

# 2017



## *New Plymouth District Waste Assessment*



Te Kaunihera-ā-Rohe o Ngāmotu  
NEW PLYMOUTH DISTRICT COUNCIL  
[newplymouthnz.com](http://newplymouthnz.com)



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# 1. Introduction

The Waste Minimisation Act 2008 (WMA) requires Territorial Authorities (TAs) to review and implement waste management and minimisation plans (WMMP). The WMMP is intended to be the guiding document for Councils to promote and achieve effective and efficient waste management and minimisation within their district. The Waste Assessment (this document) establishes the planning foundation for the WMMP.

The TAs in the Taranaki region are committed to collaborating regionally to achieve efficiencies and effectiveness in waste management. The Taranaki Regional Council (TRC) hosts the Taranaki Solid Waste Management Committee (TSWMC), of which each TA has a sitting member. The four councils, New Plymouth (NPDC), South Taranaki (STDC) and Stratford (SDC) district councils and the TRC, contribute to funding a waste minimisation officer (WMO) who serves the committee and is central in implementing the Regional Waste Strategy and the WMMPs. The region has a single landfill and the TAs have awarded a single contract for the residential kerbside waste and recycling collection for the region. In continuing with this regional approach to waste management and minimisation, this Waste Assessment has been developed with input by the three TAs. A regional Waste Assessment template has been developed and regional waste data and regional options considered where applicable.

## 1.1 Purpose

As per Section 51 (1) of the WMA, 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); and
- b) a forecast of future demands for collection, recycling, recovery, treatment, and disposal services within the District; and
- c) a statement of options available to meet the forecast demands of the District with an assessment of the suitability of each option; and
- d) a statement of the territorial authority's intended role in meeting the forecast demands; and
- e) a statement of the territorial authority's proposals for meeting the forecast demands, including proposals for new or replacement infrastructure; and
- 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.

The Council's objectives in developing its WMMP are to:

- fulfil the statutory requirement to review the plan within six years;
- provide transparency on how the Council will deliver on objectives, policies and targets for waste management and minimisation;
- produce a document that is action oriented and provides a guide for decision making and community collaboration;
- provide a plan for improvements to data collection to achieve the requirement of the National Waste Data Framework;
- raise awareness of waste management and minimisation within the community.

## 1.2 Structure of this document

This Waste Assessment has been prepared in accordance with section 51 of the WMA and follows the guidelines provided by the Ministry for Environment<sup>1</sup>.

### **Section 1: The waste situation**

This section details the current situation of waste in Taranaki. This includes current waste infrastructure and services, current and projected quantities and composition of waste and diverted materials, demographic and market analysis, and a forecast for future demand.

### **Section 2: Where do we want to be?**

This section documents our vision, goals, objectives and targets. A gap analysis between this and our waste situation is provided.

### **Section 3: How are we going to get there?**

This section includes a statement of options and Council's proposed role in delivering these options.

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<sup>1</sup> Ministry for the Environment. 2015. Waste Assessments and Waste Management and Minimisation Planning: A guide for territorial authorities. Wellington.

## 1.3 The waste hierarchy

Throughout this document, waste services and facilities are generally categorised with reference to the waste hierarchy (Figure 1). The waste hierarchy is required within the *Waste Minimisation Act 2008* to be considered when formulating the WMMP and refers to the preferred order of waste minimisation and management methods.

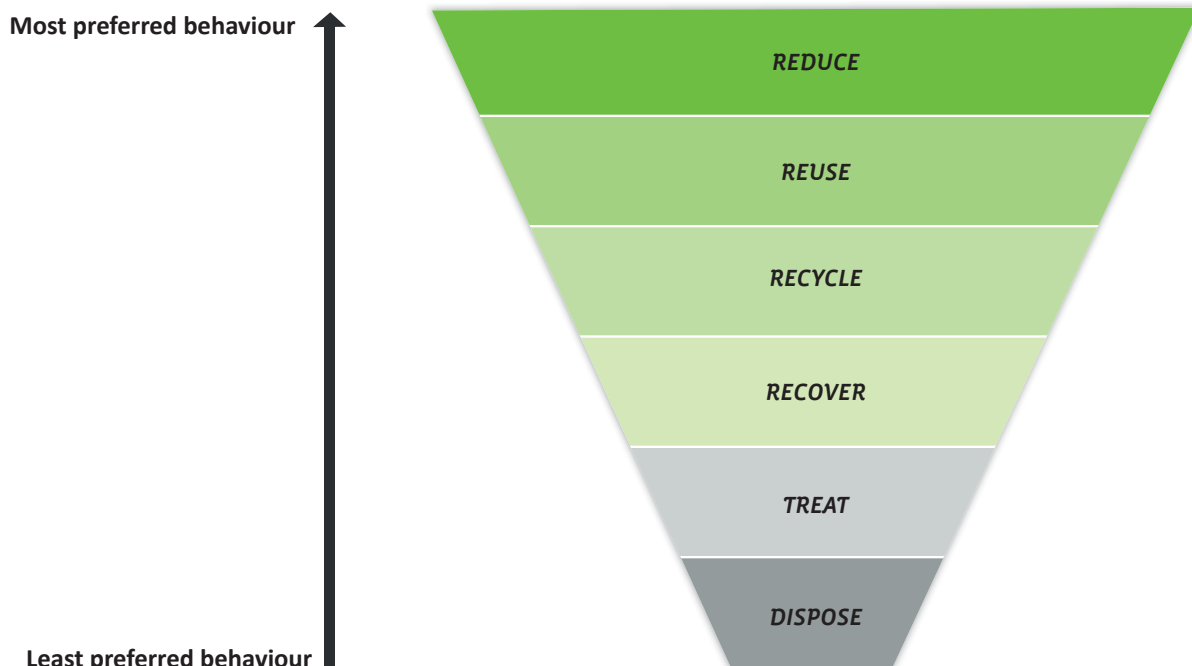


FIGURE 1: Waste hierarchy

## 1.4 Key terms and acronyms

**Activity source** refers to the type of activity that generates the waste being recorded. These may include: domestic kerbside, residential, commercial and industrial, landscape, construction and demolition, special and virgin excavated natural material (VENM).

**Biosolids** refers to treated sewage sludge that is stabilised and suitable for beneficial reuse.

**Cleanfill site** refers to a waste disposal site that accepts only cleanfill material.

**Cleanfill material** refers to material that when buried will have no adverse effect on people or the environment. Cleanfill material includes virgin

natural materials such as clay, soil and rock, and other inert materials such as concrete or brick that are free of:

- Combustible, putrescible, degradable or leachable components;
- Hazardous substances;
- Products or materials derived from hazardous waste treatment, stabilisation and disposal practices;
- Materials that may present a risk to human or animal health such as medical and veterinary waste, asbestos or radioactive substances;
- Liquid waste.

**Commercial and industrial (C&I) wastes** refer to waste sourced from industrial, commercial and institutional sources (i.e. supermarkets, shops, schools, hospitals, offices). This waste can also be referred to as industrial, commercial and institutional waste.

**Construction and demolition (C&D) wastes** refer to waste material from the construction or demolition of a building, including the preparation and/or clearance of the property or site.

**Contaminated land** means land that has a hazardous substance in or on it that:

- a) Has significant adverse effects on the environment; or
- b) Is reasonably likely to have significant adverse effects on the environment.

**Contaminated sites** refer to land areas that are contaminated, as defined above.

**Disposal\***, unless the context requires another meaning, means:

- 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.

**Disposal facility\***, unless the context requires another meaning, means:

- a) A facility, including a landfill,
  - i) At which waste is disposed of; and
  - ii) At which the waste is disposed of includes household waste; and
  - iii) That operates, at least in part, as a business to dispose of waste; and
- b) Any other facility or class of facility at which waste is disposed of that is prescribed as a disposal facility.

**District** means the district of a territorial authority.

**Diverted material\*** means any thing that is no longer required for its original purpose and, but for commercial or other waste minimisation activities, would be disposed of or discarded.

**Domestic kerbside waste** refers to domestic-type waste collected from residential premises by the local council (or by a contractor on behalf of the Council), or by private waste collections (through kerbside or similar collection).

**Hazardous waste** refers to materials that are flammable, explosive, oxidising, corrosive, toxic, ecotoxic, radioactive or infectious. Examples include unused agricultural chemicals, solvents and cleaning fluids, medical waste and many industrial wastes.

**Household waste\*** means waste from a household that is not entirely from construction, renovation or demolition of the house.

**Inert material** refers to material that when placed in the ground have minimal adverse effects on the surrounding environment.

**Landfill** refers to an area used for the controlled disposal of solid waste.

**Landscape waste** refers to waste from landscaping activity and garden maintenance (including public gardens), both domestic and commercial, as well as from earthworks activity, unless the waste contains only VENM, or unless the earthworks are for purposes of construction or demolition of a structure.

**Local authority** refers to any territorial authority or regional council within the meaning of the Local Government Act 2002.

**Materials Recovery Facility (MRF)** refers to the facility where recyclables are received, sorted, and sold to end user manufacturers.

**MBIE** refers to Ministry of Business, Innovation and Employment.

**Medical Officer of Health\*** as defined under section 7A of the Health Act 1956.

**MfE** refers to the Ministry for the Environment.

**NZ ETS** refers to the New Zealand Emissions Trading Scheme.



**NPDC** refers to the New Plymouth District Council.

**NZWS** refers to New Zealand Waste Strategy – Reducing Waste, Improving Efficiency (2010).

**Organic waste** includes garden, kitchen waste, food process wastes and biosolids.

**Product Stewardship** refers to requirements for producers, brand owners, importers, retailers, consumers and other parties to accept responsibility for the environmental effects of products – from the beginning of the production process through to, and including, disposal at the end of the product's life.

**Recovery\*** means extraction of materials or energy from waste or diverted material for further use or processing and includes making waste or diverted material into compost.

**Recycling\*** means the reprocessing of waste or diverted material to produce new material.

**Reduction** means lessening waste generation by using products more efficiently or through the design of products.

**Regional council** means a regional council within the meaning of the Local Government Act 2002.

**Residential waste** refers to all waste originating from residential premises, other than that covered by any of the other Activity Source categories. For example, a person arriving with a trailer load after cleaning out the garage would classify as residential waste.

**Resource Recovery Facility** refers to a facility that accepts, collects, separates and transfers divertable material and waste. Such facilities may include the following services:

- Reuse drop off and resale;
- Recycling drop off and sorting (MRF);
- Transfer station;
- Education and community spaces;
- Upcycling;
- Other activities that add value to resources being recovered.

**Reuse\*** means 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.

**RRF** refers to the Resource Recovery Facility.

**SDC** refers to the Stratford District Council.

**Sewage sludge.** Sewage sludge is a by-product of sewage collection and treatment processes which when treated can become biosolids.

**Solid waste** refers to all waste generated as a solid or converted to a solid for disposal. It includes, but is not restricted to, wastes like paper, plastic, glass, metal, electronic goods, furnishings, garden and other organic wastes.

**Special wastes** are those that cause particular management and/or disposal problems and need special care. This includes, but is not restricted, to hazardous and medical wastes (including e-wastes). It also includes any substantial waste stream (such as biosolids, infrastructure fill or industrial waste) that significantly affects the overall composition of the waste stream, and may be markedly different from waste streams at other disposal facilities.

**STDC** refers to the South Taranaki District Council.

**SWAP** refers to Solid Waste Analysis Protocol programme which is a classification and sampling technique to measure the quantity and composition of waste<sup>2</sup>.

**Taranaki Solid Waste Management Committee (TSWMC)** refers to the joint committee charged by Taranaki's regional council and territorial authorities to consider waste management issues in the region. The Committee involves representation from TRC, NPDC, STDC, SDC and Medical Officer of Health or Health Protection Officer.

**Territorial authority** means a city council or district council named in Part 2 of Schedule 2 of the Local Government Act 2002.

<sup>2</sup> Ministry for the Environment. 2015. *Waste Assessments and Waste Management and Minimisation Planning: A guide for territorial authorities*. Wellington.

**Trade waste** refers to liquid wastes generated by business and disposed of through the trade waste system. Trade waste includes a range of hazardous materials resulting from industrial and manufacturing processes.

**Transfer station** refers to a facility where waste is consolidated, possibly processed to some degree, and transported to another facility for disposal, recovery, recycling or reuse.

**TRC** refers to the Taranaki Regional Council.

**Treatment\***

- a) Means 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 adverse effects on the environment; but
- b) Does not include dilution of waste.

**Virgin excavated natural material (VENM)** refers to material that when discharged to the environment will not have a detectable effect relative to the background and comprising virgin excavated natural materials, such as clay, soil, and rock that are free of:

- Manufactured materials such as concrete and brick, even though these may be inert;
- Combustible, putrescible, degradable, or leachable components;
- Hazardous substances or materials (such as municipal solid waste) likely to create leachate by means of biological breakdown;
- Any products or materials derived from hazardous waste treatment, stabilisation or disposal practices;
- Materials such as medical and veterinary waste, asbestos, or radioactive substances that may present a risk to human health if excavated;
- Contaminated soil and other contaminated materials;
- Liquid waste.

**Waste\*** means:

- a) Anything disposed of or discarded; and
- b) Includes a type of waste that is defined by its composition or source (for example, organic waste, electronic waste, or construction and demolition waste); and
- c) To avoid doubt, includes any component or element that is disposed of or discarded.

**Waste hierarchy** refers to the preferred order of waste minimisation and management methods (listed in descending order of importance):

- Reduce;
- Reuse;
- Recycle;
- Recover;
- Treat;
- Dispose.

**Waste management and minimisation\*** means waste minimisation and the treatment and disposal of waste.

**Waste minimisation\*** means:

- a) The reduction of waste; and
- b) The reuse, recycling, and recovery of waste and diverted material.

\*Denotes the definition is sourced from the Waste Minimisation Act 2008

## 1.5 Completeness and accuracy

The Council has a responsibility to plan for all waste generated in the District when considering waste infrastructure and services. The Council has detailed information on the collection and facilities operated by them or on their behalf. This includes Council provided kerbside collection services, transfer stations and the landfill.

However there is a web of private companies involved in the collection, diversion of waste and alternative disposal (i.e. cleanfills) in the district and wider region from which information is more difficult to capture. Surveys have been undertaken to gain a wider understanding of waste quantities and their destination, and this data is used where applicable. However it must be noted that the response rate from the surveys is generally low (less than 15% response rate) and is therefore only an estimate.

Initial consultation with the community and commercial sector has been held in the development of the waste assessment to gain a broader understanding of behaviour and perceptions with regard to waste. This, in combination with the surveys and Council data is sufficient to identify the areas that should be prioritised, and to outline the role that the Council could potentially play in resolving the issues relating to both Council and non-Council controlled waste. Additional targeted consultation to confirm the success of the proposed options is prudent and will be sought through the special consultative procedure required as part of the development of the WMMP.

## 1.6 Legislative framework

Waste in New Zealand is legislated by a number of Acts (Figure 2). Of primary importance is the Waste Minimisation Act 2008.

NEW ZEALAND WASTE STRATEGY					
Legislative Framework					
Waste Minimisation Act 2008	Local Government Act 2002	Hazardous Substances and new Organisms Act 1996	Climate Change Response Act 2002	Resource Management Act 1991	Other Tools
Waste Minimisation & Management Plan	By-laws	Regulations and group standards related to water	Disposal facility	National environmental standards	International Conventions
Waste Disposal Levy	Long-term plans			District and Regional plans and resource consents	Ministry guideline codes of practice and voluntary initiatives
Waste Minimisation Fund					
Product Stewardship					
Other regulations					

FIGURE 1: Toolkit for managing and minimising waste in New Zealand<sup>3</sup>

<sup>3</sup> Source: Ministry for the Environment 2010. The New Zealand Waste Strategy. Ministry for the Environment. Wellington.

### **Waste Minimisation Act (2008)**

The Waste Minimisation Act (2008) was developed with the purpose of encouraging waste minimisation and a decrease in waste disposal in order to:

- protect the environment from harm; and
- provide environmental, social, economic and cultural benefits.

This is to be achieved by promotion of waste minimisation through reduction, re-use, recycling and recovery using the following measures:

- Regulating product stewardship schemes focussing initially on “priority” products. This will help and, when necessary make, producers, brand owners, importers, retailers, consumers and other parties take responsibility for the environmental effects from their products at end-of-life – from ‘cradle-to-grave’.
- Controlling disposal of material to landfills.
- Providing a mechanism to report disposal tonnages back to the Ministry for the Environment to improve information on waste minimisation.
- Establishing a “waste advisory board” to advise the Minister on best practice.
- Collecting a levy on all solid waste tonnes deposited into landfills to generate funding to help local government, communities and businesses reduce the amount of waste.

This Act also aims to benefit the economy by encouraging better use of materials throughout the product life cycle, promoting domestic reprocessing of recovered materials and providing more employment.

The Act requires TAs to develop and adopt a waste management and minimisation plan (WMMP), and in doing so take into consideration the goals of the NZ Waste Strategy.

### **NZ Waste Strategy**

The NZ Waste Strategy has two high level goals: ‘reducing the harmful effects of waste’ and ‘improving the efficiency of resource use’.

### **Health Act 1956**

The Health Act 1956 places obligations on TAs (if required by the Minister of Health) to provide sanitary works (section 25), the definition of which includes works for collection and disposal of refuse.

### **Local Government Act 1974 and 2002**

The provisions of the LGA 1974, part 31 and the sanitary assessment provisions for refuse contained in part 7 of the LGA 2002 have been repealed and are now largely embodied in the WMA. However, the LGA 2002 contains various provisions that may apply to TAs when they are preparing their WMMPs, including consultation and bylaw provisions. For example, it details the process for undertaking a special consultative procedure when adopting, amending or revoking a waste management plan (or WMMP as referred to in the WMA).

### **Other legislation**

Other legislation relevant to waste management and minimisation includes:

- The **Hazardous Substances and New Organisms Act 1996 (HSNO)** addresses the management of substances that pose a significant risk to the environment and/or human health, from manufacture to disposal, and relates to waste primarily through controls on the handling and disposal of hazardous substances.
- The **Resource Management Act 1991 (RMA)** addresses waste management and minimisation activity through controls on the environmental effects of waste activities. The National Environmental Standard (NES) for Air Quality requires certain landfills (greater than one million tonnes capacity) to collect landfill gases and either flare them or use them as fuel for generating electricity.
- The **Health and Safety at Work Act 2015** is recognised as a key priority for the waste industry. A health and safety industry sector group was formed and has developed guidelines for the solid waste industry to ensure best practice in health and safety.

## 1.7 Regional and local strategic context

The relationship between the WMMP and local strategies and policy documents is shown in Figure 3.

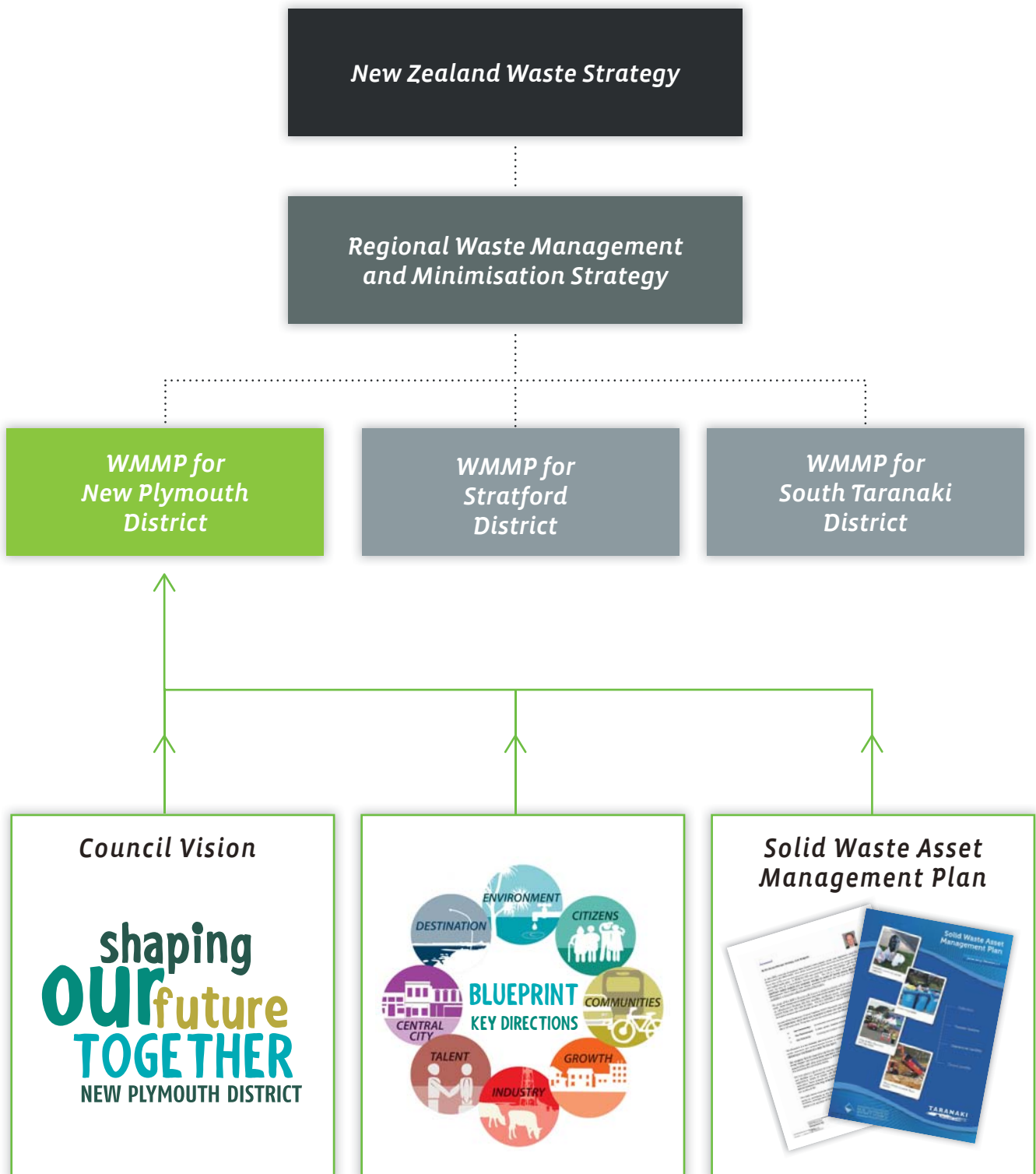


FIGURE 3: Local waste policy document relationship

## **Regional Waste Strategy**

The purpose of the Regional Waste Strategy is to set out a strategic framework by which the TRC and the three TAs in the region will help reduce and better manage waste in Taranaki for a ten year period (2011-2021).

Strategy objectives, methods and targets address the two goals set out in the New Zealand Waste Strategy. The TRC and three TAs collectively meet the targets through their respective WMMPs and work programmes. Progress towards these targets is reported to the TSWMC.

## **Local Strategies**

The New Plymouth District Blueprint, which supports and implements the Shaping our Future Together vision and outcomes, has identified eight key directions for the Council's focus for planning during the next 30 years. These are:

- **Environment** - Enhance the natural environment with biodiversity links and clean waterways;
- **Communities** - Strengthen and connect local communities;
- **Citizens** - Enable engaged and resilient citizens;
- **Growth** - Direct a cohesive growth strategy that strengthens the city and townships;
- **Industry** - Strengthen and manage rural economy, industry, the port and the airport;
- **Talent** - Grow and diversify new economies that attract and retain entrepreneurs, talented workers and visitors;
- **Central City** - Champion a thriving central city for all;
- **Destination** - Become a world-class destination.

Both the Council Vision and Blueprint have been embedded in the Long-Term Plan 2015-2025. Alongside these planning documents, the Solid Waste Asset Management Plan outlines specifically how the solid waste assets and services will be managed.

## **Bylaws**

The Council implements the New Plymouth District Council Bylaw 2008 Part 9: Solid Waste (as amended and readopted July 2013). The purpose of the bylaw is to ensure that waste collection and disposal does not have significant environmental or health impacts, by regulating recycling, ownership of the waste stream, refuse storage, waste management and waste collection.

## 2. *The Waste Situation*

This section contains information about waste and diverted material in the New Plymouth district and Taranaki region that is generated, recycled, recovered, treated or disposed of to landfill. The information includes waste infrastructure and services, and data about quantities, trends, composition, source and destination of waste and diverted materials. This information provides the basis for projecting future demand for waste management and minimisation services as presented at the end of this section.

Data has been collected from the following sources:

- Landfill and transfer station weighbridge quantities;
- The findings from a landfill and transfer station solid waste analysis protocol (SWAP) conducted in September 2016;
- A kerbside solid waste analysis protocol (SWAP) conducted in November 2016;
- Surveys of industries.

## 2.1 Existing waste infrastructure and services

There are a number of waste service providers in Taranaki. The three TAs in the region have a joint regional contract for the collection of urban residential kerbside refuse and recycling and the operation of key transfer stations. Private service providers offer waste services to the rural community, the commercial sector, and those residential customers wanting a greenwaste collection or a larger bin option. A growing number of community sector organisations are also involved in waste services (Table 1).

TABLE 1: Summary of waste infrastructure and services in Taranaki (bold text shows a change or new service since the last waste assessment in 2011)

INFRASTRUCTURE/SERVICE		COUNCIL PROVIDED	OTHER PROVIDERS <sup>4</sup>
Reduce	Education/behaviour change (across waste hierarchy)	<p>Regional education strategy and campaigns.</p> <p>TRC Education Officer available for waste lessons.</p> <p>Regional Waste Minimisation Officer.</p> <p>Love Food Hate Waste national campaign.</p> <p>Distribution of waste levy grants.</p> <p>Tours of waste facilities.</p> <p>Stalls and events.</p> <p>Social media.</p> <p>We Can website/recycling directory<sup>4</sup>.</p> <p>Sustainable living education trust licence (NPDC).</p>	<p>Taranaki Environmental Education Trust.</p> <p>Enviroschools.</p> <p><b>Taranaki Conservationists.</b></p> <p><b>Curious Minds programme<sup>5</sup>.</b></p> <p><b>Reusable bags for sale at most supermarkets. Some retailers charge for plastic bags or provide discount for bring your own bag.</b></p> <p><b>Impact (funded by Ministry for Youth Development – working with youth aged 12-24).</b></p> <p><b>Community fruit harvesting.</b></p> <p><b>Para Kore (Council waste levy funds part).</b></p> <p><b>Waste free parenting workshops (Council waste levy funds part).</b></p>
Reuse	Second hand trading and upcycling	<p>Reuse shop at New Plymouth Transfer Station.</p> <p><b>Community Reuse and Recycling Centre (under development).</b></p>	<p>Charity stores – including Hospice Taranaki, Red Cross, Salvation Army, SPCA, Oxfam, and Church stores.</p> <p>Demolition &amp; building trade stores.</p> <p>Second hand traders, including four second hand clothing stores.</p> <p>Online trading sites including TradeMe, Buy and Sell New Plymouth, Freecycle New Plymouth, Neighbourly.</p> <p>Markets including <b>Kids' Market</b> (monthly), The Seaside Market (monthly), SPCA flea market (weekly).</p> <p>Garage sales.</p>
		<p>Council/NZTA contractors reuse roading wastes for bedding and sub-base – material.</p>	<p>Gas bottles – 'Swap a bottle' and refilling.</p> <p>Retread tyres (processed outside of region).</p> <p>Informal arrangements with farmers for tyres: used in silage pits and retaining walls.</p> <p><b>Bounce Bags – making and distributing reusable shopping bags.</b></p>

<sup>4</sup> Refer to Recycling Directory ([www.wecan.org.nz](http://www.wecan.org.nz)) for diversion options for vehicle batteries, waste oil, used paint, solvents, waste cooking oil, gas bottles, construction and demolition wastes etc.

<sup>5</sup> May include a waste component. Study in 2016 on organic waste in schools. Another citizen science programme had marine waste component.



INFRASTRUCTURE/SERVICE		COUNCIL PROVIDED	OTHER PROVIDERS <sup>4</sup>
Recycle	Collection	Fortnightly kerbside collection mixed recycling and glass. NPDC- 27,600 households and 48 schools. Public place recycling bins (seven) – NPDC Events recycling on Council premises.	<b>Residential kerbside</b> collections by one provider. Commercial cardboard collections by four providers. Commercial mixed recycling collections by two providers. Farm sector: Plasback contractor collects farm plastics from site. Hospitality sector: Two collectors of waste cooking oil. Automotive industry: Some divert oil filters, car batteries, antifreeze for recycling. All premises surveyed recycle waste oil from site. Tyre industry: Small quantity of tyres recycled. All recycling processed outside of region.
	Refuse transfer stations	Three main transfer stations in region (NPTS, Hawera and Stratford) with free drop off of household recyclables and user pays services for whiteware, e-waste and waste oil. In the New Plymouth district NPTS (open 7 days) and four rural transfer stations in NPDC (limited opening hours) offer free drop off of recyclables.	Baler for commercial plastics and cardboard located in New Plymouth. <b>Plasback farm plastics baler located in Taranaki region.</b>
	Resource recovery facilities	<b>New Plymouth RRF (under development) with Material Recovery Facility sorting and baling kerbside recycling.</b>	Three scrap metal dealers (all located in New Plymouth). Two providers for commercial skip processing.
Recovery	Organic waste collection	STDC opt-in user pays kerbside greenwaste collection.	Three providers for kerbside greenwaste collection. Many commercial businesses (i.e. landscaping) drop greenwaste to processing facilities. Piggeries and coordinating organisations have informal and formal arrangements with supermarkets and hospitality sector for collection of food scraps. Food banks have arrangements with some supermarkets for near end of date food. Coffee grounds from some cafes and service stations bagged and made available for gardens. <b>Community Fruit Harvesting Taranaki.</b>

INFRASTRUCTURE/SERVICE		COUNCIL PROVIDED	OTHER PROVIDERS <sup>4</sup>
Recover	Organic waste processing		<p>Meat and poultry wastes such as offal, blood, feathers and fallen stock are processed by commercial operators in region (predominantly outside of New Plymouth).</p> <p>One site in NP processes poultry litter. One operator (located at three sites) operates one composting and vermiculture site and two vermiculture only sites. The sites process paunch grass, poultry waste, poultry mortalities, fish carcasses, greenwaste and drilling muds. Agricultural slurry and poultry shed litter are spread to land.</p> <p>Dairy waste products (such as buttermilk) are generated and processed into stock food in the region (outside of NP district). Timber waste from one processing site is used on site for fuel. Chip, bark, sawdust and wood is on sold. Some untreated timber waste is cleanfilled.</p>
	Biosolids/drilling muds/sludges	Wastewater biosolids from NP wastewater treatment plant thermal dried and sold as a fertiliser.	Drilling muds applied to land (landfarming).
	Trade waste (solid portion or liquid if disposed at landfill)		One private waste dewatering facility; Approximately six private collectors of trade waste that may use the landfill for non-liquid wastes disposal.
Treat	Hazardous waste	<p>Residential quantities of hazardous waste accepted at three main transfer stations in region.</p> <p>Agrecovery provide agrichemical collection (18 monthly) – funded by 3 TAs and TRC.</p>	Commercial hazardous wastes are collected and transported to either Auckland or Wellington for treatment/disposal. Two main providers of this service in the district.
Dispose	Clean fills	<p>Colson Road Landfill accepts cleanfill as cover.</p> <p>Okato and Inglewood transfer stations accept and dispose of cleanfill onsite.</p>	Twenty-three consented cleanfills in Taranaki. Some of these are only available for owner use.
	Collection	<p>NPDC weekly kerbside waste collection of bags 27,600 households; SDC (2,500 households) and STDC (7,900 households) weekly collection of 120L bins.</p> <p>Illegal dumping clean up (fortnightly).</p> <p>Public place litter bins.</p>	<p>Six commercial waste collectors in region. Four working in NP district.</p> <p>One commercial road sweeping provider.</p> <p><b>Many organisations involved in clean-ups of litter in beach, river and urban environments including schools, Taranaki Conservationists, Project Hotspot.</b></p>
	Transfer Stations	<p>Waste disposal at all transfer station (user pays).</p> <p>Tyres (user pays).</p> <p><b>RRF (under development).</b></p>	
	Landfills	<p>One regional landfill (Colson Road); [new central landfill planned in 2019]</p> <p>Eight closed landfill sites (NPDC). Two of which are emergency landfill sites (Inglewood &amp; Okato).</p>	

## 2.1.2 Council provided infrastructure and services

In Taranaki, waste minimisation and management planning is integrated as far as is practicable through the TSWMC. This is a joint committee comprising the TRC and the three TAs charged with considering and addressing waste management issues across the region. The Medical Officer of Health and Health Protection Officer are invited to participate on the Committee in a non-voting role. At an operational level, a regional Waste Minimisation Officer is appointed to assist the four councils to implement the Regional Waste Strategy and achieve its targets.

### **Behaviour change and education**

#### **Taranaki Regional Waste Minimisation Education Strategy**

The TSWMC has adopted a Taranaki Regional Waste Minimisation Education Strategy. The purpose of this strategy is to set out the strategic framework for NPDC, SDC, STDC and TRC to undertake education and communication programmes that help to achieve the regional waste minimisation goals. An annual education plan spells out the education and communication activities the councils will undertake during the year. The programme identifies school, community and business engagement activities. These activities are predominantly driven by the Waste Minimisation Officer.

#### **Waste Minimisation Officer**

The TRC, NPDC, SDC and STDC joint fund a regional part-time Waste Minimisation Officer to facilitate the implementation of the regional waste management strategy with a particular focus on advocacy, advisory and educational activities. The Waste Minimisation Officer is employed by and located at the TRC.

#### **Waste levy**

A levy of \$10 per tonne (exc GST) is charged on all waste disposed of at landfill. Half of this levy goes to TAs to spend on promoting or achieving the waste minimisation activities set out in their WMMPs. The Taranaki TAs utilise available waste levy to fund the Waste Minimisation Officer (with an additional contribution by the TRC). In addition, the TAs utilise their levy to part-fund community initiatives. Funded projects by NPDC have included waste-free parenting workshops run by the Nappy Lady, improving environmental footprint of sports clubs through Project LiteClub, research into composting education that will lead to behaviour change, contributing to nationwide research and campaigns including Love Food Hate Waste and plastic bag levy and container return research. All three TAs have supported Para Kore and their work in reducing waste from Marae and tikanga Maori events.

PHOTO 1: School children watching the MRF in action from the education room



## Kerbside collection service

The Council provided kerbside collection service is funded through a targeted rate. A new regional solid waste services contract was started on 1 October 2015 operated by EnviroWaste Services Ltd which encompasses both transfer station operation and kerbside collection for the three districts. As part of this new contract a change to the level of service was implemented. All three districts now provide a separate glass recycling collection (colour separated at kerbside). NPDC changed from collecting recycling in supermarket bags to provision of bins for recycling. Both SDC and STDC already had bins for mixed recycling. The kerbside service level differs between NPDC, SDC and STDC kerbside collections and is summarised in Table 2.

TABLE 2: Kerbside service

COUNCIL	NUMBER OF HOUSEHOLDS	RECEPTACLE AND FREQUENCY OF COLLECTION			
		Mixed Recycling	Glass	Waste	Greenwaste
NPDC	27,600	240 L bin Fortnightly	60 L crate Fortnightly	60 L bag <sup>6</sup> Weekly	Nil
SDC	2,300	240 L bin Fortnightly	60 L crate Fortnightly	120 L bin Weekly	Nil
STDC	8,700	140 L bin Weekly	60 L crate Weekly	120 L bin Weekly	240 L bin <sup>7</sup> Fortnightly



PHOTO 2: Kerbside collection of recyclables and general waste in New Plymouth

All three councils provide a similar mixed recycling and glass collection service, with the same branding on education material, trucks and bins. The following items are accepted at the kerbside for recycling:

- Paper;
- Cardboard;
- Tin cans;
- Aluminium cans;
- Plastic containers 1-7 (excludes soft plastics and polystyrene);
- Glass bottles and jars.

Waste from the kerbside collection goes to the regional landfill. Mixed recycling and glass for all three districts is taken to the New Plymouth Materials Recovery Facility to be sorted and baled before being transported to a final destination for recycling.

<sup>6</sup> 52 bags provided annually; additional can be purchased.

<sup>7</sup> Voluntary user pays service

## Transfer Stations

In the region, STDC has seven transfer stations, SDC a single transfer station and NPDC has five transfer stations all providing free drop off for both residential and commercial recyclables. At the New Plymouth transfer stations household refuse placed in prepaid Council-provided rubbish bags can be dropped off to the transfer station at no additional charge.

All transfer stations in New Plymouth district accept whiteware and scrap metal (recycled), tyres, and green waste (for composting) and user pays fees apply. Greenwaste is accepted at a lower charge than general waste to encourage users to separate this out and enable this to be diverted into compost. Non-compostable greenwaste (e.g. noxious weeds, flax, cabbage trees and agapanthus) is accepted as general waste and goes to landfill.

The four rural transfer stations have mobile recycling containers where recycling is placed, and waste bins available for domestic quantities of waste.

The New Plymouth Transfer Station (NPTS) accepts commercial and domestic waste, recycling and greenwaste, and also provides a user pays e-waste recycling service on behalf of the Council. Hazardous waste is also accepted from both domestic (free) and commercial (fees apply) sources, which is disposed of out of the region. Reusable items and scrap metal are also retrieved from the waste pit and placed in the on-site shop for resale or recycled (for scrap metal).

PHOTO 3: Kerbside recycling being delivered to the MRF





FIGURE 4: Resource Recovery Facility

### **Resource recovery facility**

As part of the previous WMMP, the Council investigated the development of a Resource Recovery Facility in New Plymouth. The design and build of a facility was tendered in 2012, and a contract was placed with EnviroWaste Services Ltd on land purchased for the purpose. The site is located adjacent to the existing NPTS and is being developed in three stages (Figure 4):

1. Material recovery facility (completed in October 2015)
2. Community reuse and recycle centre (currently being designed and to be built in 2017/18)
3. Refuse transfer station (to be constructed in 2018/19).

The Council has invested in the development of a MRF located at the Colson Road site. The function of the MRF is to sort and bale domestic recyclables for the region, specifically card, paper, tin and steel cans and hard plastics 1-7. Currently the MRF processes Council provided recycling. The MRF includes an education room with a viewing window to the facility. From January through to December 2016 over 50 groups toured the facility. This is intended to improve the recycling rate and reduce contamination of recycling.

The Community Reuse and Recycle Centre is the front end of the RRF and sets the scene for the whole facility. This will be a community-run area providing free drop off of reusable and recyclable items, a reuse shop, repair and upcycling area, storage and education spaces. The ultimate goal of this area is to divert waste before it enters the transfer station and facilitate a shift in the community attitude to waste by turning it into a resource. A concept design for this area has been developed (Appendix 1) and detailed design of the first stage is currently underway. Community organisations to operate this area are also being identified.

A new refuse transfer station will be constructed prior to the closure of the Colson Road landfill. This NPTS will enable waste to be consolidated and transported to the new Central Landfill in South Taranaki. This will replace the existing NPTS which is currently located on leased land (the lease of which is due to expire in 2021).



PHOTO 4: Recyclables being placed on the sorting line at the MRF



PHOTO 5: Cans baled at the MRF ready for transporting to market

### Landfill

The region has a single functioning landfill, where all waste from the council-provided services are disposed. Access is also available to commercial waste service providers. All users are charged a gate fee. The landfill is expected to reach capacity in 2019 and is scheduled to close at the end of June 2019<sup>8</sup>. A new regional landfill, located in Eltham in South Taranaki, is consented and scheduled to open in July 2019.

The Council also has eight consented closed landfills. Two of these are consented for emergency landfilling, if required.



PHOTO 6: Colson Road Landfill

### Biosolids

New Plymouth District’s wastewater treatment plant produces between 1400 and 1600 tonnes of thermally dried biosolids a year (Figure 5). This produces an Ab grade biosolid<sup>9</sup> which can be used as a fertiliser. Figure 5 shows the amount of Bioboost<sup>®</sup> produced and beneficially reused versus that landfilled. Bioboost<sup>®</sup> that is landfilled includes any product that does not meet the specifications outlined in the supply agreement which ensures a consistent, high quality product. Causes for out of specification product normally relate to illegal or non-complying discharges to the sewer system.

The biosolid produced is used as an organic, slow release granular fertiliser, which is sold in bags and bulk registered as Bioboost<sup>®</sup> to local gardeners, farmers, commercial gardens and nurseries. There is currently sufficient demand for this product to absorb the current production of biosolids. The thermal dryer that produces the Bioboost<sup>®</sup> is nearing the end of its life and Council is currently looking at options for replacement. The replacement is scheduled to start in 2018/19.



FIGURE 5: Annual Bioboost<sup>®</sup> production between 2002 and 2016

<sup>8</sup> The existing landfill will continue to accept special wastes until the new landfill has sufficient volumes of waste to protect the liner.

<sup>9</sup> NZWWA, 2003: Guidelines for the safe application of biosolids to land in New Zealand, August 2003.



### 2.1.2 Commercial and not-for-profit services

Commercial providers in the region provide a range of specialised services including residential solid waste collection, organic waste collection and processing, commercial solid waste and recycling collections, cardboard cages, recycling drop-off points (residential, soft plastics, scrap metal), textile reuse drop-off (charity shops/bins) and cleanfill sites.

It is believed, through the data collection for this waste assessment that commercially collected waste from Taranaki is being disposed of outside of the region, in the Whanganui District. However, confirmation of this, or quantities, have not been made available.

The Taranaki region does not have the facility for disposing of some commercial hazardous and liquid wastes and these are transported out of the region, to either Auckland or Wellington.

The not-for-profit services and initiatives in the region are listed in Table 1.

Information on services pertaining to diverted waste streams is provided in Section 2.5.

## 2.2 Current waste quantities

The data in this section refers to 'general waste' and 'overall waste'. Unclassified mixed waste is referred to in this document as 'general' waste and comprises construction and demolition (C&D) waste, commercial and industrial (C&I) waste, landscaping waste, and residential waste. When the general waste stream is combined with the kerbside waste collections, transfer station waste, and special wastes, the waste stream is referred to as the 'overall' waste stream.

NAUS, a data management tool, has been utilised for this waste assessment to assist in scenario modelling and forecasting of waste in the region.

The flow and quantities of waste for the New Plymouth District in 2015/16 is shown in the mass flow diagram in Figure 6.

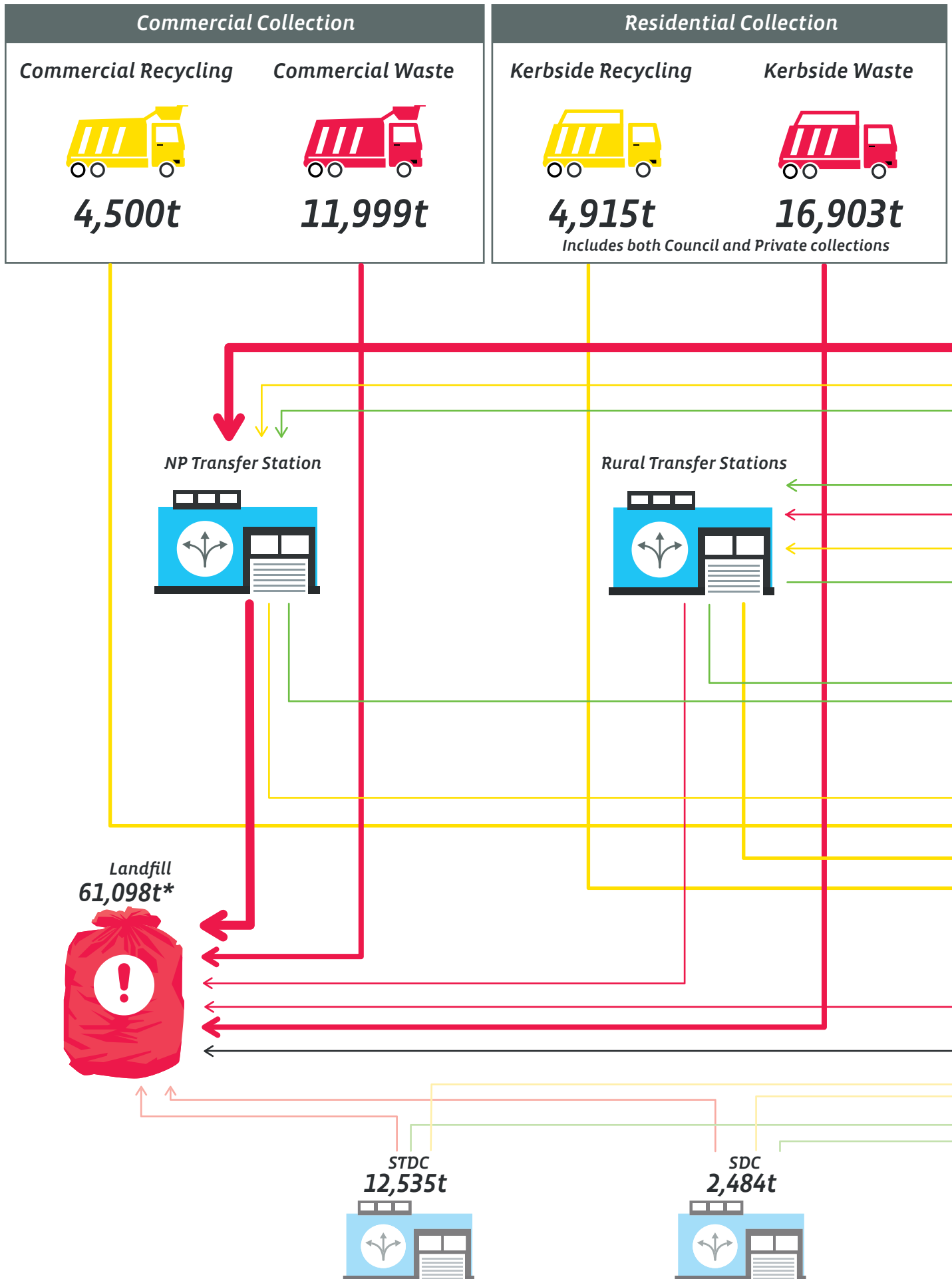
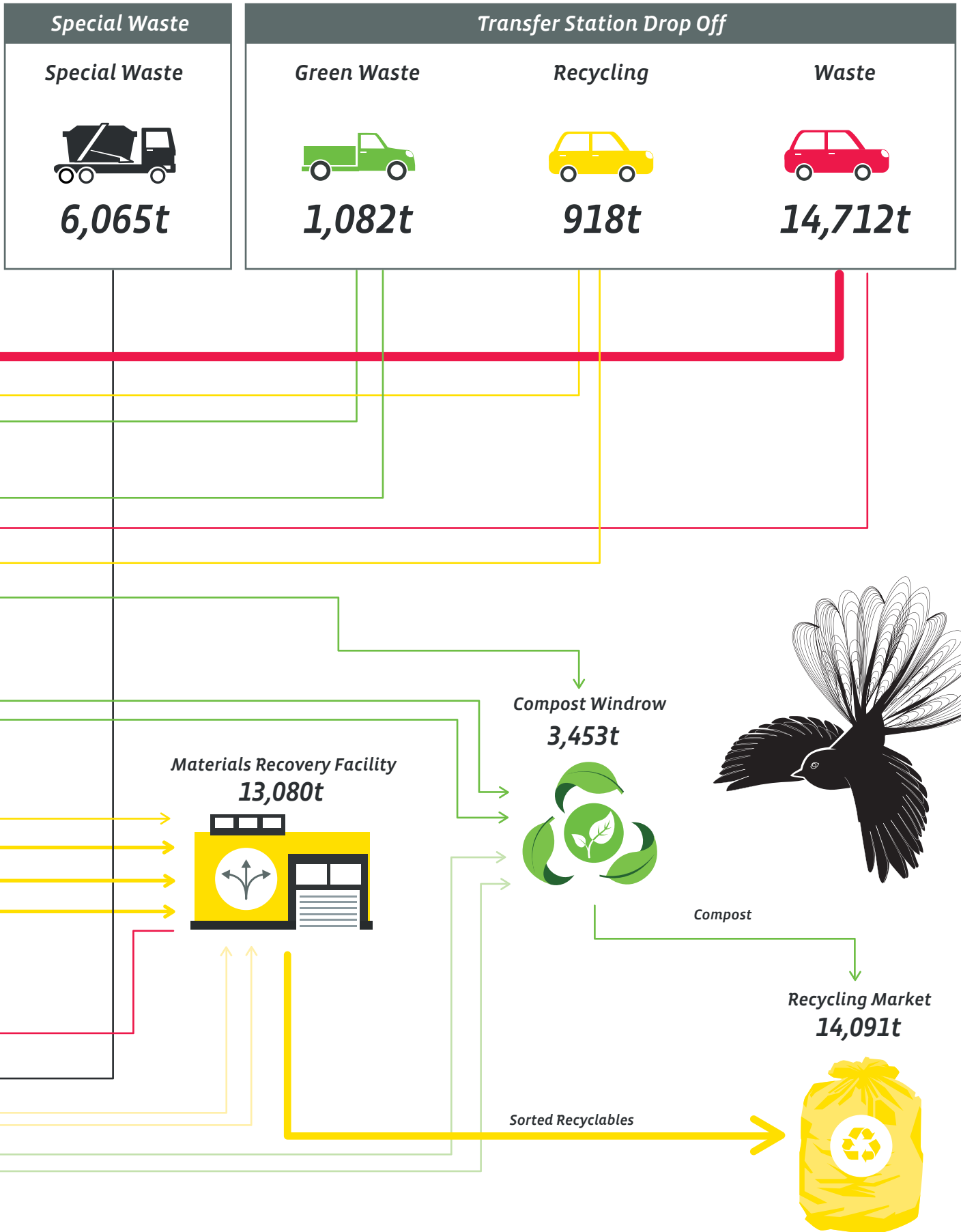


FIGURE 6: Flow of waste in New Plymouth 2016

\* Includes Colson Road Landfill and disposal to landfill outside the Taranaki region.



### 2.2.1 Landfill waste quantities

The Colson Road landfill (the Landfill) is the only operational municipal landfill accepting general waste in the Taranaki region. The Landfill receives wastes from New Plymouth, Stratford and South Taranaki districts.

Total waste to landfill quantities are derived from weighbridge records at the Landfill gate. The weighbridge records the quantity and type of waste entering the Landfill. This is considered to be an accurate account of waste being disposed of to landfill in the Taranaki region.

Tonnage to the Landfill has remained around 60,000 tonnes since 2007 (Figure 7), when waste was consolidated to a single landfill in the region. In the 2015-2016 year this reduced to 55,000 tonnes. Two reasons for this decline are likely. Firstly, the introduction of a new regional waste contract in October 2015 has seen a vast increase in recycling in the region. Secondly, commercial waste is known to be transported outside of the region for disposal. The 2017 data will provide greater clarity for the reason and impact of this reduction.

The split between the three districts in Figure 6 is an indication only as it does not take into account cross-boundary movement of waste. The SDC and STDC data in this figure primarily records kerbside and transfer station refuse. Waste within the NPDC category includes kerbside and transfer station waste as well as waste sourced from all three districts and disposed of at the Landfill through commercial waste collectors.

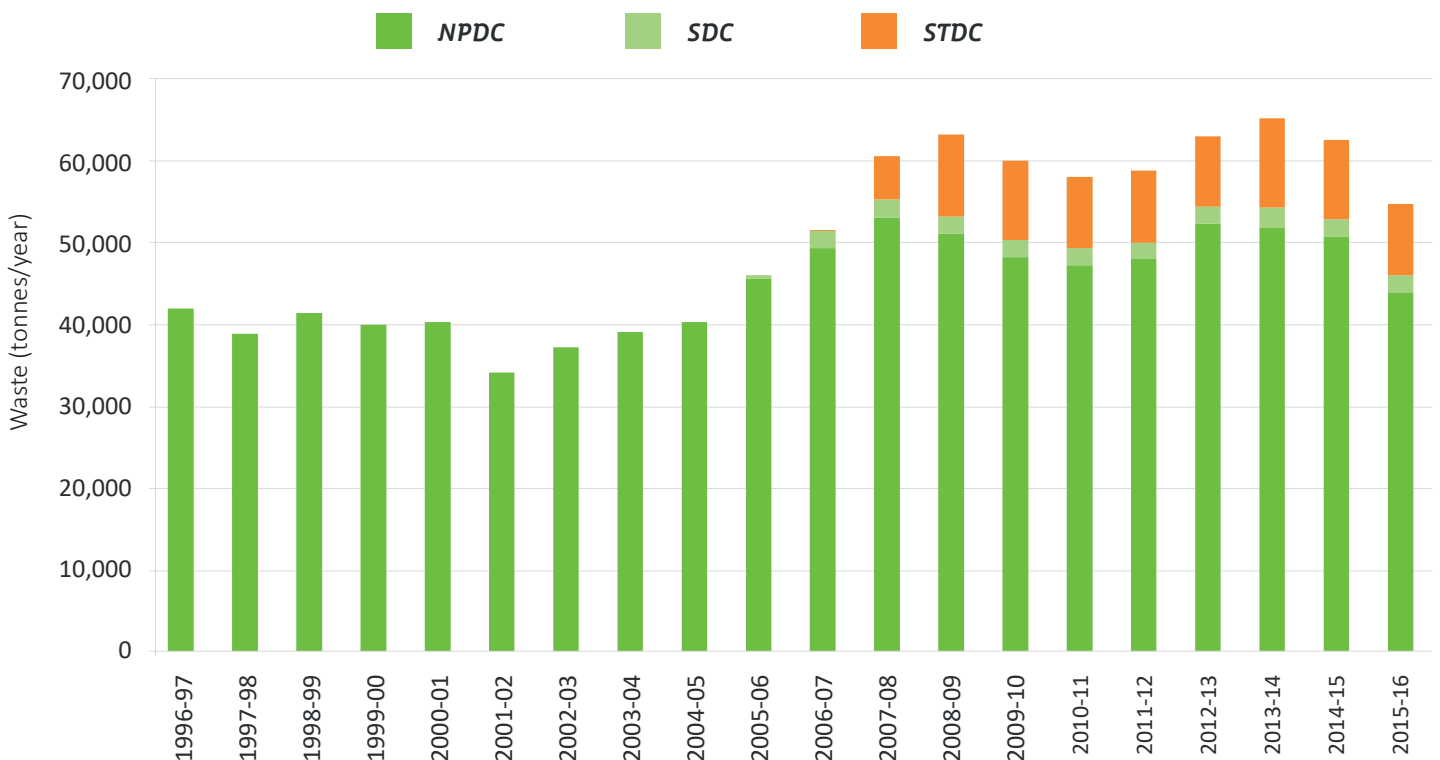


FIGURE 7: Waste disposed to Colson Road Landfill 1996 to 2016

## Waste source

Waste from the NPTS is the single largest source of waste to the Landfill (as identified during the SWAP analysis), comprising 30% of the total. General waste was the second largest component, representing 23% of the total (Tables 3 and 4). Loads classified as originating from transfer stations, both council and privately-owned, comprised 53.5% of all waste disposed of at the Landfill. Kerbside collections, both council and private, comprised 18.8% of the overall waste stream and special wastes comprised 4.5%.

TABLE 3: Colson Road Landfill overall waste by activity type<sup>11</sup>

	% OF WEIGHT	TONNES/ WEEK
General waste	23.2%	196
Kerbside collections (council and private)	18.8%	159
Special waste	4.5%	38
Transfer stations (council and private)	53.5%	452
<b>TOTAL</b>	<b>100.0%</b>	<b>845</b>

### 2.2.2 Transfer station waste quantities

All waste received at the transfer stations across the region are disposed of at the Landfill. The geographic source of transfer station waste is not known. It is assumed that all waste disposed of at Stratford and Hawera transfer stations will be predominantly from the relevant district. However, at least one waste service provider in South Taranaki disposes of its waste directly to the NPTS.

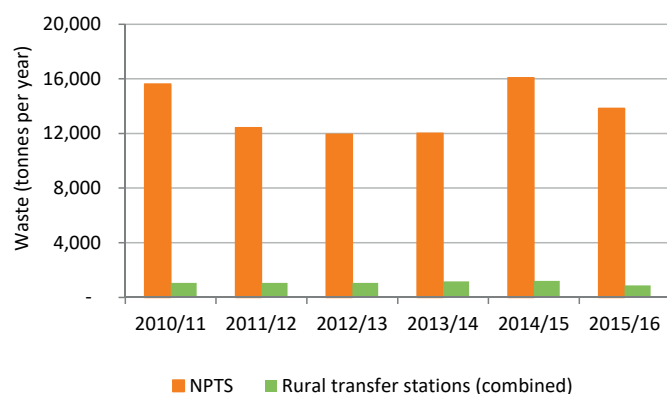


FIGURE 8: Tonnage of waste disposed at New Plymouth transfer stations 2010-2016

<sup>11</sup> Waste Not Consulting. 2016. *Composition of Solid Waste in Taranaki Region*, September 2016.

<sup>12</sup> Waste Not Consulting. 2016. *Composition of Solid Waste in Taranaki Region*, September 2016.

<sup>13</sup> Activity sources are defined in the key terms and acronyms section and include kerbside, residential, commercial and industrial, construction and demolition.

TABLE 4: Source of waste to Colson Road Landfill 6 August to 2 September 2016<sup>12</sup>

	% OF WEIGHT
General waste	23.2%
Inglewood transfer station	0.4%
New Plymouth transfer station	30.0%
Okato transfer station	0.3%
Stratford transfer station	0.5%
Waitara transfer station	1.2%
Hawera transfer station	16.4%
South Taranaki District Council other transfer stations	0.6%
NPDC kerbside collections	12.3%
South Taranaki District Council kerbside collections	0.6%
Stratford District Council kerbside collections	2.9%
Stratford private kerbside collections	1.1%
Private kerbside collections	2.0%
Special	4.5%
Private transfer stations	4.1%
<b>TOTAL LEVIED WASTE</b>	<b>100.0%</b>

The three main transfer stations in the region, NPTS, Hawera and Stratford, were assessed as part of the landfill and transfer station SWAP in September 2016 to determine the source of waste generation<sup>13</sup> and composition of the waste (Figure 8).

The NPTS is the largest transfer station in the New Plymouth district and is therefore presented separately to the four rural transfer stations.

Quantities of waste to the NPTS have fluctuated since 2011 with a decline noted in 2016 (Figure 8). The quantity of waste being disposed of at the four rural transfer stations has remained consistent with a small decline in 2016.

Commercial and industrial activities were the primary source of the waste disposed of at the NPTS (Table 5). Although loads classified as originating from residential activity were responsible for generating the highest proportion of loads, these loads comprised only 13% of the total weight. Construction and demolition (C&D) and C&I waste comprised the highest portions by weight, being 29% and 34% of the total weight respectively.

TABLE 5: Activity source of New Plymouth transfer station waste- 29 August to 4 September 2016<sup>14</sup>

	NO. OF LOADS SURVEYED	% OF LOADS	% OF WEIGHT	TONNES/ WEEK
Construction and demolition	59	24.5%	28.0%	72
Commercial and industrial	50	21.0%	34.0%	87
Landscaping	3	1.0%	7.0%	17
Residential	24	10.0%	13.0%	32
Private kerbside collections	104	43.0%	6.0%	14
Private transfer station	1	0.5%	12.0%	30
<b>TOTAL</b>	<b>241</b>	<b>100.0%</b>	<b>100.0%</b>	<b>252</b>

Stratford transfer station had a significantly higher proportion of refuse weight from residential loads than the other transfer stations (Figure 9) while the NPTS had a higher rate of C&D waste. The large proportion of residential waste at Hawera TS is due to the STDC kerbside residential waste being consolidated for transport at the transfer station before being bulk hauled to Colson Road landfill.

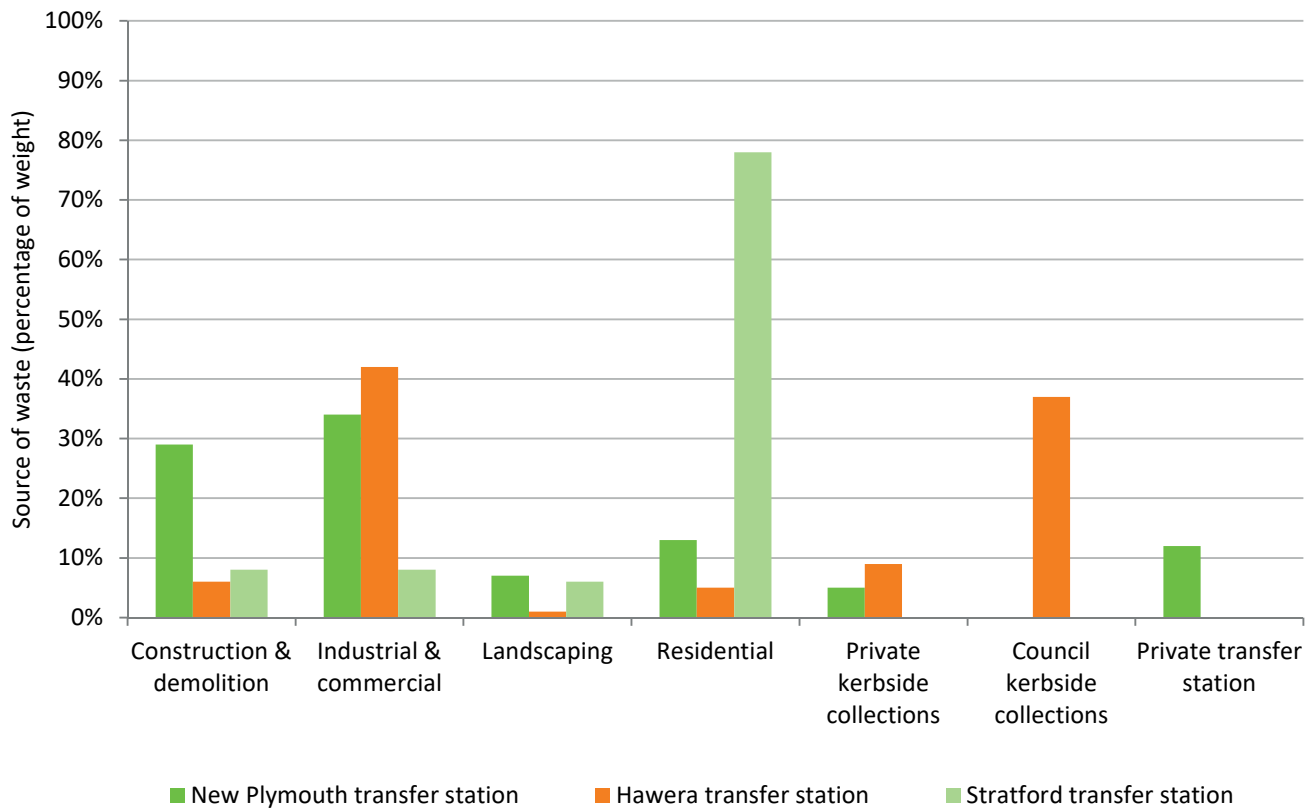


FIGURE 9: Comparison of waste source for the three main transfer stations in Taranaki

<sup>14</sup> Waste Not Consulting. 2016. *Composition of Solid Waste in Taranaki Region*, September 2016.

### 2.2.3 Kerbside waste quantities

The three TAs in the region provide a kerbside refuse and recycling collection for urban residential households.

The quantity of kerbside waste collected in the New Plymouth District between 2011 and 2015 was around 10,000 to 12,000 tonnes per year (Table 6). A decrease to 7000 tonnes was collected in the 2015/2016 year. This decline can be attributed to the new collection contract which has seen a large increase in kerbside recycling.

TABLE 6: New Plymouth kerbside waste (tonnes per year)

	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Council kerbside collection waste <sup>15</sup>	11,404	11,243	12,072	11,634	12,472	7,132
Private collection waste <sup>16</sup>	4,495	4,484	3,492	4,572	4,285	1,394
<b>Total kerbside waste<sup>17</sup></b>	<b>15,899</b>	<b>15,727</b>	<b>15,564</b>	<b>16,206</b>	<b>16,757</b>	<b>8,526</b>

## 2.3 Waste generation per capita

Waste per capita is an indicator for waste generation that looks at the total amount of waste produced divided by the total number of people in a defined area. It is an indicator of average waste production on a per person basis, but is not directly equivalent to the amount of waste an individual throws away each year, as much of the waste is produced from commercial sources.

The per capita disposal figures for kerbside refuse can be influenced by:

- Changing proportions of the population serviced by Council collections.
- Different levels of commercial and industrial activity (a greater level of commercial and industrial activity in New Plymouth influences the per capita rate for this location).

- Missing data (private collectors may not be separately accounted for at transfer stations).
- Unknown cross district waste movements i.e. New Plymouth total waste per capita is higher than the other two districts but does not necessarily comprise of waste sourced only from New Plymouth district. Many of the private waste service providers may service the whole Taranaki region but as they are based in New Plymouth, the waste is recorded as being sourced from within New Plymouth district. It is difficult to determine any cross district waste movements.

Table 7 provides the waste per capita for kerbside and total waste to landfill in 2015/2016 compared with 2009/2010.

TABLE 7: Waste per capita

	2009/10		2015/16	
	KERBSIDE WASTE TO LANDFILL (t/capita/annum)	TOTAL WASTE TO LANDFILL (t/capita/annum)	KERBSIDE WASTE TOTAL (t/capita/annum)	TOTAL WASTE TO LANDFILL (t/capita/annum)
NPDC	0.27	0.63	0.11	0.56
SDC	0.22	0.41	0.14	0.23
STDC	0.12*	0.40	0.12	0.32

\* STDC Waste Assessment 2012

<sup>15</sup> Includes residual waste collected in recycling (contamination of recycling).

<sup>16</sup> Approximate based on landfill weighbridge data.

<sup>17</sup> Source: Landfill weighbridge data.

## 2.4 Composition of waste

The composition of waste disposed to landfill, at transfer stations and via the kerbside collection was surveyed as part of the 2016 SWAP survey.

### 2.4.1 Landfill composition

Overall waste composition to the Landfill is shown in Figure 10. A comparison with the composition of landfill waste in 2010 is shown in Figure 11. Organic material was the largest component of the overall waste to landfill in 2016, comprising 23% of the total, by weight. Timber was the second largest component, comprising 16% of the total. Paper, plastic, and rubble comprised similar proportions, from 10% to 14%.

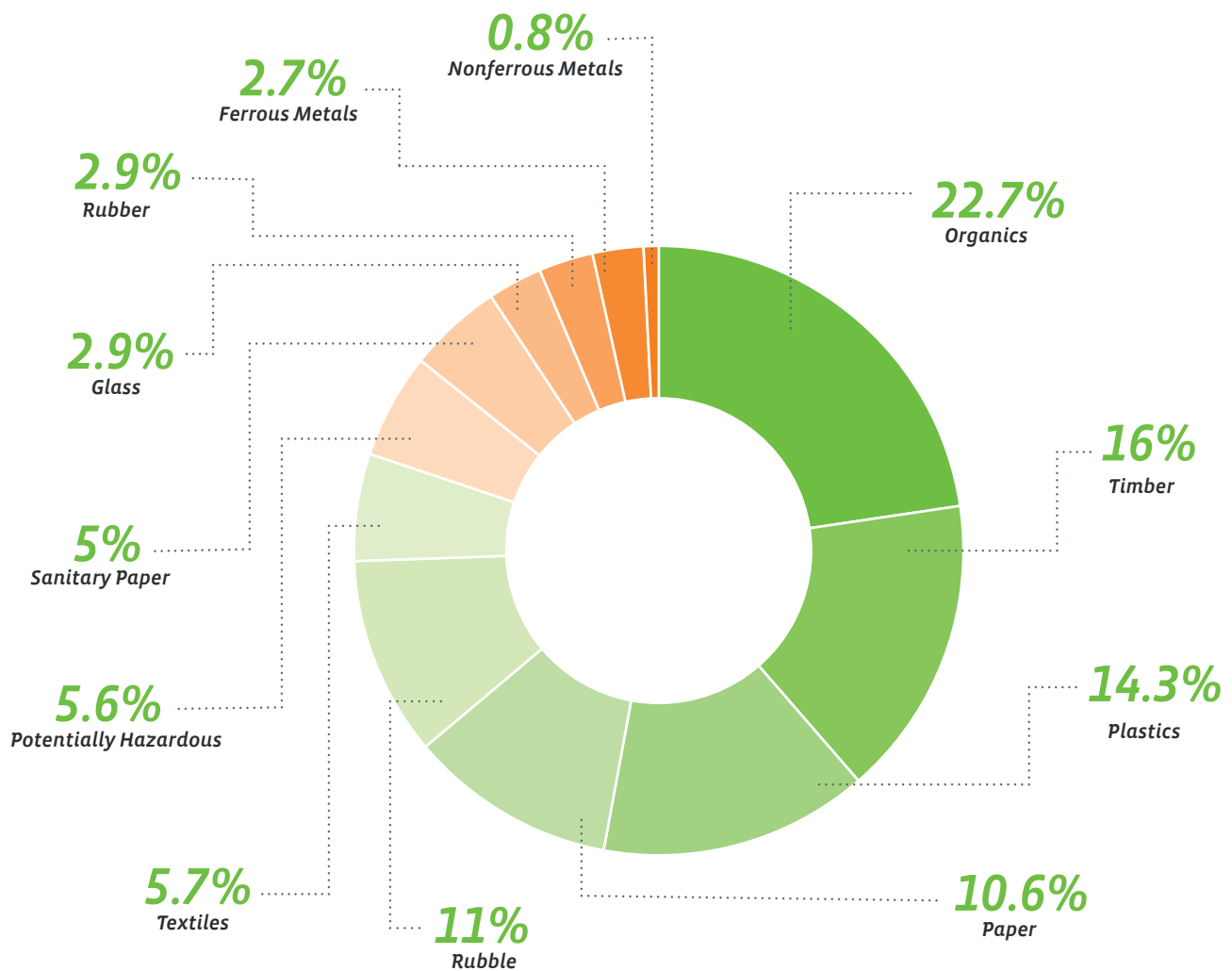


FIGURE 10: Composition of waste disposed at the Landfill 2016<sup>18</sup>

<sup>18</sup> Waste Not Consulting, 2016. *Composition of Solid Waste in Taranaki Region*, September 2016.



Most waste streams reduced in weight between 2010 and 2016 but as a proportion of the composition, organic waste entering the landfill showed the biggest reduction, declining by 7% of the overall waste (Figure 11). This reduction could be indicative of effective awareness campaigns around organic waste but could also be attributed to commercial operators taking some private kerbside wheelie bin collections to a landfill out of the region. These bins have a high proportion of organic waste<sup>19</sup>. Glass has also declined by around 5% of overall waste, which is most likely attributed to the new kerbside collection for glass recycling introduced on 1 October 2015.

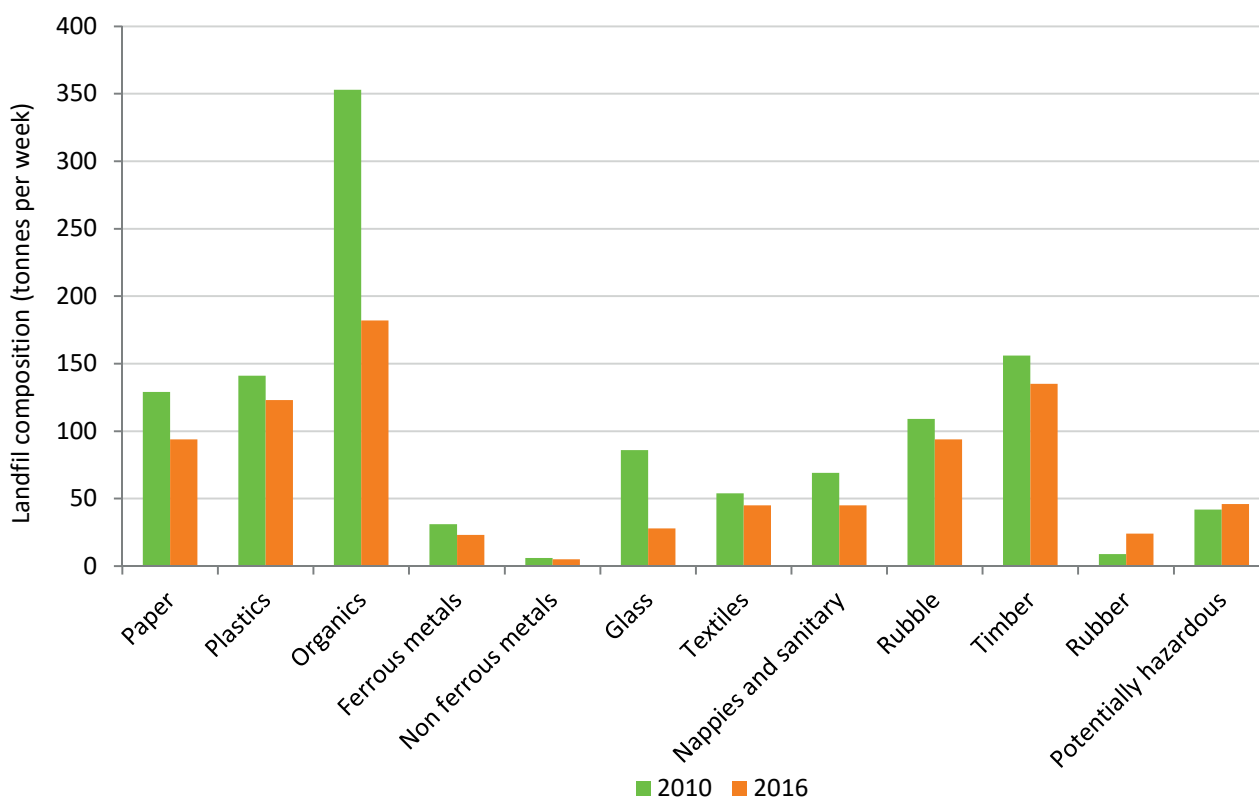


FIGURE 11: Comparison of landfill composition by tonnage between 2010 and 2016

<sup>19</sup> Waste Not Consulting. 2012. Survey of solid waste in the New Plymouth District. Prepared for NPDC. April 2012.

## 2.4.2 Transfer station composition

### New Plymouth Transfer Station (NPTS)

Timber was the largest single component of waste being disposed of at the NPTS during the survey, comprising 31% of the total (Figure 12). The timber included both fabricated timber items, such as furniture, and C&D waste, with C&D waste predominating. Rubble (e.g. plasterboard, soil, masonry, etc) was the second largest component (18%) followed by organics, which comprised 15%. Three-quarters of the organic material was greenwaste, half of which was compostable.

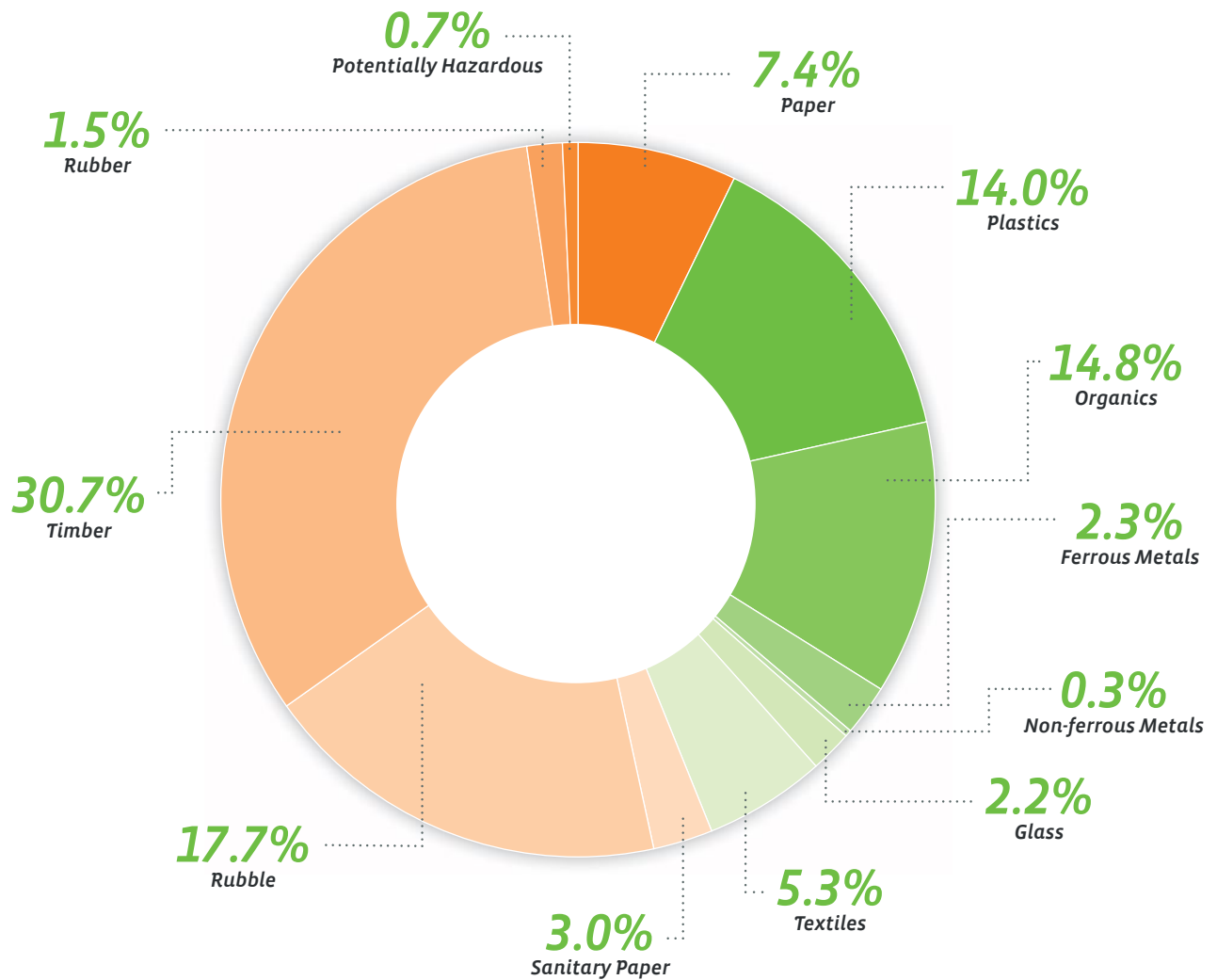


FIGURE 12: Composition of waste at NPTS 2016

The composition of the four general activity sources (Figure 13) presents some expected waste streams and some less expected. Organic waste comprises over 70% of the landscaping composition while 50% of C&D waste was timber. However, almost 30% of the composition of C&I waste was plastics and almost 40% of residential waste was timber.

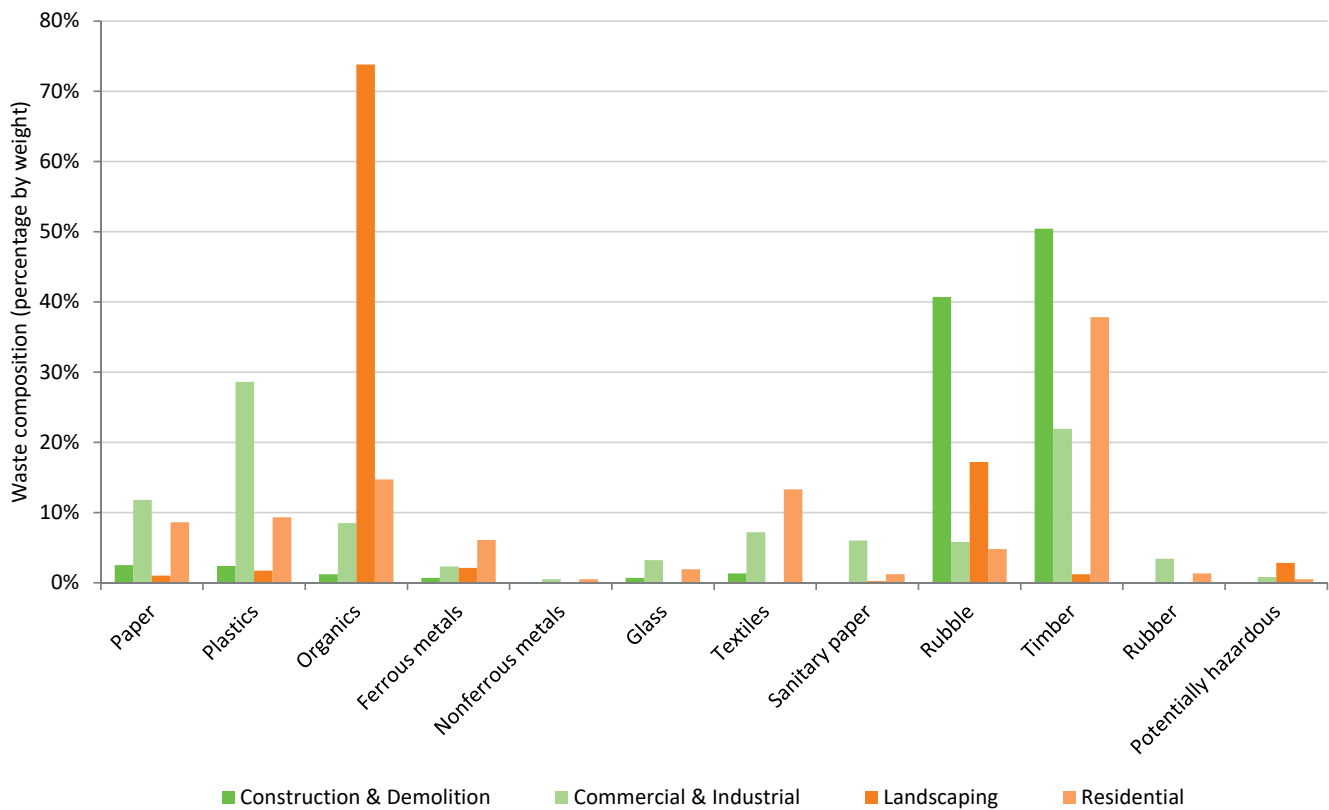


FIGURE 13: Comparison of waste composition by activity source

### 2.4.3 Kerbside composition

The composition of kerbside waste has been surveyed twice since the previous waste assessment - in 2012<sup>20</sup> and again in 2016<sup>21</sup>. In between the two surveys, a new kerbside recycling service was introduced. Results of the 2016 kerbside waste survey are presented here, with comparison to the previous 2012 survey where relevant.

The 2016 SWAP of New Plymouth domestic kerbside waste collections took place from 28 November to 1 December 2016 and included 335 Council kerbside rubbish bags. Organic material was the largest single component of the rubbish bags (Figure 14)

comprising 52.4% of the total, by weight. Kitchen waste comprised 82% of this organic material and greenwaste comprised 10%. Most of the garden waste comprised lawn clippings, tree and shrub prunings, and leaves. Other organics (cat tray litter, animal faeces, vacuum cleaner dust and human hair) made up 7% of the organic waste component.

Sanitary paper, plastics, and paper comprised similar proportions of the waste bags at 11.8%, 11.7%, and 10.7% respectively.

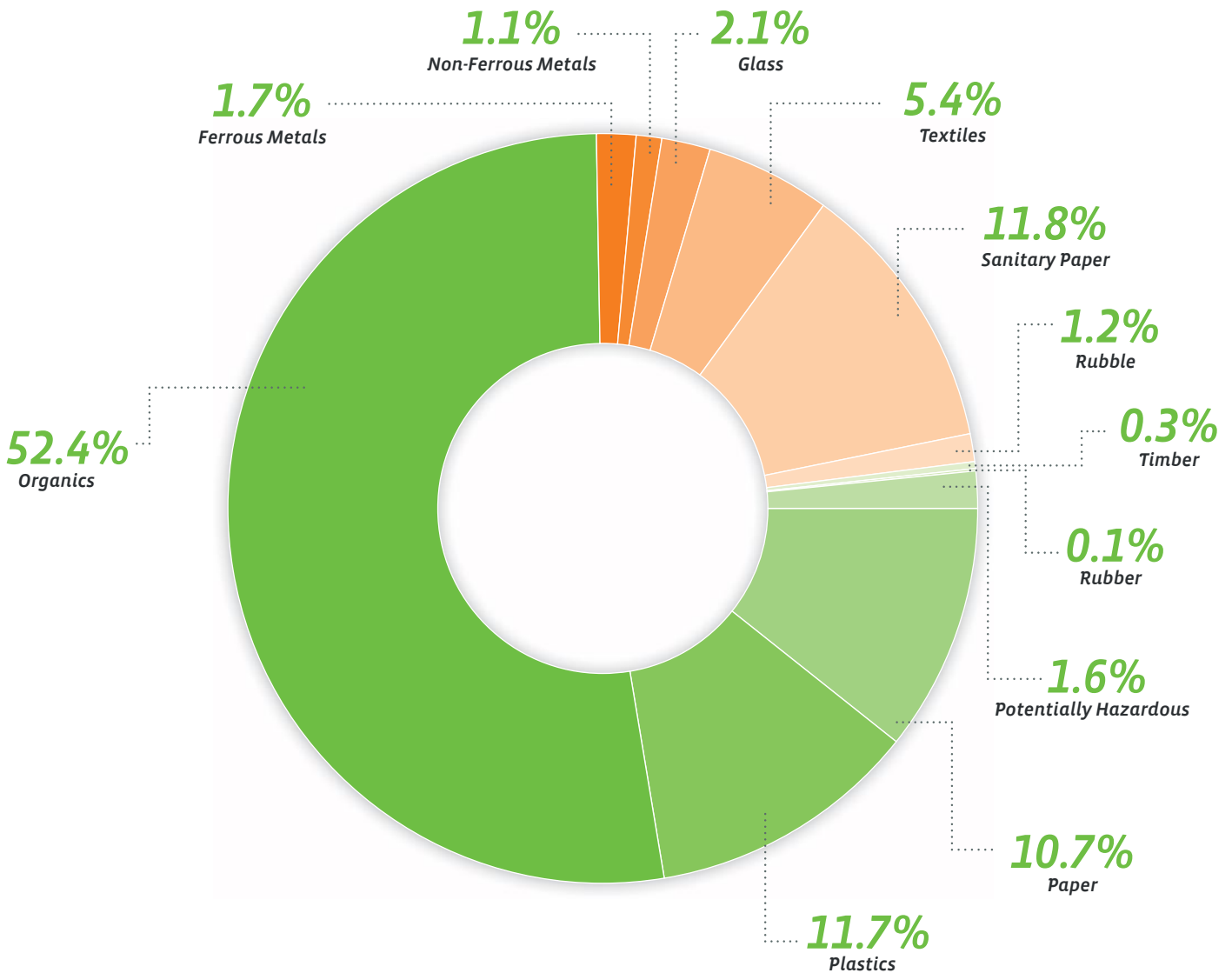


FIGURE 14: Composition of NPDC kerbside refuse bags 2016

<sup>20</sup> Waste Not Consulting. 2012. Survey of solid waste in the New Plymouth District. Prepared for NPDC. April 2012.

<sup>21</sup> Waste Not Consulting. 2017. Composition of domestic kerbside waste in New Plymouth District. Prepared for New Plymouth District Council. November 2016.

Soft plastic bags (including food packaging and shopping bags) made up 48% of the plastic wastes. Rigid non-recyclable plastics comprised 25% of plastics. These items included packaging that did not carry a recycling symbol and non-packaging items. Plastic items that could have been recycled through the Council’s kerbside recycling system comprised 19% of total plastics.

Of the paper component of Council kerbside rubbish bags, 81% was recyclable. Non-recyclable paper, which included food-contaminated packaging and paper drink cups, comprised 19% of the paper.

There are significant variations between the composition from the 2012 and 2016 audits of kerbside refuse bags (Figure 15). The average weight of Council kerbside rubbish bags (per household) decreased by approximately 20% between the two

audits, from 8.10 kg to 6.49 kg. The quantity of recyclable materials in kerbside refuse bags has decreased 55% between the two audits, from 1.99 kg to 0.89 kg (per household).

In absolute terms, recyclable paper in refuse bags has shown the largest decrease, from 1.08 kg to 0.56 kg per household. The quantity of compostable materials, in terms of weight, has remained relatively constant. In percentage terms, glass bottles/jars have shown the largest decrease, with a 78% decrease while the proportion of divertable materials is virtually unchanged between the two audits, 62.7% in 2012 and 62.3% in 2016.

These changes were considered statistically significant and can be attributed to the successful implementation of the new recycling service from 1 October 2015.

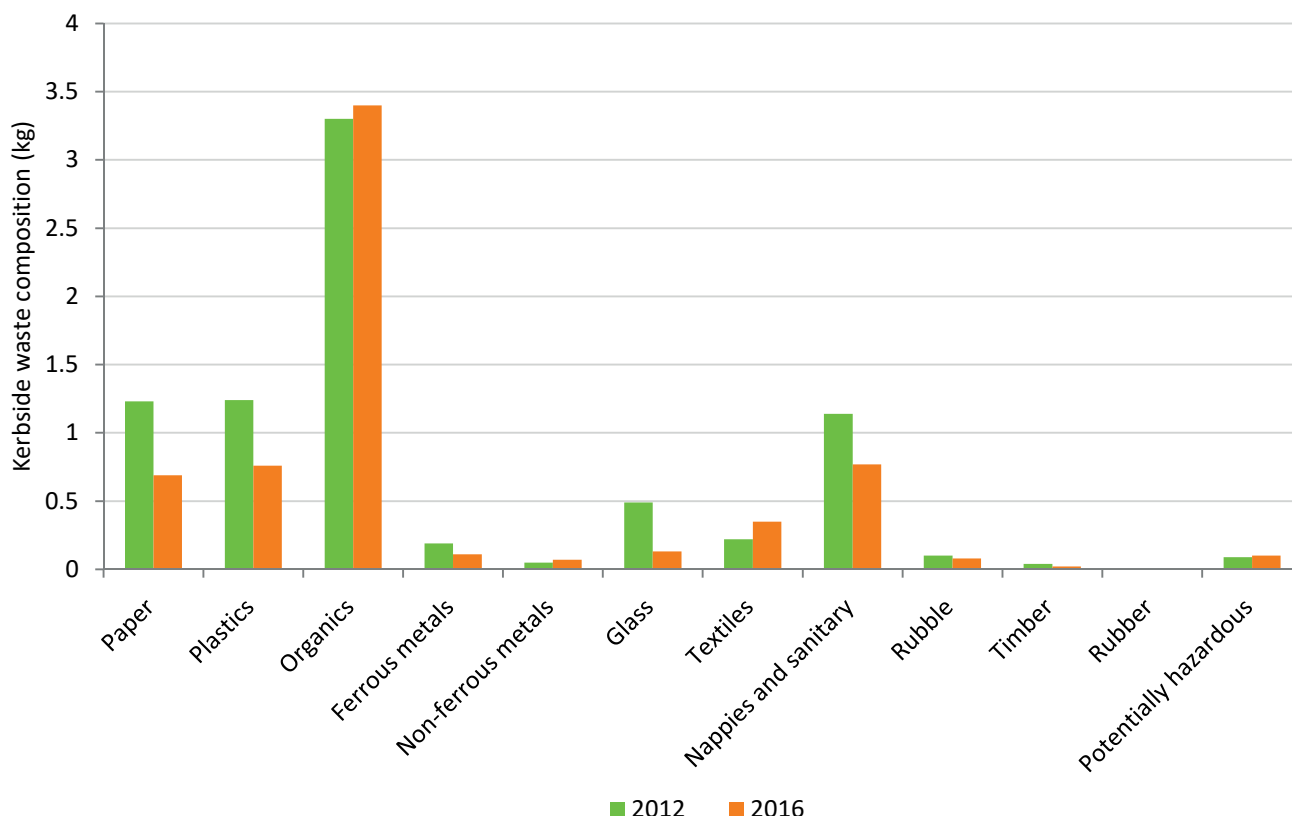


FIGURE 15: Change in composition of NPDC kerbside waste (by weight) between 2012 and 2016

SDC and STDC have also conducted kerbside waste audits. SDC audited 45 bins and STDC 90 bins. Similar sorting classifications have been used to the NPDC audit. Regionally, the composition of waste from the three districts demonstrated the slightly different waste collection services provided by each district. NPDC provides a bag service where as SDC and STDC have 120L waste bins. South Taranaki District has a higher proportion of organics in their bins compared with SDC and NPDC, however Stratford has higher proportions of glass, metal and plastics (Figure 16). For all three districts, organic waste made up the highest proportion of waste.

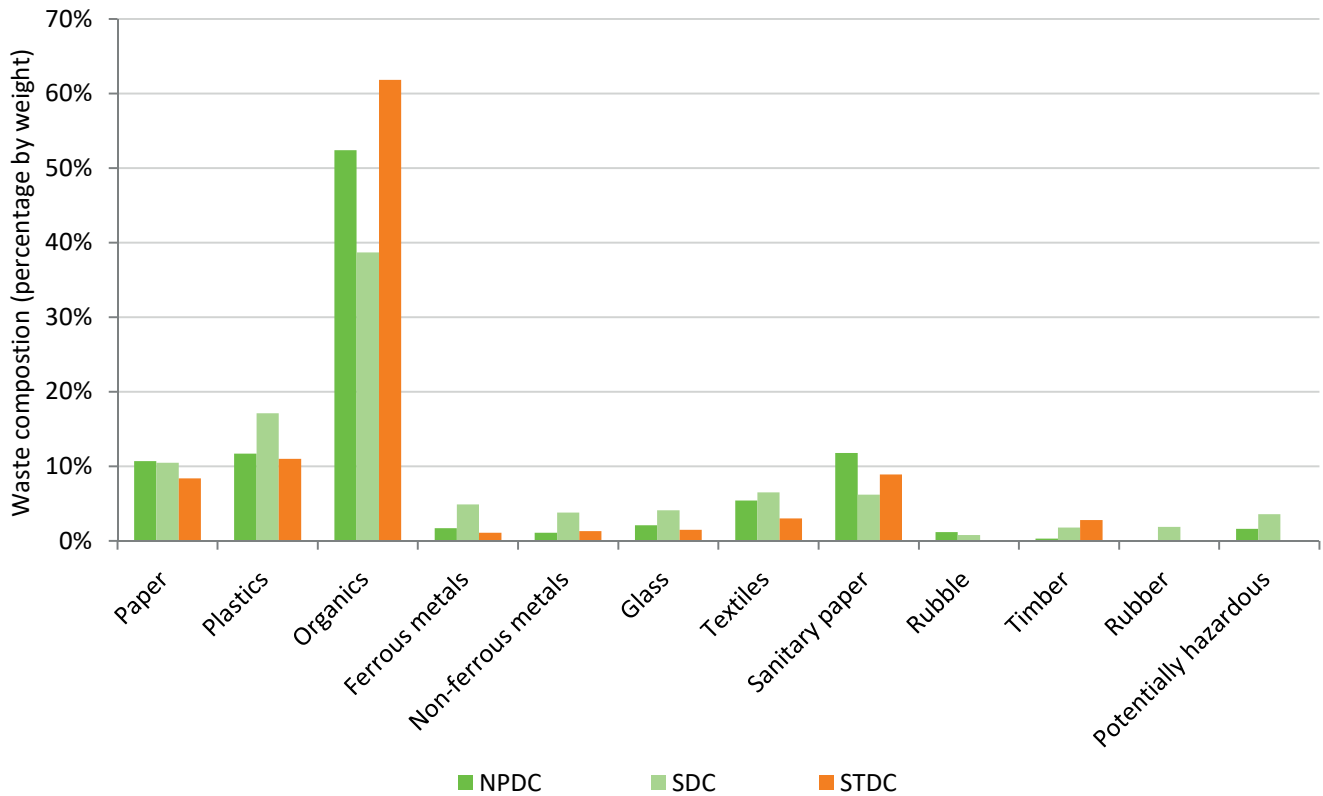
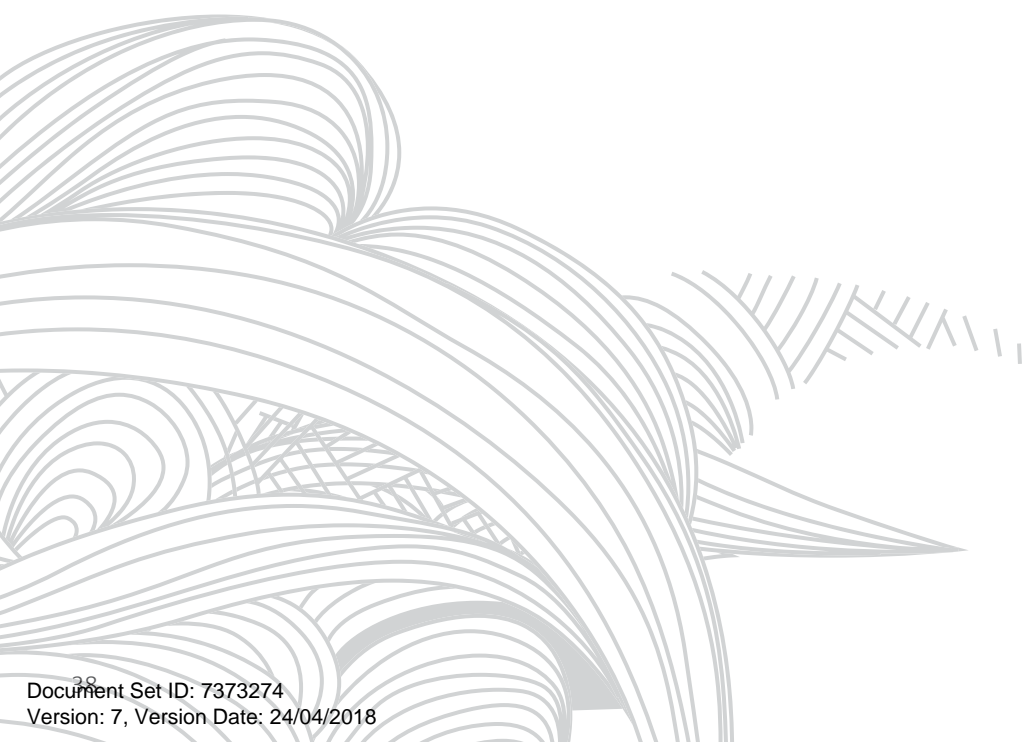


FIGURE 16: Comparison of kerbside refuse between NPDC, SDC and STDC



The organic waste composition is broken down further in Figure 17 and shows the high proportion of kitchen waste in NPDC kerbside refuse bags in comparison with the other districts in the region, with a smaller component of compostable greenwaste.

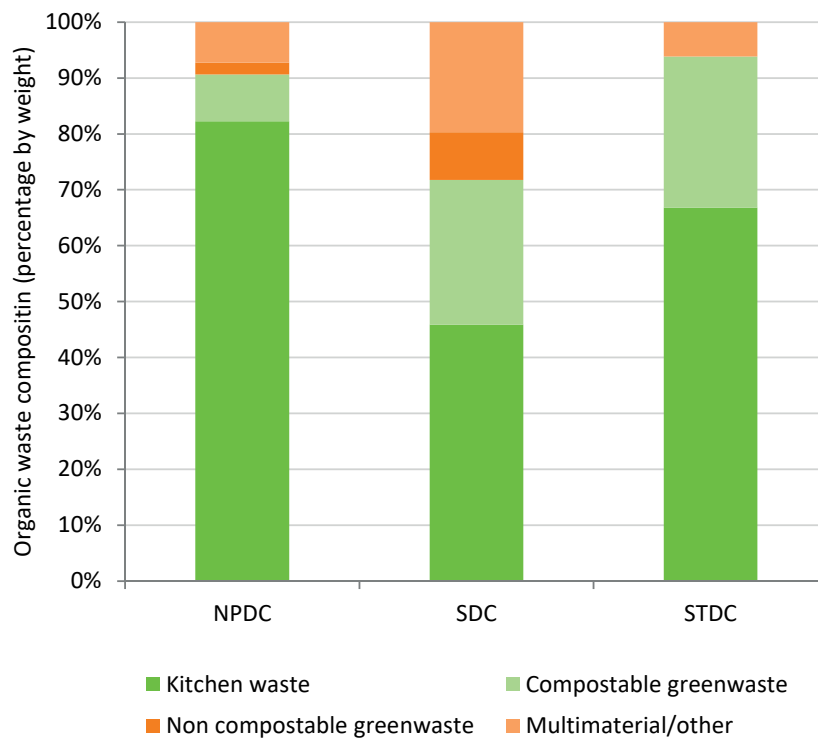


FIGURE 17: Breakdown of kerbside organic waste composition per district

A comparison of the weight of organics per bag/bin is shown in Figure 18. NPDC has a considerably lower quantity of organics per bag compared with SDC and STDC bins. This is reflective of the Council providing kerbside bags instead of bins.

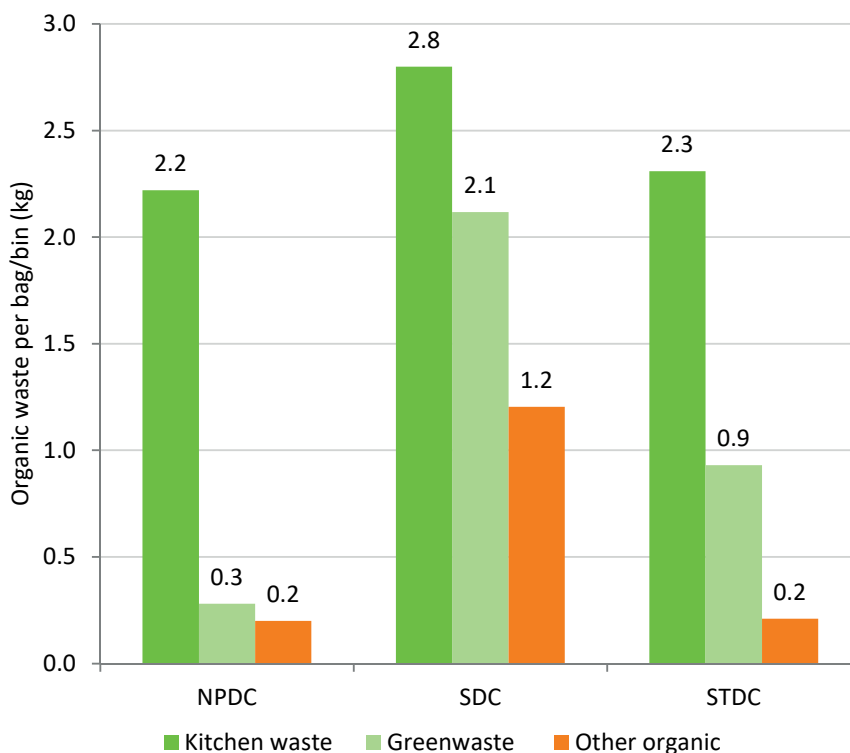


FIGURE 18: Quantity of organic waste type per bag/bin between districts

## 2.4.4 Cleanfill composition

There are 23 consented cleanfill disposal sites in the Taranaki region, 16 being located in the New Plymouth district. These are all privately owned. Some are provided for the owners own use, others are available to external customers.

A survey of consented cleanfill owners suggest that at a minimum, 48,000 tonnes of waste is disposed of at cleanfill sites in the region annually. Eighty per cent of cleanfill disposal is sand, soil or clay, 10% concrete or cement, and between 2 and 4% is gravel, tree stumps and non-tanalised timber.

The Landfill also receives cleanfill which can be used as cover or fill onsite. Okato and Inglewood transfer stations can accept domestic quantities of cleanfill which is disposed as part of the closed landfills at these sites.

## 2.4.5 Diversion potential

Table 8 and Figure 19 show the proportion of waste that could potentially be diverted from landfill. The 'currently recoverable' and 'currently compostable' materials section is based on existing local diversion services, while 'potentially divertable' materials are based on materials that are recoverable elsewhere in New Zealand.

TABLE 8: Colson Road Landfill - potentially divertable materials in overall waste stream- by activity source<sup>23</sup>

	INDUSTRIAL/ COMMERCIAL	KERBSIDE COLLECTIONS	SPECIAL WASTES	TRANSFER STATIONS
<b>CURRENTLY RECOVERABLE MATERIALS</b>				
Paper- recyclable	5.7%	10.2%	0.0%	2.9%
Paper- cardboard	9.1%	2.0%	0.0%	3.6%
Plastic- recyclable	1.1%	2.9%	0.0%	0.7%
Ferrous metal- all	3.2%	2.1%	0.0%	2.9%
Nonferrous metal- all	1.0%	0.7%	0.0%	0.5%
Glass- recyclable	1.5%	5.2%	0.0%	1.2%
<b>Subtotal</b>	<b>21.6%</b>	<b>23.0%</b>	<b>0.0%</b>	<b>11.8%</b>
<b>COMPOSTABLE MATERIALS</b>				
Organics- kitchen waste	5.3%	30.1%	0.0%	7.6%
Organics- compostable greenwaste	2.5%	11.1%	0.0%	6.7%
<b>Subtotal</b>	<b>7.8%</b>	<b>41.2%</b>	<b>0.0%</b>	<b>14.3%</b>
<b>CURRENTLY DIVERTABLE (TOTAL)</b>	<b>29.4%</b>	<b>64.2%</b>	<b>0.0%</b>	<b>26.1%</b>
<b>POTENTIALLY DIVERTABLE MATERIALS</b>				
Rubble- VENM	0.0%	0.0%	0.0%	0.3%
Rubble- managed fill	0.0%	0.0%	0.0%	3.1%
Rubble- new plasterboard	0.0%	0.0%	0.0%	3.1%
Timber- reusable	0.8%	0.0%	0.0%	0.8%
Timber- untreated/unpainted	2.0%	0.0%	0.0%	2.5%
<b>Subtotal</b>	<b>2.8%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>9.8%</b>
<b>TOTAL - DIVERSION POTENTIAL</b>	<b>32.2%</b>	<b>64.2%</b>	<b>0.0%</b>	<b>35.9%</b>

<sup>23</sup> Waste Not Consulting. 2016. *Composition of Solid Waste in Taranaki Region*, September 2016.



Approximately 64% of kerbside waste disposed at the Landfill could potentially have been diverted. A high proportion of the divertable waste was compostable organic materials. Smaller proportions of C&I waste and transfer station waste, 32% and 36% respectively, could be diverted. Considering these waste streams in future planning is prudent, specifically food waste and recyclable waste from the C&I sector. Considering local options for diverting construction and demolition waste streams could reduce unnecessary waste to landfill.

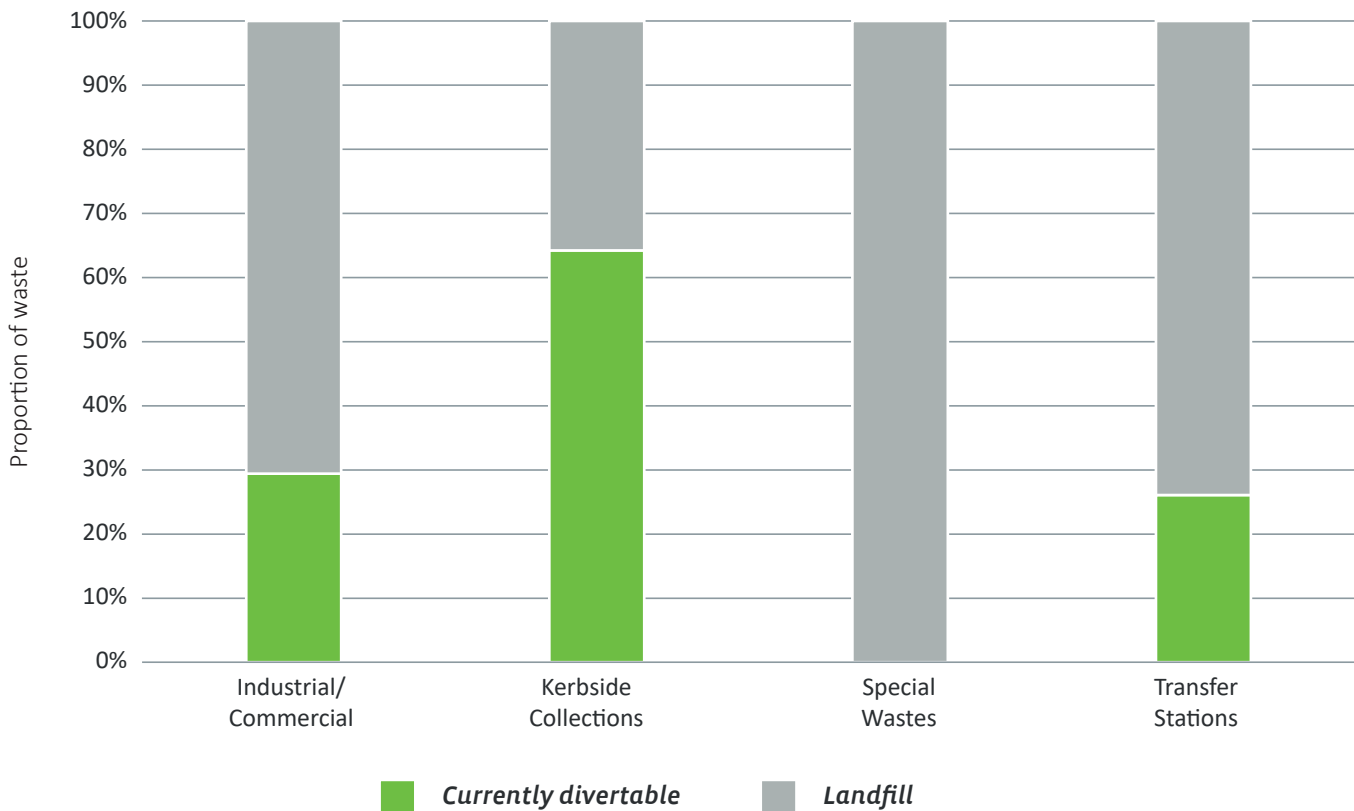


FIGURE 19: Proportion of waste to landfill identified as divertable (excludes potentially divertable)

## 2.5 Diverted material

This section contains information about known sources of diverted material in the New Plymouth District or wider Taranaki region. Diverted material, as defined in the WMA 2008, “means anything that is no longer required for its original purpose and, but for commercial or other waste minimisation activities, would be disposed of or discarded”.

The data for diverted material outside of Council provided services and infrastructure is difficult to quantify. A waste inventory was conducted by the Taranaki Regional Council in 2009<sup>24</sup>. The study identified source, quantities and destination of industrial and agricultural wastes in the region. The data was primarily collected through phone surveys. More recent sources of data for non-Council provided services include an organic waste diversion study<sup>25</sup> and postal surveys of industries including automotive, construction, waste services, cleanfills and food premises.

<sup>24</sup> TRC. 2009. Inventory of Solid Waste Management and Disposal in Taranaki. Carried out by the Taranaki Regional Council on behalf of the Regional Solid Waste Working Party. September.

<sup>25</sup> Eunomia Research and Consulting Ltd and Waste Not Consulting Ltd. 2015. Organic Waste Diversion Study. Prepared for Taranaki Regional Councils. July. Confidential.

### 2.5.1 Council provided services

#### Kerbside collection

NPDC, along with SDC and STDC, provide a kerbside recycling collection for the urban residential community. This service collects paper, card, aluminium and steel cans, grade 1-7 hard plastics and glass bottles and jars. The quantity of recyclables collected by the kerbside service has greatly increased since the inception of the new contract (Figure 20).

An audit of 160 kerbside recycling bins during December 2016 and January 2017 identified that the average composition of the bins (by weight) was 56% paper and 19% was cardboard (Figure 21). Eight per cent of the weight was contamination (non-recyclable items).

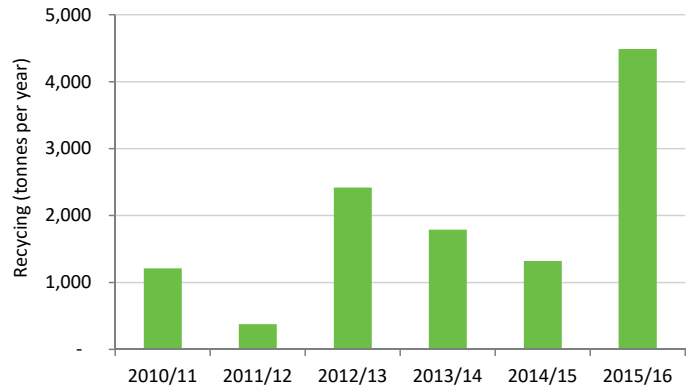


FIGURE 20: Annual recycling tonnage for New Plymouth District kerbside collection

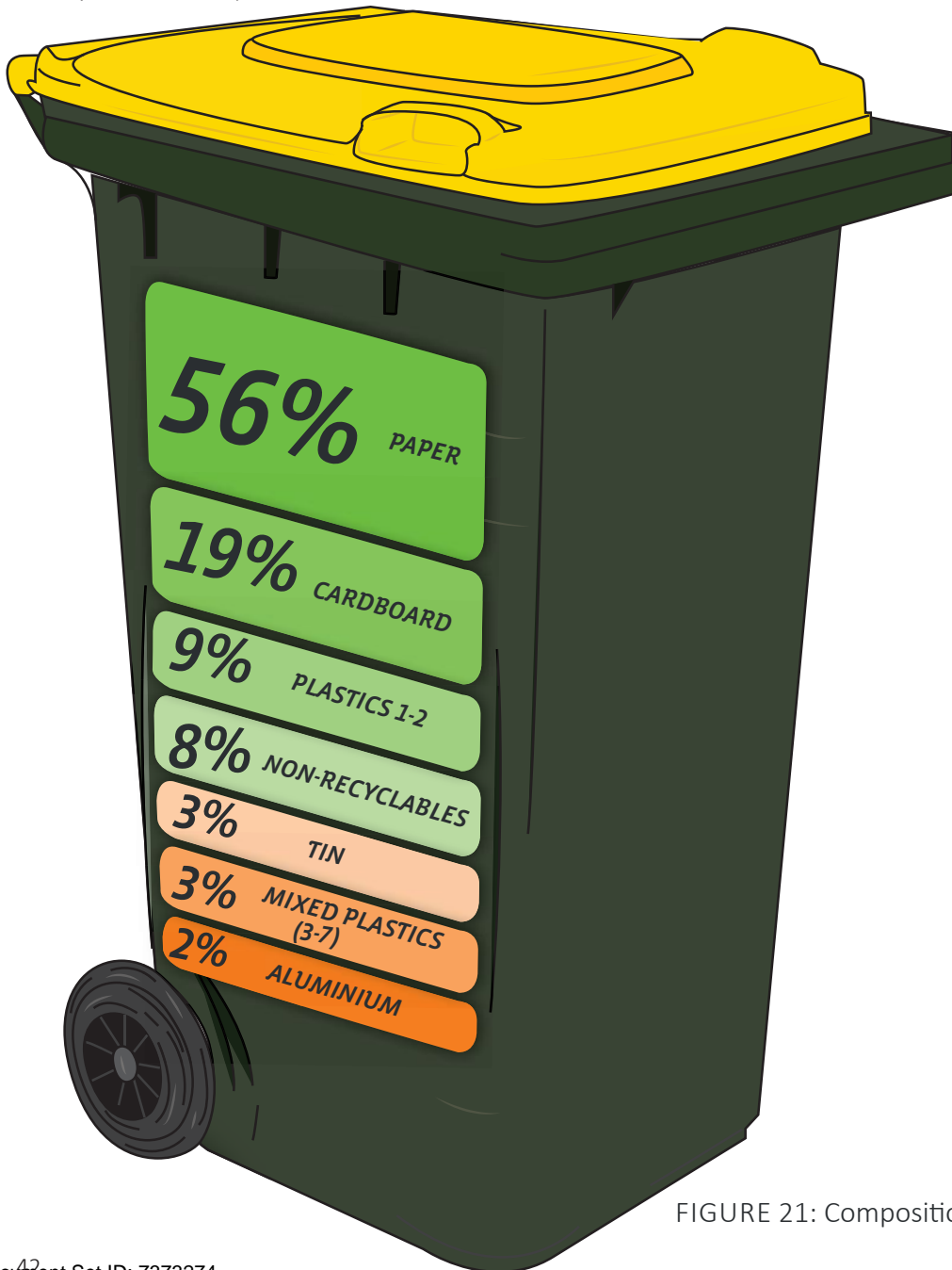


FIGURE 21: Composition of kerbside mixed recycling bins

### Transfer Stations

All transfer stations in the region provide a free drop off for the same recyclable waste streams as provided in the kerbside service.

In the New Plymouth District five transfer stations are providing this service. Figure 22 shows a variable rate of recyclables being dropped off at these transfer stations year on year, with an increasing trend up until the 2015/16 year.

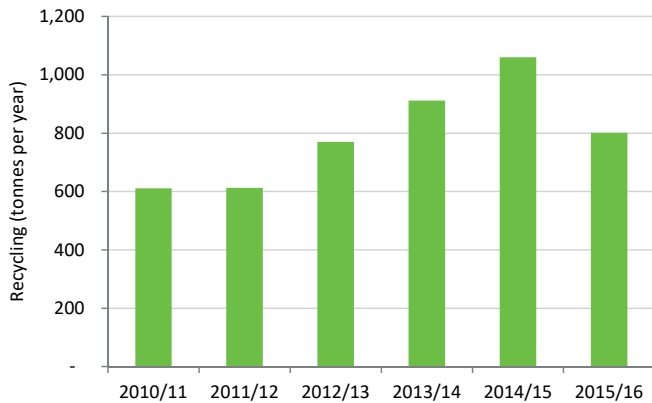


FIGURE 22: Annual tonnage of recycling dropped off at NPDC transfer stations

Compostable greenwaste can be disposed of at all transfer stations in New Plymouth at a reduced fee. This greenwaste is diverted to a composting operation located on land adjacent to the Landfill<sup>26</sup>. The quantity of greenwaste collected at the transfer station has fluctuated slightly over the past five years and remains slightly above 1000 tonnes per annum (Figure 23).

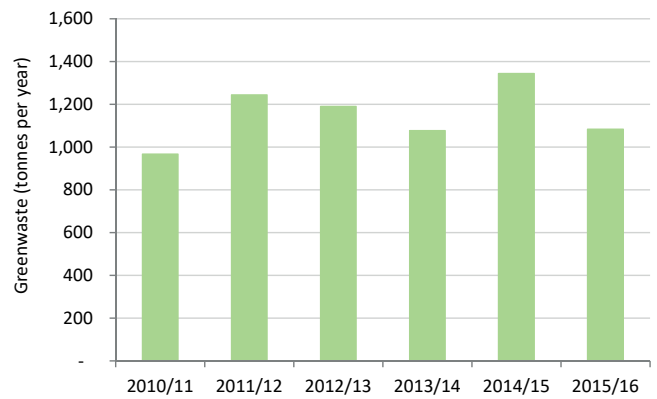


FIGURE 23: Annual tonnage of greenwaste dropped off at NPDC transfer stations

The relative quantities of waste, greenwaste and recycling at all New Plymouth district transfer stations are shown in Figure 24.

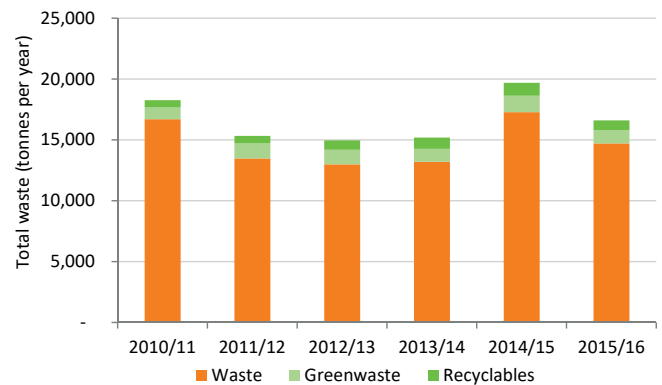


FIGURE 24: Waste, greenwaste and recycling at NPDC transfer stations 2011-2016 (tonnes)

<sup>25</sup> Okato and Tongaporutu greenwaste is composted on site.

**E-Waste**

Collection points for electronic waste (e-waste) are provided at the Hawera, Stratford and New Plymouth transfer stations. A fee is charged for this waste stream but some e-waste items (TV's and CRT monitors) are subsidised by the councils.

Use of the e-waste collection in New Plymouth has increased since the service was introduced in 2011, peaking in 2013/14 due to the TV takeback scheme which accepted TV's for free for a period. The number of items now appears to be levelling off around 2500-3000. In 2015/16 around 3000 items (Figure 25), equating to 51 tonnes, comprising predominantly TVs and desktop computers (Figure 26) were diverted. E-waste items are transported to E-Cycle in Auckland for dismantling and on-selling.

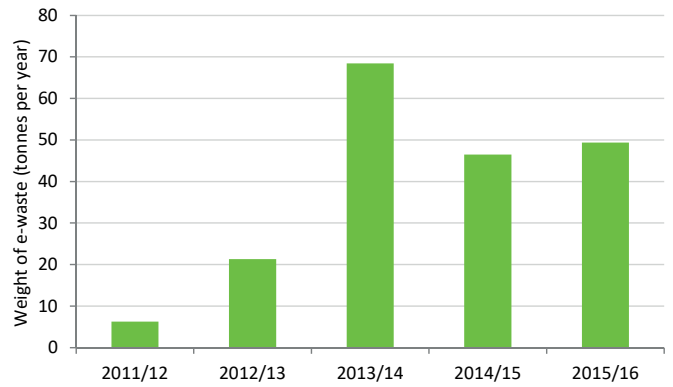


FIGURE 25: Total weight of e-waste items recycled from NPDC collection depot (Whitaker Civil Engineering Ltd until May 2016, then NPTS)

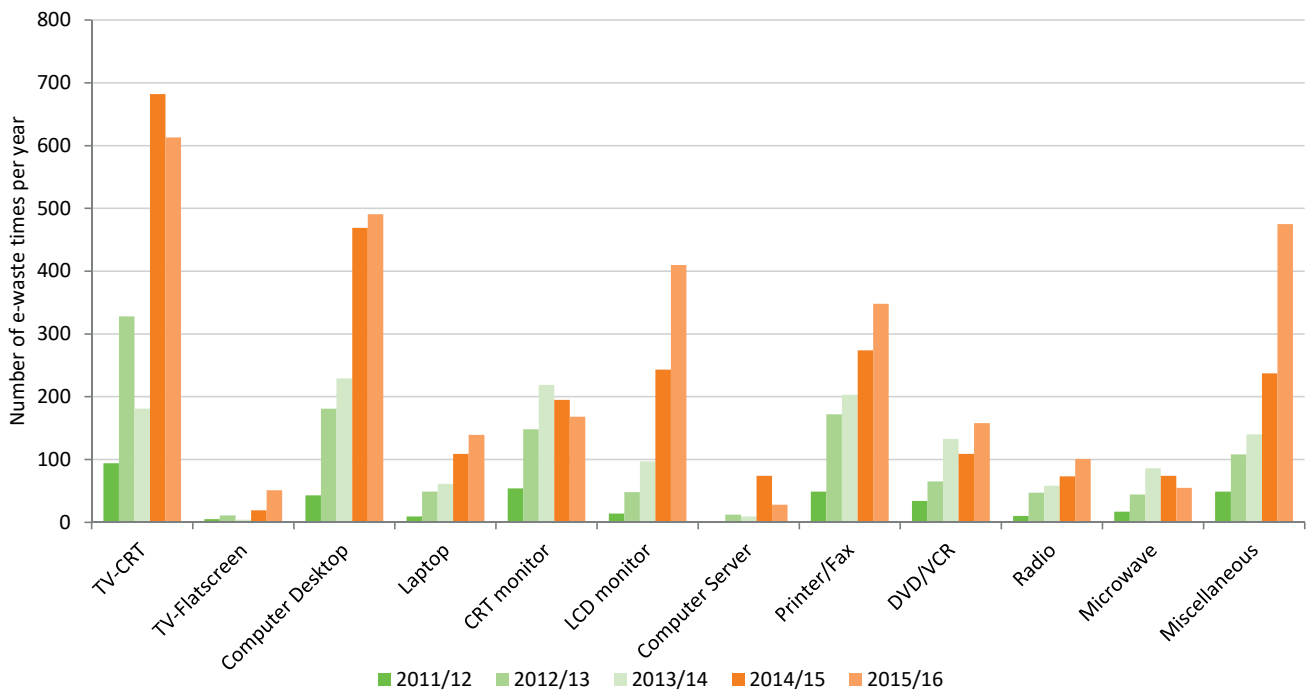


FIGURE 26: Number of e-waste items recycled at New Plymouth collection depot by type<sup>27</sup>

<sup>27</sup> Miscellaneous items include any item not included in the other categories, e.g. heaters, fans, laptop batteries, speakers, CD players.

## 2.5.2 Commercial and informal services

There is a web of private companies involved in the collection and diversion of waste in the region. An organic waste diversion study was conducted in 2015 to gain a better understanding of this waste stream, and these findings are presented below along with data collected from surveys of some industries. However it must be noted that the response rate from the surveys is generally low (less than 15% response rate) and therefore quantities are only an estimate<sup>28</sup>.

### General recycling (paper, card, glass)

At least four providers in the region provide residential and commercial recycling services targeting different waste streams. Some providers collect cardboard, while others provide mixed recycling collections including cardboard, paper, plastics, glass and cans. These service providers have indicated that they divert at least 4,500 tonnes of these waste streams annually.

### Scrap metal

Current quantities of metal being diverted via scrap metal yards are unknown. In 2009 the waste inventory<sup>29</sup> identified 17,000 tonnes of ferrous metal being diverted while non-ferrous metal was estimated to be around 1,000 tonnes per annum. However, with declining commodity prices this figure may have reduced. One scrap metal yard in SDC has closed since the last WMMP<sup>30</sup>.

### Organic wastes

#### Greenwaste

Greenwaste (or garden waste) is diverted via greenwaste collections, separation at the transfer station, home composting and material being left in-situ on properties, hence, accurate data is not available. One report cites that based on averages of New Zealand households' generation of greenwaste, New Plymouth households would generate

approximately 12,000 tonnes of greenwaste per annum, South Taranaki households 4,715 tonnes per annum and Stratford households 1,500 tonnes per annum<sup>31</sup>. Surveys suggest that, at a minimum, 880 tonnes per annum is collected and diverted by commercial providers in the region.

#### Commercial food waste

Piggeries and coordinating organisations have informal and formal arrangements with supermarkets and the hospitality sector for collection of food scraps. A 2009 estimate suggests 1,600 tonnes per year of food waste is fed to pigs<sup>32</sup>. Surveys of food premises suggest that around 75 per cent of food premises are diverting food waste from their premises (predominantly to piggeries) and 60 per cent are diverting their used cooking oil (to oil recycling services). In addition food banks have arrangements with some supermarkets for near end of date food, and coffee grounds from cafes and service stations are bagged and made available for gardens.

#### Poultry litter

It is estimated that up to 30,000 tonnes per annum of poultry litter is generated in the New Plymouth district<sup>33</sup>. Used litter is generally spread on fields, spread on dairy pasture and a small proportion on mushroom or maize fields<sup>34</sup>.

#### Meat and poultry wastes

Meat and poultry wastes such as offal, blood, feathers and fallen stock are processed by commercial operators in the region (predominantly outside of New Plymouth). One site in New Plymouth processes poultry litter. It is estimated that 33,800 tonnes of meat and poultry wastes are generated and diverted per annum in the region. These waste streams include offal, blood, feathers, sludge, paunch waste and other animal product<sup>35</sup>. These products are either rendered or composted.

<sup>28</sup> Due to varying response rates to surveys, quantities of waste provided are as provided by the respondents, not extrapolated to the wider region. These figures will be a minimum of diverted wastes.

<sup>29</sup> Taranaki Regional Council. 2009. Inventory of solid wastes management and disposal in Taranaki.

<sup>30</sup> Wilkinson J. 2016. Scrap metal prices for Taranaki 'in the doldrums'. Stuff. <http://www.stuff.co.nz/business/industries/79548663/scrap-metal-prices-for-taranaki-in-the-doldrums>.

<sup>31</sup> Eunomia Research and Consulting and Waste Not Consulting. 2015. Organic Waste Diversion Study. Prepared for the Taranaki Region Councils. July. Confidential.

<sup>32</sup> Taranaki Regional Council. 2009. Inventory of solid wastes management and disposal in Taranaki.

<sup>33</sup> Eunomia Research and Consulting and Waste Not Consulting. 2015. Organic Waste Diversion Study. Prepared for the Taranaki Region Councils. July. Confidential.

<sup>34</sup> Eunomia Research and Consulting and Waste Not Consulting. 2015. Organic Waste Diversion Study. Prepared for the Taranaki Region Councils. July. Confidential.

<sup>35</sup> Eunomia Research and Consulting and Waste Not Consulting. 2015. Organic Waste Diversion Study. Prepared for the Taranaki Region Councils. July. Confidential.

### Farm effluent

It is estimated that 1.8 to 2.8 million tonnes of dairy slurry is collected and disposed of by effluent management systems on farms in the region<sup>36</sup>.

### Automotive wastes

A survey of automotive repair premises, in 2016, identified that of the respondents, all diverted waste oil, accounting for 13,000 litres of waste oil being recycled or reused per annum.

One hundred per cent of respondents recycle car batteries through a variety of providers primarily scrap metal recyclers, accounting for around three tonnes of batteries per annum. Forty-three per cent of respondents recycle oil filters through a range of recyclers. This accounts for 430kg of oil filters per annum being diverted. One hundred and forty seven litres of antifreeze is reported as diverted per annum, with 34% of respondents recycling antifreeze through a variety of providers.

A very small response to surveys of tyre retailers was received. The data suggests that the majority of tyres are being disposed of to landfill with around 20% being diverted to farms. Some truck tyres are being re-treaded. In the 2014 /15 financial year around 5,000 tyres were diverted for re-treading outside of the region.

### Construction wastes

Only small quantities of construction wastes are being diverted from landfill. Forty to forty five per cent of respondents recycle or reuse un-treated timber, roofing iron, steel and concrete. This equates to 120 tonnes of untreated timber, 20 tonnes of roofing iron, 54 tonnes of steel and 58 tonnes of concrete being diverted per annum. Thirty-five per cent of respondents diverted treated timber and only 30% diverted cardboard, equating to 178 tonnes of treated timber and 2 tonnes of cardboard being diverted per annum from the construction industry.

### Other farm wastes

Plasback operates a product stewardship scheme to recover used farm plastics for recycling. They collect a range of plastics from farms and have installed a baler in Taranaki to meet local demand. In the 2014/15 year 140 tonnes of plastic was collected as part of this scheme (Figure 27), 120 tonnes was collected in the 2015/16 year.

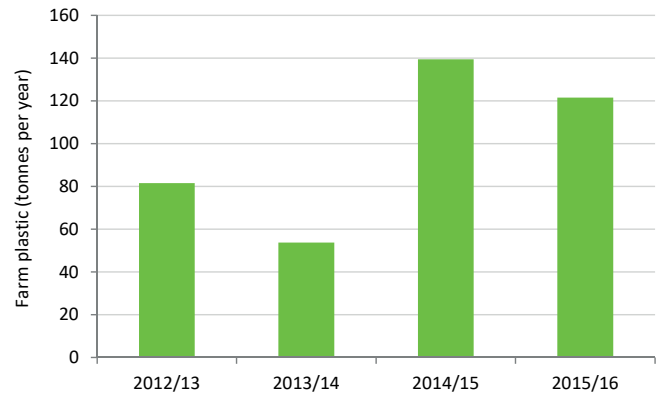


FIGURE 27: Annual tonnage of farm plastic recycled in Taranaki

Agrecovery provides an agrichemicals collection approximately every 18 months in Taranaki. This collection is funded through the Ministry for Environment, brand owners, the TRC and the district councils. In 2015 a total quantity of 1,658 kg of chemicals were collected from 23 sites in the region. One hundred and forty two kilograms of this was sent offshore for high temperature incineration (as there are no current facilities within NZ that can deal with this material). In the 2013 collection 1,800kg of farm chemicals was recovered. The chemicals collected were diverse, with the larger collections being Acidsan (containing sulphuric acid, hydroxacetic acid, ammonium chloride), Iodoshield (active ingredient being iodine present as iodopher). A small quantity of DDT was also collected. Agrecovery advised that Taranaki collections contain minimal persistent organic pollutants (POPs) such as DDT, compared with other regions.

<sup>36</sup> Eunomia Research and Consulting and Waste Not Consulting. 2015. Organic Waste Diversion Study. Prepared for the Taranaki Region Councils. July. Confidential.

### Summary of diverted materials

Based on the data of known diversion, there is already significant diversion occurring in the region (Table 9). However, there is potential for a significant amount of diversion above current levels, particularly for recycling and organic waste streams.

TABLE 9: Quantity of resources diverted in the region

MATERIAL	TONNES OF POTENTIALLY DIVERTABLE MATERIAL PER YEAR GOING TO LANDFILL*	TONNES PER YEAR SENT FOR RECYCLING OR RECOVERY		DIVERSION RATE
		Council (All)	Other**	
Recycling***	13,676	8,353	22,696	69%
Compostable organic waste:				
- Greenwaste	2,704	3,465	8,605	82%
- Food waste	5,200	-	4,959	49%
Other organic waste	4,535	1,250	127,606	97%
Timber	1,040	-	38,642	97%
Concrete and bricks	728	-	15,000	95%
<b>TOTAL</b>	<b>27,883</b>	<b>13,068</b>	<b>217,508</b>	<b>89%</b>

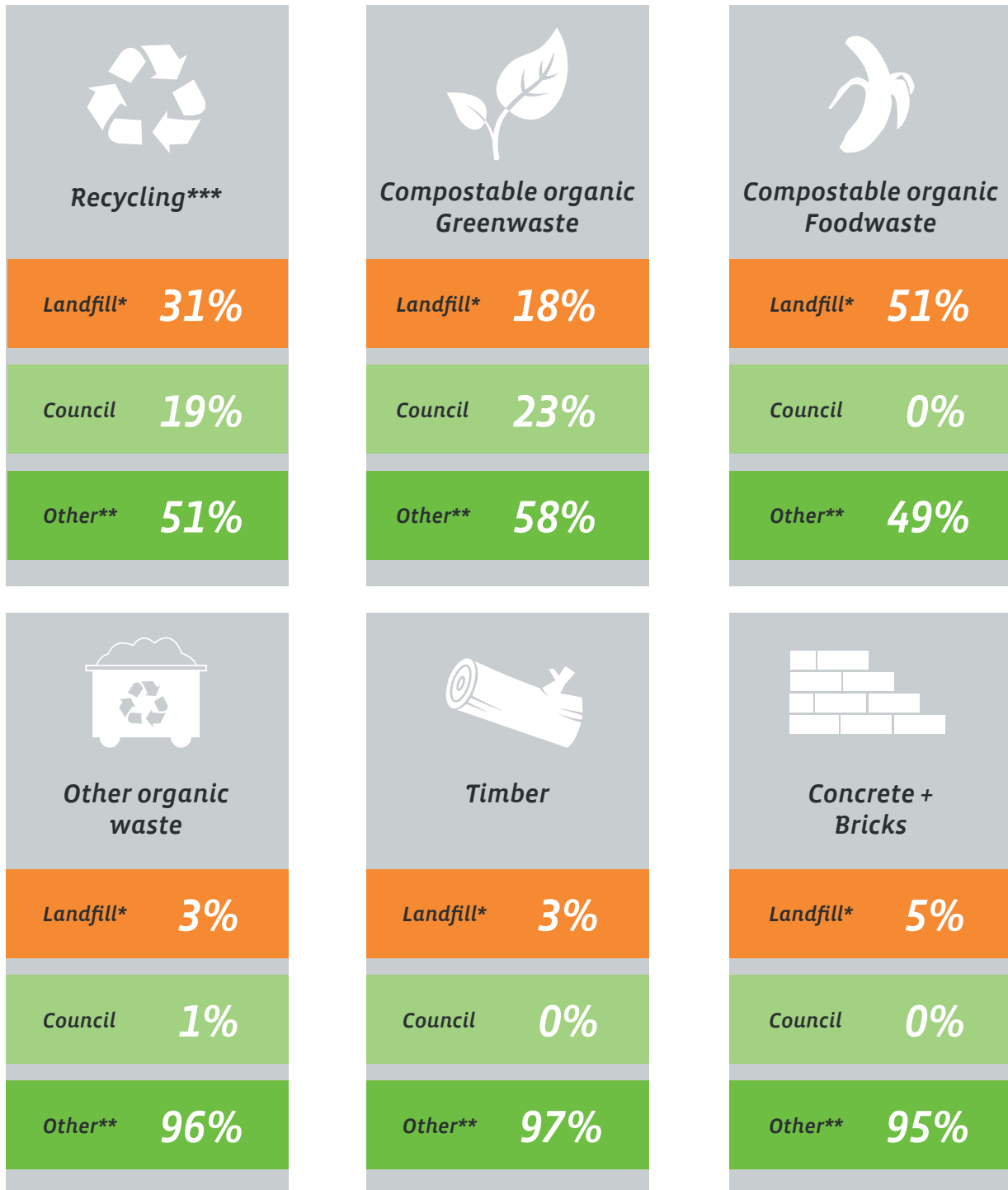
\*Data sourced from SWAP report 2016.

\*\* Data sourced from organic wastes diversion study, industry surveys.

\*\*\* Includes mixed recyclables, glass, whiteware, steel, e-waste and farm plastics.

Proportion of waste diverted in the region

- Potentially divertable material going to landfill
- Sent for Recycling or Recovery - COUNCIL
- Sent for Recycling or Recovery - OTHER



\* Data sourced from SWAP report 2016.

\*\* Data sourced from organic wastes diversion study, industry surveys.

\*\*\* Includes mixed recyclables, glass, whiteware, steel, e-waste and farm plastics.



## 2.6 Assessment of New Plymouth services

### Landfill service

The Landfill opened in 1975, and has been developed in three stages (stages 1 and 2 are now closed). Landfills have had to adjust to evolving environmental standards, which resulted in the closure of many small landfills in the region in the 2000's and the stage 3 landfill has functioned as the sole landfill for the region since 2007. The stage 3 landfill is a Class 1 landfill which ensures a high level of environmental protection. This has involved installing a liner to capture leachate and reduce the potential for groundwater contamination, ongoing improvements to site management including covering of waste and more recently odour management including a landfill gas capture system which will be installed in 2017.

NPDC holds eight resource consents in relation to the Landfill. These consents contain a total of 100 special conditions. Consent compliance monitoring is undertaken to ensure conditions are complied with and there are no adverse effects on neighbouring properties or the environment. Key operational issues with the site in recent years have included management of cover, odour and special waste. As a result, in the 2015/16 monitoring year the landfill was rated as having a "poor level of environmental performance"<sup>37</sup>. Measures are now in place to address these including NPDC enforcing the rule of no liquid waste disposed of at the Landfill, better daily site management practices, deodorising sprays, and the soon to be installed landfill gas management system.

In order to ensure there continues to be a regional landfill service available to Taranaki, the available space left in the landfill for waste disposal is monitored on a six monthly basis. The most recent survey undertaken in February 2017 indicates that there is sufficient space to accept waste until at least December 2019. Planning is currently underway for the development of a new regional landfill (Central Landfill) near Eltham which will be run as a joint venture by the three district councils. Current expected timing for the closure of the Landfill and opening of the Central Landfill is July 2019.

The additional capacity remaining at the Landfill following this date will allow for the transition (i.e. acceptance of special waste until this can be taken to the Central Landfill) and emergency landfilling in the future.

The closure of the Landfill will impact on waste disposal costs for the New Plymouth district due to the additional costs of transporting waste to Central landfill. This has been, and will continue to be a driver for a number of district waste minimisation and management options including the development of the RRF that will improve waste diversion and a refuse transfer station that can consolidate waste for bulk transport.

### Transfer stations

The New Plymouth District has four rural transfer stations and the larger NPTS. A review of the use of these transfer stations (Table 11) indicates that Tongaporutu and Inglewood transfer stations have a relatively low number of visits per open day however despite the low traffic, Inglewood has a higher tonnage than Okato. This possibly indicates a different customer base between these two transfer stations with Okato being residentially based with small loads whereas Inglewood could be accepting much larger loads from few customers. Three out of the four rural transfer stations operate at a loss with both Tongaporutu and Inglewood being a significant expense to the Council and having low usage. It may be prudent to review the services at these sites.

<sup>37</sup> Taranaki Regional Council. 2016. NPDC – Colson Road Landfill Monitoring Programme Annual Report 2015-2016. Technical Report 2016-68.

TABLE 11: Use of transfer stations over the six month period from July to December 2016

TRANSFER STATION	JULY TO DECEMBER 2016				
	Waste (tonnes)	Recycling (tonnes)	Greenwaste (tonnes)	Average number of vehicles per open day	Cost per tonne (excl GST)
New Plymouth	7,044.0	242.8	418.0	80.0*	-
Waitara	276.7	35.4	26.2	13.0	\$90.50
Tongaporutu	10.2	4.6	-	0.5	\$504.75
Inglewood	101.3	22.9	17.9	2.0	\$117.23
Okato	69.1	22.7	-	16.0	\$184.49

\*Estimate based on SWAP analysis August 2017.

To ensure that our transfer stations are accessible, a previous WMMP target was to ensure 95% of New Plymouth’s population was within 20 minutes’ drive of transfer stations, or provided with a kerbside collection. This target was set as a level of service performance measure in a previous Long Term Plan but is no longer included in the LTP. Figure 28 shows the drive times for each of NPDC’s transfer stations. At present 98.8% of the population is within this WMMP target and there is good coverage of the district in terms of accessibility, and in fact there is an overlap for NPTS, Waitara and Inglewood RTS’s suggesting that this is an area that could be considered for a future reduction in services particularly for the Inglewood RTS where the number of visitors is currently low.

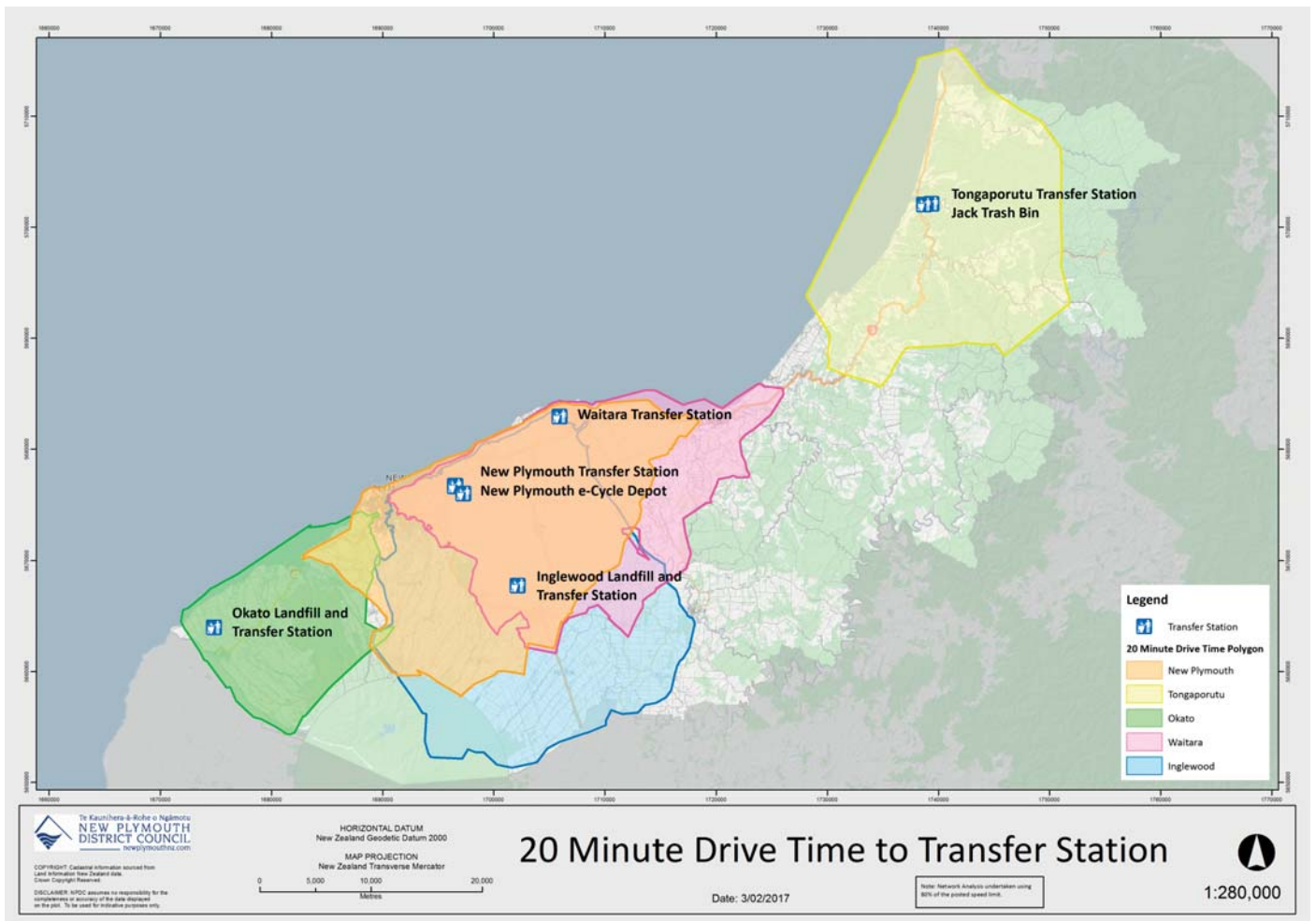


FIGURE 28: Catchment area for transfer stations (20 minute drive)

Tongaporutu has a “Jack Trash” unit, where users pay a fee to open the container to dispose of their waste. Glass can also be left for recycling. Issues with this station include illegal dumping alongside the unit, and maintenance issues particularly around the payment mechanism.

The number of service requests regarding transfer stations were analysed for the last five years (Figure 29). Actual numbers of service requests were highest at NPTS, which receives the most waste and customers. However, when compared on a per tonne basis, Tongaporutu RTS has significantly higher numbers of service requests than the other four. These related almost solely to the operation and maintenance of the Jack Trash unit (overfull or pay mechanism not working).

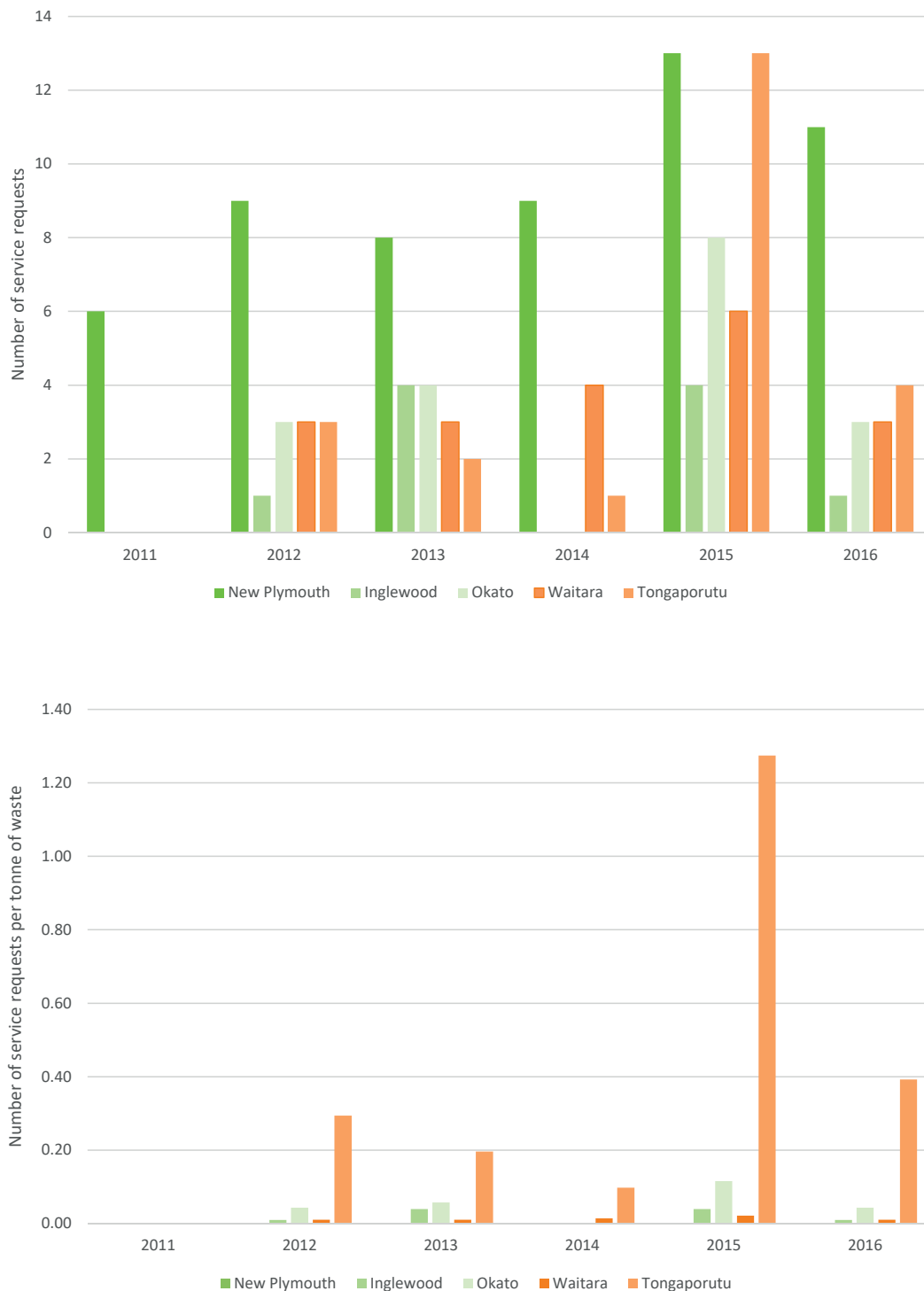


FIGURE 29: Analysis of service requests over last five years at New Plymouth transfer stations

Other key themes in service requests across the transfer stations generally related to:

- Opening hours (i.e. transfer stations not being open during advertised opening hours, or unable to receive waste due to capacity issues);
- Behaviour (staff or customer);
- Maintenance, litter or site tidiness of transfer stations;
- Waste acceptance enquires;
- Levels of service (notably condition of recycling areas and shop, introduction of mobile recycling units at rural transfer stations);
- Information provided on the Council’s website.

**Kerbside service**

The presentation rate, as shown by the percentage of customers who put material out each week has been analysed. Participation of the community in the new kerbside collection service has been relatively consistent since it began in October 2015, peaking over the Christmas period for all waste streams. Glass presentation is lower than mixed recycling or waste, but is typical when compared to other districts with similar services (Figure 30).

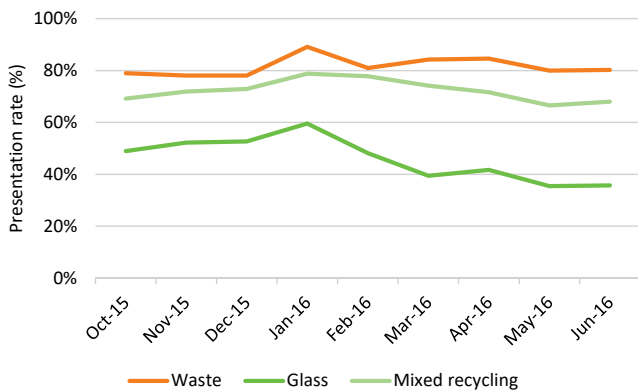


FIGURE 30: Presentation rate (average monthly) for NPDC kerbside collection

Comparison of participation between the three districts is shown in Figure 31. NPDC shows the highest presentation rates for mixed recycling and glass, but is similar to SDC for waste presentation. This may be indicative of the newness of the service but also a high level of community engagement during and following the rollout.

STDC shows a lower presentation rate for waste and glass, possibly a reflection of the more frequent collection (weekly as opposed to fortnightly).

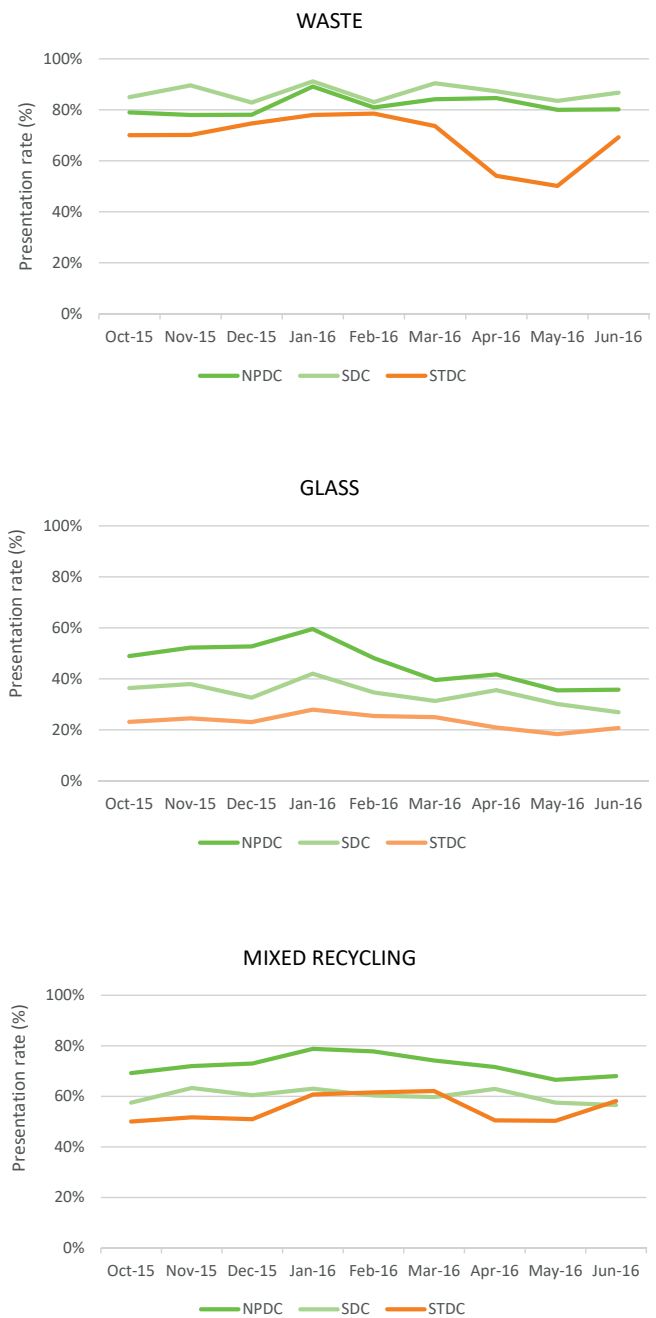


FIGURE 31: Comparison of presentation rates between NPDC, SDC and STDC

When the average weights of containers are compared (Figure 32), NPDC has substantially less waste per container than SDC and STDC. This is due to the difference in receptacles (bag for NPDC versus bins for SDC and STDC) and is also likely to reflect that a proportion of NPDC households opt to have a waste bin provided by a commercial waste collector (estimated to be 13% of households). SDC have

the highest amount of waste per container, which may be reflective of the combination of having bins for general waste and an absence of a greenwaste collection in this district meaning higher amount of greenwaste is disposed of into the general waste bin.

STDC have much less mixed recycling per container, again a reflection of the more frequent collection compared to NPDC and SDC.

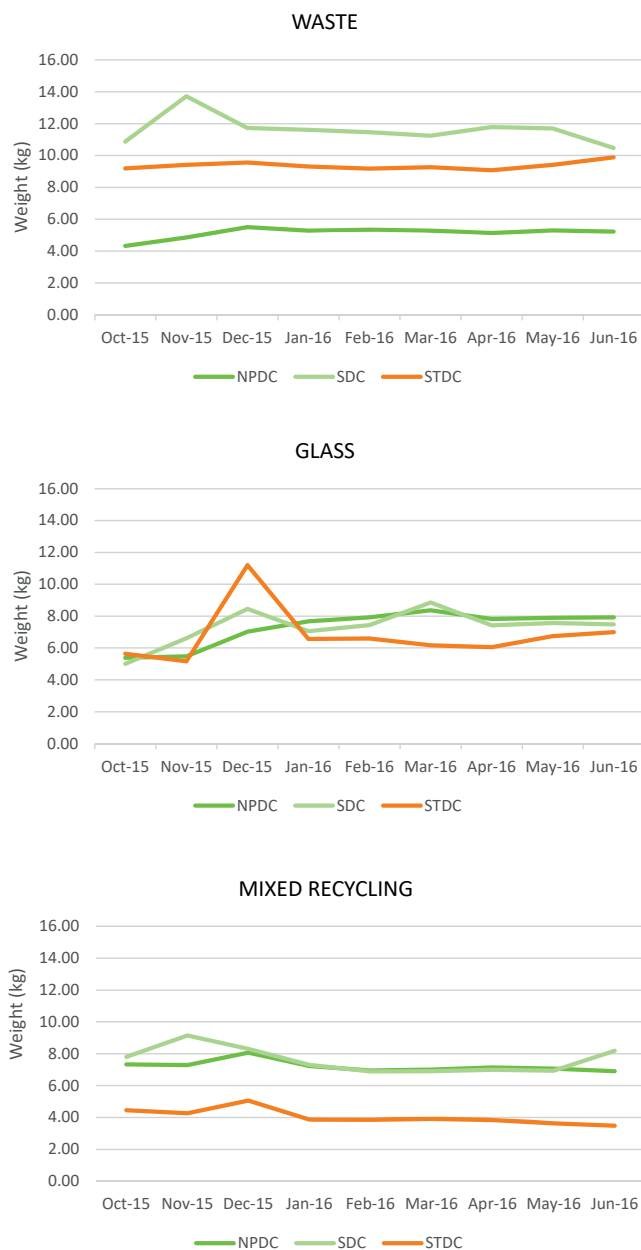


FIGURE 32: Comparison of the average weights per container for each waste stream between NPDC, SDC and STDC

For New Plymouth the implementation of the new recycling service on 1 October 2015 has resulted in a significant reduction in the amount of waste disposed to landfill (Figure 33) and an increase in recycling from 13% to 45% of household waste. This has exceeded the WMMP target of 25% and indicates that this new service has been successful in implementing the plan. There is a slight decreasing trend in the recycling volume per household which will need to be managed with ongoing education to ensure the community continues to be engaged in the service.

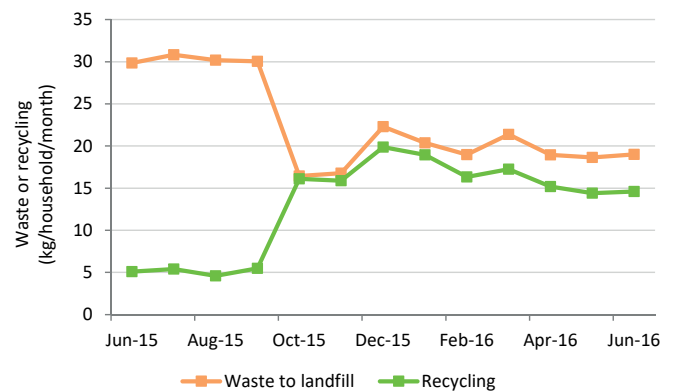


FIGURE 33: Portion of household waste that is recycled monthly in 2015/16

Community satisfaction in relation to the kerbside collection service has improved since the implementation of the new recycling system with a 10% increase in satisfaction compared to the previous year (Figure 34). Eighty two per cent of all those surveyed were satisfied with the kerbside survey, but when only those who got the kerbside service were included, this increased to 90% being satisfied. This level of satisfaction is similar to elsewhere in New Zealand. For those that were not very satisfied with the service, key issues included: not being in the serviced area, the new service was too complicated and the lack of green waste collection.

Since the new kerbside recycling service has been operating, key issues have included the annual bag delivery (missing and stolen bags), contamination of recycling with non-recyclable items, and those in rural areas or the CBD wanting to be within the serviced collection area.

The currently serviced collection areas in New Plymouth have not been amended for a number of years and there has been significant development on the outskirts of New Plymouth city as well as other smaller towns. Consideration should be given to reviewing the collection area including extending the service to commercial premises (including the CBD) and more densely populated rural areas where there is demand and if this is cost effective.

Private waste service providers currently offer limited recycling services as it is currently not cost effective for individual companies to sort their recycling and the need to transport unsorted and uncompacted recycling outside the region. Providing commercial access to the New Plymouth MRF is an option that could be considered to improve private waste recycling collection services.

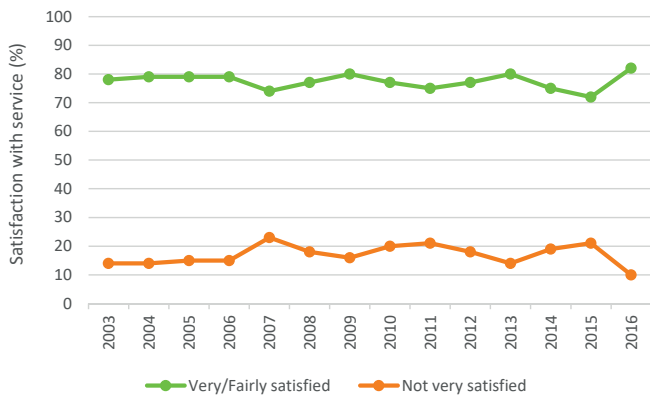


FIGURE 34: Customer satisfaction with kerbside rubbish and recyclables collection service<sup>38</sup>

### Materials Recovery Facility

The MRF has been operating well since it started processing recyclables on 1 October 2015. Key issues with the processing of recyclables relate to the level of contamination. Industry best practice indicates that non-recyclable items should be 8% or less of the total weight of recyclables processed. At present the MRF has on average a 12% contamination rate (Figure 35). This has been a key issue that should be focussed on moving forward at both the kerbside, and through education at the RRF and within the community.

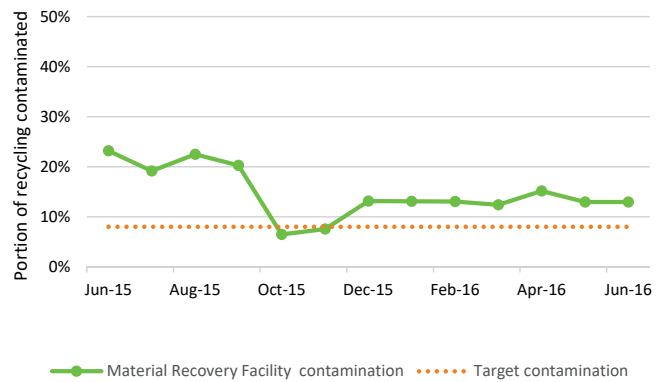


FIGURE 35: Contamination at Material Recovery Facility<sup>39</sup>

One of the most significant issues with contamination is the health and safety risk that some non-recyclable items pose for the recycling processing staff. Non-recyclable items of this nature have included medical wastes. There have been two injuries as a result of medical waste being present in the recycling, one of which has resulted in a confirmed needle puncture wound to staff at the plant. Other items of concern include ash (from fireplaces), batteries, gas cylinders and nappies. Plastic bags are also a significant issue due to the problems they cause in the machinery getting entangled in rollers. This is a maintenance and efficiency issue.

<sup>38</sup> National Research Bureau Limited 2016. New Plymouth District Council Communitrak™ Survey, February 2016.

<sup>39</sup> A change to the level of service for recycling occurred on 1 October 2015 and included a change to a new recycling processing plant.

## 2.7 Future demand

### Market forces

The Taranaki waste environment is not immune to technological, regulatory and social changes. Regional co-ordination is not only driven by the desire for efficiency but also by consumer expectation for the same services and costs as other districts. This drives a requirement for similar levels of subsidy for recycling options such as e-waste, and for waste minimisation education. Of paramount importance in the region is the closing of the current regional landfill located in New Plymouth in June 2019, and a new regional landfill being located near Eltham (approximately 50 km from the existing Landfill). This will have a significant impact on the transportation costs of wastes (higher for New Plymouth, less for Stratford and South Taranaki).

The New Zealand Emissions Trading Scheme (NZ ETS) is the Government's principal policy response to climate change. It supports global efforts to reduce greenhouse gas emissions while maintaining economic productivity. The NZ ETS puts a price on greenhouse gas emissions. Certain sectors are required to acquire and surrender emission units to account for their direct greenhouse gas emissions or the emissions associated with their products. This includes the waste sector and requires the Council, as landfill owner to report annually on emissions and surrender carbon units to offset any landfill emissions. Current market prices for a carbon unit are \$18, the highest it has been since the NZ ETS began (Figure 36). At present the costs of ETS for the Landfill are fully realised as there is no gas management system. Costs for the 2016 year were \$240,000. With the trend of increasing emission unit prices, this is likely to continue to be a significant cost in the future. With the new Central Landfill, which will have a gas management system in place, the costs are likely to be significantly reduced.



FIGURE 36: Trend in prices of units in the NZ ETS from 2011<sup>40</sup>

### Commodities

Decreasing value of some recycling commodities, unsteady markets and health and safety regulation have impacted on the region. The relatively low price of oil renders recycled plastic more expensive for manufacturers to purchase than virgin plastic. This has impacted on the MRF through lower revenue for these commodities since the plant has been operating, however all commodities have sold. Scrap metal prices have also declined impacting on the viability of scrap metal dealers with one in the region closing and others not taking certain waste streams<sup>41</sup>.

International policy such as China's 'Green Fence' bans the import of contaminated recyclables requiring bales to be clean and organised. This has implications on users of the system (and hence higher levels of education required for users) and sorting and baling processes at the MRF.

Unregulated markets, technological developments and consumer expectation have led to a wide variety of products being available on the market along with increasing quantities of electronic products in the waste stream. Multi-material wastes have limited recycling options and securing viable markets for the breadth of waste streams is challenging. Developments in alternative technologies, such as solar and electric vehicles, are leading to an increasing quantity of batteries in the waste stream without an end-life option secured.

<sup>40</sup> Unit price data 1 Jan 2009–31 May 2014 from Point Carbon; 1 June 2014–30 April 2015 from Thomson Reuters; and 1 May–30 October 2015 from OM Financial Ltd (CommTrade). Note that CER and ERU price data are only available from 2011. Source: Ministry for the Environment. 2016. The New Zealand Emissions Trading Scheme Evaluation 2016. Wellington: Ministry for the Environment.

<sup>41</sup> See <http://www.stuff.co.nz/business/industries/79548663/scrap-metal-prices-for-taranaki-in-the-doldrums>.

## National direction

Current priority work areas for the Ministry for the Environment around waste include:

- Developing a consistent national framework for managing disposal of waste to land by 2025;
- Revising the implementation of the Waste Minimisation Fund to be more strategic and use an investment approach to addressing particular problems;
- Better collection and use of data;
- A statutory review of the waste levy;
- Continuing to encourage industry to participate in product stewardship schemes<sup>42</sup>.

The government has the ability under the WMA to declare any product a priority product for mandatory product stewardship. While no mandatory product stewardship schemes have been required to date, 14 voluntary product stewardship schemes have been accredited. A change of government direction could lead to this part of the Act being enacted, reducing certain waste streams in the local environment.

The Ministry of Business, Innovation and Employment (MBIE) is investing in science and innovation and the development of regions so as to attract further investment, raise incomes and increase employment opportunities. As part of this, MBIE is investing in the Curious Minds programme and regional research institutes. The objective of 'A Nation of Curious Minds' is to encourage and enable better engagement with science and technology across all sectors of New Zealand society. Currently the focus of this has been enhancing the role of education, public engaging with science and technology, and the science sector engaging with the public. Fourteen programmes have been successful in gaining funding in Taranaki. Some of these have had a waste component including looking at best practice in disposing of organics at school and marine litter.

WasteMinz, the waste sector representative body, coordinates a number of national initiatives. The

National Waste Data Framework was initiated to develop a nationally consistent framework. This includes protocols for gathering, managing and reporting on waste data and considers consolidating national waste data reporting. The Love Food Hate Waste campaign aims to address the high proportion of kitchen waste in household refuse bins. Many councils around the country are implementing this campaign coordinated by WasteMinz. Standardised bin lid colours have been developed for the country to reduce confusion for users and to address contamination in bins. The Council provided kerbside service has implemented these standardised bin lid colours as part of its new contract, including associated communications.

A soft plastic recycling scheme has been implemented in the major centres of New Zealand. This is a drop off service where users can return a range of soft plastics to a container located at certain supermarkets and retail premises. It is expected that this will roll out to the smaller centres in due course.

## Environmental standards

Evolving environmental standards puts pressure on some traditional practices. The Landfill was opened in 1975 with the required environmental standards in place. Retrofitting of the Landfill due to changing environmental standards has been costly. The new landfill will incorporate high environmental standards and current best practice however it is anticipated that environmental standards will continue to evolve for landfills and in the wider community.

Recent prosecutions by the Taranaki Regional Council for incorrect disposal of waste<sup>43,44</sup> heightens the need for planning for wastes and correct disposal.

## Illegal dumping and littering

Illegal dumping and littering is an expensive and unsafe practice which occurs on our roadsides, parks, reserves, beaches and outside charity shops. It is assumed this is a response to disposal costs, although this has not been tested and should be a future focus. Balancing costs of disposal to encourage diversion from landfill, while minimising illegal dumping, is prudent.

<sup>42</sup> Source: Senior Analyst. MfE. email dated 10 March 2017.

<sup>43</sup> TRC. 2015. Prosecution update – Fonterra sentencing decision. Agenda Memorandum. 1 September 2015.

<sup>44</sup> TRC. 2015. Prosecution sentencing decision. Agenda Memorandum. 22 November 2015.



## Infrastructure

The region's road and rail network, Port Taranaki and New Plymouth airport provide essential services to the regional community and economy<sup>45</sup>. The state highway system is a critical part of the network connecting main population centres with processing and manufacturing facilities, export outlets and markets. Main roads in and out of the region have impacted on accessibility into and out of Taranaki, however plans are in place to improve the road network north in particular. This accessibility is critical for the recycling industry in particular that relies on linkages to Auckland, Wellington and overseas destinations for export of commodities.

There is limited recycling infrastructure in Taranaki particularly for the commercial sector.

## Demographic and economic trends

Taranaki Region's population was 116,600 in 2016<sup>46</sup>, up 0.8% from the previous year, compared with New Zealand's total population growing by 2.1% over the same period. The region's population ranks 10th in size out of the 16 regions in New Zealand<sup>47</sup>. As at the 2013 Census 74,184 people were usually resident in New Plymouth district, with its population ranking 10th in size of the 67 districts in New Zealand. The 2016 estimates released by Statistics New Zealand records the population at 79,800<sup>48</sup>.

Mean annual earnings in Taranaki Region was \$57,070 in the year to March 2015, which was higher than the New Zealand mean of \$56,030. Mean earnings in the Taranaki Region increased by 2.7% over the year to March 2015 compared with an increase of 3.1% for the whole of New Zealand. Over the last ten years, earnings growth in Taranaki Region reached a maximum of 7.1% in 2009 and a minimum of 1.9% in 2010.

Taranaki's GDP in 2016 is \$8.8 billion equating to 3.6% of New Zealand's GDP<sup>49</sup>. This is a 4.1% growth from the previous year compared with a 3.6%

growth nationally in the same timeframe. Over the 2010-2015 timeframe GDP in Taranaki grew 6.3%. Mining represents 18.3% of this GDP, electricity and gas supply 12.3% and dairy cattle farming 10%. Taranaki has 597 manufacturing businesses. The OECD states that New Zealand's economic growth "is projected to be moderate with 3% in 2016 and 2.7% in 2017. The impact of lower dairy prices on exports and an end to stimulus from the earthquake-related rebuild will curb activity, although the slowdown in construction will be attenuated by expansion elsewhere in response to high immigration. Immigration will also sustain growth in private consumption. Inflation will rise but stay below target"<sup>50</sup>.

In the 12 months to June 2016 \$294.4 million of building consents were approved in Taranaki<sup>51</sup>. This was a 4.8% increase to the previous 12 months. Waste generation can be linked with growth in the economy and population. This population and building growth in Taranaki is expected to impact the waste sector by increasing overall waste generation. The kerbside collection service contract caters for some growth for new properties. However extension to the serviced area will need to consider the impact on the cost per household and capacity of current plant to service additional areas within the term of the contract.

Reuse and recycling infrastructure in relation to commercially generated waste streams including the construction industry are limited, and may be an area where future options need to be provided to reduce the impact of economic growth on waste disposed to landfill.

## Future projected waste quantities

Based on current waste trends and anticipated population and economic growth, the following figures show likely projections for future waste quantities to the regional landfill. These projections assume no additional infrastructure or services will be implemented.

<sup>45</sup> Taranaki Regional Council. 2015. Regional Land Transport Plan for Taranaki 2015/16 – 2020/21. Taranaki.

<sup>46</sup> 109,608 as at 2013 Census.

<sup>47</sup> Statistics NZ. 2013 Census. Quick Stats about Taranaki region. Sourced from [http://www.stats.govt.nz/Census/2013-census/profile-and-summary-reports/quickstats-about-a-place.aspx?request\\_value=14110&tabname=Populationanddwellings&sc\\_device=pdf.18/12/17](http://www.stats.govt.nz/Census/2013-census/profile-and-summary-reports/quickstats-about-a-place.aspx?request_value=14110&tabname=Populationanddwellings&sc_device=pdf.18/12/17).

<sup>48</sup> Statistics NZ. 2016. Subnational population estimates. Sourced from <http://nzdotstat.stats.govt.nz/wbos/Index.aspx?DataSetCode=TABLECODE7502>.

<sup>49</sup> Venture Taranaki. 2016. Taranaki Trends – Taranaki Facts and Figures. Summer.

<sup>50</sup> OECD, Developments in individual OECD and selected non-member economies.

<sup>51</sup> Venture Taranaki. 2016. Taranaki Trends – Taranaki Facts and Figures. Summer.

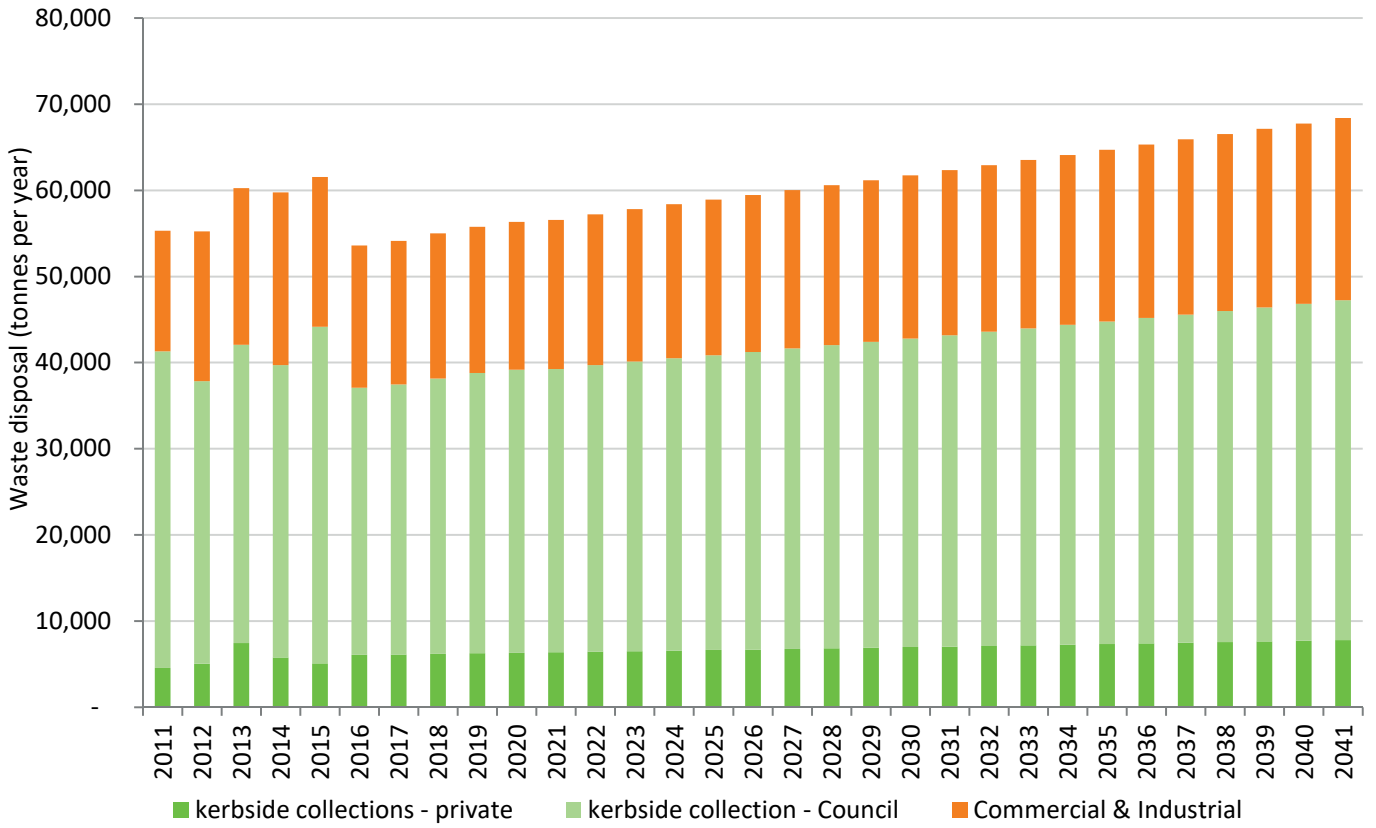


FIGURE 37: Forecast waste generation by waste stream to the Taranaki regional landfill

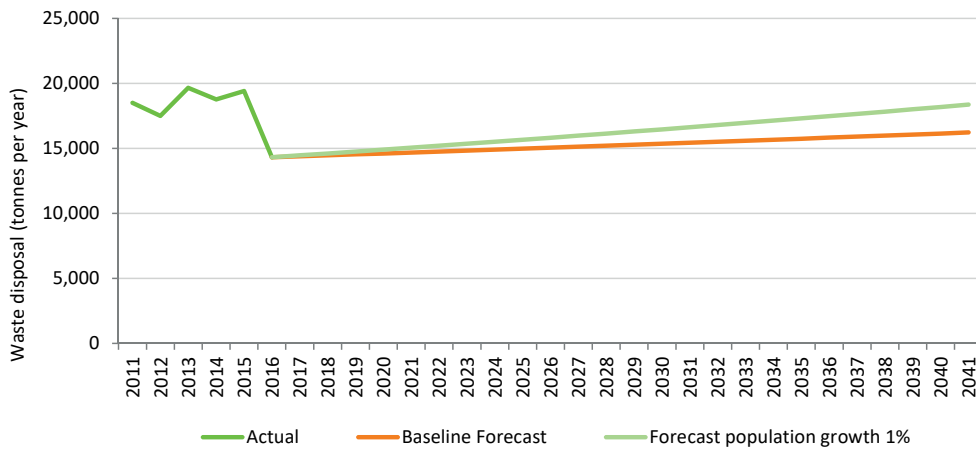


FIGURE 38: NPDC waste projection- kerbside collections

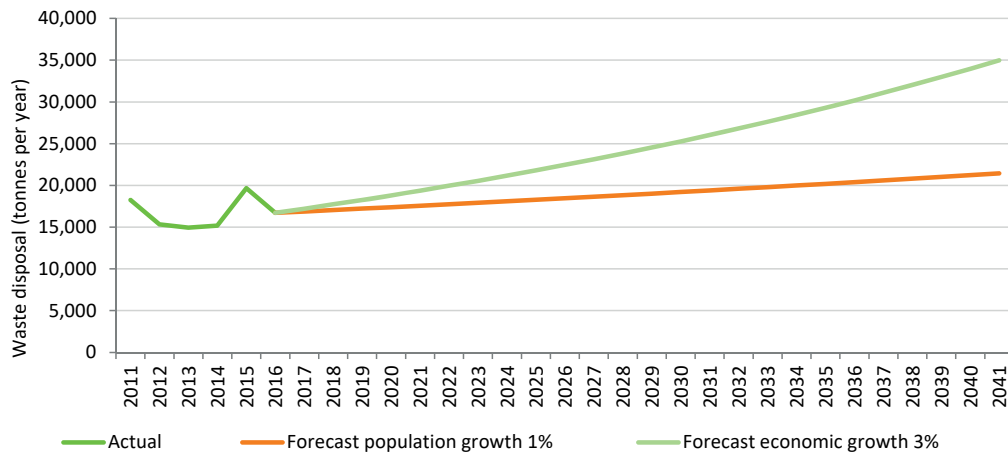
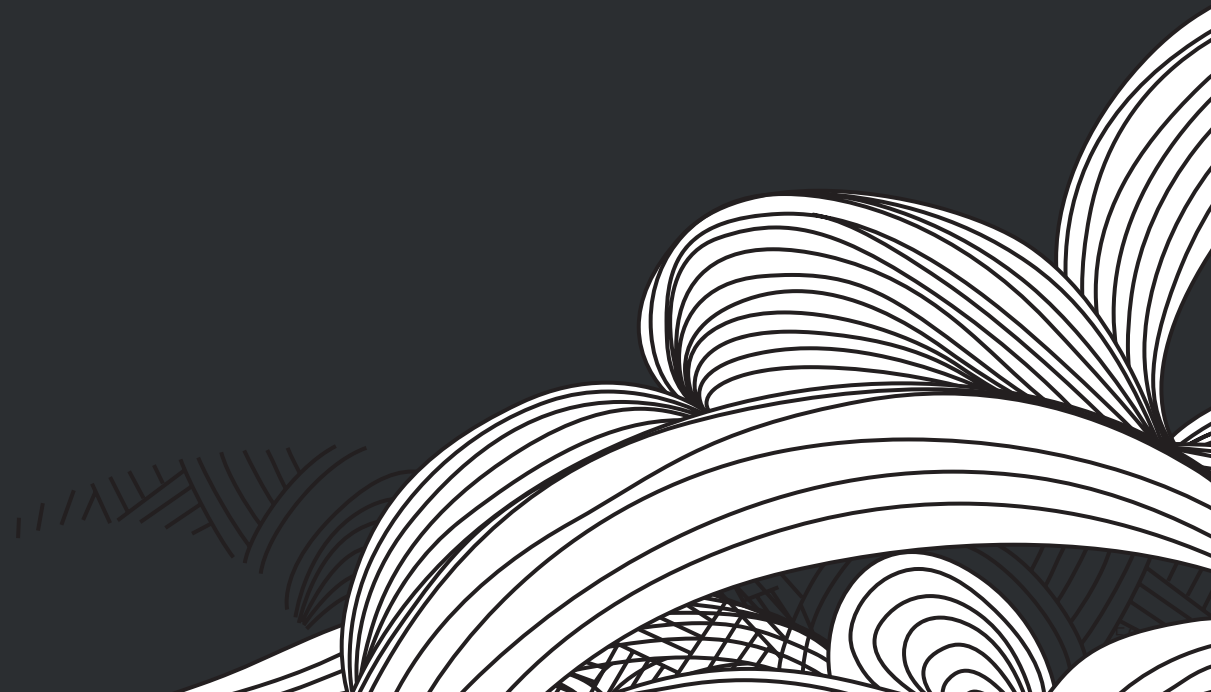


FIGURE 39: NPDC waste projections- transfer stations

# *3. Where do we want to be?*



### ***3.1 Review of the existing Waste Management and Minimisation Plan targets***

The 2011-2017 WMMP had a number of targets and actions required to achieve those targets. Table 12 provides a summary of progress towards the targets. Key infrastructure implemented includes the new kerbside recycling collection, RRF development and associated education which has contributed to achieving waste reduction and increased recycling targets. While organic waste to landfill has reduced, household organic waste has not decreased and this change is not likely to reflect a true reduction in organic waste disposal to landfill.

There has been little Council focus in the commercial waste sector, which is reflected in the C&D waste disposed to landfill increasing compared to 2010 levels. Targets around landfill environmental compliance and extending landfill life have also not been achieved. Environmental compliance has improved with no recent odour complaints indicating that operational measures implemented to date are being effective in managing these effects. The extension of landfill life by three years rather than seven, is due to a combination of insufficient reduction in waste disposal and the short life remaining in the landfill. In addition the lack of reduction in the largest source – C&I waste- has meant the overall reduction in this waste is less than targeted.

PHOTO 7: Para kore waste audit



TABLE 12: Summary of progress against 2011-17 WMMP targets

TARGET	2010 BASELINE	INFORMATION SOURCE	PROGRESS IN 2015/16	
			Comments	Overall Performance*
<b>Waste minimisation - general</b>				
1. By 2015 decrease the per capita tonnes of waste going to landfill by 20% from 2010 baseline.	0.630 t/ca	Landfill weighbridge data	2015/16 - 0.446 t/ca (41% decrease)	😊
2. By 2015 Council will repeat a landfill SWAP analysis (including a sort and weigh of domestic kerbside rubbish).	n/a	SWAP	Survey completed Sept 2016; delayed so it could be undertaken post implementation of new kerbside collection	😐
3. By 2015, achieve an improvement in customer satisfaction for refuse collection based on 10 year average (or better than peer group average).	77% very or fairly satisfied	National Research Bureau survey	2016 – 82% (10% improvement on 2015 year due to new service)	😊
<b>Waste minimisation - by waste stream</b>				
<b>Organic and domestic recyclables</b>				
1. By 2015 decrease the per capita tonnes of waste disposed to landfill by 20% from 2010 baseline.	0.630 t/ca	Landfill weighbridge data	2015/16 - 0.446 t/ca (41% decrease)	😊
2. By 2015, increase the proportion of kerbside waste recycled by 20% on 2010 baseline.	21%	Collection and landfill weighbridge data	2010/11 - 3364t 2015/16 - 4518t 26% increase	😊
3. By 2015 organic waste disposed to landfill decreases by 30%.	16484t	SWAP	2016 - 12258t; 34% decrease; no services have been provided by Council, reduction likely due to waste being landfilled out of region	😊
<b>Special/hazardous waste</b>				
4. 100% beneficial reuse of biosolids from NP wastewater treatment plant per annum.	97%	WWTP WaterOutlook database	2015/16- 100% of Bioboost produced was reused (1439 tonnes)	😊
5. Provide at least one facility which receives non-industrial/domestic quantities of hazardous waste for appropriate disposal.	1		NPTS provides a disposal facility	😊
<b>Construction/demolition waste</b>				
6. By 2015, reduce non-cleanfill construction and demolition waste to landfill by 20% of 2010 levels.	5,668 t	SWAP	2016 – 6240t; 9% increase; no services or infrastructure provided by Council	😞
<b>Waste services and facilities</b>				
1. 95% of New Plymouth District's population is within 20 minutes drive of disposal or recycling facilities or provided with regular kerbside collection.	90%	NPDC rated property records	98.8% of the population is within serviced areas	😊
2. Colson Road Landfill achieves 100% compliance with resource consents.	100%	TRC annual reports	One abatement notice and one infringement notice issued in 2015/16; odour and site management issues to be addressed with landfill gas treatment system 2017	😞
3. Extend landfill life by an additional seven years through waste minimisation initiatives and improved contractor management practices.	2016	NPDC survey of landfill contour	Estimated closure June 2019 – life extended by three years	😞
<b>Hazardous waste and contaminated sites</b>				
1. Provide at least one facility which receives non-industrial/domestic quantities of hazardous waste for appropriate disposal.	1		NPTS provides a disposal facility	😊
2. All enquiries for information concerning 'contaminated' sites will be acknowledged within 5 working days by the Council.		NP service request database	Two enquiries in 2015/16 responded to within timeframe	😊

\* Expected in brackets if no data yet

## 3.2 What our stakeholders have told us

As part of the preliminary consultation in developing this Waste Assessment, waste officers engaged with elected representatives, the commercial and industrial sector via a workshop, and the general community were engaged with via an online survey (NPDC only). In addition the conversations had with members of the community as part of the waste officers daily work was considered.

### 3.2.1 Community

The feedback received suggests that the community highly values recycling and the Council should continue to focus on this. In addition, reuse, composting, packaging and the notion of ‘zero waste’ are important for the Council to consider as it looks towards the future (Figure 40). To improve the kerbside collection system, the community feedback indicates a preference for greenwaste bins and general waste bins (move away from bags). To a lesser extent, education and food waste bins are also a desired improvement. The community identified that in addition to current services the Council should be providing greenwaste services, education and composting services. Inorganic collections, e-waste recycling, food waste and commercial collection services are also desired.



FIGURE 40: Community feedback on 10 year focus for waste

### 3.2.2 Commercial and industrial sector

A broad selection of companies in Taranaki were invited to a workshop as part of the development of this waste assessment. The representatives that attended were highly engaged in waste. The desire to reduce waste to landfill was strong, and most were already diverting considerable proportions of their waste. The sector had consistency in concerns and desires around waste. The areas of improvements can be summarised into education; collaboration and aggregation of waste to enable cost effective solutions; the need for local solutions; options for plastics and packaging; lack of options for currently non-compostable greenwaste; the need for communications, support and better data; and concerns and frustrations around illegal dumping (Figure 41).

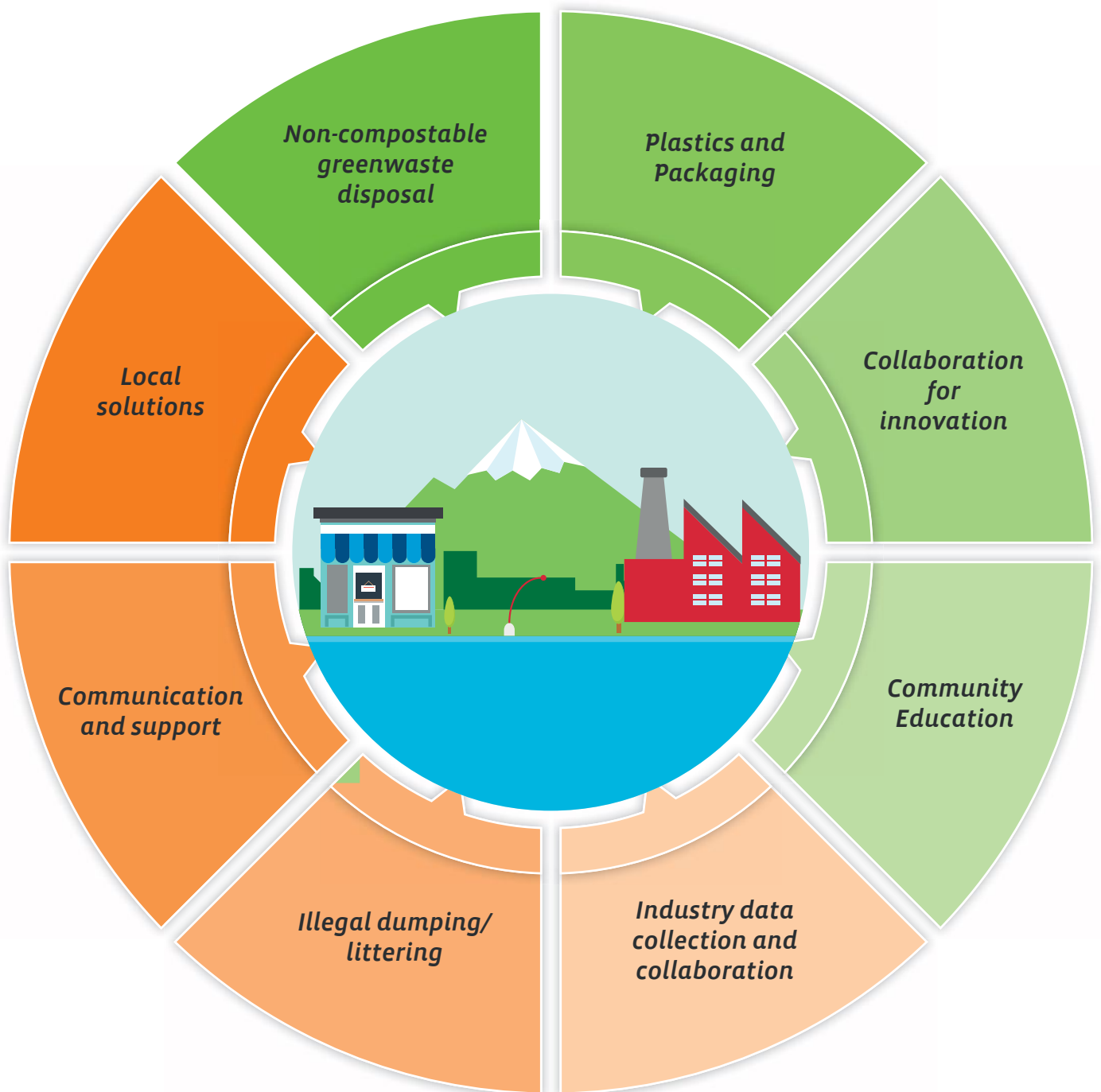


FIGURE 41: Commercial and industrial sector workshop collated response of desired changes

### **3.3 Strategic direction**

Based on the above feedback, on the next page the vision, goals and objectives for the next Waste Management and Minimisation Plan are proposed.

The elected representatives have clearly expressed a desire for an aspirational vision of zero waste, with a work plan that is clearly focused on this vision while being fiscally responsible.

#### **What is Zero Waste?**

“Zero Waste is a goal that is ethical, economical, efficient and visionary, to guide people in changing their lifestyles and practices to emulate sustainable natural cycles, where all discarded materials are designed to become resources for others to use. Zero Waste means designing and managing products and processes to systematically avoid and eliminate the volume and toxicity of waste and materials, conserve and recover all resources, and not burn or bury them. Implementing Zero Waste will eliminate all discharges to land, water or air that are a threat to planetary, human, animal or plant health.”<sup>52</sup>



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<sup>52</sup> Source: Zero Waste International Alliance in 2004.





*Vision*

# ZERO Waste



**Goals**

**MAXIMISE OPPORTUNITIES**  
*to reduce waste to landfills*

**REDUCE** *the harmful and costly effects of waste*

**IMPROVE EFFICIENCY**  
*of resource use*



**Objectives**

*Behaviour change*

*Collaboration and partnerships*

*Leadership and innovation*

*Accessible services and facilities*

## 3.4 Targets

The Waste Management and Minimisation Strategy for Taranaki stipulates the following targets to give effect to the WMA and the NZWS:

1. To reduce total waste volume going to landfill measured on a per capita basis.
2. To reduce residential wastes collected through kerbside collection for disposal to landfill on a per capita basis.
3. To ensure any increases in waste volumes to landfill remain below any increase in regional economic performance.

The strategy also provides targets in relation to waste minimisation and management planning, specific waste streams, contaminated sites and monitoring and review.

The Council has targets for waste documented in its Long-Term Plan and Solid Waste Asset Management Plan. The following targets are consistent with these targets and address the goals of this Waste Assessment. These targets are set based on the expected performance of recommended options in the Waste Assessment.

TARGETS	2015/16 BASELINE DATA
<b>Waste to landfill</b>	
Reduce the total waste volume per capita going to the regional landfill by 15% by 2023.	0.56 tonnes/capita/annum (NPDC)
Reduce the total waste volume per household going to landfill from the Council kerbside collection by 10% by 2023.	0.26 tonnes/household/year (7,132 tonnes; 27,536 households)
Any increase in waste volumes to landfill to remain below any increase in regional economic performance.	Total waste to landfill: 54,801 tonnes Taranaki \$75,941 GDP per capita <sup>5</sup> National \$52,953 GDP per capita <sup>6</sup>
<b>Diversion of waste</b>	
Increase the amount of household waste diverted to recycling by 1% per year (Council provided kerbside collection only).	Waste: 7,131 Recycling: 4,918 Proportion: 41%
Reduce contamination of Council provided kerbside recycling delivered to the Material Recovery Facility to 8% or below.	8% (NPDC) 12% (Region)
<b>Organic waste</b>	
Reduce the amount of organic waste to landfill by 40% by 2023.	9,984 tonnes/annum
Reduce the amount of organic waste in the Council provided kerbside rubbish collection by 60% by 2023.	4,510 tonnes/annum (3.4 kg per household per week)
<b>Customer satisfaction</b>	
Percentage of community satisfied with the solid waste service exceeds 81% (NRB Survey).	82% (excluding 'don't knows')
Total number of complaints received about the Council's solid waste service remains at or below three per 1,000 households.	0.84 complaints per 1,000 households (26 complaints; 31,000 households)
<b>Public health</b>	
No public health advisory notices from Taranaki District Medical Officer of Health in relation to the Council's responsibilities for solid waste under the Health Act 1956.	Zero
95% of the population has access to a waste disposal service – either via a kerbside collection or live within 20 minutes' drive of a transfer station.	98%
<b>Environmental, health and safety compliance</b>	
No abatement notices received for the landfill.	1
No infringement notices received for the landfill.	1
No enforcement notices received for the landfill.	0
No convictions received for the landfill.	0
No convictions under the Health and Safety at Work Act 2015.	0
<b>Community engagement</b>	
Number of education tours to the Resource Recovery Facility will exceed 52 per year.	56 tours in 2016
Waste community engagement survey completed every two years.	N/A

<sup>53</sup> Stats NZ Regional Gross Domestic Product Year ended March 2015- tables.

<sup>54</sup> Stats NZ Regional Gross Domestic Product Year ended March 2015- tables.

## 3.5 Gap analysis

The waste data collected as part of this assessment has identified the following waste streams that should be a focus going forward:

1. Organic waste, and in particular food waste.
2. Commercial and industrial waste.

The focus of the past six years has been on the recycle, treat and dispose end of the waste hierarchy. To aspire to a goal of zero waste will require a shift in focus to the preferred behaviour end of the hierarchy- avoid, reduce, reuse and recycle.

Achieving large scale behaviour change in the community requires a three-pronged approach using policy, infrastructure and education.

The Council's bylaw and licencing provides a regulatory tool that can be further enforced to achieve greater diversion of wastes, better waste data and deal with illegal dumping.

The recently implemented solid waste contract and investment in the MRF, in combination with the already budgeted for resource recovery facility with a community reuse and recycle centre, and a new transfer station all located at Colson Road provides infrastructure for the residential sector that is consistent with addressing the vision of this waste assessment. However, infrastructure to address waste diversion in the commercial and industrial sector is limited for many waste streams.

Education programmes are currently limited and focus mostly on residential customers using traditional information portals. These programmes could be expanded to include a wider range of audiences, implemented more effectively to the target audience and monitored. It is accepted that local government can only influence the behaviour change of consumers to a certain degree and this would be more effective through regulation from central government to address this comprehensively, i.e. through product stewardship schemes, banning or compulsory charging for defined items. However the Council can act as a leader in this space, to demonstrate what can be achieved locally.

This Waste Assessment has identified the following gaps in policy, education and infrastructure:

- Inconsistent implementation and enforcement of solid waste bylaw provisions;
- Data availability, quality and management.
- Commercial services – some waste streams (specifically contaminated and hazardous wastes) are not catered for within the Taranaki region and have to be transported out of the region;
- Diversion options for commercial waste streams are limited within the region;
- Due to the smaller size of many of our C&I premises, diversion options are not viable. Aggregating divertable wastes from industry could make diversion options more viable;
- Understanding and implementing good practice behaviour change strategies to reduce waste, illegal dumping and recycling contamination and increase diversion;
- Farm waste management within the region is not well researched. Greater research in this area will assist in the successful implementation of services for the rural community;
- Food waste collections are currently not provided;
- Uptake of greenwaste services is low and these services are provided solely by the private sector;
- Understanding of the long-term implications of changing commodity pricing and changing waste streams entering the system.



# *4. How are we going to get there?*





## 4.1 Statement of options

This section contains a summary of the reasonably practicable options available to meet the New Plymouth district's forecast demand. Regional waste officers have collectively compiled options and undertaken a comprehensive assessment using the following criteria.

<b>Value proposition</b>	Is this initiative aligned to stakeholder needs? Is this initiative being delivered through partnerships /collaboration? Does this address our goals?
<b>Cost/revenue</b>	What is the cost of implementing this initiative? What are the ongoing costs? Do we have sufficient existing staff resources? Will savings be made by the initiative? Is revenue generated by the initiative (where relevant)?
<b>Infrastructure/resources</b>	Does the initiative utilise existing infrastructure or does new infrastructure need to be developed? Do we have sufficient resources?
<b>Customer interaction</b>	Does this initiative encourage interaction with our stakeholders?
<b>Risk</b>	What are the risks to the success of the project?
<b>Opportunities</b>	What opportunities are there to align this initiative with?

The options available to the Council in addressing its vision are listed below, including an assessment based on the above criteria, ranking of priority and the Councils intended role. The target audience for each option is identified. This list includes options that may or may not be adopted in the WMMP. Options presented in this section would need to be fully researched and the cost implication understood before being implemented.

Regionally, waste officers scored each option based on the above criteria from 1-5. Five being high, 1 low. The options listed below have been prioritised based on relative scoring in the assessment process

as either status quo, priority 1 (scores greater than 24) or 2 (scores between 21 and 23), or are left blank (currently not a priority; scored less than 21). Those that are a priority one or two will require additional resource and/or budget from the councils above current levels and will need to be considered via the Long-Term Plan. Status quo options encompass all the commitments that the Council already has in relation to waste management and minimisation.

### Key to target groups:

CG: Community group  
M: Iwi, hapu and Maori community groups  
C&I: Commercial and industrial  
Ed: Education provider  
Int: Internal Council  
Res: Residential  
ALL: All of the above



**OBJECTIVE 1****BEHAVIOUR CHANGE**

<b>ISSUE ADDRESSED</b>	<b>REF</b>	<b>OPTION</b>	<b>TARGET GROUP</b>
Achieve reduction of priority waste streams entering landfill.	BC1	Undertaking an annual public education programme and associated activities within current resources.	ALL
	BC2	Undertaking a quarterly public education programme.	ALL
	BC3	Implementing a targeted education programme which will result in behavior change. <sup>55</sup>	ALL
	BC4	Undertake, participate and fund regional and national research based on sustainable behaviour change practices and apply findings to waste minimisation and management programmes.	ALL
	BC5	Promote the use of existing social media sites and facilities such as charity shops.	Res, M, CG

<sup>55</sup> Including research based programmes identifying barriers to behavior change and removing these; aligning with infrastructure (new or upgraded) where possible; policy changes, and incentives or disincentives.



<b>BEHAVIOUR CHANGE</b>	
<b>ASSESSMENT</b>	<b>PRIORITY</b>
<p><b>Value proposition:</b> Stakeholders want education. Regional collaboration within Councils; not delivered through collaboration with other sectors. Intangible benefit.</p> <p><b>Cost/revenue:</b> Within existing budget and resources. Potential reduction in disposal costs due to changes in behavior.</p> <p><b>Infrastructure/resources:</b> Communication resources and giveaways.</p> <p><b>Customer interaction:</b> Considerable at each event but not broad.</p> <p><b>Risk:</b> Yes.</p> <p><b>Opportunity:</b> Planned in advance.</p>	Status Quo
<p><b>Value proposition:</b> Stakeholders want education. Regional collaboration within Councils; not delivered through collaboration with other sectors. Intangible benefit. Greater involvement with community when compared with first option.</p> <p><b>Cost/revenue:</b> Requires additional budget and resources. Potential reduction in cost due to changes in behavior.</p> <p><b>Infrastructure/resources:</b> Requires development of communication resources and giveaways.</p> <p><b>Customer interaction:</b> Considerable interaction at each event and activity but not broad.</p> <p><b>Risk:</b> Yes.</p> <p><b>Opportunity:</b> Link to projects and current issues.</p>	
<p><b>Value proposition:</b> Stakeholders want education. Could be delivered through collaboration. Defined customer segments, including commercial, families, children, elderly, Maori. Intangible benefit.</p> <p><b>Cost/benefit:</b> Requires additional budget and resources. Potential reduction in cost due to changes in behavior. Risk that higher investment may not result in greater benefit (may not be linear or exponential correlation).</p> <p><b>Infrastructure/resources:</b> Requires regular communication resources and giveaways. Research based. Can align with infrastructure/policy resulting in increased effectiveness.</p> <p><b>Customer interaction:</b> Interaction considerable at each event and activity. Can be targeted to particular audiences for greater effectiveness.</p> <p><b>Risk:</b> Risk that investment may not achieve broad level behavior change. Risk of too many messages.</p> <p><b>Opportunities:</b> Link to projects and current issues and service providers; Identifies barriers to change and implements solutions to address these, increasing likelihood of greater behavior change. Research will result in more collaboration with stakeholders.</p>	Priority 1
<p><b>Value proposition:</b> Relatively low cost research option due to economy of scale. Collaborative approach. Locally applicable research. Decisions based on fact.</p> <p><b>Cost/revenue:</b> Varies. Small contribution usually required. National rollout of programmes funded by national body, e.g. LFHW, reducing our costs.</p> <p><b>Infrastructure/resources:</b> No infrastructure required.</p> <p><b>Customer interaction:</b> Low for survey only. Will lead to greater customer interaction if programmes are implemented based on research.</p> <p><b>Risk:</b> Relatively low risk for amount spent.</p> <p><b>Opportunity:</b> Link with national projects; greater impact and ability to use pooled resources that could not be developed locally.</p>	Status quo
<p><b>Value proposition:</b> Stakeholders want opportunity to divert goods and engage with others. Reuse of goods. Support community infrastructure. Can also tackle inappropriate dumping at charity shops. Will need collaboration. Addresses our goals.</p> <p><b>Cost/revenue:</b> Low cost – social media, existing website.</p> <p><b>Infrastructure/resources:</b> Existing staff resources.</p> <p><b>Customer interaction:</b> Through events, and online.</p> <p><b>Risk:</b> Social media sites can decline in use. Being held responsible if anything goes wrong (safeguards and conditions to accompany any education). Could be perceived as private enterprise.</p> <p><b>Opportunity:</b> Support initiatives as they arise. Opportunity to link people with waste minimisation.</p>	Priority 1

<b>BEHAVIOUR CHANGE</b>			
<b>ISSUE ADDRESSED</b>	<b>REF</b>	<b>OPTION</b>	<b>TARGET GROUP</b>
Achieve reduction of priority waste streams entering landfill.	BC6	Promote home composting utilising existing communication avenues and resources.	Res
	BC7	Deliver home composting workshops and incentives.	Res, M

<b>BEHAVIOUR CHANGE</b>	
<b>ASSESSMENT</b>	<b>PRIORITY</b>
<p><b>Value proposition:</b> Stakeholders want education. Only likely to reach those already engaged in composting.</p> <p><b>Cost/revenue:</b> Low cost.</p> <p><b>Infrastructure/resources:</b> Communication resources.</p> <p><b>Customer interaction:</b> Low</p> <p><b>Risk:</b> Low risk.</p> <p><b>Opportunity:</b> Minimal.</p>	Status quo
<p><b>Value proposition:</b> Stakeholders want education. Research identifies need for ongoing support in composting for long term behaviour change. Priority waste stream. Can be delivered appropriately for target communities.</p> <p><b>Cost/revenue:</b> External trainer or staff resource. Venue and resources. Bin subsidies. Potential for sponsorship.</p> <p><b>Infrastructure/resources:</b> Venue, staff time, education resources.</p> <p><b>Customer interaction:</b> Workshop participants and ongoing support for attendees.</p> <p><b>Risk:</b> Low risk. Participants may not implement learnings long term (but this would be reduced with ongoing support).</p> <p><b>Opportunity:</b> Align with garden festivals.</p>	Priority 1

**OBJECTIVE 2****COLLABORATION AND PARTNERSHIPS**

<b>ISSUE ADDRESSED</b>	<b>REF</b>	<b>OPTION</b>	<b>TARGET GROUP</b>
Support and promote organisations and business' contributing towards goals of this plan.	CP1	Adhoc waste levy distribution.	CG, C&I
	CP2	Contestable fund for waste levy.	CG, M, C&I
	CP3	Other support of organisations and businesses e.g. through awards, networking events, workshops, media, supporting recycling at events through use of bins and free recycling collection.	CG, M, C&I
Reduce waste generated in Taranaki.	CP4	Collaborate with others including schools, tertiary education providers, community organisations and business to develop innovative solutions to waste challenges.	CG, M, Ed, C&I

<b>COLLABORATION AND PARTNERSHIPS</b>	
<b>ASSESSMENT</b>	<b>PRIORITY</b>
<p><b>Value Proposition:</b> Community groups/individuals have access to funding support for waste related initiatives.</p> <p><b>Cost/benefit:</b> Have waste levy available for distribution but undertaken on adhoc basis.</p> <p><b>Infrastructure/resources:</b> Staff resources to review applications for waste levy. Less administration than contestable fund. Allocation of funds may not be optimal.</p> <p><b>Customer interaction:</b> Direct with applicant only. Indirect through projects that have interaction within community.</p> <p><b>Risk:</b> Successful applicant may not achieve intended outcome.</p> <p><b>Opportunity:</b> Support initiatives as they arise.</p>	Status quo
<p><b>Value Proposition:</b> Community groups/individuals have access to funding support for waste related initiatives. Timeframes and process can be advertised widely. Could be an opportunity for greater collaboration amongst groups and with the Council. Can require engagement with specific communities.</p> <p><b>Cost/benefit:</b> Have waste levy available for distribution. Transparent and well publicised. If not regionally coordinated there would be additional administrative costs compared to amount of funding available.</p> <p><b>Infrastructure/resources:</b> Staff resources to review applications for waste levy within advertised timeframes. Require process to be developed.</p> <p><b>Customer interaction:</b> Direct with applicant only. Indirect through projects that have interaction within community. Interaction might increase with advertising.</p> <p><b>Risk:</b> Successful applicant doesn't achieve intended outcome. Competitive environment and assessment can lower risk. Low risk of not spending money if no or limited number of applications. Risk of subsidising a business (can be addressed through criteria). If a regional fund, there is a risk of local communities don't get funding from local district.</p> <p><b>Opportunity:</b> To advertise a targeted outcome wanted from applicants e.g. applications to reduce food waste. Can be another opportunity to encourage research, education, innovation or have another stakeholder promoting waste minimisation. Auditable trail.</p>	Priority 1
<p><b>Value Proposition:</b> Community groups/individuals have access to funding and other support and accolades for waste related initiatives. Could be an opportunity for greater collaboration amongst groups and with Council.</p> <p><b>Cost/benefit:</b> Dependent on activity. Could make waste levy funding available for this.</p> <p><b>Infrastructure/resources:</b> Staff resources to manage requests and activities.</p> <p><b>Customer interaction:</b> Direct with applicant only. Indirect through projects that have interaction within community. Opportunity for promotion on bins and through awards. Wider interaction as seeking sponsorship.</p> <p><b>Risk:</b> Low risk. Potential contamination through use of recycling bins at events. Possible issue with funding sponsorship (i.e. sponsorship withdrawn or discontinued).</p> <p><b>Opportunity:</b> Support initiatives as they arise. Can provide opportunity to align with infrastructure/policy i.e. greenwaste subsidy.</p>	Status quo
<p><b>Value Proposition:</b> Industry keen to collaborate, and community groups want to. Indirect effect – long term.</p> <p><b>Cost/benefit:</b> Hard to determine, could be staff time or infrastructure. Seed money may be required. Revenue will depend on options being pursued. May achieve economies of scale through collaboration. May get some other funding.</p> <p><b>Infrastructure/resources:</b> Depends on project. Lower if seeding. Collaboration will reduce Council resource but also requires Council resource above current.</p> <p><b>Customer interaction:</b> Medium to high as not been done before. May not see results in short term which may impact on contribution.</p> <p><b>Risk:</b> Partners could pull out.</p> <p><b>Opportunity:</b> High – opportunities for future development and significant change.</p>	Priority 1

**COLLABORATION AND PARTNERSHIPS**

<b>ISSUE ADDRESSED</b>	<b>REF</b>	<b>OPTION</b>	<b>TARGET GROUP</b>
Provide consistency and efficiencies for our customers through regional collaboration.	CP5	Develop regionally consistent contracts, consistent messaging and bylaws, and support schemes that benefit the region.	ALL
	CP6	Collaborate with Taranaki councils to provide a Waste Minimisation Officer to implement the Regional Waste strategy, Waste Education Strategy and WMMP.	ALL
	CP7	Regionally align solid waste bylaws that will consider central landfill, contamination and reducing waste to landfill.	C&I, Res
	CP8	Provision of model contract clauses around waste management and minimisation and infrastructure.	C&I
	CP9	Bring forward the Waste Plan cycle for STDC and SDC to be adopted in 2023 to align with NPDC and allow for a regional waste plan.	Int

<b>COLLABORATION AND PARTNERSHIPS</b>	
<b>ASSESSMENT</b>	<b>PRIORITY</b>
<p><b>Value proposition:</b> High expectation for regional collaboration from residents, business and Council. Joint contracts. Cost effective infrastructure and regionally consistent. Access to quality facilities.</p> <p><b>Cost/revenue:</b> Increased efficiencies, decreased costs from economies of scale.</p> <p><b>Infrastructure/resources:</b> Invest in Waste Minimisation Officer – shared cost. Economies of scale – sharing collateral.</p> <p><b>Customer interaction:</b> Consistent messaging to communities. Taranaki Solid Waste Management Committee.</p> <p><b>Risk:</b> Yes.</p> <p><b>Opportunity:</b> Yes. As a region identify new opportunities together and share information.</p>	Status quo
<p><b>Value proposition:</b> High expectation for regional collaboration from residents, business and Council. Addresses some of the Councils need for resources.</p> <p><b>Cost/revenue:</b> Reduced cost and resource requirements – shared between councils.</p> <p><b>Infrastructure/resources:</b> Provides resources. Drives productivity.</p> <p><b>Customer interaction:</b> Consistency across region and avenue for national collaboration</p> <p><b>Risk:</b> Shared low risk. Staff management.</p> <p><b>Opportunity:</b> Alignment with TRC and councils. Shared knowledge and processes.</p>	Status quo
<p><b>Value proposition:</b> High for addressing WMA's goals, addresses councils need for data (benefit nationally) and consistent rules. Lower cross boundary waste issues. Needs to be accompanied by appropriate infrastructure.</p> <p><b>Cost/revenue:</b> One-off costs for legal review. Consultation costs (within budget as included in current review schedule). Could reduce cost due to regional collaboration. Will require additional resources to implement. Some cost in developing software for processing licenses. Some revenue through administration fees.</p> <p><b>Infrastructure/resources:</b> Requires additional resources for implementation of changed bylaws.</p> <p><b>Customer interaction:</b> Consistency across region and avenue for national collaboration. Should generate engagement with providers and users of service.</p> <p><b>Risk:</b> Some risk in negative community response to changes in bylaws. Implementation may not be effective if insufficient resources to implement and power to enforce.</p> <p><b>Opportunity:</b> Consistent rules across region and national data collection. Lower cross boundary waste issues.</p>	Priority 2
<p><b>Value proposition:</b> High for addressing goals and collaboration. Regionally consistent. Access to quality facilities.</p> <p><b>Cost/revenue:</b> Increased efficiencies for business adopting contracts or infrastructure; decreased costs from economies of scale.</p> <p><b>Infrastructure/resources:</b> Initial development cost but ongoing low cost to maintain.</p> <p><b>Customer interaction:</b> Consistency across region in commercial sector.</p> <p><b>Risk:</b> Shared risk.</p> <p><b>Opportunity:</b> When contracts come up for renewal.</p>	Priority 1
<p><b>Value proposition:</b> Process more efficient and consistency. Better alignment of any changes across region. Higher collaboration in planning process.</p> <p><b>Cost/revenue:</b> Increased efficiencies, decreased costs from economies of scale. Increase for STDC, SDC in consulting outside of LTP.</p> <p><b>Infrastructure/resources:</b> No change.</p> <p><b>Customer interaction:</b> Consistent messaging to communities.</p> <p><b>Risk:</b> Generally low except if one part of community wants different outcomes. Reducing risk to SDC/STDC as information available year prior to LTP.</p> <p><b>Opportunity:</b> Region wide consultation and ideas.</p>	Priority 1

**OBJECTIVE 3****LEADERSHIP AND INNOVATION**

<b>ISSUE ADDRESSED</b>	<b>REF</b>	<b>OPTION</b>	<b>TARGET GROUP</b>
Achieve higher rates of diversion of recyclables from residential refuse.	L1	Work together with waste service providers to provide options for diversion and reduce contamination in recycling. <sup>56</sup>	Res, M, C&I
	L2	Promote improved source separation and existing services.	Res, M, C&I
	L3	Consider initiatives that support the recycling of other waste streams.	Res, M, C&I
Reduce environmental harm and cost by diverting organic waste from landfill	L4	Promote/incentivise use of existing greenwaste providers.	Res
	L5	Implement bylaws, licensing and pricing to encourage diversion of greenwaste.	C&I

<sup>56</sup> For example, advocate for implementation of soft plastic recycling scheme/s (or container deposit schemes).



<b>LEADERSHIP AND INNOVATION</b>	
<b>ASSESSMENT</b>	<b>PRIORITY</b>
<p><b>Value proposition:</b> Stakeholders want greater range of items recycled. Some options may not be as convenient as kerbside recycling. Required for MRF to run efficiently, minimise risk to workers and ensure product sells on market. Increased one-on-one if have increased resource to ‘coach’ residents about what to recycle.</p> <p><b>Cost/revenue:</b> New services likely to be provided by others. Requires ongoing targeted education / communications. Revenue from sale of commodities.</p> <p><b>Infrastructure/resources:</b> Staff resources will increase through audits, more face to face communications etc; advertising and bylaw implementation.</p> <p><b>Customer interaction:</b> High through targeted and relevant communication</p> <p><b>Risk:</b> Yes. Schemes usually rolled out to major centres initially. Risk of high contamination resulting in the end of the programme in the region. That investment does not produce desired change. Risk of limited market for new waste stream that is diverted (e.g. polystyrene).</p> <p><b>Opportunity:</b> Align with other regions. Use existing markets, social media, expos and recycling pick-up days to deliver message.</p>	Priority 1
<p><b>Value proposition:</b> Stakeholders want opportunities to divert waste and reduce costs. Requires thought and time by users. Achieves goals of reuse, recycle.</p> <p><b>Cost/revenue:</b> Requires targeted education and mass communication.</p> <p><b>Infrastructure/resources:</b> Staff resources.</p> <p><b>Customer interaction:</b> Targeted communication to communicate and indirect via social media.</p> <p><b>Risk:</b> That investment does not produce desired change.</p> <p><b>Opportunity:</b> Utilise existing media platforms.</p>	Priority 2
<p><b>Value proposition:</b> Stakeholders want opportunities to divert waste and reduce costs. Achieves goals of reuse, recycle. Would need to be free for user to maximise use.</p> <p><b>Cost/revenue:</b> Dependent on item and market. Could also cost Council more time to record info and deal with product/s not necessarily included in contract.</p> <p><b>Infrastructure/resources:</b> H&amp;S provision located at transfer stations. Contract management with recycler and transfer station. Data collection by transfer stations.</p> <p>Customer interaction: Low.</p> <p><b>Risk:</b> Recycling markets are volatile. Risk of subsidising a waste steam that does not reach new people who will recycle, where we end up subsidising those who are already recycling these items (e.g. used oil).</p> <p><b>Opportunity:</b> Respond to market opportunities.</p>	Priority 1
<p><b>Value proposition:</b> High demand for Council provided kerbside greenwaste collection. Expectation that this will be free. Priority waste stream. Supports existing businesses.</p> <p><b>Cost/revenue:</b> Incentives to include subsidy. Staff time and communications. Reduce problem waste to manage at landfill.</p> <p><b>Infrastructure/resources:</b> Low resources required.</p> <p><b>Customer interaction:</b> Low. Communications to residents. Relationship building with greenwaste providers.</p> <p><b>Risk:</b> Providers do not provide quality of service wanted by stakeholders.</p> <p><b>Opportunity:</b> Build businesses of existing waste service providers. Low requirement for Councils to invest/replicate infrastructure that is already in community.</p>	Priority 1
<p><b>Value proposition:</b> Will be effective in achieving diversion, if enforced. Will have negative (short term?) impact on waste service providers and users of service (especially if prices are high for waste disposal).</p> <p><b>Cost/revenue:</b> Intensive capital – legal input, staff resources. Could reduce cost of managing priority waste to landfill. Sorted waste, better data, reduce costs at end.</p> <p><b>Infrastructure/resources:</b> Staff resources and external professional/legal services review. Extensive consultation would be required to adopt new bylaw.</p> <p><b>Customer interaction:</b> High with service provider.</p> <p><b>Risk:</b> Insufficient staff resource to enforce bylaws. Service providers not adhering to bylaws. Need to ensure there is infrastructure in place to cater for changes to bylaws etc. (alternatives to landfill).</p> <p><b>Opportunity:</b> Link to review of waste bylaws and licensing.</p>	Priority 1

**LEADERSHIP AND INNOVATION**

<b>ISSUE ADDRESSED</b>	<b>REF</b>	<b>OPTION</b>	<b>TARGET GROUP</b>
	L6	Establish an organic waste processing facility targeting food waste and greenwaste collected from Council service (per option A5/A6) and/or commercial food waste collection	Res, C&I
Reduce potential environmental and personal harm, and improve aesthetics of community by reducing illegal dumping and littering. <sup>57</sup>	L7	Develop a comprehensive strategy to reduce illegal dumping and littering. <sup>58</sup>	ALL
	L8	Investigate improved recycling options in public places.	Res
	L9	Support clean up week – by promoting and providing free access to transfer station for clean-up week events. <sup>59</sup>	CG
	L10	Continue to provide a web form and phone line for the public to report illegal dumping.	ALL

<sup>57</sup> Including by freedom campers.<sup>58</sup> Including baseline data collection, regulation/enforcement, forensics, behaviour change strategies and landfill pricing triggers.<sup>59</sup> SDC provides free collection of rubbish bags at organised locations in Stratford.

<b>LEADERSHIP AND INNOVATION</b>	
<b>ASSESSMENT</b>	<b>PRIORITY</b>
<p><b>Value proposition:</b> Regional organic report recommended any new processing facility should focus on feedstock for residential/commercial food waste collection. Priority waste stream, high diversion potential.</p> <p><b>Cost/revenue:</b> High capital costs for infrastructure; Would require detailed feasibility study to identify appropriate technology and economic feasibility.</p> <p><b>Infrastructure/resources:</b> Feasibility study using external professional services. Staff resources for operational/contract management; infrastructure required will depend on technology chosen.</p> <p><b>Customer interaction:</b> Low – collection contractor; commercial customers.</p> <p><b>Risk:</b> Finding markets for end-product (high risk); competition with private waste service providers; economic viability; consent requirements and proximity to neighbours.</p> <p><b>Opportunity:</b> Land available at RRF for facility; Could be undertaken in collaboration with private industry. Provides alternative disposal point if banning organic waste from landfill through waste bylaw.</p>	
<p><b>Value proposition:</b> Strong desire to end illegal dumping and littering by public, contractors, charity stores, marine environment advocates. Will require collaborative approach between agencies. Implementation based on best practice and research likely to have more successful outcome. Implementation will address goal of reducing harm.</p> <p><b>Cost/revenue:</b> Research, forensics advice, consultation and strategy development. Implementation of strategy may include education, change of pricing, enforcement costs, and collection of dumping. Potential recovery of costs from offenders.</p> <p><b>Infrastructure/resources:</b> Strategy development – staff/external input. Implementation will require resources and potentially infrastructure.</p> <p><b>Customer interaction:</b> High between agencies involved. Moderate interaction with public as implemented (development of strategy may have less interaction).</p> <p><b>Risk:</b> Strategy development is low risk. Risk of agencies not having resources to contribute to strategy development. Limited budget/resources for implementation of findings. Due to number of agencies (and teams within agencies) there is a risk of low agency engagement – need to have a ‘driver’ within each agency. Difficult to engage with ‘dumpers’ community.</p> <p><b>Opportunity:</b> Link to existing research. National discussion around service provision for freedom campers.</p>	Priority 1
<p><b>Value proposition:</b> Provides consistent messaging and a service similar to home. Community have requested more public place recycling.</p> <p><b>Cost/revenue:</b> Capital cost of bins, collection and disposal of waste (might end up with more waste collected for some areas).</p> <p><b>Infrastructure/resources:</b> Bins and collection contract. Could include ‘Waste stations’ rather than just having litter bins. Can use a consistent message aligned to kerbside brand.</p> <p><b>Customer interaction:</b> Moderate.</p> <p><b>Risk:</b> Could attract dumping near bins. Could be greater potential for contamination of recycling bins.</p> <p><b>Opportunity:</b> Could incorporate servicing of bins into next regional collection contract to get better economies of scale (currently is separate contracts run by different council teams. Opportunity to support behaviour change. Alternative funding may be available.</p>	Priority 2
<p><b>Value proposition:</b> Existing event coordinated at a national level. Encourages local community to pick up rubbish (and potentially not drop rubbish).</p> <p><b>Cost/revenue:</b> Providing free disposal would come at a cost to Council (currently less than \$2,000 per year).</p> <p><b>Infrastructure/resources:</b> Social media posts. Communication with transfer stations. SDC coordinates location of events so there is no double up. Disposal at RTS. H&amp;S (traffic management plans).</p> <p><b>Customer interaction:</b> Low.</p> <p><b>Risk:</b> More collections happening outside of week. Health and safety.</p> <p><b>Opportunity:</b> Leverages of national campaign.</p>	Status quo
<p><b>Value proposition:</b> Easy for public to record dumped rubbish. NPDC coordinates contacting correct agency to organise collection.</p> <p><b>Cost/revenue:</b> Minor costs for managing, covered by existing budgets. Collection covered by existing contracts.</p> <p><b>Infrastructure/resources:</b> Web form, phone line connected to NPDC call centre. Requires resources in each agency to respond – within existing budgets but would need to have more resource to manage consistently well.</p> <p><b>Customer interaction:</b> One-way to Council via social media or call centre.</p> <p><b>Risk:</b> Trust that responsible agency will respond.</p> <p><b>Opportunity:</b> Community vigilance.</p>	Status quo

**LEADERSHIP AND INNOVATION**

<b>ISSUE ADDRESSED</b>	<b>REF</b>	<b>OPTION</b>	<b>TARGET GROUP</b>
"Walk the Talk"	L11	Develop an in-house waste strategy for each Council, identifying all waste streams and plan for reducing or diverting these. <sup>60</sup>	Int
Aggregate commercial and industrial wastes to access diversion markets.	L12	Investigate options for aggregating C&I waste to maximise diversion, including a C&I Materials Recovery Facility.	C&I
	L13	Provide a Materials Recovery Facility that diverts C&D and other commercial and industrial wastes.	C&I
Facilitate local diversion and disposal options for the C& I sector.	L14	Employ a Commercial Waste Minimisation Officer.	C&I
	L15	Establish and administer information portal for commercial and industrial sector. <sup>61</sup>	C&I
	L16	Consider alternative technologies for processing of waste for commercial sector.	C&I

<sup>60</sup> Including waste generation at facilities, model contract clauses, procurement and systems, strategy to reduce, separate and divert, reviewing policy for opportunities to increase use of recycled goods.

<sup>61</sup> Could include: Research/resources/mentoring, networking/interactive trading portal/Council communications, e.g. new landfill/contract clauses/funding info/link to other providers/experts, e.g. back loading (find a truck), 'Find a tradie'/pooling of waste/personal online recycling coach/regulation advisor/sign-in access. Option for networking forum.

<b>LEADERSHIP AND INNOVATION</b>	
<b>ASSESSMENT</b>	<b>PRIORITY</b>
<p><b>Value proposition:</b> Shows leadership, models good behavior and makes it easier for other organisations. Education tool. Low collaboration. Reduces waste to landfill.</p> <p><b>Cost/revenue:</b> Staff cost, could lead to more expensive goods and processes; Contract cost. Could have infrastructure costs. Can be savings in reduced waste to landfill. No revenue opportunities.</p> <p><b>Infrastructure/resources:</b> Could have infrastructure. Staff resource to develop strategy and implement.</p> <p><b>Customer interaction:</b> In-house customers. Community facilities could be high.</p> <p><b>Risk:</b> Cost may outweigh benefit.</p> <p><b>Opportunity:</b> With other organisations</p>	Priority 1
<p><b>Value proposition:</b> Well aligned to customer needs. Strong collaboration. Building relationships. Should lead to reduction in waste or harm (outcome of investigation).</p> <p><b>Cost/revenue:</b> Contractor costs. Potential for business to invest in study.</p> <p><b>Infrastructure/resources:</b> No infrastructure initially. Professional services required (cost unquantifiable at this stage).</p> <p><b>Customer interaction:</b> Strong. Research will engage customers.</p> <p><b>Risk:</b> Feasibility study could be outdated due to change of technology. Could lead to demand by community for investment. May identify low value / high cost in proceeding.</p> <p><b>Opportunity:</b> May identify new options.</p>	Priority 1
<p><b>Value proposition:</b> Well aligned to Customer needs (if \$110/tonne). Strong network effects and synergies.</p> <p><b>Cost/revenue:</b> Poor profit margin – risk. Unpredictable export market. Reliable waste streams. Diverse revenue streams.</p> <p><b>Infrastructure/resources:</b> High capital investment. Monopoly.</p> <p><b>Customer interaction:</b> Good customer segment. Customer channels need developing.</p> <p><b>Risk:</b> Threat of disruptive technologies. Feasibility study required. Private providers.</p> <p><b>Opportunity:</b> Economies of scale. Development of information portal. Retain businesses in region.</p>	
<p><b>Value proposition:</b> Yes – C&amp;I want knowledgeable person. Would be collaborating with business. Address goals.</p> <p><b>Cost/revenue:</b> One senior FTE and overheads. No existing resource. Savings by landfill disposal. Potential for commercial funding.</p> <p><b>Infrastructure/resources:</b> Staff.</p> <p><b>Customer interaction:</b> High.</p> <p><b>Risk:</b> Facilitation role means generally low risk.</p> <p><b>Opportunity:</b> Opportunity to link and build on other activities and services. Sharing information.</p>	Priority 1
<p><b>Value proposition:</b> Collaboration, C&amp;I want better info and pool resources. Indirect to reduce waste. Targets those that want to reduce waste.</p> <p><b>Cost/revenue:</b> Software development and management. Staff to administer (could link to commercial WMO). Potential for commercial funding (advertising sales).</p> <p><b>Infrastructure/resources:</b> Software and who would manage.</p> <p><b>Customer interaction:</b> High for those engaging in portal.</p> <p><b>Risk:</b> Risk of low level of use. Infrequent use. High up front then decline.</p> <p><b>Opportunity:</b> Forum for Council wanting to consult. Data collection. Link to other C&amp;I initiatives.</p>	Priority 2
<p><b>Value proposition:</b> Politically this has been a focus. Aligned – desire for zero waste to landfill.</p> <p><b>Cost/revenue:</b> Feasibility study.</p> <p><b>Infrastructure/resources:</b> External consultant. Staff time. Research.</p> <p><b>Customer interaction:</b> Low. Potential suppliers and users.</p> <p><b>Risk:</b> Yes low but may raise expectations.</p> <p><b>Opportunity:</b> Could identify local solutions. `</p>	Priority 2

**LEADERSHIP AND INNOVATION**

<b>ISSUE ADDRESSED</b>	<b>REF</b>	<b>OPTION</b>	<b>TARGET GROUP</b>
Reduce Construction and Demolition Waste by:	L17	Design the new Colson Road refuse transfer station to maximise recovery of reusable and recyclable goods from rubbish pit (NPDC only).	C&I
	L18	Incentivise operator staff to divert materials in general refuse where possible (at all transfer stations).	C&I
Develop and implement effective and efficient policy and practices based on quality data to support our goals.	L19	Align data collection to National Waste Data Framework.	Int
	L20	Monitor success of waste minimisation programmes through waste disposal records, SWAP, and customer surveys.	ALL
	L21	Engage with rural community to identify waste behaviours, gaps in service and customer satisfaction.	ALL
	L22	Understand economic liability of waste in the future including considering alternative technologies.	Int

<b>LEADERSHIP AND INNOVATION</b>	
<b>ASSESSMENT</b>	<b>PRIORITY</b>
<p><b>Value proposition:</b> Customers not satisfied with current transfer station design. Current infrastructure does not facilitate recovery. Will reduce waste to landfill (see diversion potential in SWAP). Building reputation.</p> <p><b>Cost/revenue:</b> Part of detailed design already budgeted for (\$2m). Some staff time to determine design achieves this objective during project. Revenue for contractor.</p> <p><b>Infrastructure/resources:</b> Already planned for.</p> <p><b>Customer interaction:</b> Enhanced customer interaction.</p> <p><b>Risk:</b> Potential H&amp;S risk in pulling out wastes; to be considered as part of design. Markets changing – commodities of low value or nowhere to divert to. Could be outside of scope of what already tendered for.</p> <p><b>Opportunity:</b> About to build new transfer station. Responsive to changing markets. Link to community reuse and recycle centre and Colson Road Hub.</p>	Priority 1
<p><b>Value proposition:</b> Contractor saves (NP RTS). Enhance waste recycle. Council driven.</p> <p><b>Cost/revenue:</b> Investigation low. In-house. May require contract variation to implement.</p> <p><b>Infrastructure/resources:</b> Staff time to investigate. Have SWAP findings; may require modification to infrastructure.</p> <p><b>Customer interaction:</b> Low.</p> <p><b>Risk:</b> Investigation low. Could raise H&amp;S risks in implementation – may be high cost in relation to designing infrastructure to eliminate health and safety risk.</p> <p><b>Opportunity:</b> Audit shows potential for diversion.</p>	
<p><b>Value proposition:</b> Aligned to other territorial authorities and national data set. Framework developed in collaboration with other councils.</p> <p><b>Cost/revenue:</b> Some data already collated. Bylaws to collect data need to be enacted. Some additional staff time to make consistent. May need to invest in dedicated software.</p> <p><b>Infrastructure/resources:</b> No infrastructure required.</p> <p><b>Customer interaction:</b> Low.</p> <p><b>Risk:</b> Confidentiality of data to be maintained.</p> <p><b>Opportunity:</b> Regionally consistent bylaws to gather data.</p>	Priority 2
<p><b>Value proposition:</b> Programmes based on proven success. Financially prudent. Decisions for future investment based on fact.</p> <p><b>Cost/revenue:</b> SWAP already undertaken six yearly. Surveys and data review require staff time to administer.</p> <p><b>Infrastructure/resources:</b> No infrastructure required. May need to invest in dedicated software.</p> <p><b>Customer interaction:</b> Low – survey only.</p> <p><b>Risk:</b> Poor response on surveys.</p> <p><b>Opportunity:</b> Can inform future programmes based on success factors identified in monitoring.</p>	Status quo
<p><b>Value proposition:</b> Not a high demand or awareness of issues in rural waste sector. Potential for high harm to environment.</p> <p><b>Cost/revenue:</b> Low cost as would be feasibility study only. May be some recommendations to implement.</p> <p><b>Infrastructure/resources:</b> Professional services for survey/consultation, consultation with rural communities, including dairy, lifestyle owners, Maori. Would need to be independent of Councils.</p> <p><b>Customer interaction:</b> High with rural community.</p> <p><b>Risk:</b> May raise expectations. Community may not engage with Council. Needs may not be achievable.</p> <p><b>Opportunity:</b> Quantify issues and use data to maximise rural services needed.</p>	Priority 2
<p><b>Value proposition:</b> Long term strategic and financial planning. Achieving zero waste.</p> <p><b>Cost/revenue:</b> Consultant or in-house staff costs.</p> <p><b>Infrastructure/resources:</b> No infrastructure required.</p> <p><b>Customer interaction:</b> Low.</p> <p><b>Risk:</b> Low risk. Reduces risk by understanding long term implications of waste. New technologies and social expectations constantly changing.</p> <p><b>Opportunity:</b> New technologies. Feed into future planning documents.</p>	Priority 1

**OBJECTIVE 4****ACCESSIBLE SERVICES**

<b>ISSUE ADDRESSED</b>	<b>REF</b>	<b>OPTION</b>	<b>TARGET GROUP</b>
Increase reuse of resources.	A1	Develop a community reuse and recycle centre within the Resource Recovery Facility at Colson Road (NPDC).	Res, M, CG
Enhance recycling diversion rates for those who do not receive Council provided kerbside collection service.	A2	Review accessibility of transfer station locations and allowance for future demand in order to reduce illegal dumping and improve diversion.	Res, C&I
	A3	Review infrastructure and customer experience provided at transfer stations to improve recycling and diversion of recyclable waste. <sup>62</sup>	Res, M, C&I
Facilitate local diversion and disposal options for the C&I sector.	A4	Provide commercial access to Material Recovery Facility.	C&I

<sup>62</sup> Including accessibility by all of community including rural community, elderly, people with disabilities.



<b>ACCESSIBLE SERVICES</b>	
<b>ASSESSMENT</b>	<b>PRIORITY</b>
<p><b>Value proposition:</b> Stakeholders want opportunity to divert goods and reduce cost of refuse. Reuse / recycle of goods. Community-run service. Education to be delivered as part of service.</p> <p><b>Cost/revenue:</b> Cost in existing budget. Revenue from sales.</p> <p><b>Infrastructure/resources:</b> Infrastructure development budgeted for. Additional staff resource to manage contract.</p> <p><b>Customer interaction:</b> High between community-run service and users of service.</p> <p><b>Risk:</b> Public may not use, may not be able to find homes for goods.</p> <p><b>Opportunity:</b> Significant education opportunities. Aligned with new transfer station.</p>	Priority 1
<p><b>Value proposition:</b> May improve rates of correct waste disposal. Needed by localised rural communities.</p> <p><b>Cost/revenue:</b> Cost- May require new or upgrade of transfer stations. Likely to be planned over multiple long term plans and will be dependent on waste volumes/use of each TS. Revenue- selling of commodities. User fees for rubbish.</p> <p><b>Infrastructure/resources:</b> Mapping against population projections. Review best practice. Infrastructure development.</p> <p><b>Customer interaction:</b> Transfer station operators. Users of facilities.</p> <p><b>Risk:</b> Initial stage involves data collection. Changes based on data. Need to also consider H&amp;S requirements. Difficult to find locations if new RTS required.</p> <p><b>Opportunity:</b> Could feed diverted product to RRF community reuse and recycle centre.</p>	Priority 2
<p><b>Value proposition:</b> Public has raised dissatisfaction with current transfer station recycling layout. Improvements will be made in collaboration with contractors.</p> <p><b>Cost/revenue:</b> Cost- transfer station survey and accessibility audit. Infrastructure upgrades. Revenue- selling of commodities/reusable items.</p> <p><b>Infrastructure/resources:</b> Staff/external- survey and design. Consult with range of communities that use facilities. Infrastructure upgrades- may be able to improve customer experience at rural TS's without significant capital input. High infrastructure requirement in NP (already budgeted).</p> <p><b>Customer interaction:</b> Customer surveys. Community use high for NPTS and localised in rural communities.</p> <p><b>Risk:</b> Survey may raise expectations. Improvements may not achieve higher rates of diversion.</p> <p><b>Opportunity:</b> New transfer station at Colson Road. Positive experience for our customers leading to more diversion.</p>	Priority 1
<p><b>Value proposition:</b> Aligns to stakeholders needs. Service agreements with MRF provider. Divert more waste.</p> <p><b>Cost/revenue:</b> Revenue generated by sale of commodity. Reduce processing cost. Slight increase in staff to administer service agreement. Additional cost may occur if commodity price low or if exceed capacity of MRF and require additional staff.</p> <p><b>Infrastructure/resources:</b> No additional infrastructure. Could long term require additional processing capacity to run MRF.</p> <p><b>Customer interaction:</b> Indirectly through waste service providers.</p> <p><b>Risk:</b> Higher contamination. NPDC takes on risk of commodity market changes</p> <p><b>Opportunity:</b> Expands service available to all waste service providers. Cross district waste movements – origin of waste.</p>	Priority 1

**ACCESSIBLE SERVICES**

<b>ISSUE ADDRESSED</b>	<b>REF</b>	<b>OPTION</b>	<b>TARGET GROUP</b>
Reduce environmental harm and make reducing organic waste easy to residents.	A5	Provide a kerbside organic waste collection <sup>63</sup> (NPDC/SDC).	Res
	A6	Provide a weekly kerbside food waste collection (NPDC).	Res
	A7	Extend the kerbside collection area into rural areas/CBD (NPDC).	Res, C&I
Respond to customer requests.	A8	Replace kerbside refuse bags with bins (NPDC).	Res

<sup>63</sup> South Taranaki provides this service currently. The fortnightly service is voluntary and is available after the purchase of a greenwaste sticker. Food waste can also be added in small quantities. Could be implemented in conjunction with a fortnightly waste collection if foodwaste is included.

<b>ACCESSIBLE SERVICES</b>	
<b>ASSESSMENT</b>	<b>PRIORITY</b>
<p><b>Value proposition:</b> High demand from part of community for Council provided kerbside greenwaste collection. Priority waste stream. Expectation that this will be free.</p> <p><b>Cost/revenue:</b> High set up costs and ongoing costs. User pays through targeted rate. Potentially sale of compost. May be a reduced cost of waste to landfill.</p> <p><b>Infrastructure/resources:</b> Bins, collection vehicles, processing. Staff time for implementation and increased staff time for ongoing management.</p> <p><b>Customer interaction:</b> Moderate</p> <p><b>Risk:</b> Contamination. Residents choose not to take up service due to fee (if opt in service). Service already exists in private sector. Would be competition to existing providers. SWAP indicates low greenwaste volumes (NPDC).</p> <p><b>Opportunity:</b> SDC audit shows 39% greenwaste in kerbside bins. Less opportunity for NPDC if greenwaste only.</p>	Priority 1
<p><b>Value proposition:</b> Stakeholders want opportunity to divert waste and reduce cost. Priority waste stream. Would require separation at source.</p> <p><b>Cost/revenue:</b> High set up costs and ongoing costs. User pays through targeted rate. Reduced cost of waste to landfill and reduced frequency of waste collection (fortnightly).</p> <p><b>Infrastructure/resources:</b> Bins, collection vehicles, processing. Staff time for implementation and increased staff time for ongoing management.</p> <p><b>Customer interaction:</b> Moderate to high as would be provided to all residents.</p> <p><b>Risk:</b> Contamination. Not well tested in NZ yet. Customer acceptance.</p> <p><b>Opportunity:</b> More efficient processing of organic waste if food waste is collected separately.</p>	
<p><b>Value proposition:</b> Rural lifestyle blocks and businesses have requested extending the kerbside collection area. Ease of use. Quality service for those in collection area. Would increase correct disposal of waste and higher rates of diversion.</p> <p><b>Cost/revenue:</b> Cost – survey to determine value and willingness to pay. Implementation would require variation in contract. Cost likely to be similar to current rate per HH. Would require change to LTP &amp; related consultation.</p> <p><b>Revenue:</b> Targeted rates.</p> <p><b>Infrastructure/resources:</b> Staff/external for survey study. Implementation will require bins but minimal staff time following implementation. Change would need to be incorporated into LTP.</p> <p><b>Customer interaction:</b> Survey with public. Interaction high with those in proposed extension areas.</p> <p><b>Risk:</b> Study will raise expectation. Increased level of service.</p> <p><b>Opportunity:</b> Greater opportunity to divert recyclables; also to provide a service to businesses.</p>	Priority 1
<p><b>Value proposition:</b> High demand from part of community. Public want less plastic bags in environment. Consistent service as rest of region. Ease of use. Health and safety for contractors. Will increase waste to landfill and bulky items including greenwaste.</p> <p><b>Cost/revenue:</b> Provision of bins. Change of collection trucks. Increase tonnage to landfill. No revenue from bag sales.</p> <p><b>Infrastructure/resources:</b> Bins and trucks. Variation to contract. Staff resource required for bin roll out but resource to administer contract unlikely to change.</p> <p><b>Customer interaction:</b> Education around change of service. High interaction as will be with all households in serviced area.</p> <p><b>Risk:</b> Risk of higher levels of waste to landfill and drop in recycling volumes. Bins limit the flexibility provided by bag system if you have high waste volume (i.e. can buy extra bags when required).</p> <p><b>Opportunity:</b> If implemented at same time as proposed greenwaste or food collection service, this could off-set potential increase in refuse through bin use.</p>	Priority 1

**ACCESSIBLE SERVICES**

<b>ISSUE ADDRESSED</b>	<b>REF</b>	<b>OPTION</b>	<b>TARGET GROUP</b>
Respond to customer requests.	A9	Undertake a feasibility study of an inorganics collection from households <sup>64</sup> (NPDC).	Res
Provide safe disposal of waste.	A10	Provide a kerbside waste and recycling collection service.	Res
	A11	Provide resource recovery facility and transfer station services including E-waste and hazardous waste drop-off.	Res
	A12	Provide a subsidy for e-waste recycling.	Res, C&I
	A13	Establish and operate a regional Class 1 landfill based on best practice.	Res, C&I

<sup>64</sup> Based on good practice, including limits on items and quantity of waste, booking system, reuse provision.

<b>ACCESSIBLE SERVICES</b>	
<b>ASSESSMENT</b>	<b>PRIORITY</b>
<p><b>Value proposition:</b> Some demand from public. Potentially reduce rate of illegal dumping of large residential items such as mattresses. Service could incorporate reuse. Feasibility study will include assessing risk.</p> <p><b>Cost/revenue:</b> Staff/external- feasibility study. High cost of developing booking system, collection and disposal. Could be user pays.</p> <p><b>Infrastructure/resources:</b> Booking system, bylaws and enforcement, contract for collection.</p> <p><b>Customer interaction:</b> Survey/communications.</p> <p><b>Risk:</b> Feasibility study low risk. May affect existing secondhand businesses (competition). Will affect the effectiveness of the community reuse and recycle centre. Other councils have moved away from providing this service due to cost.</p> <p><b>Opportunity:</b> Could be run by community group and also augment or link to the PGA area at RRF.</p>	Priority 2
<p><b>Value proposition:</b> Services required and expected by public and consenting authority. Reduce potential harm from waste.</p> <p><b>Cost/revenue:</b> Existing budget provides current level of service.</p> <p><b>Infrastructure/resources:</b> No significant changes required.</p> <p><b>Customer interaction:</b> Education and communications could be improved. Connects with whole residential community within serviced areas.</p> <p><b>Risk:</b> Risk managed.</p> <p><b>Opportunity:</b> Increasing diversion through ongoing education.</p>	Status quo
<p><b>Value proposition:</b> Services required and expected by public and consenting authority. Existing service that meets demand. Reduce potential harm from waste.</p> <p><b>Cost/revenue:</b> Provided within existing budgets. Low cost for Council (domestic volumes only). May need to increase if better promotion and increased use.</p> <p><b>Infrastructure/resources:</b> No significant changes required.</p> <p><b>Customer interaction:</b> TS customers; rural communities, commercial and residential communities.</p> <p><b>Risk:</b> Risk low.</p> <p><b>Opportunity:</b> Collection of waste that we do not collect with the kerbside collection service, e.g. hazardous waste, tyres, etc.</p>	Status quo
<p><b>Value proposition:</b> Stakeholders want opportunities to divert waste. Current subsidy requires user pays part. Reduces harmful waste at landfill. Current uptake is reasonable (increased since relocation to NPTS).</p> <p><b>Cost/revenue:</b> Number of units dropped-off equates to higher investment if subsidised. Potential to increase subsidy if funding allows. May reduce cost of managing waste at landfill.</p> <p><b>Infrastructure/resources:</b> Existing drop off located at some transfer stations in region. Contract management with collector and recycler. Data collection.</p> <p><b>Customer interaction:</b> Low (but likely higher with RRF community reuse and recycle centre)</p> <p><b>Risk:</b> Recycler not fulfilling contract (alternative recyclers are available); High quantities dropped off requiring higher investment by Council. Increasing costs of recycling may mean increased subsidy by Council. Trends in expensive items (CRT) is reducing so may get reduced requirement for subsidy on some items. Unknown number of e-waste items thrown away and unknown future projections which means budget could vary greatly (although could have a fixed number of subsidies: e.g. first 200 items are subsidised). STDC depends on a local business to collect e-waste.</p> <p><b>Opportunity:</b> Increasing turnover of electronic goods. This will move to RRF. Link with other services/ programmes, e.g. RE:MOBILE cellphone recycling and batteries.</p>	Status quo
<p><b>Value proposition:</b> Services required and expected by public and consenting authority. Reduce potential harm from waste.</p> <p><b>Cost/revenue:</b> Existing landfill to close. MOU for new landfill. Not rates funded (user fees).</p> <p><b>Infrastructure/resources:</b> New landfill required; high infrastructure requirement.</p> <p><b>Customer interaction:</b> Landfill customers; waste disposers (either directly or indirectly); industrial users.</p> <p><b>Risk:</b> Collaboration between three councils to reduce risk and cost. Risk of low use by commercial customers once Central is open (increased cost of transport). Significant sensitivity analysis has been completed around risk.</p> <p><b>Opportunity:</b> Collaboration; having a regional disposal option. Reduces potential for private monopoly.</p>	Status quo

**ACCESSIBLE SERVICES**

<b>ISSUE ADDRESSED</b>	<b>REF</b>	<b>OPTION</b>	<b>TARGET GROUP</b>
Reduce environmental harm from special wastes by:	A14	Publicise disposal or alternative recycling options for all categories of special wastes, including promotion of businesses and organisations in the region that take back or responsibly dispose of wastes generated or supplied by them.	Res, C&I
	A15	Advocate to manufacturers and suppliers of hazardous substances, for the dissemination of information on minimising adverse environment effects arising from the use of those substances.	Res, C&I

<b>ACCESSIBLE SERVICES</b>	
<b>ASSESSMENT</b>	<b>PRIORITY</b>
<p><b>Value proposition:</b> Stakeholders want to know what services are available for diversion. Collaborates with providers in the region. Achieves goals.</p> <p><b>Cost/revenue:</b> Low cost – communications, web site, social media. No revenue – potentially less cost for managing special wastes at landfill.</p> <p><b>Infrastructure/resources:</b> No infrastructure required. Existing websites and facebook and phone.</p> <p><b>Customer interaction:</b> Likely to be web based interaction with customers. Some phone contact.</p> <p><b>Risk:</b> Change of details and service offered by providers. Requires regular checking.</p> <p><b>Opportunity:</b> Link with developing businesses.</p>	Status quo
<p><b>Value proposition:</b> Allow stakeholders to dispose appropriately. Minimise environmental effects.</p> <p><b>Cost/revenue:</b> Low cost.</p> <p><b>Infrastructure/resources:</b> Existing resources.</p> <p><b>Customer interaction:</b> Low.</p> <p><b>Risk:</b> Low risk and reduces risk.</p> <p><b>Opportunity:</b> Establishing relationship with commercial sector.</p>	Priority 2





## 4.2 Statement of proposals

Drawing on the preferred options and the Council's intended role in meeting future demand, councils must:

1. Include a statement of the TA's proposals for meeting the forecast demands including proposals for new or replacement infrastructure.
2. A statement about the extent to which the proposals will:
  - a) Ensure that public health is adequately protected;
  - b) Promote effective and efficient waste management and minimisation.



Table 13 summarises the options that NPDC proposes for meeting the forecast demands on waste in the district. The highlighted cells denote the options that the Council propose to implement (subject to consultation and LTP)<sup>65</sup>. Priority 2 options will be implemented if staff and budgetary resources allow.

<sup>65</sup> If priority 1 options are implemented the status quo approach will be discontinued unless this is also highlighted.

TABLE 13: Preferred options

Objectives	Status Quo
<p><b><i>Behaviour change</i></b></p>	Undertake an annual public education programme and associated activities within current resources (BC1).
	Undertake, participate and fund regional and national research based on sustainable behaviour change practices and apply findings to waste minimisation and management programmes (BC4).
	Promote home composting utilising existing communication avenues and resources (BC6).
<p><b><i>Collaboration and Partnerships</i></b></p>	Adhoc waste levy distribution (CP1).
	Other support of organisations and businesses e.g. through awards, networking events, workshops, media, supporting recycling at events through use of bins and free recycling collection (CP3).
	Develop regionally consistent contracts, consistent messaging and bylaws, and supporting schemes that support our goals such as agrecovery agrichemical collections (CP5).

Priority 1	Priority 2	Council's Intended Role
Implement a targeted education programme which will result in behavior change that addresses the goals of the strategy (BC3).		The Council will develop, fund and deliver this programme. Educators outside of Council may also deliver the programme.
		The Council will fund and support these programmes.
Deliver home composting workshops and incentives (BC7).		The Council will develop, fund and deliver these workshops. Educators outside of Council may also deliver the programme.
Promoting the use of existing social media sites and facilities such as charity shops (BC5).		The Council will promote these services.

Contestable fund for waste levy (CP2).		The Council will develop a contestable fund and deliver. (Funds are from the waste levy.)
		The Council will facilitate, promote, fund and support initiatives.
Collaborate with others including schools, tertiary education providers and business to develop innovative solutions to waste challenges (CP4).		The Council will collaborate, facilitate and support others.
Provision of model contract clauses around waste management and minimisation and infrastructure (CP8).		The Council will develop and administer these clauses and schemes in collaboration with SDC and STDC.
Regionally align solid waste bylaws that will consider central landfill, contamination and reducing waste to landfill (CP7).		
Bring forward the Waste Plan cycle for STDC and SDC to be adopted in 2023 to align with NPDC and allow for a regional waste plan (CP9).		

Objectives	Status Quo
<p style="text-align: center;"><i>Leadership and Innovation</i></p>	<p>Support clean up week – by promoting and providing free waste disposal for clean-up week events (L9).</p>
	<p>Continue to provide a web form and phone line for the public to report illegal dumping (L10).</p>
	<p>Monitor success of waste minimisation programmes through waste disposal records, SWAP, and customer surveys (L20).</p>

Priority 1	Priority 2	Council's Intended Role
		The Council will provide free access to transfer station for waste collected as part of Clean-up week events.
Develop a comprehensive strategy to reduce illegal dumping and littering (L7).		The Council will provide the phone line, respond and fund the collection of dumping when in the Council jurisdiction, facilitate and fund the development of a strategy.
		The Council will collect and report on data.
Work together with waste service providers to provide options for diversion and reduce contamination in recycling (L1).		The Council will facilitate discussions and development of options and support implementation.
Consider initiatives that support the recycling of other waste streams (L3).		The Council will facilitate discussions and development of options and support implementation. Council may fund initiatives.
Implement bylaws, licensing and pricing to reduce greenwaste (L5).		The Council will review, implement and enforce.
Develop an in-house waste strategy for each Council, identifying all waste streams and plan for reducing or diverting these (L11).		The Council will develop strategy, fund and implement.
Provide a MRF that diverts C&D and other commercial wastes.		The Council will facilitate and/or build a MRF. There may also be collaboration with industry.
Investigate options for aggregating C & I waste to maximise diversion (L12).	Information portal for C& I sector (L15).	The Council will facilitate discussions and report.
Employ a commercial Waste Minimisation Officer (L14).		The Council will employ staff.
	Consider alternative technologies for processing of waste for commercial sector (L16).	The Council will research options and report.
Design the new Colson Road refuse transfer station to maximise recovery of reusable and recyclable goods from rubbish pit (L17).		The Council will design, build and administer contracts.
Understand economic liability of waste in the future including considering alternative technologies (L22).		The Council will research and report.
Align data collection to National waste data framework (L19).		The Council will collect and report on data.
	Engage with rural community to identify waste behaviours, gaps in service and customer satisfaction (L21).	The Council will research and report.

Objectives	Status Quo
<p style="text-align: center;"><i>Accessibility</i></p>	<p>Provide a kerbside collection service (A10).</p>
	<p>Provide resource recovery facility and transfer station services including e-waste and hazardous waste drop-off (A11).</p>
	<p>Provide a subsidy for e-waste recycling (A12).</p>
	<p>Establish and operate a regional Class 1 landfill based on best practice (A13).</p>
	<p>Publicise disposal or alternative recycling options for all categories of special wastes, including promotion of businesses and organisations in the region that take back or responsibly dispose of wastes generated or supplied by them (A14).</p>

Priority 1	Priority 2	Council's Intended Role
Extend the kerbside collection area into rural areas / CBD (A7).		The Council will provide a service, fund (through rates), and administer contracts.
	Provide a kerbside organic (green and food) waste collection to all residents in serviced area (A6).	The Council will provide a service, fund (through rates), and administer contracts.
	Review accessibility of transfer station locations and allowance for future demand(A2).	The Council will research, fund, publicise and administer contracts.
	Review infrastructure and customer experience provided at transfer stations to improve recycling and diversion of recyclable waste (A3).	
		The Council will fund a subsidy for selected items.
		The Council will collaborate with STDC and SDC to provide a regional landfill and fund (by user fees) and manage the landfill.
		The Council will publicise services.
Develop a Community Reuse and Recycle Centre within a Resource Recovery Facility located at Colson Road (A1).		The Council will design, build and administer contracts.
Commercial access to MRF (A4).		The Council will negotiate and administer contracts.

Tonkin and Taylor were commissioned to model some of the proposed waste management scenarios to identify likely impact on waste in the region<sup>66</sup>. Figure 41 illustrates differences between the modelled quantities of waste landfilled in 2020 for various scenarios for the Taranaki Region<sup>67</sup>. The grey line is the currently landfilled amount (2016) and the blue line is amount projected for 2020 with no change in current services and infrastructure.

This graph highlights that some scenarios have no impact on quantities of waste landfilled (i.e. the inorganic collection) or result in an increase in material to landfill. Extending the coverage of the collection system coverage has been modelled showing an increase in waste to landfill, as it may capture materials that are currently managed on site, e.g. food waste, farm dumps. However, there may be positive impacts through reducing the harm to the environment as a result of inappropriately dumped material in rural areas which is also consistent with the proposed goals. An extension into rural areas may also transfer waste from transfer stations to the NPDC collection and improve recycling. Similarly including the CBD would most likely transfer waste from commercial collections to the Council collection rather than increase the total waste to landfill, and may increase the recycling volumes from this sector.

The impact of organic waste collection and C&I or C&D waste sorting on landfill disposal volumes is much more significant and is related to these waste streams being a large component of the total waste to landfill.

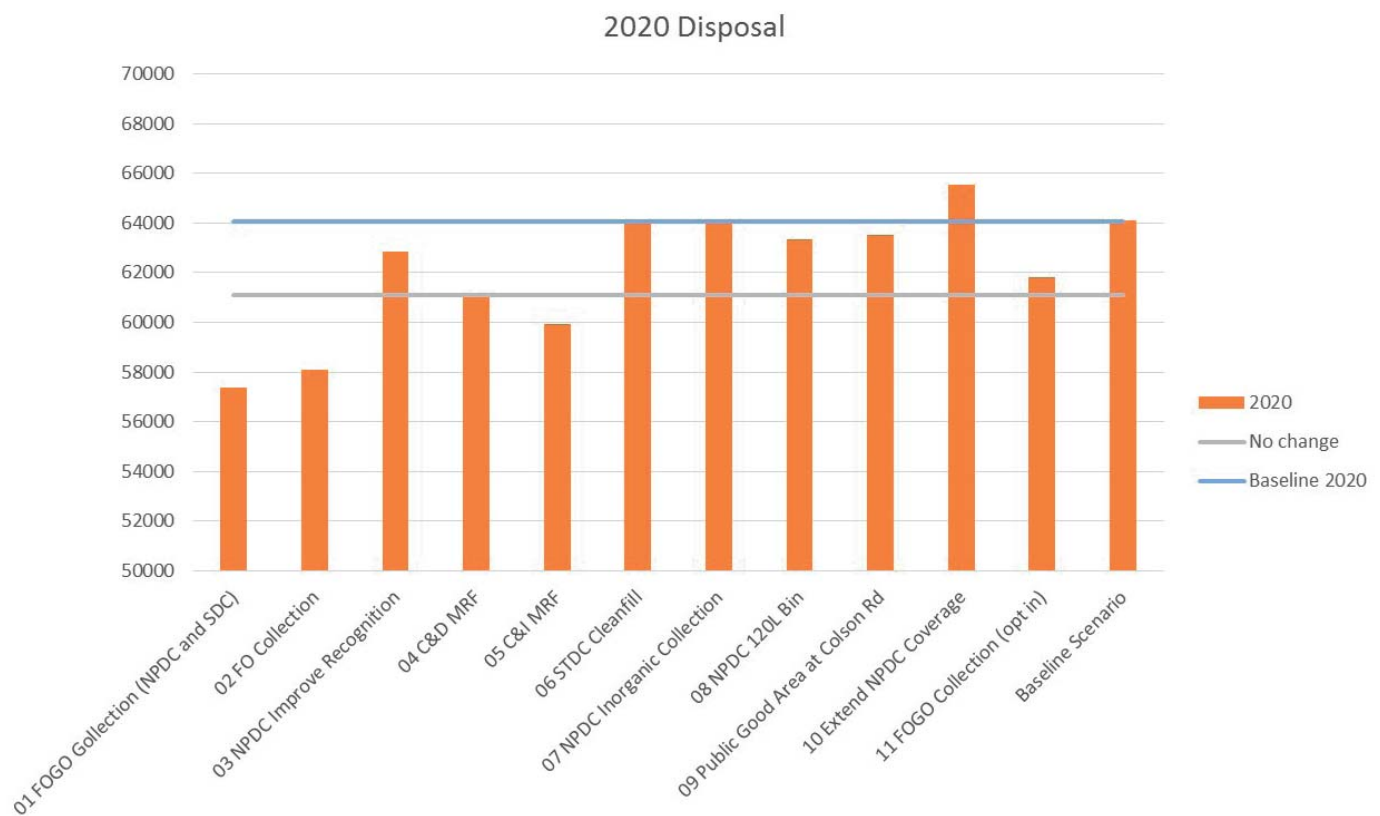


FIGURE 42: High level scenarios- quantity of waste landfilled (2020)<sup>68</sup>

<sup>66</sup> Tonkin and Taylor. 2017. Taranaki Regional Waste Modelling Summary Report. Prepared for New Plymouth District Council.

<sup>67</sup> Food and Green waste collection is abbreviated to FOGO, Food only collection to FO.

<sup>68</sup> Tonkin and Taylor. 2017. Taranaki Regional Waste Modelling Summary Report. Prepared for New Plymouth District Council.



The data presented in Figure 43 and Figure 44 represent a ‘best guess’ based on a range of parameters including various components of cost to Council, collection system and processing performance. With the likely cost of each option considered (Figure 43), the graph shows which options may be most cost effective and achieve the most diversion (i.e. the lower left hand part of the graph). Opt-in organic waste collection, a C&I MRF or C&D waste sorting offer good value for money i.e. low waste to landfill for relatively low cost to Council(s). The food waste and greenwaste collections, though more expensive, will have the greatest impact on reducing waste to landfill. A C&I MRF would be a relatively cost effective option that should also be investigated further.

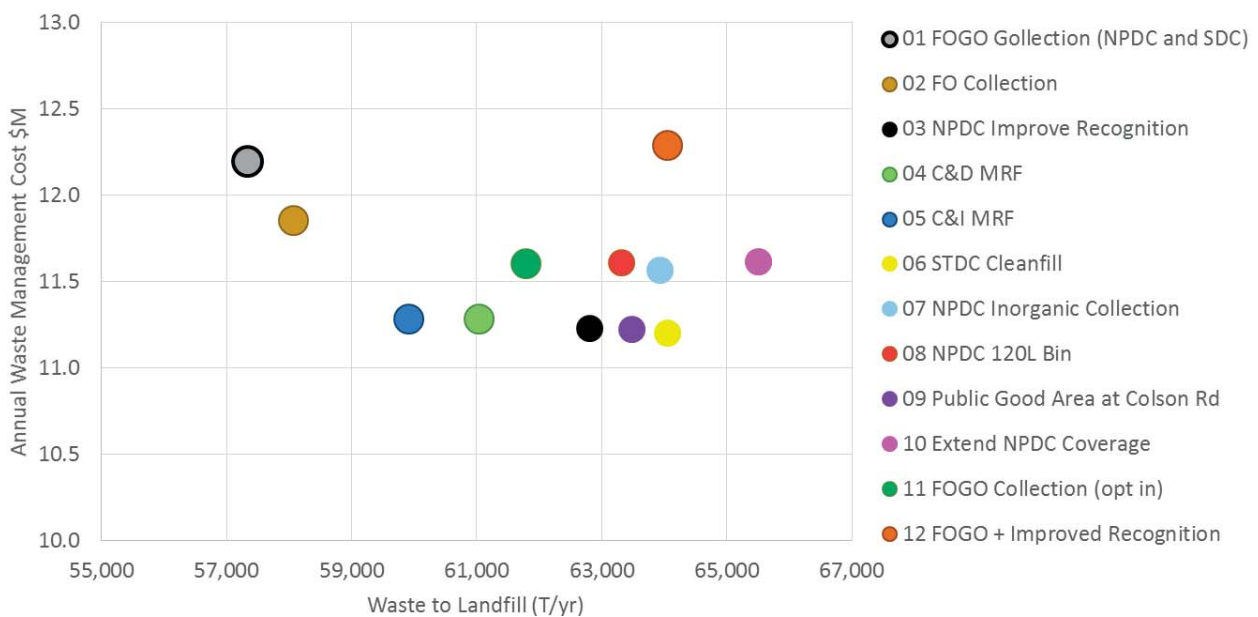


FIGURE 43: Scenarios- quantity of waste landfilled vs total system cost

For options that performed well in the initial analysis, further sensitivity analysis has been completed to look at the range of performance and costs that might be expected. This data suggests that the expected results (in the centre of the bubble) are different when uncertainty is taken into account and hence it is possible that costs and performance are similar for the organic waste collection options and C&I/C&D waste sorting options.

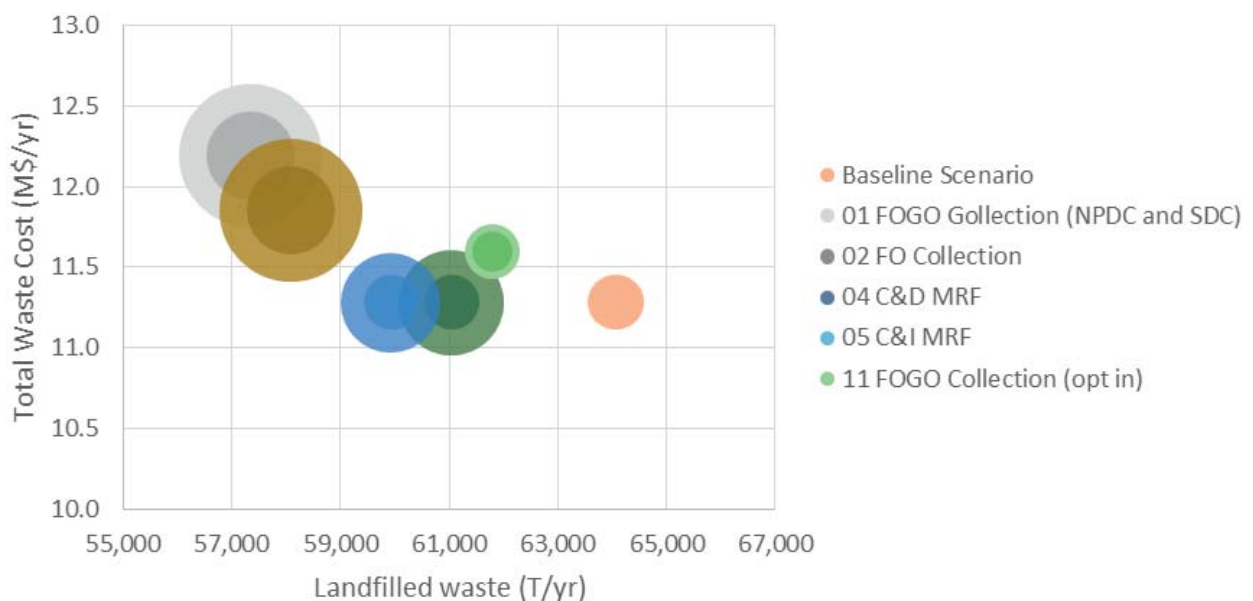


FIGURE 44: Indicative uncertainty of key waste management options<sup>69</sup>

<sup>69</sup> Tonkin and Taylor. 2017. Taranaki Regional Waste Modelling Summary Report. Prepared for New Plymouth District Council. Note: Darker bubble denotes uncertainty in landfilled waste, lighter bubble denotes uncertainty in total waste management cost.

Based on the modelling of individual options, potentially attractive combinations of options include food and green waste (FOGO) collection, education to improve recognition rates in the kerbside and transfer station recycling services and/or C&I sorting. Figure 45 illustrates modelling cost and performance for Food and Garden organics collection with education and then adds C&I Sorting.

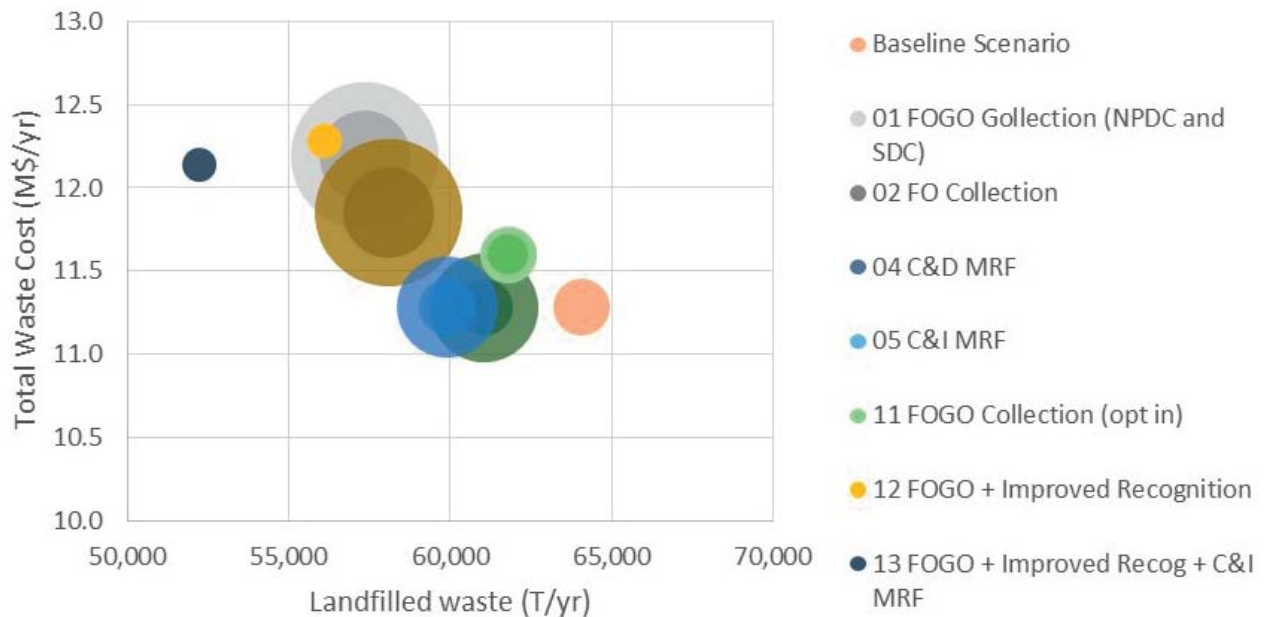


FIGURE 45: Selected combined scenarios

Several options are not attractive in the context of considering diversion from landfill and cost. However, these may be attractive based on local benefits, an increased level of service for the community or broader education and community engagement benefits. Examples include:

- Education. This has been modelled to some extent through the option of improved recognition (achieved through better education of service users increasing the amount of waste diverted into recycling or recovery). The impact of education on waste reduction is difficult to quantify without research based programmes that collect data on effectiveness. It is considered that effective education will have long term benefits for waste minimisation and as such research based programmes is considered a Priority 1 option.
- Developing a community reuse and recycle centre at the new Resource Recovery Facility. While the modelled benefits were minor (capture of recyclables/reusable material) many facilities of this type have demonstrated high diversion, a broader community benefit and education opportunities for the general public and schools. This benefit was not modelled in this assessment as it is difficult to quantify waste diversion as a result of behaviour change. Infrastructure that supports behaviour change will ensure that any programmes are more effective.
- Inorganic collection. While the modelled benefits were minor (capture of recyclables as part of the inorganic collection) there may be community demand for the service. Further analysis of this option may be beneficial in the future once the community reuse and recycle centre is well established (a priority 2 option).
- Move to 120L bins, instead of bags, for general refuse. A move to bins from bags is generally driven by a desire for a higher level of service and the safety benefits for collection staff. Neither of these benefits has been considered in this modelling assessment. However due to the community demand and improved health and safety, this option is currently identified as a priority. Further analysis of the impact of different bin sizes or collection frequency may reduce the impact on waste disposal.

## 4.2.1 Longer range forecast

Figures 46 to 48 present longer range forecasts for the proposed options and other significant options that could be considered in future WMMPs.

If the currently recommended options are implemented (Figure 46), forecast landfill disposal is likely to drop with the introduction of an food waste collection. Further step changes for bylaw implementation and a C&I MRF reduce waste close to 40,000 tonnes per year within the life of this plan.

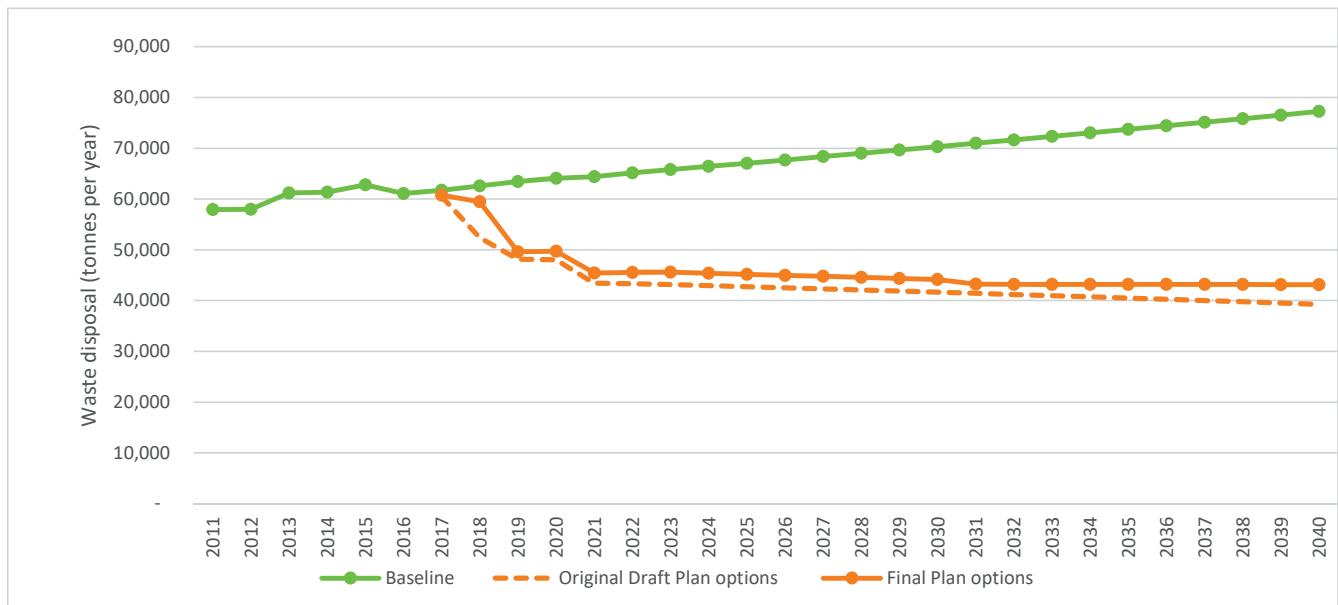


FIGURE 46: Long range forecast of waste to landfill based on proposed options

If slightly different combinations of options were implemented, within the life of the Waste Management and Minimisation Plan (2017-2023) a range of impacts on waste to landfill could occur (Figure 47). Only implementing a targeted behaviour change programme (with no other proposed options) would likely keep waste disposal to landfill around 60,000 tonnes per year, combating forecast growth increases.

To move towards a zero waste vision, further time would be required to investigate additional infrastructure and is likely to involve implementation of locally based alternative technology (assumed to be 30% reduction in Figure 48) as well as policy changes at the national level (e.g. mandatory product stewardship) to see a material reduction in waste to landfill. These forecasts are very arbitrary and would require further research and modelling to determine a more realistic waste reduction and associated cost.

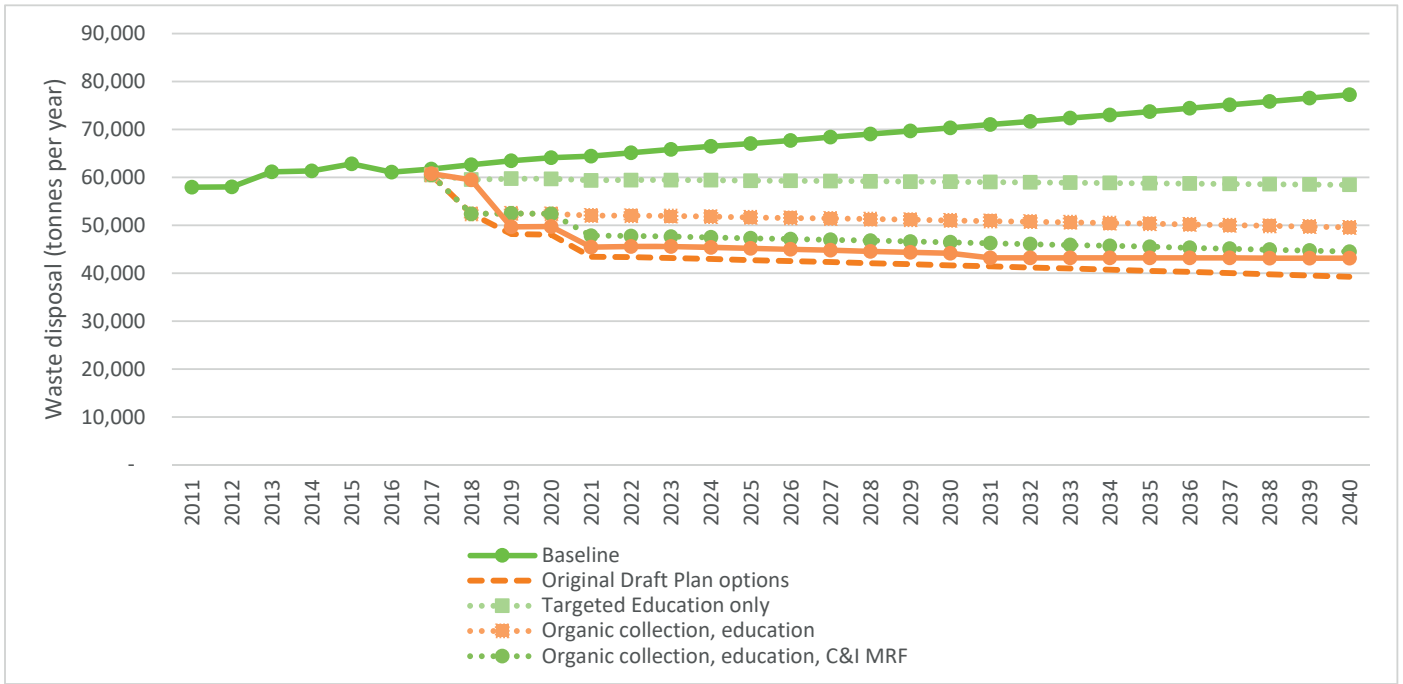


FIGURE 47: Long range forecast of waste to landfill separating options

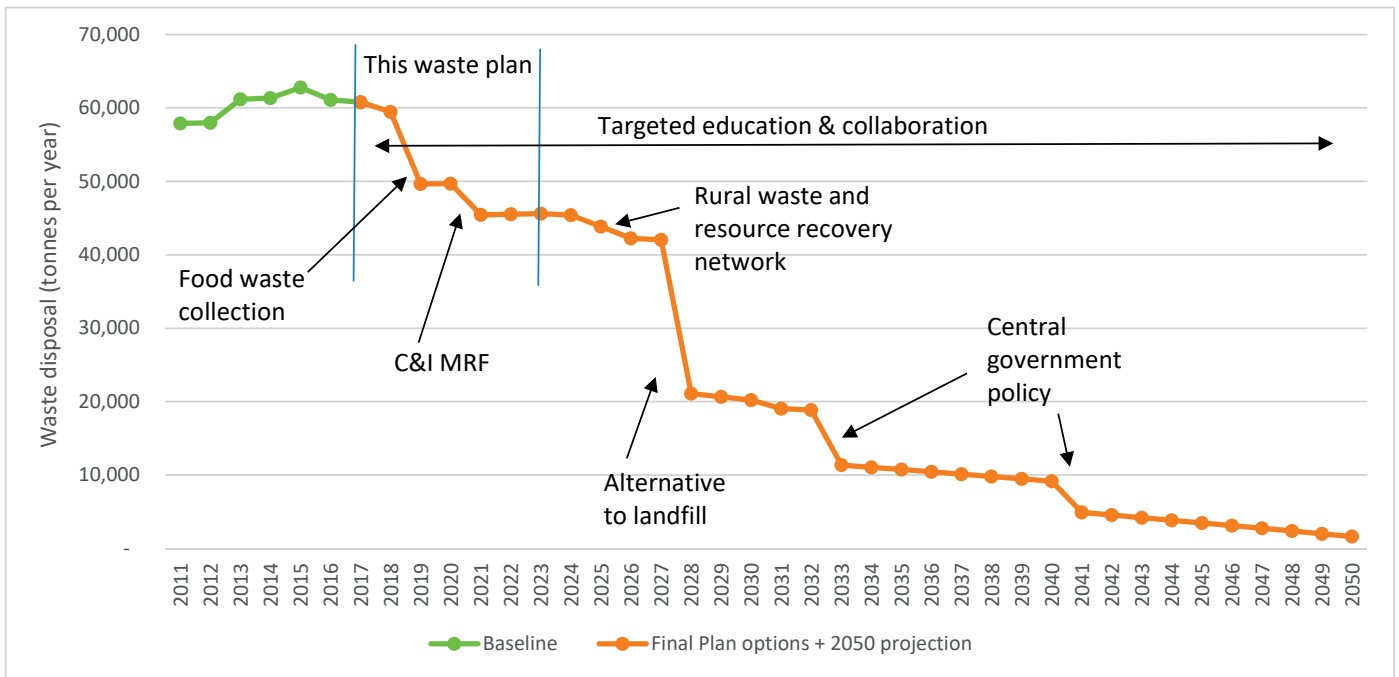


FIGURE 48: Potential long term waste reduction based on significant investment

## **4.3 The Council's intended role in meeting the forecast demands**

### **Statutory obligations**

The Council's statutory obligations in respect of the planning and provision of waste services are detailed in the previous section. The Council needs to ensure that the statutory obligations are met in the delivery of the WMMP.

### **Overall strategic direction and role**

The Council currently provides a significant proportion of the waste services in the district via a regional contract for kerbside and transfer station services, and another contract for landfill management. This ensures public health is adequately protected by providing facilities for the safe disposal of waste. This also gives effect to the WMA. In addition the Council provides and/or funds waste minimisation activities, including:

- Working with others including with community groups, the private sector and the other councils in the region to achieve waste management and minimisation goals.
- Distributing waste levy funds in support of waste management and minimisation goals.
- Educating the community as to the benefits of waste minimisation.
- Monitoring and measuring waste flows and information in order to inform planning and decision making. It is intended that Council will enforce bylaws to improve data to this effect.
- Research and considering implementation of new activities to divert waste from landfill.

It is intended that the Council will continue to build on these activities as outlined in Table 13.

## 4.4 *Medical Officer of Health statement*

Thank you for the opportunity for the Taranaki District Health Board Public Health Unit to comment on the draft New Plymouth District Council Waste Assessment 2017.

Our role is to look at the Assessment through a public health lens in order to improve, promote, and protect the health of the public. Health is defined as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” [World Health Organisation 1948].

Waste disposal and waste minimisation practices have a significant effect on the health of communities. Waste that is not properly disposed of can contaminate land, water and air. This can then be a physical health hazard for communicable disease, chemical poisoning or physical injury. There can also be adverse health effects for indigenous peoples such as Maori because of their relationship with the environment as well as the impact on traditional food sources.

Specific comments:

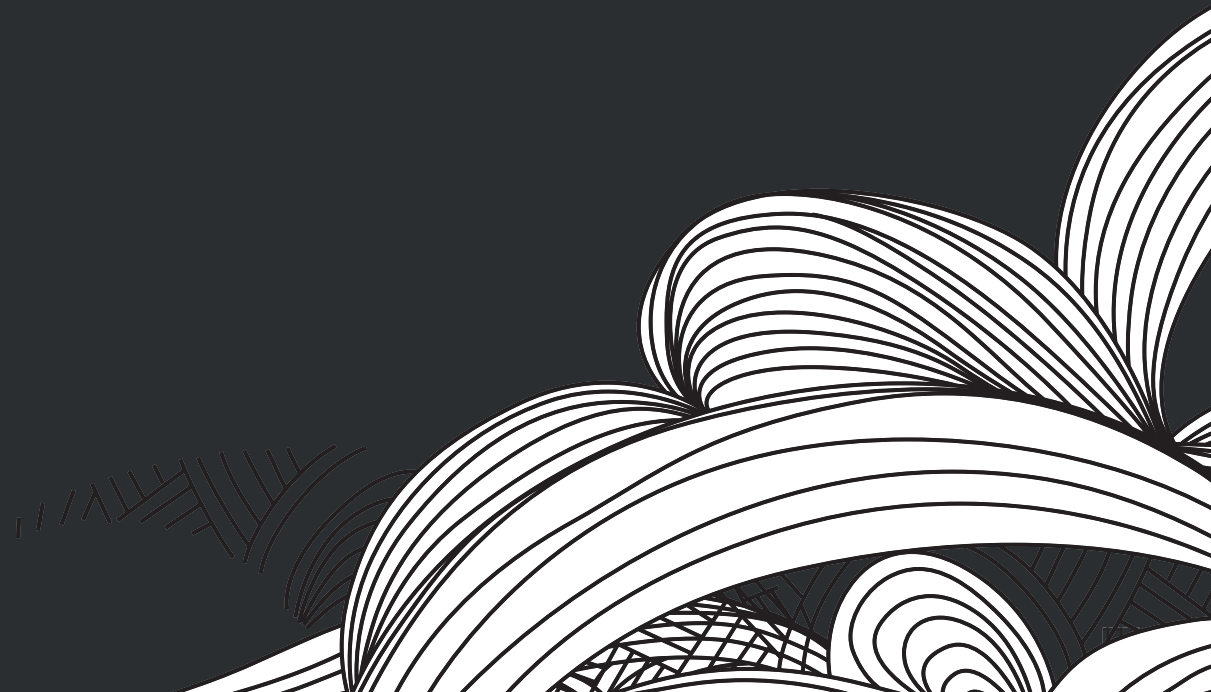
- We believe that the report is comprehensive and that the public health risk is low in most areas.
- The process as a whole is well managed.
- We support the strategic direction and the aspirational vision of “zero waste”.
- We support transparency, community involvement (including Māori) and interagency collaboration for waste management processes where there are potential public health risks or significant community interest.
- We are unclear about the participation by Māori in decision-making processes or the inclusion of tikanga Maori in the statement of proposals both of which are necessary in our opinion to ensure the protection of the public health.
- We recommend that the New Plymouth District Council explores options where it is open to developing partnerships with tangata whenua which support sustainable development or which enable tangata whenua to co-manage natural resources.

Dr Jonathan Jarman  
Taranaki Medical Officer of Health/Public Health Physician

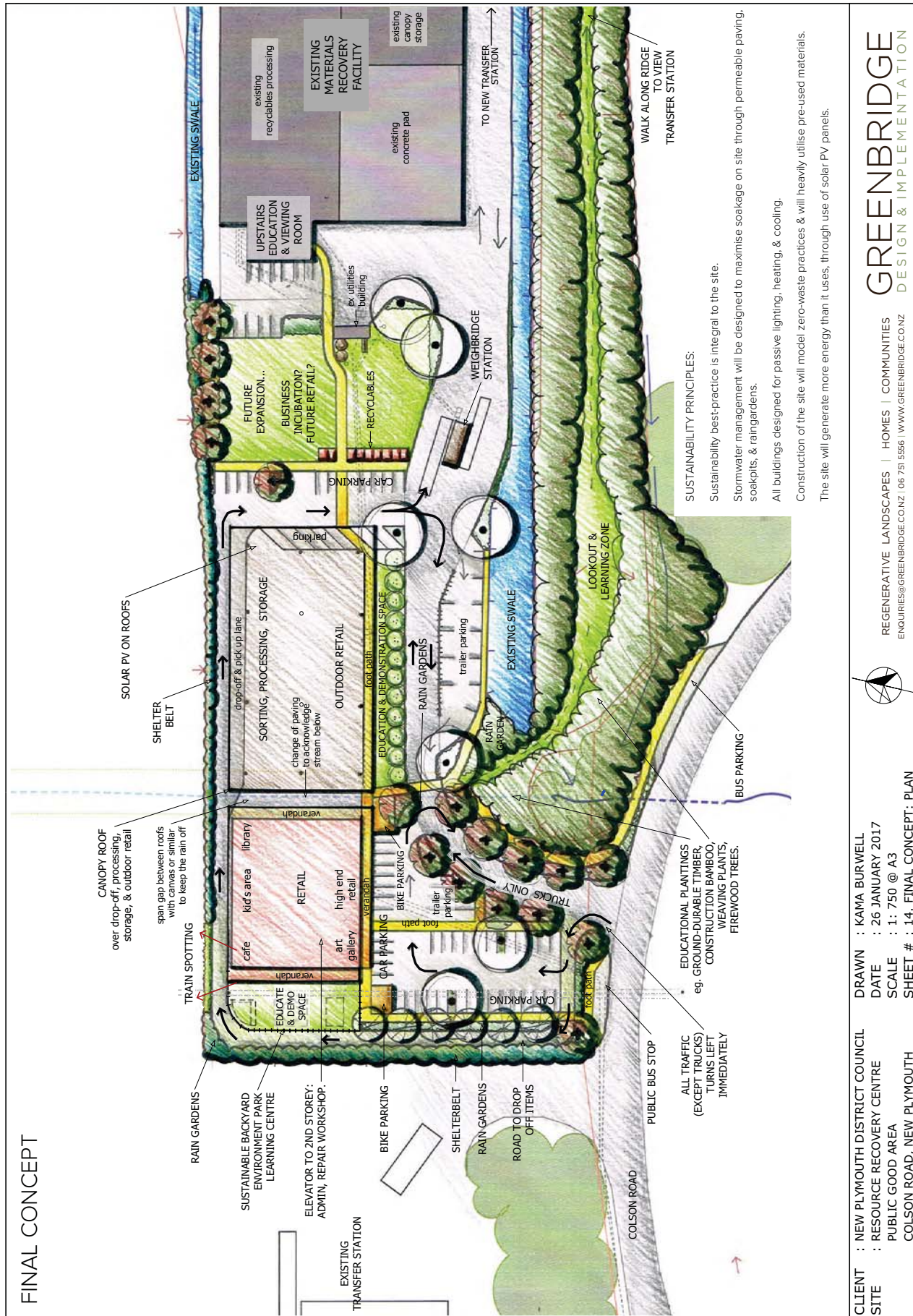
# *Appendices*

Appendix 1      Resource Recovery Facility concept design for  
community reuse and recycle centre

Appendix 2      Data tables



# Appendix 1: Resource Recovery Facility concept design for community reuse and recycle centre





## Appendix 2: Data tables

Overall waste compositions to Colson Road landfill- 29 August to 4 September 2016<sup>70</sup>

PRIMARY CATEGORY	% OF TOTAL	TONNES/WEEK
Paper	10.6%	89
Plastics	14.3%	121
Organics	22.7%	192
Ferrous metals	2.7%	23
Nonferrous metals	0.7%	6
Glass	2.9%	24
Textiles	5.7%	48
Sanitary paper	5.0%	42
Rubble	11.0%	93
Timber	16.0%	135
Rubber	2.8%	24
Potentially hazardous	5.6%	47
<b>TOTAL</b>	<b>100%</b>	<b>845</b>

New Plymouth RTS overall waste primary composition – 29 August to 4 September 2016<sup>71</sup>

	PROPORTION OF TOTAL	TONNES/WEEK
Paper	7.4%	19
Plastics	14.1%	36
Organics	14.9%	38
Ferrous metals	2.4%	6
Nonferrous metals	0.4%	1
Glass	2.0%	5
Textiles	5.1%	13
Sanitary paper	3.1%	8
Rubble	17.6%	45
Timber	30.6%	78
Rubber	1.6%	4
Potentially hazardous	0.8%	2
<b>TOTAL</b>	<b>100%</b>	<b>255</b>

<sup>70</sup> Waste Not Consulting. 2016. *Composition of Solid Waste in Taranaki Region, September 2016*.

<sup>71</sup> Waste Not Consulting. 2016. *Composition of Solid Waste in Taranaki Region, September 2016*.

New Plymouth RTS general waste primary composition by activity source – 29 August to 4 September 2016<sup>72</sup>

	<i>C&amp;D</i>	<i>ICI</i>	<i>LANDSCAPING</i>	<i>RESIDENTIAL</i>
Paper	2.5%	11.8%	1.0%	8.6%
Plastics	2.4%	28.6%	1.7%	9.3%
Organics	1.2%	8.5%	73.8%	14.7%
Ferrous metals	0.7%	2.3%	2.1%	6.1%
Nonferrous metals	-	0.5%	-	0.5%
Glass	0.7%	3.2%	0.1%	1.9%
Textiles	1.3%	7.2%	-	13.3%
Sanitary paper	-	6.0%	0.2%	1.2%
Rubble	40.7%	5.8%	17.2%	4.8%
Timber	50.4%	21.9%	1.2%	37.8%
Rubber	-	3.4%	-	1.3%
Potentially hazardous	0.1%	0.8%	2.8%	0.5%
<b>TOTAL</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

<sup>72</sup> Waste Not Consulting. 2016. *Composition of Solid Waste in Taranaki Region, September 2016*.



# We Can Recycle

Visit [www.wecan.org.nz](http://www.wecan.org.nz) to find out more



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