the Executive Summary.

2. Council should consider including a risk assessment of possible tsunami wave action on the Redruth disposal site.

   Response: The site is bunded on all sides providing some protection. The capping programme which is being progressed will further protect landfill areas from erosion. Waste Management NZ Ltd, which manages the site on Council's behalf, run evacuation exercises. It will be recommended that a tsunami scenario be regularly incorporated into the schedule.

3. The disposal of hazardous wastes, chemicals, oil etc is co-ordinated through the Canterbury Hazardous Waste Strategy and is a free service. This service could be more widely advertised so the public are aware of the need to remove poisonous chemicals in particular from domestic premises.

   Response: Council has a budget of $20,000 for hazardous waste disposal. Council staff frequently receive calls about chemical disposal, so it seems the public are generally aware of the need for correct disposal. However, media will be increased from 2017/18 and any increase in waste will be noted. Refer to Section 10.2 for more information on hazardous waste.

4. Community and Public Health has a record of complaints about wind blown litter from the Redruth site. No recent complaints have been received and I believe

Council has carried out remedial work to reduce this problem. However, a commitment to on-going monitoring of landfill operation is needed.

Response: Litter is well managed through operational procedures and regular inspections are undertaken by the Council's Waste Minimisation Manager.

2.13 Limitations and Completeness

This inventory of solid waste services available in the Timaru District is a combination of Council owned, operated or managed services and facilities, as well as privately owned and operated services. This inventory is not to be considered exhaustive, particularly with respect to the private waste industry, as these services are subject to change. For the purposes of this assessment, readily available information has been compiled and there is less information and detail regarding the private waste industry. This has not materially impacted on the completeness of this Waste Assessment, as the priority is on the waste minimisation services that Council is directly responsible for. As per the WMA requirements, Council believes the information obtained is appropriate when having regard to the:

- Significance of the information,
- the costs of, and difficulty in, obtaining the information,
- the extent of the territorial authority's resources,
- and the possibility that the territorial authority may be directed under the Health Act 1956 to provide the services referred to in that Act,
- the impact on the completeness of the assessment particularly the forecast of future demands and options assessed.

Information is generally broken down using the waste hierarchy categories although there is crossover between some categories of services.

2.14 Description of Services

There are conflicting requirements from s44 (a) and s51 of the WMA where some activities are not mentioned as shown below. All requirements are covered in this assessment.

Table 1: WMA Descriptions

S44(a) Methods	s51 Waste Assessment
Collection not mentioned	Collection
Reduction	Reduction not mentioned
Reuse	Reuse not mentioned
Recycling	Recycling
Recovery	Recovery
Treatment	Treatment
Disposal	Disposal

The definitions in the WMA can be interpreted in differing ways. For the purpose of this Waste Assessment the following interpretations will apply, based upon the MfE Waste Assessment check list with the exception that all collection services will be grouped under the collection heading and a new category for public information will be included.

The Waste Assessment description of services will follow the categories as listed below.

Table 2: Waste Assessment Descriptions

Category	Description
Collection	Kerbside collection, transfer stations, drop-off containers for recyclables etc, public place litter/recycle bins, (street sweeping excluded), public events. Commercial and business collections. Sub-categories include, rubbish, recyclables, organic, clothing, oil, hazardous and second hand items.
Reduction	Target Sustainability programme, information.
Reuse	Second hand goods at transfer stations, Crow's Nest retail shop, second hand clothing stores, private second hand furniture shops, salvage companies, private garage sales, online trading, Waste Exchange.
Recycling	Locations and infrastructure where recyclables sorted and or processed. Recyclable materials collection and processing includes; newspaper, paper, cardboard, plastics grades 1 to 7, glass, ferrous and non-ferrous metals, polystyrene, concrete crushing. Recyclable materials collection only includes; escrap, tyres, batteries, paint, clothing/textiles.
Recovery	Locations and infrastructure for composting, processing organic waste. Oil processing/utilisation-burning. Pyrolysis. Wood chip for burning.
Treatment	Treatment of waste (includes stabilisation of waste before landfilling).
Disposal	Operating and closed landfills, cleanfills, incinerators and illegal dumping.
Information	Public information can cover all categories. Record of programmes/information provided, waste audits, programmes for businesses, etc.

2.15 Council's Intended Role

Council's general role is to ensure compliance with all relevant legislation regarding solid waste pertaining to the Council.

In recognising the waste minimisation requirements of the community, Council will provide and facilitate a range of core services to achieve the goals of the WMMP produced based on this Waste Assessment. By retaining control over some of the waste stream, as well as waste minimisation assets, Council can maintain some control over the financial costs of waste minimisation management to the community.

In particular Council will provide the following services:

- A kerbside collection service to urban and some rural properties for organic waste, recycling and rubbish.
- Transfer Station facilities at Geraldine, Pleasant Point, Timaru (Redruth) and Temuka.
- A landfill at Redruth.
- Recycling and composting facilities.
- A retail shop for reusable materials.
- A large goods collection service for reusable materials.
- A scrap metal recycling site.
- E-scrap drop-off.
- Dedicated timber drop-off.

- Household hazardous waste drop-off facilities.
- Public litter collection.
- Litter and illegal dumping enforcement.
- Information and education resources for public and businesses.
- Zero waste public events, resources and support
- Management and administration of the above services.

2.16 Structure of this Document

This document mainly outlines Council-provided services. Chapter 4, Timaru Private Collection outlines some of the commercial waste-related activity in the district, but has a focus on how this meets objectives in the Solid Waste Plan 2003 or relates to provision of services by Council.

District wide infrastructure has been addressed first i.e.

- Timaru District Council kerbside collection
- Timaru Private Services
- Timaru District Council Transfer Stations

Following on from that, each of the areas of Council activity has been addressed in order of the waste hierarchy.

- Reduce
- Reuse
- Recycling
- Recovery
- Treatment
- Disposal
- Public Information

The Solid Waste Contract 1635 covers collection at both kerbside and transfer stations as well as materials processing at the MRF and Timaru Eco-Compost facility, disposal of waste to Redruth Landfill and grounds maintenance. Strategic overview of capital projects is also part of the contract.

The contract terminates in 2021, and a 17A review will be required in the first instance to assess the strategic direction for this work. The contract scope will then need to be reviewed, and new options for inclusion considered.

OPTION	Review Solid Waste Contract 1635 in 2019 for end of Contract 1635. This will require a 17A review.
OPTION	Put out RFP in 2020 for new waste services contract.

2.17 Asset Management

The Waste Assessment focuses on activity, but asset management plays a key role in providing effective and efficient services. The asset planning for the Waste Minimisation Unit has been added into the WMMP to avoid the need for two plans. An asset register tracks waste minimisation assets including the transfer stations, MRF building and other infrastructure.

In consultation with the finance unit, it has been decided that adding the wheelie bins to this register is impractical. The bins are in a bin register, which has recently been updated in line with the Authority software deployed by Council.

The next step is for the asset register to be incorporated into a management plan that includes rating assets for condition and an allowance for maintenance and renewals. Forward budgets can then be included into the Long Term Plan (LTP).

To ensure insurance values are adequate, six yearly re-valuations of Council built assets and buildings should be considered.

OPTION	Review need for asset management planning to include condition rating, financial data etc.
OPTION	Undertake insurance revaluations six-yearly of Council built assets and buildings.

3 TIMARU PRIVATE COLLECTION SERVICES

3.1 Progress for Commercial Collection

3.1.1 Solid Waste Plan (SWP)

Table 34: Timaru District Council (TDC) SWP Commercial Waste

Action Programme 3	Commercial Collection	Status
Objectives		
Ensure that waste will be separated into rubbish, organics and recyclables.	Higher disposal fees have encouraged separate cardboard and organic collections. Implementation of the solid waste bylaw and permits to the landfill is enabling a transition phase to educate collectors and their customers to separate their waste. On-going work to monitor and enforce is in place.	**Partially Achieved**
Implement a system of licensing waste collection operations.	70 operators have been issued permits to dispose of waste at the landfill with conditions for waste acceptance. Other waste collectors disposing of waste to other locations are not licensed, e.g. used clothing.	**Achieved**
Develop waste agreements for commercial users of various facilities.	This applies to facilities on Council sites. Permits have been developed for the landfill and conditions apply for operators taking organics and recyclables to Redruth. A gib licence is also in place.	**Achieved**
Performance Measures		
Record of tonnes.	Annual records kept for recycling, organic, rubbish, cleanfill and Gib.	**Achieved**
Contamination rate for the various categories.	Contamination for the composting facility and MRF is measured.	**Achieved**
Number of licensed operators.	70	**Achieved**
Number and type of waste agreements in place.	Landfill Access Permits: 70 Gib Permits: 13	**Achieved**

3.1.2 WMMP progress

There were no identified actions.

3.2 Collection Operators

A number of operators provide waste collection services in the Timaru District. These companies provide services to businesses where waste quantities exceed the capacity of the Council kerbside collection and in areas not serviced by the Council kerbside collection service. Competition between operators ensures customers have a choice of service or cost.

Table 35: List of Private Waste Collectors

Company	*Resources*	*Waste Collected*
Envirowaste	*Front load compacter trucks, gantry trucks, hook truck, skips.*	*Rubbish, recyclables, organic waste.*
Household Rubbish Removals	*Hiab truck, skips.*	*Rubbish, recyclables, organic waste.*
Garbo Rubbish Removals	*Small compacter and gantry trucks, skips, wheelie bin trailer, wheelie bin service.*	*Rubbish, recyclables, organic waste, polystyrene.*
Waste Management NZ	*Front load compacter trucks, gantry trucks, hook truck, skips.*	*Rubbish, recyclables, organic waste, polystyrene.*
Waste Away South	*Hook truck, compacter truck, hook bins, skips and wheelie bins.*	*Rubbish, recyclables, organic waste.*
Full Circle	*Open deck truck.*	*Recyclables, cardboard, flexible plastics.*
Numerous scrap metal dealers	*Open deck truck & car crusher.*	*Scrap metal*
Numerous builders	*Trailers.*	*New Gib offcuts*
Numerous garden, arborist & landscape contractors	*Open deck truck and small trailers.*	*Garden waste*
Fulton Hogan	*Tanker truck.*	*Waste oil*
Waste Management Technical Services	*Tanker truck.*	*Waste oil*
Dominion Batteries	*Truck.*	*Batteries*
BOC Gases		*LPG cylinders*
Various		*Tyres*
Plasback	*Local contractor.*	*Silage wrap*
Agrecovery		*Paint from transfer station, plastic chemical containers (empty), crop protection nets and plastic wrap, farm chemical.*
Numerous community groups and private collectors.	*Truck, van.*	*Used clothing, seconf hand goods.*
Numerous contractors	*Trucks.*	*Cleanfill*
Numerous contractors	*Trucks, vans.*	*Document destruction*

There is a broad range of private operators providing collection services for a range of waste materials where it is not practical and viable for Council to provide a service. Not all companies are listed in the table above.

3.3 Waste Diversion and Waste Flight

Increases in the landfill disposal fees have encouraged greater waste diversion by the private sector, e.g. cardboard collections, gib-board to composting, polystyrene and soft plastics/shrink wrap. Alternatively, waste collectors also look for the cheapest landfill disposal option that becomes viable as prices increase.

With private collections there is some cross-boundary movement of waste. Waste is brought in from the neighbouring districts either directly from other Council transfer stations (Waimate), or from private collections within the adjoining districts.

Recyclables collected privately can be sorted and transported out of the district and are not recorded as part of the overall waste diversion for the district, for example, cardboard and plastic quantities collected by Full Circle and scrap metal collected by local scrap dealers or dealers passing through the district picking up scrap. Wool is also being taken to Christchurch for composting.

As landfill fees increase, the option of taking waste to other landfills may become viable. The impact of waste flight is covered in section 11.19 in more detail.

3.4 Dry Waste

Dry waste includes waste that does not contain liquids, organic waste and materials that have come into contact with liquids. Dry waste in the past has been collected in mixed loads comprising primarily of metals, plastics, paper, cardboard and construction and demolition materials.

Previously, Envirowaste were transporting dry waste to Christchurch for sorting and processing, however, the sorting facility ceased operations because of financial difficulties. Envirowaste now dispose of the majority of waste from skips, without sorting at Redruth landfill. A small portion of residual waste is transported south to King's Bend Landfill at Winton.

Waste Management provide a combo bin service for recyclables (polystyrene, shrink-wrap and other recyclables) and a separate cardboard service.

Garbo Rubbish Removals provides cardboard, polystyrene & shrinkwrap collections, as well as skips for mixed recyclables and waste to landfill.

Council ran a six-week trial in 2015 to separate materials from a mixed waste stream from the transfer stations and commercial waste excluding front end loads. 10.91% diversion was achieved from the "sortable" waste stream. On this basis, a second stage trial will start on 1 July 2017 with permanent staff and dedicated machinery to attempt to increase the diversion. If 18% of sortable waste can be diverted, data will be reviewed and a waste sort facility may be established with approved budget.

3.5 Agpac and Agrecovery

Agpac (Plasback) is a private collection service direct from farms for plastic wrapping from balage and silage, Low Density Polyethylene (LDPE) bags, polypropylene feed, seed and fertiliser bags and High Density Polyethylene (HDPE) drums, as well as chemical containers. Agrecovery is a private collection service for empty plastic chemical containers, which are dropped off at Progressive Solutions Temuka, as well as chemicals, crop protection nets and plastic wrap. Council supports these initiatives

by referring rural people to the respective collection points and distribution of pamphlets and information.

3.6 Private Collection Information and Data

Currently, Council does not have a full understanding of waste quantities that are collected and not handled through Council facilities. Licensing of operators collecting waste will enable data to be collected. The reason Council could collect this information is to enable an overall mass balance of waste to be quantified, however, the significance in some cases is questionable, e.g. second hand clothing. This will help show data for benchmarking and measuring the effectiveness and efficiency of waste management and minimisation in the district, as well as providing data to support the calculation of the Unique Emission Factor (UEF) for the ETS obligations.

The importance of if it is useful to gather this information is in comparing or benchmarking waste generation or waste diversion figures between districts or regions. Some locations may include commercial business recyclables in total and achieve a higher diversion rate compared to larger centres where commercial totals may not be included in diversion measurement. While some data on recyclables from commercial businesses may be useful for mass balance of waste in the district, the relevance of information from second hand retail stores will be of less importance.

Private operators are concerned about commercially sensitive information becoming public to competitors, however, licensing arrangements through bylaws may enable data to be provided, albeit subject to the information being aggregated to enable commercial anonymity to be protected. Council aims to progress the collection of commercial data in line with the Waste Data Framework.

Another reason to collect data from private operators is to help determine the UEF for the ETS rating for the Redruth Landfill. The more biodegradable waste that is diverted, the lower the UEF may be resulting in a lower cost to Council. Council can determine the UEF through waste composition surveys and from quantities of waste being diverted.

3.7 Bylaw

The WMA s56 Bylaws, enables Council to license private operators and for the private operators to provide to Council reports setting out the quantity, composition, and destination of waste collected and transported by the licensee,(for example, household waste to a disposal facility).

Council has issued permits to 70 operators who take rubbish, greenwaste or cleanfill etc to non-public areas of the Redruth Landfill. Data on quantities can be retrieved from the weighbridge system. The purpose of the permits is to enforce the bylaw on materials banned from the landfill.

Some monitoring was undertaken at the tipface. If it was evident that banned materials were being disposed of, the Council Waste Minimisation Officer discussed the matter with the driver, determined the source of the waste and then visited the waste generator to discuss options for improved separation and diversion from landfill. From casual observation, staff have noticed a reduction of banned materials being disposed of. This was primarily an educational process for waste generators, however, monitoring activity stopped due to lack of staff resourcing.

OPTION	Refer to Timaru Reduction Options - add 0.5 FTE for business assistance to improve sorting and compliance through education and with a goal of introducing waste reduction at source initiatives.

3.8 Demand for Commercial Services

The demand for private services will primarily be price driven, or lack of availability where Council does not provide a service. If a business can offer alternative solutions which are cheaper than disposal to Redruth landfill, customers will select the cheaper option. Businesses may opt for kerbside collection as it is cheaper than commercial services.

It is likely that various options will become viable in the future, along with alternative landfill options for customers as pricing mechanisms allow.

4 TIMARU KERBSIDE COLLECTION SERVICES

4.1 Kerbside Collection

4.1.1 Progress for Timaru

4.1.1.1 Solid Waste Plan (SWP)

The following table outlines the objectives and performance measures included in the TDC 2003 SWP.

Table 3: TDC SWP Collection

Action Programme 1	Kerbside Collection	Status
Objectives		
Collection trial 2003-2004 to clarify new collection system.	Completed, new service introduced July 2006.	Achieved
Provide collection for rubbish, recyclables and organics.	Three collection services provided.	Achieved
Make available a range of bin sizes to meet people's requirements.	140 litre and 240 litre bins provided along with three crate eco-cart.	Achieved
Performance Measures		
Record of tonnes collected.	Annual records kept.	Achieved
Household generation rates.	Annual records kept.	Achieved

Household contamination rates.	Sort & weigh surveys completed 2007 & 2008 Organic-4% Recycling-6-7% Rubbish-42%.	Achieved
Percentage of population that has access to kerbside collection.	84% of District; 100% of urban areas.	Achieved

4.1.1.2 WMMP – Kerbside Collection

The following table outlines the options included in the TDC WMMP.

Plan date	Target date	Description	Status
2012-2015	2012	Use kerbside collection to service zero waste events	Achieved
	2013	Use kerbside collection to service public place recycling.	Achieved
	2014	Review services and charges for CBD.	Achieved
2015-2018	2017	Review collection service.	Achieved
	2017	Every five years, prior to the statutory review of the WMMP, undertake random visual sample of bins to determine composition to help with planning for WMMP.	Achieved
	2015/16	Investigate use of RFID tags. Staged approach recommended.	In progress from 2017.
	2016/17	Investigate scope of a separate glass collection.	Not achieved
	Future	Establish a separate glass collection.	Future

4.1.2 Council Kerbside Collection

A kerbside waste collection service utilising wheelie bins is provided on a weekly/fortnightly basis to all properties in the urban areas, including households and business properties. The service is rated through a targeted waste charge, which is compulsory in urban areas but optional for rural users. Businesses in the CBD get a weekly pick up for the same rate.

Council has contracted Waste Management NZ Ltd (WMNZ) until 2021 to provide the 3-bin collection service with a possible extension should both parties agree.

Properties are issued with three wheelie bins as shown in Table 4: Kerbside Collection

Table 4: Kerbside Collection

Service	Container	Collection Frequency
Rubbish	140 litre and 240 litre	Fortnightly
Recyclables	140 litre and 240 litre	Fortnightly- alternates with rubbish
Food and Garden	140 litre and 240 litre	Weekly

Properties not eligible for the kerbside service may take waste to a transfer station or engage a private collector.

4.1.3 Collection Days

Kerbside collections are undertaken on Monday to Friday. The district is split into two collection zones to enable the collection trucks to be fully utilised for the fortnightly collection cycle. Collections start at 6 a.m.

4.1.4 Waste Collected

The kerbside service collects recyclables, organics and general rubbish.

Organics generally include food waste, garden waste, food contaminated paper and cardboard, as well as other materials listed by Council.

Recyclables include paper, newspaper, cardboard, ferrous and non-ferrous metal cans, rigid plastic containers, glass bottles and jars.

4.1.5 Service Area

The compulsory service is provided to the main urban areas of Timaru, Temuka, Geraldine, Pleasant Point, Pareora, Winchester and Cave, as well as smaller settlements of rural properties on the designated collection routes. The 2013 census listed 17,688 occupied dwellings in the district. At 30 June 2016, there were 19,998 kerbside sets in use, as some properties have more than one set. It is estimated that 84% of the District have access to a kerbside collection. This was determined from the number of dwellings with and without waste management charge based on rates struck for the 2015/16 year.[1]

The kerbside collection is optional for rural residents outside the compulsory zone, and extensions to the service are added based on requests and cost vs income analysis.

The collection routes have been extended by 84 kilometers since 2006.

4.1.6 Targeted Rate

Residents receiving the service pay a targeted waste rate of approximately $279 for a standard set and $379 for a large set based on the size of the rubbish bin. The rate which covers the delivery of the kerbside service (collection and processing) is set by the Chief Financial Officer and varies from year to year. Variations in size for other bins are available but at no change to the targeted rate. Economies of scale are achieved by Council providing the service which is a compulsory rate in urban areas, thereby achieving efficient and effective waste minimisation. To privatise the collection service would result in several collection contractors travelling along streets. A private 140-litre weekly rubbish-only wheelie bin service from Waste Management in other centres costs in the order of $242[2]. A private fortnightly 140-litre rubbish collection in the Waipa District costs $500[3] from a private operator where Council does not provide a collection service. A weekly wheelie bin collection service (rubbish only) by Waste Management in Oamaru may range from $500-$700 depending on level of service[4].

[1] #831660

[2] Jan 2011 Waste Management Residential bins. https://www.wheeliebincompany.co.nz/

[3] Jan 2017 Red Bins. https://www.envirowaste.co.nz/index.php?page=120l-general-wheelie-bin-service-dd-waikato1

[4] Pers. Comms. Adrienne Chappell, Waste Management-Timaru May 2017.

Table 5: Collection Rate

Service	Cost per annum (gst inclusive)2016/17
Standard 3 bin set	$279
Large Rubbish bin set option	$379

Data from TDC website fees and charges

Council has regulated wheelie bin sizes to incentivise waste diversion. Users may opt for a larger rubbish wheelie bin at an extra cost of $100 per annum above the standard charge. Ten percent of customers have chosen this option. This is an increase of 3% against the 2010/11 year. Smaller recycling bins (10% of customers) or compost bins (8% of customers) or a stacker crate; a 3 in 1 system (0.3% of customers) may be chosen, but there is no differential to the targeted rate for these alternative options.

Bins Choices	Numbers		
Standard bin choices	140 litre	240 litre	240 litre
2010/11	92.48%	89.33%	92.10%
2015/16	89.71%	89.63%	92.08%
Non-standard bin choices	240 litre	140 litre	140 litre
2010/11	7.52%	10.67%	7.90%
2015/16	10.29%	10.37%	7.92%

Refer #1002596 –Data – Growth-Demand-Empties tab

It is important that the community is encouraged and incentivised to reduce their waste output, and price and receptacle size are two such mechanisms that can be utilised to achieve this aim.

A summary of options and fees is shown in Appendix B.

4.1.7 Wheelie Bins in Service

As at 30 June 2016, there were 61,945 bins and 196 Eco-carts in circulation.

Table 6: Wheelie Bins in Service

Bins in Service-30/6/2016	140 litre	240 litre	Total
Rubbish	18,708 (91%)	2,147 (9%)	20,855 (34%)
Recycle	2,186 (11%)	18,898 (89%)	21, 084 (34%)
Compost	1,585 (8%)	18,421 (92%)	20,006 (32%)
	22,479	39,466	61,945
Eco-Carts			196
			62,141

Refer #1002596 –Data – Bins in Service tab

4.1.8 Demand for Bins

The current kerbside collection services were introduced from July-September 2006. Since that time, there has been approximately a 1.1% increase in bins issued each year. For the 2015/16 year, the 0.8% is equivalent to 507 bins. This number of bins is nearly a 20-foot shipping container load.

Table 7: Overall Bin Growth

Year	Total Units in Service	Annual Growth	Total Increase
Jun-07	55,671	0.0%	0.0%
Jun-08	56,520	1.5%	1.5%
Jun-09	57,268	1.3%	2.8%

Jun-10	58,133	1.5%	4.4%
Jun-11	58,849	-2.5%	1.9%
Jun-12	59,436	4.8%	6.7%
Jun-13	59,992	.9%	7.7%
Jun-14	60,785	1.3%	9.0%
Jun-15	61,442	1.1%	10.1%
Jun-16	61,945	0.8%	10.9%

Refer #1002596 –Data – Growth-Demand-Empties tab (S,109)

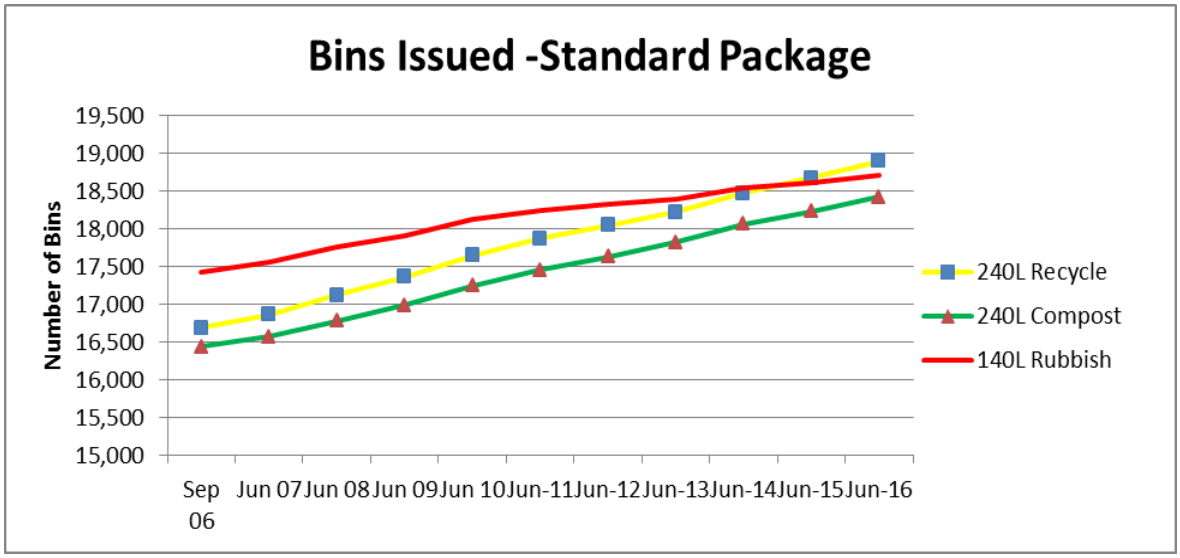
Demand for the standard package of bins is around 1% growth. Demand for the non-standard 140-litre recycle and compost bins seems to have stabilised over the past two years, while demand for the larger 240 litre rubbish bin for the past 15/16 year was at 7%.

Table 8: Bin Growth for 140 and 240 Bins

Demand for Bins	Numbers		
Standard bin choices	140 litre	240 litre	240 litre
2010/11	67%	1.30%	1.18%
2015/16	0.56%	1.22%	1.04%
Non-standard bin choices	240 litre	140 litre	140 litre
2010/11	10.42%	0.38%	1.70%
2015/16	7.08%	0.09%	1.41%

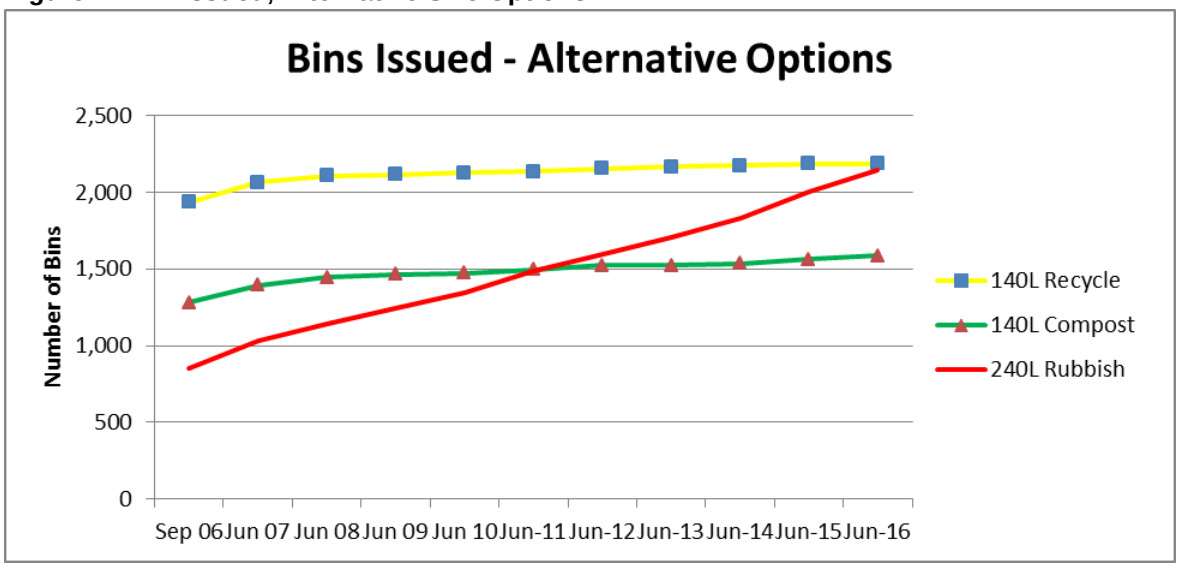
Refer #1002595 –Data – Growth-Demand-Empties tab (col S-W)

Figure 1: Bins Issued, Standard Size



Refer #1002596 –Data – Growth-Demand – Empties tab

Figure 2: Bin Issued, Alternative Size Options



Refer #1002596 –Data – Growth-Demand – Empties tab

Overall, the increase in waste through the kerbside system is a trend with more users choosing to have large bins. This growth could be monitored with a business advisor visiting businesses with large numbers of red bins to offer waste minimisation advice. This gives Council an opportunity to interact with businesses. Policy could further define eligibility for additional large bins if education was not effective.

REFER	Increase business education staff resourcing by 0.5 FTE to assist businesses with recycling and recovery of waste with a goal of introducing waste reduction at source initiatives. (Refer Chapter 6 - Reduce)

While there is current collection capacity with the existing collection fleet, if bin numbers were to increase in excess of 70-80,000 then another set of collection vehicles will be required. There are different thresholds with indicative cap levels estimated at 21-24,000 bins for rubbish and 24-27,000 for recycle and organics, meaning that one type of collection vehicle may be required before the other.

Alternatively, there is scope to mitigate the requirement for extra collection vehicles by extending the collection finish time or reducing the number of bins issued. It is not an option to use a Saturday for collection services, as this day is used for regular maintenance and as a back-up day for public holidays. Socially, it would also be less acceptable for the community from a noise perspective for collection services during the weekend. It is important to ensure that the net amount of bins in service is accurately quantified to ensure that bins no longer in service have been deducted from the total.

Based upon the growth of 1.1% of bins per annum, there should be capacity in the existing collection fleet to service the community for the term of the contract until 2021; however, numbers will need to be monitored nearer the end of the contract.

Table 9: Bin Number Threshold for Extra Collection Truck

Demand for bins	*Existing Bins 2015/16*	*8% Growth until July 2021*	*Threshold before extra truck required*
Rubbish	*20,855*	*22,523*	*21-24,000*
Recycle	*21,084*	*22,771*	*24-27,000*
Compost	*20,006*	*21,606*	*24-27,000*

Refer #1002596 –Data – Bin Nos Extra Truck tab

Council provides a weekly service in the CBD areas which are delineated by policy. The weekly service is not available in any other area.

There has also been a demand for more than one bin per property with some commercial businesses having several bins. It appears that having several bins may be a cheaper option for some businesses and schools than a commercial service.

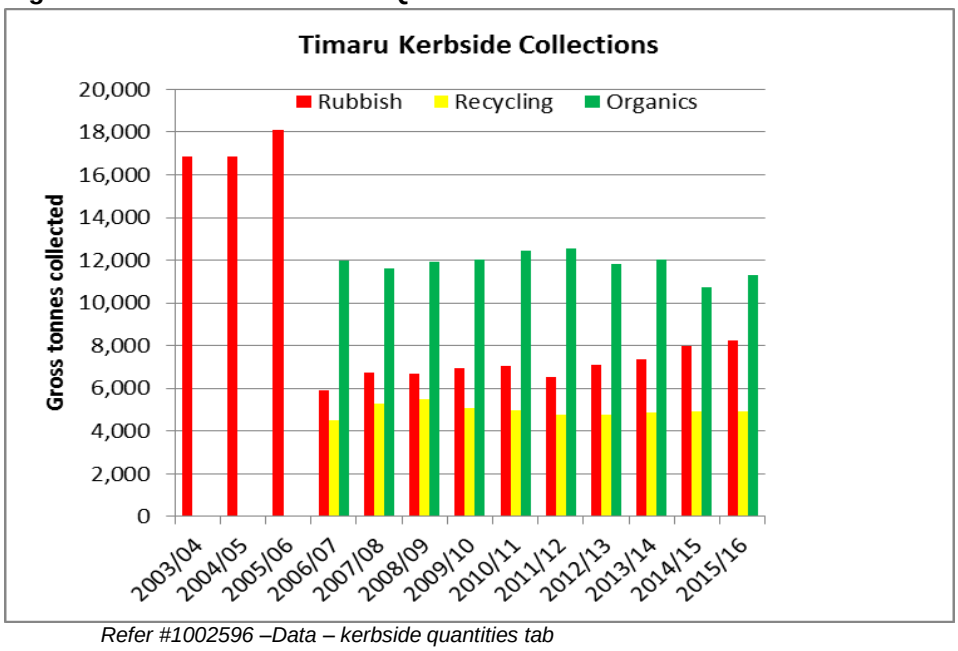
Each property that receives the kerbside service will be allocated one set of bins. The ratepayer of the property may request and be granted a second set of bins or second individual bins as required, e.g. a second organic bin only for properties that may have large gardens, or a large rubbish bin for families with children in nappies.

The Waste Minimisation Services Policy was updated and approved by Council on 26 April 2016.[1] The policy does not limit the number of bins a rateable property may receive.

4.1.9 Kerbside Quantities

The quantity of rubbish disposed of to landfill from the kerbside collection reduced by 66% from 18,080 tonnes in 2005/06 to 6,192 tonnes in 2006/07 with the introduction of the 3-bin service. Over 10 years, kerbside rubbish has increased 32% from 6,192 to 8,230 tonnes in 2015/16. As shown in the graph below, there is an increasing trend in waste, while recycling stays stable and fluctuations in green waste are more related to seasonal influences i.e. in a dry year less green waste will be disposed of to wheelie bins than in a wet year.

Figure 3: Kerbside Collection Quantities

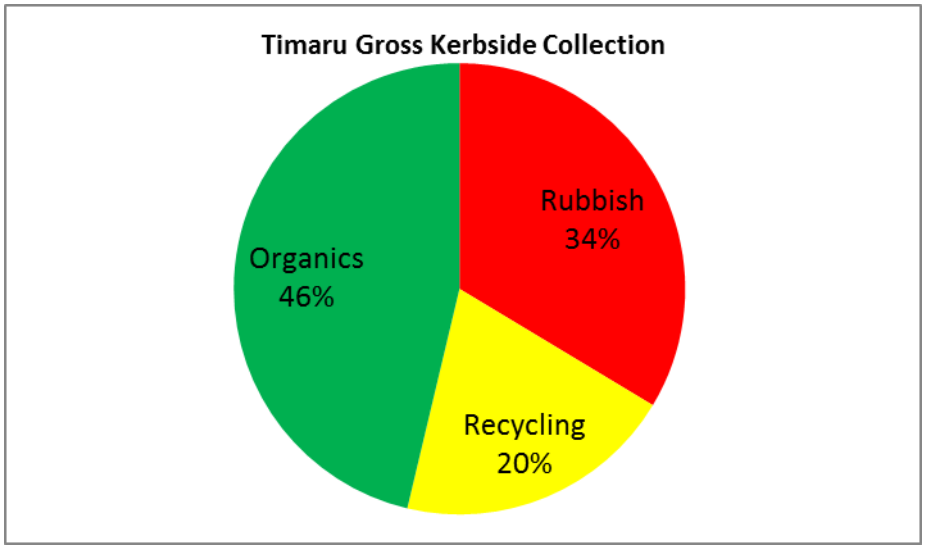


Refer #1002596 –Data – kerbside quantities tab

[1] Waste Minimisation Services Policy - adopted 26 April 2016 #832413

The gross allocation of waste collected for the various kerbside services in 2015/16 is shown in Figure 4: Kerbside Collection Summary. There is an increase in rubbish from 29% in 2009/10 to 34% in 2015/16.

Figure 4: Kerbside Collection Summary 2015/16



Refer #1002596 –Data – kerbside quantities tab

4.1.10 Bin Numbers and Tonnes Collected

As can be seen in the table below, the increase in the number of bins issued does not necessarily correlate with a similar increase in tonnes collected. The quantity collected is determined by the presentation rate of bins placed at the kerbside and the weight of waste placed in the bins. While recycling bin numbers have increased for 2015/16, the presentation and average bin weight has reduced. The tonnes are the gross quantities collected.

Table 10: Bin Numbers and Tonnes Collected

Recycle	Bins	Growth	Tonnes	Growth	Kg/bin/p.a.
2006/07	18,926	0	4,499	0	238
2007/08	19,226	1.59%	5,293	17.65%	275
2008/09	19,477	1.31%	5,498	3.87%	282
2009/10	19,774	1.52%	5,057	-8.02%	256
2010/11	20,012	1.2%	4,955	-2.02%	247
2011/12	20,199	0.93%	4,747	-4.2%	235
2012/13	20,388	0.94%	4,767	0.42%	233
2013/14	20,647	1.27%	4,867	2.10%	235
2014/15	20,854	1.00%	4,912	0.92%	235
2015/16	21,084	1.10%	4,918	0.12%	233
Organic	**Bins**	**Growth**	**Tonnes**	**Growth**	**Kg/bin/p.a.**
2006/07	17,962	0	11,978	0	667
2007/08	18,221	1.44%	11,609	-3.08%	637
2008/09	18,455	1.28%	11,908	2.58%	645
2009/10	18,719	1.43%	12,045	1.15%	643
2010/11	18,948	1.22%	12,460	3.45%	657
2011/12	19,157	3.45%	12,539	1.82%	654
2012/13	19,346	0.99%	11,842	-5.56%	612
2013/14	19,599	1.31%	12,021	1.51%	613
2014/15	19,795	1.00%	10,076	-10.94%	509
2015/16	20,006	1.07%	11,311	5.65%	565

Rubbish	Bins	Growth	Tonnes	Growth	Kg/bin/p.a.
2006/07	18,594	0	5,892	0	317
2007/08	18,895	1.62%	6,742	14.43%	357
2008/09	19,159	1.40%	6,679	-0.93%	349
2009/10	19,462	1.58%	6,948	4.03%	357
2010/11	19,723	1.34%	7,030	1.18%	356
2011/12	19,920	7.11%	6,517	-7.30%	327
2012/13	20,101	0.91%	7,083	8.68%	352
2013/14	20,369	1.33%	7,362	3.94%	361
2014/15	20,608	1.17%	7,471	1.48%	362
2015/16	20,855	1.12%	8,230	10.16%	394

Refer #100259 –Data – Growth – demand – empties-tab (AP25)

4.1.11 Participation and Bin Weights

The presentation rate is the percentage of bins placed at the kerbside for emptying from the total number of bins issued. The weight of waste placed in the bins (kg/bin/empty) is the total tonnes collected divided by the number of bins emptied.

Table 11: Bins Presented at Kerb for Emptying

	Recycling Bins			Organic Bins			Rubbish		
	Gate Rate*	Kg/Bin/ Empty	Number emptied per annum	Gate Rate*	Kg/Bin/ empty	Number emptied per annum	Gate Rate*	Kg/Bin/ empty	Number emptied per annum
2006/07	73%	12.70	357,267	61%	22.09	570,240	82%	13.28	395,192
2007/08	76%	12.30	382,083	63%	19.04	594,278	85%	10.85	420,026
2008/09	77%	11.75	388,711	62%	19.37	596,603	83%	11.13	415,301
2009/10	75%	11.43	386,858	61%	19.45	595,012	82%	10.89	417,110
2010/11	75%	11.73	389,661	61%	20.32	597,678	83%	11.56	430,643
2011/12	75%	11.90	399,201	63%	20.00	625,342	81%	15.3	426,311
2012/13	77%	12.20	389,361	63%	19.20	610,452	87%	12.6	434,002
2013/14	77%	11.20	382,271	63%	19.70	605,037	87%	13.2	436,602
2014/15	73%	12.53	392,067	57%	18.35	584,178	83%		443,620
2015/16	71%	12.56	391,561	58%	18.79	602,951	87%		475,750

Refer #1002596 –Data – WM kerbside data tab
Gate Rate= presentation rate i.e. percentage put out to the gate for collection.*

Figure 5: Recycle Bins Emptied Per Annum

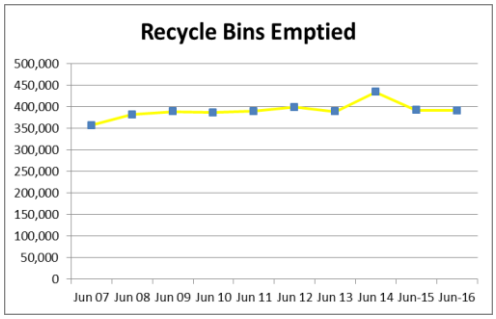


Figure 6: Organic Bins Emptied Per Annum

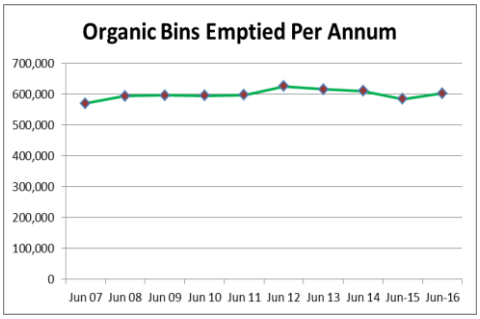
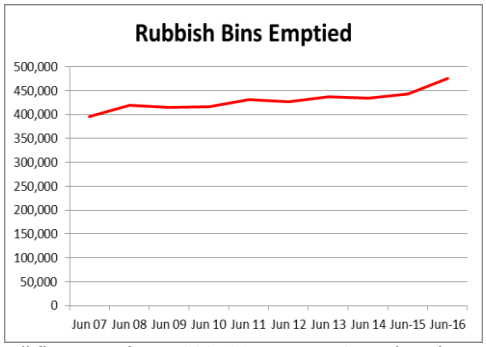


Figure 7: Rubbish Bins Emptied Per Annum



All figures refer #1002596 –Data – Growth – demand - empties tab

4.1.12 Missed Bins

99.64% of bins are collected with the first pass of the collection trucks. As the kerbside collection is a service that is used on a regular basis, residents will be asked if they are satisfied as part of on-going surveys every three years.[1]

4.1.13 Bin Life

The bins were ten years old in 2016 and have a guaranteed life expectancy of 12-15 years. Currently, bin replacement and new bins are trending at a 1.1% increase in bin numbers per annum, however, the number of bins to be replaced and repaired is increasing. Budget was increased in the 2015-2018 LTP to allow for this. It will be necessary to track bin issues to plan for bin renewals and replacements as the bins continue to age. With the termination of the collection contract in 2021, Council will need to initiate a review of the collection methodology in 2019. The addition of RFID tags to track bins is being trialled in the CBD from September 2017. The benefits of adding tags to bins are:

- Improved stocktake data – tracking bins, retrieving stolen/surplus bins, maintaining bins at the assigned property
- Improved customer service – tracking bin empties in realtime
- Reduced costs on collection and processing – eliminating bins and pick ups except those charged on rates
- Reduced costs on call backs – 5% due to customer error
- Route optimisation based on vehicle data.

OPTION	Schedule staggered implementation of RFID tags from 2018 on.

4.1.14 Collection Audits 2007 to 2008

Council conducted detailed audits of the kerbside collection services in 2007 and 2008 where waste from bins was sorted and weighed in the various categories. Results varied little between audits so average data is presented below. The table shows that residents incorrectly place items in the respective bins which should be placed in another bin.[2]

[1] Refer #1002596 –Data – WM kerbside data tab Row 25,26
[2] #831027

Table 12: Waste Audit Summary of Kerbside Bins

Bin type	Percentage of bins where items were correctly placed in them	Percentage of bins where items were incorrectly placed in them
Rubbish	58%	42% (incl organics and recycling)
Organics	96%	4% (incl rubbish and recycling)
Recycling	94%	6%(incl organics and rubbish)

Data Source #831027 Section 3

While the contamination for the organics and recycle bins are within reasonable limits, improvements can be made to lower the totals. One main issue identified was that 60% of bins sampled had plastic bags in them, which are not able to be processed at the MRF. An analysis of driver monitoring of bins showed that 70% of the contamination related to plastic bags.

Similarly, improved separation will help reduce the items incorrectly placed in the rubbish bins as identified in the following table. Kerbside monitoring (see 3.1.17) is a way to address this.

Table 13: Waste Audit of Rubbish Bins

Rubbish bin composition	2007 & 2008 AUDIT (AVG)	
CATEGORY	%	AVG WEIGHT KG
Paper/card	6.4	0.5
Plastic	3.5	0.25
Food	27.3*	2.1*
Cans/metal	2.8	0.2
Glass	2.6	0.2
Clothes	0	0
Subtotal	42.6	3.25
Waste	57.3	5.3
TOTALS	100	8.55

Refer #831027 Section 3.3

From the audit results 42% of material in the rubbish bins can still be diverted for either composting or recycling. Food, at 28% is the main category with recyclables comprising 12.8%. Council is participating in the three-year Love Food Hate Waste national education programme running from 2015/16. A similar programme in the U.K. effectively reduced food waste by 21%.

4.1.15 Visual Collection Audit 2009 & 2017

A visual audit was undertaken during June 2009[1] and again in May 2017.

Of 98.8% of the organic bins that were audited 92.1% were complying, 6.7% had some minor contamination, 1% had major contamination with 0.2% of the sample not suitable for collection. The main items of contamination in the compost bins included soft flexible plastic bags and cling wrap, food in plastic bags, rigid plastic containers, ash and clothing.

95.4% of the recycle bins that were audited 46.8% were complying, 48.6% had some minor contamination, 3.9% had major contamination with 0.7% of the sample not

[1] #595657

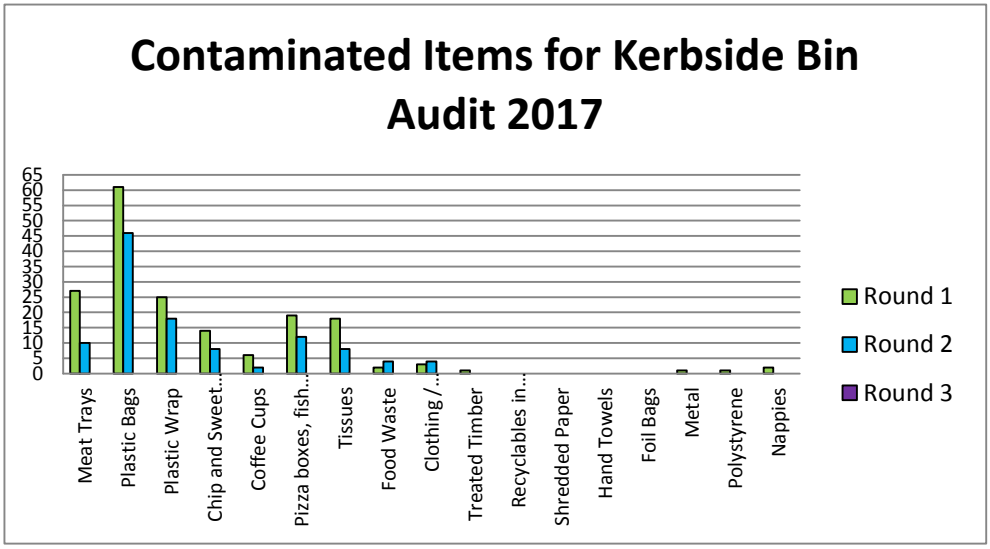
suitable for collection. The main cause of contamination included plastic bags, recyclables placed into plastic bags, plastic packaging e.g. biscuit packets, plastic cling wrap, polystyrene trays and packing material, tissues and hand towels, small general rubbish, very dirty containers and clothing.

Disposable nappies have been identified as an issue by MRF staff but none were found in the recycle bins during the audit. The findings of the collection audits have identified issues to be resolved through providing public information and enforcement measures for repeat offenders.

4.1.16 Monitoring, Public Information and Enforcement

The Council website www.timaru.govt.nz lists information on collection days and materials accepted along with information on specific issues. Brochures, posters and stickers have been produced to support the monitoring programme. Media in local newspapers and radio is also used to inform residents about collection matters.

In 2009, Council commenced a proactive bin monitoring programme. This continued for a couple of years but was stopped due to demands on staff resourcing. In 2016/17, the programme has been temporarily reinstated using short-term staffing. The audit involves a staff member inspecting bins for contamination in areas determined in liaison with the collection contractor. Three inspections are made at fortnightly intervals, and at each inspection a letter and other information is delivered to the householder. Council staff may visit households where bins are seriously contaminated to discuss issues and how sorting can be improved. A report on the 2016/17 monitoring showed a significant improvement in compliance with a decrease in contamination following the third visit.



Permanent cover is needed to continue with kerbside monitoring to educate customers about what materials to place in which bin. The bin inspection is time consuming given that only 4% of residents really need attention, however, time working with the 51% who "get it right most of the time'' is worth the effort to help reduce overall contamination. Monitoring data will be generated through systems reporting from 2017.

OPTION	Add 0.5 FTE for kerbside visual auditing.

OPTION	Every five years, prior to review of WMMP, undertake random visual sample of bins to determine composition and help with any planning for WMMP. The next visual audit will be undertaken in 2023.
OPTION	Undertake a sort-and-weigh audit of bins prior to the RFP in 2019. This is critical to determine composition of waste from kerbside collection.

Drivers also monitor bins and it is Council's role to send out the follow-up letters. A system of tracking is being implemented from June 2017 and after three notices for contamination of a particular bin, Council will remove the bin. After payment of an invoice for reinstatement and a educational visit with a Council Officer, the bin may be returned.

Table 14: Kerbside Enforcement Notices

Letters	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Properties receiving First Notice	51%	46%	42%	46%	17%	N/A	N/A
Properties receiving Second Notice	24%	17%	21%	23%	3%	N/A	N/A
Properties receiving Final Notice	4%	4%	12%	10%	0%	N/A	N/A

Refer #1002596 –Enforcement tab

Note that the 4% receiving final notices is similar to the 3.9% of bins that had major contamination in the 2009 visual audit.

4.1.17 Recyclables Collection, Commodity Markets and Processing

There is an inter-relationship between collection methodology, recyclables processing at a Materials Recovery Facility (MRF) and commodity markets. The collection methodology and the range of recyclables that a Council decides to collect will determine infrastructure and resources required at a MRF.

For example, some Councils sort glass at the kerbside, some Councils collect plastic bags. Similarly, the viability of commodity markets and the available resources at a MRF will determine what recyclables are collected and how they should be presented, e.g. loose, tied in bundles or placed in plastic bags.

For the Timaru MRF, the initial contractor determined that it was not effective and efficient to collect and sort soft plastics (i.e. plastic bags).

Lismore Council in Australia offers a special goods bag for small escrap, batteries, glasses and other items. This service could be offered with a change in the MRF. Refer 8.11.

4.1.18 Soft Plastic Collection for Residential Properties

It is possible to collect soft plastic bags at no extra cost via the existing kerbside collection. It is not possible to sort and process the bags at the Redruth MRF without modification and extra staff may be required to hand sort the plastic bags.

The Packaging Forum has implemented a "Canterbury-wide" soft plastic recycling programme for post-consumer packaging, but the coverage does not include Kaikoura,

Hurunui, Timaru, Waimate or Mackenzie districts. Regional staff will work with the provider to address this. Refer 8.5.3

4.1.19 Soft Plastic Collection for Businesses

Many businesses also have soft plastic packaging and this may be collected by waste providers. Shrinkwrap, in particular, is a clean, high-value product that waste service providers collect and bale. Council may consider whether there is any way to collect this material that is cost effective and provides an option for smaller businesses to recycle. However, the potential for expansion of current market services should be considered in the first instance.

REFER	Investigate soft plastics collection via wheelie bins. (listed in Chapter 8:Recycling)

4.1.20 Glass Collection

In Palmerston North, Wellington and Dunedin, a fortnightly collection of recyclables excluding glass is carried out using 240 litre wheelie bins, while on the alternate fortnight a glass collection is carried out using a 45 litre open crate. The reason for this is the premium paid by O-I glass in Auckland for colour sorted glass, which will be recycled into glass bottles and jars. A premium price for paper and cardboard may be an additional benefit due to reduced contamination. This level of service does come at a cost to ratepayers. These locations have introduced the glass collections utilising open crates from their previous collection service.

REFER	Review glass collection and processing. (listed in Chapter 8:Recycling)

Some research is being undertaken on Container Deposit Systems (CDS) and the benefit to Councils. If such a nationwide system was implemented, this would provide an alternative avenue for glass to be returned by the customer. Council should support CDS if applicable.

OPTION	Consider support of Container Deposit Systems

4.1.21 Food Waste Kitchen Containers

The success of the separation of food waste comes down to having easy to use systems. Based upon research in the UK[1], upwards of 90% of food waste can be collected by providing residents with containers for use in the kitchen and biodegradable bags for the food waste. The amount recovered drops to 50-60% when only plastic containers are used right down to 10-15% where no containers are used.

Council promotes the use of biobins and biobags. Biobins and biobags can be purchased from the Crow's Nest and Council Service Centres. As part of working with and supporting businesses, biobins and biobags are supplied to businesses as an introductory package with businesses then purchasing the bags on an ongoing basis.

[1] Eunomia Research & Consulting, WasteMINZ 2007

Table 15: Biobag Orders

	Bins	Rolls	no./roll	total no of bags	kg/bag	tonnes
14/15	250	500	25	12,500	2	25
15/16	250	850	25	21,250	2	42.5
16/17	550	1300	25	32,500	2	65

Refer #1002596 –biobag tab

Staff have weighed full bags and estimate the average weight to be 2kg. With increasing numbers of people using the bags combined with the Love Food Hate Waste programme, staff estimate there may be some reduction in food waste in rubbish bins.

4.1.22 Annual Plan Level of Service and Performance

Table 27: Annual Plan Performance

Level of Service		Performance Measure	
Regular kerbside collection services to enable separation of waste for recycling and compost.		Number of missed bins on kerbside collection routes.	
Year	Target	Results	Measured by
2009/10	520 or less missed kerbside bins per year.	537 bins missed	Service request system
2010/11	520 or less missed kerbside bins per year.	464 bins missed	
2011/12	540	565 bins missed	
2012/13	548	619 bins missed	
2013/14	555	688 bins missed	

Refer – #1002596 – Kerbside Data Tab

From 2014/15 on, the number of missed bins will be retained as a technical measure only. To put this target in perspective, the following bins were emptied over this period.

Table 28: Bins emptied

Kerbside bins emptied	Recycle	Organic	Rubbish	***Total***
Jun 07	357,267	570,240	395,192	***1,322,699***
Jun 08	382,083	594,278	420,026	***1,396,387***
Jun 09	388,711	596,603	415,301	***1,400,615***
Jun 10	386,858	595,012	417,110	***1,398,980***
Jun 11	389,661	597,678	430,643	***1,417,982***
Jun 12	399,201	625,342	426,311	***1,450,854***
Jun 13	389,361	616,345	437,617	***1,443,323***
Jun 14	434,002	610,452	434,002	***1,478,456***
Jun-15	392,067	584,178	443,620	***1,419,865***
Jun-16	391,561	602,951	475,750	***1,470,262***

Refer #100259 –growth-demand-empties bins tab

In 2013/14, 688 bins missed is less than three bins per collection day or 0.04% of the 1,478,456 collected, which means that 99.96% of bins were collected in 2013/14 on the first pass. The contractor will return to collect a missed bin as part of the service unless the bin was not out for collection on time.

As part of the public information programme, targets have been introduced for the kerbside collections. The most recent target is outlined below.

Table 29: Performance Measurement and Non-compliance Letters

Level of Service	Performance Measure	Target 2015-2018	Result s	How Measured
Public information and programmes promote waste minimisation and appropriate sorting of waste	Kerbside collection and general information is provided across a range of media.	Kerbside collection information 2,000 items per annum	Target exceeded with brochures, letters, pamphlets and stickers issued.	Council Records.

Community Surveys are only undertaken every three years. The most recent survey was completed in 2015/16[1]. The result for overall satisfaction for kerbside collection was 95%, while transfer station user satisfaction was 100%.

4.13 Other Collection Services

4.13.1 Crow's Nest Large Items Collection

The collection of second hand items is carried out under contract by the Sustainable South Canterbury Trust which operates the Crow's Nest. Residents call the Crow's Nest and Crow's Nest staff will collect suitable items from residents' property.

The scope of this contract has been extended twice. Containers were set up at the rural transfer stations and Crow's Nest staff pick up these goods under the large goods contract. The pick up of escrap from the rural transfer stations was also added to make efficient use of travel and staff time.

Table 30: Crow's Nest Large Goods Collections

Funding year	Crow's Nest Large goods collected	Crow's Nest Scrap escrap collected	Total tonnage
2010/11	16	0	16
2011/12	16	2	18
2012/13	8	14	22
2013/14	6	15	21
2014/15	4	23	27
2015/16	4	19	23

Refer #1002596 –Crow's Nest tab

4.13.2 Public Place Collection Services

Council provides public litter collection in Central Business Districts, shopping areas, Council facilities, parks and reserves with litter bins placed in these areas. The provision of this service also includes picking up loose litter in the surrounding areas. Since 2013/14, Public Place Recycling, often incorporating greenwaste separation, has

been put in place in the Timaru District and is mostly picked up by the kerbside collection trucks with additional servicing from Midland and Sicon as necessary.

The Parks bins are collected by Midland Contracting and Sicon. The Street litter bins are collected by City Care as a sub-contractor to Fulton Hogan.

Table 31: Litter Bin Summary

Managed by	Land Transport	Parks	Waste Minimisation		
Bin type	Street litter bins	Park litter bins	Public place bins		
			rubbish	organics	recycle
2011	200	269	0	0	0
2014	177	220	21	21	21
2016	177	220	33	33	33

Refer #1002596 –litter/public place bins tab

Table 32: Public Place Recycling Locations

Managed by	Waste Minimisation		
Bin type	Public place bins		
	rubbish	organics	recycle
Caroline Bay	33	33	33
Cbay Aquatic Centre	1	1	1
Geraldine	4	4	4
Temuka (in 2017)	3	3	3

Refer #1002596 –litter/public place bins tab

4.14 Event Management

TDC provides a "Zero Waste Event" infrastructure and assistance to ensure that materials are collected from public events. The Rose Festival and Caroline Bay Carnival are large annual events, along with many sporting, cultural and business events catering for up to several thousand people attending. The assistance sought for "Zero Waste Events" now averages 25 events annually. Council has purchased a range of resources including posters, bins and collection containers to enable participants to sort their waste.

Table 33: Zero Waste Events

	Zero Waste Events		Number of bins provided		
	number	attendees	recycling	organics	rubbish
2009/10	16	10,870	104	45	49
2010/11	24	48,975	178	83	87
2011/12	21	32,265	115	60	68
2012/13	22	37,020	104	59	69
2013/14	26	43,470	197	124	117
2014/15	23	62,700	86	67	80
2015/16	27	68,975	99	91	95

Data Source: Refer #1002596 –Public Information tab

5 TIMARU TRANSFER STATIONS

5.1 Progress for Transfer Stations

5.1.1 Solid Waste Plan Progress for Transfer Stations

Table 36. TDC SWP Transfer Stations

Action Programme 2	Transfer Stations –disposal and recycle centres	Status
Objectives		
Ensure that waste can be disposed of into the following categories at the respective sites; recyclables, organic, rubbish, hazardous, cleanfill.	Four transfer stations provide disposal for the categories in the objectives. The definition of recyclables in the TDC SWP also includes items for reuse.	Achieved
Ensure that people correctly separate their waste into the respective categories.	While most waste is separated correctly there is scope to for improvement.	Partially Achieved
Provide sufficient drop-off locations for people who do not have access to a kerbside recycling collection.	Four sites provided. Private collector also provides recycling collection services in rural areas.	Achieved
Ensure that waste and recycle centres are managed and operated to best standards.	Council has contracted WMNZ to operate the sites, with overall management provided by Council staff. WMNZ have a range of operating protocols and systems to ensure good operations and along with contract supervision from Council the sites are operated and managed to a good standard.	Achieved
Ensure that sites comply with the relevant legislation and resource consent conditions.	All sites are compliant. Resource consent compliance is managed through the Hansen database.	Achieved
Provide more accurate data for recyclable quantities.	Recyclables collected from the sites are now weighed and records kept. Previously weight records for cardboard and batteries etc were not recorded.	Achieved
Performance Measures		
Tonnages for the respective categories recorded.	Weights are recorded for all categories except cleanfill at Pleasant Point because of the small quantity – vehicle numbers are recorded.	Achieved
Compliance with relevant legislation and resource consents.*	Council undertakes monitoring as required by consent conditions – full compliance achieved.	Achieved

* except for minor non-compliance

Action Programme 2	Transfer Stations –disposal and recycle centres	Status
Performance Measures		
Compliance with the operational requirements for site management.	Council undertakes contract supervision to ensure that the sites are operated in accordance with contract conditions and operational protocols.	Achieved
Contamination rate for the various categories.	Specific contamination rates are recorded at the MRF and the composting site. Visual monitoring also assesses levels of contamination and mitigation measures are implemented as necessary.	Achieved
Percentage of population who have access to recycle and disposal locations.	The four sites are spread across the district and it is estimated 100% of the population has access.	Achieved

5.1.2 WMMP Progress for Transfer Stations

Plan date	Target date	Description	Status
2012-2015	2015/16	Polystyrene: investigate options for receipt of smaller quantities with payment.	Not achieved
	2015/16	Change weighbridge software	Achieved
2015-2018	2016/17	Implement waste sorting at Redruth transfer station.	In progress
	2017	Build Resource Recovery Park (RRP) at Redruth transfer station.	Stage 1 in progress
	Future	Staff RRP	Future

5.2 Transfer Station Overview

There are four transfer stations servicing the Timaru District located at Redruth - Timaru, Geraldine, Pleasant Point and Temuka. The Timaru Transfer Station is located at the Redruth Resource Recovery Park also incorporating the Materials Recovery Facility, Timaru Eco Compost Facility, Redruth Landfill and Crow's Nest reuse shop.

The transfer station operations are contracted to WMNZ until 2021.

5.3 Transfer Station Hours

The June 2016 biennial Council survey indicated that of the one in five people who use a transfer station, 100% are happy with the current opening hours. Utilisation of the sites does not warrant any extension of hours especially with paying customer numbers reducing.

5.4 Transfer Station Services

A range of services are provided at the various transfer stations as shown in the table below.

Table 37: Services Provided at the Transfer Stations

	Started	Redruth	Geraldine	Pleasant Pt.	Temuka
Rubbish		Yes	Yes	Yes	Yes
Garden		Yes	Yes	Yes	Yes
Food	-	No	No	No	No
Recyclables		Yes	Yes	Yes	Yes
Second hand items	2004	Yes	Yes	Yes	Yes
Clothing		Yes	No	No	No
Scrap Metal		Yes	Yes	Yes	Yes
Waste Oil		Yes	Yes	No	Yes
Hazardous		Yes	Yes	Yes	Yes
Paint		Yes	Yes	Yes	Yes
Batteries		Yes	Yes	Yes	Yes
LPG cylinders		Yes	Yes	Yes	Yes
e-scrap	2011	Yes	Yes	Yes	Yes
Tyres	2014	Yes	Yes	Yes	Yes

All sites provide for waste disposal and the recovery of green waste, bulk household recyclables, paint, batteries, waste oil (excluding Pleasant Point), whiteware and light and heavy gauge steel, as well as escrap and used goods for sale at the Crow's Nest.

Clothing is only collected from Redruth by Stones Fabric Industries. The Textile Recycling Centre had clothing bins at Temuka and Geraldine, but removed them due to difficulty with access. Unwanted items being placed in clothing bins results in extra costs for the companies and community groups collecting used clothing.

Paint is accepted through the Domestic Hazardous Waste Facility and a certain amount of this is accepted by 3R on behalf of Resene and Dulux for recycling into new paint. The balance is sent to Enviropaints and recycled into new paint. Paints can also be delivered directly to the Resene Colourwise Shop in Timaru, where Resene paints are accepted at no charge, a small fee may be charged for other brands.

Waste Oil collection points are provided at Timaru, Geraldine and Temuka. The oil is collected by WMNZ and is used to fire cement kilns.

LPG cylinders are taken by BOC Gases periodically and either refurbished for reuse or recycled. The surplus, if not collected, are taken to Timaru Metal Recyclers.

Car and truck batteries are collected by Dominion Batteries for recycling.

Electronic waste drop-off points accept most escrap for free. TVs and screens incur a charge.

Table 38: TDC Escrap Recycling

	CRT TVs	LED TVs	CRT screens	LED screens
2010/11	73	1	19	0
2011/12	2771	29	862	0
2012/13	793	11		
2013/14	3586	99	466	78
2014/15	2076	181	623	55
2015/16	1995	180	388	54

Data Source: Refer #1002596 –Escrap tab

Reuse items were collected at Redruth only, but from 1 September 2011 are now collected from the other transfer stations in conjunction with the escrap programme.

Polystyrene is collected from Redruth but only in commercial quantities at MRF.

OPTION	Investigate options for receipt of smaller quantities of polystyrene with or without payment.

Tyres have been collected at all transfer stations since 2014, but a national system of collection and processing is still being developed.

OPTION	Determine methodology for tyre collection, storage and end-use in consultation with stakeholders.

Glass is collected along with other comingled recycling in the hook bin. It may be more efficient to collect glass at source at the rural transfer stations, as is done at Redruth. The benefits of this, initially, may be reduced maintenance costs at the MRF, and longer term a larger supply of clean glass.

OPTION	Investigate options for separated glass recovery at rural transfer stations.

Paper can be placed with other comingled recycling in the hook bin, but a lot is disposed at the transfer station and some of this could be confidential papers. In a major litter event at the landfill, some paperwork was found that should have been securely destroyed by the company. It is also likely that domestic customers without access to fireplaces or shredders dump the material assuming that disposal is confidential.

OPTION	Investigate and trial a collection point for confidential papers.

Informal data tallied by cashiers shows a significant increase in numbers of recycling transactions compared to paid use as shown in the table below.

Table 39: TDC Transfer Stations Recycling Use and Paid Use (%)

	Geraldine Transactions			Temuka Transactions			Pl. Point Transactions		
T/S	Paid	Recycle	% Recycle	Paid	Recycle	% Recycle	Paid	Recycle	% Recycle
2011/12	1644	2066	56%	1828	2105	54%			
2012/13	1822	2755	60%	1854	2575	58%			
2013/14	2056	2829	58%	2064	2497	55%	767	400	34%
2014/15	2210	3129	59%	2137	2994	58%	1899	495	21%
2015/16	2155	3250	60%	2213	2569	54%	881	562	39%

Data Source: Refer #1002596 –Transfer Station data - site tab

Table 40: Transfer Station Data Summary - Timaru

Location	Public Hours Week	Paying Customers		Customers per hour open		Total Rubbish Tonnes		Average rubbish load per customer in kg.	
		09/10	15/16	09/10	15/16	09/10	15/16	09/10	15/16
Timaru	58*	12,146	12,871	4	4.2	6086	3597	501	395
Temuka	12.5	1,845	2213	2.8	3	548	314	297	238
Geraldine	10	1,129	2155	2.3	4	625*[2]	208	545	154
Pleasant Point	9	717	881	1.5	2	112	104	156	218

*Includes landfill access hours.
Data Source: Refer #1002596 –Transfer Station data - site tab

Table 4116: Transfer Station Data Summary - Timaru

58 hrs per week open	Public Hours Week	09/10	10/11	11/12	12/13	13/14	14/15	15/16
Paying Customers	58*	12,146	12,624	15,528	17,104	18,609	18,652	20,764
Customers per hour open		4	4	5	6	6	6	7
Total Waste (rubbish) Tonnes		6,086	5,085	3,601	2,738	3,235	3,388	3,597
Waste customers		5,389	6,380	7,146	8,813	9,833	10,322	11,777
Average load per customer in kg.		1,129	797	504	311	329	328	305

*Includes landfill access hours
Data Source: Refer #1002596 –Transfer Station data - site tab

Table 42: Transfer Station Data Summary - Geraldine

10 hrs per week open	Public Hours Week	09/10	10/11	11/12	12/13	13/14	14/15	15/16
Paying Customers	10	1,129	1,364	1,644	1,882	2,056	2,210	2,155

Customers per hour open		2.3	2.6	3	4	4	4	4
Total Waste (rubbish) Tonnes		625*[1]	295	196	236	273	244	208
Waste customers			683	803	040	1,192	1,363	1,353
Average load per customer in kg.		545	216	244	227	229	179	154

*Data Source: Refer #1002596 –Transfer Station data - site tab *[1]No trucks dispose of waste at Geraldine and Temuka.*

Table 43: Transfer Station Data Summary - Temuka

58 hrs per week open	Public Hours Week	09/10	10/11	11/12	12/13	13/14	14/15	15/16
Paying Customers	58*	1,845*[1]	1,690	1,828	1,854	2,064	2,137	2,213
Customers per hour open		2.8	2.6	3	3	3	3	3
Total Waste (rubbish) Tonnes		548	326	243	236	299	273	314
Waste customers			794	843	1,061	1,170	1,286	1,322
Average load per customer in kg.		297	192	288	222	256	212	238

Data Source: Refer #1002596 –Transfer Station data - site tab. *[1]No trucks dispose of waste at Geraldine and Temuka.

Figure 8: Redruth Transfer Station

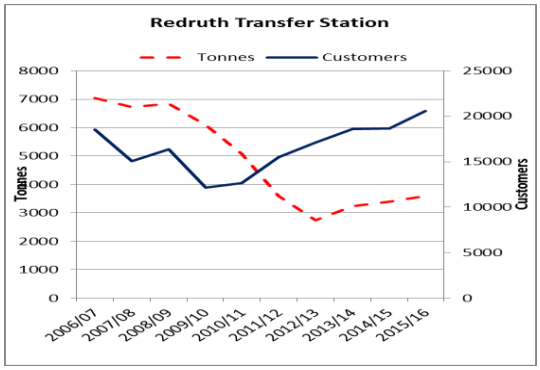


Figure 9: Temuka Transfer Station

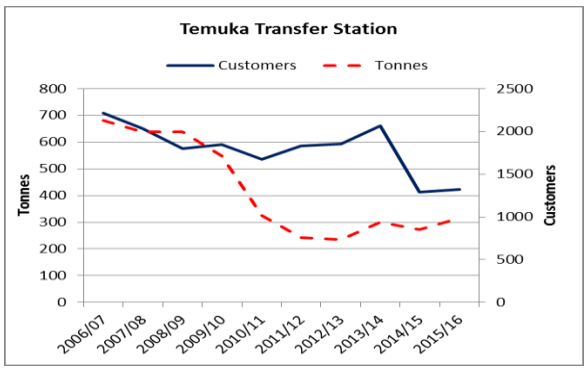


Figure 10: Geraldine Transfer Station

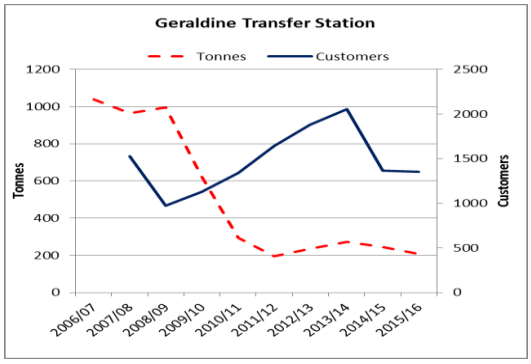
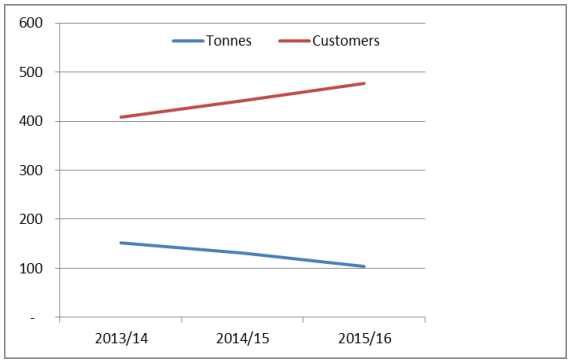


Figure 12 Pleasant Point Transfer Station



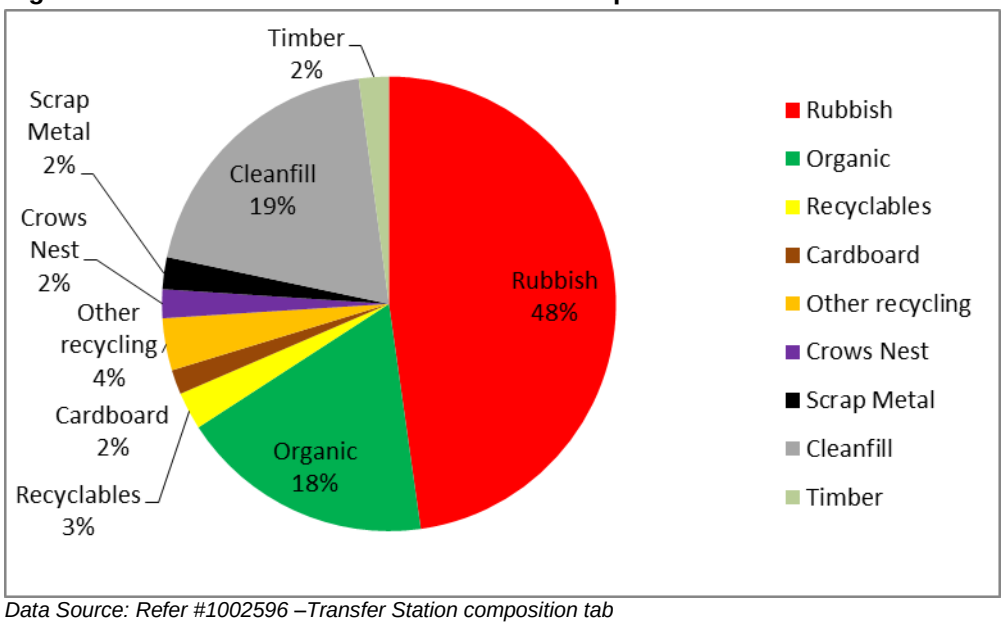
Data Source: Refer #1002596 –Transfer Station data-site tab (and more tables in TS vehicles tab)

Over the past three years there has generally been a reduction of vehicle numbers, tonnes of waste and waste kg per customer disposed of at the transfer stations. While it is pleasing to see waste dropping, any correlation to increases of illegal dumping will need to be monitored to ensure it is not increasing. Similarly, a decrease in trailer loads of garden waste could indicate it is either being burnt, home composted, disposed of illegally or increased use of green bins.

Free drop-off for recyclables, waste oil, hazardous waste (note increased costs), most escrap and the Crow's Nest should continue.

5.5 Composition of Transfer Station Waste

Figure 13: Redruth Transfer Station Waste Composition 2015/16



Data Source: Refer #1002596 –Transfer Station composition tab

As can be seen in Figure 13, Redruth Transfer Station Waste Composition 2015/16, 48% of waste taken to the transfer station in 2015/16 was disposed of as rubbish. This compares to 51% in 2010/11 and 71% in 2009/10. A new diversion waste stream has been added, which is timber separated for pyrolysis.

5.6 Audits of Redruth Transfer Station Waste

5.6.1 Visual Audit 2009

A visual audit of the Redruth transfer station was carried out in November 2009.

Table 45: Redruth Transfer Station Waste Composition 2009

Primary category	Volume %	Estimated Tonnes/ p.a.
Paper	2.3	151
Cardboard	4.5	444
Plastics	7	863
Putrescible	11.3	318
Metals	9.7	638
Glass	1.8	59
Textiles	11.3	371
Nappies and sanitary	0.3	3
Rubble	2.7	27
Timber	36.6	2,088
Gib-board	6.4	76
Rubber	1.1	54
Potentially hazardous	0.3	10
Miscellaneous	0.5	16
Electrical	4.1	270
Total	100%	5,388 (Actual)

Data Source: Refer #1002596

Timber was the largest single component of the waste stream at the transfer station comprising 37% of the total. During the weekend of 14-15 November ''DIY'' demolition and renovations contributed to this percentage, while during the week home "DIY" and commercial builders contributed to the percentage. One person brought in several loads from a garage demolition on the Saturday and Sunday.

Putrescible organics was the second largest component at 11%. Even though there is a separate unloading area for garden waste, a number of mixed loads comprising approximately 10% of the overall total were unloaded into the general waste pit area.

Textiles were second equal at just over 11%. This comprised mainly old carpet and underlay, new carpet off cuts and other miscellaneous items.

5.6.2 Waste Sort Trial 2015

A seven-week trial was run in October/November 2015, 538 tonnes of waste were processed.

Table 46: Diversion of materials at the waste sort trial

Category	%	Tonnes
Waste In		
Front load, gantry, public, builders	100%	538
Diverted materials		
Timber	46	24.33
Scrap metal	26	13.71
Organics	16	8.34
Cardboard	6	3.33

Category	%	Tonnes
Waste In		
Front load, gantry, public, builders	100%	538
Diverted materials		
Rubber	3	1.34
Escrap	1	.61
Mixed materials	1	.36
Miscellaneous	1	.79
Total	100%	53 (Actual)

Data Source: Refer #984065 Waste Sort Trial Final Report

The actual tonnes diverted comprised 13.7% of the sortable waste processed during the trial.

5.7 Waste Diversion

The results of the potential diversion estimated in the visual audit and the actual results from sorting in the waste trial are compared in the table below.

Table 47: Summary of Potential Waste Diversion at Redruth Transfer Station

Category	Visual Audit -potential	Waste Sort Trial
Recycle	14.1%	32%
Reuse	10.4%	0
Cleanfill	2.7%	0
Organic	15.5%	16%
Escrap	4.1%	1%
Timber	31.6%	46%

Data Source: Refer #984065 Waste Sort Trial Final Report

5.8 Transfer Station Limitations

The current limitations in being able to achieve further waste diversion at the transfer stations include:

- Mixed loads, e.g. rubble in trailer load or garden waste mixed in with other waste.
- Household recyclables being dropped off as mixed waste in black plastic bags.
- Suitable infrastructure for unloading and sorting, which may be before the kiosk or adjacent to the pit area.
- Incentives/disincentives for sorting.
- Legislative and or bylaw requirements.
- Supervision and instruction during unloading.
- People's choice to pay full price and dump what they want with no sorting.

If the waste sort facility goes ahead, subject to the results of the Stage Two trial in 2017, these limitations will be largely overcome.

5.9 Transfer Station Observations, Comments and Responses

The table below summarises observations from the visual audit in 2009 and the waste sort trial in 2015.

Material	Visual Audit - 2009	Waste Sort Trial -2015	Waste Sort Trial Stage 2-2017
Garden and Food Waste	A significant amount of garden waste is disposed of as waste as some people do not separate their mixed loads. Some people make the effort with their mixed loads to ensure that their garden waste is disposed of in the correct area. The Transfer station operators also separate flax and bamboo, etc as these organic materials are not suitable for composting. This sorting is undertaken by using the loader. Sometimes other garden waste is included in the load. Similarly, waste contractor Sicon undertaking the street litter collection may have a combination of garden waste and one or two items of litter, all of which are dumped in the general waste pit.		
Metal	A significant proportion of the metal is recyclable. WMNZ staff retrieves some metal, mainly bulky items, however a lot of light gauge material is not retrieved, including whiteware as this is time consuming.	During the trial one metal skip was placed in the public area of the transfer station. Customers can now place metal directly in the skip resulting in a significant increase in diversion from approximately one tonne/month to nearly three tonne/month.	Two more skips will be added to this area, and the scrap metal will continue to be weighed as part of the trial.
Cardboard	People fill cardboard boxes with items for disposal. The box typically gets thrown out with the contents inside. Alternatively, cardboard boxes are part of the total load and are thrown in the pit. Like paper, some boxes are disintegrating, wet or contaminated	During the trial one cardboard cage was placed in the public area of the transfer station. Customers can now place cardboard directly in the cage.	Two more cages will be added to this area, and the cardboard will be weighed as part of the trial.

	and are not suitable for recycling but may be compostable.	The ongoing diversion has not been measured.	
Plastics	A range of plastic is dropped off. Some of the plastic is reusable as in children's toys or 200 litre drums. The larger quantity of plastic is loose wrapping material or composite materials, which cannot be processed in the MRF.	During the trial wheelie bins were placed in the public area of the transfer station. Customers can now place household plastics, paper and glass into the wheelie bins. This diversion is minor and is not being measured.	More wheelie bins will be placed along the transfer station edge. A mechanism needs to be established for weighing this material. Refer 5.4 where an option is presented for collecting paper for secure destruction.
Paper	A lot of paper is within plastic bags as part of a ''tidy up" or as domestic household waste dropped off in bags or boxes. Some of this paper is confidential and people may not want to recycle this as compared to destruction or burial. Some paper is also wet and not suitable for recycling, in which case it may be composted.		
Glass	Minor amounts of glass are disposed of, as part of the main load in bags, etc. Some people take pleasure in smashing bottles into the pit area.		
Textiles	A significant quantity of textiles is old carpet. While some carpet could be reused, most is old. With new carpet, the majority is small offcuts and unusable.		
Rubble	As people bring in a trailer load of waste, there are frequently small amounts of rubble and cleanfill. While there is an unloading area for rubble this is at a discounted rate. If people have paid full price it is unlikely they will spend extra time to separate their rubble, especially small amounts unless they could do so before the weighbridge for nothing, however, this approach will contradict the set rate for cleanfill.		

Timber	Some timber is furniture that may be reused. Some timber could be shredded, however, it would require de-nailing. Careful separation would be required to ensure treated and painted timber was not included for shredding. As timber comprises the largest portion of transfer station waste, it will be necessary to find a suitable alternative technology before engaging in any separation. Some timber may be potentially diverted through the Crow's Nest.	Timber was sent to the pyrolysis facility.	Increased volumes of timber are expected to be sent to the pyrolysis facility.
Gib-board	Gib-board is mixed up with the loads, primarily as off-cuts. Demolition material is not suitable for composting as paint may be contaminated with lead paint and other materials encasing the wall lining. From November 2010, gib permits were introduced for the building industry. Clean, new off-cuts of gib may be taken to the organic processing facility at the same cost of disposing of organic waste instead of paying the higher rubbish fee.	Gib was included in the organics total. Gib is a heavy fraction compared to trees and branches.	
Electrical	A number of TVs were disposed of, including one whole load of electrical items from an electronics store. Electronic waste drop-off was initiated from June 2011.		
Tyres	There were some tyres disposed of as part of the mixed loads during the survey week.	Rubber comprised 3% of the total.	
Other Items	The remaining categories presented minor quantities.		
Reuse		Very little was able to be recovered.	

Data Source: Refer #635264 Redruth TS and Landfill Visual Audit 2009

5.10 Transfer Station Fees

In 2010, with the installation of single weighbridges at Geraldine and Temuka and a second weighbridge at Redruth, Council moved from a volume based system for transfer station traffic to a weigh-in weigh-out system for the majority of vehicles.

From 1 July 2016, charges were simplified so all vehicles are weighed and pay by weight, with a reduced minimum charge applying. The volume-based car and station wagon charges have been deleted, as well as a flat rate for weighed vehicles less than 200kg.

In August 2016, a new weighbridge software system was implemented with automatic connection from the weighbridge to the software replacing manual input. Vehicle number plate recognition software would further reduce manual input and increase overall accuracy, as well being more time efficient for the cashier with increasing complexity at the site.

OPTION	Implement vehicle recognition software at Timaru Transfer Station

Each year Council establishes disposal fees as part of the annual budget to recover the operating costs for solid waste disposal. 98% to 100% of costs for solid waste disposal are to be recovered from fees. Some public good is provided by enabling recyclables, hazardous wastes and reusable second hand items to be dropped off for no charge at all transfer stations. Most escrap items are collected at no charge-only TVs and screens (excluding laptops) are charged at $15 and $10 each respectively.

Differential fees apply for categories of waste with a higher charge applying for landfilled and lesser charges for material to be composted, recycled or used as cleanfill.

A summary of the fees is shown in Appendix B.

5.11 Waiver of Fees for Community Groups

Council also needs to consider the disposal of unwanted items and waste in clothing bins or at the doors of community groups, particularly those running second hand shops. The burden of increasing disposal fees could undermine the viability of community groups providing valuable community services. The Waste Minimisation Unit has some discretion to waive disposal fees, and community groups can apply to the Waste Minimisation Manager. The annual allowance for this is limited to $2,500 to mitigate overuse of the privilege.

5.12 2015/16 Annual Plan Level of Service and Performance

Table 48: Transfer Station Performance Measure

Level of Service	Performance Measure	Target 2010/11	How Measured
Waste minimisation facilities are adequately provided and available suitable hours.	Overall and user satisfaction with waste minimisation services and hours.	Next measured in 2017/18.	Two-yearly community survey.

The 2008 survey result for overall satisfaction was 87%, while user satisfaction was 90%. The 2015/16 survey showed 100% satisfaction from transfer station users.

5.13 Public Information

The Council website lists information on facilities, materials accepted, sorting of loads, opening hours, and fees. A brochure provides information on transfer stations and general disposal. Information on a range of subjects is done through the newspaper and radio.

5.14 Bylaw

The Solid Waste Bylaw 2013 bans a number of materials from landfill including scrap metal, recyclables and organics.

Due to limited resourcing, there is currently little monitoring of the disposal of banned materials to the landfill.

OPTION	Refer to Timaru Reduction Options - add 0.5 FTE for business assistance to improve sorting and compliance through education and with a goal of introducing waste reduction at source initiatives.

5.15 Options for Improved Separation

5.15.1 Waste Sort Trial

To improve waste minimisation at the transfer stations, Council has approved a waste sort facility subject to further investigations.
In 2015, a six week trial was implemented at Redruth and the Stage Two trial will start on 1 September 2017.

5.15.2 Improved Drop-off Facility at Redruth

An upgraded RRP has been allowed for in the 2016/17 budget. A portion of this has been approved to be spent in the 2016/17 year to progress the Stage Two Waste Sort Trial.

The Crow's Nest staff currently have a pro-active role in advising the public on what items are acceptable and what items are waste. The current Crow's Nest drop-off area will be incorporated in the larger drop-off area and the staff used to manage the area. Crow's Nest staff now play a larger role in the staffing of the transfer station by accepting escrap, checking receipt of tyres and paint. In the longer term, it is likely this role will continue to grow as more materials are able to be accepted.

OPTION	Increase Crow's Nest contract funding to recognise increased role in drop-off area.
OPTION	Consider impact of relocating the Crow's Nest drop-off to the Crow's Nest retail area. Staffing at the transfer station would need to be put in place to handle customer enquiries/receive goods.

5.16 Product Stewardship

With the passing of the WMA and, particularly, the Product Stewardship requirements there will be more emphasis on industry to develop products that can easily be recycled and reused, and therefore close the loop on the lifecycle of products sold to consumers.

There are many products that are currently being disposed of that should fall under the requirements of a product stewardship program, such as Escrap, glass, tyres and packaging. While Council facilities have been seen in the past as the best facilities for the recovery of recyclables, the cost of this falls on ratepayers. Council should have a say in the future role it plays in facilitating the collection of materials in the waste stream and funding should fall on the producers and purchasers of the materials. It is logical to

provide a central place or locations in a community for such products to be delivered, as it may not be practical to return goods to a place of sale.

Items such as Escrap and glass may well be part of a Product Stewardship programme in the future and at this time Council can decide on its role in the process.

For example, if glass was selected to be part of a product stewardship program, (say a Container Deposit system) as once was the case, then this may remove this material from the kerbside collection process as a number of community organisations may see this as a means for funding.

With the removal of glass at kerbside, the co-mingling (collecting in one container) of other materials becomes much more desirable and cost efficient as contamination is avoided. Recyclable product quality is a major issue in the sale of products into the market and must be considered in any future service provision.

When considering a waste type such as Escrap, there is significant public concern regarding the disposal of this material to landfill and the potential long term effects this may have on the environment. Producers of Escrap should undertake recovery and processing of this material as the cost of doing so could be incorporated in the purchase price.

Unfortunately, in the current economic climate, Government is reluctant to provide extra regulation and will rely on voluntary product stewardship schemes in the first instance.

In regards to the demand for inclusion of other material types to be recovered for recycling, this will depend on a number of issues such as landfill disposal costs, markets for products, public concern and the cost of service delivery versus the reduction in overall waste to landfill. Council should lobby for the placing of a levy on a range of products to pay for the collection and utilisation, e.g. waste oil, tyres, escrap, etc, so the cost is not borne by the ratepayer.

5.17 Seat Smart Product Stewardship

3R offers Seat Smart, a carseat recycling programme. Each seat costs $10 to recycle. Council could subsidise this by 50% to encourage this programme.

OPTION	Subsidise Seat Smart by $5 to a maximum of $2,000 per annum.

5.18 Redruth Resource Recovery Park

The Redruth Resource Recovery Park design is complete. The north end of the park allows for free recycling with traffic moving in a horseshoe shape to deliver materials and entering and exiting the site near the entrance without crossing the weighbridge.

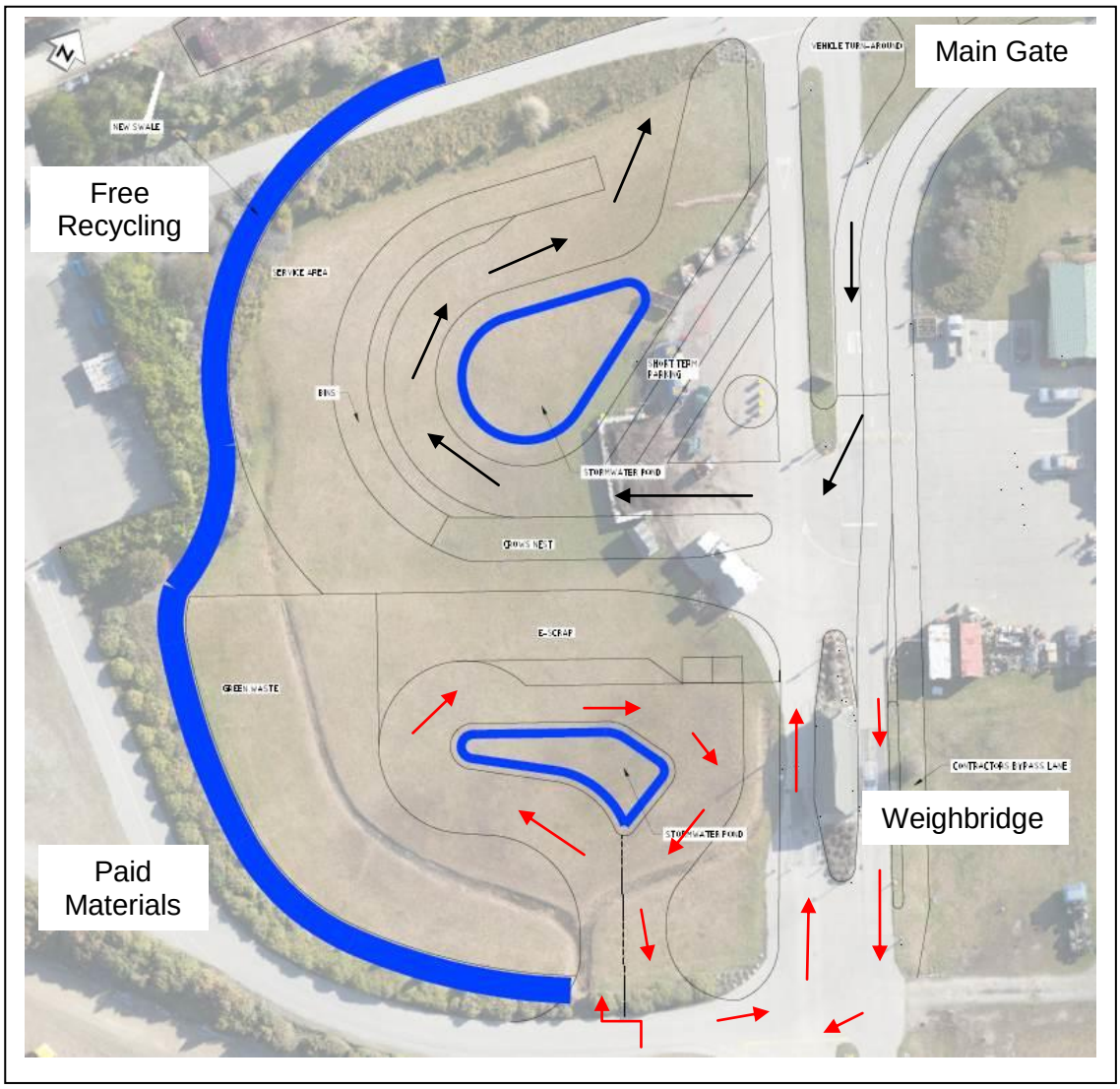
The entrance/exit to the south end of the park is on the far side of the weighbridge. This part will be the drop-off point for charged recyclables such as escrap and tyres. In the future car seat recycling and polystyrene etc may be added.

The south end is being built in 2017, but will be used initially as a temporary greenwaste and cleanfill drop-off area while the extended waste sort trial takes place during 2017/18.

A recent chemical alert at the Redruth site highlighted the need for a service lane to be created to allow immediate access to the site for emergency vehicles. In the recent event, the fire engine was delayed behind vehicles at the weighbridge. A service lane would also facilitate contractor movements on site for non-paying vehicles.

OPTION	Create service lane for emergency access to site and contractor use.

Redruth Resource Recovery Park Design



6 REDUCTION

6.1 Progress for Reduction

6.1.1 Solid Waste Plan Progress

Table 49: TDC SWP reduction

Action Programme 11	Community Participation	Status
Objectives		
To promote and facilitate prevention and reduction of waste at its source of generation.	Council staff engaged in programmes to promote waste reduction	**Achieved**
Performance Measures		
	Refer to section on public information performance measures (3.32.2)	

6.1.2 WMMP Progress

Plan date	Target date	Description	Status
2012-2015	2014	Subsidise Sustainable Living programmes	**Achieved**
	2015	Subsidise Modern Cloth nappy programme	**Achieved**
2015-2018	Future	Subsidise Sustainable Living programmes participation	Not achieved

6.2 Target Sustainability

Over 2008/09-10 and 2010/11-12 years the Council offered the Target Sustainability programme to work with businesses on waste reduction, water and energy efficiency. In waste management, most gains have been made in recovering materials for recycling or composting, but there is potential in this programme for gains to be made in working with businesses to reduce waste by improving the way in which they use product. This programme was offered again in 2010/11 to three businesses in the Timaru District. The programme is still available through Christchurch City Council should businesses wish to participate.

6.3 Council Minimisation Initiatives

Council employs a Zero Waste Advisor, whose role includes informing and educating the community and businesses on waste minimisation including reduction.

Table 50 Timaru District Council Business Information Visits

Year	Business visits
2009/10	51
2010/11	56
2011/12	47
2012/13	38
2013/14	57
2014/15	26
2015/16	45

Data Source: Refer #100256 –Public Information tab

In the past, as part of the monitoring of business waste disposed of by permitted collectors, Council Zero Waste Advisors have visited businesses to audit waste management systems and explain about waste reduction and diversion.

Staff can conduct waste minimisation audits and offer businesses specific advice on waste streams often identifying ways to recycle or reuse materials rather than send to landfill. By leveraging off people's familiarity with the kerbside recycling system and offering a subsidy with the provision of the correct infrastructure of red, green and yellow coloured bins and signage through businesses, systems and behaviours can be quickly adapted to improve recycling and reduce waste to landfill. The next and challenging step in behaviour change is to look to ways to reduce waste at source.

OPTION	Increase business education staff resourcing by 0.5 FTE to assist businesses with recycling and recovery of waste with a goal of introducing waste reduction at source initiatives.

6.4 Sustainable Living Programme

The Sustainable Living Programme is funded by a number of Councils nationally as it assists with compliance with the LGA, which requires a focus on sustainability, and the 'four well-beings' in LTP reporting. The Sustainable Living Programme is linked to local government roles in roading, water and wastewater, environmental health, waste minimisation and urban air quality. Quantifiable actions taken by attendees after participation in the programme include electricity savings, appliance changes, home composting, waste reduction, water efficiencies, response to labelling, and fewer toxic cleaners used in home cleaning. The Timaru District now subscribes to Sustainable Living and achieves its aims of waste minimisation as well as contributing to the community outcome of a healthy, safe and vibrant community.

Table 51 Sustainable Living

	SLET Data		
	Talks	No. of Attendees	Website Users
2014/15	3	37	
2015/16	2	10	22

Data Source: Refer #1002596 –Public Information tab

Council needs to increase its promotion of this programme, which will lead to increased individual subscriptions to the website. There is also an opportunity to change people's behaviour through education.

OPTION	Trial a funded pilot for Sustainable Living Programme for participants. Subsidise some participants each year for three years and follow changes in habits as a result of the programme.

6.5 Love Food Hate Waste

Council has signed up for the national Love Food Hate Waste programme launched in June 2016. A range of promotions are being run over three years. Part of the initial food waste audits to gather baseline data were conducted in Timaru. Council has employed a part-time demonstrator to promote Love Food Hate Waste at events.

6.6 Procurement

The wheelie bins for the Council kerbside collection are manufactured with approximately 35% recycled content to reduce the use of virgin materials.

Recently, Councillors have been issued iPads, this is to help reduce the quantity of paper that is used for Council agendas.

Council has developed a generic procurement policy; however, further input on sustainability and waste reduction could be included.

6.7 Producer Responsibility

Council has facilitated the collection and processing of recyclable waste. Recyclable quantities could be increased if some changes were made to the manufacture of some products, e.g. multi-material products that cannot be recycled.

Some products are not recyclable, while others confuse the public as to their recyclability with multi-material layers and combinations. With the design of the original product it should be compulsory for businesses to consider the reduction of waste during the manufacturing process and prioritise reuse, recycling and recovery as preferred options instead of disposal. Council should be proactive in encouraging waste reduction from companies through product stewardship schemes and advocate to central government for the prioritisation of reduction which Council cannot control.

7 REUSE

7.1 Progress for Reuse

7.1.1 Solid Waste Plan Progress

Table 52: TDC SWP Reuse

		Status
Objectives		
Establish a retail shop for the sale of items recovered from the waste stream.	The definition of recyclables in the TDC solid waste plan also includes items for reuse. Items for reuse can only be dropped off at the main drop-off at Redruth, but from September 2011 smaller items will also be accepted at the other transfer stations.	**Achieved 2004**
Performance Measures		
Turnover of retail shop.	Financial figures are provided to the Waste Minimisation Manager but are not published because of commercial sensitivity. The number of paying customers using the Crow's Nest for 2009/10 was 15,782 and for 2010/11 was 16,719.	**Achieved**

7.1.2 WMMP Progress for Reuse

Table 53 TDC WMMP Reuse

Plan date	Target date	Description	Status
2015-2018	2015/16	Make the Crow's Nest road a public road.	Recommended
	Refer T/S	Cost of staffing if the Crow's Nest drop-off moves	Future

7.2 Crow's Nest

The Sustainable South Canterbury Trust (SSCT) runs the Crow's Nest under contract to Council. The Crow's Nest is the retail shop for selling second hand reusable items collected from the drop-off area at the Redruth transfer station and also from the kerbside collection of large items provided by the Trust under contract to Council. The kerbside collection also includes the pick up of smaller goods dropped off at the rural transfer stations. The contracts expire in 2019.

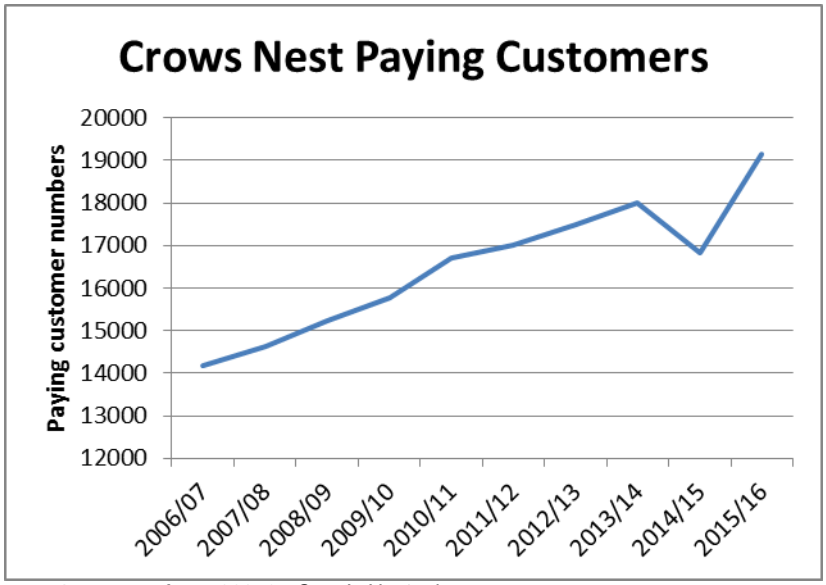
Table 54. Crow's Nest Data

Funding year	Crow's Nest NettTonnage diverted	Crow's Nest Scrap metal diverted	Total tonnage	Paying Customers
2008/09	171	8	179	15,233
2009/10	190	16	206	15,782
2010/11	190	21	211	16,719
2011/12	185	34	219	17,000
2012/13	181	23	204	17,500
2013/14	138	25	163	18,000
2014/15	163	23	186	16,841
2015/16	186	16	202	19,159

Data Source: Refer #1002596 –Crow's Nest tab

The shop is open Thursday to Sunday and with 15-17,000 paying customers per annum is now an established retail outlet.

Figure 14: Crow's Nest Customers



Data Source: Refer #100259 –Crow's Nest tab

7.3 Development of the Crow's Nest

The SSCT has been given an extended lease for the land to the east and north of the Crow's Nest shop. In early 2016, the old Highfield Tennis Club building was donated and moved to this area to progress the Trust's vison of developing an Eco-Centre inclusive of the existing shop, an education centre, a community garden, retail area and promotion of sustainable building techniques. The Trust is gaining community support with offers for the donation of professional services.

The development of the education centre will help Council achieve their objective from the SWP of developing facilities for environmental education. Council should consider how they can enable this development. Buildings owned by the Trust are used to support Council objectives, so Council could support the SSCT's activity by paying for the insurance of their buildings.

OPTION	Cover insurance costs for any buildings owned by the Trust.

Similarly, the grounds maintenance could be fully undertaken by Council to support the activity and maintain the Crow's Nest leased area. SSCT currently shares this cost.

OPTION	Add grounds maintenance costs into the overall contract for Redruth.

SSCT is considering whether the Crow's Nest drop-off should be relocated at the Crow's Nest reuse shop site. This may facilitate extended opening hours at the shop and strengthen the activity at the Eco-centre. The SSCT need to approach Council so consideration can be given to the financial impact as staffing at the transfer station would need to be put in place to handle customer enquiries/receive goods.

REFER	Refer – Transfer Stations - Consider impact of relocating the Crow's Nest drop-off to the Crow's Nest retail area. Staffing at the transfer station would need to be put in place to handle customer enquiries/receive goods.

7.4 Private Reuse

There is a wide range of private activities involving reuse from clothing stores, second hand goods retail shops, salvage companies, earthmoving contractors, garage sales and

online trading. Out-of-town contractors may also undertake work and remove materials out of the district.

7.5 Waste Exchange

Due to lack of funding, there is currently no Council-supported waste exchange in Canterbury.

8 RECYCLE

8.1 Progress for Recycling

8.1.1 Solid Waste Plan Progress

Table 55: TDC SWP Recycling

Action Programme 5	Recycling	Status
Objectives		
Determine and confirm markets for materials to establish parameters for recycling collection, sorting and processing facilities.	Prior to the three bin collection system being introduced, Envirowaste undertook a market analysis in 2005 and determined at that time that glass with a negative cost value was best collected and sold as a mixed cullet grade for aggregate purpose. Plastic bags were also seen as not viable to collect and sort. This analysis by Envirowaste set the design parameters for the MRF	Achieved
Maximise the amount of recyclable materials to be diverted from the landfill and the waste stream for recycling.	Council has made significant progress with the introduction of the 240 litre kerbside collection of recyclables. There is scope for improved separation of recyclables from the red rubbish bin (12%), transfer station general waste (18%) and waste taken direct to landfill (46%).	Achieved
Promote and develop greater use of markets for recyclables.	Council has purchased new wheelie bins with recycled content. Old wheelie bins are recycled in Christchurch. Council has limited role and will promote use of recycled material when possible. HDPE, Polyethylene Terephthalate (PET) and scrap metal are sold to local markets.	Achieved
Establish a sorting and processing facility for recyclables.	MRF established in 2006 for processing of kerbside collection of recyclables.	Achieved
Provide a car disposal and metal recycle centre in Redruth St.	Site located at the end of Redruth St. Yard leased to Timaru Metal Recyclers.	Achieved

Action Programme 5	Recycling	Status
Ensure that site operations comply with statutory and operational requirements to prevent adverse environmental effects.	Oil trap installed and serviced to prevent liquids escaping to stormwater system. Onsite fluid recovery undertaken. Stormwater quality monitored before and after discharge into Saltwater Creek.	Achieved
Ensure that scrap metal is collected and crushed and sent to markets on regular basis.	Previous crushing was reliant upon out of town operators. Timaru Metal Recyclers have their own car crusher for regular crushing.	Achieved
Performance Measures		
Tonnages of materials sent for recycling.	Tonnes recorded.	Achieved
Tonnages of scrap metal sent for recycling.	Recorded for transfer stations and Crow's Nest scrap metal.	Achieved
Performance Measures		
Compliance with legislative and operational requirements.	Full compliance.	Achieved

8.1.2 Table 56WMMP Progress for Recycling

Plan date	Target date	Description	Status
2012-2015	2015	Add a drive-off fee to deter disposal without paying.	Achieved
2015-2018	2015/16	Install camera at Geraldine and Temuka to monitor recycling compliance.	Partially Achieved
	ongoing	Encourage recyclables from other locations to be processed at the MRF.	Achieved
	ongoing	Be proactive in trying to facilitate initiatives for improved recycling of plastics that are currently landfilled.	Ongoing

8.2 Timaru Materials Recovery Facility (MRF)

The Council-owned MRF at Redruth was constructed in 2006 to process the recyclables primarily collected from the kerbside collection. The MRF is currently operated by Waste WMNZ under contract until 2021. WMNZ is responsible for the sale of the recyclables. HDPE, PET and scrap metal are sold locally. The contractor has a sub-lease arrangement with Oji Ltd to bale newspaper and cardboard in an annex of the MRF. Sorting plant and equipment are owned by the respective operators.

The part of the MRF that sorts and processes the kerbside recyclables is better utilised with extra quantities being processed from other locations. The nominal capacity of the plant is 9-10,000 tonnes per annum. It is running at close to 100% of this capacity and processing in excess of 6,500 tonnes.

Processing loss is high and a review was conducted in June-December 2016 to assess this. Reports are pending and trends and options will be developed subsequently.

8.3 Materials Processing

Council's 3-2-1-ZERO kerbside collection system collects the following recyclables to be processed at the MRF:

- Glass jars and bottles.
- Steel and aluminium cans.
- Rigid plastic bottles and containers.
- Paper and cardboard.

Other materials processing from commercial collections includes polystyrene and shrinkwrap and large plastic containers.

8.4 Recyclables Collection, Commodity Markets and Processing

There is an inter-relationship between collection methodology, recyclables processing at the MRF and commodity markets.

The collection methodology and the range of recyclables that a Council decides to collect will determine infrastructure and resources required at a MRF.

8.5 Plastic Bags

8.5.1 Soft Plastics at MRF

For the Timaru MRF, it was initially determined in 2005 that it was not effective and efficient to collect and sort soft plastics, (i.e. plastic bags). However, data collected from kerbside monitoring shows that 70% of the compliance issues are related to soft plastics, so adding soft plastics as an acceptable material would eliminate many compliance issues, and provide another recyclable item for bin users.

8.5.2 Soft Plastics Recycling

The Packaging Forum has launched a Soft Plastics Recycling campaign. This has not yet been established in South Canterbury and Council staff are working with the Packaging Forum to implement in the Timaru District. This may improve compliance by offering a mechanism for soft plastics recycling.

8.5.3 Soft Plastics Option

If this programme is not successful, and Council want plastic bags collected and sorted the MRF would need to be modified and extra staff will be required to hand sort the plastic bags at an additional cost.

OPTION	Investigate soft plastics collection and processing.

8.6 Glass

At the design phase for the Timaru MRF, there was no commodity value for glass. Now glass is a commodity if colour sorted at source. The design of the MRF allowed glass to track through with paper and cardboard resulting in a lower quality grade, paid at approximately $25[1] less than the top grade. The majority of glass, approximately 70%, is now removed by hand at the start of the sorting process, but is not colour sorted.

A separate kerbside collection of glass would negate the need to sort glass at the MRF; however, this is estimated to cost $1.2 million per annum. Alternatively, a beneficiation process which would sort mixed glass extracted from kerbside systems may resolve the

[1] Pers. comms. James Flexman, Manager Full Circle Recycling

issue without the need for a separate collection. Glass would be a commodity going to O-I glass, though assumed to have a lower value than if sorted at source.

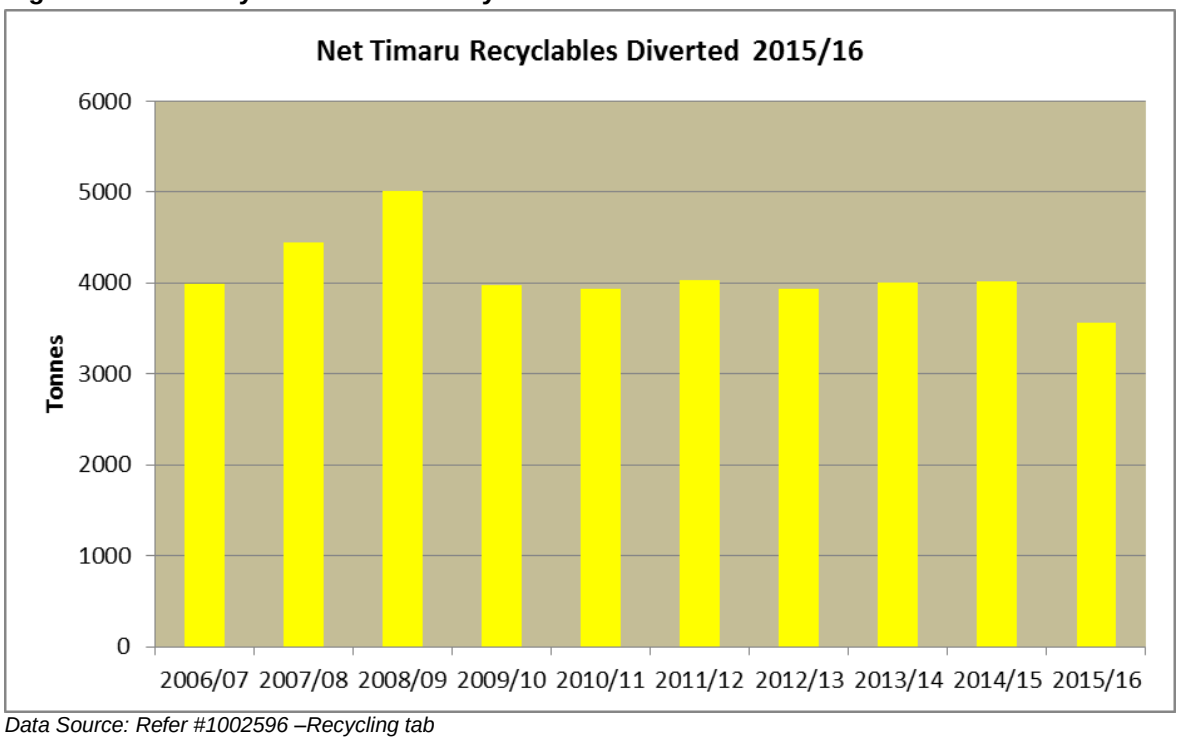
A local solution may exist for glass and Council is waiting on the development of this opportunity to evaluate options. In the meantime, glass is used as aggregate on site.

OPTION	Investigate alternative glass collection and processing.

8.7 Quantities

Comparison with open 45 litre crates shows actual yields for recycling on average are lower compared to 240-litre wheelie bins that have higher contamination but overall a greater net recycle yield. Commodity prices can vary as per the sorting method and the degree of contamination in the end product. Waste Management NZ has significantly improved the quality of recyclables since the contract commenced as glass is now removed by hand.

Figure 15: Net Recyclables Diverted by Council.



Data Source: Refer #1002596 –Recycling tab

8.8 Newspaper, Cardboard and Plastic

Oji Ltd (Southern Recycle) operates the recycle baler at the Redruth MRF which bales paper and cardboard from the kerbside collection. The machine also bales soft plastic and shrink wrap, paper and cardboard from both businesses and private collection contractors.

8.9 Scrap Metal

In conjunction with Council, Timaru Metal Recyclers offers a 24/7 scrap metal facility in Redruth Street near the Redruth Transfer Station for free drop-off of car bodies and all scrap metal. Scrap metal drop-off facilities are available at the rural transfer stations. There are several other scrap metal businesses operating in the District who will receive materials directly, or pick it up. The scrap metal market has been affected in recent years with the low global price of scrap metal. Council received no income from scrap metal in 2015/16.

8.10 Local Recycle Market Development

The location of plants for recycling product provides jobs and an opportunity to recycle product domestically. In 2009, two recycling plants were commissioned in Christchurch. The Comspec milk bottle washing and chipping plant processes HDPE which provides feedstock to RX plastics in Ashburton. MastaGard processes the balage wrap and other materials collected through the Plasback scheme. There are a number of other plastic recyclers in Christchurch and also other facilities in New Zealand, however, overall quantity of product processed in New Zealand is low.

8.11 Recycle Other Materials

Lismore Council, Australia, offer a special collection satchel for various goods such as glasses, which are donated to the Fred Hollows Foundation, and batteries. The bag is collected in the kerbside bin and sorted off the recycling line. This method using an existing collection service may offer an opportunity to divert a range of miscellaneous materials.

OPTION	Investigate collection of alternative items via a satchel in kerbside bins.

8.12 Recycle Escrap

Escrap currently collected at the transfer station is sent away for dismantling and recycling. A skilled labourer manually dismantles the items separating out valuable components for recycling. If this activity was conducted onsite, it would significantly reduce transport costs and increases value of recycling on-site. The plastics, containing brominated fire retardants, can be disposed of at Redruth Landfill rather than transporting out of district to go to a landfill.

OPTION	Investigate options for escrap dismantling to improve recycling activity

9 RECOVERY

9.1 Progress for Recovery

9.1.1 Solid Waste Plan Progress

Table 57: TDC SWP Composting

Action Programme 5	Composting	Status
Objectives		
Maximise the amount of organic waste to be diverted from the waste stream for beneficial use.	Council has made significant progress with the introduction of the 240 litre kerbside collection of organic wastes. There is scope for improved separation of organic waste for composting from the red rubbish bin (25%), transfer station general waste (11%) and waste taken direct to landfill (19%). The introduction of the weighbridges will incentivise better diversion. New off cuts of gib- board are able to be composted from November 2010.	Partially Achieved
Promote and develop sustainable markets for products.	WMNZ is responsible for the marketing and sale of compost. Compost is available for purchase at transfer stations. Council has contributed in-kind to the development of Standards NZ compost standard NZS 5545, the development of NZQA qualification standards for compost training and compost field trials throughout Canterbury in conjunction with WMNZ and the Canterbury Waste Joint Committee.	Achieved
Ensure that the organic processing sites comply with relevant legislation, resource consents and operational standards.	There was a one-off issue with odour back in 2006 from the plant as part of staff understanding of operational matters. This issue was resolved with additional mitigation. Regular site visits and meetings are held. Full compliance since then.	Achieved

Action Programme 5	Composting	Status
Performance Measures		
Amount of organic waste diverted from the waste stream.	Annual records kept.	Achieved
Amount of organic waste that is converted to beneficial use.	Annual records kept. (Approximately 98%)	Achieved
Compliance with relative legislation and resource consents conditions.*	Full compliance.	Achieved

*except for minor non-compliance

Action Programme 10	Thermal	Status
Monitor and evaluate options to determine applicability of thermal pyrolysis for the Timaru District.	No formal report was prepared as the concept did not eventuate. New technology and options for thermal processes should be re-visited.	Achieved

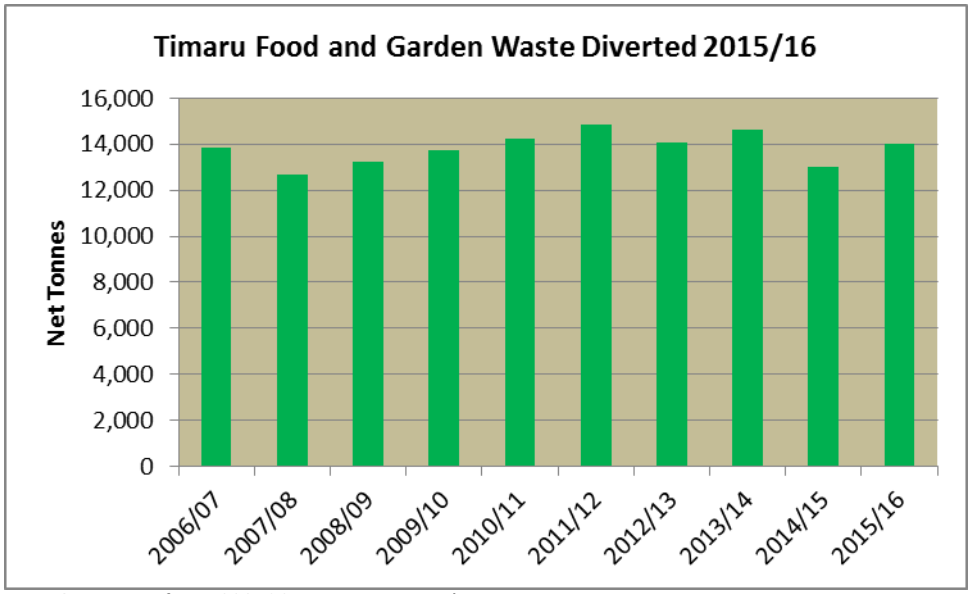
9.1.2 WMMP Progress

Plan date	Target date	Description	Status
2012-2015	2012/13	Develop extended maturation areas.	Achieved
	2014/15	Establish liaison with WTL for timber recovery.	Achieved
	2014/15	Investigate options for special waste composting.	Achieved
2015-2018	2014-2016	Design compost facility.	Achieved
	Future	Implement options for special waste composting.	Not to progress

9.2 Composting

Council owns the in-ground infrastructure of the Gore Compost site at Redruth. Waste Management NZ are contracted until 2021 to operate the site and own the plant and equipment. Processing tonnages are reaching 14,000 tonnes per annum.

Figure 16: Net Quantity of Waste Composted



Data Source: Refer #1002596 –Net compost tab

9.3 Compost Markets

The Council in conjunction with Waste Management NZ, the Canterbury Waste Joint Committee and Compost New Zealand have facilitated compost trials on farms throughout Canterbury to help stimulate market potential.

Waste Management NZ is responsible for the overall marketing and sale of compost and while good progress is being made on sales with product being sold to the local urban and rural markets, more promotion and marketing is needed to get product processed balanced with product sales.

In the past, there have been concerns with the compost quality meeting the New Zealand standard for compost NZS 5545 with regard to arsenic levels and chemical residue from clopyralid. Through a strong public information campaign, the arsenic issue has been addressed. However, clopyralid residue is still being detected during summer months. Further public information and education will be required to lessen the impact from clopyralid. With clopyralid no longer available in domestic quantities, the issue should reduce further as spray quantities are used up by customers. Compost with elevated clopyralid levels can still be used for turf, pasture and some cropping scenarios.

The timeframes for maturation and storage of the compost product are affected by clopyralid levels and the inability to adequately continue to process the materials to degrade the clopyralid. This is due to a lack of a hardstand maturation area. The existing area is low lying and waterlogged in winter making access difficult. Wet conditions may also encourage the growth of legionella bacteria creating a potential health risk. An ongoing budget to develop maturation areas is slowly addressing this.

9.4 Compost Growth

There has been a slow and steady increase in the tonnes processed, but annual quantities are subject to weather conditions.

Table 58: Growth of Compost Quantities and Contamination Levels

Funding year	Gross Tonnes Diverted	Net Tonnes Diverted	Annual Difference	Contamination tonnes	Contamination %
2006/07	16,863	16,846	0%	17	0.1%

2007/08	13,243	12,750	-24%	493	3.7%
2008/09	13,703	13,260	4%	443	3.2%
2009/10	14,034	13,730	4%	304	2.2%
2010/11	14,368	14,223	4%	144	1.0%
2011/12	14,880	14,848	4%	32	0.2%
2012/13	14,130	14,086	-5%	43	0.3%
2013/14	14,672	14,622	4%	50	0.3%
2014/15	13,063	13,030	-11%	32	0.2%
2015/16	14,246	14,250	9%	22	0.2%

Data Source: Refer #1002596 –Compost quantities –extend tab

The composting site was designed to be able to process 16,000 tonnes per annum, (1,333 tonnes equalised per month). The annual amount being processed is currently below this in total at 14,250 tonnes for 2015/16. The issue is that during peak periods the equivalent of up to 1,400 tonnes per month may arrive at the site, which is just over the peak operating capacity of 1,333 tonnes. Waste Management NZ are confident that the site can handle up to 16,000 tonnes per annum even during the peak periods and that no extra infrastructure will be required until the threshold of 16,000 tonnes is achieved. However, Council approved budget to build additional pads to ensure an increase in waste tonnes can be accommodated.

Contamination levels have declined since the start of the collection system and are consistently low at <0.5%.

9.5 Additional Compost Bays

A low-tech option has been adopted for the creation of two new pads at the compost site making the system a 10-pad processing system. These pads will be built in July/August 2017. The excerpt from the Functional Description Report below outlines the operation.

Functional Description-Redruth Compost Operation (#1022536)

By moving the tertiary process from the existing pads, these can then be used in a configuration of five primary and three secondary (5/3/0). This configuration would be used to balance out peaks in the demand, for example during periods when the capacity is temporarily exceeded (i.e. for above capacity months).

Once the short peak and temporary demand has passed, the system could then be reverted back to a 4/2/2 configuration for the lower volume months. There is also no requirement to have these piles of a particular length and they can be altered to suit the demand based on pipe length. In essence, it can be considered that moving the tertiary piles effectively creates two new compost pads and as such the plant is operated as if it had 10 compost pads.

9.6 Compost Growth Assumptions

Council will continue to monitor the growth of the organic waste stream. The excerpt from the Functional Description below outlines the operational capacity of the 10-pad system.

Functional Description-Redruth Compost Operation (#1022536)

By adopting this approach and building the piles as is current practice, this means that 5 primary piles can be built each month thus increasing the capacity to an equivalent 22,750 tonne/year. Table 6.2 depicts the future capacity based on 4% growth and 22,750 tonne plant capacity.

Table 59 - Future capacity based on 4% growth and 22,750 tonne plant capacity

Year	Total tonnes	% of annual capacity	# months above capacity	Peak month	Peak vs. capacity
FY16/17	14,435	63%	0	1,662	88%
FY17/18	15,013	66%	0	1,728	91%
FY18/19	15,613	69%	0	1,797	95%
FY19/20	16,238	71%	0	1,869	99%
FY20/21	16,887	74%	1	1,944	103%
FY21/22	17,563	77%	1	2,022	107%
FY22/23	18,266	80%	1	2,103	111%
FY23/24	18,996	83%	1	2,187	115%
FY24/25	19,756	87%	3	2,274	120%
FY25/26	20,546	90%	4	2,365	125%

Based on this option the potential capacity of the current compost facility can be extended with the existing pads able to accommodate and meet the 4 % growth through to FY24/25. With a more modest 2% growth, this configuration will comfortably cope with a 10-year forecasted growth, and at only 3.3% year on year growth only one month per year from FY21/22 onwards is above capacity, with FY25/26 being 117 % of capacity in the peak month.

If growth is 3.3 % per year or less, then adopting this approach will provide another 10 years of useful operating life without the need for additional compost pads.

It is likely that the system will cope until the current eight-pads are replaced in 2026. At this point extra pads may be needed for primary and secondary processing, and more low-tech pads can be added to handle the tertiary processing.

OPTION	Review Functional Description Report in 2021/2022.

Monitoring of tonnes will continue as there is potential for out-of-district growth in organics.

9.7 Compost Bays Replacement

Some pads are showing early signs of deterioration as there is some subsidence in the ground beneath the pads due to the site being a closed landfill. The subsidence poses a risk as leachate may pond in the compost pad channels and become odorous. This is being mitigated with good site management and ongoing monitoring. The pads are being monitored through surveying to assess their condition. The life of the pads is estimated at 20 years, and new pads can be funded through depreciation in 2026.

OPTION	Design 10+ new pads in 2024/2025.
OPTION	Build 10+ new pads in 2025/2026.

9.8 Compost Opportunity

As the cost of landfilling increases, there is greater opportunity to develop composting infrastructure either by Council or the private sector for putrescible waste that is currently landfilled. This is called special waste as it is odorous, wet, difficult to handle and requires special management in the landfill. To be able to compost this material, suitable bulking

materials with good levels of carbon will be required. Bulking materials can be sourced from waste currently used as cover at the landfill.

A Special Organics Report was completed in July 2015 and concludes that the GORE system could be used for special wastes as long as operating procedures are put in place on a case by case basis.

However, discussions with Waste Management have concluded that the odour risk of accepting special wastes which will require bulking and extra handling are too high and this option will not be progressed further, however, requests for receiving materials will be assessed on a case by case basis

9.9 Waste Oil

Oil Recovery South Island, a company that is part of Transpacific Industrial Services, collects the waste oil from the transfer stations. It is used for fuelling burners for heating plants.

Waste oil is collected on-demand by two companies within the district; these are Waste Management Technical Services on a weekly collection service and Fulton Hogan Ltd on a twice-weekly collection service.

9.10 Pyrolysis Facility

The visual waste audits in November 2009 estimated by volume that 36.6% of the waste was timber, with an estimated 5% of timber being treated timber.

In October November 2015, a waste sort trial was conducted and 43% of the waste extracted was timber. This was sent for processing at the pyrolysis facility.

Through a Memorandum of Understanding with Waste Transformation Ltd, Council will continue to investigate the actual type and quantity of timber being disposed of to facilitate recovery through the pyrolysis process.

Under the Emission Trading Scheme (ETS) Council pays for each tonne of carbon created from landfill gas emissions, including those from timber. By removing timber from the landfill, there is scope to reduce the payments as timber is a high-value component used in calculating a unique emission factor (UEF) for the landfill.

10 TREATMENT

10.1 Progress for Treatment

10.1.1 Solid Waste Plan Progress for Treatment

Table 60: TDC Hazardous Waste

Action Programme 9	Hazardous Waste	Status
Objectives		
Implement the strategies from the Canterbury Hazardous Waste Strategy.	Collection of farm chemical completed. Waste oil collection implemented. Hazardous waste collection resources supplied at transfer stations. Strategies are currently under review.	Partially Achieved
Maximise the recovery of hazardous waste to eliminate the adverse effects of hazardous waste on the environment.	Drop-off sites for hazardous waste at transfer stations. Small amounts being disposed of in the residual waste stream being landfilled. Escrap collection established June 2011.	Achieved
Ensure compliance with relevant legislation, resource consents and operational standards.	Regular site visits and meetings are held. Site holds certificate. Full compliance.	Achieved
Ensure compliance with the operational management plan and contract for the landfill.	Regular meetings and sites visits undertaken by Council staff. Site operators trained and have hazardous waste handling certificates.	Achieved
Performance Measures		
Measure tonnages of hazardous waste retrieved and managed.	1.2 tonnes for 2009/10. 0.93 tonnes for 2010/11.	Achieved
Compliance with relevant legislation and resource consent conditions.	Council undertakes monitoring as required by consent conditions – Full compliance achieved 2009/10.	Achieved
Compliance with operational requirements for site management.	Council undertakes contract supervision to ensure that the sites are operated in accordance with contract conditions and operational protocols.	Achieved

10.1.2 WMMP Progress for Treatment

Plan date	Target date	Description	Status
2012-2015	2014/15	Investigate options to implement a small charge for hazwaste drop off.	Achieved
2015-2018		No options considered	

10.2 Hazardous Waste

Council provide a hazardous waste collection point at all transfer stations for household quantities of hazardous material and can also put businesses in contact with service providers for larger quantities. Some paint is picked up by 3R on behalf of Dulux for their product stewardship programme and Resene for the Resene Paintwise programme. The remainder of the paint is collected by Enviropaints, Otaki, where most paint is recycled into new paint. Any hazardous waste which is not recoverable, is picked up by hazardous waste collection company, Waste Management Technical Services, for treatment and disposal.

As Waimate District Council is unable to host a domestic hazardous waste facility at their Resource Recovery park, a shared costs arrangement was made from 2015/16 to allow Waimate users to deliver domestic hazardous waste to the Timaru transfer station. Better promotion by the Waimate District Council is recommended.

The disposal of the chemicals collected at the transfer station costs about $20,000 per annum for the Timaru District.

Table: Hazardous waste disposal costs and quantities

	Hazardous waste data		
	costs		quantity
	Timaru	Waimate	total (tonne)
2009/10	$18,269		1.2
2010/11	$17,204		0.93
2011/12	$11,757		
2012/13	$18,650		
2013/14	$20,172		
2014/15	$10,597	$1,725	
2015/16	$20,726	$3,374	2.1

A small levy for users was considered to decrease costs, but the economic benefit of this was considered insignificant compared to the environmental benefit of collecting a wide range of hazardous goods for safe disposal due to the service being free. The cost of providing the service for domestic customers is reasonable, however, there is an extra cost incurred due to commercial misuse of the facility and drop-off of commercial hazardous waste.

This may occur as the drop-offs are not manned 100% of the time, or due to staff being unavailable to meet customers. Options to reduce infringements may include establishing a 2-step process using staff at the recycling drop-off area, camera at the drop-off and extra staffing or relocation of the drop-off to the staffed area at the resource recovery park.

OPTION	Investigate the implementation of a system for discouraging commercial drop-off of hazardous waste.
a	Install a camera at the hazardous waste drop-off.
b	Staff hazardous waste drop-off, or change location of drop-off to RRP.

Signage with pictures and words are at all transfer stations to inform customers about placement and handling of hazardous waste. Disposal of heavy hazardous waste, e.g. car and truck batteries, LPG cylinders and paint has been brought to the front of the transfer station into the public recycling area prior to the weighbridge. This makes the disposal options more visible and as the customer does not need to go through the weighbridge they are able to dispose of these items at no cost.

A media programme for hazardous waste disposal will continue to inform the public about the options to drop-off domestic quantities of waste. The media programme will be reviewed and costs will be tracked as increased media is expected to result in a corresponding increase in drop-off of hazardous waste.

10.3 Agrichemicals

Prior to 2008 Council provided a free collection of agrichemical across the whole District in conjunction with Environment Canterbury. Free collection of the redundant chemicals has now been completed with the last collection being in February 2009. Agrecovery has continued to collect chemicals and Timaru District has partially subsidised this to assist in the disposal of these chemicals. Farmers with domestic quantities of less than 20 litres may drop these amounts at transfer stations; otherwise they must either contact a commercial hazardous waste collector or return the amount in liaison with their supplier.

Council refers people with chemicals or chemical containers to Plasback or Agrecovery.

10.4 Medical Waste

Hazardous wastes services, such as medical waste collection and disposal are provided to hospitals and doctors' surgeries by private companies and this material is taken by Interwaste to Dunedin where it is incinerated.

10.5 Stabilisation of Waste

Some waste may be accepted for disposal at the Redruth landfill with pre-treatment or stabilisation. This may include for adding bulking agents to solidify wastes containing liquids, e.g. adding sawdust to wet sludges.

Hazardous wastes requiring disposal at Redruth are all permitted through a waste manifest system. Each manifest is assessed by the Waste Minimisation Manager. Where applicable, e.g. asbestos, waste disposal locations are surveyed.

In 2011, Waste Acceptance Criteria guidelines were prepared for Redruth Landfill as an A-grade landfill based on resource consents, Council bylaws and Ministry for the Environment guidelines. The guidelines will be reviewed and finalised in 2017.

11 DISPOSAL

11.1 Progress for Landfill and Cleanfill

11.1.1 Solid Waste Plan Progress for Landfill and Cleanfill

Table 61: TDC SWP Landfill and Cleanfill

Action Programme 7,8	Landfill, Cleanfill	Status
Objectives		
Minimise the amount of waste and cleanfill that is disposed of into the Redruth Landfill.	Council has made significant progress with the introduction of the three bins collection system. There is still scope for improved separation of recyclables and organic waste from the various sources. Cleanfill management and utilisation at the landfill has been improved.	Partially Achieved
Provide a landfill facility that is designed, managed and operated to best standards.	The landfill developed now incorporates a plastic lining and drainage system that complies with current landfill design parameters. Operations undertaken by WMNZ with overarching control by Council.	Achieved
Ensure compliance with relevant legislation, resource consents and operational standards.	Regular site visits and meetings are held. Overall, good compliance.	Achieved
Ensure compliance with the operational management plan and contract for the landfill.	Regular meetings and sites visits undertaken by Council staff.	Achieved
Monitor closed landfills under the closed landfill management plan.	Sites are monitored on a periodic basis throughout the year.	Achieved
Utilise Redruth landfill for the disposal of residual rubbish.	Residual rubbish disposed of to the Redruth Landfill.	Achieved

Action Programme 7,8	Landfill, Cleanfill	Status
Ensure adequate quantities of cleanfill to cover the rubbish at the landfill.	There is insufficient on-site clay and soil to cover rubbish at the landfill. Clay, soil and cleanfill delivered by contractors are the main sources. In the past, some wastes have been used as cover, but some of this is now diverted to the organic facility.	Achieved
To reduce the quantity of cleanfill used in proportion to the quantity of waste being landfilled.	Historically, excess cover was being used taking up valuable landfill space. Free disposal of cover encouraged large amounts to be brought in and hence encouraged the use of the cover. A disposal fee of $6/tonne (gst incl) now applies for cover material delivered to the transfer station. WMNZ have implemented strict ratios for cover to waste. The ratio of waste/m³ is calculated and reported on in the annual report to Ecan.	Achieved
Provide cleanfill storage and disposal areas.	Cleanfill is able to be disposed of at transfer stations, Pleasant Point, Temuka and Geraldine with storage areas located at the Redruth Landfill. Bulky cleanfill is utilised on-site for roading and loose cleanfill for cover.	Achieved
Performance Measures		
Annual tonnage of waste disposed of to landfill.	Annual records are kept.	Achieved
Measure the composition of material disposed of to landfill every five years.	Composition survey undertaken in 2009 and in June 2011.	Achieved
Compliance with relevant legislation and resource consent conditions.	Council undertakes monitoring as required by consent conditions – full compliance except for minor non-compliance with wind-blown litter. Issues resolved.	Achieved
Compliance with operational requirements for site management.	Council undertakes contract supervision to ensure that the sites are operated in accordance with contract conditions and operational protocols.	Achieved
Annual tonnage of cleanfill disposed to landfill.	Annual records are kept. Some cleanfill used for landfill cover and capping and some for civil construction purposes at the landfill.	Achieved

11.1.2 WMMP Progress for Landfill and Cleanfill

Plan date	Target date	Description	Status
2012-2015	2013	Allocate funding for after-care costs.	Achieved
	2013	Complete capping Temuka closed landfill	Achieved
	2015	Complete capping Geraldine closed landfill	Achieved
2015-2018	2015/16	Ensure waste disposal options are included in emergency plans.	Partially Achieved

11.2 Redruth Landfill

The Redruth Landfill is owned by Council and is the only landfill in South Canterbury. The landfill is consented to 2030 and the landfill life is currently estimated to range between 25-35 years. The landfill is operated by WMNZ under contract until 2021.

11.3 Bylaw

Council reviewed the solid waste bylaw in 2013, and review in 2017 is underway, but changes to the waste bylaw are expected to be minor. A number of materials are banned or prohibited from landfill as listed below.

11.3.1 Banned Items

The list of banned items in the bylaw includes:

1) Petroleum oil
2) Lead acid batteries
3) Newspaper and recyclable paper as notified by Council
4) Cardboard
5) Glass bottles and jars
6) Aluminium cans
7) Rigid plastic containers as notified by Council
8) Compostable garden and food waste as notified by Council
9) Steel cans
10) Ferrous and non ferrous metals as notified by Council
11) Escrap
12) Clean packaging polystyrene
13) Clean shrinkwrap
14) Other clean flexible plastics
15) Tyres
16) Material as shall from time to time be notified by Council.

11.3.2 Prohibited Items

The list of prohibited items in the bylaw includes:

1) Unless any such waste is properly and sufficiently contained so as to prevent injury, damage or loss, any broken glass, broken china, broken plastic, hacksaw blade, razor blade, skewer, knife or any other object or material capable by reason of its shape or sharpness of causing injury.
2) Unless such waste is properly and sufficiently wrapped or contained so as to prevent injury, damage or loss, any sharp object or material capable of puncturing the Approved Container or capable by reason of its brittleness of shattering in the course of collection.
3) Any explosive, hot ashes, flammable material, infectious material, or any other matter, thing or waste of any kind whatsoever that may endanger any Person, Animal or Vehicle which may come into contact with the material at any time prior to, during or following collection and disposal.
4) Any liquid or viscous fluid.
5) Any radioactive wastes, but excluding domestic smoke detectors. [Advice Note: Domestic smoke detectors may be disposed of as Household Waste.]
6) Any waste oil, lead-acid batteries, refrigerators and/or freezers that have not been de-gassed.
7) Any Hazardous Substance.
8) Any Solid Waste that is not Compostable Material that is placed into an Approved Container or contractor container designated for Compostable Material.
9) Any non-approved biodegradable container that is placed into an Approved Container or contractor container designated for Compostable Material.

10) Any Solid Waste that is not Recyclable Material that is placed into an Approved Container or contactor container designated for Recyclable Material.
11) Compressed gas cylinders.

Landfill auditing was introduced to monitor compliance with the bylaw. Monitoring of the bylaw involves random landfill visits to the tipping face, photographs taken of waste disposed of, with follow–up visits to waste generators to help improve sorting of waste and diversion. At this stage, Council staff are undertaking an educational approach rather than a strict enforcement approach. However, due to lack of resourcing, this monitoring is not currently undertaken. Business staffing proposed would address this.

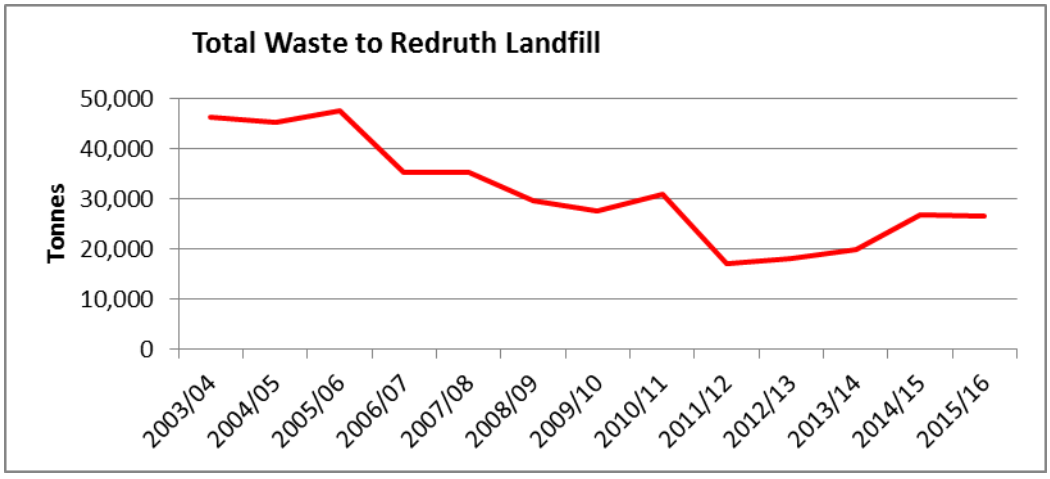
REFER	Increase business education staff resourcing by 0.5 FTE to assist businesses with recycling and recovery of waste with a goal of introducing waste reduction at source initiatives. Refer to Chapter 6- Reduce.

11.4 Landfill Quantities

The introduction of the three-bin kerbside collection in 2006 resulted in a significant reduction of waste being landfilled, primarily garden waste which is now composted. Increasing fees and user pays via the weighbridge have also seen more business waste diverted for recycling as in cardboard and scrap metal.

From 2008/09 for three years, the average waste landfilled was about 30,000 tonnes per annum. From 2011/12 for three years, waste dropped to about 20,000 tonnes per annum due to commercial waste from Timaru and Mackenzie Districts being transported to an out-of-district landfill. From 2014/15, waste has increased with increased quantities of commercial waste again being delivered to Redruth Landfill. Waste tonnes per annum are close to 27,000 tonnes.

Figure 17: Total Waste to the Redruth Landfill



Data Source: Refer #1002596 –RR LF tonnes - tab

11.5 Redruth Landfill Source of Waste

Waste is brought to the landfill from three main sources.

Kerbside Waste

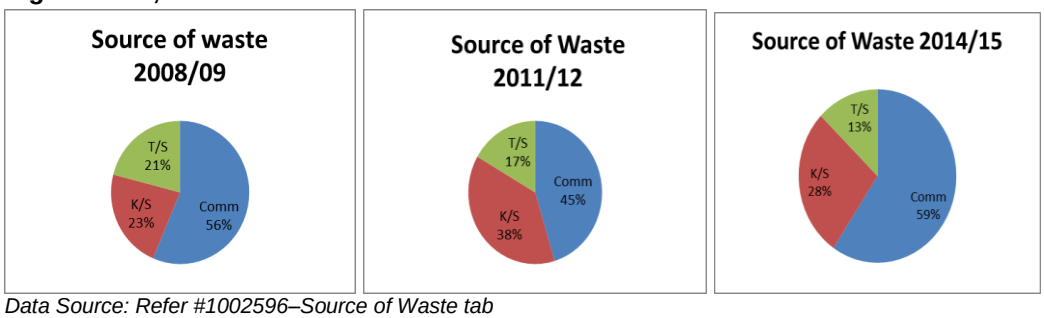
Residual waste from the kerbside collection red bins is brought directly by collection trucks and indirectly from the processing operations as contamination in the recycle and organic bins.

Transfer Stations
Waste is transported in enclosed or open 25 cubic metre containers from the Council's four transfer stations.

Commercial Waste
The balance of waste is brought in by private collection operators and companies who cart their own waste. Waste from Waimate District Council is included in this latter category, and amounts to 4.5% of the total waste stream.

The pie-charts below show the trends over the last 9 years, with commercial waste being initially a high proportion, then reducing over a period, then increasing again (refer 11.4)

Figure 19 a, b & c: Source of Waste



Data Source: Refer #1002596–Source of Waste tab

Cleanfill dropped off by the commercial sector is necessary for the operation of the landfill, but is not considered residual waste. Cleanfill falls into two categories for re-use; cover, which is loose material used to cover waste at the end of each day, and cleanfill for re-use, which is chunkier material for use in roading.

11.6 Landfill Life Expectancy

Council's Redruth Landfill is consented until 2030, however, the WOL plan developed by Canterbury Waste Services indicates that the landfill has the potential airspace capacity to surpass its consented life, and will extend beyond the current consent term as whole-of-life design takes effect and waste minimisation plays its part.

The estimated remaining capacity of the landfill cells in Stage 3 for cell 3.4 and the whole of Stage 3 are presented in Tables 66 & 67 below.

Table 66: Estimate of Redruth Landfill Cell 3.4 Remaining Life

Remaining Capacity of Cell 3.4 (as of 15 May 2017)	114,124 cubic metres	
Estimated Cell Life	Tonnes per annum	Life (Yrs)
Tonnes landfilled per annum	27,000	2

Data Source: Redruth landfill Airspace Utilisation (ASU) as at 31/3/2017

Table 67: Estimate of Redruth Landfill Remaining Life

Remaining Capacity Redruth Landfill Stage 3 (as of 14 July 2016)	835,000 tonnes	
Estimated Landfill Life	Tonnes per annum	Life (Yrs)
Tonnes landfilled per annum	27,000	29

Data Source: Refer 160714 Redruth WOL Remaining Life Model (WMNZ)

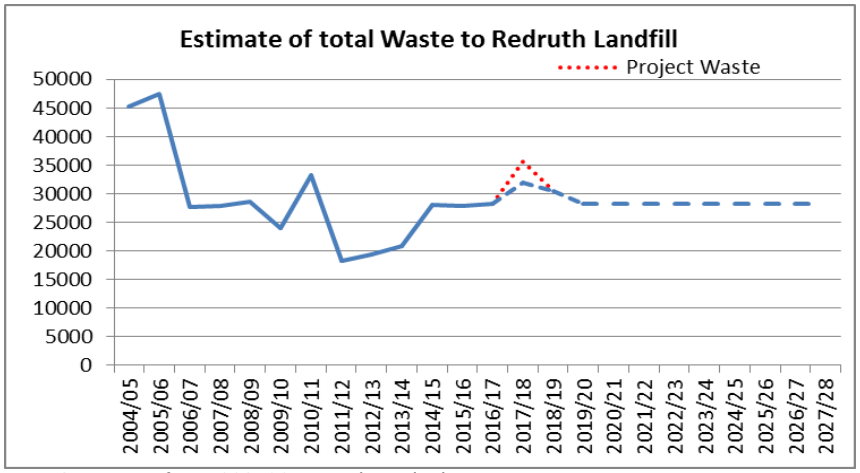
The remaining life model for Stage 3 only calculates life at 27,000 tonnes. Scenarios for different rates will be calculated with the whole of life update in July 2017. Waste tonnes may vary from 25,000- 35,000 with total tonnes in 2016/17 exceeding 28,000.

Also, once the final cap design for the new Redruth landfill is confirmed, a new estimate will be made for remaining capacity which will include the remaining airspace in Stage 2.

11.7 Estimated Future Waste Tonnes

There are two significant projects in South Canterbury that may commence in the next few years. These are the proposed hydroelectricity projects for Lake Pukaki and the Lower Waitaki Northbank.

Figure 21: Estimated Future Waste Tonnes to Redruth Landfill



Data Source: Refer #1002596 –Trend Total tab

11.8 Visual Waste Audit 2009

In November 2009, Timaru District Council contracted BioBiz to conduct a visual audit of waste to landfill via the transfer station and direct to the tip face via commercial customers. For health and safety reasons, the audit excluded sewerage. As separate figures are available for cover and cleanfill via the kiosk data, these figures were also excluded. The data, therefore, focused on residual waste.

The tonnage is calculated using volume to weight ratios to show the estimated tonnes per annum for each category.

Table 62: Composition of Commercial Waste Taken to the Landfill Tipping Face by volume and estimated weight

Primary category	Volume %	Estimated tonnes per annum
Paper	8.5	826
Cardboard	9	1,077
Plastics	21.4	1,657
Putrescible	18.8	1,300
metals	5.9	706
Glass	1.3	67
Textiles	3.3	342
Nappies and sanitary	2.3	36
Rubble	1.4	22
Timber	19.6	2,033
Gib-board	1.7	32
Rubber	1.3	101
Potentially hazardous	1.1	57

Miscellaneous	4.2	218
Electrical	0.3	31
Total	100.0%	8,504 (actual total)

- Timber was the largest component overall by weight (19.6%), comprising a mixture of building site materials, pallets, and packing materials.
- Plastics were the largest single component of the waste stream by volume comprising at 21.4%, but total weight is second highest.
- Putrescibles was the third largest at 19%, with a mixture of garden waste at (5.2%), industrial screenings from primary producing (8.8%) and other organic waste(4.8%) making up the mix.
- Paper and cardboard combined at 17.5% are also significant waste streams with potential for diversion via organics or recycling.

The following loads are separately coded and weighed on the Redruth weighbridge and are not included in the overall composition:

- Milliscreenings from the Council sewage treatment plant,
- Cleanfill materials, and
- Waste Cover materials, e.g. clinker, seed blowings, coal, sawdust.

11.9 Composition of Commercial Waste in the Waste Sort Trial 2015

The waste sort trial in October - November 2015 evaluated different waste streams; front end load trucks, gantry, mini skip bins and public delivery to Timaru transfer stations including builders waste. At the end of the trial, gantry and mini skip bins and public delivery were combined in a consolidated trial. Front end load was eliminated from the trial due to the small proportion of recoverable materials. Results focus on the consolidated trial.

Table: Diversion from the Waste Sort Trial

Waste Stream	Waste In	Diverted Total	Percentage Diverted
Gantry / Mini Skip	48.35	10.79	22.32
Public / Builders	134.88	11.53	8.35
Consolidated	283.12	28.56	10.09
Total	466.35	50.88	10.91

11.10 Potential Waste Diversion, Redruth Landfill

Of the waste disposed of at the landfill, 38.5% was achieved potential diversion was identified in the visual audit (2009) and 10.91% actual diversion in the waste sort trial (2015). Results from both trials are compared in the table below where diversion is shown as a percentage.

Material	Visual Audit - 2009	Potential Diversion By volume	Waste Sort Trial - 2015 Gantry and mini skips Potential Diversion By weight
Putrescibles **Garden and Food Waste**	The mix of putrescibles is split evenly as garden waste (5.2%), industrial screenings of offal, etc from the Smithfield freezing works and Freshpork Baycity Ltd (8.8%) and other organic waste such as NZ Light Leathers shavings, fullers earth for fat soakage (4.8%). The garden waste is part of mixed loads. The offal etc. would best be processed in an enclosed composting system.	18.8%	16%
Metal	A significant proportion of the metal is recyclable. Waste Management NZ staff retrieves some metal, mainly bulky items, however a lot of light gauge material is not retrieved, including whiteware as this is time consuming.	5.9%	26%
Cardboard	There is a significant amount of cardboard as part of mixed loads. Like paper, some boxes are disintegrating, wet or contaminated and are not suitable for recycling but can be composted.	9%	6%
Plastics	There is a significant amount of soft plastic bags and wrapping. The majority of this plastic is dirty or contaminated from primary processing industries.	21.4%	
Paper	A lot of paper is within plastic bags as part of a ‘’tidy up” or as domestic household waste dropped off in bags or boxes. Some of this paper is confidential and people may not want to recycle this as compared to destruction or burial. Some paper is also wet and not suitable for recycling, in which case it may be composted.	8.5%	
Glass	Minor amounts of glass are disposed, again as part of the main load in bags, etc.	1.3%	
Textiles	There is a broad range of textiles disposed of, with the quality being on the low side. Cross-contamination from other waste is an issue.	3.3%	
Rubble	There are small amounts of rubble and cleanfill present, especially in mixed	1.4%	

	skips from building sites.		
Timber	Some of the timber could be shredded, however, it would require de-nailing. Careful separation would be required to ensure treated and painted timber was not included. As timber comprises the largest portion, it will be necessary to find a suitable alternative technology before engaging in any separation.	19.6%	46%
Gib-board	Gib-board is mixed up with the loads, primarily as off-cuts. Some of the demolition material will not be suitable for composting as it has paint that may be contaminated with lead and other materials encasing the wall lining. A separate gib-board collection for organic processing has been introduced since the audit was conducted and 10 tonnes was composted in 2010/11.	1.7%	Incl in organics
Electrical	A small number of electrical items were disposed of.	0.3%	1%
Tyres	There were some tyres disposed of as part of the mixed loads during the survey week.		
Other Items	The remaining categories presented minor quantities. Rubber Potentially hazardous Miscellaneous Sanitary	 1.3% 1.1% 4.2% 2.3%	 3%
Re-use			1%

At 46% by weight, the diversion of timber to the pyrolysis facility is a critical factor in the operation. Scrap metal (26%) comprised a surprising proportion of the potential diversion. Organics (16%) included garden waste and gib which is a heavy material.

11.11 Diversion Method

There is scope for improved separation of materials and items before waste is disposed of at the transfer station or landfill tip face. This will need improved public education, on-going monitoring and enforcement of the bylaw preventing the disposal of banned items, improved resources (skips, bins and staff) at the unloading areas for respective materials.

There may be a greater requirement for staff at the landfill to advise customers on their separation habits. Council staff undertook some short term monitoring reviewing waste loads and then discussing potential diversion with businesses. This work was discontinued due to lack of staff time.(see option 11.3.2)

11.12 Landfill Limitations

The current limitations in being able to achieve further waste diversion from the landfill waste stream include:

- Mixed loads containing portions of materials that could be recovered.
- Mixed loads from fishing boats where there is language and cultural barriers.
- Suitable infrastructure for separation at source as well as the unloading and sorting of commercial loads, either off site or at Redruth.
- Incentives/disincentives for sorting.
- Legislative and or bylaw requirements.
- Supervision and instruction during unloading.
- People's choice to pay full price and dump what they want with no sorting.
- Confidentiality of materials

11.13 SWAP Audit June 2011

A solid waste analysis was conducted at the Redruth landfill during the period from Monday 27 June 2011 to Friday 1 July 2011. The analysis was conducted in accordance with the Ministry for the Environment 2002 Solid Waste Analysis Protocol – Procedure 2.

The purpose of the analysis was to determine the composition of the waste being deposited at the Redruth landfill tipping area to calculate a unique emission factor (UEF). Under the Emission Trading Scheme (ETS), landfill owners will have carbon obligations for every tonne of waste landfilled.

11.14 SWAP Audit November 2016

For this Waste Assessment, it was decided that a physical audit was not appropriate. A number of reasons led to this decision.

- There is perceived to be little change in the waste stream since 2011. However, a waste sort project is underway to determine how much waste can be mechanically extracted from the waste stream. The Stage 1 trial in October-November 2015 showed that some materials can be extracted, and, primarily demonstrated the potential to extract large quantities of timber. The Stage 2 trial to be progressed in August 2017 will aim to improve the rate of extraction and determine if the methodology is economically viable in the long term.
- A landfill gas system will be put in place progressively from 2017/18 to comply with the NES, therefore, gas capture and flaring efficiency data is still unknown. However, a desktop assessment indicated that the benefit for reducing ETS costs, even with timber removed from the waste stream, is low.

In conclusion, a desktop audit was used to assess data for the 2016 Waste Assessment. Bruce Middleton of Waste Not reviewed this document. A physical waste audit will be proposed for 2022 as the impact of the waste sort project, proposed kerbside auditing and other projects can be assessed.

OPTION	Conduct a physical SWAP audit in 2022 required for next six-yearly review of WMMP.

11.15 Emission Trading Scheme (ETS)

Council must pay for ETS obligations. The default payment is a factor of 1.19 x carbon unit per tonne of waste landfilled. A New Zealand carbon unit is estimated to cost $18 from 2017/18, but because of the phase-in of full costs, Council will pay a reduced cost for each tonne of waste landfilled for the 17/18 year. Full costs will be imposed on Council from 1 January 2019.

Council may be able to reduce the amount of the obligation by applying for a reduced rate using a Unique Emission Factor (UEF). The UEF is calculated based on:

- an analysis of waste being landfilled
- landfill gas capture and recovery.

The opportunity to reduce costs are assessed as follows:

- Change waste composition - even with timber removed from the waste stream, the financial benefit has been assessed to be low.
- Landfill Gas flaring - The UEF for Redruth may reduce depending on the amount of gas able to be flared. However, a landfill gas recovery system is yet to be installed at the landfill, but is planned to be put in place progressively from 2017/18 to comply with the NES.

Data has been estimated for potential ETS costs for a UEF based on diverting timber. The assumptions are that Council pays for full obligations based on a rate of $18 required per unit.

Table 63: ETS Costs

Factor	Description	Tonnes Landfilled	Rate	ETS Obligation
Default (1.19)	No diversion	27,500	$18.00	$589,000
UEF (1.1)	Divert 360 tonnes timber	27,640	$18.00	$514,000

Data Source: Refer #1002596 – ETS tab

11.16 Desktop Assessment for UEF

(a) The default UEF calculated for Redruth landfill excluding cleanfill is 1.19 which will result in a carbon obligation of $589,000 for 27,500 tonnes at $18 per tonne of carbon.

(b) Timber has a higher weighting in the UEF formula, so if 360 tonnes of timber was diverted from landfill, the UEF will reduce to 1.1.

The financial benefit of diverting this timber using the UEF could be $75,000 per annum, however, costs for applying for the UEF probably outweigh the benefits. Data and benefits can be reviewed after the waste sort extended trial has been completed.

11.17 Potential Waste Diversion Identified in the 2011 SWAP Audit

Loads which are transported from one source have been identified as having waste minimisation potential. These include:

2011 SWAP audit	2017 comment	Future options
TDC milliscreenings	Tonnes reduced due to milliscreen improvements.	No options considered.
Putrescible waste		
Seed “blowings”	Rate increased to full charge, this waste stream no longer comes to landfill	N/A

Sawdust	Mostly contains arsenic and must come to landfill. Clean sawdust accepted on a case-by-case basis at the compost facility.	25 tonnes per annum.
Timber	Stage One waste trial showed 43% of sortable waste is timber and can be diverted	Extended waste trial to progress in 2017/18 to obtain further data.
Mixed waste	Stage One waste trial showed some materials can be diverted from gantry skips and mini skips. Front end loads were excluded.	Extended waste trial to progress in 2017/18 to obtain further data.

11.18 Disposal Fees

Control of waste streams that come into the Redruth Landfill is important as Council relies on revenue streams to pay for site operations and to contribute to waste minimisation initiatives. Council policy is to recover 100% of solid waste disposal costs from fees, excepting a contribution from the general rate to cover activities which apply to all ratepayers e.g. education. There is a range of prices which act either as a disincentive or incentive. Prices for materials that are reused (cleanfill) or recovered for composting are lower compared to residual waste that is placed in the landfill. Council may have to vary its pricing structure and acceptance of waste to ensure revenue is maintained in the future, especially as more waste is diverted. Waste may also leave the District destined for landfills with more attractive pricing structures.

Table 64: Comparison of Disposal Fees

Landfill or Transfer Station	2010/11 Gate Fee (Incl gst and $10 levy) – $/tonne	2011/12 Gate Fee (Incl gst and $10 levy) –$/tonne	2016/17 Gate Fee (Incl gst and $10 levy) –$/tonne
Redruth Timaru	$171.50	$186.50	$199
Ashburton	$172.80	$193.00	$228
Christchurch	$209.00	$229.50	$241
Waitaki	$155.00	$155.00	$160
Dunedin	$116.50	$116.50	$153
Invercargill	$126.50	$135.00	$172

11.19 Waste Flight

As the disposal cost of waste increases, the cost effectiveness of waste minimisation initiatives become more viable compared to landfilling. Alternatively, the possibility of alternative landfill disposal also becomes more viable. This scenario may apply for collection operators and for the adjoining Waimate District Council. Mackenzie District Council stopped bringing waste to Redruth landfill in 2011/12 as they found a more economic alternative.

In the 2015/16 year, the Council received $2,519,858 from non-rate revenue.

Council only has direct control over 41% of the waste being landfilled, which is waste collected from the kerbside collections and from the transfer stations. The balance of 59% may be subject to alternative disposal options. Significant risk lies with the following sources and quantities.

Table 65: Waste Flight Risk

Source	Tonnes per annum	2016/17 Fee (excl gst)	Revenue
Private operators	8,700	$149	$1,300,000
Waimate	1,200	$149	$78,800
Other	5,000	$149	$745,600

Alternative landfill sites are located at Dunedin, Queenstown and Winton.

11.20 Future Landfill Operations

11.20.1 Viability of Future Landfill Operations

There are a range of fixed costs attributed to the landfill including but not limited to:

- Weighbridge/fee collection.
- Landfill compactor to compact and cover waste.
- Site management.
- Resource consent condition requirements.
- Management and monitoring of the site when the landfill closes.
- Council overheads and management.

As waste tonnes being landfilled decrease, the ability to recover the fixed costs through disposal fees is reduced, resulting in the fees being increased to cover the shortfall. Savings in variable costs for operating the landfill need to be achieved. In mid-2008, the landfill was closed on Sundays, with waste being dumped at the Redruth transfer station and stored in the compactor containers. From 1 July 2011, the landfill was also closed on Saturdays to gain further efficiencies. If the waste sort facility is established, the option for a further closure on Wednesdays may be investigated

11.20.2 Reducing Landfill Operating Costs

Council will need to closely monitor waste tonnes and consider options to recover the fixed operating costs for the landfill. Such options include:

(a) Reducing the fixed operating costs for the landfill, e.g. reduced hours the landfill is open to accept the waste.
(b) Increasing the disposal fees.
(c) Adjusting the funding policy to recognise that a proportion of solid waste activity is not related to waste disposal and, therefore, should be funded from a different source than landfill charges.
(d) Considering alternative daily cover to increase airspace available.

Option (a) and (c) have already been implemented. (b) is considered annually in setting the budget and fees and charges,(d) is under consideration.

11.20.3 Landfill Lids

A final report was received in 2017 (HP#1040764) by Tonkin & Taylor about the use of landfill lids as alternative daily cover. Subsequently, an additional report (HP#1070013) was received to compare the use of landfill lids with other daily cover alternatives. The benefits of landfills lids are:

- Increase usable airspace at the landfill by reducing the amount of soil used as daily cover.
- Stockpile incoming soil for use in capping projects

In conjunction with contractor and Ecan approval, a trial may be run to assess the benefits of using alternative daily cover.

OPTION	Run an alternative daily cover trial.

11.20.4 Resource Consent Life

The resource consent for Redruth Landfill expires in 13 years in 2030. The expected life of the landfill exceeds the life of the consent, so the landfill will need to be re-consented for it to be filled to capacity.

OPTION	Apply for extension of consent in 2027/28.

11.21 Closed Landfills

11.21.1 Description of Sites

Council has a closed landfill management plan and monitors seven closed landfill sites for compliance with resource consent conditions. The monitoring programme covers all sites annually with more frequent sampling for some sites. The suite of parameters and frequency of monitoring was reviewed in 2011, and is scheduled for regular review.

The sites are as follows:

(a) Old landfill areas at Redruth.
(b) Parerora.
(c) Temuka.
(d) Pleasant Point.
(e) Geraldine.
(f) Peel Forest.
(g) Ellis Rd.

The old landfill areas at Redruth encompass the former Collins Street landfill (up to 1975) now known as Redruth Park; the area that the Crow's Nest and compost operations are located on (1975-1995) and the playground area at the end of Leckie St. (pre-Collins St). All storm water from these sites is retained in a storm water pond before discharge into Saltwater Creek.

In the past (mid-nineties) there was a significant risk at the Peel Forest site of the Rangitata River undermining the river terrace of the old tipping face. Waste was removed from the lower part of the gully, and the risk has significantly lessened as the river has moved away from the toe of the embankment. Regular inspections monitor this risk. Leachate monitoring of the river has shown no sign of pollution. The gully has been fenced off from grazing and regrowth of vegetation will cover and hold waste in place.

Some minor leachate was initially detected at the Pleasant Point old landfill site. This is in an aquifer approximately 4.5m in depth. The depth to groundwater measured in 1998 ranges from 4.5 to 6.02 metres.[1] There have been no noticeable adverse effects from the site.

Ellis Rd has been added as a monitoring site due to evidence of coastal erosion.

11.21.2 Monitoring of Sites

The Council has a closed landfill management plan and monitors the closed landfill sites for compliance with resource consent conditions, including reporting on the sampling programme. The suite of parameters and frequency of monitoring was reviewed in 2011 and reduced as impacts are minor from the monitoring over the past 16 years.
However, the programme is scheduled for regular review.

[1] Pleasant Point Waste Disposal and Recycling Centre Resource Consent Application

To date, there has been compliance with most resource consent conditions. After each sampling round, a monitoring report is sent to Environment Canterbury noting any non-compliances. Sampling results tend to be erratic, but the report monitors any trends.

There are a number of other known sites that are not monitored because of the small nature and minimal impact. These sites are recorded in a hazard register.

11.21.3 Capping of Sites

The closed landfills were closed with less than optimal profiling and capping. Council is working to improve these sites to reduce impacts and make the sites into usable spaces.

Temuka Closed Landfill
This site was leased to Temuka Transport who added material to the site, profiled it, constructed a stormwater system and now use the site for commercial activity. Two consents were granted to Council for this activity on 14 March 2013.

Geraldine Closed Landfill
This site was leased to Earthworks Aoraki Ltd (EAL) who adding material to the site, profiling it, constructing a stormwater system and using the site for commercial activity. Two consents were granted to EAL for this activity in 2014.

Pareora Closed Landfill
The site lease was granted to a new lessee in 2015. The site was shaped and the batters improved, then the whole site was covered with additional soil and grass reseeded.

Ellis Rd
A resource consent was granted in 2017. The site profile and batters were reshaped and improved with a rockwall added for erosion protection on the foreshore.

Redruth Stage 1 Landfill
The extent of cover across Stage One is variable ranging from one metre to 100mm in places. The west side batters are inadequate and there is no leachate system resulting in leachate breakouts along the public walkway and leachate infiltration into the stormwater system. The shaping is incomplete and large parts of the site are inaccessible. See Stage One cap Section 11.25.4 for details of the plan to address this.

Pleasant Point Closed Landfill
Pleasant Point is the only significant site remaining to be capped. The back section of the site is currently poorly shaped with bunds enclosing the old landfill area. This effectively holds any rain meaning it soaks through the landfill creating leachate. Pleasant Point is the only rural site showing such impacts, so capping would be beneficial to profile the site and shed stormwater.

OPTION	Complete capping of Pleasant Point closed landfill.

The South Canterbury Model Aeroclub is considering a relocation from Redruth, where their grounds are being progressively encroached on by landfilling, to the Pleasant Point site.

11.22 Annual Monitoring Report for Environment Canterbury

Each year Council undertakes a monitoring report to measure compliance with resource consent conditions. This includes monitoring:

- Groundwater and surface water quality in and adjacent to the landfill.
- Groundwater levels under the landfill.
- Leachate disposed of to the sewer system.
- Waste quantities.
- Waste density and landfill life.
- Hazardous waste and special wastes.
- Site Operations.
- Complaints.
- An assessment of environmental effects from the landfill site and associated operations.

The report includes reporting on the Redruth site and operations and the five rural sites which require monitoring; Geraldine, Temuka, Pleasant Point, Pareora and Peel Forest. The following summary is extracted from the 2015/16 annual report

11.23 Summary of Results from 2015/16 Annual Report to Ecan

Rural Closed Landfills Assessments
All of the closed landfill sites were sampled during the most recent sampling period, as recommended in previous annual reports. For some of the sites previous sampling results had satisfied the requirements of the Closed Landfill Management Plan, however sampling was recommended in order to confirm that there are no significant changes in groundwater quality and to confirm longer term trends. Below is a brief summary of each site together with any recommendations for future sampling.

Geraldine Closed Landfill

The recent sampling round supports the previous data showing that there is currently no significant impact to groundwater associated with the closed landfill site and the risk to human health and the environment is currently considered to be low.

Although no additional sampling is required under the Closed Landfills Management Plan, to ensure that there are no long term changes, it is recommended that a further sampling round (indicator suite of compounds) is undertaken in five years time (2021).

Pareora Closed Landfill

The recent sampling round continued to show that groundwater quality has not returned to pre-2013 conditions where a spike in concentrations was noted. Although there is evidence to suggest that the original 2013 concentration spikes were not related to the closed landfill, given the ongoing variability noted and recent increase in nitrate-N concentrations in the two down-hydraulic gradient wells, additional sampling is recommended.

It is recommended that an additional sampling round (indicator suite of compounds) is undertaken in two years time (2018) to help with provide information on any longer term trends.

Peel Forest Closed Landfill

The recent sampling round supports the previous data showing no indication of the presence of any leachate impacts on the Rangitata River.

Although no additional sampling is required under the Closed Landfills Management Plan, to ensure that there are no long term changes, it is recommended that a further sampling round (indicator suite of compounds) is undertaken in five years time (2021).

Pleasant Point Closed Landfill

Groundwater sampling continues to show leachate impacts in groundwater in the eastern corner of the closed landfill in the vicinity of well J38/0238, although recent sampling shows a possible reducing trend of some of the key leachate indicators. Wells further down-hydraulic gradient of the closed landfill suggest the extent of the plume migrating from the landfill is limited in extent and does not appear to be advancing.

Ammonia-N and manganese concentrations continue to be present at concentrations above the Drinking Water Standards New Zealand Maximum Available Value. However, as there are currently no groundwater abstraction wells in the immediate area the pathway is considered to be incomplete and therefore there is no current risk to any groundwater users. A risk would however exist if an abstraction well was to be installed in close proximity to the closed landfill. Given the known presence of a landfill and current land use activities, this is considered unlikely.

It is recommended that monitoring continue as detailed in the current Closed Landfills Management Plan with six-monthly sampling for the indicator suite of compounds through to year 15 (2017).
A further LFG monitoring round is recommended to be undertaken in 2017 to confirm the previous results and ensure there is no LFG risk to any nearby land users.

Temuka Closed Landfill

Sampling carried out under Resource Consent CRC001070 associated with the closed landfill showed concentrations of all parameters to be within the range of previous sampling rounds and below the current trigger levels. One of the down gradient wells does show slightly higher nitrate-N and chloride concentrations to the other wells, but whether or not this is associated with the landfill is unknown given the other land use activities in the area (including the Temuka Stockyards).

Baseline sampling carried out for Resource Consent CRC131054 showed concentrations of the selected parameters below the specified trigger concentrations for the consent, with the exception of pH which continues to fluctuate around the lower trigger limit. Although outside of the trigger concentrations, they are not considered exceedances as they are within 10% of the up gradient well. On this basis, no changes to the consent conditions are considered warranted at this stage.

Long term routine sampling under condition 22(b) of Resource Consent CRC1311054 can now commence (six monthly sampling of wells K38/0624, K38/0627 and K38/0630). It is recommended that well K38/0631 be included in that sampling programme, but analysed for the indicator suite of compounds to help determine any trends in nitrate-N concentrations for the assessment of the closed landfill.

The Landfill and Transfer Station Monitoring and Environmental Management Plan (#313329) and the Hansen database will be regularly updated to reflect the changes to the monitoring frequency and wells sampled based on the above changes. This will ensure that the sampling is carried out as detailed in this report.

The monitoring schedule summary (#954809) has been updated and will be sent with the annual report.

Redruth Assessment of Effects on Groundwater

Groundwater sampling continues to show the presence of key leachate indicator compounds within those wells in the vicinity of the landfill indicating that groundwater has been impacted by leachate to some degree. The highest ammonia-N concentrations continue to be detected within monitoring well RR-BH17 located between the landfill (Stage One) and Saltwater Creek (i.e. sentinel well) and therefore indicates that leachate impacts are present outside of the landfill bund and in close proximity to Saltwater Creek. Water levels in Saltwater Creek have been found to be higher than the water levels in RR-BH17 suggesting migration would be limited. Whether these conditions are maintained at all times throughout the year is not known.

Wells RR-BH06 and RR-BH08 located on the western side of the site also continue to show the presence of more variable, but generally low concentrations of contaminants. Recent sampling showed an elevated ammonia-N concentration within RR-BH08. The exact cause for the exceedance is unknown as this well is located in the vicinity of Stage Three which has a geosynthetic liner and is approximately 430 m from the unlined Stage One landfill area. Sampling of the sub-drainage groundwater discharge from beneath Stage Three showed no detectable ammonia-N concentrations. Further investigations would be required to determine the source of these impacts and it is proposed to include wells RR-BH07 and RR-BH13 located in the general vicinity into the sampling programme.

Centrally in the site (RR-SW06), continuous dewatering has created a depression in the groundwater table and as a result leachate impacts are being detected in the open drain system. A concept to separate the “impacted” and “clean” water is currently being incorporated into the design of Stage 3.5. This will improve the discharge quality from RR-SW06.

The potential risk of leachate impacts in groundwater relate to groundwater users and any ecological receptors within Saltwater Creek. There are currently no groundwater abstraction wells located within 500m of the site so there is considered to be no current risk to groundwater users. With respect to the risk to any ecological receptors present within Saltwater Creek, the level of risk is dependent on the interaction between groundwater and surface water and the dilution potential provided by the surface water body. A direct assessment of the surface water quality within Saltwater Creek is discussed in more detail below.

The following groundwater monitoring programme is to be carried out over the next year:

Three-monthly water level monitoring within wells RR-BH02, RR-BH04, RR-BH05, RR-BH06, RR-BH07, RR-BH08, RR-BH13, RR-BH15 and RR-BH17.
Six-monthly sampling for the indicator suite of compounds within wells RR-BH02, RR-BH04, RR-BH06, RR-BH07, RR-BH08, RR-BH13, RR-BH15 and RR-BH17.

Redruth Assessment of Effects on Surface Water

Surface water sampling within the retention pond (RR-SW01) continues to show leachate impacts. These impacts appear to be related to point source discharges from existing/redundant infrastructure, general seepage (primarily from Stage One which is unlined) and associated with dewatering activities in the central portion of the site (i.e. RR-SW06). Despite the elevated ammonia-N and nitrate-N concentrations being detected within the retention pond and sentinel wells on the banks of Saltwater Creek, samples collected from Saltwater Creek have shown acceptable concentrations during this last period of monitoring suggesting that sufficient dilution has been occurring. Historical sampling has shown that occasionally concentrations in Saltwater Creek do exceed the Australian and New Zealand Environmental and Conservation Council guidelines. On this

basis, a risk to any ecological receptors present in this portion of Saltwater Creek does exist as a result of landfill activities, although it appears to be intermittent.

Council is actively looking to improve the discharge water quality from the site and has the following works planned:

Separation of the “clean” and “impacted” water courses in the central portion of the site to manage stormwater and future dewatering requirements, and improve the water quality being discharged from RR-SW06 (currently being incorporated in the design of Stage 3.5). Excavation and sealing of the recently identified historical discharge pipe protruding from the banks of Stage One.

Consideration of repairing or removing the discharge line between RR-SW06 and RR-SW10 to stop the current point discharge occurring (being considered as part of the site’s SMP).

In addition to the above, the following surface water monitoring programme is to be carried out over the next year:

Given the ongoing presence of leachate impacts in the retention pond and potential identified risk to Saltwater Creek, water levels and surface water sampling at RR-SW01 to RR-SW04 is to be carried out at 3-monthly intervals for the indicator suite of compounds (increased frequency from the management plan with specifics six-monthy).

The temporary surface water sampling monitoring locations RR-SW06 and RR-SW10 are to continue to be sampled on a three-monthly basis and analysed for the indicator suite of compounds.

Samples of the sub-drainage discharge from Stages 3.1 – 3.3 and 3.4 are to be collected and analysed for the indicator suite of compounds on a three-monthly basis similar to the surface water sampling programme.

Conclusion
Leachate impacts have been identified in the monitoring report for 2015/16. Voluntary reporting has increased to better understand effects within the Redruth site. Further analysis of results and a plan to address these issues and improve stormwater quality will be presented in the SMP.

11.24 Management Plans

11.24.1 Whole of Life (WOL) Plan

Council has a ‘’WOL plan’’. The WOL plan is designed to provide a framework for the overall site planning and links to the Asset Management Plan for the landfill, as well as to the LTP and Annual Plans. The plan is highly dependant on the likely long term use of the site. As a long term use has not been nominated in the Resource Consent, there is a degree of flexibility for the utilisation of the site over time. The plan is scheduled for a major review in late 2017 and will incorporate sections on:

- Landfill life and cell development timeframes in Stages Two & Three
- Capping programme for Stages Two & Three
- Capping programme for Stage One
- Landfill gas management
- Leachate management
- Stormwater management
- Long term use

- 50 year infrastructure requirements
- Resource consents
- Associated budget.

Stage Two
This area which is consented as the “new Redruth Landfill” was left unfinished with only a minimal cap. There is an advantage to the community for this stage to be competed and capped with many environmental, social and economic benefits.

Stage Three
The WOL plan will propose a landfill build programme based on the current tonnages, and data will be inputted to review trends and change timelines as necessary. At this stage, a three year programme is planned for each cell
Year 1 – drainage and pre-works & capping of a previous cell
Year 2 – design
Year 3 – tender and build

At current waste trends, the landfill will be closed in 25-35 years.

Stage Two & Three
The Stage Two & Three area is consented as one landfill area. A technical report on the proposed cap profile for the whole area has been presented to Environment Canterbury. Once approved, remaining volumes across both Stage Two & Three can be calculated giving a more accurate picture of landfill life, and the ability to design each future cell to an approved design level.

OPTION	Build Stage Two & Three landfill cells as per WOL programme (25 years life).
OPTION	Cap Stage Two & Three landfill cells as per WOL programme.

11.24.2 Stormwater Management Plan (SMP)

Research is underway by Council in order to complete the SMP for the Saltwater Creek catchment inclusive of the Redruth Resource Recovery Park. For the Redruth site, work is needed to address the leachate issue which results in high ammonia in the groundwater. Projects will be proposed in the LTP and may include:

- Trickle feature to oxygenate water turning ammonia into nitrites
- Further development of the west swale to treat stormwater
- Bringing SW06 stormwater overland.

OPTION	Implement stormwater management projects as per SMP.

11.24.3 Landfill Gas Strategy (LFG)

In 2017, a LFG was completed for the Redruth Landfill (#1069126). The strategy includes:

- A description of work to be done, including justification for LFG collection
- LFG generation calculations
- Concept layout plans, including staging
- Implementation programme
- Cost estimates.

This work draws on information provided in the WMNZ LFG Strategy Review.

OPTION	Implement landfill gas strategy as per WOL programme.

11.24.4 Stage One Capping Plan

In 2017 the "Redruth Landfill Stage One Capping-Preliminary design report" (#1070019) was completed by Tonkin & Taylor. The design objectives were to:

- Provide separation between filled refuse and any future activity on site
- Provide a suitable surface for future activities
- Minimise potential for infiltration of stormwater and associated leachate production

A capping design to meet these objectives was completed and the site is broken into 17 areas for future capping. These areas will be scheduled into the LTP in order to complete capping before the current landfilling is completed i.e. over the next 25-35 years. The areas of priority are:

- Crow's Nest area to prepare ground for the Eco-Centre
- Compost facility working area
- Stage 1 areas abutting Stage Three cell developments.

OPTION	Cap Stage One of landfill as per WOL programme over 25-35 years.

11.25 Cleanfill Sites

The Council accepts cleanfill at the following locations.

Table 69: Locations Cleanfill Accepted

Location cleanfill accepted	Quantity Accepted	Destination
Redruth Landfill	Truck loads	Cover for tipping face and civil construction
Redruth transfer station	Trailer loads	Cover for tipping face and civil construction
Temuka transfer station	Trailer loads	Old Temuka landfill
Geraldine transfer station	Trailer loads	Old Geraldine cleanfill
Pleasant Point transfer station	Trailer loads	Old Pleasant Point landfill

Council has a number of old gravel pits that could be used as cleanfill sites, e.g. sites located at Divan Road, Coach Road and Beck Rd. Divan Rd has been leased to Paul Smith Earthmoving as a cleanfill site. Council should consider identifying some sites for future emergency fill sites as part of an emergency management plan. It is prudent to obtain appropriate approvals or consents so that the sites can be officially nominated as sites for emergency use. It would be expected that certain conditions will apply for emergency sites and these will determine what materials can be accepted, any pre-sorting that may be required, storage time and any other condition that may pertain to the site. This pre-empts any possible delays during the event or issues with planning and consents after the event.

A number of private contractors own and operate cleanfill sites. Similarly, there are a number of cleanfill sites on private property that are also being used. Securing access to a site is likely to be more problematic for small earthmoving contractors compared to larger earthmoving contractors. Contractors will always be looking for people who may want hollows, depressions and pits filled.

11.26 Illegal Dumping and Burning Waste

Illegal dumping is when people choose to dispose of their waste usually in public locations, however, some dumping may occur on private property in non-approved pits. The minimum charge to dispose of waste at transfer stations was reduced from $15 to $10 from 1 July 2016. This may reduce illegal dumping.

As the total tipping fee increases, people may seek alternative disposal options and illegal dumping may increase. Burning of waste is one option, this is prohibited under a Council bylaw. It is important to record and monitor incidents of illegal dumping along with enforcement and follow-up measures, in conjunction with Environment Canterbury.

Illegal dumping is monitored in-house by the Pollution Prevention Officer, Karlee Cook. Any incidents of illegal dumping should be reported to Council and logged as a service request.

11.27 Timaru Emergency Management

- **Natural Disasters**

Based on historic events, there is a need for Council to plan for the clean up of debris and waste after a major natural disaster. The most severe natural disasters generate debris in quantities that can overwhelm existing solid waste management facilities or force communities to use disposal options that otherwise would not normally be acceptable. Recent events include the floods of 1985 and the snow of 2006 which both generated significant quantities of debris. Earthquakes in Christchurch have demonstrated the significant amount of debris that can be generated. The following table identifies some of the generic waste that will be generated from a natural event.

Table 70: Waste from Emergency Events

	Waste Generated						
Event	Coronial Livestock	Building	Fill/Rubble	Sediment	Green waste	Personal & Business Property	Ash & Charred Wood
Snow	✓	✓	✓	✓	✓	✓	
Flood	✓	✓	✓	✓	✓	✓	
Earthquake	✓	✓	✓	✓	✓	✓	✓
Tsunami	✓	✓	✓	✓	✓	✓	
Fire	✓	✓	✓			✓	✓
Wind	✓	✓	✓	✓	✓	✓	

Preparing a disaster waste management plan in advance can pay off in the event of a natural disaster. Planning can help a community identify its debris collection, recycling, and disposal options. Although the recovery process may take a long time, careful planning will prevent costly mistakes, assist a speed recovery, and avoid creation of more waste. A plan can also save money by identifying cost-effective debris management options and sources of help, increasing control over debris management in the community, and improving administrative efficiency.

The disaster waste management plan should include a detailed strategy for debris collection, temporary storage and staging areas, recycling, disposal, hazardous waste identification and handling, administration and dissemination of information to the public. It will be necessary to distribute the plan and work with personnel from respective agencies to ensure that the plan can be implemented quickly and smoothly.

OPTION	Ensure waste disposal options are included in emergency plans.
OPTION	Obtain consent for Pleasant Point pit as an alternative dumping site for emergency waste.

11.28 Waste Spills and Events

In the case of a significant spill or event, there may be a requirement to dispose of waste into Redruth landfill. An application using the waste manifest will be necessary to ascertain the type of waste and the quantity of chemical and advice from Council's contractor and or specialist advisors will be required to determine if it is acceptable to dispose of into landfill.

12 TIMARU PUBLIC INFORMATION

12.1 Timaru Public Information Progress

12.1.1 Solid Waste Plan Progress for Community Participation

Table 71: TDC SWP Public Information

Action Programme 11	Community Participation	Status
Objectives		
Develop facilities for environmental education.	In the past, Council has decided not to proceed. The SSCT has relocated a building to be developed as an environmental education facility.	Underway
To provide relevant, up to date, readily available information to maximise community participation in the various programmes.	Various advertising mediums are used to provide information.	Achieved
Educate the public through residential, business and school programmes to better understand and participate in resource conservation and the integrated programmes of the SWP.	Solid waste information and education are provided across the various sectors of the community. The question is should more resources be provided?	Achieved

Action Programme 11	Community Participation	Status
Develop community awards programme for environmental performance.	Placemakers was recently recognised for good performance. This 3-2-1-ZERO waste trophy and certificate can be awarded six-monthly.	Achieved
Performance Measures		
Number of employees involved in community participation programmes.	0.5 FTE staff.	Achieved
Number of publications and distribution.	Radio adverts, monthly newspaper articles and adverts, pamphlets, posters.	Achieved
Number of event presentations and attendees.	Data is kept for talks and tours, number of zero waste events and people participating.	Achieved
Number of schools and businesses participating in prevention and reduction programme.	Data is kept on schools participating in talks and tours on an ad hoc basis. Businesses are offered assistance on waste minimisation.	Achieved
Number of participants in community awards.	2010/11 - one business.	Achieved

12.1.2 WMMP Progress for Community Participation

Plan date	Target date	Description	Status
2012-2015	2012/13	Install public place recycling (PPR) facilities in highly used areas. (21 sets installed in Caroline Bay)	Achieved
2015-2018	2015/16	Install PPR in Geraldine (four sets)	Achieved
	2016/17	Install PPR in Temuka (three sets)	Achieved
	2017/18	Install PPR in Pleasant Point (one set)	Future

12.2 Waste Minimisation Officers

The Council employs three staff in full time roles. Staff roles are as follows:
1FTE – Management
1FTE – Administration e.g. kerbside collection, resource consents, asset register
1FTE– Education including school and community talks, tour and programmes and business support.

12.3 Information Demand

There is a steady demand from the community for talks and tours. Staff complete and monitor work as shown in the following tables.

Table 72: Attendance at talks and tours

	Talks (no.)	People at Talks	Facility Tours (no.)	People on Tours
2006/07	27	2,805	23	244
2007/08	49	1,725	18	952
2008/09	25	1,415	26	1,069
2009/10	54	2,306	32	842

2010/11	31	644	26	628
2011/12	35	1,149	21	465
2012/13	33	1,205	23	925
2013/14	25	814	17	589
2014/15	41	1,467	24	885
2015/16	40	1,209	23	813

Data Source: Refer #1002596 –Public Information tab

Table 73: Zero Waste Events

	Zero Waste Events	attendees	Number of bins provided		
	(no.)	(no.)	recycling	organics	rubbish
2009/10	16	10,870	104	45	49
2010/11	24	48,975	178	83	87
2011/12	21	32,265	115	60	68
2012/13	22	37,020	104	59	69
2013/14	26	43,470	197	124	117
2014/15	23	62,700	86	67	80
2015/16	27	68,975	99	91	95

Data Source: Refer #1002596 –Public Information tab

Table 74: Business visits

	Business visits
2009/10	51
2010/11	56
2011/12	47
2012/13	38
2013/14	57
2014/15	26
2015/16	45

Data Source: Refer #1002596 –Public Information tab

Table 75: Sustainable Living Education Trust

	SLET data		
	talks	no of attendees	website users
2014/15	3	37	
2015/16	2	10	22

Data Source: Refer #1002596 –Public Information tab

Table 76: Modern Cloth Nappies

	Modern Cloth Nappies	
	Registrations	Attendees
2014/15	30	40
2015/16	48	59

Data Source: Refer #1002596 –Public Information tab

12.4 Information

Council provides a range of information to the community:

- Weekly Council notice board for bin collection days, waste tips and periodic articles.
- High Country Herald and the Courier community newspapers for monthly articles including an editorial and an advertisement.
- The Timaru Herald and The Geraldine News for occasional articles.
- Classic Hits and Port FM for radio advertisements.
- Council website for a range of specific information on facilities, services and general waste information.
- Printed hand-outs.

12.5 School Education Programme

Council does not have a dedicated Schools Education Programme as such. The main focus has been to ensure that all schools, preschools, kindergartens and childcare centres have all the infrastructure they need to sort their waste and this has been largely completed.

Council offers a Zero Waste lesson, designed for any age group. This is often followed by a tour of the facilities at Redruth. It is worth noting that due to the Health and Safety requirements for taking children off school property, these school visits have declined. Council now offers to pay for half the bus service needed to visit the site. Many schools call us when they want advice and assistance for particular programmes or study themes such as Litter Less Lunches, edible gardens, composting and worm composting set up. Staff respond to these requests on demand. Composting on site and edible gardens are recent developments and the schools involved are dedicated. Council has resources (books, guidelines, instructions, and lessons) to help schools.

- **Retain Existing Level of Service**
  Council responds well to requests from schools for further assistance in a variety of areas and provides what schools are seeking specifically. Existing staff and budget cater for a low level of input into schools' educational programmes related to waste minimisation. Enviroschools via a contribution to Environment Canterbury are supported with $5,000 funding per annum.

- **Increase Programme**
  Once the Eco-Centre is in place, there is an opportunity for the level of education to be increased with talks/tours to be facilitated on site. The site, specifically the shop, may need to be open fulltime, so the facility is accessible. Staffing maybe internal or contracted to SSCT.

OPTION	Evaluate cost of community education at SSCT Education Centre or internally.

12.6 Business Programme

On an ongoing basis, Council works with businesses to help minimise waste, e.g. schools, hospitals, supermarkets, hospitality, retailers, builders, manufacturers and processors; the list is extensive and growing. A global recession has focussed business interest in saving money, which leads to more commitment to reduce waste to landfill, and, in some instances, the sale of materials they would otherwise have paid to dispose of in the landfill. Word of mouth within industry groups and encourages those within the industry to join up, especially where cost savings are proven.

Council staff undertake waste audits to identify waste minimisation opportunities and provide a report to the business suggesting options and required infrastructure. In some cases, Council will supply containers, labels, posters and staff education to assist in waste diversion on a cost share basis.

Council has established a trophy and certificate to be awarded on a 6-monthly basis for effort and achievements in waste minimisation for businesses.

Refer to the section on reduction (6.9) It is proposed to increase business education staff resourcing by 0.5 FTE (increase of 0.5 FTE) to assist businesses with recycling and recovery of waste with a goal of introducing waste reduction at source initiatives.

OPTION	Refer to Timaru Reduction Options - add 0.5 FTE for business assistance to improve sorting and compliance through education and with a goal of introducing waste reduction at source initiatives.

12.7 Sustainability Centre

The only objective in the Council SWP not to be completed is the development of facilities for educational purposes.

An outline concept of a Sustainable Futures Park in 2006 was adopted by the SSCT. The Trust's lease has been extended to include the grass area to the east of the Crow's Nest out to the walkway around the edge of the site and it is envisaged this area could be developed. The Trust has relocated the old Highfield Tennis Club building to the Crow's nest site and planning for the permanent facility is well underway.

OPTION	Subsidise building cost of Eco-Centre including any specific costs associated with protection against landfill gas.

The "Park" would provide resources with a focus on sustainability and could include:

- A building for sustainability information, research and education;
- Resources to focus on waste minimisation, recycling and compost displays;
- Water management and conservation displays and resources;
- Energy management and conservation display and resources;
- Building design and practices;
- Transport initiatives;
- Workshops for adding value to waste materials.

The purpose of the Park is to provide a place where people can see working examples of sustainable practices, e.g. wind turbines, solar energy systems and water storage systems. A central building on site would enable visitors to access information and provide a learning platform for all ages across a range of information.

The Sustainable Futures Park would be developed in stages. It is envisaged that the Trust will use surpluses to fund parts of the Park in conjunction with funding from private

parties, central government agencies and grants. Details on how the park will operate are still to be developed and worked through with the various parties. The location of the building has been determined and Council will ensure the ground levels at the site match in with the overall cap design for Stage One before the building proceeds.

REFER	Cap Stage One of landfill as per WOL programme over 25-35 years.

13 FURTHER INFORMATION

13.1 Australian Experience – NSW

The NSW Waste Avoidance and Resource Recovery Act 2001 (WARR) requires a report every two years on progress towards the objectives and targets established in the NSW WARR Strategy. This most recent report is a half way progress report based on 2008–09 data.

The WARR Strategy prescribes a 66% diversion from landfill for municipal waste; 63% for Commercial & Industrial waste (C&I); and 76% for Construction & Demolition (C&D) waste by 2014.

From 2003-04 until 2008-09, recycling of municipal waste increased from 30% to 44%, C&I recycling jumped from 34% to 52% and C&D recycling improved from 64% to 73%.

The Review suggested setting sub-targets annually in 2011-12 and 2012-13 for all three waste streams; and resource recovery targets for specific materials, in particular, for food/garden organics and paper/cardboard.

A snapshot of findings from the Review identified the following challenges and opportunities:

1. Improve the effectiveness of dry recyclables recovery and expand systems to recover food waste and garden organics from households.

2. Improve recovery of paper/cardboard and establish new systems to recover food, timber pallets and plastic film from the C&I sector.
3. Encourage greater C&D recovery in areas outside of Sydney.
4. Continue to focus on waste avoidance though reducing unnecessary food waste, improved packaging and product design and supply chain improvement.
5. Continue to work with the Commonwealth and states and territories to resolve existing national product stewardship schemes and initiate action on additional national priority wastes.
6. Build on the success and effectiveness of the Household Chemical Cleanout program to provide households with greater access to collection facilities.
7. Improve actions to drive down litter including exploring options for further national measures to deal with packaging litter.
8. Continue to work with local governments and the community to reduce illegal dumping.

It is also the intention of the Government that the waste levy will provide an increasingly strong incentive for both waste avoidance and resource recovery as the future levy increases are legislated and known to Councils and industry.

The Waste Avoidance and Resource Recover Strategy Progress Report 2010 is available on the Department of Environment, Climate Change and Water's web site at: www.environment.nsw.gov.au/warr.

All of the points listed one to eight above are similar in nature as a strategic direction for Timaru District Council.

13.2 Community Requirements/Consultation

Some informal verbal consultation has been undertaken with waste collection companies, schools and business owners. Written feedback will be sought as part of the Special Consultative Procedure to be conducted for the WMMP. The Waste Assessment will be sent to the Medical Officer of Health at South Canterbury District Health Board.

13.3 Council Contracts Summary

The following is a summary of contracts for the Council and when they terminate.

Table 77: Contract End Dates

Contract Description	Termination
Timaru District:	
Solid waste services contracted to WMNZ: kerbside collection, transfer stations, MRF, composting and landfill.	30 June 2021, with extension subject to approval of both parties.
Crow's Nest collection and operation.	2019
Litter bins – Land transport – operated under the roading maintenance contract (Fulton Hogan)	2020
Litter bins – Parks	varied

14 WMMP STRATEGIC PLANNING

14.1 WMMP 2012

Council must strive to achieve the outcomes of the WMA and the goals of the NZWS. While there are a number of options identified in this assessment, actual proposals or actions to be completed for the next six year period of Council's WMMP will be given strategic direction by the goals/targets and objectives to be set in the WMMP for the 2018-2028 period.

To recap:

1. The following key clauses are from the WMA
    - S3 The purpose of this Act is to encourage waste minimisation and a decrease in waste disposal in order to –
        - protect the environment from harm; and
        - provide environmental, social, economic, and cultural benefits.
    - S42 A territorial authority must promote effective and efficient waste management and minimisation within its District.

The following goals are from the NZWS.

- Reducing harmful effects of waste.
- Improving resource efficiency use.

14.2 What Does This Mean for Council?

In the "Waste Management and Minimisation Planning – Guidance for Territorial Authorities", MFE states:

"Effective and efficient waste management and minimisation is achieved when less waste is going to landfill, when resources are used wisely, when the economic cost of managing waste is reduced and when societal costs and risks are minimised.

It is unlikely that the best individual economic, environmental, cultural and societal outcomes can be met simultaneously, and there may be a higher economic cost (for instance) to achieve optimum environmental, social and cultural outcomes. In these cases Councils must weigh the costs of benefits of each aspect (economic, cultural, social and environmental) to arrive at the optimum overall solution for each District.

Similarly, there may be a trade-off between short and long-term costs – for instance, greater up-front costs may lead to lower on-going operational costs into the future."

14.3 Where do we want to be?

The services chapters of this Waste Assessment have reviewed the current situation with respect to waste management and minimisation services in the Timaru region and have considered the potential for growth and other drivers. The purpose has been to assist in forecasting future demand for various services and to determine the suitability of the current services when considering both public health and waste minimisation issues. This exercise has also assisted in setting the baseline from which any future goals and/or targets will be set, as well as helping to identify possible options for achieving them.

The following sections set out the Timaru District Council's preliminary vision, goals, objectives and targets for achieving waste reduction. These have been developed in a draft form only as a method to assist in the consideration of options as they are subject to revision prior to drafting of the WMMP.

14.4 Vision

Table 79: Vision Statements

Timaru District Council
A sustainable community that is able to reuse, recycle and recover discarded resources and minimise residual waste to landfill, while ensuring protection of human health and the environment.

The concept of a vision is where we, as a community, want to be in the future. The ultimate aim is that once a person/business no longer requires an item or material then the necessary infrastructure and resources are in place for that item/material to be reused, recycled or recovered instead of being buried in the ground. Society needs to move towards full utilisation of materials and not the throw-away model of an inefficient society from the past. However, in the short term we still need to dispose of our waste in a safe way with minimal impact on the environment and human health until more effective methods are viable.

The Ministry for the Environment definition of sustainability is *''about meeting the needs of today, without adversely impacting on the needs of tomorrow".*[1]

As a modern society it is irresponsible to plunder the natural resources that may be limited in the future. While it is not possible to make wholesale changes to everything in a short time frame, implementation of methods for improved resource utilisation and lessening impacts can be achieved progressively while keeping an eye to the future for the harder parts still to be achieved.

14.5 Goals

Zero Waste to landfill is the driver for reduction of waste, reuse, recycle and recovery. It is possible to achieve zero waste to landfill and some businesses overseas have achieved this. Asahi Breweries in Japan have been recycling waste and by-products at all

[1] http://www.mfe.govt.nz/issues/sustainable-industry/tools-services/definition.php

breweries since 1998 and in 2009 achieved 100% recycling of waste for the Asahi Breweries Group as a whole.[1]

The concept of 100% reuse, recycling and recovery of a greater range of materials is not so easy across a widespread community, with higher costs to collect and sort materials for the community. In the medium term at least, there will still be a need to landfill waste.

Table 80: Zero Waste Goals

Timaru
A goal of Zero Waste to landfill by 2015 was adopted by Timaru District Council in 1999. As an interim target TDC is committed to achieving 80% diversion of waste from the Redruth landfill by 2010.

Table 81: Waste to Landfill Baseline Tonnes

	Baseline Tonnes		Tonnes to landfill	Reduction % against baseline
2010/11	2005/06	44,113	20,475	54%
2015/16	2005/06	44,113	26,638	40%

To measure progress of zero waste to landfill, 2005/06 was established as the baseline year. Although more materials are being diverted, waste has increased, so the reduction in waste to landfill against the baseline is reduced.

While good initial progress has been made on waste diversion by Council, it will become harder and more expensive to address the remaining waste streams. The zero waste targets are aspirational and Council must seek to address remaining waste streams to improve diversion of waste from landfill.

Table 82: Target Tonnes

District	Baseline Tonnes		Target Tonnes 20% to Landfill	Zero Waste to Landfill Target
Timaru	2005/06	44,113	8,823	20% (80% diverted)

14.6 Timaru

For Timaru to send just 20% of the 2005/06 baseline waste tonnage to landfill (8,823 tonnes), further diversion of 17,825 tonnes would be required.

Table 83: Waste to be Diverted to Achieve 20% Waste to Landfill of Baseline Tonnes

Diversion required	2010/11	2015/16
Tonnes	12,824	17,825

The Zero Waste to landfill goal is aspirational but initiatives to further waste minimisation and specifically achieve diversion of waste from landfill, must be strongly considered. The costs of doing so, needs to be set against the long term costs of failing to do so with a

[1] http://www.asahibeer.co.jp/english/responsibility/pdf/csr/2010/summary10_e_environment.pdf

limited landfill life in sight. Increasing the landfill fees will reduce waste to the Redruth landfill, however, this may just divert waste to another landfill.

The most practical option is to focus on particular waste streams only, e.g. timber and increase diversion in steps. Enforcement of the bylaw is the most affordable option and this could be the first step.

Council will need to consider community requirements and the level of service required, and what the community are prepared to pay for in determining future waste diversion and targets.

14.7 Considerations

There is a need to:

- Plan waste management and minimisation for the long term in the community's interest as aligned to desired community outcomes.
- Consider the economic feasibility of new or improved services, to ensure rates increases are kept at a minimum.
- Continue moving towards diversion of waste.
- Continue monitoring of waste in the region including volumes and composition, plus gathering what information can be obtained regarding commercial and industrial sources of waste.
- Work collaboratively and effectively with neighbouring Councils and/or the private waste sector to obtain economies of scale, e.g. application for and use of waste levy funds from the Waste Minimisation Fund and for lobbying of national waste issues.
- Realise that the cost of disposal to landfill will increase with the national waste levy and the proposed introduction of an Emissions Trading Scheme on all waste disposed of to landfill.
- Consider the use of the allocated waste levy funds to be pooled for waste minimisation initiatives that are identified and costing to be provided for in Council's WMMP.
- Provide for funding in Council's LTP and subsequent Annual Plans and monitor progress through Annual Reports and in progress reporting to the MfE on implementation of the WMMP as now required by the WMA.

14.8 Goals

Table 85: Timaru Goals

Timaru Goals		
Protect public health. Protect the environment. Provide effective and efficient services in a sustainable manner.		

Objectives and methods are further outlined in the WMMP.

14.9 Targets

The targets and operational performance measures will be reviewed and set in the 2018 WMMP.

14.10 Other initiatives

Council considers that Central Government could provide Local Authorities more support in funding waste minimisation. This could be done by increasing the percentage of the waste levy given to Councils, as Local Authorities are faced with the majority of the cost of implementing new waste minimisation initiatives and will invariably have to increase their rate take to achieve any long term waste minimisation targets.

Council also considers that Central Government could strengthen criteria for product stewardship, which relate to certain identified products, and that this information could be published so that results could be analysed by all. The declaration of key products requiring mandatory product stewardship would level the playing field, enhance diversion of waste from landfill and reduce costs for Councils.

This could then place pressure on high volume wastes such as packaging, which would in turn drive product development so that packaging material can be recycled or reused, thus achieving waste minimisation.

Refer section 2.5.

15 APPENDICES

15.1 Appendix A: Waste Assessment Requirements

The Waste Minimisation Act (s51) states:

1. A Waste Assessment must contain -
   (a) a description of the collection, recycling, recovery, treatment, and disposal services provided within the territorial authority's District (whether by the territorial authority or otherwise).
   (b) a forecast of future demands for collection, recycling, recovery, treatment, and disposal services within the District.
   (c) a statement of options available to meet the forecast demands of the District with an assessment of the suitability of each option.
   (d) a statement of the territorial authority's intended role in meeting the forecast demands.
   (e) a statement of the territorial authority's proposals for meeting the forecast demands, including proposals for new or replacement infrastructure.
   (f) a statement about the extent to which the proposals will -
      i ensure that public health is adequately protected;
      ii *promote effective and efficient waste management and minimisation.*

1. An assessment is not required to contain any assessment in relation to individual properties.
2. Information is required for an assessment to the extent that the territorial authority considers appropriate, having regard to -
   (a) the significance of the information.
   (b) the costs of, and difficulty in, obtaining the information.
   (c) the extent of the territorial authority's resources.
   (d) the possibility that the territorial authority may be directed under the Health Act 1956 to provide the services referred to in that Act.
1. *However, an assessment must indicate whether and, if so, to what extent, the matters referred to in subsection (3)(b) and (c) have impacted materially on the completeness of the assessment.*
2. *In making an assessment, the territorial authority must -*
   (a) use its best endeavours to make a full and balanced assessment.
   (b) consult the Medical Officer of Health.

15.2 Appendix B: Timaru Fees and Charges 2016/17

Solid Waste Fees & Charges Policy adopted by Council 21 September 1998
That where the actual disposal of special waste is not recovered by the standard charges, then the waste generator shall pay the actual disposal costs. That no dispensations be granted for exemptions from tipping fees, including Council Groups.

Kerbside options
(All charges GST inclusive)

Summary of Options				
Option	Compost Weekly Collection	Recycle Fortnightly Collection	Rubbish Fortnightly Collection	Cost per year in Rates
Small	140 litre	140 litre	140 litre	$279.00
Standard	240 litre	240 litre	140 litre	$279.00
Large	240 litre	240 litre	240 litre	$379.00
The small and large options are available upon application.				

Extra Bins
It is likely that there will be situations where people will require extra bins. For example, an extra recycle or rubbish bin for businesses, an extra compost bin for properties with a large garden. This option is available on application, and will be invoiced pro-rata in the first year, after which costs will be charged on rates.

Extra Bin Fee	**Compost**	**Recycle**	**Rubbish**
Small	$111.00	$71.00	$136.00
Large	$131.00	$81.00	$196.00

Replacement Bin Fee	**Compost**	**Recycle**	**Rubbish**
Small	$100.00	$100.00	$100.00
Large	$110.00	$110.00	$110.00

PLEASANT POINT Transfer Station

A Waste Levy of $11.50 per tonne is recovered by Council on behalf of Central Government. This is incorporated into the fees.

	Car/Small Hatchback	Station Wagon or Double Cab Ute	ALL OTHER VEHICLES The charge is by measured volume i.e. load m^3 = (X x Y x Z)
[1] Rubbish	$10.00	$22.00	$25.00 / m^3 Minimum fee $10.00
[2] Rubbish with Timber mixed	-	-	$23.00 / m^3 Minimum fee $10.00
[3] Sorted mixed load Rubbish / Organic Minimum 50% organic	$12.00	$18.00	$21.00 / m^3 Minimum fee $10.00
Sand, Soil, Clay	$3.00	$3.00	Trailer loads $8.50
Garden	$7.00	$10.00	$8.00 / m^3 Minimum fee $7.00
Recyclable	Free	Free	Free

[4] Wheelie Bin drop off (missed bins)	Rubbish Bin (Red) $10.00 per bin	Organics Bin (Green) $7.00 per bin

Truck loads not accepted at Pleasant Point.

[1] All volume based charges for waste include a waste levy charge.

[2] Sorted loads must contain 50% green waste by volume or they will be charged at the higher of the two rates which apply.

[3] Mixed Loads with Timber must contain 25% timber waste by volume, not including sheet timber. Approval by Transfer Station operator required

[4] Where two or more bins of the same type are brought, the charge will be per bin or the vehicle charge, whichever is lesser.

GERALDINE, TEMUKA, and TIMARU (Weighbridge)
A Waste Levy of $11.50 per tonne is recovered by Council on behalf of Central Government. This is incorporated into the fees.
Key: *t* = Tonne

	All Vehicles Charged by Weight	
	Charge per Tonne	Minimum Charge
Rubbish	$199.00 / *t*	$10.00
Rubbish with Timber mixed	$187.00 / *t*	$10.00
[1] Sorted mixed load Rubbish / Organic Minimum 50% organic	$131.00 / *t*	$10.00
[2] Timber (at Timaru Only)	$175 / *t*	$10.00
Sand, Soil, Clay	$8.50 / *t*	$7.00
Organic	$73.00 / *t*	$7.00
Recyclable	Commercial recycling delivered to the Materials Recovery Facility is $50.00 / *t*	$10.00

Public Weigh	$8.00	
[3] Wheelie Bin drop off (missed bins)	Rubbish Bin (Red) $10.00 per bin	Organics Bin (Green) $7.00 per bin

[1] Sorted Mixed Loads must contain 50% organic waste by volume or they will be charged at the higher of the two rates which apply.
[2] Mixed Loads with Timber must contain 25% timber waste by volume, not including sheet timber. Approval by Transfer Station operator required.
[3] Where two or more bins of the same type are brought, the charge will be per bin or the vehicle charge, whichever is lesser.
Free drop-off facilities for recyclable materials are provided at the various Council locations.

SPECIAL WASTE STREAMS

A **Waste Levy** of $11.50 per tonne is recovered by Council on behalf of Central Government. This is incorporated into the fees.

Key: *t* **= Tonne**

Waste Materials Requiring Permits

Criteria apply for the delivery of the following goods. Customers may apply to Council for the following permits:

Permit Type	Description of Materials	Cost of Permit	Cost of Materials
Organics Permit	Delivery of organic materials to the Compost Facility	$50.00	$63.00 / *t* Minimum fee $7.00
Polystyrene Permit	Delivery of clean packaging polystyrene to the Materials Recovery Facility	-	$5.00 / woolsack $10.00 / m^3
Landfill Access Permit (LAP) Waste Category	Delivery of waste to Redruth Landfill	$50.00	Waste: $166.50 / *t* Minimum fee $38.00 Sorted Timber: $150.00 / *t* Minimum fee $30.00
Landfill Access Permit (LAP) Cleanfill Category	Delivery of cleanfill to Redruth Landfill	$50.00	Concrete: $12.00 / *t* Slurry: $7.00 / *t* Other cleanfill: as notified
Waste Manifest: Required for Special or Hazardous Waste	Waste Manifest Application processing fee (per application)	$25.00	$199.00 / *t* Minimum fee $10.00
Wastes requiring burial			Actual cost + service fee Minimum fee $120.00
Drive-off administration charge		$25.00	

RECYCLING SERVICES

ESCRAP	
Computer Screens	$10.00
Televisions	$15.00
[1] Other electrical items	
Heaters, modems, fans, switches, routers, computer speakers, drills, alarm clocks	$2.00
Printers, scanners, fax machines	$10.00
Photocopiers up to 0.5m^3	$25.00
Photocopiers Large	$45.00
Vacuums and microwaves	$6.00
Items accepted at no charge	
Laptops	
VPS units	
GPS units	
Digital cameras	
Cellphones	

[1] These items can only be accepted at a charge to cover handling, freight and dismantling. Due to the low metal content, these items can no longer be accepted by scrap metal dealers.

These charges are provisional and will only be implemented where full recycling solution is available in the South Island.

Tyres	
Car / 4x4 / Light Truck	$5.00
Heavy Truck	$15.00
Tractor	$70.00
Per tonne	$650.00

COMPOST SALES **As set by** **Waste Management Ltd**	
20 L Bags – Premium	$5.00
20 L Bags – Lawn Conditioner	$10.00
Standard per tonne Minimum charge $20.00	$100.00
Premium per tonne Minimum charge $24.00	$120.00

BAGS available at all Transfer Stations

BULK compost available at Timaru, Geraldine and Temuka

15.3 Appendix C: Timaru District Bylaw

Council's Solid Waste Bylaw Chapter 14 provides regulation by way of a "Landfill Access Permit" for waste service providers and businesses who dispose of waste direct to the landfill. This permit requires compliance with the bylaw in terms of waste acceptance criteria. Waste service providers are also licensed under the Health Act to make sure that their operations do not cause a nuisance.

The bylaw can be found at www.timaru.govt.nz

15.4 Appendix D: Glossary

Carbon Efficiency	CE
Container Deposit Systems	CDS
Earthworks Aoraki Limited	EAL
High Density Polyethylene	HDPE
Landfill Gas Strategy	LFG
Local Government Act 2002	LGA
Long Term Plan	LTP
Low Density Polyethylene	CDPE
Materials Recovery Facility	MRF
Ministry for the Environment	MFE
New Zealand Emissions Trading Scheme	NZETS
New Zealand Waste Strategy	NZWS
Polyethylene Terephthalate	PET
Public Place Recycling	PPR
Request for Proposal	RFP
Resource Management Act 1991	RMA
Resource Recovery Park	RRP
Solid Waste Plan	SWP
Stormwater Management Plan	SMP
Sustainable South Canterbury Trust	SSCT
Territorial Authority	TA
Timaru District Council	TDC
Unique Emissions Factor	UEF
Waste Avoidance and Resource Recovery	WARR
Waste Management and Minimisation Plan	WMMP
Waste Management New Zealand Limited	WMNZ
Waste Minimisation Act 2008	WMA
Whole of Life	WOL