Waste Assessment

Gisborne District Council

August 2017

REIMAGINEERS

Combining imagination and science to repurpose waste

Contents

Disclaimer

This document was prepared between July 2017 and August 2017 using information gathered from a variety of sources. Data was sourced from the private sector or has been compiled from Council data sources and reports. While every effort has been made to achieve a reasonable degree of accuracy in this Waste Assessment, it must be noted that there are significant limitations due to the level of data availability.

1.0 Executive Summary

1.1 Introduction and Context

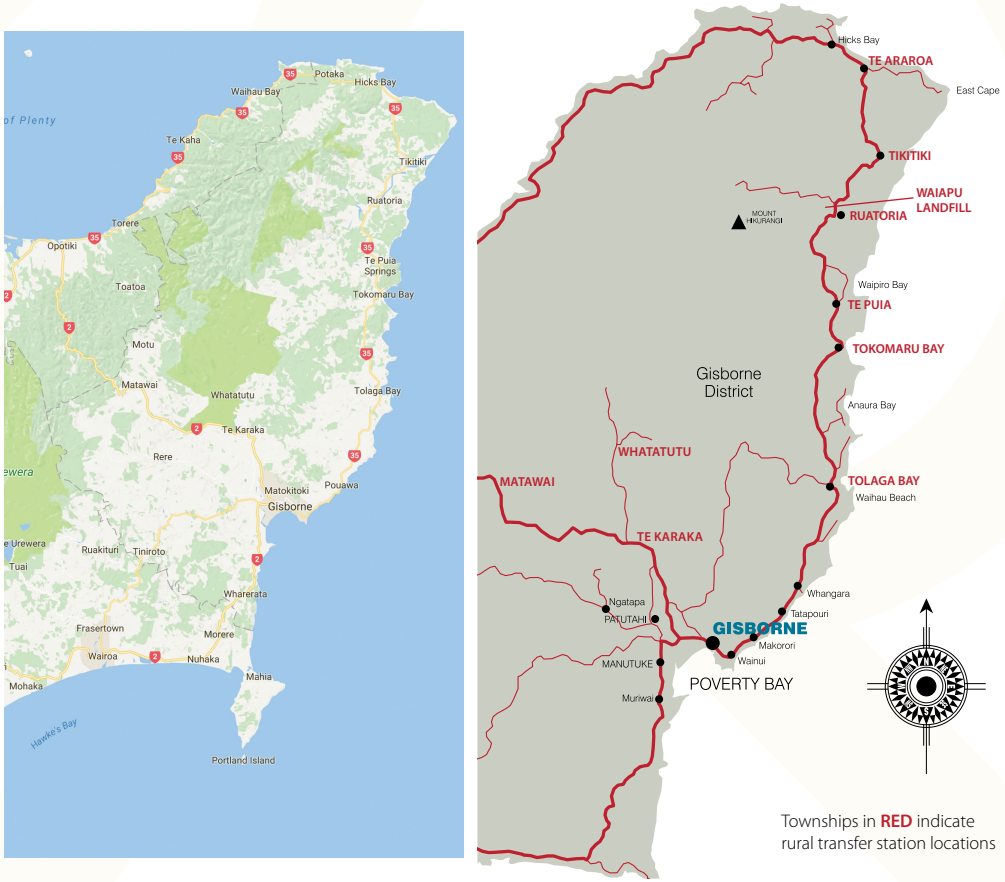
This waste assessment has been prepared for Gisborne District Council (GDC) in accordance with the requirements of the Waste Minimisation Act 2008 (WMA). Under the WMA, GDC has a statutory responsibility to promote effective and efficient waste management and minimisation within the District.

This waste assessment establishes the planning foundations for a Waste Management and Minimisation Plan (WMMP) for Gisborne District by describing the waste situation, setting the vision, goals and objectives for the district, and developing options for meeting future demand.

As well as the Waste Minimisation Act 2008, the waste assessment takes into consideration a number of other Acts and amendments and a range of national, regional and local strategies, policies and projects.

1.2 The Current Situation

This Assessment includes infrastructure owned and/or provided by GDC and by the private/community sectors.



Map 1: Gisborne Geographic Boundaries and Location of Refuse Transfer Stations

1.2 The Current Situation - the waste we generate

1.2.1 Disposal

Gisborne Resource Recovery Transfer Station (RRTS) is operated by Waste Management NZ Ltd who currently truck all unsorted waste to the Tirohia Landfill in Paeroa, a distance of 300km.

The northern part of the district has access to the Waiapu Landfill, Class 1 landfill (sanitary landfills). Rural residents have access for disposal through a network of nine refuse transfer stations.

There are two Class 2 landfills (industrial/construction & demolition waste cleanfills) operating in the Gisborne District. The combined tonnage from these operations would be comparable to the total waste tonnage processed through the RRTS.

1.2.2 Waste Data

There is no data available on the level of participation by residents in kerbside collection of recycling or household refuse. Performance is measured by the tonnage collected and reported by the contractor on a monthly basis.

The household refuse collection system is based around a rates-funded sticker system, which avoids the need for an official refuse bag, appears to be well embraced by the community. There is no maximum number of bags that can be collected weekly. A uniformed kerbside recycling collection operates across urban areas and households are limited to two recycling crates of recycling per week.

Data from previous Solid Waste Analysis Surveys (SWAP) indicates that GDC residents have a low level of waste per capita when compared to other similar areas in New Zealand. This data is based on waste entering council services and facilities only and does not include material entering either of the Class 2 landfill.

1.2.3 Kerbside Collections and Transfer Stations

All the recycling collected across the Gisborne District is processed by Waste Management NZ Ltd and sent via their various operations for consolidation and processing before being sold as a commodity to the market.

Both the kerbside refuse and recycling collection services rely on manual handling of material into the truck. Since the Health and Safety at Work Act 2015 was amended, a number of Councils with bag-based/crate based refuse/recycling collection services have reviewed the use of manual bag collection and considered changing to wheeled rubbish bins (wheelie bins).

A green waste disposal option is available through the RRTS. This service is offered at a price that is $193 per tonne cheaper than general waste disposal. Green waste from this operation is taken to DB Judds Holdings Ltd for processing into compost. Residents and businesses can take green waste directly to the composting facility: charges apply.

Generally, Gisborne urban residents benefit from good availability of recycling and waste services. Approximately 87% of the Gisborne District population has access to rubbish and recycling services and facilities.

Although both kerbside refuse and recycling services are provided by GDC through their contractor, Waste Management NZ Ltd, key waste minimisation messages are actively promoted by the Council's Waste Minimisation Team.

1.2.4 How We are Performing

The quantity of waste sent to Class 1 landfills from the district has been fairly static over the 2011 – 2016 period. However there has been a slight upward trend since 2014 which is in line with economic activity.

Class 2 Landfills play a significant role in waste disposal for the Gisborne District. These facilities provide companies and individuals with alternatives to the RRTS for wastes which they are permitted to handle. This may include commercial waste and some green waste.

Waste from the RRTS which is sent to landfill, includes a large proportion of organic waste (26% - approx. 3500TPA) plastic (20%) and moderate proportions of recyclables and timber.

The main sources of waste to the RRTS are domestic kerbside collections, domestic drop off and industrial, commercial activities.

The quantity of waste diverted through the kerbside recycling collection has dropped by 100 tonnes in 2016/17. This could be attributed to reasons outside of council control such as the light weighting of packaging products, increased consumer choice and a reduction in printed media.

Wood bark from timber processing has increased considerably to Class 2 landfill. A further 10,000 tonnes of wood bark are transported to Hawke's Bay for processing into compost.

Based on data from the SWAP 2017 survey on council influenced waste streams, per capita waste to Class 1 landfills is low compared to other districts. Per capita disposal of kerbside refuse is low compared to other districts, and similar to those districts with similar services. Should this figure have included commercial waste to class 2 landfill (not clean fill material),the per capita waste generation would increase to mid-range nationally.

Per capita domestic recycling is average, compared to other districts, particularly those with similar services.

Over 50% of the waste currently disposed of to Class 1 landfills could, theoretically, be diverted from landfill disposal.

1.3 Future Demand and Gap Analysis

There are a wide range of factors that are likely to affect future demand for waste minimisation and management.

It is likely that future changes in demand for waste services will be in line with increasing population, changing household demographic, changing customer expectation, Central Government requirements (e.g. the introduction of product stewardship schemes) and accelerated growth of regional industry.

While steady growth is predicted in both waste and population, no dramatic shifts are expected. If new waste management approaches are introduced, or the recyclable commodity price increase, then it is possible we will see greater amounts of material that would have gone to landfill being recovered or recycled.

While Council has a role in influencing waste minimisation outcomes, the biggest changes that will lead to increased waste diversion and waste minimisation are likely to come about through changes within the industry because of economic and policy drivers.

1.3.1 Gap Analysis

The following 'gaps' have been identified in the way GDC currently provides services; captures data, and performs in the waste management and minimisation activity. These include,

1. No Solid Waste Bylaw – The implications of this include GDC not having control over waste management operations and the data captured; the potential to lose our market share of refuse collection; the inability to prosecute illegal dumping of problematic material [1]
2. Potential to be genuine leaders in Waste Minimisation – Gisborne's geographical location and the resulting waste disposal challenges mean that GDC is well-placed to consider alternative waste technologies and social enterprise opportunities that would provide employment from the recovery of value from the waste stream.
3. Defining a future for the Waiapu Landfill – This is the only Class 1 landfill in the Gisborne District. GDC needs to start planning now for the end of its resource consented lifespan (2025). This could include closure and conversion into a transfer station operation and possible resource recovery centre (RRC). There has been some interest expression from a local community group in future RRC options for the site. Furthering this conversation with the interest groups and with the Ruatoria community will help ensure the right level of service is maintained. The discussion may also need to include viability options for the long-term operation of a RRC given the fact that there may not be sufficient recoverable goods 'feeding' into the centre.
4. Meeting future waste disposal needs – If the price of freight increased dramatically there is a risk that we will not be able to continue transporting waste to Tirohia Landfill in the long-term. Similarly, the projected increase in tourism will have implications for GDC service provisions. As part of future proofing this system we need to consider an alternative disposal site or alternative waste treatment options.
5. Organic Waste Diversion – currently the Gisborne District is completely reliant on the commercial sector for the processing of green waste. Fostering a long-term business relationship with these operators will help safeguard composting as a long term option for diversion.
6. Changing Recycling Market – Council ability to offer services is being impacted by shrinking international export markets [2] For example the global commodity price has dropped for both metal and plastics which may have implications for the financial viability of recovering more of these materials.
7. Changing Community Expectations - There is a growing customer expectation that waste management services will be provided by councils. This is particularly relevant to residents migrating to Gisborne that may have lived in areas that received a higher level of service.
8. A gap in our data collection – while we have good levels of data from annual waste audits (SWAP) and monthly reports from Waste Management Ltd, there is a little information about the amount and type of waste which is going to unregulated disposal. These include farm pits, cleanfill and burning. We also do not have a consistent arrangement where we receive information about the volumes of organic waste being processed privately (see point 5).[3]
9. The current operation of the Gisborne Resource Recovery Transfer Station – GDC does not own this facility and therefore has very little say about how it operates. Under existing management the RRTS no longer recovers metals or provide waste oil recycling as there are issue with contamination from solvents. Tyres are accepted and a charge is placed on each tyre.

1 www.stuff.co.nz/the-press/national/95092107/The-eco-warrior-princess-whose-failed-business-ventures-have-left-a-trail-of-angry-investors

2 www.newshub.co.nz/home/new-zealand/2017/07/kiwis-need-new-way-to-clean-up-as-china-closes-dumps.html

3 www.wasteminz.org.nz/wp-content/uploads/Waste-Data-Framework-Implemention-Report-FINAL.pdf

2.0 Statement of Council Role

From an evaluation of the existing WMMP and Councils existing waste commitments, Council is expected to, and will:

- continue to invest in waste minimisation programmes for the community in order to improve participation and further increase diversion of waste from landfill;
- monitor and measure waste flows and information in order to inform planning and decision making;
- endeavour to fund waste management activities in a way that promotes waste minimisation and recycling and that minimises the cost to the ratepayer;
- continue existing activities and consider the implementation of new activities to divert waste from landfill. This may include: alternative waste technology, alternative disposal options and new collection methodologies;
- Licence waste operators under bylaw provision to ensure that maximum waste is diverted from landfill and to minimise the impact of waste on the environment; and
- work with community groups, the private sector and other local authorities to achieve waste minimisation goals and seek to recover value from the waste stream.

2.1 Statements of Proposal

The options discussed in this Waste Assessment and the required actions and timeframes for delivery will be identified in the Draft Waste Management and Minimisation Plan 2018-2024.

2.2 Statement of Public Health Protection

The Health Act 1956 requires that Councils ensure the provision of waste services to adequately protect public health.

Any potential public health issues associated with the options described in this waste assessment have been identified and appropriate initiatives to manage these risks recommended to form a part of its implementation programme.

With regard to Council provided waste and recycling services, public health issues can be addressed by the setting of appropriate performance standards for waste service contracts that include performance, monitoring and reporting criteria.

Privately provided services have the ability to be regulated through the consideration and adoption of a local solid waste bylaw.

3.0 Introduction

This Waste Assessment has been prepared for Gisborne District Council (GDC) in accordance with the requirements of section 51 of the Waste Minimisation Act 2008 under which GDC has a statutory responsibility to promote effective and efficient waste management and minimisation within the District.

3.1 Structure and Purpose of this Document

This Waste Assessment establishes the planning foundations for a waste management and minimisation plan (WMMP) for Gisborne District by describing the waste situation, setting the vision, goals objectives and targets for the district, and developing options for meeting future demand.

3.2 Legislative Context

This section contains a summary of national policies and key legislation that the Councils must consider in the development of this Waste Assessment, the WMMP, and the service delivery review.

3.3 The Waste Minimisation Act 2008

The stated purpose of the Waste Minimisation Act 2008 (WMA) is to:

"encourage waste minimisation and a decrease in waste disposal in order to:

a. protect the environment from harm; and

b. provide environmental, social, economic, and cultural benefits."

The WMA requires territorial authorities to promote effective and efficient waste management and minimisation within their district. To achieve this, all territorial authorities (TAs) are required by the legislation to adopt a WMMP.

Every TA must complete a formal review of its existing waste and minimisation management plan every six years. Section 50 of the WMA also requires all TAs to prepare a 'waste assessment' prior to reviewing its existing plan. This document meets this requirement.

3.4 Other Legislation

Waste management and minimisation planning is also guided by the following:

- Local Government Act 2002 (LGA) and the 2014 Amendment Act, particularly with respect to consultation, bylaws and service reviews;
- Resource Management Act 1991 (RMA), particularly in relation to land disposal (landfills and cleanfills);
- Emissions Trading Amendment Act 2008 (ETAA) which has implications for some landfills;
- Hazardous Substances and New Organisms Act 1996 (HSNO) where hazardous wastes are present in the solid waste stream;
- Health Act 1956 (Health Act), as solid waste management must consider the potential impacts on public health;
- Litter Act 1979 (Litter Act) which sets out provisions for prevention and enforcement of litter offences; and
- Health and Safety at Work Act 2016 (HSWA).

3.5 New Zealand Waste Strategy

The New Zealand Waste Strategy: Reducing Harm, Improving Efficiency (NZWS) is the Government's core policy document concerning waste management and minimisation in New Zealand [4].

The two goals of the NZWS are:

1) reducing the harmful effects of waste, and

2) improving the efficiency of resource use.

Section 44 of the WMA requires councils to have regard to the NZWS when preparing their WMMP.

3.6 Tairāwhiti First - Council's Long-Term Plan (2015-25)

Gisborne District Council (GDC) must produce a Long-Term Plan (LTP) every three years. The LTP must include information on activities, goods or services provided by Council, and specific funding and financial management policies and information.

The vision for Tairāwhiti First 2015 -2025 is:

- First to see the light
- First choice for people and lifestyle
- First choice for enterprise and innovation
- First place for the environment, culture and heritage

The summary document raises the discussion point of affordability versus sustainability for Tairāwhiti.

The waste assessment establishes a good foundation to deliver the strategic direction Thrive Tairāwhiti – where GDC "create(s) an environment for our economy to develop and thrive, supporting ideas and opportunities (and) providing supportive community infrastructure…"

3.7 Other Local Plans

GDC has a number of other plans relating to the area that have been considered when preparing this assessment.

These include:

- The 2012-2018 Waste Management Minimisation Plan
- The Solid Waste Asset Management Plan (September 2014)
- The Tairāwhiti Economic Action Plan [5].

The Tairāwhiti Economic Action Plan represents the Gisborne Districts priorities for the next five years and provides the opportunity to work with Central Government and other stakeholders in seeking transformational change in the region's prosperity. Some priorities are specific to sectors such as agriculture and tourism. Other priorities enable growth across all sectors. It should be noted that there is a direct link between economic growth and waste generation.

4 www.mfe.govt.nz/publications/waste/new-zealand-waste-strategy-reducing-harm-improving-efficiency

5 www.activatetairawhiti.co.nz/projects/regional-economic-action-plan

4.0 Demographics

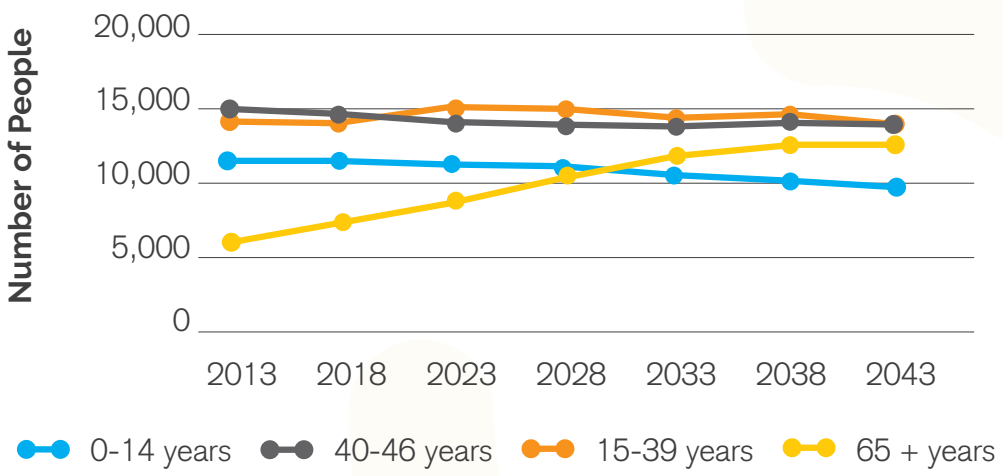
The population of the Gisborne District as at 30 June 2016 was projected to be 47,734. Between 2013 and 2043, the population is forecast to increase by 5,063 persons (10.77% growth).

A significant number of the population increase is in the over 60 age group (4369 persons). This will have an impact on the type of waste generated and level of service required (recreational, aged care facilities, medical and sanitary).

GDC's Environmental Scan 2017 Trends and Implications Report projects that the population serviced by the rural transfer stations will experience a population decrease.

District tourism, domestic, international and event- based, is forecast to increase. This brings its own set of issues for waste management and minimisation as seen in other districts with high tourism numbers. Financing the tourism sector's waste falls on the resident population. A different set of services will be required to meet future tourism growth.

Figure 2 Projected Population by broad age group



Graph 1: Gisborne project population 2013-43

	2006	2013	2018	2023	2028	2033
Population	44,499	47,000	47,900	48,602	49,387	50,113
Number of households	16,600	16,904	17,359	17,781	18,226	18,657
Average household size	2.7	2.75	2.72	2.69	2.66	2.64

Table 1: Gisborne impact of population growth

4.1 Economy

Economic growth for Gisborne over the year to March 2016 was 2.2 percent, the highest in the district since 2012. This is reflected in a rise in the tonnage of waste being disposed of to landfill.

Increasing economic activity historically brings about an increase in consumption and an increase in waste. The industrial structure of the Gisborne District's economy (GDP) is as follows:

- Primary industries 18.4% (production of raw materials)
- Secondary Industries 14.2% (manufacturing)
- Tertiary industries 26.5% (service provision)
- Quarternary industries 26.3% (information services)

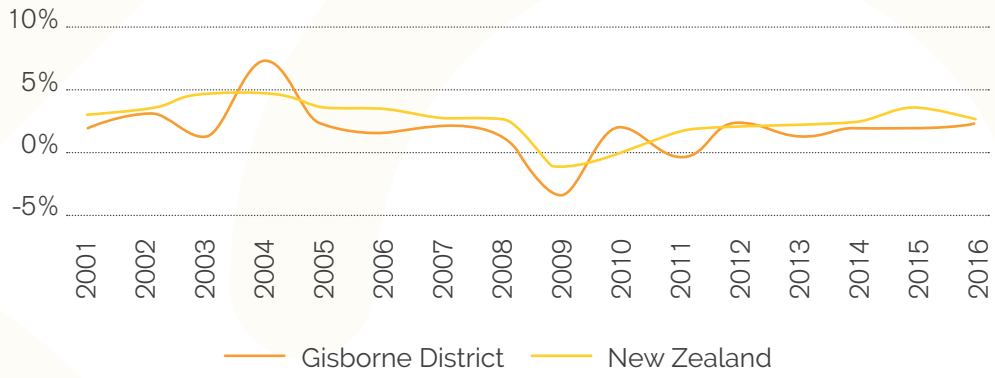
Primary industries account for a lot more in Gisborne than in the national average, with the largest comparative advantages in forestry and logging, sheep, beef cattle and grain farming, and horticulture and fruit growing.

The fruit growing sector is forecast to grow with an increase in handling and facilities.

The Eastland Wood Council estimates that the total East Coast harvest will increase from 1.5 million JAS (Japanese Agricultural Standard) tonnes in 2010, to approximately 5 million (JAS) tonnes in 2030. With the increasing harvest there will be commercial opportunities for wood processing but also by-product that may need disposal, namely wood bark.

From the above data, it may be assumed that the percentage of Horticultural/agriculture/viticulture waste will continue to increase. This material is likely to be: Baleage wrap, irrigation pipe, bird netting, reflective fabric, oil drums. National programmes to collect these types of material have signalled reluctance to collect from the Gisborne District unless financially incentivised. In August 2017, the GDC partnered with Plasback to deliver a heavily subsidised drop off service to farmers and growers on the East Coast to recycle used bale wrap plastics.

Figure 5 Annual average GDP growth (2000-2016)



Change	2001	2002	2003	2004	2005	2006
Gisborne District	1.9%	3.0%	1.1%	7.3%	2.1%	1.5%
New Zealand	2.8%	3.5%	4.5%	4.6%	3.7%	3.3%

2007	2008	2009	2010	2011	2012
2.0%	1.1%	-3.5%	1.9%	-0.5%	2.2%
2.7%	2.5%	-1.3%	-0.3%	1.5%	2.1%

2013	2014	2015	2016
1.1%	1.7%	1.8%	2.2%
2.2%	2.5%	3.4%	2.5%

Graph 2: Gisborne Economic Growth 2001-16

5.0 Disposal Facilities

5.1 Class 1 Landfills

There is only one Class 1 landfill disposal facility in the Gisborne District. The Waiapu landfill in Ruatoria provides a critical level of service for the rural community and receives waste from the rural transfer stations at Tokomaru Bay, Te Puia Springs, Ruatoria, Tikitiki, and Te Araroa as well as Council's Ruatoria kerbside waste collection All waste from Gisborne Resource Recovery Transfer Station (RRTS) is transferred to a Class 1 landfill in Tirohia (near Paeroa, in the Bay of Plenty).

5.2 Class 2 Landfills

There are two Class 2 landfills in Gisborne District - Tonlyn Restricted Waste Disposal Site, operated by M E Jukes & Son and the Matokitoki Restricted Waste Disposal Site, operated by Stoney Horse Ltd. Class 2 landfills accept non-putrescible wastes including C&D (Construction and Demolition) wastes, inert industrial wastes, managed fill material, and cleanfill material.

Class 2 landfills have much lower compliance and construction costs and are competing directly with other diversion options such as composting sites, product stewardship schemes and Class 1 landfills. Provided data shows that the Tonlyn site is actively recovering value from the waste stream and achieving good diversion rates.

5.3 Transfer Stations

Gisborne is well represented by rural transfer stations which provide an efficient option for waste disposal and recycling. These transfer stations operate with restricted hours and are managed by caretakers who ensure that the rubbish, recyclables and diverted materials are placed in the correct bins/bays. Bins are specially provided for glass (clear, green and brown), plastic and cans, and cardboard/paper, while diversion bays are provided for scrap metals, whiteware, and reusable timber. Waste oil is collected at Waiapu, Tokomaru Bay and Matawai.

The Waiapu Landfill receives waste from the rural transfer stations at Tokomaru Bay, Te Puia Springs, Ruatoria, Tikitiki, and Te Araroa.

The RRTS receives waste from the Matawai, Te karaka, Whatatutu and Tologa Bay refuse transfer stations which is then consolidated and sent to Tirohia Landfill.

All rural transfer stations operate a sticker system for disposal and are a funded through a combination of rates and user pays i.e. should a resident need more than their 52 sticker allocation per annum, further stickers may be purchased.

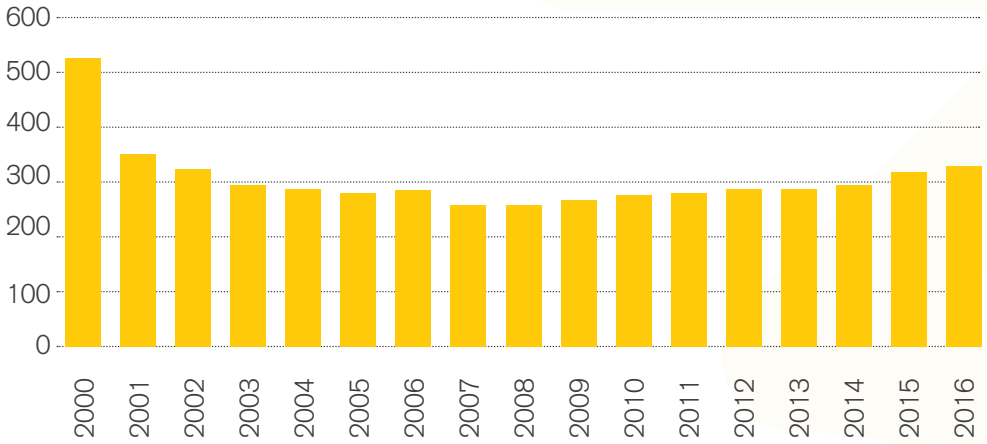
5.4 Assessment of Residual Waste Management Infrastructure & Services

Gisborne District Council GDC is responsible for managing the Solid Waste Activity. This includes all elements of contract management and administration, landfill and transfer station operations, collection and disposal, litter collection and street cleaning, promotion, publicity and education.

GDC is directly responsible for the operation of transfer stations (9) and management for landfills (including closed ones), servicing of litter bins and recycling bins (27), street cleaning of commercial areas of townships. The level of service is affected by seasonal variations.

Council provides a kerbside waste collection service to the urban Gisborne, Makorori, Wainui, Poverty Flats, and Ruatoria areas. The waste collection is a combination rates funded/user-pays service. Only rubbish bags bearing the official Council sticker are collected. Ratepayers are provided with one sticker per week, with 13 stickers being mailed with each rates invoice. Each sticker can be used for a single bag weighing up to 5 kg. If the bag weighs more than this, extra stickers (one for each extra 5 kg) should be used. Extra stickers are available for sale from retail outlets.

Council contracts this kerbside waste collection service to Waste Management NZ Ltd. The kerbside refuse collection in Gisborne City for 2016 was 3913 tonnes, a weight not experienced since 2002. While the increase in the number of households will impact the amount of waste requiring disposal, this upward trend reflects national trends and will be linked to increased economic activity. This is reinforced by composition data extracted from the 2017 SWAP Survey.



Graph 3: Gisborne City kerbside refuse collection 2000-16 - Average Monthly kerbside Tonnage

With the exception of Waiapu landfill in Ruatoria and the rural refuse transfer stations GDC does not own waste infrastructure and is reliant on the private sector and its capacity to dispose of waste. GDC has some control and influence over the kerbside collections and the rural transfer station waste. This amounts to 34% of the total waste stream through the Gisborne Resource Recovery and Transfer Station (RRTS).

GDC would have greater waste minimisation influence over the waste stream should the RRTS be owned and operated by Council. Space limitations on the existing RRTS site could be considered as a barrier to further waste diversion.

Challenges presented by the current operation resulting from reduced commodity price and space limitations include: sorting of waste from the transfer station floor has ceased, with no metals being recovered due to the low returns. Waste oil recycling is also no longer provided. Tyres are accepted on a user pays basis.

The distance to the Tirohia landfill and Gisborne's geographic isolation presents a strategic weakness and an opportunity to show innovation. GDC's solid waste arrangement is vulnerable to increases in transport and disposal costs and, in the event of extreme weather, interruption to the roading network.

It would be prudent to investigate alternative waste disposal routes and technologies during the term of the next Waste Management and Minimisation Plan.

5.5 Waste Education and Minimisation Programmes

GDC has a strong focus on waste minimisation education/behaviour change and has been traditionally a leader in this space with some of the programmes delivered i.e. Second Hand Sunday

GDC actively provide and/or fund a number of programmes that are offered to various sectors of their communities:

- Second Hand Sunday
- Operates the 'Rethink Centre' with the local Environment Centre to promote waste minimisation
- E-waste collection
- Provides the Enviroschool Programme to schools [7]
- General waste education to schools
- Worm composting and composting workshops
- Para Kore (zero waste on marae) [8]
- Waste free parenting
- Events recycling
- Love Food, Hate Waste campaign (WasteMINZ National Project)
- Website and pamphlet education media

7 www.enviroschools.org.nz

8 www.parakore.maori.nz

5.6 Solid Waste Bylaws

Gisborne District Council as a unitary authority does not have a bylaw that relates to solid waste. The creation and adoption of a bylaw would provide GDC with an ability to address common issues associated with the management of solid waste.

Designing a bylaw with sections relating to licensing and data collection, hazardous waste, waste storage, kerbside collection services, multi-unit properties, and event waste management would be beneficial because this structure would allow each to be enacted as required. This would serve to future proof GDCs regulatory approach to waste management.

Councils need to consider the need for a waste bylaw as part of their WMMP journey. This provides the ideal opportunity to look at the issues that the adoption of a waste bylaw may address in the district. These include:

- data capture,
- waste collection and storage,
- environmental health and nuisance,
- waste operator licensing- including waste minimisation targets etc.

Any proposed new bylaw must complete, in accordance with legislation, a determination report that includes discussion and justification for any bylaw. It must also be recognised that a bylaw may not be the most appropriate mechanism e.g. education, other form of regulation, monitoring and enforcement by GDC staff may be more appropriate.

Traditional waste bylaws have focussed upon regulating waste collection services and disposal and managing litter and nuisance in public places. This focus has evolved and may include:

- Controls over the storage of problematic waste types
- The regulation of the collection, transportation and disposal of waste in public places
- licensing systems for waste collectors and operators of waste facilities that may require data provision so that the council can monitor progress on waste minimisation targets.
- the addition of controls relating to multi-unit developments and event waste management
- Protection against the district becoming a dumping ground for problematic material such as tyres
- Provide control over who, what, when and how materials may be collected/processed
- Specify the type and size of collection receptacles

5.7 Public Litter Bins

GDC manage the installation, maintenance and emptying of public litter bins within the scope of solid waste services. Bins at key tourism locations can experience high demand, which puts pressure on servicing levels and costs, particularly if no additional amenities exist on that site. Council may wish to invest in compactor bin technology, where each bin can increase capacity to twelve rubbish bags equivalent. Taupo District Council have installed a number of these bins at key locations with great success [9].

5.8 Rural and Farm Waste

Recent studies of farm waste management practices found that a very large number of farms still use one of the 'three B' methods of waste management – bury, burn, or bulk storage on property. From this research, it is estimated that there would be an average of 37 tonnes of waste disposed of on each farm property.

The Agrecovery Programme actively collects, shreds and recycles plastic containers from the agriculture and forestry sectors and which belong to participatory brand owners. Solutions for farm bale wrap are currently deemed uneconomical to operate in the Gisborne District without Council subsidy.

At the point of compiling this waste assessment, no known data on waste composition and generation on Gisborne District farms existed.

9 www.manco.co.nz/products_big_belly.php

5.9 Hazardous Waste

Some outlets exist for the recovery of paint through Resene Paintwise Scheme and for some chemical disposal through the Agrecovery Chemical collection for which charges apply. Charges apply to non-participatory brands. Council has also facilitated a collection for household hazardous waste. Council owns a dangerous goods store, where household hazardous waste can be stored for collection. Council has also financially contributed to the last two agricultural chemical collections, the last of which was held in 2016

5.10 Assessment of Council-provided Kerbside Services

The current collection system is well used by residents across the District. The sticker system appears to provide a district wide solution for both the urban refuse collections and for providing access to the rural transfer stations.

All residents have the ability to buy additional stickers from GDC, the contractor or a number of retail outlets. The ease of the sticker system coupled with the community access to the refuse collection and the refuse facilities will help to reduce the frequency of illegal dumping incidents.

Wheelie bins are available in parts of the district but bag based collection dominates.

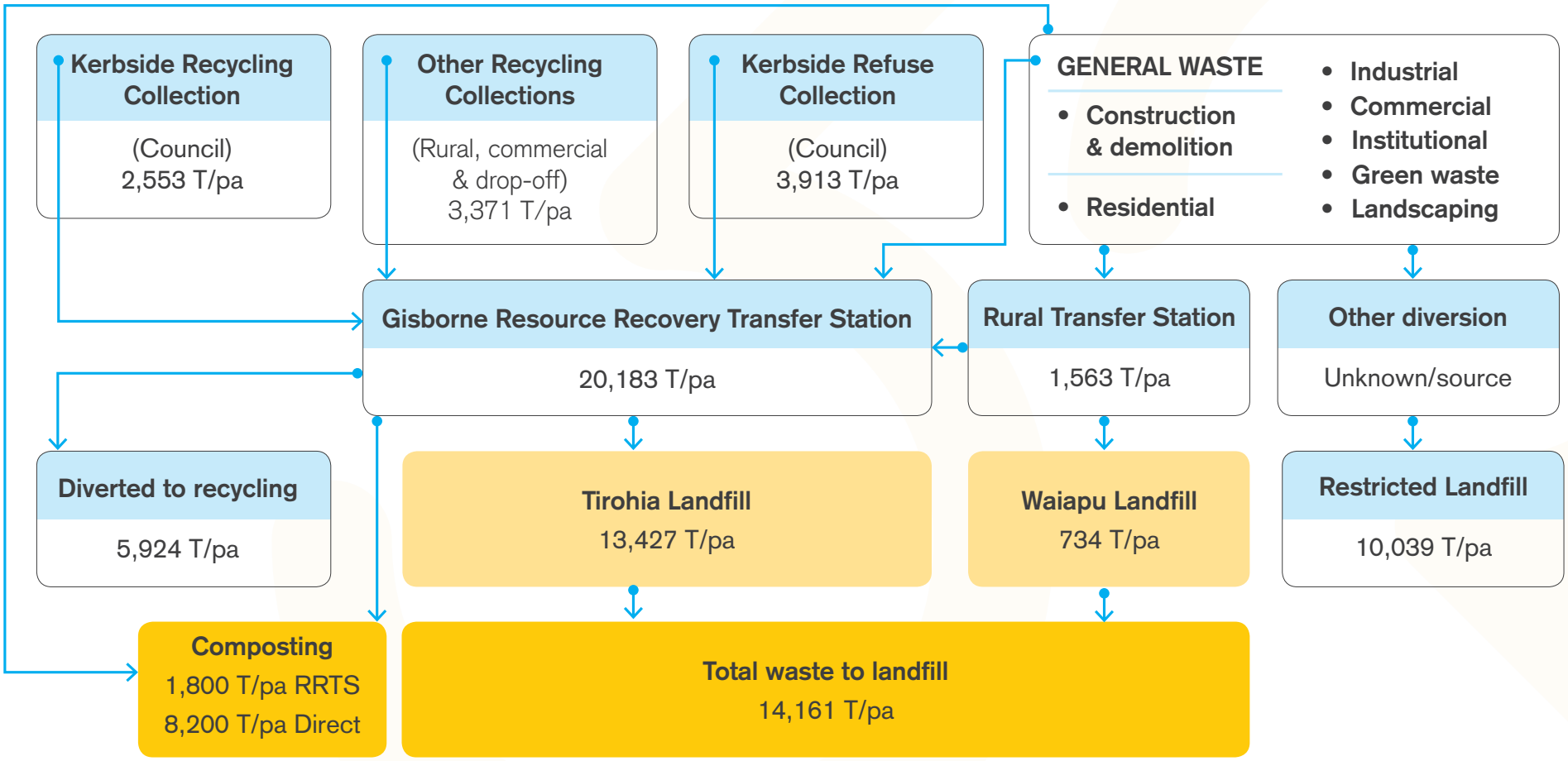
5.11 Private Sector-provided Waste Services

Residents can choose to not use the RRTS or kerbside services and choose from a limited range of services including rubbish, recycling and garden waste collections.

GDC does not provide waste or recycling collection services for the commercial sector. All waste from the commercial sector is either self-hauled to the transfer stations or collected by a private waste operator.

Several private waste operators offer waste and recycling services to the commercial sector. Services using wheelie bins, gantry skips, and front-loader bins are available. A substantial proportion of the commercial refuse market is controlled by Waste Management NZ Ltd and Bay Waste Services. Gantry skip services are provided by Waste Management NZ Ltd, EnviroWaste Services Ltd, Wayne's Waste, and Miniskips.

6.0 Current Waste and Resource Recovery Situation



Gisborne District Waste Flow Diagram

In 2016/17 Gisborne Resource Recovery Transfer Station (RRTS) sent an additional 373 tonnes of waste to the Tirohia Landfill when compared to the previous year. This is likely a reflection of the current growth in the local economy.

Total waste through the RRTS was 20,183 tonnes. Material diverted for recycling was 5,924 tonnes. This included 1,141 tonnes of recycling from the drop off centre at the RRTS total diversion was 8030 tonnes.

572 tonnes of recyclables were collected from the rural transfer stations in 2016, this tonnage has decreased by 10% over the past three years. Over the same period, rural transfer waste has been steadily increasing. In 2016 50% more waste (513T) entered the rural transfer stations compared to 2013.

The 27 public place recycling bins located around the CBD and key tourist areas diverted 3.65 tonnes. The key benefits from these bins is around social responsibility and leadership.

In 2016/17 the total tonnage of green waste diverted to composting was 1,870 tonnes from RRTS operations.

Outside of the tonnage entering the site as part of Council contracts, 67% of the waste stream is categorized as commercial and 33% as domestic origin.

Waste Minimisation initiatives can be extremely costly but are immeasurable as far as community good and environmental benefit. An example of this is the 2016 E-waste collection which resulted in 34 tonnes of E-waste being recycled through this GDC initiative. Such projects demonstrate clear understanding of the goals of the New Zealand Waste Strategy.

Reporting year	Total waste (RRTS)	Estimated diverted	Estimated diversion rate
2016/17	21,725	8030TPA	37.6%
2015/16	21,192	8145TPA	38.8%

Table 2: Comparison of waste diversion by year

6.1 Unquantified Waste

There are several waste streams that are known to exist but are difficult to quantify. Examples include rural waste managed on farms, materials captured as part of commercial activity (scrap metal, industrial by-products) and waste materials managed within manufacturing operations. This means that the metrics we hold for waste disposed to landfill and for waste diverted/recovered are likely to be underestimated.

GDC receives reports from both Class 2 Landfill operators on an annual basis. A combined tonnage of 9,568 tonnes of waste was disposed of these sites in 2016. This is significantly down from the 14,439 tonnes received by these sites in 2012. The Matokitoki site accepts mainly construction and demolition waste, but also accepts green waste and commercial waste.

6.2 Collection and Drop Off System Performance

Combining the waste composition data with data on the quantity of waste disposed of to landfill and recycled provides a basis for determining the capture of various materials 'available' in the waste stream.

A summary assessment drawing on estimated quantities and composition is presented below

Comparison of Gisborne District overall waste composition – 2004, 2010, and 2017	May 2004	November 2010	March 2017
Paper	9.8%	10.6%	12.6%
Plastics	12.3%	15.0%	19.9%
Kitchen waste	21.6%	21.9%	20.9%
Greenwaste & other organics	16.6%	9.2%	5.2%
Organics - subtotal	38.2%	31.1%	26.1%
Ferrous metals	5.4%	3.9%	3.8%
Non-ferrous metals	1.9%	0.7%	1.1%
Glass	2.3%	3.5%	2.7%
Textiles	4.2%	6.4%	8.2%
Sanitary paper	9.7%	8.1%	10.1%
Rubble	4.6%	8.4%	5.7%
Timber	9.3%	10.7%	7.6%
Rubber	1.0%	0.6%	1.1%
Potentially hazardous	1.3%	0.8%	1.2%
TOTAL	100.0%	100.0%	100.0%
Tonnes per annum to landfill	14,444 T/annum	12,776 T/annum	13,409 T/annum

Table 3: Comparison of waste per capita by Council (SWAP2017 Waste Not Consulting Ltd)

The available data for general waste suggests there are opportunities to capture additional recyclable material through the transfer stations and kerbside collections including organic material, timber, metals, paper, plastics and glass.

As the recovery and recycling of materials is dependent on market value there are existing challenges as the global commodity price has dropped for both metal and plastics which may have implications for the financial viability of recovering more of these materials.

While paper/cardboard recovery is reasonable it should be possible to increase the capture of paper and cardboard at both kerbside and transfer stations.

Plastic recovery is at a reasonable level and it should be possible to increase the capture of materials at both kerbside and transfer stations. It should be acknowledged that plastic diversion relates to plastic food and beverage containers only and not horticultural grade plastics.

Organic waste recovery is under-estimated, but there is a significant amount of material that could be targeted.

Metals recovery is at a good level – metal markets have slumped and material is not being actively recovered or transported out of district

Glass recovery is at a reasonable level with all glass containers being sent to Owen-Illinois, Auckland to be recycled into bottles and jars.

There are other materials present in the waste stream that require careful management to avoid negative impacts. These include:

- Hazardous waste (chemicals, e-waste, used oil, asbestos)
- Difficult or special waste (tyres, bulk waste, dead animals)
- General waste (household and commercial waste)

Waste from certain sources can also present challenges or opportunities and is worthy of consideration. Examples include:

6.3 Rural Waste

Rural waste can include: agricultural plastics (wrap and chemical containers), unwanted chemicals, treated timber and machinery (including maintenance related waste like used oil), bird netting, wire and organic based products from processing. Any primary production process will generate waste. For example, with viticulture and the central processing of wine, grape skins may become a waste product requiring disposal instead of being turned into compost as done on smaller vineyards.

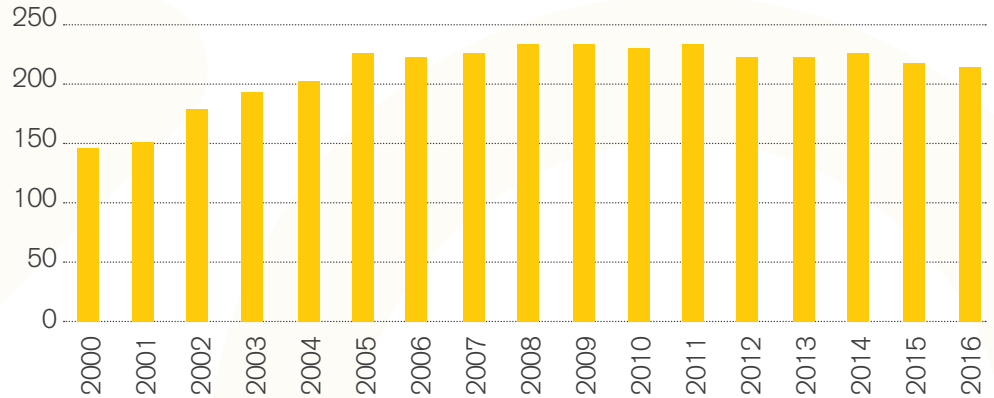
Waste from major processing sites - examples include waste treatment residuals (for example sludge), packaging (pallet wrap, broken pallets) and containers (cleaners, ingredients, maintenance products).

Forestry - With the 'wall of wood' becoming a reality there will be significant increase in wood bark requiring disposal; mostly likely to a grade 2 landfill as the compost facility will be unable to cope with such volume. Hawke's Bay composting operator BioRich currently transports an estimated 10,000TPA of wood bark from Gisborne to their operations. The long term viability of this disposal option is currently being reviewed by BioRich due to significant increase in national transport costs.

6.4 Diverted Materials

Weekly collection of household refuse within the District is undertaken as a rate payer funded service with one contractor providing refuse bag collections. Kerbside collection is available in Gisborne City, Poverty Bay Flats and Ruatoria, and some rural areas with designated collection points. Crate based kerbside recycling collection is available in these areas, with recycling drop off points being located at each rural refuse transfer station.

The GDC kerbside recycling service collects an average of 180kg per household per annum – a total of 2,491 tonnes in the 2016/17 year. When including all recyclables shipped out of the district the total amount of recyclables increases to 5990 tonnes, per annum.



Graph 4: Gisborne City kerbside recycling 2000 – 16 -Average Monthly Recycling Tonnages

A further 1,870 tonnes of green waste was diverted from the RRTS to the JB Judd Holding Ltd for composting. An additional 8,500 tonnes of green waste is received by the composting contractor from the wider community.

Kitchen waste, has decreased since the last waste assessment, from 153 kg a household in 2010 to 126kg a household in 2017, but is still the largest component of the kerbside collection going to landfill.

Recycling Material	2016	2015	2014	2013	2012	2011
Paper, card, plastic, cans	1433	1599	1454	1369	1869	1542
Glass bottles/ containers	111	988	1166	1145	776	1210
Total kerbside Tonnage	2544	2587	2620	2514	2645	2752

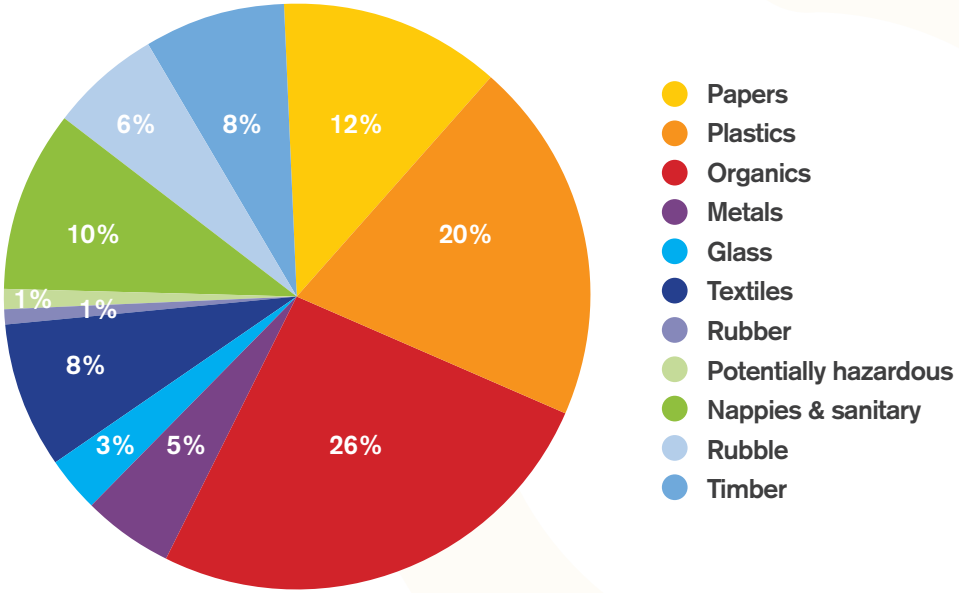
Table 4: Kerbside Recycling Collection Tonnage 2011-16

The landfilling and transport cost of green waste and kitchen waste is nearly $300,000 a year. This could be dealt with locally and used to improve the organic matter and productive water holding capacity of local horticultural and cropping land. With pressures on local water availability for irrigation kitchen waste is a resource that could benefit the region.

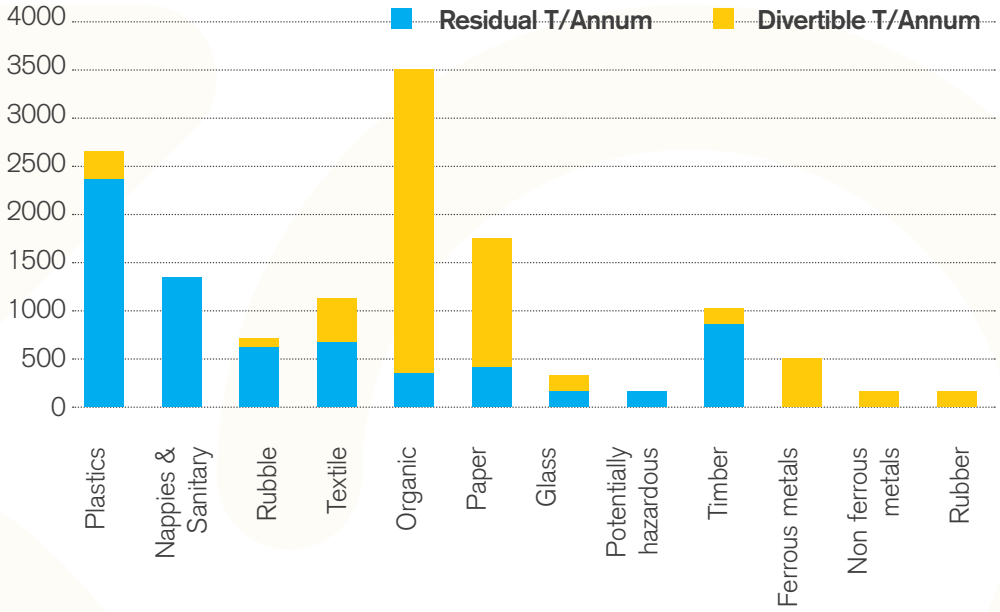
6.5 Per Capita Waste to Class 1 Landfills

Waste composition audits provide information about the make-up of a waste stream, and can help identify materials that make up large or disproportionate parts of the waste stream to target when forming waste management and minimisation strategies.

GDC have completed waste analysis surveys of refuse coming through the RRTS and the rural transfer stations in 2010 and 2017. The purpose of these surveys was to determine the quantity and composition of the waste entering the transfer stations so that the current waste levels could be analysed to identify trends and/or changes in the current flow of solid waste and identify further opportunities for waste management and minimisation.



Graph 5: Primary Composition of Overall Waste from Gisborne RRTS -SWAP 2017



Graph 6: Primary composition of overall waste from Gisborne RRT

Both surveys were completed in accordance with the Ministry for the Environment's Solid Waste Analysis Protocol (2002).

The figure below shows the relative proportions of waste types. The key waste streams by weight in the Gisborne District are organic material, plastics, paper and sanitary products.

The composition and quantity of waste disposed of at Class 1 landfills from a specific area is influenced by:

- the size and levels of affluence of the population
- the extent and nature of waste collection and disposal activities and services
- the extent and nature of resource recovery activities and services
- the level and types of economic activity, particularly the industrial activity and construction and demolition
- the relationship between the costs of landfill disposal and the value of recovered materials
- the availability and cost of disposal alternatives, such as Class 2 landfills
- seasonal fluctuations in population (including tourism).

The table below highlights the results of SWAP surveys by Waste Not Consulting Ltd. The table includes the disposal rate from the Gisborne District.

Overall waste to landfill including special wastes (excluding cover materials)	Tonnes per capita per annum
Gisborne District 2017	0.296
Gisborne District 2010	0.305
Waimakariri District 2012	0.311
Westland District 2011	0.331
Ashburton District 2015	0.366
Napier/Hastings 2016	0.495
Southland region 2011	0.500
Tauranga and WBOP District 2014/15	0.524
Christchurch City 2012	0.524
Taupo District 2013	0.528
Napier/Hastings 2016	0.548
Wellington region 2016	0.608
Hamilton City 2013	0.668
New Zealand 2016	0.713
Queenstown Lakes District 2012	0.735
Rotorua District 2009	0.736
Auckland region 2012	0.803

Table 5: Per capita waste to Class 1 landfills compared to other districts.

The per capita rate of waste disposal to landfill from Gisborne District in 2017 is the lowest of any area measured by Waste Not Consulting Ltd. This may be associated with the semi-rural area of much of the district and a low level of manufacturing and industrial activity.

It should, however, be noted that, anecdotally, a substantial proportion of waste from Gisborne is disposed of at the two Class 2 landfills near the city. Most other areas do not have such ready access to Class 2 landfills, which accept non-putrescible wastes including C&D wastes, inert industrial wastes, managed fill material, and clean fill material.

The type of service provided by the local territorial authority has a considerable effect on the per capita quantity of kerbside refuse. Councils that provide wheelie bins or rates-funded bag collections generally have higher per capita collection rates than councils that provide user-pays bags. The effect of rates-funded bag collections is reduced in those areas where the council limits the number of bags that can be set out on a weekly basis.

7.0 Review of WMMP 2012-2018

The 2011-2017 WMMP set out clear objectives on how Council would manage waste in the district. The ten objectives of the WMMP and results are discussed in the table below. These issues continue to be relevant and further action is required to address them. Additional issues identified within this Waste Assessment include:

Objective	Action - 2012 Situation	Progress (SWAP 2017)	Achieved
1	**Minimise Industrial, Commercial, Institutional waste** - currently 4659T of total waste through City RRTS (36%)	Decrease in tonnage to 3317 TPA	✓
2	**Minimise Food Waste** - currently 22% of total waste (2795Tpa), 40% of bag waste (1394Tpa), 18% of total solid waste (250Tpa)	Decrease in both tonnage and percentage achieved	✓
3	**Minimise Green Waste** - currently 5.9% of total waste at TPI (748Tpa) but was 2175 Tpa in 2004 before differential charging for green waste	Organic waste diverted 1196TPA or 14.9%	✓
4	**Minimise Packaging and Paper Waste** - currently 2178T of total waste, 743T of Bag waste, 500T of TS waste	Not able to quantify with data provided	✓
5	**Minimise Construction and Demolition Waste** - currently 1113Tpa of total waste, 637Tpa to the Gisborne RRTS, 12,000Tpa to RWDF	Decrease in tonnage - 520 TPA through the RRTS	✓
6	**Reduce Harm: Hazardous waste** - currently 106Tpa of total waste, 30Tpa Bag waste, 10Tpa Rural TS waste	Increase - 2.4% of total waste stream or 155 TPA	✗
7	**Target Other Specific Wastes** -Nappies, Textiles, Resource Recovery Centre, Second-hand Goods	A variety of wastes addressed through existing behaviour change programme	✓
8	**Reduce harm from Littering and Dumping** - currently 40Tpa collected ($20,000 cost)	Ongoing amenity and environmental improvement programme in place	✓
9	**Minimise Residual Waste** - by effective and efficient disposal and management	Waste to landfill has increased since 2014/15 after being static for nearly a decade	✗
10	**Provide Education, Liaison, Monitoring, Evaluation and Reporting**	Behaviour change programmes and school education widely available. Regular reporting undertaken	✓

Table 6: WMMP 2012-18 Objective and Achievements

In addition to the ongoing delivery of these objectives, additional issues identified within this Waste Assessment include:

- Council capabilities and reliance on contractors
- A review of the kerbside collection Methodologies
- The need to consider alternative disposal pathways to the status quo in order to achieve greater diversion and efficiency
- Closure of the Waiapu landfill
- Potential for a Resource Recovery and Recycling Centre
- The need to address the growing issue of agriculture waste
- Investigate the need for solid waste bylaw

8.0 Future Demand and Gap Analysis

8.1 Changes in Lifestyle and Consumption

One of the most significant influences on household waste generation is consumer behaviour. Today, there are a number of factors that influence household waste generation, including:

- Family composition (household numbers and children)
- Household income and size
- Attitude towards the environment and recycling
- Presence of user pays charging systems for waste
- Frequency of waste collection
- Technological shifts/product supply changes
- Increased product packaging

It is probable that Councils will continue to invest heavily in existing community-based social marketing and waste education programmes to promote waste minimisation (results are not always measurable). GDC waste minimisation programme has had significant community penetration and has undoubtedly assisted to influence positive behavior change with regard to waste.

8.2 Changes in Waste Management Approaches

There are a range of drivers that will continue to influence waste minimisation outcomes. These include but are not limited to: These drivers include:

- Councils' statutory requirement under the Waste Minimisation Act 2008;
- Increased cost of landfill - Landfill costs have risen in the past due to higher environmental standards under the RMA, introduction of the Waste Disposal Levy (currently $10 per tonne) and the NZ ETS;
- Collection systems – easy-to-use collection systems appear to encourage more material;
- Waste industry capabilities – evolution within the waste industry is placing a greater emphasis on recovery;
- Local policy drivers - including actions and targets in the WMMP, bylaws and licensing etc;
- Recycling and recovered materials markets - markets for recycled commodities are influenced by prevailing economic conditions and most significantly by commodity prices for the equivalent virgin materials. Risk is linked to the wider global economy through international markets; and
- In the future, it is likely there will be more product stewardship schemes for priority products.

8.3 Future Demand – Gap Analysis

Gaps have been identified where there is a risk to existing operations and where future waste management and minimisation efforts may be focused

8.4 Risks to Existing Disposal Model

There is a risk that:

- The price of freight could increase to the point where it could impact the long-term viability of freighting waste to Tirohia Landfill.
- There is no Plan B and a significant reliance on the current waste contractor.
- There are Health and Safety implications associated with the current kerbside collections being reliant largely on manual handling. A review of collection methodologies will ensure safety concerns are evaluated and addressed.
- The limited influence that GDC has over the private sector services means there is limited scope to increase diversion. Current waste diversion through the RRTS is wholly dependent on the efforts of the current contractor. There is also a significant reliance on the composting contractor to handle all green waste. Should this operator cease business there will be no green waste disposal option and this will limit Councils ability to minimise waste.
- A changing recycling market will impact GDC's ability to offer services
- There is an absence of Council facilities to assist with resource recovery opportunities in partnership with interested community groups
- The absence of a Solid Waste Bylaw means that GDC has no control over operations and data. It also potentially exposes GDC to loss of market share and illegal dumping of problematic material.
- The lack of information about the amount and type of waste which is going to unregulated disposal (farm pits, cleanfill and burning) means that we do not have a complete picture of the waste system in the Gisborne District.

8.5 Focus Areas for Future Waste Management and Minimisation Efforts

- The resource consent requirement to close the Waiapu Landfill in Ruatoria presents an opportunity to investigate options like conversion into a transfer station operation and possibly a resource recovery centre. A business case would be necessary to ensure the viability of any new use of this site.
- Organic Waste Diversion - GDC is completely reliant on the commercial sector for the processing of green waste. JB Judd Holdings Ltd currently process 10,000 tonnes of organic waste and have the ability to expand to cater for increased product. This presents a genuine opportunity to build a working relationship with the operator that would be mutually beneficial and ensure the long-term diversion of organic material. This could include a joint application to the Governments Waste Minimisation Fund.
- C&D waste is a growing part of the waste stream to Class 2 Landfills yet little of this material is recovered or recycled. This suggests there maybe opportunities for new markets to develop in the District.
- There is a growing customer expectation that services will be provided by councils This is particularly relevant to residents migrating to Gisborne that may have lived in areas that received a higher level of service.
- Making sure we have good systems in place to capture as much available quality data as possible. This would be part of developing new working relationships with commercial sector service providers.
- New and emerging Alternative Waste Technologies may have potential to be applied in Gisborne to address waste disposal and energy supply issues.

8.6 Identifying Options

Potential options need to be considered in line with Council's strategic direction for waste minimisation and management. This means assessing their ability to contribute to the vision, goals and objectives while providing good value for money.

The key considerations for Council to consider are cost and impact to rates, the cost per household, landfill disposal and percentage diversion and what local economic development opportunities exist.

Outside of governance and strategic planning considerations, a growing emphasis must be placed on the operational issues which will include:

- Compatibility with existing system – options that minimise change/disruption and lessen community confusion.
- Technology risk – seek to introduce those technologies that are simple and well-established.
- Market risk – investigate those options that have a secure market for diverted materials.
- Community views – investigate those options that are likely to enjoy, or that are known to have community support. This approach recognises that community 'buy-in' is essential if a process, outcome or project is to be successful and long-lasting.

8.7 Community Recovery Centres

With the pending closure of Waiapu Landfill, an opportunity exists to review the current level of waste disposal service it provides to the surrounding rural townships and to shift its focus towards the greater opportunities that recovery (rather than disposal) may return. This includes with the possible positive social benefits of a community recovery/recycling centre.

By 2020 half of the global workforce will be Generation Y or Millennials. That means fifty per cent of workers will be 36 or younger. Reducing waste to landfill by re-using, re-purposing and recycling quality materials has the possibility to contribute to the creation of jobs, youth training opportunities and a number of other positive community benefits.

This revised model would assist GDC to build capacity as described in the Tairāwhiti Economic Action Plan (February 2017) and would also be eligible for Government Waste Levy funding.

A brief overview of three such enterprises is listed below and includes: Community Business and Environment Centre (CBEC), South Waikato Achievement Trust (SWAT) and Xtreme Zero Waste Ltd (XZW

Community Business & Environment Centre (CBEC)	
Location	Based in Kaitaia in the Far North of New Zealand[10]
Background	CBEC was established in 1989 in response to the dramatic rise in unemployment and social problems arising from New Zealand's economic reforms of the mid-1980s.
Current Activities	CBEC is a community enterprise which operates a range of businesses and environmental programmes as part of an overall effort to build sustainable local economies. Businesses range from Waste Minimisation, Garden Centres, insulation, labour hire, public transport and more. www.cbec.co.nz

Table 7: Community Business Environment Centre (CBEC)

South Waikato Achievement Trust (SWAT)	
Location	Based in Tokoroa. Has initiatives in areas across central north island.[11]
Background	Formed in the 1970's as a social service for accident victims and people with disabilities.
Current Activities	Processes 60 tonne per month of e-waste, diverts re-usables and recyclables from landfill at the South Waikato District Transfer Station, diverts industrial waste wood into a firewood enterprise. www.swat.co.nz

Table 8: South Waikato Achievement Trust (SWAT)

Xtreme Zero Waste Ltd (XZW)	
Location	Primary resource recovery site in Raglan. Also, operates a joint venture to manage Waiuku Community Recycling Centre.[12]
Background	Closure of local landfill in 1998 which was leaching toxics into the waterways, led locals to seek out an alternative to landfilling.
Current Activities	Resource recovery sites at Raglan and Waiuku, school and community education, kerbside and business collections, zero waste events and a range of consultancy services. www.xtremezerowaste.org.nz

Table 9: Xtreme Zero Waste Ltd (XZW)

These operations all have proven track records in social enterprise and the extraction of value from the waste stream. As members of the Community Recycling Network[13] they would be very approachable and open to discussion.

The consideration of a community recovery centre will be dependent on the size and composition of the waste stream. The Waiapu Landfill and transfer station may not have sufficient waste stream to achieve the desired outcomes for training and employment.

Collaborating with Waste Management NZ Ltd who are contracted to operate the existing RRTS or, with operators of the Class 2 landfills, would provide greater access to material for recovery. Any potential community recovery centre would need to be located in close proximity to the available waste stream for the purpose of efficiency.

10 www.cbec.co.nz/about-us.html
11 www.swac.co.nz
12 www.xtremezerowaste.org.nz
13 www.communityrecyclers.org.nz

9.0 Options for Consideration

#	Kerbside Recycling	Issues Addressed	Impact on Current/Future Demand	GDC Role
1	GDC provided kerbside recycling collection - Status Quo	Maintaining collections status quo would not have a positive effect on any the key issues.	Would not impact on the status quo prediction of demand – Health and Safety associated with manual lifting.	Provides a kerbside recycling service
2	Introduce a wheelie bin based recycling collection – either co-mingled or with an additional separate glass crate based collection	• Increasing diversion from landfill • Improved data quality and management of data • Recycling performance static/declining • Littering addressed by wheelie bin	• Would meet predictions of demand • Would minimise health and safety risk to staff • Separate glass crate would ensure quality and reduce contamination but would have additional cost of supplying both a crate and wheelie bin • Wheelie bin and convenience – does not suit all residents especially elderly and those with storage limitations • High council/contractor investment and policing resource	• Provides an expanded kerbside recycling service • Investigate existing council contracts where separate glass crates have been supplied alongside a wheelie bins
#	Kerbside Refuse	Issues Addressed	Impact on Current/Future Demand	GDC Role
3	GDC provided Kerbside Refuse Collection - Status Quo	Maintaining collections status quo provides a simple system with adequate incentives through the sticker system	• Health and Safety associated with manual lifting and sharps. • Assessment of current sticker system and suitability as collection methodology required	• Provides a kerbside refuse service • Participatory survey required to determine usership • Educator • Regulator
4	Introduce a wheelie bin based refuse collection Limit the size of wheelie bin to 120 litre or 80 litre capacity	• Removes any Health and Safety issues associated with manual lifting. • Removes litter from animal strike • Improved data quality and management of data • Recycling performance static/declining	• Would provide a uniformed system and lessen administration costs associated with the current sticker system. • Would minimise health and safety risk to staff • Wheelie bin and convenience – does not suit all residents especially elderly and those with storage limitations • May lead to increased waste as residents find material to fill bin on weekly basis • Impact on street visual amenity	• Provides an expanded kerbside recycling service • Participatory survey required to determine usership • Educator • Regulator

#	Kerbside Refuse	Issues Addressed	Impact on Current/Future Demand	GDC Role
5	Introduce a green waste kerbside collection	• Would divert organic waste from the waste stream to composting • Would reduce landfill transport and disposal costs. • Would lessen methane gas generation at landfill	• Would meet predictions of demand • Would have a cost for a kerbside collection which would require rates funding • Would increase pressure on existing composting facility • Would require significant education particularly around food waste to achieve community buy in • May not be viewed positively by some residents	• Provides an expanded residential service and reduce waste to landfill • GDC would be service provider (contracted service) • Educator • Regulator
6	Investigate the provision of a food waste kerbside collection. Council operated, commercially operated or joint approach And/or consider food rescue projects such as Nourish for Nil, Kaibosh etc	• Reduces the high percentage of food waste in the waste stream • Increases Council profile and provides strong behaviour change message opportunities	• Reduces the tonnage of waste to landfill and associated disposal costs • Additional cost of supplying both a wheelie bin and or kitchen caddy • Potential educational issues especially around nuisance factor • Would increase pressure on existing composting facility	• Provides an expanded kerbside service • Educator • Regulator • Facilitator • Discuss with Waste Management their “protein run” for cafes and food outlets
#	Regulatory	Issues Addressed	Impact on Current/Future Demand	GDC Role
7	Introduction of a bylaw with provision for the licensing of all waste operators to provide data on materials collected, processed and disposed	• Better waste and recycling intelligence • Would cover Class 2 landfill • Avoids potential to be used as a dumping ground by out of district operators	• Increase administration resource • Accurate data across the whole district • Uniformed playing field for all waste operators • Ability for GDC to specific collection times, maximum size of residential wheelie bin and materials etc	• Increased regulatory function associated with policing • GDC would have responsibility for licensing operators, and monitoring and enforcing license provisions. • Consider the unitary authority powers of GDC and determine the need for bylaw against existing powers

#	Infrastructure	Issues Addressed	Impact on Current/Future Demand	GDC Role
8	Close Waiapu Landfill and consider a refuse transfer station and recovery centre model	• Removes operational issues associated with operating landfill • Provides opportunities for social enterprise/charitable community group and the recovery of value from the waste stream • Provides employment opportunities for youth. Enhanced services enabling separation of materials and access to low-cost used goods. • Community capacity building will be required	• Increase cartage cost to the City RRTS and operational costs • Costs passed onto the site users • Caring for our natural resources • Possible increase in illegal dumping	• GDC to lead and facilitate • GDC funding & staff support will be required for both establishment and ongoing support. • Business case on feasibility required • Monitoring of closed landfill • Collaborate with Tino rangatiratanga • GDC key role would be in overseeing and planning capacity building, development and operation of a community facility
9	Consider Alternative Waste Technologies to landfill disposal	• Fits with economic development directions • Provides disposal routes for waste that is problematic • Provides local disposal and energy resilience	• Complete review of existing waste systems • Energy from Waste processes such as gasification have the ability to generate revenue • Reduce reliance on out of district waste disposal facilities • Potential cost depending on collaborative approach with service provider	• GDC to lead and facilitate • GDC to lead collaborative community project with interested parties
10	Consider Alternative Waste Disposal Site with neighbouring Councils	• Provides a collaborative solution to waste disposal of District waste • Environmental benefit of reduced Km to destination • Council controlled facility	• Lack of control over existing waste contract and destination • Review of existing contract to enable possible variation • Potential impact on cost	• GDC to lead and facilitate • GDC to work with neighbouring Councils
11	Review the ownership of the city transfer station for possible change	• Look at the site restrictions and capabilities to determine suitability • Limitations may be reducing diversion potential • Competitiveness of tendering process	• Caring for our natural resources • Increased influence over waste minimisation • Potential saving or alternatively increased costs to seek alternative site • Potential reduction in cost due to competitive tendering process	• GDC to lead and facilitate

#	Infrastructure	Issues Addressed	Impact on Current/Future Demand	GDC Role
12	Foster Long Term Sustainable Relationships with existing Class 2 landfill and composting facility operators	• Builds capability and understanding of existing operations. • Provides increased diversion/ recovery opportunities • Identifies potential partners and feedstock material for any alternative waste treatment proposal • Encourages increased environmental performance	• Build a co-operative network of waste disposal facilities that work to the common good ultimately leading to greater diversion from landfill. • Caring for our natural resources	• GDC to lead and facilitate • GDC will recognise the benefits of collaborating with other parties in the provision of waste minimisation services and meeting future demands
13	Review the type and placement of street litter and recycling bins To include compactor bin technology for popular tourism sites	• Meets the issue of litter and street amenity • Provides efficiency of servicing • Provides a solution to overflowing bins	• Compactor technology could lead to servicing savings in some areas	• GDC key role would be in overseeing and planning capacity
#	Waste Education	Issues Addressed	Impact on Current/Future Demand	GDC Role
14	Continue with GDC investment in Waste Minimisation and promotion of existing behaviour change programmes Extend existing communication programme to focus on target audiences e.g. rural, older people, businesses	• The Gisborne community will be more aware of options and more engaged in the waste management process, taking a higher level of ownership of the issue. Information regarding health risks of waste materials and appropriate disposal pathways would reach a wider audience • A range of solutions are provided through key messaging that may be interpreted by all residents	• Waste minimisation behaviour change programmes aim to establish and support positive behaviours that reduce environmental impact • currently funded through waste levy funds and some rates funding • Public informed of health risks of waste materials and appropriate disposal pathways • Education alone will not support behaviour change. Pathways need to be provided for residents and businesses to take action on education messages	• GDC would continue to fund and coordinate behaviour change programmes • GDC would consider the expanding the level of resource invested in Waste Minimisation • Educator • Regulator • GDC to consider waste levy fund distribution
15	Collaborative Partnerships Working with WasteMINZ and other interested parties to push waste minimisation outcomes	• Increasing quantity of waste to landfill • Data quality and management of data • High volume of rural waste • Limited household hazardous waste disposal options	• Potential declaration of priority products by The Minister could address some problematic wastes. • Product stewardship schemes will assist GDC to meet future demand by providing effective waste recycling services for products such as e-waste, agricultural chemicals, tyres, packaging.	• Promote current schemes and lobby Government for priority products such as tyres, agricultural chemicals and e- waste • GDC will support product stewardship schemes and national and regional waste minimisation and recycling projects.

#	Procurement	Issues Addressed	Impact on Current/Future Demand	GDC Role
16	Introduce Waste Minimisation as a criteria in GDC contracts and facilities[14] Councils enter into shared service or joint procurement arrangements where there is mutual benefit	• Showing leadership to address waste minimisation • Increasing quantity of waste to landfill • Data quality and management of data • Recycling performance static/declining • Potential for greater joint working in Council service delivery	• Supporting community capacity and fostering strong communities • Environmental: improvement to waste recovery by influencing the use of recycled material in council contracts i.e. crushed concrete • Could result in benefits for the local economy as well as providing purchasing power for utilities such as power, fuel etc • Caring for our natural resources	• GDC approach to neighbouring authorities to form collaborative partnerships on various strategic or operational projects including procurement i.e. Hawke's Bay or Bay of Plenty • Where services are to be shared there will a need to align service provision and contract dates • Use procurement as a tool for positive change
#	Hazardous Waste	Issues Addressed	Impact on Current/Future Demand	GDC Role
17	Provision of household hazardous waste services via the provision of either fixed point or event based household hazardous waste services	• Showing leadership to address waste minimisation • Meeting the key outcomes of the NZWS to reduce harm and improve efficiency • Address a shortfall in service	• The collection or operation of drop off site for Household Hazardous is expensive. • Lessens risk of pollution from improper disposal of waste • Already promoted through GDCs waste minimisation programmes	• GDC approach to neighbouring authorities to determine approach • GDC to consider funding from Waste Levy funds • GDC increase waste minimisation education in this area • Possible secure drop off points at RTS's
#	Litter	Issues Addressed	Impact on Current/Future Demand	GDC Role
18	Provision of Litter and Public Place Recycling Bins Consideration of compactor bin Technology	• Showing leadership to address litter and illegal dumping • Address a shortfall in service • Raises community awareness • Clean Streets and tourist destinations	• Compactor bin technology will reduce the level of service required to areas of high traffic areas of key tourist destinations. • Prevents negative image of overflowing bins • High cost to purchase (waste levy fund option) • Lease options for units	• Conduct a survey of the number of current bins and effectiveness of placement • Promotion and marketing – environmental champion • Regulator

Table 10: Options

14 www.procurement.govt.nz/procurement/for-agencies/key-guidance-for-agencies/procurement-planning-and-implementation

10.0 Assessment Summary

The options put forward as part of this Waste Assessment all have the potential to assist GDC to meet the New Zealand Waste Strategy intended goals of reducing harm and improving efficiency with regard to waste.

Each option has the ability to work in isolation to effect change or, to be part of an evolving network of waste minimisation activities with the potential to minimize waste and create positive social outcomes.

The language used in the options for consideration has been chosen specifically in recognition of the amount of work some of these options will require to be invested in order to become a reality. Simple English has been used because no financial data has been developed that would apply to each option put forward as part of this assessment.

These options can be developed further as part of drafting the 2018-2024 Waste Management and Minimisation Plan (WMMP) and further discussion through consultation with the community will determine whether individual options warrant further investigation.

Options such as 'Option 14 – Behaviour Change/Waste Education' have been kept deliberately vague in recognition of the amount of work currently invested in this area and the diversity of programmes offered. It would be expected that further waste education options would be elaborated upon as the part of drafting the 2018-2024 WMMP.

10.2 Collection

Improving the delivery of kerbside collection services warrants further investigation around collection methodologies and potential for further diversion. It is essential to consider health and safety throughout any review of the existing services and not focus on lowest conforming cost of delivery.

A robust review of the current sticker system coupled with undertaking surveys on collection participation and set out rates of both collection services would give us a snapshot of community behavior and the systems current performance.

10.3 Physical Infrastructure

Maintaining the increased convenience for rural residents achieved since the introduction of the sticker system is key to community buy in throughout the rural area. The potential closure of the Waiapu Landfill in Ruatoria will present logistical challenges for GDC and effort needs to be invested to ensure positive waste and recycling trends continue through the district.

GDCs' lack of control over the waste stream and extremely low commodity prices are hampering diversion potential.

With regard to Alternative Waste Treatment infrastructure options, these are likely to be developed and implemented by the private sector rather than by GDC and will depend on the securing of a viable waste stream. Considering the remoteness of the Gisborne District and the type of industry domiciled, it is possible that investors would be willing to consider Gisborne as a business opportunity.

The existing commercial composting plant will need to expand should GDC decide to look at green waste or food waste collections. This would present an opportunity to work with the operator on a joint Waste Management Fund application. Council already invests a large part of its waste minimisation budget to promote home composting.

With regard to the negative impact of litter, ensuring the capacity of the litter bins in areas of high foot traffic or at prominent tourism destinations will resolve any issues of overflow. Consideration of compactor bin technology at these locations may lead to servicing efficiencies while coping with any illegal dumping of household waste in these bins. Compactor bin technology coupled with a review of the number of bins required and the effectiveness of their placement will generate efficiencies.

10.4 Behaviour Change Options (education)

The behavioural change activities proposed are relatively low cost and provide a key supporting role for other actions explored and proposed in this Waste Assessment.

10.5 Policy Options

The policy actions proposed give support to other actions or provide a key supporting role for other actions explored and proposed in this Waste Assessment

11.0 Preferred Options

Based on the analysis and discussion presented in this Waste Assessment, the following options should be included in an action plan for the 2018-2024 GDC Waste Minimisation and Management Plan (WMMP).

11.1 Infrastructure Actions

- Investigate changes to the collection methodology for both the recycling service and refuse collection (rubbish bag, wheelie bin, crate based or combination)
- Review the RRTS contract and model of disposal to include alternative waste technologies and/or alternative sites
- Consider the future of the Waiapu Landfill and develop a business case on the feasibility of community recovery centre
- Develop a proposal to divert increased organic waste
- Develop a litter bin/public place recycling bin policy for the placement of bins or provide additional capacity, considering compaction options.

11.2 Education Actions

- Increase investment in waste minimisation to drive greater diversion through increased community awareness.
- Collate and maintain information on all waste and recycling activities in the Gisborne District.
- Disseminate regular waste information to all residents through a variety of methods and media
- Continue to support education for sustainability activities for schools, homes and businesses

11.3 Policy Actions

- Consider alternative options to the current refuse disposal pathway to include: alternative landfill sites and alternative waste technologies scaled to suit the needs to the District.
- Develop a refuse bylaw to ensure waste and recycling activities are under taken in a safe and environmentally beneficial manner that protect the environment, staff and the community from nuisances associated with waste.
- Develop a Council wide procurement policy
- Promote the availability of Council funding for waste minimisation programmes

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