Joint Waste Assessment

Prepared for Tauranga City Council and Western Bay of Plenty District Council

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E.1.0 Executive Summary

E.1.1 Introduction and Context

This Waste Assessment has been prepared for Tauranga City Council and Western Bay of Plenty District Council in accordance with the requirements of the Waste Minimisation Act 2008. Tauranga and Western Bay have a statutory responsibility to promote effective and efficient waste management and minimisation within Tauranga City and the Western Bay of Plenty District. This document provides background information and data to support the constituent Councils' waste management and minimisation planning process, and forms the basis of the Councils' Local Government Act section 17A service delivery.

The document details existing services and facilities, presents waste data, makes a forecast of future demand, and provides an assessment of options to meet future demands and what the Councils' roles would be in these options.

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

E.1.2 The Tauranga and Western Bay sub-region

This Waste Assessment is a joint document covering Tauranga and Western Bay. This is a combined land area of 2,289 km^2, encompassing the urban area of Tauranga and a number of towns and villages in the Western Bay. Together, Tauranga and Western Bay have a population of just over 160,000[1].

The economy of the sub-region is experiencing strong growth at present, with new industrial areas at Tauriko and Rangiuru. The population is also growing, particularly in the older age groups, with growth in households in parts of Tauranga such as Papamoa and newer settlements in Western Bay such as Te Tumu and Omokoroa.

The SmartGrowth Strategy (2013) sets out the long-term plan for accommodating this growth within the sub-region.

E.2.0 The Current Situation

E.2.1 Services and Facilities

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

The sub-region has reasonable access to Class 1 landfills (sanitary landfills), although most residents only have access to disposal through a refuse transfer station at Maleme Street, Greerton, and through the resource recovery park at Te Maunga in Tauranga. The acceptance of waste at Class 2 landfills (industrial/construction & demolition waste cleanfills) that could potentially be more appropriately disposed of in a Class 1 landfill, or put to beneficial use such as composting, is an issue.

Generally, Tauranga and Western Bay benefit from good availability of recycling and reprocessing facilities. Those that can easily access the Resource Recovery Park at Te

[1] According to the 2013 census, on www.stats.govt.nz.

Maunga also have access to a wider range of options. Some parts of the sub-region, particularly the north-west of Tauranga and the bordering areas of Western Bay, have further to travel than others to reach a resource recovery park or drop-off centre for materials other than greenwaste.

Although most kerbside services are provided by the private sector in Tauranga and Western Bay, there is a strong waste minimisation education programme and many other related services provided by the Councils.

The most recent data available on kerbside collections (2013) shows that a reasonable level of recycling was taking place, and data from 2010 shows that quantities of waste sent to landfill per household are average, compared to other similar areas in New Zealand. However, there are risks inherent in the current approach; for example, it is difficult for the Councils to plan to ensure that service provision will be adequate to meet future demand. The data also shows that there is still a significant quantity of recyclables in the residual waste stream going to landfill.

All of the recycling collections offered to householders in Tauranga and Western Bay are commingled, meaning that all recyclables (glass, bottles, tins, cans and some plastic bottles) are placed together in a wheeled bin which is usually emptied by a refuse compactor-type vehicle. This collection methodology means that the material then needs to go to some kind of materials recovery facility (MRF) to be sorted and further processed before it can be recycled. Although commingled recycling collections are time and resource-efficient, the recovery rate from these collections is greatly dependent on the collection methodologies, and the technologies used at the MRF.

Parts of the Western Bay are not provided with kerbside collections, or are only able to access a kerbside refuse collection. Costs can often be higher for these customers.

E.2.2 Waste and Resource Recovery

In general terms, Tauranga City and Western Bay of Plenty District function as a single area for waste generation with common disposal points. Little waste from outside of Tauranga or Western Bay is known to be disposed of within the sub-region. One exception to this is waste that originates at a MRF that processes kerbside recycling from Gisborne, Whakatane and Kawerau districts.

Detailed data relating to these waste streams is presented in section 4.0. Key points are:

- The quantity of waste sent to Class 1 landfills from the sub-region has increased over the 2010 – 2015 period.
- A large, but unknown, quantity of waste is going to Class 2 landfills.
- Waste going to Class 1 landfills includes a large proportion of organic waste and moderate proportions of recyclables and timber – together, these material types account for approximately 50% of the waste going to landfill.
- The main sources of this waste are domestic kerbside collections and industrial, commercial and institutional activities.
- The quantity of waste diverted has also increased over the 2010 – 2015 period.

E.2.3 Performance Measurement

Detailed data relating to performance measurement is presented in section 5.0. The key points are:

- Per capita waste to Class 1 landfills is moderate compared to other districts.

- Per capita disposal of kerbside refuse is moderate to high, compared to other districts, and similar to those districts with similar services.
- Per capita domestic recycling is average, compared to other districts, particularly those with similar services.
- Over 50% of the waste currently disposed of to Class 1 landfills could, theoretically, be diverted from landfill disposal. The largest divertible component is kitchen/food waste, which represents 14.4% of the total. The second largest divertible component is recyclable paper, which comprises 11.2% of the total.

E.3.0 Future Demand and Gap Analysis

E.3.1 Future Demand

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

The analysis of factors driving demand for waste services in the future suggests that changes in demand will occur over time reflecting increasing population, increasing geographical size, changing household demographic, changing customer expectation (notably migration of residents from other areas with more comprehensive council kerbside services) and Central Government requirements (e.g. the introduction of product stewardship schemes). However, while steady growth is predicted, no dramatic shifts are expected. If new waste management approaches are introduced, then this could shift material between disposal and recovery management routes.

Population and economic growth will drive moderate increases in the waste generated. The biggest change in demand is likely to come about through changes within the industry with economic and policy drivers leading to increased waste diversion and waste minimisation.

The projections indicate that by 2026 the sub-region will be sending in the order of 100,000 tonnes of material to landfill, a further 60,000 to cleanfill, while green waste grows to about 10,000 tonnes, other organics to 7,000 tonnes, recyclables to 28,000 tonnes and scrap metal to 18,500 tonnes.

E.3.2 Gap Analysis

The anticipated future demand described above, when considered in light of the information presented in subsequent sections of this Assessment regarding current services, data, and performance, enables gaps to be identified where future waste management and minimisation may not meet the anticipated needs.

The following 'gaps' have been identified:

- Risk inherent in the current service structure – services could be changed or cancelled at any time without necessarily any notice nor communication with the Council, nor consultation with the community.
- Uncertainty about meeting future needs – is the private sector model able to be responsive and flexible enough? Do the Councils have sufficient influence over the private sector services to be confident that these will be addressed? Specific issues include:
    - Growing population
    - Growing residential areas, including an increase in small rural properties (lifestyle properties)
    - Ongoing and potentially increasing holiday peak populations

    - Changes in waste management best practice and technologies
    - Provision of food waste collections (the private sector has indicated they have no interest in providing this service)
    - Two resource recovery parks that are currently at, or near, capacity for much of the year
    - Additional facilities required and processing of more difficult waste streams at existing facilities
- Processing for recyclables that reduces contamination levels and achieves better return for the commodities produced
- The current system is expensive for the sub-region as a whole; although residents have lower local authority rates as a result of the private sector service provision
- C&D waste is a growing part of the waste stream and yet little of this material is recovered or recycled
- There is a growing customer expectation that services will be provided by councils
- Inconsistent implementation and enforcement of solid waste bylaw provisions
- Data availability, quality and management
- Cleanfill numbers and tonnages
- Biosolids management
- Poor diversion rate on organics, especially food waste
- Information about the amount and type of waste which is going to unregulated disposal (farm pits, cleanfill and burning) is scarce.

E.4.0 Options

Table 1 contains a summary of the options identified to meet future demand.

Table 1: Options to Meet Future Demand

Scenario Name	Regulation	Monitoring and Measurement	Education	Collections	Infrastructure	Leadership & Collaboration
Status quo	Currently solid waste bylaws with operator licensing	Monitor material through council facilities	Current education projects	Council user-pays refuse (Tauranga only), private refuse, recycling and green waste	Upgrade of Maleme Street and Te Maunga RRPs to cope with peak users	TCC & WBOPDC continue to collaborate on planning
Scenario 1 **Status quo plus full licensing**	Extended solid waste bylaws including operator and facility licensing, data collection provisions, recycling service standards, container standards, material bans	Increase monitoring and measurement to cover all waste streams	As above	As above	As above	Expand collaboration to include wider region
Scenario 2 **Status quo plus council kerbside recycling**	Current solid waste bylaw	Monitor material through council facilities	As above plus councils communicate recycling service provision	As above with the addition of a council-provided recycling collection in Tauranga and Western Bay	As above	Expand collaboration to include wider region
Scenario 3 **Conventional high recovery**	Extended solid waste bylaws including operator and facility licensing, data collection provisions, recycling service standards, container	Increase monitoring and measurement to cover all waste streams	Councils implement a comprehensive service communications programme	Councils provide a rates-funded refuse, recycling and organic waste collection	Existing facilities with some small upgrades/improvements; provision of organic waste processing Work collaboratively with other councils to explore residual treatment and	Identify potential for economies of scale through partnership and cooperation

	standards, material bans				disposal options	
Scenario 4 **Full resource recovery**	Extended solid waste bylaws including operator and facility licensing, data collection provisions, recycling service standards, container standards, material bans	Increase monitoring and measurement to cover all waste streams	Councils implement a comprehensive service communications programme	Councils provide a rates-funded refuse, recycling and organic waste collection Western Bay facilitates a farm waste and recycling collection service	RRPs are upgraded and extended to provide for C&D waste diversion, reuse, composting etc with a new RRP developed in Western Bay Work collaboratively with other councils to explore residual treatment and disposal options	As above plus Lobbying for product stewardship programmes and Collaborate with private sector and community groups to investigate opportunities to enhance economic development through waste minimisation

E.5.0 Statements of Council's Role

Council's role is likely to be wide-ranging therefore and is expected to encompass the following:

- Council will monitor and measure waste flows and information in order to inform planning and decision making.
- Council will continue existing activities and consider implementation of new activities to divert waste from landfill.
- Council will aim to control and regulate waste collections so as to ensure that maximum waste is diverted from landfill and to minimise environmental impact.
- Council will endeavour to fund waste management activities in a way that promotes waste minimisation and recycling and that minimises the cost to the ratepayer.
- Council will work with community groups, the private sector and other local authorities to achieve waste minimisation goals when developing new Council-funded activities or assets.
- Council will continue to educate the community as to the benefits of waste minimisation and thereby improve participation in waste minimisation activities.

E.6.0 Statements of Proposal

Based on the options identified in this Waste Assessment and the Councils' intended role in meeting forecast demand a range of proposals are put forward. Actions and timeframes for delivery of these proposals will be identified in the Draft Waste Management and Minimisation Plan.

E.7.0 Statement of Public Health Protection

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

The Waste Assessment has identified potential public health issues associated with each of the options, and appropriate initiatives to manage these risks would be a part of any implementation programme.

In respect of Council-provided waste and recycling services public health issues can be addressed through setting appropriate performance standards for waste service contracts and ensuring performance is monitored and reported on, and that there are appropriate structures within the contracts for addressing issues that arise.

Privately provided services will be regulated through local bylaws.

Uncontrolled disposal of waste for example in rural areas and in cleanfills will be regulated through local and regional bylaws.

It is considered that, subject to any further issues identified by the Medical Officer of Health, the proposals would adequately protect public health.

Contents

1.0 Introduction

This Waste Assessment has been prepared for the Tauranga City Council (TCC) and the Western Bay of Plenty District Council (WBoPDC) in accordance with the requirements of the Waste Minimisation Act 2008 (WMA). Tauranga and Western Bay have a statutory responsibility to promote effective and efficient waste management and minimisation within Tauranga City and the Western Bay of Plenty District (section 42, WMA). This document provides background information and data to support the constituent Councils' waste management and minimisation planning process, and forms the basis of the Councils' Local Government Act section 17A service delivery review.

1.1 Structure of this Document

This Waste Assessment has been prepared in accordance with section 51 of the WMA. It details existing services and facilities, presents waste data, makes a forecast of future demand, and provides an assessment of options to meet future demands including what the Councils' roles would be in these options.

This document is arranged into a number of sections designed to help construct a clear picture of waste management in Tauranga and Western Bay.

Section 1: Introduction

The introduction covers a number of topics that contribute to setting the scene. This includes clarifying the purpose of this Waste Assessment, outlining its scope, describing the legislative context in which it has been prepared, and identifying the key documents that have informed the assessment.

Section 2: Tauranga and Western Bay

This section presents a brief overview of key aspects of the region's geography, economy and demographics that influence the quantities and types of waste generated.

Section 3: Waste Infrastructure and Services

This section describes how waste is currently managed in Tauranga and Western Bay and where it goes. Facilities and services are generally separated between those owned and/or provided by the Councils and those provided by the private sector.

Section 4: Current Waste Situation and Performance Management

This section examines where the waste comes from, how much of it there is and what it is made up of. To assess the performance of existing waste management systems, comparisons are made with waste data from other jurisdictions.

Section 5: Gap Analysis and Future Demand

This section provides an analysis of what is likely to influence demand for waste and recovery services in the sub-region and identifies key gaps in current and future service provision and the Councils' ability to promote effective and efficient waste management and minimisation.

Section 6: Statement of Options & Councils' Proposed Role

These sections develop options available for meeting the future demand and Councils' proposed role in ensuring future demand is met and the Councils are able to meet their statutory obligations.

Section 7: Statements of Proposal

The statements of proposal set out what actions are proposed to be taken forward. The proposals are identical to the actions that will be put forward in the upcoming WMMP, so the Waste Assessment simply references the waste management and minimisation plan (WMMP) for this section.

Section A: Appendices

The appendices contain further detail about waste management data and facilities in Tauranga and Western Bay individually. The statement from the Medical Officer of Health is included as well as additional detail related to legislation.

Tauranga City Council and Western Bay of Plenty District Council have jointly prepared this Waste Assessment and will use this to inform the review of the existing Waste Management and Minimisation Plan, the draft Waste Management and Minimisation Plan 2016 and the service delivery review.

1.2 Key Terms and Acronyms

Cleanfill	A cleanfill (properly referred to as a Class 4 landfill) is any disposal facility that accepts only cleanfill material. This is defined as material that, when buried, will have no adverse environmental effect on people or the environment.
C&D Waste	Waste generated from the construction or demolition of a building including the preparation and/or clearance of the property or site. This excludes materials such as clay, soil and rock when those materials are associated with infrastructure such as road construction and maintenance, but includes building-related infrastructure.
Diverted Material	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.
Domestic Waste	Waste from domestic activity in households.
ETS	Emissions Trading Scheme
Landfill	A disposal facility as defined in S.7 of the Waste Minimisation Act 2008, excluding incineration. Includes, by definition in the WMA, only those facilities that accept 'household waste'. Properly referred to as a Class 1 landfill.
LGA	Local Government Act 2002
Managed Fill	A disposal site requiring a resource consent to accept well-defined types of non-household waste, e.g. low-level contaminated soils or industrial by-products, such as

	sewage by-products. Properly referred to as a Class 3 landfill.
MfE	Ministry for the Environment
MRF	Materials Recovery Facility
NZ	New Zealand
NZWS	New Zealand Waste Strategy
Organics, putrescible, garden, green waste	Plant based material and other bio-degradable material that can be recovered through composting, digestion or other similar processes.
Recyclables	Waste material that is suitable for recycling
Recycling	The reprocessing of waste material to produce new materials
RRP	Resource Recovery Park
RTS	Refuse Transfer Station
Service Delivery Review	As defined by s17A of the LGA 2002. Councils are required to review the cost-effectiveness of current arrangements for meeting the needs of communities within its district or region for good-quality local infrastructure, local public services, and performance of regulatory functions. A review under subsection (1) must consider options for the governance, funding, and delivery of infrastructure, services, and regulatory functions.
TA	Territorial Authority (a city or district council)
Waste	Means, according to the WMA: 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 of diverted material, if the component or element is disposed or or discarded.
WA	Waste Assessment as defined by s51 of the Waste Minimisation Act 2008. A Waste Assessment must be completed whenever a WMMP is reviewed
TCC	Tauranga City Council
WBoPDC	Western Bay of Plenty District Council
WMA	Waste Minimisation Act 2008

WMMP	A Waste Management and Minimisation Plan as defined by s43 of the Waste Minimisation Act 2008
WWTP	Waste Water Treatment Plant

1.3 Purpose of this Waste Assessment

This Waste Assessment is intended to provide an initial step towards the development of a WMMP and sets out the information necessary to identify the key issues and priority actions that will be included in the draft WMMP.

Section 51 of the WMA outlines the requirements of a waste assessment, which must include:

1. a description of the collection, recycling, recovery, treatment and disposal services provided within the territorial authority's district
2. a forecast of future demands
3. a statement of options
4. a statement of the territorial authority's intended role in meeting demands
5. a statement of the territorial authority's proposals for meeting the forecast demands
6. a statement about the extent to which the proposals will protect public health and promote effective and efficient waste management and minimisation.

This Waste Assessment will also be used as a basis for the service delivery review.

1.4 Completeness and Accuracy

This document was prepared between January 2015 and May 2016 using information gathered from a variety of sources. Some data was sourced from the private sector or has been compiled from other published sources.

While every effort has been made to achieve a reasonable degree of accuracy in this Waste Assessment, it must be noted that there are significant limitations due to the level of data availability. Where available, actual data has been included and the source noted. In some cases, where estimates have been used, the basis for the estimates and other data limitations has been detailed.

Details regarding the limiting factors in preparing the Waste Assessment that are deemed to have materially impacted upon the completeness or accuracy of the data, forecasts or options are noted where relevant.

The information obtained for the purposes of completing this Waste Assessment was considered appropriate when giving regard to:

- The significance of the information.
- The costs of, and difficulty in, obtaining the information.
- The extent of the Councils' resources.
- The possibility that the Councils may be directed under the Health Act 1996 to provide the services referred to in that Act.

This Waste Assessment was prepared by TCC, WBoPDC, and Eunomia Research & Consulting (NZ).

1.5 Legislative Context

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

1.5.1 The Waste Minimisation Act

The primary legislation driving solid waste management and minimisation is the Waste Minimisation Act 2008 (WMA).

The stated purpose of the WMA is to:

> *"encourage waste minimisation and a decrease in waste disposal in order to*
>
> *(a) protect the environment from harm; and*
>
> *(b) provide environmental, social, economic, and cultural benefits."*

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

The WMA requires every TA to complete a formal review of its existing waste and minimisation management plan every six years. The review must be consistent with WMA sections 50 and 51. Section 50 of the WMA also requires all TAs to prepare a 'waste assessment' prior to reviewing its existing plan. This document has been prepared in fulfilment of that requirement. The Councils' existing Waste Assessment was completed in June 2010 and the WMMP was adopted in September 2010.

1.5.2 Other Legislation

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

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

1.6 Strategic Context

1.6.1 New Zealand Waste Strategy

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

in New Zealand. The two goals of the NZWS are:

1. Reducing the harmful effects of waste
2. Improving the efficiency of resource use

The NZWS provides high-level, flexible direction to guide the use of the tools available to manage and minimise waste in New Zealand. These tools include:

- The Waste Minimisation Act 2008
- Local Government Act 2002
- Hazardous Substances and New Organisms Act 1996
- Resource Management Act 1991
- Climate Change Response Act 2002 and Climate Change (Emissions Trading) Amendment Act 2008
- International conventions
- Ministry for the Environment guidelines, codes of practice
- Voluntary initiatives

The flexible nature of the NZWS means that councils are able to decide on solutions to waste management and minimisation that are relevant and appropriate to local situations and desired community outcomes.

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

For the purpose of this Waste Assessment, both Councils have given regard to the NZWS and the current WMMP (2010).

1.6.2 Regional and Local Strategic Context

This Waste Assessment and the resulting WMMP will have been prepared within a local and regional planning context whereby the actions and objectives identified in the Waste Assessment and WMMP reflect, intersect with, and are expressed through other planning documents. Key regional and local planning documents and waste related goals and objectives are noted in this section.

1.6.2.1 Regional Waste Strategy

The Regional Waste Strategy (2013 – 2023) presents a regional position on managing waste, hazardous substances, hazardous waste and contaminated sites in the Bay of Plenty. The Regional Waste Strategy has a vision of *"working together towards a resource-efficient region"*.

The Strategy also contains six key focus areas through which the vision and associated goals will be achieved:

1. Foster collaboration, partnerships and promote forward planning
2. Improve data and information management
3. Review regulatory environment governing waste
4. Increase resource efficiency and beneficial reuse
5. Reduce harmful impacts of waste
6. Stimulate research and innovation.

The Waste and Resources Advisory Group (WRAG) has been established to support progress within these six focus areas, and also to manage a small annual publicly contestable funding round ($50,000 in 2015).

The Bay of Plenty and Waikato regional councils are working together on a number of pan-regional collaborative projects that have been identified as priority actions by the constituent councils. The areas of collaborative work include:

1. Waste assessments and waste management and minimisation planning
2. Solid waste bylaws, licensing and data
3. Education and communication
4. Procurement
5. Rural waste

Projects are currently under way for the first two of these priorities and there is also ongoing collaborative work among the constituent councils of the two regions on rural waste, tyres and education and communication.

1.6.2.2 Long Term Plans

Both Tauranga and Western Bay have sections in their Long Term Plans 2015 – 2025 relating to solid waste.

Tauranga City Council

The solid waste activity contributes to the LTP goal of "*A city of great spaces, places, and environments*". The key objectives of solid waste are to:

- Effectively collect and deliver waste to landfill;
- Reduce the quantity of waste to landfill;
- Reduce the quantity of harmful waste to landfill; and
- Increase diversion of waste for reuse, recovery, or recycling.

Key projects for solid waste over the next few years include:

- Review of the 2010 joint WMMP, by July 2016
- Implementation of a new WMMP
- Continued development of the Te Maunga Resource Recovery Park
- Rebranding at Te Maunga, and any other, Resource Recovery Parks
- Tendering of street cleaning, abandoned vehicles and some footpath contracts
- Auditing of public place litter bins to measure opportunity for public place recycling and impact of cruise ship visits
- Working with Merivale Community Centre
- Organic waste reduction projects
- Guideline document for the Infrastructure Development Code.

Western Bay of Plenty District Council

The Western Bay LTP contains a section focusing on solid waste. The Council's role is guided by the principle of 'polluter-pays' and this requires that those producing waste should pay the disposal cost.

Solid waste activities contribute towards the community outcome of efficient waste

management practices which minimise environmental harm and waste. The goals are to:

- Minimise the total quantity of residual waste for disposal through effective planning, education and enforcement so people reduce, reuse and recycle;
- Provide good information so people dispose of residual waste in an environmentally acceptable manner; and
- Work with our communities to create a clean environment by encouraging and recognising innovative solutions to waste problems.

Key projects include:

- Reducing illegally dumped waste through education and enforcement
- Enforcing the refuse by-law
- Influencing design for new development
- Advocacy
- Supporting composting
- Providing or monitoring recycling services
- Investigate public place recycling
- Educate and inform
- Provide accessible services for household hazardous waste
- Manage closed landfills
- Support community waste initiatives through funding and/or in kind
- Provide or support events and promotions.

1.6.2.3 Other Local Plans

TCC has a number of other plans relating to the Tauranga area that have been considered when preparing this Assessment. These include:

- The Solid Waste Asset Management Plan (September 2015)
- The Infrastructure Strategy (2015)
- The Tauranga City Plan (2013) – replacing the previous District Plan

1.6.2.4 International Commitments

New Zealand is party to the following key international agreements:

1. Montreal Protocol – to protect the ozone layer by phasing out the production of numerous substances
2. Basel Convention – to reduce the movement of hazardous wastes between nations
3. Stockholm Convention – to eliminate or restrict the production and use of persistent organic pollutants
4. Waigani Convention – bans export of hazardous or radioactive waste to Pacific Islands Forum countries

1.6.3 National Projects

A number of national projects are underway, aimed at assisting TAs, business and the public to adopt waste management and minimisation principles in a consistent fashion.

1.6.3.1 National Waste Data Framework Project

The first stage of the National Waste Data Framework (NWDF) project, led by WasteMINZ, was funded by a grant from the Waste Minimisation Fund. The development of the NWDF took the following form:

- A staged development approach, focusing initially on the most important elements while also setting out a clear 'upgrade' path to include other elements.
- The first stage of the Framework (which has been completed) includes data on waste disposed of at levied disposal sites (Class 1 landfills) and information on waste services and infrastructure as well as other areas where practicable.
- Subsequent stages of the Framework will include more detailed data on diverted materials and waste disposed of at non-levied disposal sites.

The first stage of the Framework is complete. WasteMINZ is now working on the implementation phase. The Framework will only be successful if it is widely adopted and correctly applied. The implementation report clearly sets out a range of options to move the Framework forwards.

Tauranga and Western Bay intend to be a part of the implementation of the NWDF by using the categories and terminology of the Framework in the Waste Assessment and the forthcoming WMMP.

1.6.3.2 National Standardisation of Colours for Bins

Until recently, councils and businesses in New Zealand had used a variety of colours to indicate what waste streams can be placed in what bins. This was viewed as possibly creating confusion when colours were used inconsistently and increasing the likelihood of contamination.

In October 2015 WasteMINZ, the Glass Packaging Forum, and councils around New Zealand agreed on a standardised set of colours for mobile recycling and rubbish bins, crates and internal office bins. Companies wishing to implement nationwide recycling schemes are strongly encouraged to use these colours both for their bins and also on their signage. This will ensure that the colours used are consistent with both public place recycling and household recycling. The recommended colours are:

For bin bodies:

For 240 litre and 120 litre wheeled bins, black or dark green should be used. These colours maximise the amount of recycled content used in the production of the bins.

For bin lids, crates and internal office bins:

- Red should be used for rubbish
- Yellow should be used for commingled recycling (glass, plastic, metal and paper combined)
- Lime green should be used for food waste and food waste/garden (referring to green) waste combined; noting that food waste-only collections are strongly encouraged to use a smaller bin size than combined food and garden collections.
- Dark Green should be used for garden waste.
- Light Blue should be used for commingled glass collections (white, brown,

green glass combined).
- Grey should be used for paper and cardboard recycling.

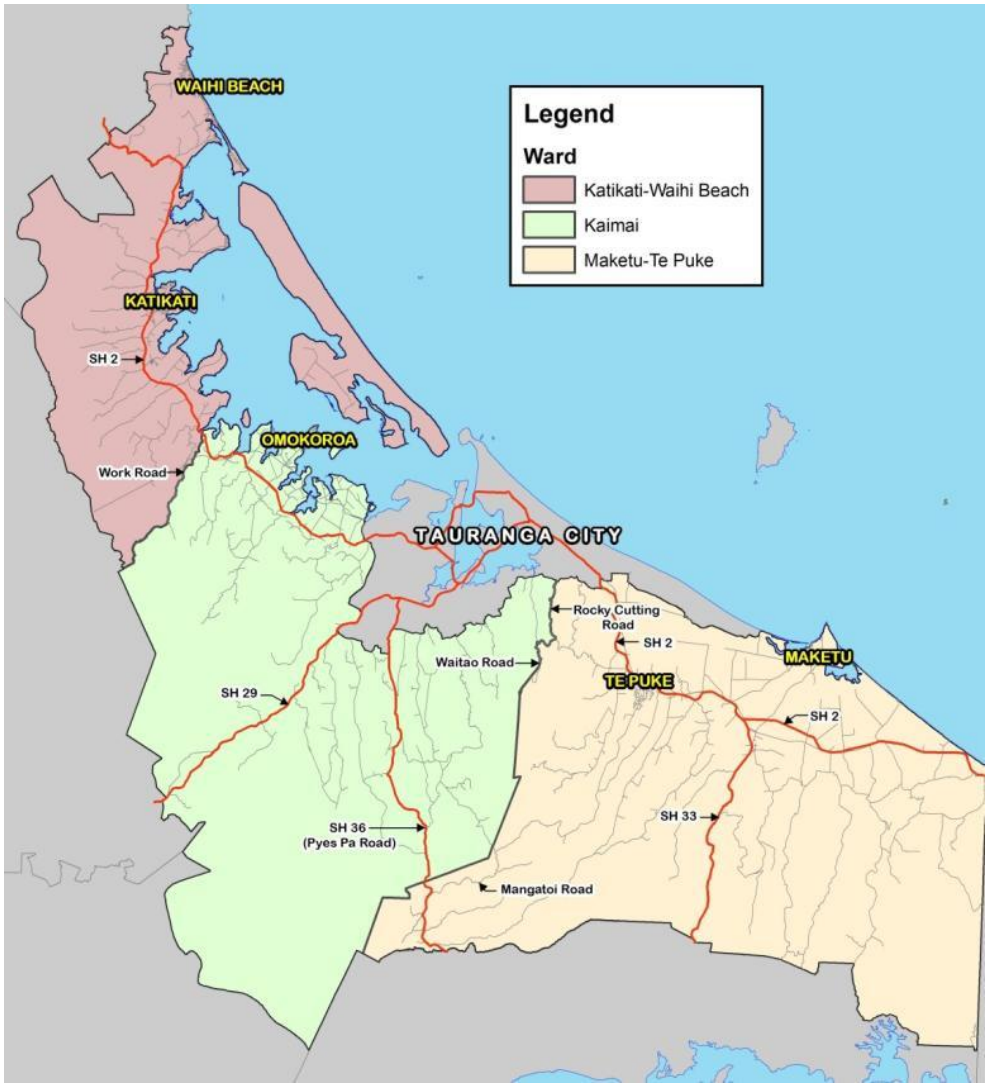
2.0 Tauranga and Western Bay

This section presents a brief overview of key aspects of the sub-region's geography, economy, and demographics. These key aspects influence the quantities and types of waste generated and potential opportunities for the Councils to manage and minimise these wastes in an effective and efficient manner.

2.1 Overview

Tauranga and Western Bay have a combined land area of 2,289 km^2, with the Tauranga City area being surrounded by the Western Bay District to the north, west and south. Tauranga City incorporates Mount Maunganui, while the main population centres in the Western Bay are Te Puke, Katikati, and Waihi Beach. Western Bay is largely rural and includes Matakana Island, while Tauranga is predominantly urban and suburban.

Figure 1: Map of Tauranga and Western Bay



Source: http://www.westernbay.govt.nz/our-district/about-the-western-bay/Pages/default.aspx

Tauranga and Western Bay differ in many ways, but both include popular coastal areas that experience significant increases in population over summer. Western Bay is bordered in the west by the bush-covered Kaimai Ranges, and in the south is the Kaituna River which flows from Rotorua and Rotoiti through the Western Bay to Maketu.

The sub-region generally has a temperate mild and sunny climate.

2.2 Demographics

Together, Tauranga and Western Bay have a population of just over 160,000[2]. Of these, just over 117,000 live in Tauranga, with another 12,400 living in Te Puke, Katikati or Waihi Beach. A large part of Western Bay is relatively sparsely populated.

The sub-region is experiencing significant population growth and has done so since the 1950s[3]. This trend is expected to continue into the future, with some areas expected to grow more quickly than others. In 2004, Tauranga, Western Bay, and the Bay of Plenty Regional Council collaborated to produce the 'SmartGrowth' strategy. This is a proactive response to the growth trends and determines where to best put people and infrastructure, with a goal of moving from a crisis or lag situation to 'just-in-time' infrastructure. It also provides a platform for collaboration with Tangata Whenua, business, industry, and government.

Population projections, produced for SmartGrowth by the National Institute of Demographic and Economic Analysis (NIDEA) in 2014, are detailed below in Table 2. As indicated by the figures, the region will become home to over 219,000 people by 2033, an increase of 34% in population and 47% in the number of households[4].

Table 2: Population predictions 2013 – 2053[5]

		2013	2033	2053	Change 2011-2051
Tauranga City	Population	117,280	161,564	188,102	70,822
	Households	50,259	75,571	92,970	42,711
Western Bay	Population	46,110	57,516	60,162	14,052
	Households	20,085	27,723	30,180	10,095
Sub-region	Population	163,390	219,080	248,264	84,874
	Percentage growth		34% from 2013	13% from 2033	52%

[2] According to the2013 census, on www.stats.govt.nz.

[3] SmartGrowth Projections produced in 2014 by NIDEA, available on www.smartgrowthbop.org.nz.

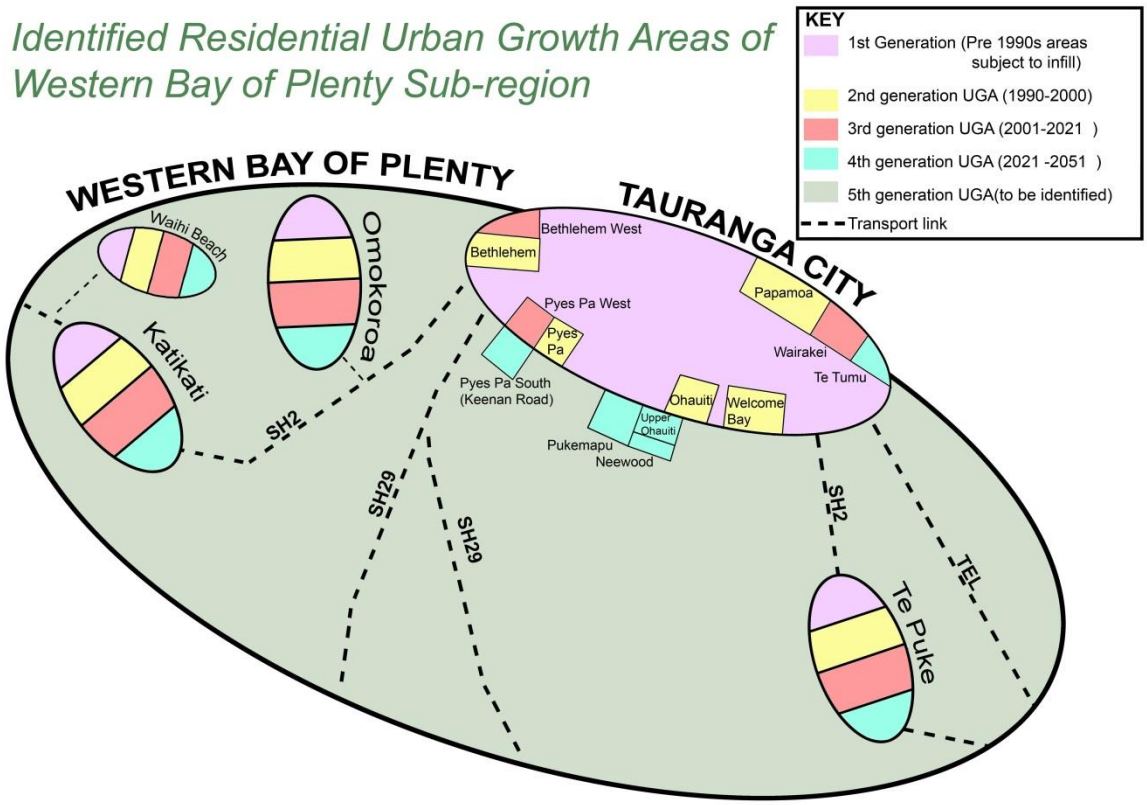
[4] Note "households" in this context is equivalent to "total dwellings" which is occupied plus unoccupied dwellings.

[5] Smartgrowth Projections 2014

	Households	70,344	103,294	123,150	52,806
	Percentage		47%	19%	75%

The figure below shows where the growth has historically been located and where growth has been allowed for into the future in urban growth areas (UGAs). The most significant UGA for the purposes of this Waste Assessment is the 3rd generation UGA covering 2001 – 2021 and, to a lesser extent, the 4th generation UGA.

Figure 2: Urban Growth Areas 1-4 (SmartGrowth Strategy 2013, page 100)



The primary source of this growth is inward migration, primarily from other parts of New Zealand. While a downturn in this inward migration was experienced around the time of the global financial crisis (2010 – 2015), indications are that this downturn has not persisted and growth is continuing strongly.

The figures below show population growth in Tauranga and Western Bay compared to the national average.

Figure 3: Tauranga population growth 2001 – 2015

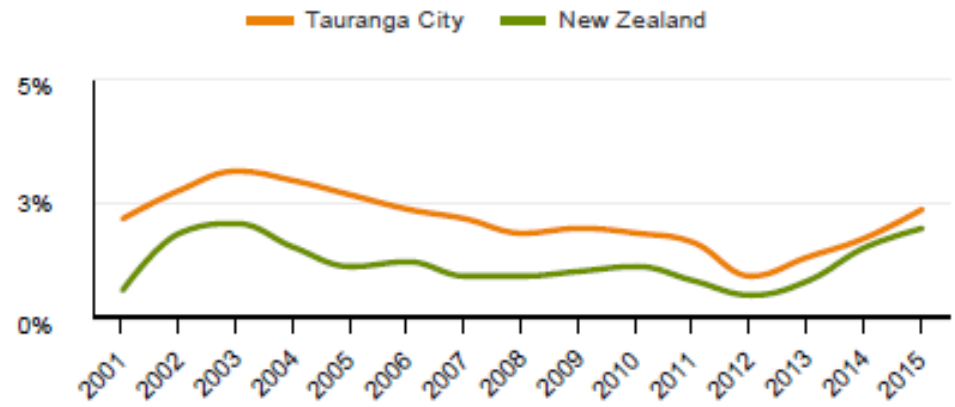
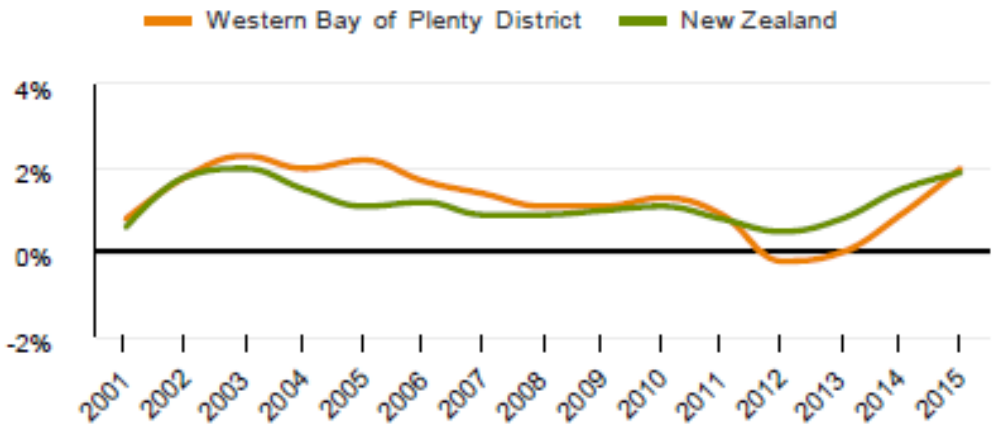


Figure 4: Western Bay population growth 2001 – 2015



Source: Infometrics Infographics for Tauranga and Western Bay 2015

A significant factor discussed in the SmartGrowth Strategy is the ageing of the sub-region's population. The general ageing of the New Zealand population is clearly reflected in the sub-region with significant investment in new retirement/lifestyle complexes, and the sub-region has a higher proportion of older people than the national average (19.3% compared to 14.3% for New Zealand). Unemployment/non-employment, average incomes, and spending are also lower than the national average.

This will have an impact on future solid waste management, as older households are likely to be smaller. This trend is stronger in Western Bay than in Tauranga, where it may partially be mitigated by high birth rates in Maori families.

Other significant components of this growth are new industrial/commercial areas, most significantly at Tauriko and Rangiuru; and new/growing settlements at Te Tumu and Omokoroa.

The SmartGrowth Strategy 2013 does not specifically address solid waste management issues.

2.3 Economy

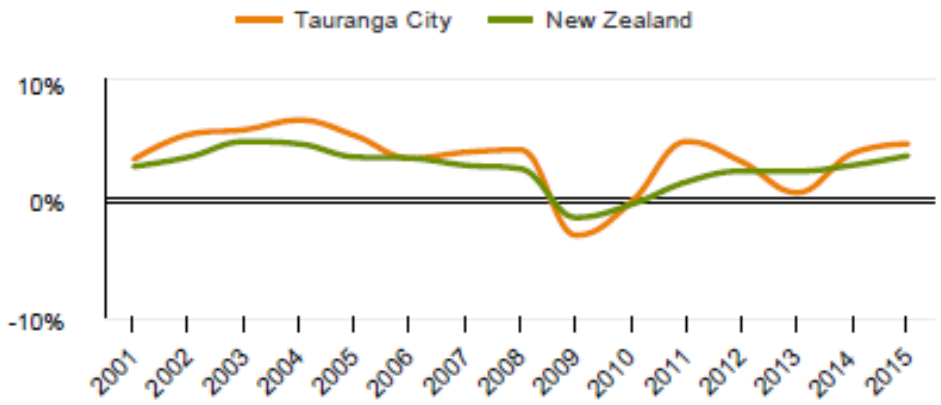
The economy of the sub-region is dominated by the Port of Tauranga (within Tauranga City) and agricultural/horticultural production in Western Bay with kiwifruit, dairy and avocado production predominant. These activities contribute to income and employment directly and downstream in processing, value-adding and service sectors.

While there was a significant downturn in economic activity during the global financial crisis, this downturn has reversed and the sub-region had stronger growth compared to the national average (for Tauranga: 4.4% to March 2014, and 3.6% to March 2015[6]). Unemployment has also fallen since 2010, and retail spending has increased.

The ageing population of the sub-region is prompting an increase in the associated health and service sectors. This has resulted in health care, social assistance and support services contributing the largest amount to economic growth and the highest number of jobs in the sub-region during the period 2005 – 2015.

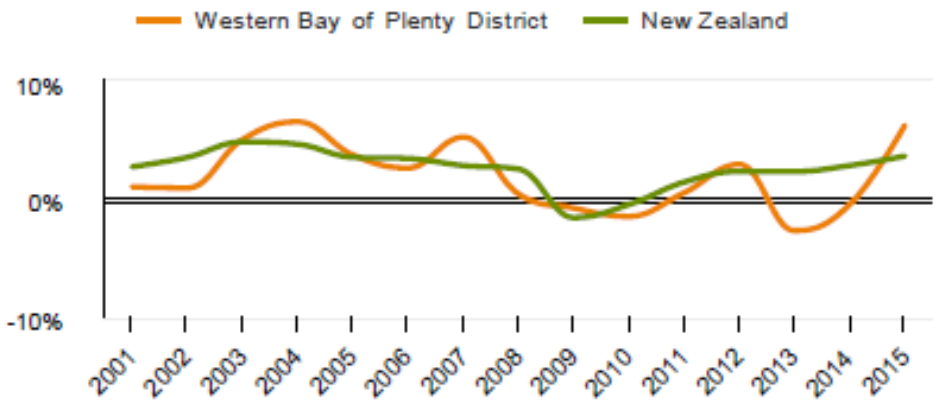
Figure 4 and Figure 5 below show economic growth in Tauranga and Western Bay compared to the national average.

Figure 5: Tauranga Economic Growth 2001 - 2015



[6] Infometrics quarterly economic monitor for Tauranga and Western Bay; available on www.static.infometrics.co.nz.

Figure 6: Western Bay Economic Growth 2001 – 2015



Source: Infometrics Infographics for Tauranga and Western Bay 2015

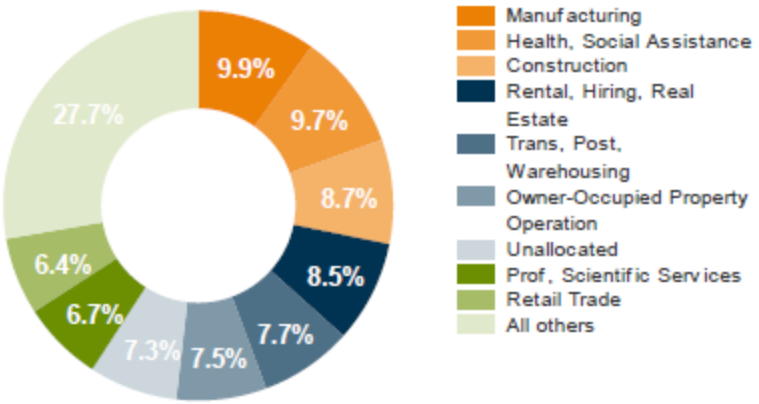
A recent economic factor that could slow this growth is the fall in dairy prices. However, while Western Bay is somewhat reliant on dairy income, the kiwifruit, avocado and building sector income streams are growing rapidly and only 2.6% of Tauranga's GDP is directly generated by the primary sector[7]. The impact of this would most likely be felt more in neighbouring districts such as Whakatane.

Economic activity in the sub-region is therefore anticipated to continue the current growth trend. Generally speaking, an increase in commercial and industrial activity will have a direct impact on the amount of waste that is generated.

The sub-region does, however, have a lower average income than New Zealand as a whole. This is partly a result of the high numbers of seasonal workers in Western Bay and the growing number of retirees in both Tauranga and Western Bay. Western Bay is also experiencing a significant increase in the number of self-employed – 29.7% in 2015, compared to Tauranga at 16.3% and the national average of 16.6%.

Figure 8 shows the contributors to Tauranga and Western Bay's economies.

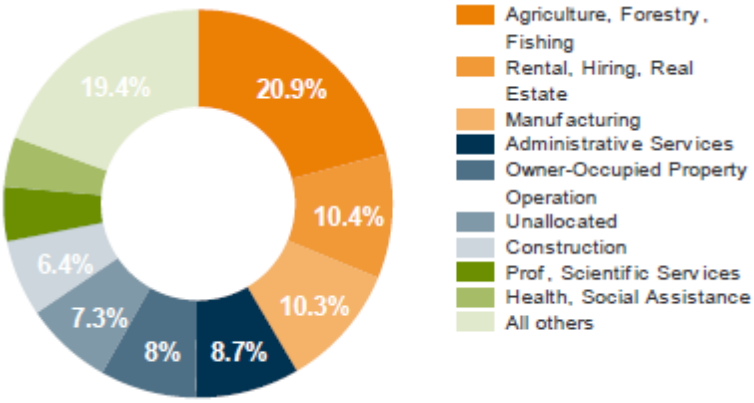
Figure 7: Industry Proportion of GDP in Tauranga



[7] Various sources including Infometrics, Fonterra, Western Bay of Plenty District Council (2016)

Tauranga has little primary industry, being a tightly bounded urban area. While the largest single sector is manufacturing at 10% this is still less than the national average (12%). Health care and social assistance is well represented in Tauranga at nearly 10% compared to NZ as a whole (6%) as is construction at 8.7% (also 6% for NZ as a whole) and transport, postal and warehousing (7.7% compared to 5% for NZ).

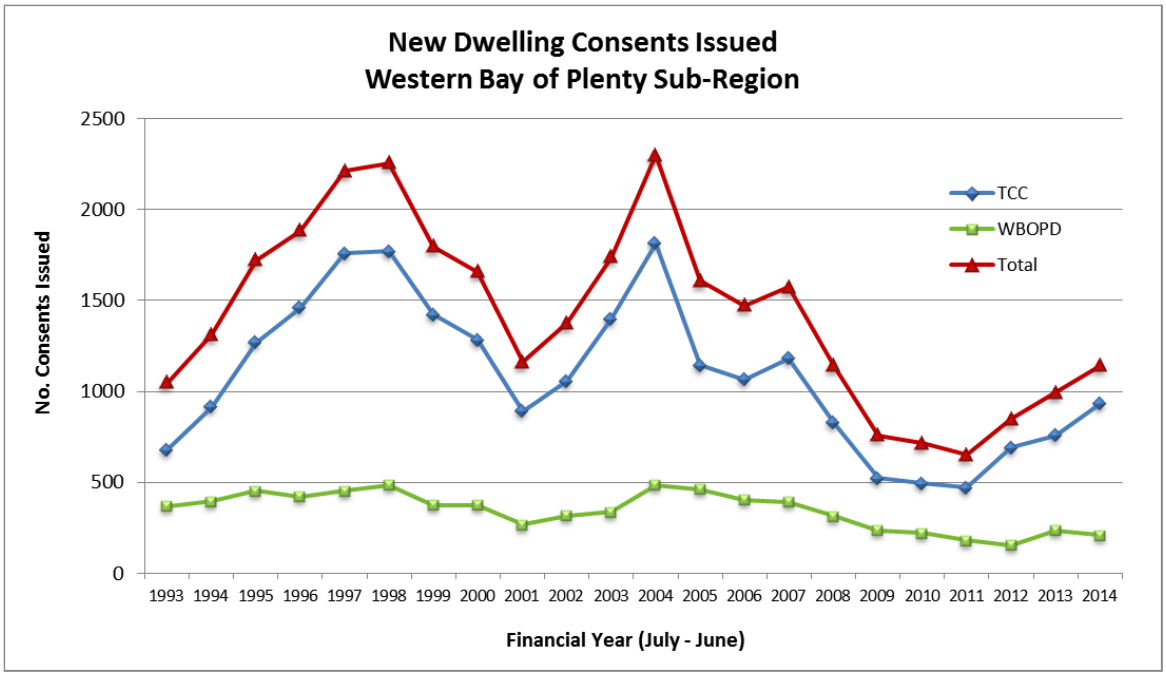
Figure 8: Industry proportion of GDP in Western Bay



The industry profile for Western Bay is markedly different with agriculture, forestry and fishing accounting for 21% of GDP as against 9% for NZ as a whole, and rental, hiring and real estate also being prominent at 10% compared to 7% nationally. Manufacturing is important in the Western Bay economy at 10% but still represents a lesser proportion of GDP than nationally (12%).

A key driver in Tauranga and, to a slightly lesser extent, Western Bay is the residential construction industry. This has a significant impact on solid waste management, as the construction activity itself produces a quite specific type of waste and the residents that will eventually live in these homes will produce waste themselves.

Figure 9: New Dwelling Consents Issued



The Bay of Plenty region is one of only three where new dwelling consent numbers are increasing, along with Auckland and Waikato.

2.4 Implications of Economic and Demographic Trends

Generally, the sub-region is experiencing strong growth, which is usually associated with growth in solid waste output. Partially mitigating this is the trend across the sub-region for households to have fewer residents, which generally produce less waste.

3.0 Existing Waste Infrastructure and Services

This section provides a summary of key waste facilities and services available to households and businesses in Tauranga and Western Bay.

The services and facilities available in Tauranga and Western Bay are a combination of those owned, operated and/or managed by the Councils, and those that are owned and/or operated by commercial entities or community groups.

This inventory is not to be considered exhaustive, particularly with respect to the commercial waste industry as these services are subject to change. It is also recognised that there are many small private operators and second-hand goods dealers that are not specifically listed. However, the data is considered accurate enough for the purposes of determining future strategy and to meet the needs of the WMA. The process of collating this information has highlighted the need for improvements in data collection and monitoring systems.

Figure 10: Key Waste Facilities in Tauranga and Western Bay

The inventory of facilities and services has been generally categorised with reference to the waste hierarchy (as defined by the WMA).

3.1 Disposal Facilities

3.1.1 Class 1 Landfills

There are no Class 1 landfill disposal facilities[8] (as defined in section 4.1.1) in Tauranga or Western Bay. The nearest Class 1 landfills are in Tirohia (near Paeroa) and Rotorua. The table below lists the landfills that are known to currently receive municipal waste from Tauranga and/or Western Bay.

Table 3: Class 1 landfills accessible from Tauranga and Western Bay

Name & Owner/Operator	Description	Location	Capacity and Consent
Tirohia Landfill, H G Leach	Non-hazardous residential, commercial and industrial solid waste, including special wastes. Sludges with less than 20% solid by weight are prohibited. Compostable material is also processed on site.	Tirohia, Hauraki District	Consented to accept 4 million m^3 - approximately 2035
Rotorua District Landfill, Rotorua District Council	Non-hazardous residential, commercial and industrial waste, including special wastes (although bylaw may be reviewed to exclude these in future).	Atiamuri SH30, Rotorua District	Consented to 2030
North Waikato Regional Landfill, EnviroWaste Services Ltd	Non-hazardous residential, commercial and industrial solid waste, including special wastes.	Hampton Downs, Waikato District	Consented to 2030

[8] [8] Based on definitions in the Technical Guidelines for the Disposal to Land of Residual Waste and Other Material (Land Disposal Technical Guidelines) WasteMINZ Draft for Consultation June 2013

	Sludges with less than 20% solid by weight are prohibited.		
Whitford Landfill, Waste Disposal Services (joint venture between Auckland Council and Waste Management NZ Ltd	Non-hazardous residential, commercial and industrial solid waste, primarily from south Auckland	Whitford, south-east Auckland	Remaining capacity 6.5M tonnes. Resource consent allows no more than 200,000 tpa.

Kawerau District Council owns a landfill for which consents are still current, however the landfill is considered to have reached capacity and it no longer accepts any waste.

Although there are no municipal waste landfills in the sub-region, Tauranga and Western Bay still have access to several available facilities with sufficient remaining capacity. While none of these landfills are close geographically, Rotorua is the closest at around 70km, with Tirohia being 84.7km from Te Maunga.

However the route to Tirohia is largely on state highways, travelling either on SH2 via Paeroa or SH29 and 24 via Matamata. The journey to Rotorua is particularly difficult in winter with SH36 vulnerable to ice and frost. For this reason, Tirohia is the most common disposal point serving Tauranga and Western Bay. Until recently, Rotorua has also not been available as a disposal option as the Rotorua District Council would only accept waste from their district. This means that existing long-term arrangements have previously excluded this as an option.

3.1.2 Transfer Stations

Refuse Transfer Stations (RTS) provide for those that can't or choose not to make the journey to a landfill, which is not practical for most residents of Tauranga and Western Bay. Waste can be dropped off at these sites by the public and commercial collectors after paying a gate fee, and the waste is subsequently compacted before transport to a Class 1 landfill.

There are two public RTSs in Tauranga; one Maleme Street, Greerton and the other at the Resource Recovery Park (RRP) in Te Maunga. There is a range of other materials accepted at the Te Maunga site and thus it is known as a 'Resource Recovery Park'. While most residents of Western Bay use one of the two Tauranga RTSs, some residents in northern Western Bay are likely to instead access the Hauraki District Council's facility in Waihi.

There is one private RTS, also in Maleme Street in Greerton. This is only used by the company Bin Boys Ltd for the waste collected through their kerbside services.

Table 4: Transfer Stations in Tauranga

Facility Description	Operation	Hours	Materials accepted
Te Maunga Resource Recovery Park – land owned by Tauranga City Council	Most of the site is operated by EnviroWaste NZ Ltd leasing from TCC. Operators of other facilities include Waste Management NZ Ltd (MRF) and Remediation NZ (composting).	Monday – Friday: 7.30am to 5pm Weekends and public holidays: 9am to 5pm Christmas Day, New Year's Day and Good Friday: closed	General waste - $19.80 per 100 kg, $187 per tonne for trucks Recyclables Green waste
Maleme Street Refuse Transfer Station – land owned by Tauranga City Council	Site operated by EnviroWaste NZ Ltd leasing site from TCC.	As above	As above

Once general waste is deposited at the RTS, the waste is then compacted and bulked for transport to landfill.

The other operations at the Resource Recovery Park are discussed further in section 3.2.2 below.

3.1.3 Closed Landfills

There are six closed landfills in the sub-region; two in Tauranga and four in Western Bay. These are listed in the table below.

Table 5: Closed landfills in Tauranga and Western Bay

Local Authority	Location	Date closed
Western Bay	Waihi Beach	1990
	Athenree	2003
	Strang Road, Te Puke	1996
	McLaughlin Drive, Te Puke	1980
Tauranga	Te Maunga	1994
	Cambridge Road (now Cambridge Park), Judea	1998

3.1.4 Class 2-4 Landfills

Recent research estimates that waste disposed of to land other than in Class 1 landfills accounts for approximately 70% of all waste disposed of, and these

operators are not required currently to pay the waste levy to Central Government[9]. Other disposal sites include Class 2-4 landfills and farm dumps.

The Bay of Plenty Regional Council 2008 Regional Water and Land Plan defines cleanfills as a permitted activity, as long as the operation of these cleanfills is in line with the Ministry for the Environment's Cleanfill Guidelines. There are no formal reporting requirements for these cleanfills, nor are they monitored on a proactive basis.

For this reason, and because few of these cleanfills are open to the public and many are temporary or short term associated with roading projects, it is very difficult to list these fully.

In the MfE's 2002 "A Guide to the Management of Cleanfills" 'cleanfill' is defined as: *"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, hazardous waste*
- *stabilisation or hazardous waste 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."*

However, there are two Class 2 sites in the sub-region that have received resource consents from the Bay of Plenty Regional Council to accept materials that are not listed in the Cleanfill Guidelines, and are open to the public. These two sites have therefore been included on the map shown earlier in Figure 10.

Of these, one site is permitted to accept green or garden waste. While a proportion of this is composted on site, this is only the portion that can readily be separated from other waste when it arrives at the site. This service is in competition with other green waste services provided by the Councils and private operators in the sub-region, which have the further benefit of reusing all green waste received at their site by composting this to a beneficial end product. The composting facility operated at the Te Maunga RRP reports that they currently need to import material from outside the area to meet the demands of their customers.

Class 2 landfills can be an issue for effective and efficient waste management as, for some materials, Class 2 landfills are competing directly with other options such as composting sites and Class 1 landfills. However, Class 2 landfills are much less costly than Class 1 landfills to establish and require much lower levels of engineering investment to prevent discharges into the environment. Class 2 landfills also have much lower compliance costs than Class 1 landfills and are not required to pay the

[9] Ministry for the Environment (2014) Review of the Effectiveness of the Waste Disposal Levy. The report estimates 56% of material disposed to land goes to non-levied facilities, 15% to farm dumps and 29% to levied facilities.

waste levy. Because of these differing cost structures, Class 2 landfills charge markedly less for disposal than Class 1 landfills. The two consented Class 2 landfills open to the public are listed below.

Table 6: Consented Class 2 landfills in Tauranga and Western Bay

Facility	Location	Materials and Charges
Jack Shaw Ltd	849 SH29, Tauriko, Tauranga	$34.50 per m^3 of cleanfill or green waste, with a minimum charge of $34.50.
Ross Green	1515/1535 Ohauiti Road, RD 3, Oropi, Tauranga	Cleanfill (as per the MfE cleanfill guidelines) Paper and cardboard from construction Plaster, MDF, hardboard, timber, tree stumps, bark/soil mixtures, sawdust, grit/sediment, tyres (not whole), boiler ash Contaminated soils - $76 per m^3 by appointment only Road sweepings - $50 per m^3 Septage – direct arrangement only

3.1.5 Assessment of Residual Waste Management Infrastructure

Neither of the Councils own any landfills and are therefore reliant on provision of disposal capacity by the private sector or by arrangement with other local authorities. This is not necessarily a strategic weakness. Many council owned facilities, particularly in smaller districts, are proving relatively expensive and are unable to compete with the larger private facilities because of the lack of economies of scale. Once established, large facilities have very low marginal costs, and are therefore able to offer low disposal charges meaning waste can be brought to these facilities from a wide catchment. If the councils were to own a disposal facility it would need to be of substantial scale and compete for tonnage from a wide catchment to be economically viable.

The sub-region has reasonable access to Class 1 landfills, although most residents and operators only have access to disposal through the two RRPs. This can be an advantage in waste management, as the Councils have access to good data relating to the waste streams passing through these facilities. There is good capacity of Class 1 landfill space in the medium term covered by this assessment. The availability of

disposal options in the longer term however may be worth further investigation during the term of the next Waste Management and Minimisation Plan.

The acceptance of wastes at Class 2 landfills that could potentially be more appropriately disposed of in a Class 1 landfill, or put to beneficial use such as composting, is an issue. The relatively low cost of disposal to sites other than a Class 1 landfill will drive residents' and commercial operators' behaviour in determining where to dispose of material, and this may limit the Councils' options in using disposal prices as a mechanism to drive more preferable waste management practices. Increasing disposal prices could have the result of simply driving more waste to Class 2-4 disposal sites rather than incentivising recovery.

3.2 Recycling and Reprocessing Facilities

In addition to the RRPs at Te Maunga and Maleme St, Greerton in Tauranga, there are a number of smaller 'drop-off' facilities in Western Bay. Three of these accept recycling and garden waste, with one site only accepting garden waste. All sites are discussed in more detail below.

Drop off centres for other recyclable and reusable commodities are provided for by the private and non-for-profit sector.

TCC currently allocate $20,000 per annum to support community reuse/second-hand shops in disposing of material that can't be sold. This is currently serving 19 charities, with a maximum quantity of one tonne per store per month with the stores paying the rest.

3R, through Plunket, accept expired/damaged child safety restraints (car seats) for partial recycling.

There is one business in Tauranga that sells recovered or faulty construction materials, and one processing facility in the sub-region that processes fish waste from commercial sources such as Sanford and Pelco in Tauranga. There are also a number of scrap metal dealers in Tauranga and Western Bay.

3.2.1 Maleme Street Refuse Transfer Station

This site contains a number of publicly-accessible drop-off and pre-processing activities. The land and buildings are owned by TCC and leased by the operator, who also owns the equipment. A performance measure in the lease agreement aims to increase the diversion of resources away from landfill disposal. This diversion is included in the diversion figures and provided to TCC monthly from the leasee.

The details are shown in the table below.

Table 7: Reprocessing and Recycling at Maleme Street

Operator	Activities	Waste streams accepted	Source of waste streams
Envirowaste under contract to TCC	Free drop-off of a wide range of recyclables	Recyclables, some appliances, mobile phones, car batteries, fire extinguishers, gas bottles, clothing and textiles, waste oil, household hazardous waste (by prior arrangement only)	Public can bring in these items and drop-off in the appropriate areas at no charge. Household hazardous waste is only by prior arrangement.
As above	Charged drop-off for a wide range of recyclables	Fridges and freezers, car tyres, concrete, car bodies, paint, most green waste	Public drop-off. Charges vary. See appendix A.1.1 for a full list of items and charges.
As above	Charged drop-off for residual waste	All residual waste and some non-compostable green waste	Public and commercial drop-off. Charges vary between $19.80 per 100 kg, and $187 per tonne.

Council staff and RTS staff report that Maleme Street RTS is currently at, or near, capacity at many times during the year particularly in summer.

3.2.2 Te Maunga Resource Recovery Park

This large site incorporates a number of different recycling and reprocessing options. Some are accessible directly by the public, while others only accept material from commercial sources. The land is owned by TCC and leased to a number of operators, who generally also own the buildings and equipment. A performance measure in the main lease agreement with EnviroWaste aims to increase the diversion of resources away from landfill disposal. This diversion is included in the diversion figures and provided to TCC monthly from the leasee.

The various activities on this site are summarised in the table below.

Table 8: Reprocessing and Recycling at Te Maunga

Operator	Activities	Waste streams accepted	Source of waste streams
EnviroWaste under contract to TCC	Free drop-off of a wide range of recyclables	Recyclables, some appliances, mobile phones, car batteries, fire extinguishers, gas bottles, clothing and textiles, waste oil, household hazardous waste (by prior arrangement only)	Public and businesses can bring in these items and drop-off in the appropriate areas at no charge. Household hazardous waste is only by prior arrangement.
EnviroWaste under contract to TCC	Charged drop-off for a wide range of recyclables	Fridges and freezers, car tyres, concrete, car bodies, paint, most green waste	Public and businesses can drop off. Charges vary. See appendix A.1.1 for a full list of items and charges.
EnviroWaste under contract to TCC	Charged drop-off for residual waste	All residual waste and some non-compostable green waste	Public drop-off. Charges vary between $19.80 per kg, and $187 per tonne.
Envirowaste	Industrial waste water treatment facility	Road-derived materials (sump cleaning, street cleaning), industrial waste	Envirowaste accept waste from some commercial collectors.
Waste Management NZ Ltd	Materials Recovery Facility for processing mixed recyclables. Mostly shipped overseas from Port of Tauranga. Sub-lease to Waste Management Technical Services for road	Mixed recyclables – glass, paper, card, plastic, tin, aluminium, steel.	From commingled kerbside recyclables collections in Tauranga, Whakatane and Kawerau

Waste Management NZ Technical (site sub-leased from Waste Management NZ Ltd)	Industrial waste water treatment facility	Road-derived materials (sump cleaning, street cleaning), industrial waste, septic tank waste	Collected from commercial customers
Remediation NZ Ltd	Wind-row composting, 8,000 tonnes per year	Green waste, other organic wastes such as compostable plates, cutlery, cups etc. Produce a bio-certified compost sold within the area.	Transferred from public drop-off at Maleme Street and Te Maunga, commercial loads, imported from out of the area.
5R Solutions	Flat glass recycling	Flat glass	Post-consumer flat glass from commercial sources.
EnviroWaste NZ Ltd	Container glass collection and recycling	Colour-sorted glass containers	Collection of beverage containers from various businesses – pre and post-consumer.
Solvent Recovery BoP	Solvent distillation	Solvents	Solvents dropped off in hazardous waste area; also commercial sources
Goodwood Ltd	Timber waste	Untreated timber	Untreated wood dropped off at RTS; direct commercial sources, and untreated timber removed from C&D material by EnviroWaste NZ Ltd

As per Maleme Street RTS, TCC and RRP staff report that the Te Maunga RRP is currently at, or near, capacity at many times during the year particularly in summer.

3.2.3 Western Bay Drop-off Sites

WBoPDC operates four drop-off sites. These are listed in the table below. For details of materials accepted and charges, refer to appendix A.1.2.

Table 9: WBoPDC Drop-off Sites

Location	Opening hours	Materials accepted
64 Steele Road, Athenree	Thursday 1 – 4pm Saturday 9am – noon Sunday 1 – 4pm	Recyclables – no charge Green waste - $7 - $46 Small quantities of household hazardous waste
Corner Tetley & Wills Roads, Katikati	Thursday 9am – noon Saturday 9am – 4pm Sunday 9am – noon	As above
36 Station Road, Te Puke	Tuesday 9am – 3.30pm Thursday 9am – 3.30pm Saturday 8am – 4pm	As above
336 Omokoroa Road, Omokoroa	Wednesday 2 – 4pm Saturday 2 – 4pm	Green waste only.

3.2.4 Recycling and Reprocessing Facilities Outside the Sub-region

There are a number of facilities outside the sub-region that either currently process material from Tauranga or Western Bay, or have the capacity to do so. These are listed below.

Table 10: Other Recycling and Reprocessing Facilities

Facility	Description
O-I NZ Ltd	Process colour-sorted glass including some from Tauranga and Western Bay (the majority currently goes to the Waste Management MRF)
SIMS Pacific	Ferrous metals recycling (including some from Tauranga and Western Bay)
MetalCo	Scrap metals recycling (including some from Tauranga and Western Bay)
Oji Fibre Solutions	Paper and some card (including some from Tauranga and Western Bay)
EcoCast	Vermicomposting of industrial, council and some post-consumer organic wastes in Kawerau (including material from the Te Puke waste water treatment plant and kiwifruit waste)

MyNoke Ltd	Vermicomposting of industrial, council and some post-consumer organic wastes in Kinleith
Resene PaintWise Collection (Waihi Road, Tauranga)	Accept unwanted paint and paint containers, with a small charge for non-Resene product. No automotive or marine paint. Material is reused, recycled, or processed as appropriate.
Agrecovery	Accept unwanted agrichemicals and empty containers. Collection from properties (some charges apply) or free drop-off of containers at sites in Katikati and Te Puke
Various retail outlets (Pak'n Save, Warehouse, New World)	Plastic shopping bags
E-waste	Computer Recyclers Tauranga (no charge, no TVs) Information Technology Solutions (no charge, no TVs) InTouch Print and Computer Services (charges apply, no CRT TVs) CReW Whakatane (charges apply)
Reclaim	Plastics grade 1 and 2, baled cardboard

3.2.5 Assessment of Recycling and Reprocessing Facilities

Generally, Tauranga and Western Bay benefit from good availability of recycling and reprocessing facilities. However, those that can easily access the Resource Recovery Park at Te Maunga have access to a wider range of options. These options have often become established in a reactive way, when an operator is able to show TCC that there is a viable reprocessing activity. While this approach has resulted in a number of successful reprocessing ventures, there is a risk that there may not be options available for priority waste streams.

Some parts of the sub-region, particularly the north-west of Tauranga and the bordering areas of Western Bay, have significantly further to travel than others to a RRP or drop-off centre for materials other than greenwaste.

Some of the current collection and subsequent reprocessing options, such as the commingled recycling MRF, may not be resulting in optimum recovery rates nor highest value product. In a strong recycling commodities market, this may not be such a concern. However, if the return for commodities such as mixed plastics and mixed-colour glass were to drop, this may have implications for the financial viability of this operation. There is reason to believe that this may already be an issue; contamination rates for a MRF would usually be in the order of 8-10%[10], while the MRF operator has reported levels of over 20%.

[10] Duncan Wilson. Personal communication with facility operators.

There are also a number of organic waste processing facilities within or near the sub-region that are currently 'importing' feedstock from outside Tauranga and Western Bay in order to either meet customer demand for product, or to achieve the optimum combination of organic waste streams for processing. As is discussed in section 4.4, data shows that the amount of local organic waste (largely green waste) that is processed by the Remediation NZ facility at Te Maunga has reduced over the last few years.

The acceptance of organic wastes for disposal at two Class 2 fills in the sub-region is likely to reduce the amount of locally-sourced organic waste that is available to these facilities. A number of other factors may also be involved, such as landscaping and maintenance operators shredding garden waste and spreading this as mulch on-site or to orchards and farms.

It is also likely that more construction and demolition waste could be recovered, if the construction industry sorted this waste to at least a basic level on-site. However anecdotal information suggests that the industry view this as difficult and expensive. It is also likely that untreated timber, which could be recovered through a service based at Te Maunga, is also being disposed of through burning on land and to Class 2 fills.

Within the context of current legislative and policy arrangements there is reasonable provision for e-waste collection and recovery within the region – although there is still scope for greater levels of recovery. The cost of separate disposal of e-waste compared to landfilling is a disincentive for greater recovery.

There is a lack of facilities for the pre-treatment and disposal of special wastes such as road sweepings, cess-pit and catch pit cleaning in the region. Until recently, it appears that most of this potentially hazardous waste is disposed of to Class 2-4 fill sites. As of February 2016, road sweepings and cess-pit and sump waste is being disposed of at Whitford Landfill. However, some waste of this type from the Port of Tauranga is still being disposed of at a Class 2 fill site.

3.3 Council-provided Waste Services

Tauranga and Western Bay are unusual compared to other New Zealand TAs in that most kerbside rubbish and recycling services are provided by the private sector through a direct arrangement with the householder. TCC offers the only council kerbside collection in the region, a user-pays kerbside rubbish collection, although this service is in competition with the various private sector services. Customers purchase black rubbish sacks with pre-paid pink stickers, which are available from all supermarkets in Tauranga. The recommended purchase price is between $10.89 and $11.96 for five (depending on bag type).

The two Councils provide a number of other solid waste-related services and these are listed in the tables below.

Table 11: TCC Solid Waste Services

Service	Contractor	Contract expiry date
Cleansing Services (street sweeping, litter bin emptying, loose litter, illegal dumping, stormwater sump clearing)	Intergroup	June 2016
Abandoned vehicles removal	Metalman Recyclers	June 2016
Mount Maunganui central business district footpath cleaning	Mount Mainstreet	June 2016
Weekly kerbside rubbish collection from pre-paid black bags	Waste Management NZ Ltd trading as Environmental Green Bins	June 2017
Manufacture and distribution of kerbside rubbish bags	Big Black Sacks NZ Ltd	Preferred supplier
Manufacture of rubbish bag stickers	Philstic Ltd	Preferred supplier
Waste minimisation education for businesses	Waste Watchers Ltd	June 2017
Worm composting support for householders	Waste Education NZ Ltd	June 2017
Waste minimisation education in schools	Waste Education NZ Ltd	December 2017
Resource Wise Schools	Enviroed Ltd	June 2017
Coffee grounds and food waste collection	Why Waste Ltd	October 2016

Table 12: WBoPDC Solid Waste Services

Service	Contractor	Contract expiry date
Abandoned vehicles and illegal dumping removal	Metalman Recyclers	November 2017
Greenwaste processing	H G Leach	September 2017, +1, +1
Waste minimisation education for businesses	Waste Watchers Ltd	September 2017
Zerowaste education	Waste Education Ltd	September 2017

Metal recycling from drop-off points	MetalCo	Service Agreement
Cleansing Services (street sweeping, litter bin emptying, loose litter, stormwater sump clearing)	WestLink Bay of Plenty Ltd	November 2021 +1, +1
Public litter bins in parts and recreational areas	Downers	July 2017
Laboratory Services 3 Waters – testing and reporting of closed landfill samples	Eurofins	39 June 2017

Western Bay also subsidise the private sector at some times of the year, to ensure that increased demand at peak holiday times is catered for.

3.3.1 Waste Education and Minimisation Programmes

Both Tauranga and Western Bay have a strong focus on waste minimisation education and provide and/or fund a number of programmes that are offered to various sectors of their communities, including businesses. Some of these programmes are jointly provided by Tauranga and Western Bay, and some are regional.

Programmes provided or supported by the Councils include:

- Waste education in schools (Waste Education NZ Ltd)
- Business waste minimisation programme (Waste Watchers Ltd)
- General waste education (Enviroed Ltd)
- Good Neighbour Food Rescue
- Paper4trees
- Worm composting support for householders (Waste Education NZ Ltd)
- Lightfoot (sports clubs)
- Para Kore (zero waste on marae)
- Waste free parenting
- Enviro challenge
- Events recycling
- Love Food, Hate Waste campaign (WasteMINZ National Project)
- Great Waste Race (TCC Stormwater Team)

3.3.2 Solid Waste Bylaws

Tauranga and Western Bay both have a current solid waste bylaw. This provides the Councils with various powers, including the ability to license operators and to require certain performance standards from them. This provision has been implemented and enforced to a variable extent so far. There is potential for the Councils to have increased influence over the private sector operators if these provisions were implemented more fully.

3.3.3 Litter Control and Enforcement

Enforcement, and some litter control, is managed as a part of the Parking & Bylaws Team in Tauranga and by the illegal dumping contractor, Metal Man Ltd, in Western Bay.

3.3.4 Public Litter Bins

Tauranga manage the installation, maintenance and emptying of public litter bins within the scope of solid waste services. In Western Bay, this service is provided under contract by WestLink (for street litter bins) and Downers (park litter bins)

The provision of public place recycling bins across both areas has not changed since the 2010 Waste Assessment. The original bins installed in a prominent shopping centre in the Tauranga area are still operating.

Over the 2014/15 summer cruise ship season, audits on the public litter bins in the Mount Maunganui area were undertaken, not only to see the composition of waste in the bins, but to establish what difference the cruise ship season made to the composition and amount of waste produced. This audit showed that visitors from cruise ships had little impact on the quantities and types of waste in public litter bins and that the majority of recyclable content in the public litter bins was recyclable containers.

3.3.5 Abandoned Vehicle Enforcement

Tauranga and Western Bay take enforcement action against abandoned vehicles in accordance with their own procedures. These procedures address recovery of costs (where possible) as well as notice for removal and owner claim provisions. The management of abandoned vehicles is administered by the Resource Recovery and Waste Team at TCC and the Compliance Team at WBoPDC.

Section 356 of the LGA sets out how this process is to be conducted in terms of notification requirements and recovery of vehicles.

3.3.6 Town Centre Cleaning

TCC has engaged the services of contractors to carry out town centre cleaning in Tauranga central business district (CBD), Greerton CBD and Mount Maunganui CBD. These services include litter collection and street sweeping.

Westlink carries out cleaning in the urban Western Bay (Waihi Beach, Katikati, Omokoroa, Te Puke, Paengaroa, Maketu, Pukehina) as part of their contract. These services include public litter bin collection and street sweeping.

3.3.7 Stream and Beach Cleaning

Stream cleaning is usually undertaken by the City Waters Team of TCC. Stream cleaning is not usually undertaken by WBoPDC.

In Tauranga, the stream cleaning activity is supported by the Resource Recovery and Waste team via the provision of rubbish bags, signage, gloves and rubbish collection.

There are many local community groups who undertake stream clean ups in the Tauranga area. Additionally, a new community group called 'Keep Tauranga Beautiful' (a branch of Keep New Zealand Beautiful) has been established to coordinate the clean-up of activities across the City.

The following is a description of other waste management and minimisation services provided by both Councils that have not been captured in the sections above.

3.3.8 Rural and Farm Waste

A study of farm waste management practices in the Waikato and Bay of Plenty was carried out in 2014. This study found that a very large number of farms use one of the 'three B' methods of waste management – bury, burn, or bulk storage on property. The study also estimated that there would be an average of 37 tonnes of waste disposed of on each farm property.

The methods currently used to manage farm wastes are far from ideal and, in some cases, have the potential to have a negative impact on the environment. Farmers generally agreed that these methods are not ideal and would like to have access to better options. However the 'three Bs' are perceived to have 'no cost' compared to alternatives that do have a cost associated.

The study concluded that better information, education and awareness of existing alternatives is required. A better understanding of the risks and associated indirect costs involved in the current 'three B' practices would support this.

There are a number of non-farm rural properties that currently aren't able to access services from the private sector; however the number is not currently known.

3.3.9 Hazardous Waste

Household hazardous waste can now be taken to the RRP or RTS by prior arrangement with TCC. WBoPDC collects hazardous waste at drop off centres in Katikati, Athenree and Te Puke.

3.3.10 Assessment of Council-provided Solid Waste Services

Although most kerbside services are provided by the private sector in Tauranga and Western Bay, there is a strong waste minimisation education programme and many other related services provided by the Councils.

While the current kerbside rubbish and recycling services could be functioning well, and the data in section 5.0 supports this assumption, there are risks inherent in this approach:

- The private sector could change or cancel a service offering at any stage.
- Parts of the Western Bay are not serviced by kerbside collections at all and others have extremely limited availability of service.

- Kerbside services are not necessarily flexible or responsive enough to cater for demand, such as increased demand in normally quiet rural areas during peak summer holiday periods.
- Education about using services and waste minimisation in general is made more difficult when there is a wide range of private sector services available, and any of these could change at any time.
- Accessing and analysing data on waste streams in Tauranga and Western Bay is even more difficult than in many other areas, as the Councils do not have full data relating to kerbside services; and
- Implementing national initiatives such as consistent container colours can be very difficult.

3.4 Private Sector-provided Waste Services

All of Tauranga and parts of Western Bay are serviced by a number of private operators. These operators offer a range of services including rubbish, recycling and garden waste collections including a kerbside rubbish collection from bags.

The services offered by the private sector are summarised in Table 13. The costs are indicative, as these can vary depending on special offers and promotions, and package rates offered by the various providers. Further details on the costs as at March 2016 are provided in appendix A.1.1.

Table 13: Private Sector-Provided Waste Services

Provider	Services	Approximate cost (March 2016)
Environmental Green Bins	As needed bag collections	unknown
	Rubbish collected weekly from a wheeled bin – 80L to 240L available.	$184.90 (six months) - $507.80 (12 months), with some rates including a recycling collection
	Green waste collected weekly from a wheeled bin – 140L or 240L available	$134/$181 (six months) $194/$282 (12 months)
	Recycling collected weekly from a wheeled bin – 140L or 240L available	$52/72 (six months) $79/$119 (12 months)
	Various packages	$271 (six months) – $704 (12 months)
Kleana Bins	Rubbish collected weekly, fortnightly, or four-weekly from a 120L or 240L wheeled bin	$79 (three months) – $430 (12 months) Pay per pick-up option also available

	Recycling collected weekly, fortnightly or four-weekly from a 120L or 240L wheeled bin	$52 (three months) – $330 (12 months) Pay per pick-up option also available
JJ Richards	Rubbish collected weekly or fortnightly from a 120L or 240L wheeled bin	$6.25 (weekly) – $10.50 (fortnightly)
	Recycling collected four-weekly from a 140L or 240L wheeled bin	$5 - $7 (weekly)
	Various packages	$4.75 per collection – $273 per annum
EnviroWaste	Rubbish collected monthly from a 120L or 240L wheeled bin	$16 (monthly)/ $36 (monthly)

A rubbish collection from a wheeled bin is also available from Bin Boys (www.binboysbop.co.nz) but no prices are publicly available.

In addition to these companies, there are a number of options available to householders for garden waste collections and for one-off rubbish collections using larger containers, such as skip hire. There are also a range of rubbish and recycling collection services available to businesses from companies such as EGB, Waste Management NZ Ltd and EnviroWaste.

3.4.1 Assessment of Private Sector-Provided Waste Services

All of the recycling collections offered to householders in Tauranga and Western Bay are commingled, meaning that all recyclables (glass, bottles, tins, cans and some plastic bottles) are placed together in a wheeled bin which is usually emptied by a compactor-type vehicle. This collection methodology means that the material then needs to go to some kind of materials recycling facility (MRF) to be sorted and further processed before it can be recycled.

Most of the recycling collected from the kerbside in Tauranga and Western Bay goes to the Waste Management NZ Ltd MRF, which is operated on TCC-owned land at the Te Maunga RRP.

Although commingled recycling collections are time and resource-efficient, the recovery rate from these collections is greatly dependent on the collection parameters and the technologies used at the MRF. Recovery rates from this type of collection and processing system can be lower than those from a two-stream collection where glass is collected separately.

Although some of the service packages offered by the private sector emphasise recycling over rubbish collections, with more space or more frequent collections provided for recycling, most are the reverse. This may make it more difficult to

encourage householders to recycle material rather than throwing it in the rubbish.

There is a wide range of options available however, and there is no data available on how many householders have chosen to use any particular service.

Because the collections are provided by a number of companies, in a variety of combinations, it is difficult for the Councils to collect data relating to these collections and to know which types of services are used most often. Information gathered by TCC during a pre-engagement exercise in April 2016 showed that the average cost of waste services per household was $313 per annum[11].

Parts of the Western Bay are not provided with kerbside collections, or are only able to access a kerbside refuse collection. Costs can often be higher for these customers.

[11] Cost based on information reported in a Council online survey with 594 responses, 23 March – 8 April 2016.

4.0 The Current Waste and Resource Recovery Situation

4.1 Waste to Class 1-4 Landfills

4.1.1 Definitions Used in this Section

The terminology that is used in this section to distinguish sites where waste is disposed of to land is taken from the National Waste Data Framework which, in turn, is based on the definitions in the draft WasteMINZ Technical Guidelines for Disposal to Land. The definitions of the four classes of landfills provided in the Guidelines are summarised in the following sections.

4.1.2 Class 1 – Municipal Landfill

A Class 1 landfill is a site that accepts municipal solid waste. A Class 1 landfill generally also accepts C&D waste, some industrial wastes, and contaminated soils. Class 1 landfills often use managed fill and clean fill materials they accept as daily cover. A Class 1 landfill is the equivalent of a "disposal facility" as defined in the WMA.

4.1.3 Class 2 – C&D/Industrial Landfill

A Class 2 landfill is a site that accepts non-putrescible wastes including construction and demolition wastes, inert industrial wastes, managed fill, and clean fill. C&D waste and industrial wastes from some activities may generate leachates with chemical characteristics that are not necessarily organic. Hence, there is usually a need for an increased level of environmental protection at Class 2 sites.

4.1.4 Class 3 – Managed Fill

A Class 3 landfill accepts managed fill materials. These comprise predominantly clean fill materials, but may also include other inert materials and soils with chemical contaminants at concentrations greater than local natural background concentrations.

4.1.5 Class 4 – Cleanfill

A cleanfill is a landfill that accepts only cleanfill materials. The principal control on contaminant discharges to the environment from clean fills is the waste acceptance criteria.

4.2 Overview of Waste to Class 1-4 Landfills

In general terms, Tauranga City and Western Bay of Plenty District function as a single area for waste generation with common disposal points. Little waste from outside of Tauranga or Western Bay is known to be disposed of within the sub-region. One exception to this is waste from the materials recovery facility that processes kerbside recycling from Gisborne, Whakatane, and Kawerau districts.

A high proportion of waste from both areas that is disposed of at Class 1 landfills passes through the two RRPs owned by TCC. Small amounts, including screenings

from wastewater treatment plants, are taken directly to Class 1 landfills.

All of the waste from the RRPs in Tauranga is disposed of at one of two Class 1 landfills - Tirohia landfill near Paeroa, Hauraki District (owned by H.G. Leach & Co. Ltd) or North Waikato Regional Landfill (Hampton Downs) in Waikato District (owned by EnviroWaste Services Ltd). The disposal of waste from the transfer stations is subject to commercial conditions by the contracted facility operator, EnviroWaste NZ Ltd, and is not controlled by TCC.

Other landfilled wastes from Tauranga and Western Bay are disposed of at Class 2 C&D and industrial landfills in Tauranga and Class 4 cleanfills in both areas.

4.3 Waste Quantities

4.3.1 Waste to Class 1 Landfills

Data on a high proportion of the waste from Tauranga and Western Bay that is disposed of at Class 1 landfills can be taken directly from the weighbridge records for the two TCC-owned RTS. Landfill weighbridge records are available for the wastewater treatment screenings that are taken directly to a Class 1 landfill for disposal while estimates have been provided by TCC for the small amount of commercial waste that is taken directly to a Class 1 landfill, bypassing the RTSs.

Other 'municipal' wastes are also disposed of directly to Class 1 landfills without going through an RTS. Street sweeping waste, leaf fall, and sump cleaning waste are all taken directly to Whitford Landfill. These waste materials totalled about 1500 tonnes in 2014/15.

The estimates for the five financial years 2010/11 to 2014/15 are presented in Table 14.

Table 14: Waste to Class 1 municipal landfills from Tauranga and Western Bay

Tonnes/annum	2010/11	2011/12	2012/13	2013/14	2014/15
Transfer station waste - weighed	74,317	74,498	71,724	76,271	83,415
WWTP screenings - weighed	675	775	754	726	744
Direct to landfill - estimated	2,500	3,750	3,750	3,750	3,750
TOTAL	**77,492**	**79,023**	**76,228**	**80,747**	**87,909**

4.3.2 Other Waste Disposed of to Land

There are a small number of sites other than Class 1 landfills where waste materials from Tauranga and Western Bay are disposed of to land. These include two Class 2 C&D landfills, Jack Shaw Ltd at Tauriko, Tauranga and Green's Landfill, at Oropi, Tauranga and two consented Class 4 cleanfill sites (not open to the public).

While Class 2 - 4 landfills are sometimes required to obtain resource consents to operate, few are required to report, as a consent condition, to the Bay of Plenty

Regional Council or a TA on the quantity of materials that are disposed of. As a result, little quantitative information is available for these sites.

TCC estimates that approximately 50,000 tonnes of waste per annum are disposed of at the two Class 2 landfills in its area but estimates are not available for the quantity of material disposed of at the Class 4 landfills.

A 2014 report for MfE estimated that in the Bay of Plenty Region approximately 380,000 tonnes of material per year is disposed of at 'non-municipal landfills' (Class 2-4 landfills)[12]. Converting this figure to a per capita figure (1.35 tonnes/capita/annum) and applying that to the population of Tauranga and Western Bay results in an estimate of 230,000 tonnes per annum being disposed of to Class 2-4 landfills. However it is known that approximately 110,000 tonnes per annum of this material is industrial waste being disposed of to a Class 2 landfill in Kawerau. This gives an adjusted per capita figure of 0.96 tonnes/capita/annum, or a total of 163,000 tonnes per annum being disposed of to Class 2-4 landfills.

In practical terms, the lack of precise data about disposal of waste to Class 2-4 landfills makes it impossible to reliably monitor any changes over time in the disposal of some major waste streams, such as construction and demolition waste.

Other wastes disposed of to land in Tauranga and Western Bay of Plenty include non-natural farm wastes disposed of on site and dewatered sludge, on an intermittent basis, from the Te Maunga wastewater treatment plant. The quantity of farm waste is difficult to estimate. The Ministry for the Environment estimates that up to 15% of all waste disposed of to land could be farm waste.[13] If this ratio is applied to the two TA areas this would suggest that in the order of 44,000 tonnes of waste is disposed of per annum on farms. The sludge is, when required, disposed of at the closed landfill at Te Maunga.

4.3.3 Composition of Waste to Class 1 Landfills

This section presents the composition of waste disposed of at Class 1 landfills from Tauranga and Western Bay.

The composition data is based on a solid waste analysis protocol (SWAP) survey conducted in 2010, the most recent composition survey available. The SWAP survey was undertaken at the Tauranga RTS and RRP, so did not include any waste being transported directly to a Class 1 landfill. This survey was carried out in accordance with the Ministry for the Environment's SWAP, which was developed to facilitate the collection of consistent and reliable data on solid waste in New Zealand[14]. It is important to note that the SWAP requires data to be collected and analysed based on weight, not volume.

In Table 15, the composition from the 2010 SWAP has been applied to the tonnages of transfer station waste and direct to landfill waste from 2014/15. WWTP

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[12] Tonkin & Taylor (2014) *New Zealand Non-Municipal Landfill Database*, prepared for Ministry for the Environment

[13] Ministry for the Environment (2014) Review of the effectiveness of the waste disposal levy

[14] Ministry for the Environment (2012) *Solid Waste Analysis Protocol* publication ME430. Available at http://www.mfe.govt.nz/publications/waste/solid-waste-analysis-protocol

screenings have been classified as "potentially hazardous". The composition in Table 15 is based on the 12 primary classifications recommended by the SWAP. A more detailed composition, using additional secondary classifications, is provided in appendix A.1.4.

Table 15: Composition of Waste to Class 1 Municipal Landfills

Composition of Waste to Class 1 municipal landfills - 2014/15	General waste - excludes WTTP screenings		General waste plus WTTP screenings	
	% of total	Tonnes/ annum	% of total	Tonnes/ annum
Paper	12.6%	10,988	12.5%	10,988
Plastic	10.7%	9,346	10.6%	9,346
Organic	32.4%	28,271	32.2%	28,271
Ferrous metal	3.7%	3,232	3.7%	3,232
Non-ferrous metal	0.8%	717	0.8%	717
Glass	7.9%	6,907	7.9%	6,907
Textiles	4.4%	3,801	4.3%	3,801
Sanitary	5.0%	4,386	5.0%	4,386
Rubble	6.3%	5,489	6.2%	5,489
Timber	15.0%	13,054	14.8%	13,054
Rubber	0.5%	418	0.5%	418
Potentially hazardous	0.6%	557	1.5%	1,301
TOTAL	100.0%	87,165	100.0%	87,909

Although a SWAP survey has not been carried out in the sub-region since 2010, there have been no significant changes to the waste system since this time and therefore there is no reason to believe that the current composition would be significantly different. The only exception is a small increase expected in construction and demolition waste, due to the increase in this activity since 2010.

The same applies to the composition of kerbside waste, which was last carried out in 2013.

4.3.4 Activity Source of Waste to Class 1 Landfills

This section presents the activity source of waste disposed of at Class 1 municipal landfills from Tauranga and Western Bay[15] taken from the 2010 SWAP survey and applied to 2014/15 tonnage data.

[15] The composition is presented using six of the seven "activity sources" specified in the *National Waste Data Framework (NWDF)*. The seventh activity source, virgin excavated natural material, has not been used. Data on the activity source of the "general" waste has been taken from the 2010 SWAP

Table 16: Activity source of waste to Class 1 landfills

Activity source of waste to Class 1 landfills from Tauranga and Western Bay of Plenty - 2014/15	General waste - excludes WTTP screenings		General waste plus WTTP screenings	
	% of total	Tonnes/ annum	% of total	Tonnes/ annum
Construction & demolition	9.8%	8,535	9.7%	8,535
Domestic kerbside	38.7%	33,711	38.3%	33,711
Industrial/commercial/ institutional	38.3%	33,346	37.9%	33,346
Landscaping	4.9%	4,303	4.9%	4,303
Residential	8.3%	7,270	8.3%	7,270
Special waste	0	0	0.8%	744
TOTAL	100.0%	87,165	100.0%	87,909

Domestic kerbside refuse and waste from industrial/commercial/institutional sources comprised near-identical proportions of the waste to Class 1 landfills, approximately 38% each. Construction and demolition activity was the third largest source of waste, comprising 10% of the total.

Changes in economic activity in the region between 2010 and 2014/15 are likely to have resulted in an increase in the proportion of construction and demolition waste.

4.4 Diverted Materials

4.4.1 Overview of Diverted Materials

Kerbside recycling collections are available to residential properties in all areas of Tauranga and the urban areas of Western Bay. These services are provided on a user-pays basis by four commercial operators.

As discussed in section 3.2.3, WBoPDC provides recycling and greenwaste drop-off facilities at Katikati, Waihi Beach and Te Puke. In addition, a facility at Omokoroa provides a drop off location for greenwaste. Drop off centres for other recyclable and reusable commodities are provided for by both the private and non-for-profit sector.

Most commodities, such as glass, plastic, and metal containers, paper, and cardboard are processed at the MRF operated by Waste Management Ltd, located at the Te Maunga RRP. A windrow composting operation, operated by Remediation NZ Ltd, is also situated at the Park.

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survey and applied to 2014/15 tonnage data with WTTP screenings classified as "Special wastes". In the 2010 SWAP survey all refuse from domestic/commercial kerbside collections were combined in a single activity source called "Kerbside collections". The equivalent *NWDF* activity source is "Domestic kerbside" refuse. To convert the 2010 data to match the "Domestic kerbside" activity source, 5% of "Kerbside collections" has been changed to "Industrial/commercial/institutional" waste.

A significant proportion of greenwaste is generated by commercial arborists. This waste material is generally chipped in situ and used as mulch without entering any "waste stream".

Significant quantities of meat waste are collected from supermarkets and butcheries and taken out of the area for rendering. Fish waste is collected from processing facilities and is also rendered.

4.4.2 Diverted Materials

Tonnage data for the diversion of commodities and organic wastes is presented in Table 17: Diversion of commodity and organic waste materials. Some of the commodity data is provided to TCC by the operator of the Te Maunga MRF under the terms of Waste Management NZ Ltd.'s lease agreement for the Council-owned land. Other data is either provided to Council by the service provider or estimated by Council.

Table 17: Diversion of commodity and organic waste materials

Commodity and organic waste diversion - Tonnes/annum	2010/11	2011/12	2012/13	2013/14	2014/15
Commodity diversion					
Domestic kerbside collections	7,655	9,245	7,052	7,322	7,280
Drop-off facilities	5,213	5,117	5,092	5,300	5,523
Commercial collections	292	374	3,885	4,163	4,696
Paper recycling (est.)	4,000	4,000	5,000	5,000	5,000
Scrap metal (est.)	15,000	15,000	15,000	15,000	15,000
Flat glass	0	0	811	1,112	1,511
Untreated timber	0	0	0	0	460
Subtotal	**32,160**	**33,736**	**36,840**	**37,897**	**39,470**
Organic waste diversion					
Greenwaste	8,352	7,747	7,204	7,836	7,574
Food & coffee	0	0	60	60	117
Meat waste (est.)	1,000	1,000	1,000	1,000	1,000
Fish waste (est.)	300	300	300	300	300
Sludge to land	0	0	2,354	2,767	2,404
WTTP screenings to compost	823	950	961	960	952
Subtotal	**10,475**	**9,997**	**11,879**	**12,923**	**12,347**
TOTAL	**42,635**	**43,733**	**48,719**	**50,820**	**51,817**

In 2014/15, it is estimated that over 50,000 tonnes of commodities and organic waste were diverted from landfill disposal. Three-quarters of this tonnage was commodities. Scrap metal, the tonnage of which has been estimated, is the single largest classification of diverted material.

5.0 Performance Measurement

The following sections provide comparisons of several waste metrics between Tauranga and Western Bay and TAs in other regions. The data from the other districts has been taken from a variety of research projects undertaken by Eunomia Research & Consulting and Waste Not Consulting.

5.1 Per Capita Waste to Class 1 Landfills

The total quantity of waste disposed of at Class 1 landfills from a specific area is related to a number of factors, including:

- the size and levels of affluence of the population
- the extent and nature of waste collection and disposal activities and services
- the extent and nature of resource recovery activities and services
- the level and types of economic activity, particularly the industrial activity and construction and demolition
- the relationship between the costs of landfill disposal and the value of recovered materials
- the availability and cost of disposal alternatives, such as Class 2-4 landfills
- seasonal fluctuations in population (including tourism).

By combining SmartGrowth population estimates and the Class 1 landfill waste data in section 4.3.1, the per capita per annum waste to landfill in 2014/15 from Tauranga and Western Bay can be calculated, as shown in Table 18 below. The estimate includes special wastes.

The table also includes the per capita disposal of domestic kerbside refuse, based on the tonnage figure in Table 14.

Table 18: Waste disposal per capita - Tauranga and Western Bay

Calculation of per capita waste to Class 1 landfills	Total waste	Domestic kerbside waste
Population (SmartGrowth project 2015 estimate)	167,980	167,980
Total waste to Class 1 landfill (tonnes 2014/15)	87,909	-
Total domestic kerbside refuse	-	33,711
Tonnes/capita/annum of waste to Class 1 landfills	0.523	0.201

In 2014/15, approximately 0.524 tonnes of levied waste was disposed of at Class 1 landfills for each person in Tauranga and Western Bay. Of this total, 0.201 tonnes was domestic kerbside refuse.

The per capita estimates for waste disposal for Tauranga and Western Bay is compared to estimates for other districts in Table 19. The data for other districts has

been taken from the results of SWAP surveys by Waste Not Consulting Ltd. The table also includes the disposal rate from the 2010 SWAP in Tauranga and Western Bay.

Table 19: Per capita waste to Class 1 landfills compared to other districts

Overall waste to landfill (excluding cleanfill and cover materials)	Tonnes per capita per annum
Gisborne District 2010	0.305
Waimakariri District 2012	0.311
Westland District 2011	0.331
Tauranga and WBoP District 2010	***0.452***
Napier/Hastings 2012	0.483
Southland region 2011	0.500
Tauranga and WBOP District 2014/15	***0.524***
Christchurch City 2012	0.524
Taupo District 2013	0.528
New Plymouth District 2010	0.664
Hamilton City 2013	0.668
Queenstown Lakes District 2012	0.735
Rotorua District 2009	0.736
Auckland region 2012	0.800

The districts with the lowest per capita waste generation tend to be rural areas or urban areas with relatively low levels of manufacturing activity. The areas with the highest per capita waste generation are those with significant primary manufacturing activity or with large numbers of tourists.

The per capita disposal rate for Tauranga and Western Bay is mid-way between the high and low disposal rates, and is identical to the disposal rate in Christchurch. The disposal rate for 2014/15 is 16% higher than the comparable result for 2010. This increase is likely to be associated with an increase in construction and demolition activity in the sub-region, based on observations by the transfer facility operator and council staff.

5.2 Per Capita Domestic Kerbside Refuse to Class 1 Landfills

The quantity of domestic kerbside refuse disposed of per capita per annum has been found to vary considerably between different areas. There are several reasons for this variation.

Kerbside refuse services are used primarily by residential properties, with small-scale commercial businesses comprising a relatively small proportion of collections (typically on the order of 5-10%). In districts where more businesses use kerbside wheeled bin collection services - which can be related to the scale of commercial

enterprises and the services offered by private waste collectors - the per capita quantity of kerbside refuse can be higher. There is relatively little data in most areas on the proportion of businesses that use kerbside collection services, so it is not usually possible to provide data solely on the use of kerbside services for domestic purposes.

The type of service provided by the local territorial authority has a considerable effect on the per capita quantity of kerbside refuse. Councils that provide wheeled bins (particularly 240-litre wheeled bins) or rates-funded bag collections generally have higher per capita collection rates than councils that provide user-pays bags. The effect of rates-funded bag collections is reduced in those areas where the council limits the number of bags that can be set out on a weekly basis.

Evidence indicates that the most important factor determining the per capita quantity of kerbside refuse is the proportion of households that use private wheeled bin collection services, particularly the larger 240-litre wheeled bins. Households that use 240-litre wheeled bins tend to set out greater quantities of refuse than households that use refuse bags or smaller wheeled bins. As a result, in general terms the higher the proportion of households that use private wheeled bins in a given area, the greater the per capita quantity of kerbside refuse generated.

Other options that are available to households for the disposal of household refuse include burning, burying, or delivery direct to a disposal facility. The effect of these on per capita disposal rates varies between areas, with residents of rural areas being more likely to use one of these options.

The disposal rate of domestic kerbside refuse for Tauranga and Bay of Plenty region has been calculated to be 201 kg per capita per annum in 2014/15, as shown in Table 18. It is stressed that this figure is an estimate based on a single 2010 SWAP survey of the two transfer stations in Tauranga.

Table 20 compares the per capita rate of disposal of kerbside refuse in Tauranga and Bay of Plenty region with other urban areas in New Zealand. Data for the other districts has been taken from SWAP surveys conducted by Waste Not Consulting.

Table 20: Per capita disposal of kerbside refuse – comparison with other areas

District and year of survey	Kg/capita /annum	Comment
Christchurch City 2011	110	Fortnightly 140-litre refuse wheeled bin. Weekly organic collection. Kerbside recycling. Rates funded service.
Auckland Council 2012	160	Range of legacy council services.
Hamilton City 2013	182	Rates-funded refuse bags, max. 2 per week. Weekly rates-funded kerbside recycling.
Tauranga/Western Bay of Plenty 2014/15	***201***	***User-pays refuse bags and private wheeled bins, user-pays recycling service.***
Taupo District 2013	212	User-pays refuse bags and private wheeled bins. Weekly kerbside

		recycling, rates-funded.
Hastings District/Napier City 2012	214	User-pays refuse bags and private wheeled bins (Hastings) & rates-funded bags max. 2 bags/week(Napier)
Rotorua District 2009	216	Council rates-funded Kleensaks and private wheeled bins. No kerbside recycling service

Of the urban areas that have been assessed, Christchurch City has the lowest per capita disposal rate of kerbside refuse. This is associated with the diversion of organic waste through the council's kerbside organic collection and the council's high market share.

Rotorua has the highest disposal rate of the urban areas shown in the table. This is associated with the high proportion of households in Rotorua that use private collector wheeled bin services and the absence of kerbside recycling services.

The figure for Tauranga and Western Bay of Plenty of 201 kg per capita per annum is similar to other districts with similar services.

5.3 Per Capita Domestic Recycling

TCC and WBoPDC do not provide kerbside recycling collections to residents. This service is offered by private operators on a user-pays basis. This arrangement of services is associated with a high usage of the recycling drop-off centres provided by both TCC and WBoPDC.

Per capita domestic recycling rates for Tauranga and Western Bay are calculated in Table 21. The recycling figures include both the "domestic kerbside collections" and "drop-off facilities" data from Table 17. This data, provided by TCC, excludes material from commercial sources.

Table 21: Per capita domestic recycling - kg/capita/annum

Per capita domestic recycling	2014/15
Domestic kerbside collections (tonnes)	7,280
Drop-off facilities (tonnes)	5,523
TOTAL (tonnes)	12,803
Population	167,980
Kg/capita/annum	76

An average of 76 kg/capita/annum of materials are recycled through domestic kerbside collections and drop-off facilities in Tauranga and Western Bay. This figure is compared to data from other councils in Table 22, along with a brief description of the kerbside recycling system in each district.

The comparability of data is open to some debate because issues such as measuring and reporting of contamination is inconsistent or the population that is served has not

been clearly reported. In some of the smaller centres, the tonnage collected by drop-off facilities may be included in the total. For the larger centres, only kerbside collections have been included.

Most of the kerbside collections included in the analysis include a small proportion of recycling from commercial properties.

Table 22: Per capita domestic recycling - kg/capita/annum

District	Kg/capita / annum	System type
Napier City Council	52 kg	Fortnightly bags or crates
Ashburton District	62 kg	Weekly bags or crates depending on area
Invercargill City Council	69 kg	Fortnightly 240-litre wheeled bin, commingled
Waipa District	73 kg	Weekly/Fortnightly 55-litre crate, separate paper collection
Waikato District	74 kg	Weekly 55-litre crate, separate paper collection
Tauranga and Western Bay of Plenty	*76 kg*	*Private wheeled bins and council drop-off facilities*
Dunedin City	77 kg	Fortnightly 240-litre wheeled bin, fortnightly crate for glass
Horowhenua District	81 kg	Weekly crate
Auckland Council	84 kg	Fortnightly 240-litre commingled wheeled bins or 140-litre wheeled bin with separate paper collection
Waimakariri District Council	85 kg	Fortnightly 240-litre wheeled bin, commingled
Hamilton City Council	86 kg	Weekly 45-litre crate, separate paper collection
Palmerston North City	87 kg	Fortnightly 240-litre wheeled bin for commingled materials alternating with 45-litre crate for glass
Christchurch	109 kg	Fortnightly 240-litre wheeled bin

5.4 TCC Market Share of Domestic Kerbside Refuse Market

TCC currently provides for a kerbside refuse collection service to residents, based on user-pays plastic refuse bags. In WBoPDC this service is provided to residents by private operators. In Tauranga, the Council's service is in competition for market share with private refuse collectors, particularly since one of the collectors introduced a pre-paid bag collection in about 2006.

The most accurate basis for measuring TCC's share, by weight, of the domestic kerbside refuse market is by converting the number of refuse bags sold by Council into a tonnage figure. This tonnage (based on an average bag weight as determined by annual council surveys) can then be used to calculate TCC's share of the domestic kerbside refuse market for the year. The calculation for Tauranga for 2014/15 is shown below in Table 23.

Table 23: TCC refuse bag share of domestic kerbside refuse market

Council bag share of domestic kerbside refuse market - by weight - assuming 206 kg/capita/annum of domestic kerbside refuse generated	
Kg/capita/annum of domestic kerbside refuse	201
Population of Tauranga City	120,819
Tonnes of domestic kerbside refuse from Tauranga (2014/15)	24,464
Number of TCC refuse bags sold (2014/15)	563,500
Average bag weight (March 2015)	7.26 kg
Tonnage of TCC refuse bags	4,091
Tonnage of council refuse bags as % of total tonnage	17%

The calculations indicate that the TCC kerbside refuse collection has about a 17% share, by weight, of kerbside refuse collected in Tauranga.

5.5 Diversion Potential of Waste to Class 1 Landfills

An estimate of the composition of waste disposed of at Class 1 landfills from the Tauranga and Western Bay region has been provided in section 4.3.3. The estimate is presented in terms of the twelve primary categories recommended by the SWAP and has been based on a SWAP survey in the Tauranga RTS and RRP in 2010. This survey classified waste into 24 materials types, most of which identify the recoverability of a material.

Based on an analysis of the secondary composition presented in appendix A.1.3.1, the diversion potential of the waste disposed of at Class 1 landfills from Tauranga and Western Bay has been estimated as shown in Table 24.

Materials that have been considered divertable are those which are already being recovered or otherwise diverted from landfill disposal elsewhere in New Zealand. It is recognised that no system established for the recovery of waste materials is capable of diverting 100% of that material from the waste stream. The estimate that is presented, therefore, represents a theoretical maximum, rather than the proportion of the waste stream that is likely to be recovered should a full suite of diversion initiatives be established.

Table 24: Diversion potential of waste to Class 1 landfills

Diversion potential of waste to Class 1 landfills - 2014/15	Means of diversion	% of total	Tonnes/ annum
Recyclable and recoverable materials			
Paper – recyclable	Conventional recycling	11.2%	**9,806**
Plastic – recyclable	Conventional recycling	1.7%	**1,454**
Ferrous metal – all	Conventional recycling	3.7%	**3,232**
Non-ferrous metal	Conventional recycling	0.8%	**717**
Glass – recyclable	Conventional recycling	5.6%	**4,963**
Textiles – clothing/textiles	Reused, used for rags	1.4%	**1,260**
Rubble – concrete	Crushed for aggregate	1.0%	**922**
Timber – untreated/ unpainted	Hog fuel	3.2%	**2,814**
Rubber (primarily tyres)	Granulation	0.5%	**418**
Subtotal - recyclable and recoverable		**29.1%**	25,585
Compostable materials			
Kitchen/food	In-vessel-composting	14.4%	**12,679**
Compostable greenwaste	Windrow composting	9.1%	**7,976**
Subtotal - compostable		**23.5%**	20,655
Total divertible (recyclable/recoverable/compostable)		52.6%	46,240

Over 50% of waste currently disposed of to Class 1 landfills could, theoretically, be diverted from landfill disposal. The largest divertible component is kitchen/food waste, which represents 14.4% of the total. The second largest divertible component is recyclable paper, which comprises 11.2% of the total.

6.0 Future Demand and Gap Analysis

6.1 Future Demand

There are a wide range of factors that are likely to affect future demand for waste minimisation and management. The extent to which these influence demand is likely to vary over time and in different localities. This means that predicting future demand has inherent uncertainties. Key factors in Tauranga and Western Bay's context are likely to include the following:

- Overall population growth
- Changes in demographics
- Qualitative and quantitative changes in economic activity
- Changes in lifestyle and consumption
- Changes in waste management approaches, including those of surrounding areas
- Community expectations
- Central Government action

In general, the factors that have the greatest influence on potential demand for waste and resource recovery services are population and household growth, household size, construction and demolition activity, economic growth, and changes in the collection service or recovery of materials.

Other indirect drivers also impact upon the demand for waste services. Some examples are climate change (extreme storm events) and incidents such as the Rena oil spill which resulted in additional waste to landfill/compost sites. There is a high level of uncertainty regarding these other indirect drivers and as a result, will not be discussed further in the Waste Assessment.

In order to effectively plan for the future, we need to consider the current and future demands for waste management and minimisation. Undertaking an assessment to understand the demand for services in the short, medium and long term will ensure sustainable waste management practices in the future.

Ultimately, we need to ensure that the new WMMP caters for the demand anticipated in the future. Appropriate forecasting and future demand planning will achieve this.

6.1.1 Population

Population projections are shown in Table 25.

Table 25: Population Projections 2013-2043

Projection	Population at 30 June							Population change 2013–43	
	2013	2018	2023	2028	2033	2038	2043	Number	Average annual %
Western Bay of Plenty	46,100	48,858	52,018	55,004	57,516	59,083	59,679	13,569	1.0
Tauranga	117,280	126,860	138,380	150,156	161,565	171,429	178,773	61,493	1.7

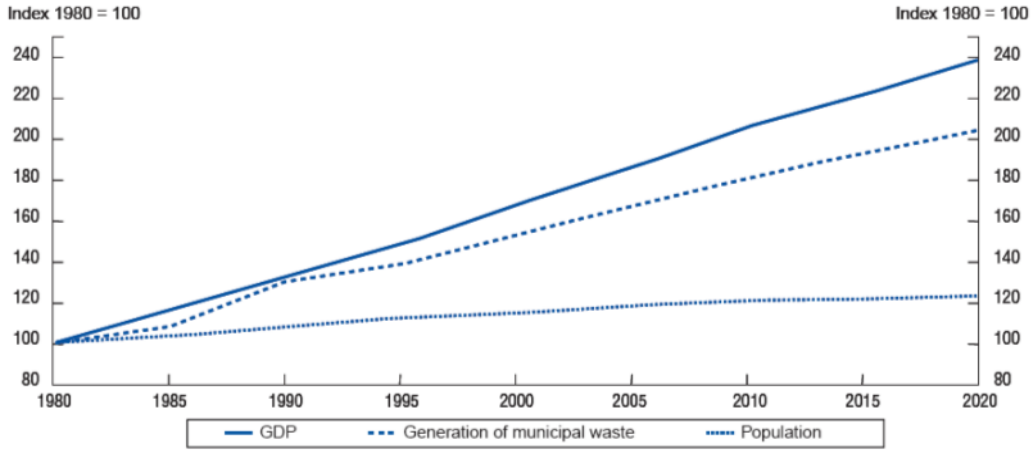
Source: Smartgrowth www.smartgrowthbop.org.nz

SmartGrowth projections suggest that between 2013 and 2043, Western Bay's population will increase by an average of 1.0% per annum, while Tauranga will grow by 1.7% per annum. This will result in a total population increase in the sub-region over this 30-year period of approximately 75,062 people.

6.1.2 Economic Activity

Figure 11 shows the growth in municipal waste plotted against GDP and population. The chart shows that waste has tended to increase at a rate slightly below GDP but noticeably above the level of population growth.

Figure 11: Municipal waste generation, GDP and population in OECD 1980 - 2020



Source: OECD 2001.

Research from the UK[16] and USA[17] suggests that underlying the longer-term pattern of household waste growth is an increase in the quantity of materials consumed by the average household and that this in turn is driven by rising levels of household expenditure.

Generally speaking, an increase in commercial and industrial activity as a result (most likely) of improved economic conditions will have a direct impact on the amount of waste that is generated.

As discussed earlier in section 2.3, the economy in Tauranga and the Western Bay is currently experiencing a period of strong growth. Of particular importance to this Waste Assessment is the ongoing level of construction activity.

Other changes to commercial/industrial activity such as major developments and large scale infrastructure projects influence the amount of waste generated per capita. Additionally, the closure or change to any managed fill or cleanfill and/or changes in legislation regarding the burning or dumping of waste on farms will impact on the future demand for landfill. The tonnage of waste that travels through these

[16] Eunomia (2007), *Household Waste Prevention Policy Side Research Programme*, Final Report for Defra, London, England

[17] EPA (1999) National Source Reduction Characterisation Report For Municipal Solid Waste in the United States

sites is ultimately unknown (although estimated in this Assessment to be 50,000 tonnes per annum). The increased availability of these sites and/or tighter legislative controls will see waste to or from these activities increasing or decreasing and will ultimately have an impact on the ability of existing services to meet an increased demand or a reduction in waste through levied sites.

6.1.3 Changes in Lifestyle and Consumption

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

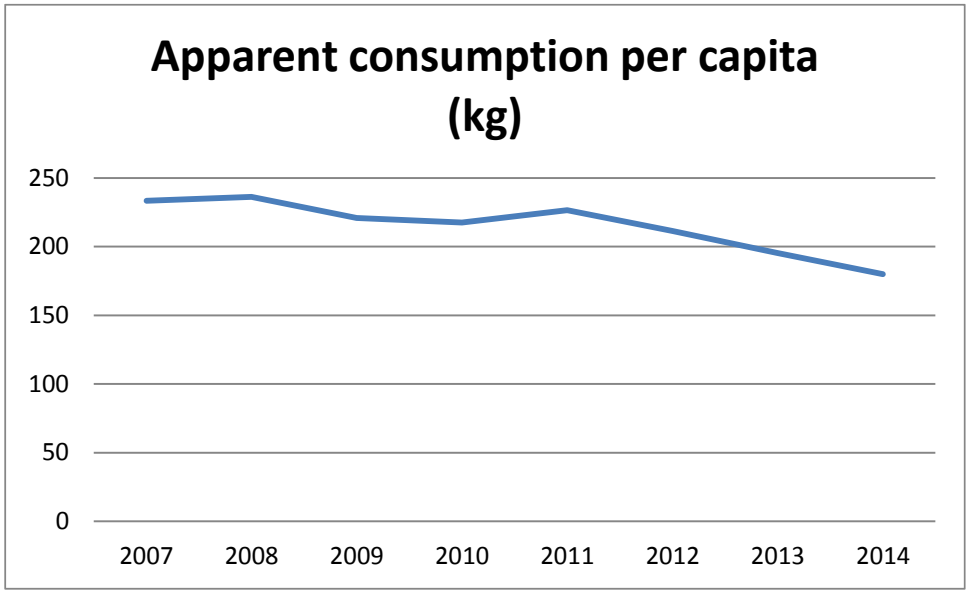
- Family composition (household numbers and children)
- Household income and size
- Attitude towards the environment and recycling
- Presence of volume-based/polluter pays charging systems for waste
- Frequency of waste collection
- Technological shifts/product supply changes
- Increased product packaging
- Presence of infrastructure and services to enable resource recovery

It is expected that both councils will continue with existing community-based social marketing behaviour change programmes and initiatives and will continually improve these over time. Over the last decade, these have provided education and training to vast numbers within the community on waste management and minimisation.

Consumption habits will affect the waste and recyclables generation rates. For example, there has been a national trend related to the decline in newsprint. In New Zealand, the production of newsprint has been in decline since 2005, when it hit a peak of 377,000 tonnes, falling to 276,000 tonnes in 2011.[18] Further indication of the decline in paper consumption comes from the Ministry for Primary Industry statistics shown in Figure 12.

[18] http://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=10833117, retrieved 11 May 2016

Figure 12: Apparent paper consumption per capita



6.1.4 Changes in Waste Management Approaches

There are a range of drivers that mean that methods and priorities for waste management are likely to continue to evolve, with an increasing emphasis on diversion of waste from landfill and recovery of material value. These drivers include:

- Statutory requirement in the Waste Minimisation Act 2008 to encourage waste minimisation and decrease waste disposal – with a specific duty for councils to promote effective and efficient waste management and minimisation and to consider the waste hierarchy in formulating its Waste Management and Minimisation Plans.
- Requirement in the NZ Waste Strategy 2010 to reduce harm from waste and increase the efficiency of resource use.
- Increased cost of landfill. Landfill costs have risen in the past due to higher environmental standards under the RMA, introduction of the Waste Disposal Levy (currently $10 per tonne) and the NZ ETS. While these have not been strong drivers to date, there remains the potential for their values to be increased and to incentivise diversion from landfill.
- Collection systems. In brief more convenient systems encourage more material. An increase in large wheeled bins for refuse for example drives an increase in the quantities of material disposed of through them. Conversely more convenient recycling systems with more capacity help drive an increase in the amount of recycling recovered.
- Waste industry capabilities. As the nature of the waste sector continues to evolve the waste industry is changing to reflect a greater emphasis on recovery and is developing models and ways of working which will help enable effective waste minimisation in cost effective ways.

- Local policy drivers. Including actions and targets in the WMMP, bylaws and licensing etc.
- Recycling and recovered materials markets. Recovery of materials from the waste stream for recycling and reuse is heavily dependent on the recovered materials having an economic value. This particularly holds true for recovery of materials in the private sector. Markets for recycled commodities are influenced by prevailing economic conditions and most significantly by commodity prices for the equivalent virgin materials. The risk is linked to the wider global economy through international markets.
- Another consideration is that of product stewardship schemes for priority products.

6.1.5 Summary of Demand Factors

The analysis of factors driving demand for waste services in the future suggests that changes in demand will occur over time reflecting increasing population, increasing geographical size, changing household demographic, changing customer expectation (notably migration of residents from other areas with more comprehensive council kerbside services). However, while steady growth is predicted, no dramatic shifts are expected. If new waste management approaches are introduced, then this could shift material between disposal and recovery management routes.

Population and economic growth will drive moderate increases in the waste generated. The biggest change in demand is likely to come about through changes within the industry with economic and policy drivers leading to increased waste diversion and waste minimisation.

6.1.6 Projections of Future Demand

Predicting the future is inevitably an uncertain exercise. There are however a number of tools and techniques that can be applied to improve the accuracy of predictions.

When undertaking projections of future demand the core task is to determine likely quantities of material that must be managed. The routes for managing these materials (for example through landfill, recycling composting etc.) can then be explored through scenario analysis.

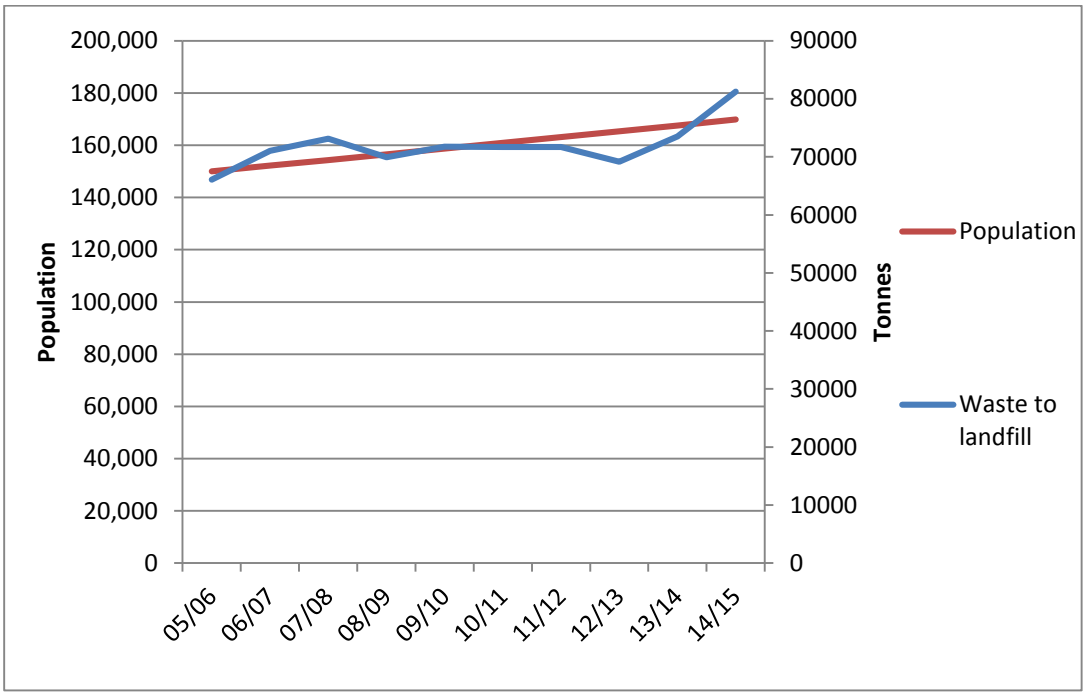
The key metrics that over time have been shown to be the best predictors of waste quantities are real GDP (as a measure of economic activity) and population.

Analysis was undertaken of the historical correlation between these factors and waste.

Unfortunately, generation data for the complete waste stream including recovered materials and material sent to class 2-4 disposal sites (e.g. cleanfills) is patchy and incomplete. Including this data results in large fluctuations over time, and cannot be expected to yield useful correlations. Data on waste to landfill however is relatively reliable going back over ten years. Although there have been some changes in waste management and in the quantities of material diverted over the last ten years these are not believed to have resulted in major changes in the proportion of waste sent to landfill. Landfill tonnages are therefore considered to be a useful proxy for overall waste generation in the context of this exercise.

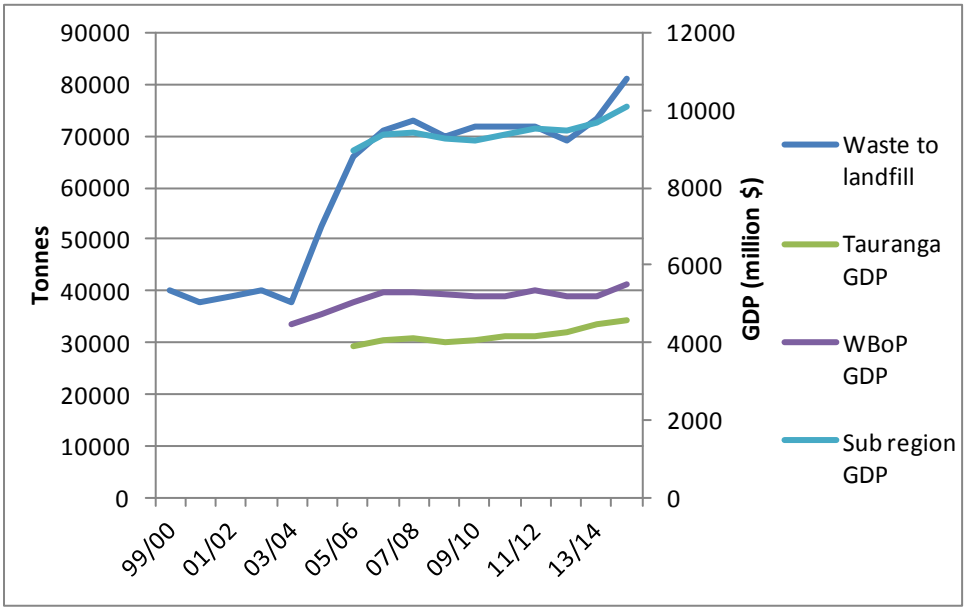
The correlations between waste and population are shown in the charts below.

Figure 13: Population and Waste to Landfill



The correlation between waste and population is 0.66 (where 1 is a perfect correlation).

Figure 14: Waste to Landfill and GDP



When the GDP for Tauranga and Western Bay is combined it results in a very good fit to the waste to landfill line. The correlation co-efficient in this case is 0.91 which demonstrates a high degree of correlation. Real GDP is a useful indicator in this instance as it includes the impacts of all economic activity including population and construction activity.

Regression analysis was undertaken on the population and GDP metrics with waste to

landfill as the dependent variable which showed the following:

Table 26: Regression Statistics for Population & GDP

Regression Statistics	Population	GDP
Multiple R	0.66	0.91
R Square	0.43	0.82
Adjusted R Square	0.36	0.80
Standard Error	3111.22	1753.77
Observations	10	10

The 'r squared' value indicates how much of the variation in waste to landfill quantities is able to be explained by each metric. In other words population growth is able to account for 43% of the observed change while GDP is able to account for 82%.

On the basis of the above analysis, GDP was used to develop a projection for future waste generation.

GDP forecasts to 2020 for New Zealand were used as the basis for the projection, as no specific forecasts for the sub region were able to be obtained. Historically GDP data for the sub region and for NZ demonstrated a reasonable correlation. Tauranga and Western Bay GDP has shown greater volatility than national GDP, which is to be expected as the national economy is more diversified than for the sub-region however the long term pattern is very similar. This is shown in the charts below:

Figure 15: Western Bay of Plenty District and New Zealand GDP 2001 - 2015

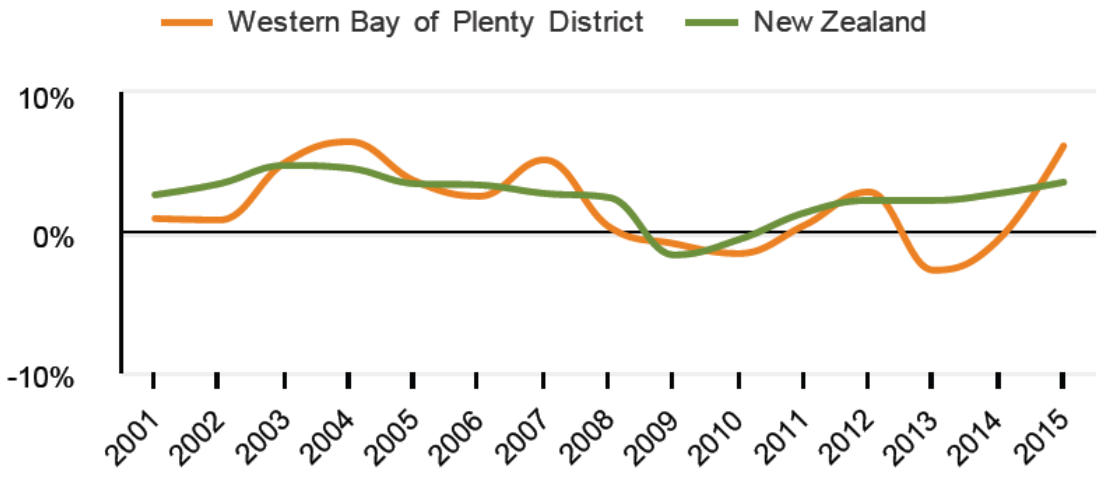
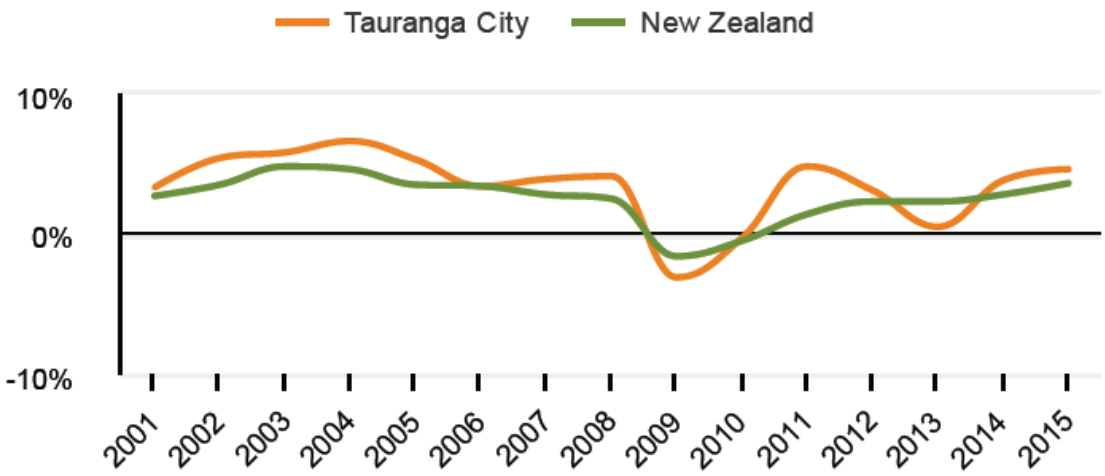


Figure 16: Tauranga City and New Zealand GDP 2001 - 2015



The GDP forecast for New Zealand to 2020 is shown in Table 27:

Table 27: GDP Forecast for NZ to 2020

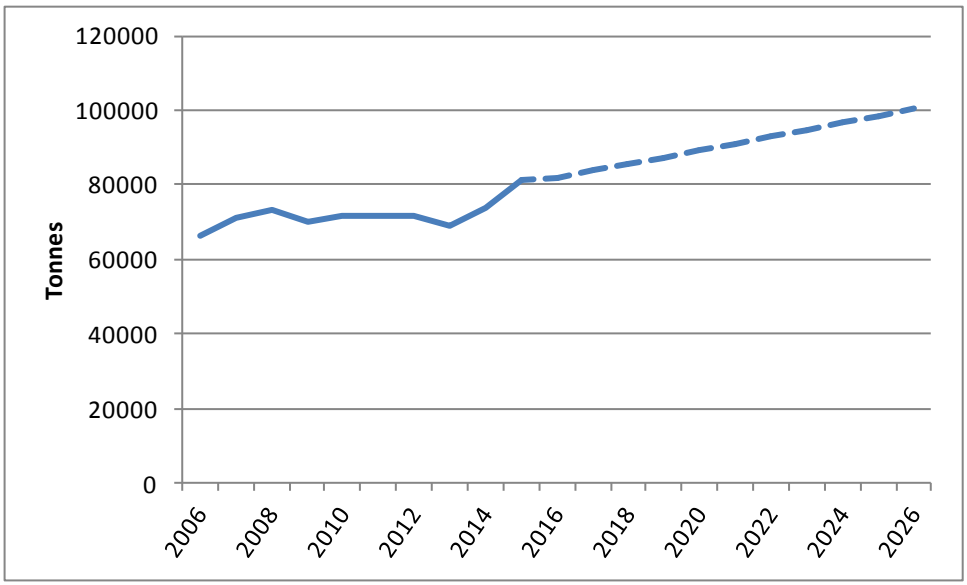
Year	GDP (Billion $)	Change
2015	200 (Actual)	
2016	204	2.0%
2017	207	1.5%
2018	210	1.4%
2019	213	1.4%
2020	216	1.4%

Source: http://www.tradingeconomics.com/new-zealand/gdp/forecast retrieved 19 May 2016

For the purposes of this exercise the forecasted rate of change in GDP of 1.4% was applied to future projections to 2026. The projected GDP values were then used as the basis for forecasting landfill growth based on the outcomes of the regression analysis.

The forecast is shown in the following chart with the actual values up to 2015 as a solid line and the projection as a broken line.

Figure 17: Forecast Landfill Quantities to 2026



The actual rate of growth for waste over time is approximately 2% which is slightly above the 1.4% GDP rate. This is because there is not a direct 1:1 relationship between GPD and waste growth. The figures are also contained in the landfill column of the table below. Projected figures are shown in italics.

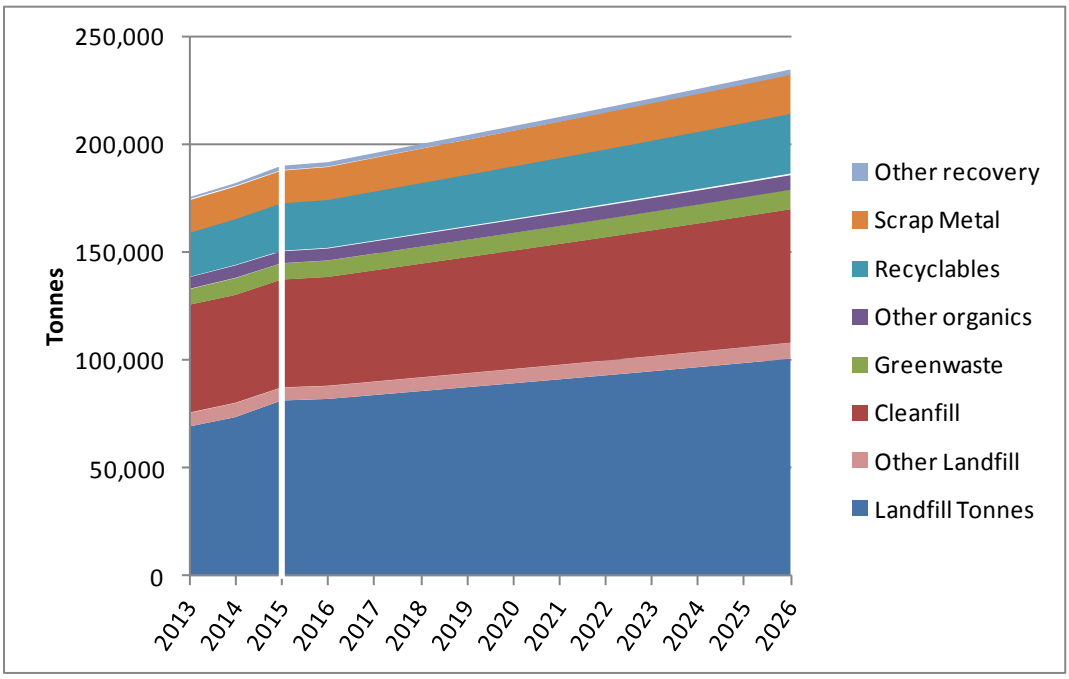
Figure 18: Landfill, GDP, and Population forecasts for the sub-region

	Landfill	GDP	Population
2006	66101	8958.1	150,000
2011	71704	9353.3	160,929
2016	*81,946*	*10,271*	*170,783*
2021	*90,987*	*11,029*	*184,526*
2026	*100,523*	*11,828*	*199,206*

Finally, the waste growth figures were applied to a breakdown of all materials. For the purposes of this exercise it is assumed that the rate of generation of recovered materials is the same as for waste to landfill. The projection assumes no significant change in the management of materials but that existing facilities and services would have capacity to cope with additional demand.

The outcomes of this analysis is shown in Figure 19. The data to the left of the white line shows actual figures while the data to the right is the projection.

Figure 19: Estimated Tonnes of Waste and Recovered Material to 2026



The projections indicate that by 2026 the sub-region will be sending in the order of 100,000 tonnes of material to landfill, a further 60,000 to cleanfill, while green waste grows to about 10,000 tonnes, other organics to 7,000 tonnes, recyclables to 28,000 tonnes and scrap metal to 18,500 tonnes.

6.1.7 Household Projections

One key element is the demand for household services. As household numbers increase, this will precipitate a corresponding increase in the service requirement. As Tauranga and Western Bay are experiencing a high level of 'in-migration', many new residents will come to the sub-region with an expectation of council-provided services.

Table 28: Household[19] Projections Tauranga and Western Bay

	Tauranga	Western Bay	Total Households
2013	50,259	20,085	70,344
2018	54,887	22,003	76,890
2023	60,541	24,031	84,572
2027	67,684	25,982	93,666

Source: SmartGrowth Household and Population Projections 2013-63

Community expectations relating to recycling and waste minimisation are anticipated to lead to increased demand for recycling services.

Recyclable materials also flow into the sub-region from surrounding areas with mixed recycling from Whakatane being processed at the Te Maunga Resource Recovery

[19] Equivalent to total dwellings – i.e. both occupied and unoccupied households

Park MRF. Generally, this demand is catered for by the commercial waste/diverted materials market.

An important consideration is that other regions might introduce additional capabilities for dealing with resource recovery. Both councils should consider, on a case by case basis, opportunities for partnerships with these regions where the solutions cannot be provided locally, to ensure that the wider community benefits from resource recovery solutions.

6.2 Future Demand – Gap Analysis

The anticipated future demand described above, when considered in light of the information presented in previous sections regarding current services, data and performance, enables gaps to be identified where future waste management and minimisation may not meet the anticipated needs.

The following 'gaps' have been identified:

- Risk inherent in the current service structure – services could be changed or cancelled at any time without necessarily any notice nor communication with the Council, nor consultation with the community
- Uncertainty about meeting future needs – is the private sector model able to be responsive and flexible enough? The Councils do not have sufficient influence over the private sector services to be confident that these will be addressed. Specific issues include:
    - Growing population
    - Growing residential areas, including an increase in small rural properties (lifestyle properties)
    - Ongoing and potentially increasing holiday peak populations
    - Changes in waste management best practice and technologies
    - Provision of food waste collections (the private sector has indicated they have no interest in providing this service)
    - Two RRPs are currently at, or near, capacity for much of the year
    - Additional facilities required and processing of more difficult waste streams at existing facilities
- Processing for recyclables that reduces contamination levels and achieves better return for the commodities produced
- The current system is expensive for the sub-region as a whole; although residents have lower rates as a result of the private sector service provision
- C&D waste is a growing part of the waste stream and yet little of this material is recovered or recycled
- There is a growing customer expectation that services will be provided by councils
- Inconsistent implementation and enforcement of solid waste bylaw provisions
- Data availability, quality and management
- Cleanfill numbers and tonnages
- Farm waste management is poorly understood and an area for potential focus in the future
- Biosolids management
- Poor diversion rate on organics, especially food waste

- Information about the amount and type of waste which is going to unregulated disposal (farm pits, cleanfill and burning) is scarce

6.2.1 Waste Streams

Priority waste streams that could be targeted to further reduce waste to landfill would include:

- More kerbside recyclables both from domestic and commercial properties
- Organic waste, particularly food waste both from domestic and commercial properties
- Industrial and commercial plastic is a significant part of the waste stream which may be able to be recycled
- Farm waste is a relatively unknown quantity and increased awareness of the problems associated with improper disposal may drive demand for better services
- Construction and demolition waste, in particular timber, is a significant part of the waste stream which may be able to be recovered
- E-waste collection and processing capacity in the district, while better than many areas, has room for improvement
- Biosolids (the TCC City Waters Team are currently working on a biosolids strategy)
- Waste tyres may not be a large amount of the waste stream however the effectiveness of the management of this waste stream is unknown and issues with management of this waste stream have recently been highlighted nationally

Infrastructure to manage the increased quantities and new waste streams will be required.

6.2.2 Hazardous Wastes

Potentially hazardous household wastes such as paint, oil and chemicals are collected at the RTS and RRP in Tauranga and three drop-off points in Western Bay. There is a need to review the provision of these services at the transfer stations to ensure proper storage and management procedures are followed, so as to protect the health of workers, the public and the environment.

Options for hazardous wastes include:

- Reviewing management procedures at transfer stations for hazardous wastes.
- Undertaking more detailed monitoring and reporting of hazardous waste types and quantities including medical waste.
- Improving public information about correct procedures for managing hazardous wastes including medical waste and asbestos.
- Introducing a bylaw licensing collectors. This will improve information on hazardous waste movements and enable enforcement of standards.

6.2.2.1 Medical Wastes

The Pharmacy Practice Handbook[20] states:

> *4.1.16 Disposal of Unused, Returned or Expired Medicines*
>
> *Members of the public should be encouraged to return unused and expired medicines to their local pharmacy for disposal. Medicines, and devices such as diabetic needles and syringes, should not be disposed of as part of normal household refuse because of the potential for misuse and because municipal waste disposal in landfills is not the disposal method of choice for many pharmaceutical types. Handling and disposal should comply with the guidelines in NZ Standard 4304:2002 – Management of Healthcare Waste.*

The District Health Board is proposing to provide a service to collect certain medical waste items at pharmacies in the community. It is not possible to estimate the amount of material that will be collected through this scheme. Interwaste, a national medical-waste disposal company provides a complete pharmaceutical waste disposal service.

6.2.2.2 E-waste

Without a national product stewardship scheme the e-waste treatment and collection system will continue to be somewhat fragile. Currently companies tend to cherry pick the more valuable items such as whiteware and mobile phones. As a result the more difficult or expensive items to treat such as CRT TVs and domestic batteries will often still be sent to landfill.

There are a limited number of collection points in the district at the RRP and RT, and no consistent region-wide approach to e-waste management.

[20] https://nzpharmacy.wordpress.com/2009/06/09/disposal-of-unwanted-medicines/

7.0 Initial Review of the 2010 Waste Management and Minimisation Plan

The WMMP adopted in September 2010 was the first for both Tauranga City and Western Bay of Plenty District Councils. This WMMP had a vision for the future:

> *"To promote efficient waste management practices that minimise environmental harm by working towards minimal waste"*

This vision was supported by the following objectives:

1. *To reduce the total quantity of waste to landfill*
2. *To reduce the quantity of harmful waste to landfill*
3. *To increase diversion of waste that is currently disposed of to landfill for reuse, recovery or recycling*
4. *To use Council influence to advocate for increased or mandatory producer responsibility*
5. *To improve reliability and completeness of waste data collected to enable the setting of specific targets in future Waste Management and Minimisation Plans*
6. *To support waste minimisation initiatives in the community*
7. *To apply a user pays philosophy and enable appropriate level (sic) of service for waste and recycling collection services*

The WMMP also contained a list of policies:

Policy		Objective
1	The Councils' primary role is to encourage and support waste minimisation	All
2	Councils' level of involvement in collection services for waste and recycling will be limited to facilitating private operators and providing a contingency to ensure appropriate level of service	1, 7
3	Councils will undertake or support activities that reduce harmful waste to landfill	1, 2
4	The Councils will continue to provide education for waste minimisation	1, 3, 6
5	Councils will support initiatives by providing facilities and programmes needed to achieve waste minimisation	1, 3, 6
6	Councils will co-operate with the private sector to progress objectives of the plan, obtain data for planning and in turn, promote waste management services	5, 7

The action plan section also included a number of targets. Some of these targets

were related to those already set in the Tauranga City 2009 long term plan:

Target 1: 40% of the waste stream processed through council-owned or associated facilities is diverted as resources by 2015 (in 2009/10 this was 22%)

Target 2: Reduction of 20kg in per capita/annum of waste to landfill by 2015 from the 2010 baseline of 477 kg/capita/annum

Target 3: Reduce organic waste to landfill through Council facilities by 20% in 2015 from 2010 figures

The data presented earlier in this waste assessment shows that there has been little positive change in these three measures since the 2010 plan. In undertaking an initial review of the action plan from the 2010 WMMP it is apparent that the intended outcomes and targets were not adequately supported by the proposed actions, and that the actions in the plan have not enabled council to deliver on the stated outcomes. To be meaningful, targets and outcomes need to derive directly from specific actions that will be able to deliver measurable results.

The table below summarises the targets set in the last Plan. As the last Plan was a joint document with Western Bay of Plenty District Council, some of the targets and actions refer to Western Bay.

Target	Progress	Commentary
Target 7.1 **40% of the waste stream processed through council owned or associated facilities is diverted as resources by 2025.**	In 2014-15, 22% of the waste stream is being diverted. Not achieved.	
Target 7.2 **Reduction of 20 kg in per capita/annum of waste to landfill by 2015 from the 2010 baseline of 477 kg/capita/annum.**	In the 2015/16 year, 524 kg of waste was sent to landfill per capita. This is an increase from the 2010 baseline of 47 kg/capita/annum.	Although we did not meet the target, construction activity in the city has increased significantly over this time.
Target 7.3 **Reduce organic waste to landfill through Council facilities by 20% by 2015 from 2010 figures.**	Unable to determine until new SWAP of the transfer station is undertaken.	It is proposed to undertake a new SWAP in late 2016.
Target 7.4 **Measuring diversion rates**	Council has been able to calculate a diversion rate annually.	

The action plan included a section relating to monitoring and reporting. Progress on these actions is summarised below:

Goal	Detail	Progress and Commentary
Collect and report quantities of waste to landfill processed at transfer stations.	Collect data by weight from the transfer stations and report diversion rates to Councils and the community.	Completed annually
Collect and report quantities of materials diverted from landfill at Council transfer stations and associated facilities.	Includes transfer stations, recycling facilities, resource recovery park and WBoPDC drop-off facilities. Collect data by weight from these facilities.	Completed annually
Collect and report quantities of greenwaste accepted at facilities for processing to compost.	Report greenwaste processed into compost from the councils' facilities (transfer stations, WBoPDC drop-off centres and Te Maunga composting site).	Partially completed – data is collected but not currently reported.
Investigate and where possible report quantities and types of materials disposed of at cleanfill sites.	Work with BoPRC on methodology to collect accurate data from cleanfills.	Incomplete – proposed to include this in new Plan as SWAP analysis and have funding allocated
Review bylaws to enable more comprehensive and consistent data collection.	Investigate and research possible changes in bylaws relating to the collection of more accurate data. Dependant on policy decisions of Councillors and limitations on bylaw.	Completed in 2012
Monitor and review waste minimisation behaviour change programmes.	Method to be developed. Create a methodology for both councils to adopt and use to monitor and measure the success of behaviour change projects.	Completed – however requires some review

Monitor and review level of service provided by the private sector.	To include area of coverage for recycling and rubbish collection services. Create methodology for measuring level of service and determine at what stage it would be appropriate for the council to take action and provide services not available in the private sector.	Completed - Some collection routes changed in consultation with private collectors. Action taken/planned in areas where private contractors expressed problems (glass, food waste).
Collect and report data and activities relating to waste minimisation at events.	Create methodology for event organisers to use for data collection. Collate data provided by event organisers specific to tonnages/kgs of waste to landfill, diverted recyclable and compostable materials.	Completed - methodology has been developed, however, the return of data has been difficult as it is not required to be submitted. To be addressed when revising bylaw and linking central Council funding to waste minimisation at events.

The plan also includes a number of actions relating to various solid waste activities, ranging from waste minimisation support to facility provision.

The next table shows a summary of progress on these action areas.

Action Area	Detail	Progress
The Councils' primary role is to encourage and support waste minimisation.	National advocacy – product stewardship	Ongoing, e.g. submission to MfE on product stewardship
	National advocacy – cleanfills and managed fills	Ongoing; particularly liaison with BoPRC
	Promote waste minimisation enterprises, organisations, private enterprises	Ongoing, as appropriate; e.g. Para Kore, Conscious Consumers.
	Monitor and review Council's own actions, including in-house organisational initiatives	Ongoing although a more consistent and strategic approach needed
	Requirements in council construction contracts for recycled materials and recycling of waste	Ongoing although a more consistent and strategic approach needed
	Consider removal of public	Ongoing where appropriate

	litter bins	
	Waste minimisation plans for events	Ongoing – included in 2012 solid waste bylaw. Further future improvements have been identified.
Councils' level of involvement in collection services for waste and recycling will be limited to facilitating private operators ad providing a contingency to ensure appropriate level of service	No Council involvement in waste collection in most instances	Completed
	No rates-funded inorganic collections	Completed
	Councils to meet any service levels that exceed those provided by private sector	Not required
	Collaborate and/or facilitate on solutions for difficult wastes	Ongoing – initiatives have addressed coffee grounds and food waste.
	Review solid waste bylaws, including consideration of construction & demolition waste	Completed - new bylaw adopted 2012
Councils will undertake or support activities that reduce harmful waste to landfill	Support waste reduction and/or harm reduction initiatives	Completed – e.g. TV takeback scheme
	Annual household hazardous waste collection	Undertaken during 2010-2012 and then discontinued when Agrecovery started
Councils will continue to provide education for waste minimisation	Free waste minimisation education for schools	Ongoing – zero waste education and resource-wise schools
	Support waste minimisation community groups	Ongoing as needed
	Support education opportunities	Ongoing – e.g. Para Kore, Litefoot, Waste Free Parenting, etc.
Councils will support initiatives by providing	Provision of drop-off facilities	Completed – at two Resource Recovery Parks

facilities and programmes needed to achieve waste minimisation	Cleaner production advice	Ongoing via the business waste minimisation program
	Waste reduction support	Ongoing – two workshops held each year
	Event waste minimisation	Ongoing with increasing levels of support and intervention for events
	Facilitate Resource Recovery Park at Te Maunga	Ongoing
Councils will co-operate with the private sector to progress objectives of the plan, obtain data for planning and in turn, promote waste management services`	Identify significant problems through liaison	Ongoing, proactively and reactively
	Consider council provision where private and community sector don't meet need	Not required
	Operate a licensing system and work with licensed operators	Licensing will commence on 1 July 2016
	Establish protocols for data collection	Not completed – the National Waste Data Framework project makes this unnecessary
	Investigate improved hazardous waste data collection	Needs to be considered when the bylaw is next revised
	Publish annual report	Completed as part of the Annual Plan process, including community perceptions survey

8.0 Statement of Options

The following subsections outline the broad options available to Tauranga and Western Bay to manage and minimise waste in order to meet future demand.

8.1 Regulation

Reference	Option	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
R1	**Implement existing solid waste bylaws fully and consistently**	*Social/Cultural:* better understanding of the waste flows in the district, greater monitoring of providers to ensure no adverse health risks occur. *Environmental*: would potentially guard against environmental degradation through illegal disposal *Economic:* some increased cost for operators; additional resources will be required to fully monitor and enforce the regulatory system	Fully implemented bylaws would, as a minimum, require reporting of waste material quantities. Collecting waste data is imperative to planning how to increase waste minimisation across domestic services and commercial waste streams.	Councils would implement and enforce existing bylaws; monitoring and reporting on waste quantities and outcomes. In fully implementing and enforcing solid waste bylaws, the councils should seek to be as consistent as possible with the BoP/Waikato regional project. Minor changes will be required to align with the National Waste Data Framework.

R2	**Review Solid Waste Bylaws to extend the range of regulatory powers, such as requiring all collectors to provide a refuse and a recycling service, or preventing the use of large containers for refuse collection and extending the ability to licence collectors/facility operators and collect data**	*Social/Cultural:* better understanding of the waste flows in the district, greater monitoring of providers to ensure no adverse health risks occur, wider range of services offered to residents *Environmental:* would increase diversion from landfill and information about disposal practices and could potentially guard against environmental degradation through illegal disposal *Economic:* increase cost for operators; additional resources will be required to monitor and enforce the regulatory system	Improved bylaws would, as a minimum, require reporting of waste material quantities. Collecting waste data is imperative to planning how to increase waste minimisation across Council provided services and commercial waste streams The bylaw could also be used to require minimum performance standards. This could be a key mechanism for addressing waste streams currently controlled by the private sector and how they provide their collection services. Requiring provision of a recycling collection to all customers, and preventing the use of large bins for refuse collection, could decrease the amount of waste sent to landfill. The amount of recyclables requiring processing would increase.	Councils would develop and enforce the bylaws; monitoring and reporting on waste quantities and outcomes The solid waste bylaw must not be an unreasonable hindrance on private business seeking to take advantage of opportunities to take part in waste minimisation and waste management activities. This includes how waste, recovery, diversion, recyclables and disposal is defined within the document. In considering a licensing approach, the Councils should seek to coordinate with the BoP/Waikato regional project. Putting in place a regulatory approach to waste management that is different from their neighbours could result in unnecessary administrative burden for private

				operators, and unintended consequences such as less well-regulated areas becoming a target for undesirable practices, such as clean filling, and poorly managed waste facilities.

8.2 Measuring and Monitoring

Reference	Option	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
M1	**Audit waste stream at transfer stations and kerbside every 4-6 years and before and after significant service changes and monitoring of waste flows through contract for kerbside refuse collection (Tauranga) and licensing.**	*Social/Cultural*: Identifying material streams for recovery could lead to job creation *Environmental*: Ability to identify materials and waste streams for potential recovery and reduction *Economic*: Ability to identify materials and waste streams for potential recovery and reduction, giving rise to new business opportunities and reduction of disposal costs	Would not impact on the status quo prediction of demand directly.	Councils would maintain existing service arrangements Minor changes would be required to align with the National Waste Data Framework.

M2	**Increase monitoring to provide more information in certain areas, such as commercial waste composition; waste management in rural areas; cleanfill, construction and demolition waste. Audit cleanfill waste streams wherever possible to understand composition of waste.**	*Social/cultural:* could raise awareness of waste management in areas where currently very little is known; enable greater monitoring of providers to ensure no adverse health effects occur. Identifying material streams for recovery could lead to job creation. *Environmental*: increased ability to identify additional/altered services to increase diversion of waste from landfill. *Economic*: there may be additional costs for new programmes put in place. Ability to identify materials and waste streams for potential recovery and reduction, giving rise to new business opportunities and reduction of disposal costs.	Analysis of available data has shown that there are gaps in knowledge and understanding of waste streams. Availability of more data, and tailoring of services accordingly, could increase demand for recycling services and reduce waste to landfill.	Councils should initiate and oversee research, studies and audits; and feed results into future iterations of waste assessments and WMMPs. Councils may need to develop bylaw and licensing systems to gather more data.

8.3 Communication and Education

Reference	Option	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
CE1	**Continue existing education programme.**	*Social/Cultural*: community will be aware of options, engaged in the waste management process, and take a level of ownership of waste issues. Information would be provided regarding health risks of waste materials and appropriate disposal pathways. *Environmental:* education programmes aim to establish and support positive behaviours that reduce environmental impact. *Economic:* currently funded.	Awareness of waste issues and behaviour would not change significantly from current situation.	Councils would continue to fund and coordinate a wide range of education programmes.

CE2	**Extend existing communication programme to focus on additional target audiences e.g. farmers, new mothers, retired people, businesses, less engaged sectors of the community.**	*Social/cultural:* community will be more aware of options and more engaged in the waste management process, taking a higher level of ownership of the issue. Information regarding health risks of waste materials and appropriate disposal pathways would reach a wider audience. *Environmental:* education programmes would seek to establish, support and extend positive behaviours that reduce environmental impact. *Economic:* could potentially be funded through waste levy funding.	Expanding the target audience may improve results in increased recycling and decreased unwanted behaviour such as landfilling and other land disposal.	Councils would fund and/or coordinate education programmes.
CE3	**Extend existing communication programmes to support any new rates-funded services provided by the Councils**	*Social/cultural:* community will be more aware of options and more engaged in the waste management process, taking a higher level of ownership of the issue. Information regarding health risks of waste materials and appropriate disposal pathways would reach a wider audience *Environmental:* education	Depending on the new rates-funded services that are provided, this could potentially contribute to a significant reduction in demand for landfill, and an increase in demand for recycling services and processing.	Councils would fund and coordinate education programmes.

		programmes would seek to establish, support and extend positive behaviours that reduce environmental impact *Economic:* could initially be funded through waste levy funding when new services are introduced; subsequent communications would be rates-funded		
CE5	**Tauranga and Western Bay Councils would coordinate with other Bay of Plenty councils (and possibly other neighbouring authorities) to standardise communication and education material to present consistent messages.**	*Social/cultural:* community will be more aware of options and more engaged in the waste management process; with more information regarding good hygiene. *Environmental:* aim to establish positive behaviours that reduce environmental impact. *Economic:* consider funding through waste levy funds.	Analysis of data suggests there is significant potential to reduce, reuse and recycle more waste. Communities should reduce their reliance on residual waste collections and demand for recycling services will increase.	Councils would produce and deliver more information, and work more closely with other councils and the community.

8.4 Collection Services

Reference	Option	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
CS1	**Tauranga continues to provide a kerbside refuse collection; all other kerbside services are provided by the private sector with Councils undertaking a level of regulation of collectors.**	*Social/Cultural:* Council and the collection contractor have a responsibility to mitigate the risks associated with kerbside bag collections. Collection services would not be provided to around 8,000 rural Western Bay residents. Private operators do not necessarily always provide the appropriate levels of service, for example, at peak times. *Environmental/Economic:* no new impacts. Council may have to subsidise elements of service provision to ensure adequate service levels.	Would not impact on the status quo prediction of demand.	Councils would take a regulatory role using the existing solid waste bylaws, enabling a measure of performance monitoring and data collection.
CS2	**Tauranga continues to provide a kerbside refuse collection; and both Tauranga and**	*Social/Cultural:* residents would be provided with a wider range of services. Communication would be based on a consistent system, resulting in a	Modelling shows that this would have a measurable impact on the amount of waste diverted through recycling; reducing the	Councils would provide a kerbside recycling service, through a contract or other type of service agreement. Councils would manage and monitor service provision and collect full data on

	Western Bay provide a rates-funded recycling collection (through one of a variety of possible mechanisms)	community that is more aware of options and engaged in the waste management process. Collection services would not be provided to around 8,000 rural Western Bay dwellings (these may or may not have access to private providers). *Environmental:* the new service would provide for positive behaviours that reduce environmental impact. There would be reduced vehicle movements around Tauranga and the Western Bay. *Economic:* residents would pay for recycling collections through rates; however many residents would no longer pay a private collector for the service. Modelling shows that this would have an overall positive cost impact. A small number of households would experience an	future demand for landfill and reliance on recycling drop-off points; and increasing the future demand for recycling services and processing. Improvements to recycling processing facility/ies may be required.	the collection service. Additional resource may be required to manage this new service. Councils would need to recover costs for this service through rates; either general rate or a targeted rate charged to those residents that are eligible for the service.

		increase in rates but not receive the service; unless the service is funded through a targeted rate. There may be an impact on the private sector as they would no longer be providing a kerbside recycling collection service to the majority of their customers. There may instead be the opportunity to provide services on behalf of the Councils. This may mean that a greater proportion of the 8000 dwellings are not able to access any services at any cost. Implications for Western Bay's strategic commitment to minimal rates rises (LTP).		
CS3	**Tauranga and Western Bay provided a full kerbside collection service funded through rates. This service would enable recycling, organic**	*Social/Cultural:* residents would be provided with a much wider range of services. Communication would be based on a consistent system, resulting in a community that is more aware of options and engaged in the waste	Modelling shows that this would have a significant impact on the amount of waste diverted; reducing the future demand for landfill significantly and reducing reliance on recycling drop-off points;	Councils would provide three kerbside collection services, through a contract or other type of service agreement. Councils would manage and monitor service provision and collect full data on the collection service. Additional resource may be required to manage this new service, which

	waste and rubbish to be collected. By providing a comprehensive recycling and organic waste collection service, rubbish collections can be reduced (through container size and/or frequency of collection).	management process. Collection services would not be provided to around 8,000 of rural Western Bay dwellings (these may or may not have access to private providers). *Environmental:* the new services would provide for positive behaviours that reduce environmental impact. Vehicle movements around Tauranga and Western Bay would be reduced. *Economic:* residents would pay for all collections through rates; however most residents would no longer need to pay a private collector for services. Modelling shows that this would have an overall positive cost impact with the average household paying about half of current costs. A small number of households might experience an increase in	and increasing the future demand for recycling and organic waste services and processing. Improvements to recycling processing facility/ies may be required, and a facility/facilities would be required to process the collected organic waste.	could be managed through a CCO, joint business unit or in-house. Councils would need to recover costs for this service through rates; either general rate or a targeted rate charged to those residents that are eligible for the service.

		rates but not receive the service; unless the service is funded through a targeted rate. There would be an impact on the private sector as their customer base would be significantly reduced; however there would conversely be the opportunity to provide services on behalf of the Councils. Significant implications for Western Bay's strategic commitment to minimal rates rises.		
CS4	**Western Bay provides farm waste and recycling collection services targeted at improving management of farm wastes. The exact nature of the services would need to be determined but could encompass on property on demand**	*Social/Cultural:* All sectors of the community would be catered for. *Environmental:* Rural waste is an issue that is receiving increasing attention, with particular concern around management of hazardous wastes. Provision of a council service could substantially improve local soil and groundwater quality. *Economic:* It is proposed that the service would be	Most rural waste does not enter the formal waste management system, and so uptake of a service would increase demand for recycling and disposal capacity.	Council would provide a facilitation role for the service and would look to link with and leverage from work being done nationally and regionally on farm waste services.

	collections using skips/hiab bins or similar to accommodate large quantities and reduce the frequency of collection (thus constraining costs).	user pays or part user pays. Farms are commercial enterprises and from that perspective should have the same expectations on them for managing their wastes. It would mean additional costs for farms some of whom would not be willing to pay, and whom would view traditional on farm means of disposal (burn or bury) as preferable.	

8.5 Resource Recovery Park, Drop-off Centres and Disposal

Reference	Option	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
RRP1	**Tauranga and Western Bay continue to provide the existing Resource Recovery Park (RRP) and drop-off centre options, with upgrades and improvements to accommodate user numbers.**	*Social/Cultural:* enhanced services enabling separation of materials such as hazardous waste would facilitate appropriate disposal and reduce health impacts. *Environmental:* some improvement to waste recovery if expanded/additional services are introduced. *Economic:* A need to upgrade existing facilities to cope with demand and reduce health and safety risks is expected. (The requirement to upgrade is lessened if kerbside services are introduced, as demand for drop off facilities would be less).	Would not impact significantly on the status quo prediction of demand for landfill; but would accommodate the predicted future demand for RRP and drop-off facilities.	Councils would provide capital funding to upgrade and improve the current RRP and drop-off facilities. This could be done through a direct service arrangement, or by sub-leasing space to the private or community sectors.
RRP2	**Tauranga and Western Bay upgrade and extend RRPs and drop-off**	*Social/Cultural:* enhanced services enabling separation of materials such as hazardous waste	Would have an impact on demand for landfill and would increase demand for recycling/recovery	Councils would provide capital funding (potentially partly through waste levy funds) to significantly upgrade and improve the current

	centres with additional material streams processed at RRPs and a new RRP provided in Western Bay.	would facilitate appropriate disposal and reduce health impacts. *Environmental:* improvement to waste recovery depending on exactly which expanded/additional services are introduced. *Economic:* Councils will need to invest funding in improving existing facilities and extending the network.	services and processing facilities.	RRP and drop-off facilities. This could be done through a direct service arrangement, or by sub-leasing space to the private or community sectors.

RRP3	**Tauranga and Western Bay work cooperatively with other Councils in the region (and possibly other neighbouring authorities) to explore options for alternative disposal/treatment of residual waste.**	*Social/Cultural*: no impact as a compliant disposal option would always be used, whether this is the existing landfill option or a potential alternative treatment technology. *Environmental:* There is a chance that an alternative treatment technology may have a lower environmental impact than the existing Class 1 landfill option (e.g. extraction of resources such as fuel from the residual waste). *Economic:* Currently disposal infrastructure is developed and managed by the private sector. An alternative treatment technology may have to be fully or partly developed/managed by Councils at significant capital cost.	If an alternative treatment technology could be agreed and implemented, this would remove reliance on landfill and may provide some positive benefit e.g. refuse derived fuel.	Councils would need to take a significant lead role in this process as the private sector has thus far failed to progress alternative treatment technologies successfully. Significant capital cost would be required, depending on economies of scale and the number of other local authorities that agree to be involved.

8.6 Leadership and Collaboration

Reference	Option	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
LC1	**Tauranga and Western Bay continue to work collaboratively with joint strategic documents.**	*Social/Cultural/Environmental/Economic*: no new impacts	No significant impact on status quo forecast of future demand	Councils continue to develop strategic documents, such as the WMMP, through the joint governance committee.
LC2	**Tauranga and Western Bay seek to expand their collaborative arrangement further afield with other councils (region and local) in the region, and other neighbouring authorities.**	*Social/Cultural*: some improved consistency in approach. *Environmental:* impacts depend on the implementation of collaborative strategies and projects. *Economic:* collaborative working on some areas (such as WMMP preparation, bylaws, licensing, data collection, communications) could reduce costs.	No significant impact on status quo forecast of future demand.	Councils make a joint formal approach to other councils in the Bay of Plenty (regional and local) and neighbouring authorities to form collaborative partnerships on various strategic or operational projects, particularly those already highlighted as collaborative opportunities across the BoP and Waikato regions.

LC3	**Collaborate with private sector and community groups to investigate opportunities to enhance economic development through waste minimisation.**	*Social/Cultural:* potential for downstream job creation. *Environmental:* potential enhancement through waste minimisation. *Economic:* could result in benefits for the local economy.	As discussed above the Councils could use contractors to provide a range of cost effective waste management services for the district. There are other waste minimisation activities such as reuse shops that are marginally cost effective in strictly commercial sense, but provide a great opportunity for a social enterprise/charitable community group. Having all three sectors working together can provide mutual benefits for all.	Councils to lead and facilitate. Councils recognise the importance of diversity in the mix of scales of economy and localised solutions. Councils will support a mix of economic models to target best fit solutions depending on the situation.
LC4	**Identify potential for economies of scale through partnership and cooperation.**	*Social/Cultural:* potential for a more viable sector. *Environmental:* potential for knowledge sharing and transfer. *Economic:* potential for cost reduction.	Taking advantage of economies of scale and collaborative working will enable cost effective waste management and minimisation.	Councils to lead and facilitate. Councils will identify areas where shared services or other forms of collaboration may lead to cost savings.
LC5	**Lobby for enhanced product stewardship**	*Social/Cultural:* product take back will require	Product stewardship is specifically enabled in	Promote current schemes and lobby Government for priority

	programmes	behaviour change; potentially better management of hazardous materials. *Environmental:* improved resource efficiency. *Economic:* potential for producer pays schemes.	the WMA. Fully enacting this principle will help ensure true costs of products are reflected.	products such as tyres and e-waste.

8.7 Summary Table of Potential Options (Scenarios)

Scenario Name	Regulation	Monitoring and Measurement	Education	Kerbside Collections	Infrastructure	Leadership & Collaboration
Status quo	Currently solid waste bylaws with operator licensing	Monitor material through council facilities	Current education projects	Council user-pays refuse (Tauranga only), private refuse, recycling and green waste	Upgrade of Maleme Street RTS and Te Maunga RRP to cope with peak users	TCC & WBOPDC continue to collaborate on planning
Scenario 1 **Status quo plus full licensing**	Extended solid waste bylaws including operator and facility licensing, data collection provisions, recycling service standards, container standards, material bans	Increase monitoring and measurement to cover all waste streams	As above	As above	As above	Expand collaboration to include wider region
Scenario 2 **Status quo plus council kerbside recycling**	Current solid waste bylaw	Monitor material through council facilities	As above plus councils communicate recycling service provision	As above with the addition of a council-provided recycling collection in Tauranga and Western Bay	As above	Expand collaboration to include wider region
Scenario 3 **Conventional high recovery**	Extended solid waste bylaws including operator and facility licensing, data collection provisions, recycling service standards,	Increase monitoring and measurement to cover all waste streams	Councils implement a comprehensive service communications programme	Councils provide a rates-funded refuse, recycling and organic waste collection	Existing facilities with some small upgrades/improvements; provision of organic waste processing Work collaboratively with other councils to explore	Identify potential for economies of scale through partnership and cooperation

	container standards, material bans				residual treatment and disposal options	
Scenario 4 **Full resource recovery**	Extended solid waste bylaws including operator and facility licensing, data collection provisions, recycling service standards, container standards, material bans	Increase monitoring and measurement to cover all waste streams	Councils implement a comprehensive service communications programme	Councils provide a rates-funded refuse, recycling and organic waste collection Western Bay facilitates a farm waste and recycling collection service	RRPs are upgraded and extended to provide for C&D waste diversion, reuse, composting etc with a new RRP developed in Western Bay Work collaboratively with other councils to explore residual treatment and disposal options	As above plus Lobbying for product stewardship programmes and Collaborate with private sector and community groups to investigate opportunities to enhance economic development through waste minimisation

9.0 Councils' Intended Role

9.1 Statutory Obligations

Councils have a number of statutory obligations in respect of the planning and provision of waste services. These include the following:

- Under the WMA the council *"must promote effective and efficient waste management and minimisation within its district"* (s 42). The WMA requires territorial authorities (TAs) to develop and adopt a Waste Management and Minimisation Plan (WMMP).[21]
- The WMA also requires TAs to have regard to the New Zealand Waste Strategy. The NZ Waste Strategy has two high levels goals: *'Reducing the harmful effects of waste'* and *'Improving the efficiency of resource use'*. These goals must be taken into consideration in the development of the Council's waste strategy.
- Under the Local Government Act 2002 (LGA) the Council must consult the public about its plans for managing waste.
- Under the Resource Management Act 1991 (RMA), TA responsibility includes controlling the effects of land-use activities that have the potential to create adverse effects on the natural and physical resources of their district. Facilities involved in the disposal, treatment or use of waste or recoverable materials may carry this potential. Permitted, controlled, discretionary, non-complying and prohibited activities and their controls are specified within district planning documents, thereby defining further land-use-related resource consent requirements for waste-related facilities.
- Under the Litter Act 1979 TAs have powers to make bylaws, issue infringement notices, and require the clean-up of litter from land.
- The Health Act 1956. Health Act provisions for the removal of refuse by local authorities have been repealed by local government legislation. The Public Health Bill is currently progressing through Parliament. It is a major legislative reform reviewing and updating the Health Act 1956, but it contains similar provisions for sanitary services to those currently contained in the Health Act 1956.
- The Hazardous Substances and New Organisms Act 1996 (the HSNO Act). The HSNO Act provides minimum national standards that may apply to the disposal of a hazardous substance. However, under the RMA a regional council or TA may set more stringent controls relating to the use of land for storing, using, disposing of or transporting hazardous substances.
- Under current legislation and the forthcoming Health and Safety at Work Act the Councils have a duty to ensure that their contractors are operating in a safe manner.

[21] The development of a WMMP in the WMA is a requirement modified from Part 31 of the LGA 1974, but with even greater emphasis on waste minimisation.

Tauranga City and Western Bay District Councils, in determining their role, need to ensure that their statutory obligations, including those noted above, are met.

9.2 Overall Strategic Direction and Role

Tauranga City and Western Bay District Councils intend to extend their strategic direction and role under their new WMMP. The new vision and goals will:

- be measurable;
- be achieved through working with communities;
- reduce the quantity of waste going to landfill;
- focus on increasing recovery of waste materials, and
- include innovative and new options where these can be shown to be financially and operationally viable.

The Councils intend to take a more active role in waste minimisation and management in the sub-region over the term of the new WMMP.

It is proposed that part of Council's role may be to provide appropriate regulatory and economic incentive frameworks to steer activity.[22]

In addition to the above it is proposed that Council provide a range of waste management and minimisation services that build on those in place currently.

Council's role is likely to be wide-ranging therefore and is expected to encompass the following:

- Council will monitor and measure waste flows and information in order to inform planning and decision making.
- Council will continue existing activities and consider implementation of new activities to divert waste from landfill.
- Council will aim to control and regulate waste collections so as to ensure that maximum waste is diverted from landfill and to minimise environmental impact.
- Council will endeavour to fund waste management activities in a way that promotes waste minimisation and recycling and that minimises the cost to the ratepayer.
- Council will work with community groups, the private sector and other local authorities to achieve waste minimisation goals in preference to developing new Council funded activities or assets.
- Council will continue to educate the community as to the benefits of waste minimisation and thereby improve participation in waste minimisation activities.

[22] Although there is concern that a stronger approach to regulatory and economic instrument tools might encourage more unwanted activities such as illegal dumping, there is also recognition that a stronger approach is probably required to achieve a significant difference in waste going to landfill.

It is expected that the implementation of these proposals will meet forecast demand for services as well as support the Councils' goals and objectives for waste management and minimisation. These goals and objectives will be confirmed as part of the development and adoption of the Waste Management and Minimisation Plan.

10.0 Statements of Proposal

Based on the options identified in this Waste Assessment and the Councils' intended role in meeting forecast demand a range of proposals are put forward. Actions and timeframes for delivery of these proposals will be identified in the draft Waste Management and Minimisation Plan.

10.1 Statement of Extent

In accordance with section 51 (f), a Waste Assessment must include 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 following will be included in this section once the strategic direction and preferred option/s have been decided upon:

- options available to meet the forecast demands of the sub-region, with an assessment of the suitability of each option (with reference to the appropriate section/s in this report);
- the councils' intended role in meeting the forecast demands;
- the councils' proposals for meeting the forecast demands, including proposals for new or replacement infrastructure; and
- the extent to which the proposals will:
    - ensure that public health is adequately protected, and
    - promote effective and efficient waste management and minimisation.

10.1.1 Statement of Protection of Public Health

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

The Waste Assessment has identified potential public health issues associated with each of the options, and appropriate initiatives to manage these risks would be a part of any implementation programme.

In respect of Council-provided waste and recycling services public health issues can be addressed through setting appropriate performance standards for waste service contracts and ensuring performance is monitored and reported on, and that there are appropriate structures within the contracts for addressing issues that arise.

Privately provided services will be regulated through local bylaws.

Uncontrolled disposal of waste for example in rural areas and in cleanfills will be regulated through local and regional bylaws.

It is considered that, subject to any further issues identified by the Medical Officer of Health, the proposals would adequately protect public health.

10.1.2 Effective and Efficient Waste Management and Minimisation

The assessment has investigated current and future quantities of waste and diverted material, and outlines the Councils' role in meeting the forecast demand for services.

It is considered that the process of forecasting has been robust, and that the Councils' intended role in meeting these demands is appropriate in the context of the overall statutory planning framework for the Councils.

Therefore, it is considered that the proposals would promote effective and efficient waste management and minimisation.

A.1.0 Appendices

A.1.1 Materials Accepted and Applicable Charges for Maleme Street Refuse Transfer Station and Te Maunga Resource Recovery Park

Material	Detail	Charge
Recycling	Paper, cardboard, aluminium and steel tins and cans, glass bottles and jars (no window glass or light bulbs), plastic bottles types 1 and 2 only	No charge
	Appliances – ovens, dishwashers, microwaves, washing machines, clothes dryers, computer hard-drives, fridges and freezers (as long as delivered to recycling centre separately from rubbish)	
	Other ferrous and non-ferrous metals	
	Car and torch batteries	
	Fire extinguishers	
	Gas bottles	
	Ni-Cam batteries	
	Clothing and textiles (no shoes or scraps of material)	
	Mobile phone handsets and accessories	
Tyres	Car tyres	$6 each
	Four-by-four tyres	$9 each
	Truck tyres	$16 each
	Tractor tyres	$105 each
Waste Oil	5 x 4 litre packs if not with any other rubbish	No charge
Hazardous waste	Household hazardous waste only, by prior arrangement with Council	No charge
Concrete	Public	$66 per trailer
	Commercial	$46 per tonne
	Minimum charge	$46
	Only 100% concrete, to be crushed and used as aggregate	
Car bodies	Te Maunga only, stripped	$25 each

Paint	Household quantities only	Refuse charge applies
Garden waste	Cars	$99.50/tonne
	Trailers, SUVs, utes, vans etc	$99.50/tonne
	Trucks	$95/tonne
	Complete loads only – no mixed loads with rubbish	$10 minimum charge or $16 (trucks only)
	Diameter up to 100mm; maximum length 3m.	
	No flax, bamboo, pampas, flowering gorse, palm trees or cabbage trees – these can be disposed of as general waste	
General waste	Cars, trailers, SUVs, utes, vans, stationwagons, etc.	$198/tonne, $11 minimum charge
	Trucks	$187/tonne, $40 minimum charge
Other charges	Weigh bridge – weigh only	$14

A.1.2 Materials Accepted and Applicable Charges for Western Bay of Plenty Drop-off Sites

Material	Detail	Charge
Greenwaste	Omokoroa, Katikati, Athenree and Te Puke	No charge
	No flax, pampas, bamboo, gorse or palms	
	Diameter less than100mm, length under 3m	
	Car or station wagon	$7
	Small trailer or ute	$24
	Tandem trailer	$46
Hazardous waste	Katikati, Athenree, and Te Puke	No charge
	Small amounts accompanied by a completed declaration form	
	Only lead-based paint	
Recycling	Empty aerosol cans, flattened cardboard, paper, steel and aluminium tins and cans, glass bottles and jars (no window glass, drinking glasses or ceramics), plastics type 1 and 2 only, fluorescent light bulbs, batteries, scrap metal, whiteware, used motor oil.	No charge

A.1.3 Private Sector Services and Costs (as at March 2016)

A.1.3.1 Rubbish Collections

Please note that not all services are available to all residents of Tauranga and Western Bay. In most cases, collections are weekly. Where otherwise, this is stated.

	EBG	Kleana Bins	JJ Richards	Envirowaste	Bin Boys
Bin Size			**Cost (including GST)**		
80L (free recycling option)	$184.90 (6 months) $270.50 (12 months) $270.75 including recycling	NA	NA	NA	NA
120L	NA	$79 (3 months) $148 (6 months) $91 (6 months, fortnightly collection) $270 (12 months) $160 (12 months, fortnightly collection) $104 (12 months, 4-weekly collection) $6.25 (pay as you go collection) $7.25 (pay as you go fortnightly collection)	$6.25 (pay as you go) $7.25 (pay as you go fortnightly collection)	$16.48 (monthly)	NA

		$8.25 (pay as you go monthly)			
140L (free recycling provided)	$210.90 (six months) $322.90 (12 months)	NA	NA	NA	NA
240L	$303.30 (six months including recycling) $507.80 (12 months including recycling)	$120 (three months) $232 (six months) $132 (six months, fortnightly collection) $430 (12 months) $242 (12 months, fortnightly collection) $147 (12 months, 4-weekly collection) $9.50 (pay as you go) $10.50 (pay as you go fortnightly collection) $11.50 (pay as you go 4-weekly collection)	$9.50 (pay as you go) $10.50 (pay as you go fortnightly collection)	$36.05 (per month)	

A.1.3.1 Greenwaste Collections

Please note that not all services are available to all residents of Tauranga and Western Bay. In most cases, collections are weekly. Where otherwise, this is stated.

	EBG	Kleana Bins	JJ Richards	Envirowaste	Bin Boys
Bin Size			**Cost (including GST)**		
140L	$134.20 (6 months) $194.30 (12 months)	NA	NA	NA	NA
240L	$181.50 (6 months) $282.60 (12 months)	NA	NA	NA	NA

A.1.3.2 Recycling Collections

Please note that not all services are available to all residents of Tauranga and Western Bay. In most cases, collections are weekly. Where otherwise, this is stated.

	EBG	Kleana Bins	JJ Richards	Envirowaste	Bin Boys
Bin Size			**Cost (including GST)**		
120L	NA	$52 (three months) $100 (six months) $52 (six months, fortnightly collection) $195 (12 months) $100 (12 months,	NA	NA	NA

		fortnightly collection) $52 (12 months, 4-weekly collection) $4.25 (pay as you go weekly, fortnightly or 4-weekly collection)			
140L	$52.60 (six months) $79.20 (12 months) Or free with rubbish collection service (see above)	NA	$5 (pay as you go 4-weekly collection)		
240L	$72.20 (six months) $119.10 (12 months) Or free with rubbish collection service (see above)	$88 (three months) $170 (six months) $88 (six months, fortnightly collection) $330 (12 months) $170 (12 months, fortnightly collection) $88 (12 months, 4-weekly collection) $7 (pay as you go weekly, fortnightly or 4-weekly collections)	$7 (pay as you go 4-weekly collection)	NA	NA

A.1.3.3 Collection Packages

Please note that not all services are available to all residents of Tauranga and Western Bay. In most cases, collections are weekly. Where otherwise, this is stated.

	EBG	Kleana Bins	JJ Richards	Envirowaste	Bin Boys
Bin Size			**Cost (including GST)**		
80L rubbish **140L green waste** **140L recycling (optional)**	$271.90 (six months) $417 (12 months)	NA	NA	NA	NA
140L rubbish **140L green waste** **140L recycling (optional)**	$293.70 (six months) $464 (12 months)	NA	NA	NA	NA
80L rubbish **240L green waste** **140L recycling (optional)**	$311.20 (six months) $493.30 (12 months)	NA	NA	NA	NA
120L rubbish **120L recycling**	NA	NA	$4.75/week (rubbish fortnightly collection, recycling 4-weekly collection)	NA	NA
120L rubbish **240L recycling**	NA	NA	$7.75/week (recycling 4-weekly collection)	NA	NA

			$5.25/week (rubbish fortnightly, recycling 4-weekly collections)		
140L rubbish **240L green waste** **140L recycling (optional)**	$332.40 (six months) $540.30 (12 months)	NA	NA	NA	NA
240L rubbish **140L green waste** **140L recycling (optional)**	$371.20 (six months) $627.20 (12 months)	NA	NA	NA	NA
240L rubbish **240L green waste** **140L recycling (optional)**	$411.10 (six months) $704.30 (12 months)	NA	NA	NA	NA

240L rubbish **240L recycling**	NA	NA	$10.75/week (recycling 4-weekly collection) $6.75/week (rubbish fortnightly, recycling 4-weekly collections) $149.50/week (six months, rubbish fortnightly, recycling 4-weekly collections) $273/week (12 months, rubbish fortnightly, recycling 4-weekly collections)	NA	NA
2 x 240L rubbish **240L recycling**	NA	NA	$12.50/week (recycling 4-weekly collection)	NA	NA

A.1.4 Detailed Solid Waste Composition Analysis with Secondary Classifications

Overall waste to landfill from Maleme St and Te Maunga transfer stations 7-20 April 2010		% of total	Tonnes per week	Tonnes per annum
Paper	Recyclable	11.3%	154 T/week	**7,998 T/annum**
	Multimaterial/other	1.4%	19 T/week	**963 T/annum**
	Subtotal	**12.6%**	**172 T/week**	**8,961 T/annum**
Plastics	Recyclable	1.7%	23 T/week	**1,186 T/annum**
	Multimaterial/other	9.1%	124 T/week	**6,437 T/annum**
	Subtotal	**10.7%**	**147 T/week**	**7,623 T/annum**
Putrescibles	Kitchen waste	14.5%	199 T/week	**10,341 T/annum**
	Compostable greenwaste	9.2%	125 T/week	**6,505 T/annum**
	Non-compostable greenwaste	4.3%	59 T/week	**3,055 T/annum**
	Multimaterial/other	4.4%	61 T/week	**3,156 T/annum**
	Subtotal	**32.4%**	**443 T/week**	**23,057 T/annum**
Ferrous	Primarily ferrous	1.6%	22 T/week	**1,140 T/annum**
metals	Multimaterial/other	2.1%	29 T/week	**1,495 T/annum**
	Subtotal	**3.7%**	**51 T/week**	**2,636 T/annum**
Non ferrous metals		**0.8%**	**11 T/week**	**584 T/annum**
Glass	Recyclable	5.7%	78 T/week	**4,048 T/annum**
	Multimaterial/other	2.2%	30 T/week	**1,586 T/annum**
	Subtotal	**7.9%**	**108 T/week**	**5,634 T/annum**
Textiles	Clothing/textiles	1.4%	20 T/week	**1,028 T/annum**
	Multimaterial/other	2.9%	40 T/week	**2,072 T/annum**
	Subtotal	**4.4%**	**60 T/week**	**3,100 T/annum**
Nappies and sanitary		**5.0%**	**69 T/week**	**3,577 T/annum**
Rubble	Concrete	1.1%	14 T/week	**752 T/annum**
	Other	5.2%	72 T/week	**3,725 T/annum**
	Subtotal	**6.3%**	**86 T/week**	**4,477 T/annum**
Timber	Unpainted & untreated	3.2%	44 T/week	**2,295 T/annum**
	Fabricated	1.7%	23 T/week	**1,183 T/annum**
	Multimaterial/other	10.1%	138 T/week	**7,170 T/annum**
	Subtotal	**15.0%**	**205 T/week**	**10,647 T/annum**
Rubber		**0.5%**	**7 T/week**	**341 T/annum**
Potentially hazardous		**0.6%**	**9 T/week**	**454 T/annum**
	TOTAL	100.0%	**1,367 T/week**	**71,092 T/annum**

A.1.5 Medical Officer of Health Statement

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16 June 2016

Lisa Eve
Senior Consultant
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Grey Lynn
AUCKLAND 1245

Dear Lisa

2016 Draft Joint Waste Assessment

Thank you for providing the draft joint waste assessment prepared for Tauranga City Council and Western Bay of Plenty District Council.

Medical Officers of Health have a responsibility through their designated positions for reducing conditions within their local community which are likely to cause disease or be injurious to health.

It is important that waste is disposed of properly to reduce the risk of disease and to minimise aesthetic and environmental impacts. Improperly disposed of waste can present a health hazard and increase the risk of physical injury, chemical poisoning and communicable diseases. Improperly disposed of waste may cause blockages in storm water management systems, contaminate land and water, create odour and visual pollution, encourage vermin and may create fly and mosquito breeding habitats. This is why waste management is a core council sanitary service necessary to protect the health of the public.

It is recognised that there is an obligation to consult the Medical Officer of Health and that a statement regarding the outcome should be provided in the waste assessment. However, in 2010 no comment was sought and so the Medical Officer of Health subsequently made a public submission to the Waste Management and Minimisation Plan. Recommendations were made to address concerns about unknown waste streams, hazardous wastes, recovery and reuse, and what comprises a suitable level of service. The Medical Officer of Health noted that a complete assessment of the current situation appeared to be impeded by Councils' minimal input into waste management in the region. This position has not changed as little progress has been made in the past 6 years.

However, the 2016 waste assessment now provides a clear mandate for the improvements both Councils need to make to ensure public health is protected.

The draft waste assessment is methodical and precise. I am pleased to see that the previously identified public health concerns have been recognised and options to address these have been included in the assessment. I would be very pleased to see these options incorporated into the Waste Management and Waste Minimisation Plan. The report also identifies Councils' overall strategic direction and roles and I would expect to see these given effect in the Waste Management and Minimisation Plan through clear objectives, methods and performance measures.

The purpose of a waste assessment is to provide the necessary background information on the waste and diverted materials streams that will enable a council to determine a logical set of priorities and inform its activities[1]. One of the important issues that was identified in this waste assessment was that there is a lack of information and a lack of direct involvement of the Councils in waste services which may impact on the conclusions and therefore decisions made by the Councils. When Tauranga City and Western Bay of Plenty District Councils are able to assess all of the waste generated and know what happens to all of it within their respective districts, I believe both Councils will have moved further towards being able to safeguard public health effectively.

In addition, I encourage the Councils to explore a rating system for waste management and collection which spreads the cost over as many rate payers as possible, rather than a user-pays system. Waste services, such as waste collection services, are a public good which reduce the risk of disease and minimise aesthetic and environmental impacts and so provide benefits across the entire community. Therefore, in order to safeguard the health of the whole of the public, such services need to be accessible and affordable to everyone in the community.

I look forward to commenting on the action plans and performance targets contained in the Waste Management and Minimisation Plan for how waste services and infrastructure will be provided.

For more information please contact Annaka Davis, Health Protection Officer on 0800 221 555.

Yours sincerely

Neil de Wet
Medical Officer of Health

[1] Ministry for the Environment, Waste Assessment Checklist http://www.mfe.govt.nz/node/17107